CKD

New Products

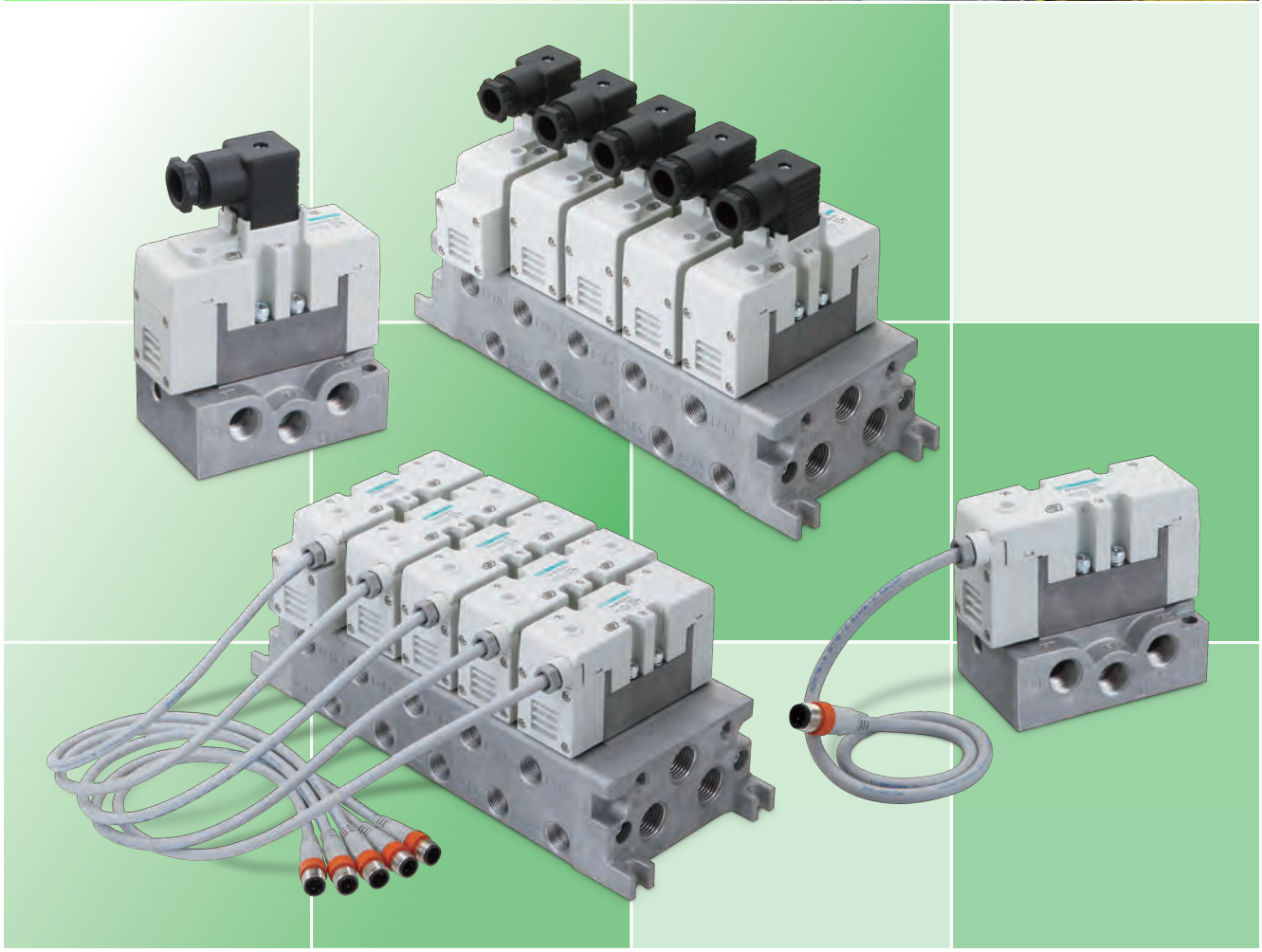
ISO conformed valve

PV5G/PV5/GMF/PV5S-0 Series

ISO CONFORMED VALVE

New ISO valve series

smaller and easier to use.



CKD Corporation

CC-824A 3

New ISO valve series smaller

New ISO conformed valve PV5G, PV5, and GMF Series are compact, lightweight and energy-saving, featuring greatly improved operability, life, and environmental innovations.

Compact body size

A compact size is realized while improving the total performance.

CKD comparison **10%** reduced

Improvement in operability

The manual button and power indicator light are optimally located, taking operability and visibility into consideration. Adjustment work during installation and operability during maintenance are improved.

2-color indicator adopted

Solenoid a: Red
Solenoid b: Green

▼Magnified drawing

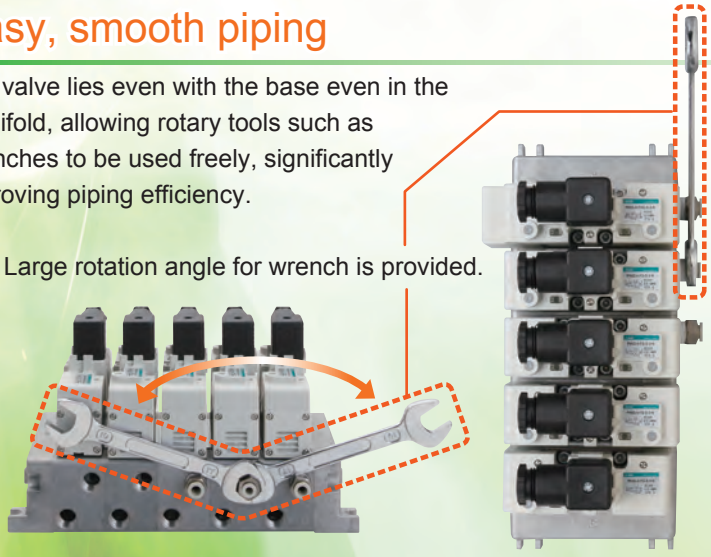
Improved reliability and safety

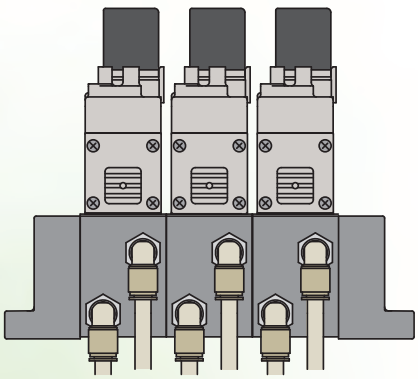
Rubber covers on manual buttons prevent malfunctions from dirt, etc., stuck in buttons. This design focuses on safety while maintaining manual tool use suitability.

Easy, smooth piping

The valve lies even with the base even in the manifold, allowing rotary tools such as wrenches to be used freely, significantly improving piping efficiency.

Large rotation angle for wrench is provided.





The A/B port offset layout facilitates installation of fittings.

and easier to use.

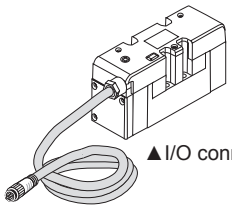
CKD Green Technology

Low wattage design 1 W

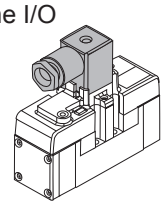
Power consumption is reduced from the conventional 1.8 W to 1 W, enabling greater energy saving.

I/O connector provided as standard

In addition to the DIN terminal box, the I/O connector connection is available as standard.



▲I/O connector



▲DIN terminal box

RoHS Conformed

Eco-friendly design complies with RoHS Directives.

RoHS

IP65 equivalent protective structure

A dust-proof, jet-proof structure equivalent to IP65 enables use in severe environments.

Longer life

Improved sliding section structure and packing further increase life.

Lighter weight

The aluminum body and resin components further lighten weight.

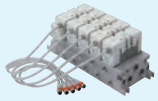
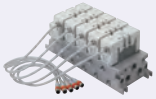
ISO standards conformed

The 5 port pilot operated pneumatic valve features ISO compliant valve mounting pitch, screw size, and flow path dimensions.

Improved design

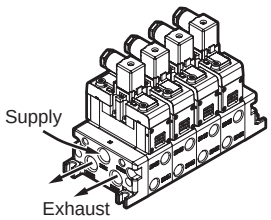
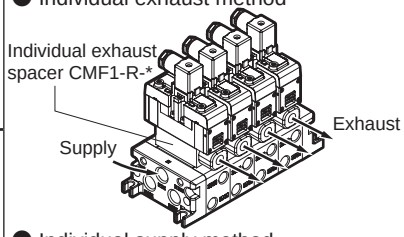
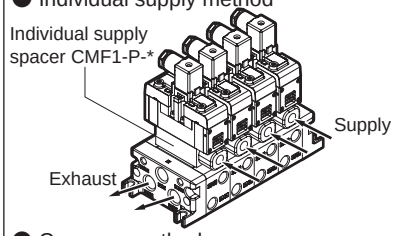
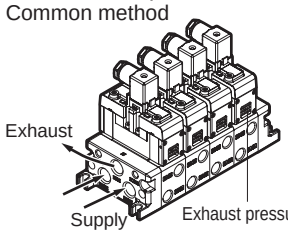
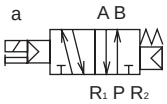
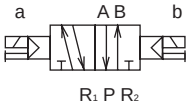
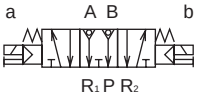
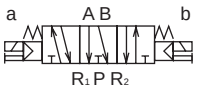
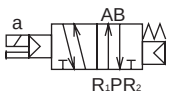
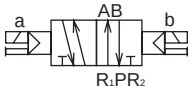
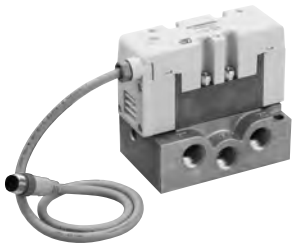
White tones and rounded corners complement the new design.

■PV5G/PV5/GMF/PV5S-0 Series variation

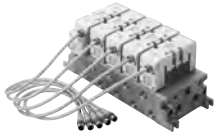
	Series variation/appearance			Applicable cylinder bore size	Port size		Voltage
ISO size 1	Discrete valve **PV5G-6** Series 	DIN terminal box type	Manifold **GMF1** Series 	**Max. ø100**	P•A•B	Rc 1/4, Rc 3/8	100 VAC 110 VAC 200 VAC 220 VAC 12 VDC 24 VDC
					R_1•R_2	Rc 3/8, Rc 1/2	
	Discrete valve **PV5-6R** Series 	I/O connector type			P•A•B	Rc 1/4, Rc 3/8	24 VDC
					R_1•R_2	Rc 3/8, Rc 1/2	
	Master valve **PV5S-6-0** 	–	–	**Max. ø100**	P•A•B	Rc 1/4, Rc 3/8	–
					R_1•R_2	Rc 3/8	
ISO size 2	Discrete valve **PV5G-8** Series 	DIN terminal box type	Manifold **GMF2** Series 	**Max. ø160**	P•A•B	Rc 3/8, Rc 1/2, Rc 3/4	100 VAC 110 VAC 200 VAC 220 VAC 12 VDC 24 VDC
					R_1•R_2	Rc 1/2, Rc 3/4	
	Discrete valve **PV5-8R** Series 	I/O connector type			P•A•B	Rc 3/8, Rc 1/2, Rc 3/4	24 VDC
					R_1•R_2	Rc 1/2, Rc 3/4	
	Master valve **PV5S-8-0** 	–	–	**Max. ø160**	P•A•B	Rc 3/8, Rc 1/2, Rc 3/4	–
					R_1•R_2	Rc 1/2, Rc 3/4	

Series variation

PV5G/PV5/GMF Series

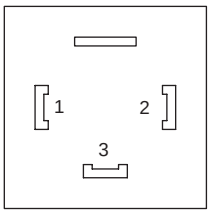
Series variation/appearance				No. of solenoid positions JIS symbol	Valve performance		Voltage
Size	Connection	Discrete valve	Individual wiring manifold *Figure shows an example of DIN terminal box.		Suitable cylinder diameter	Flow characteristics C[dm³/(s•bar)]	
ISO size 1	DIN terminal box	**PV5G-6**  Discrete ····· Page 5 Manifold ····· Page 17	● Common exhaust method  ● Individual exhaust method  ● Individual supply method  ● Common method  	● 2-position single solenoid  ● 2-position double solenoid  ● 3-position all ports closed  ● 3-position all ports closed (non-leak type)  	Max. ø100	P→A/B 3.4 to 6.3 A/B→R1/R2 3.0 to 6.9 Note 1	100 VAC 200 VAC 12 VDC 24 VDC 110 VAC 220 VAC Note 2
	I/O connector	**PV5-6R**  Discrete ····· Page 33 Manifold ····· Page 45					
ISO size 2	DIN terminal box	**PV5G-8**  Discrete ····· Page 11 Manifold ····· Page 21	● Multi-pressure air supply method This method supplies two different types of high and low pressures to one manifold. A masking plate (GM1-01) is inserted between the manifold blocks with different pressures. ● Individual supply/individual exhaust method Individual supply (CMF1-P-*) and exhaust (CMF1-R-*) spacers inserted between the manifold block and valve enable individual air supply and exhaust. ● Back porting method If side porting is not possible, pipes can be connected from either the A or B port, or all pipes can be connected from the bottom of the manifold.	● 3-position A/B/R connection  ● 3-position P/A/B connection  ● 2-position single solenoid (Exhaust pressurization type)  ● 2-position single solenoid (Exhaust pressurization type)  	Max. ø160	P→A/B 6.6 to 11.0 A/B→R1/R2 6.2 to 13.0 Note 1	100 VAC 200 VAC 12 VDC 24 VDC 110 VAC 220 VAC Note 2
	I/O connector	**PV5-8R**  Discrete ····· Page 39 Manifold ····· Page 49					

Note 1: Effective sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
Note 2: I/O connector type is available only for 24 VDC .

ISO size	Size 1				Size 2			
	Discrete: PV5G-6/PV5-6R Series Manifold: GMF1 Series				Discrete: PV5G-8/PV5-8R Series Manifold: GMF2 Series			
Sub plate	DIN terminal box type····· Page 5 I/O connector type····· Page 33				DIN terminal box type····· Page 11 I/O connector type·····Page 39			
 	Model No.	Connection	Port size P•A•B	Port size R1•R2	Model No.	Connection	Port size P•A•B	Port size R1•R2
	CB1-A02	Side porting	Rc 1/4	Rc 3/8	CB2-A03	Side porting	Rc 3/8	Rc 1/2
					CB2-A04		Rc 1/2	
	CB1-A03		Rc 3/8		CB2-A06		Rc 3/4	Rc 3/4
Manifold	DIN terminal box type·····Page 17 I/O connector type·····Page 45				DIN terminal box type·····Page 21 I/O connector type·····Page 49			
 	Model No.	Item		Specifications	Model No.	Item		Specifications
	GMF1	Station number		1 station to 10 stations	GMF2	Station number		1 station to 10 stations
		Piping	A•B port	Rc 1/4•3/8		Piping	A/B port	Rc 3/8•1/2
			P•R1•R2 port	Rc 3/8•1/2			P/R1/R2 port	Rc 1/2•3/4
		Option	Individual supply spacer	CMF1-P-*		Option	Individual exhaust spacer	CMF2-P-*
			Individual exhaust spacer	CMF1-R-*			Individual exhaust spacer	CMF2-R-*
			Masking plate	CM1-00			Masking plate	CM2-00
			Spacer type regulator	CMF1-SR- P A B			Spacer type regulator	CMF2-SR- P A B
			Air pilot check valve	CMF1-PC			Air pilot check valve	CMF2-PC
	Manifold method (The GMFZ type combines the GMF1 and GMF2 and is available as an option.)							
	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	Multi-pressure air supply method			4	Multi-pressure air supply method		
	5	Individual supply/individual exhaust method			5	Individual supply/individual exhaust method		
	6	Back porting method			6	Back porting method		

PV5G/GMF (DIN terminal box type)

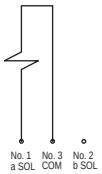
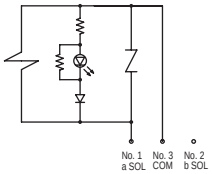
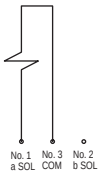
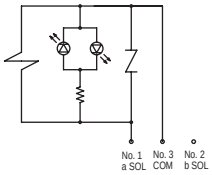
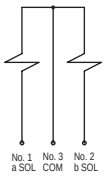
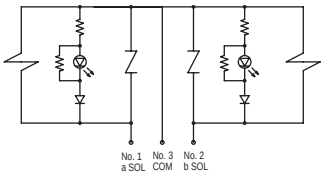
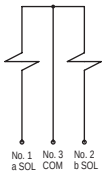
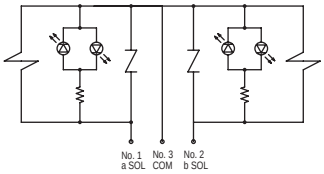
How to wire



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

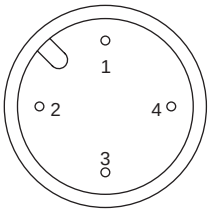
No polarity is designated when DC power is used.

Electric connection circuit diagram

Electric connection (wiring method)				
	Blank	Without power indicator light	N	With indicator light and surge suppressor
Single	AC		AC	
	DC		DC	
Double	AC		AC	
	DC		DC	

PV5/GMF (I/O connector type)

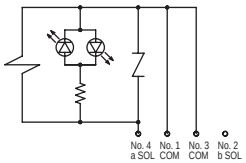
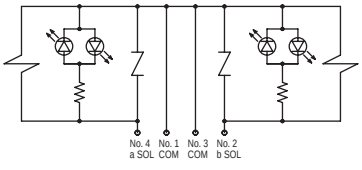
How to wire



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

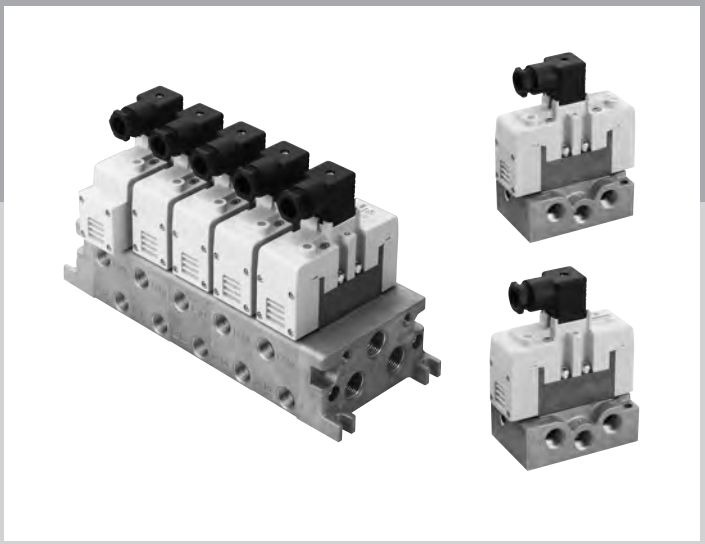
Pin No. 2 is not used for single solenoid.

Electric connection circuit diagram

Electric connection (wiring method)		
Single	DC	
Double	DC	

Note: The 24 VDC rated voltage is available only for the type with indicator light and surge suppressor.

PV5G/GMF
(DIN terminal box type)
5 port pilot operated valve
ISO conformed valve



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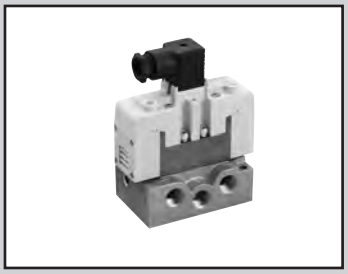


Discrete valve ISO size 1
DIN terminal box type
5 port pilot operated valve ISO conformed valve

PV5G-6 Series

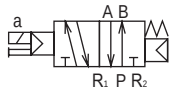
● Applicable cylinder bore size: max. ø100

CE (For DC voltage) RoHS

JIS symbol

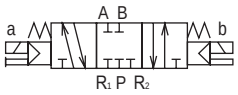
● 5-port valve

2-position single (FG-S)

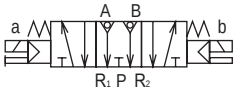


2-position double (FG-D)

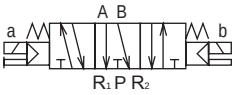
3-position all ports closed (FHG)



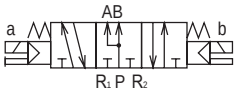
3-position all ports closed non-leak type (FPG)



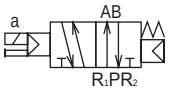
3-position A/B/R connection (FJG)



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



2-position single
Exhaust pressurization type (YZ-S)



2-position double
Exhaust pressurization type (YZ-D)

Common specifications

Item	Description
Valve type 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) Note 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/jet-proof (equivalent to IP65)
Leakage cm^3/min (A, B→R port)	10 (ANR) or less 3-position all ports closed non-leak type only 0.3 (ANR) or less Note 2
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Containing corrosive gas is impermissible.

Note 1: For YZ-S only, use working pressure at R1 > R2 ≧ 0.15 MPa.
Note 2: Indicates the default.

Electrical specifications

Item			Description
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)
Figures in parentheses are for type with indicator light.	DC	12 V	1 (1.2)
		24 V	
Heat resistance class			B (molded coil)
How to wire			Electric plug connector

Individual specifications

Item			PV5G-6	
Port size Note 1			Rc 1/4	Rc 3/8
Response time ms Note 2	2-position	Single	30 (when ON), 40 (when OFF)	
		Double	30	
	3-position		30 (when ON), 50 (when neutral)	
Weight kg Note 3	2-position	Single	0.40	
		Double	0.44	
	3-position	Other than non-leak type	0.48	
		All ports closed non-leak type	1.14	

Note 1: G threads and NPT threads are available for the piping port threads. Contact CKD for details.
Note 2: Response time is the value at working pressure of 0.5 MPa, oil-free and DC. The value will change based on pressure and quality of oil supplied.
Note 3: Weight does not include the sub-plate.

Flow characteristics

Model No.	Port size	Solenoid position	P→A/B		A/B→R1/R2	
			C [dm³/(s•bar)]	b	C [dm³/(s•bar)]	b
PV5G-6	Rc 1/4	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-leak)	3.4	-	3.0	-

Note 1: Conversion for effective sectional area S and acoustic velocity conductance C is S ≈ 5.0 × C.

Coolant proof specifications

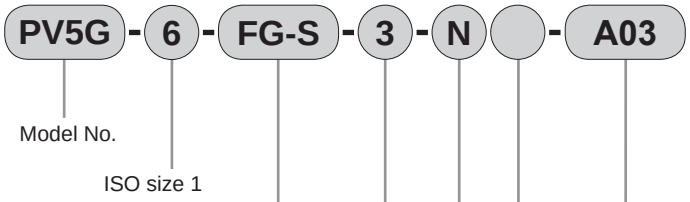
The specification can be selected with Ⓓ option "A" in How to Order on page 7.

PV5G-6 Series

Discrete valve; ISO size 1

DIN terminal box type How to order

● ISO size 1



Symbol	Description		Model No. PV5G-6
Ⓐ Solenoid position			
FG-S	P pressurization type	2-position single	●
FG-D		2-position double	●
FHG-D		3-position all ports closed	●
FJG-D		3-position A/B/R connection	●
FIG-D		3-position P/A/B connection	●
FPG-D		3-position all ports closed (non-leak)	●
YZ-S	Exhaust pressurization type	2-position single solenoid	●
YZ-D		2-position double solenoid	●
Ⓑ Rated voltage			
1	100 VAC		●
2	200 VAC		●
3	24 VDC		●
4	12 VDC		●
5	110 VAC		●
6	220 VAC		●
Ⓒ With indicator light and surge suppressor			
Blank	None		●
N	With indicator light and surge suppressor Note 1		●
Ⓓ Option			
Blank	None		●
A	Coolant proof		●
Ⓔ With/without sub-plate and port size			
Blank	Without sub-plate		●
A02	Side porting Rc 1/4 (Rc 3/8 for R port only)		●
A03	Side porting Rc 3/8		●

Ⓐ Solenoid position

Ⓑ Rated voltage

Ⓒ Indicator light Surge suppressor

Ⓓ Option

Ⓔ With/without sub-plate and port size

⚠ Note on model No. selection

Note 1: For circuit diagrams of types with indicator light and surge suppressor, see page 3.

<Example of model number>

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

Model: PV5G, ISO size 1 (DIN terminal box type)

Ⓐ Solenoid position classification : P pressurization type 2-position Single solenoid

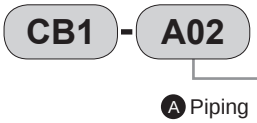
Ⓑ Rated voltage : 24 VDC

Ⓒ Power indicator light : with indicator light and surge suppressor

Ⓓ Option : none

Ⓔ Sub-plate port size : side porting Rc 3/8

ISO size 1 Sub-plate specification and how to order



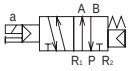
Symbol	Type	P/A/B port	R1/R2 port	Weight (kg)
Ⓐ Piping				
A02	Side porting	Rc 1/4	Rc 3/8	0.27
A03		Rc 3/8		

Internal structure and parts list: DIN terminal box type

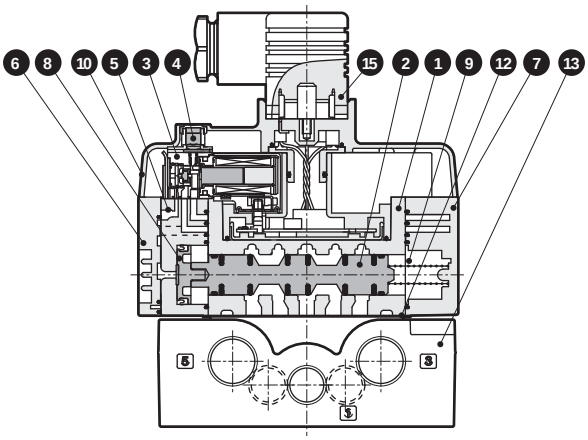
PV5G-6-FG-S
● 2-position single solenoid

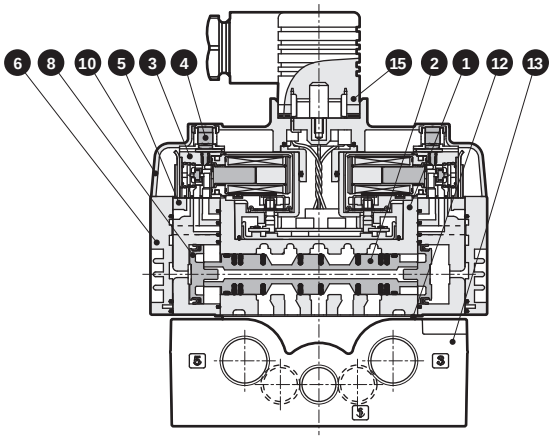
PV5G-6-FG-D
● 2-position double solenoid

PV5G-6-YZ-S
● 2-position single solenoid
Exhaust pressurization type



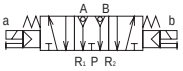
PV5G-6-YZ-D
● 2-position double solenoid
Exhaust pressurization type





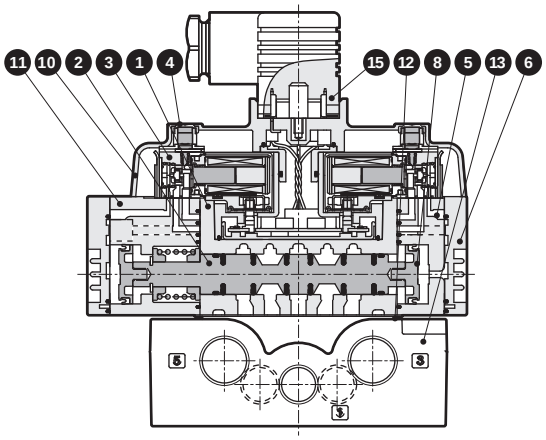
PV5G-6-FHG-D
● 3-position all ports closed

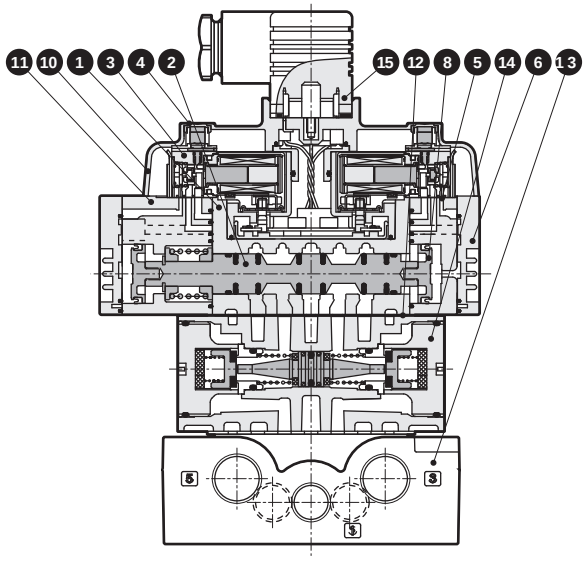
PV5G-6-FPG-D
● 3-position all ports closed
non-leak type



PV5G-6-FJG-D
● 3-position A/B/R connection

PV5G-6-FIG-D
● 3-position P/A/B connection





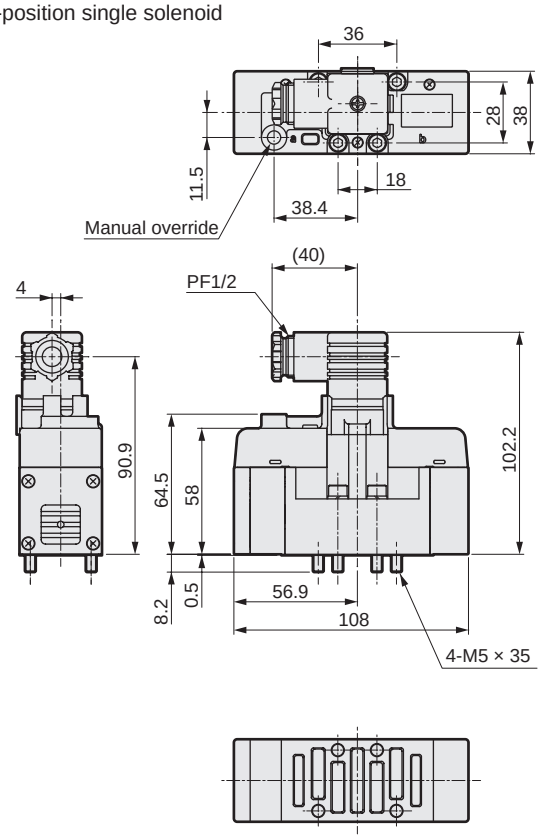
Main parts list

No.	Parts name	Material	No.	Parts name	Material
1	Body	Aluminum alloy die-casting	9	Spring S	-
2	Spool assembly	-	10	Electric 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	-			

Dimensions: DIN terminal box type (without sub-plate)

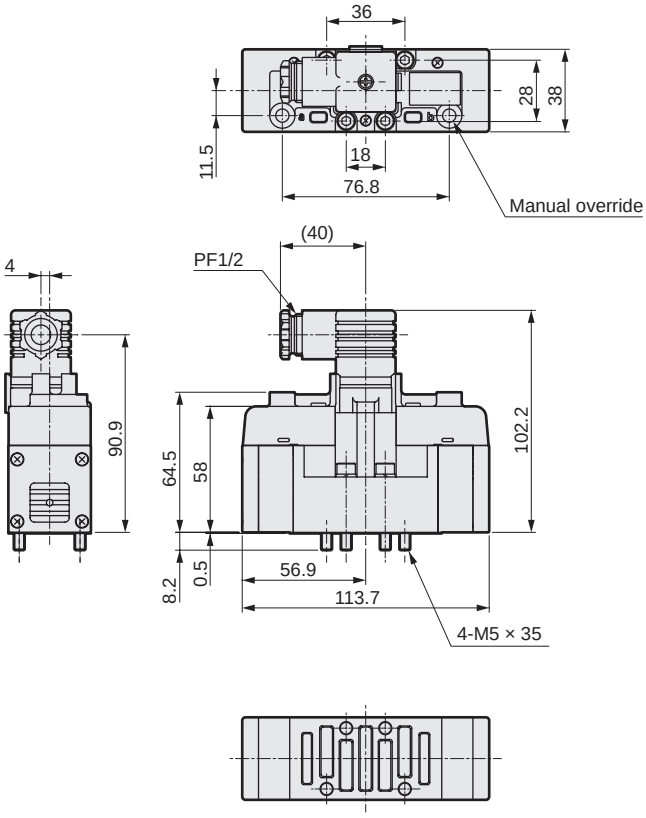
PV5G-6-FG-S-*
PV5G-6-YZ-S-*

● 2-position single solenoid



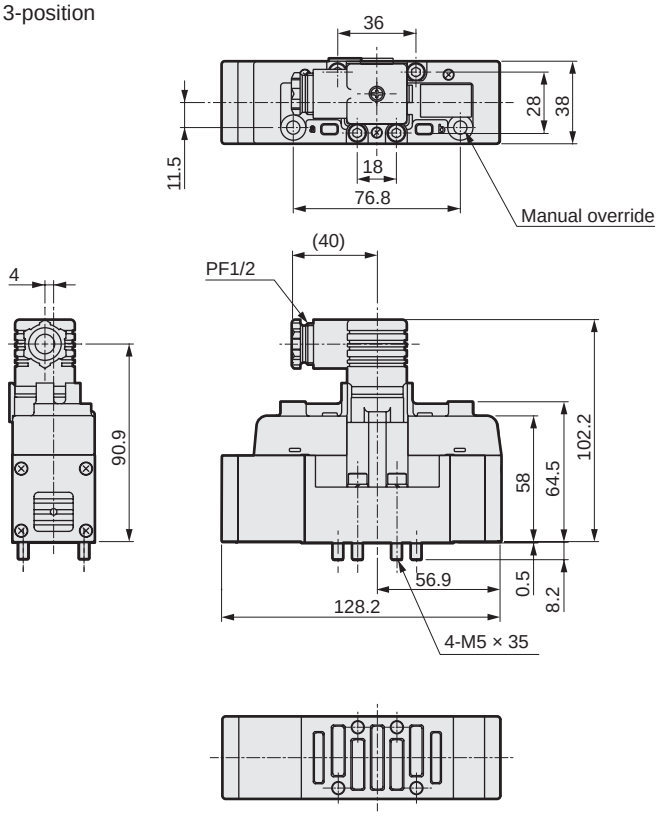
PV5G-6-FG-D-*
PV5G-6-YZ-D-*

● 2-position double solenoid



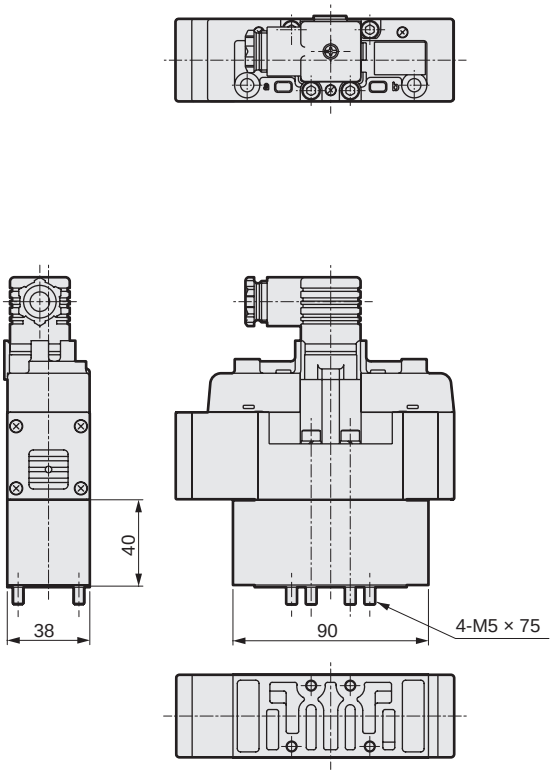
PV5G-6-FHG-D-*
PV5G-6-FJG-D-*
PV5G-6-FIG-D-*

● 3-position



PV5G-6-FPG-D-*

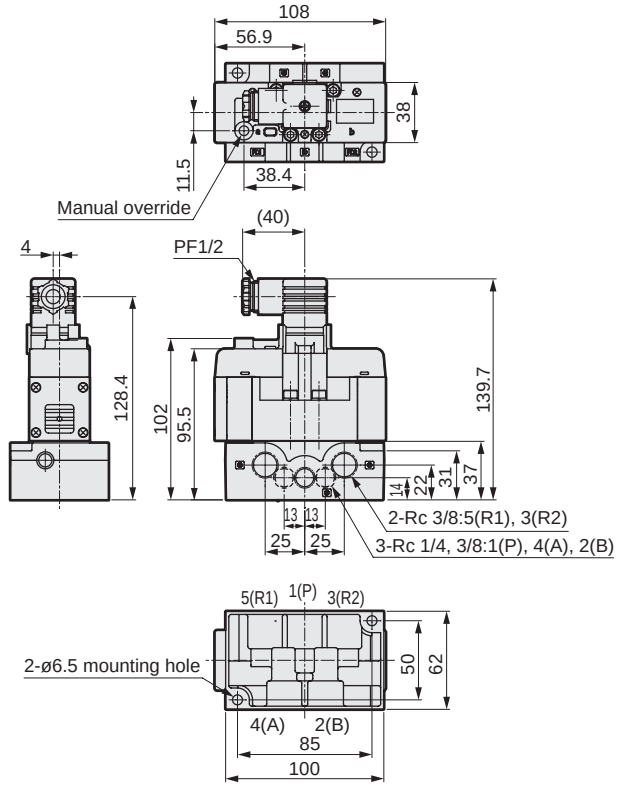
● 3-position non-leak type



Dimensions: DIN terminal box type (with sub-plate)

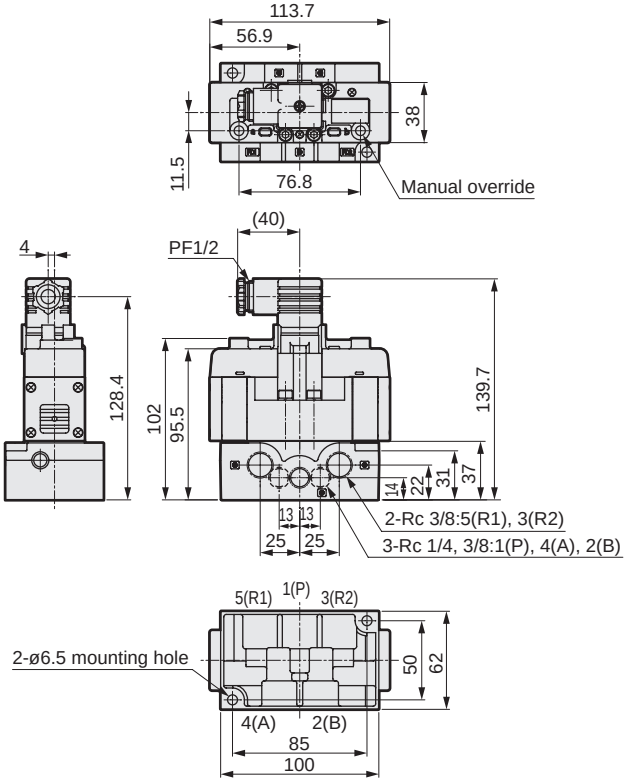
PV5G-6-FG-S-*-*
PV5G-6-YZ-S-*-*

● 2-position single solenoid



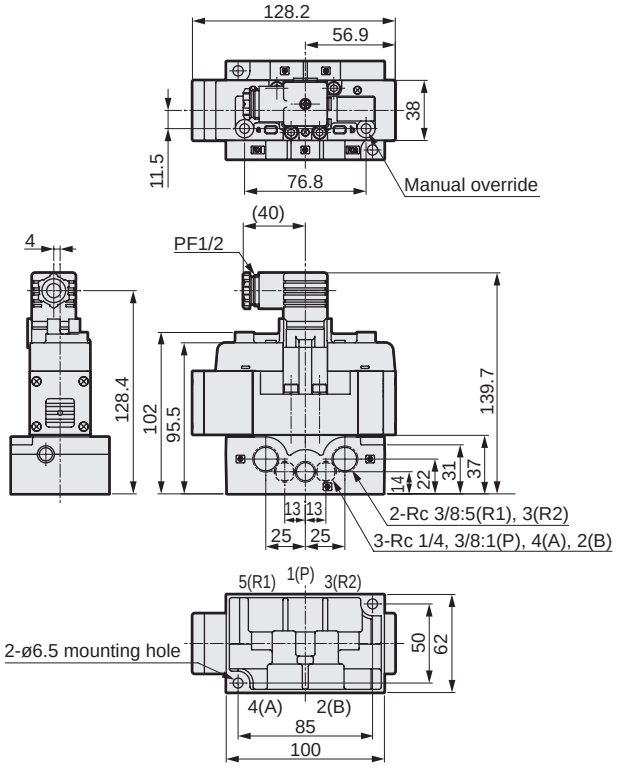
PV5G-6-FG-D-*-*
PV5G-6-YZ-D-*-*

● 2-position double solenoid

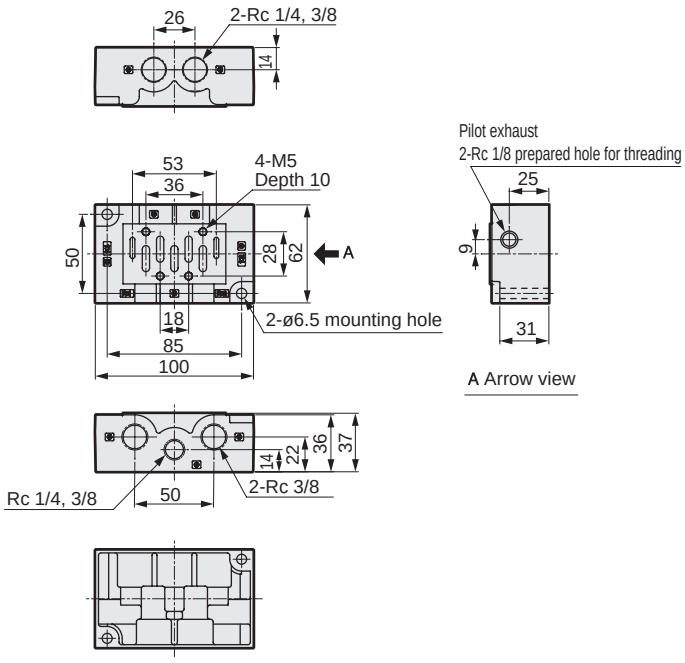


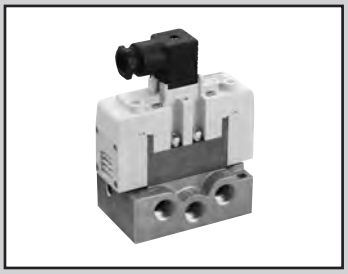
PV5G-6-FHG-D-*-*
PV5G-6-FJG-D-*-*
PV5G-6-FIG-D-*-*

● 3-position



● Sub-plate dimensions





Discrete valve ISO size 2
DIN terminal box type
5 port pilot operated valve ISO conformed valve

PV5G-8 Series

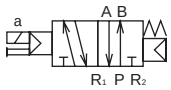
● Applicable cylinder bore size: max. ø160

CE (For DC voltage) RoHS

JIS symbol

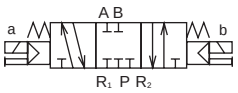
● 5-port valve

2-position single (FG-S)

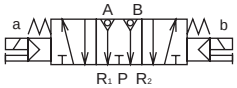


2-position double (FG-D)

3-position all ports closed (FHG)

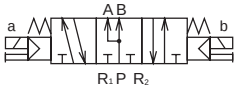


3-position all ports closed non-leak type (FPG)

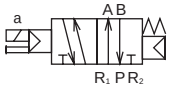


3-position A/B/R connection (FJG)

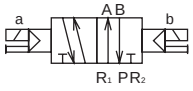
3-position P/A/B connection (FIG)



2-position single solenoid
Exhaust pressurization type (YZ-S)



2-position double solenoid
Exhaust pressurization type (YZ-D)



Common specifications

Item	Description
Valve type 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) Note 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/jet-proof (equivalent to IP65)
Leakage cm^3/min (A, B→R port)	10 (ANR) or less 3-position all ports closed non-leak type only 0.3 (ANR) or less Note 2
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Containing corrosive gas is impermissible.

Note 1: For YZ-S only, use working pressure at R1 > R2 ≧ 0.15 MPa.
Note 2: Indicates the default.

Electrical specifications

Item				Description
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)
Figures in parentheses are for type with indicator light.	DC	12 V		1 (1.2)
		24 V		
Heat resistance class				B (molded coil)
How to wire				Electric plug connector

Individual specifications

Item			PV5G-8		
Port size Note 1			Rc 3/8	Rc 1/2	Rc 3/4
Response time ms Note 2	2-position	Single	40 (when ON), 60 (when OFF)		
		Double	40		
	3-position		40 (when ON), 60 (when neutral)		
Weight kg Note 3	2-position	Single	0.63		
		Double	0.67		
	3-position	Other than non-leak type	0.70		
		All ports closed non-leak type	1.35		

Note 1: G threads and NPT threads are available for the piping port threads. Contact CKD for details.
Note 2: Response time is the value at working pressure of 0.5 MPa, oil-free and DC. The value will change based on pressure and quality of oil supplied.
Note 3: Weight does not include the sub-plate.

Flow characteristics

Model No.	Port size	Solenoid position	P→A/B		A/B→R1/R2	
			C [dm³/(s•bar)]	b	C [dm³/(s•bar)]	b
PV5G-8	Rc 3/8	2-position single solenoid	10.7	0.17	13.0	0.19
		2-position double solenoid	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-leak)	6.6	-	6.2	-

Note 1: Conversion for effective sectional area S and acoustic velocity conductance C is S ≈ 5.0 × C.

Coolant proof specifications

The specification can be selected with Ⓓ option "A" in How to Order on page 13.

PV5G-8 Series

Discrete valve; ISO size 2

DIN terminal box type How to order

● ISO size 2

PV5G - 8 - FG-S - 3 - N ○ - A03

- PV5G: Model No.
- 8: ISO size 2
- FG-S: Ⓐ Solenoid position
- 3: Ⓑ Voltage
- N: Ⓒ Indicator light, surge suppressor
- ○: Ⓓ Option
- A03: Ⓔ With/without sub-plate and port size

Symbol	Description		Model No. PV5G-8
Ⓐ Solenoid position			
FG-S	P pressurization type	2-position single	●
FG-D		2-position double	●
FHG-D		3-position all ports closed	●
FJG-D		3-position A/B/R connection	●
FIG-D		3-position P/A/B connection	●
FPG-D		3-position all ports closed (non-leak)	●
YZ-S	Exhaust pressurization type	2-position single solenoid	●
YZ-D		2-position double solenoid	●
Ⓑ Voltage			
1	100 VAC		●
2	200 VAC		●
3	24 VDC		●
4	12 VDC		●
5	110 VAC		●
6	220 VAC		●
Ⓒ With indicator light and surge suppressor			
Blank	None		●
N	With indicator light and surge suppressor Note 1		●
Ⓓ Option			
Blank	None		●
A	Coolant proof		●
Ⓔ With/without sub-plate and port size			
Blank	Without sub-plate		●
A03	Side porting Rc 3/8 (Rc 1/2 for R port only)		●
A04	Side porting Rc 1/2		●
A06	Side porting Rc 3/4		●

⚠ Note on model No. selection

Note 1: For circuit diagrams of types with indicator light and surge suppressor, see page 3.

Example of model number

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

Model: PV5G, ISO size 2 (DIN terminal box type)

Ⓐ A Solenoid position classification : P pressurization type 2-position Single solenoid

Ⓑ Rated voltage : 24 VDC

Ⓒ Power indicator light : with indicator light and surge suppressor

Ⓓ Option : none

Ⓔ Sub-plate port size : side porting Rc 3/8 R port Rc 1/2

ISO size 2 Sub-plate specification and how to order

CB2 - A03

- CB2: Ⓐ Piping

Symbol	Type	P/A/B port	R1/R2 port	Weight (kg)
Ⓐ Piping				
A03	Side porting	Rc 3/8	Rc 1/2	0.49
A04		Rc 1/2		
A06		Rc 3/4	Rc 3/4	1.40

Internal structure and parts list: DIN terminal box type

PV5G-8-FG-S

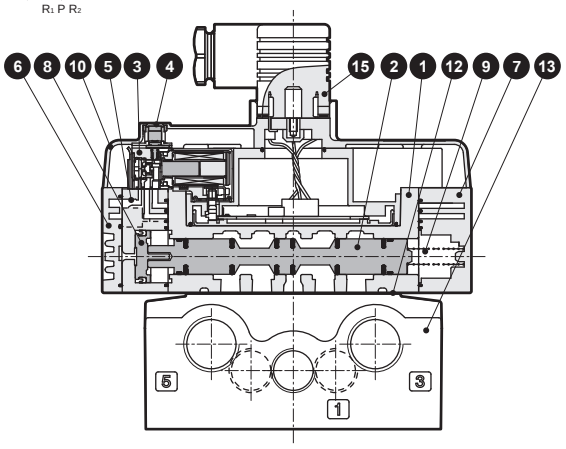
● 2-position single solenoid

PV5G-8-FG-D

● 2-position double solenoid

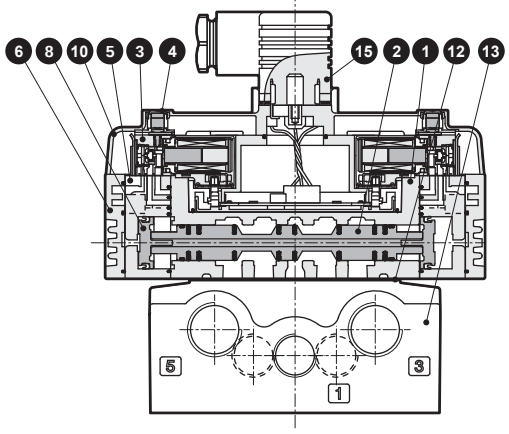
PV5G-8-YZ-S

● 2-position single solenoid
Exhaust pressurization type



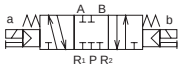
PV5G-8-YZ-D

● 2-position double solenoid
Exhaust pressurization type



PV5G-8-FHG-D

● 3-position all ports closed

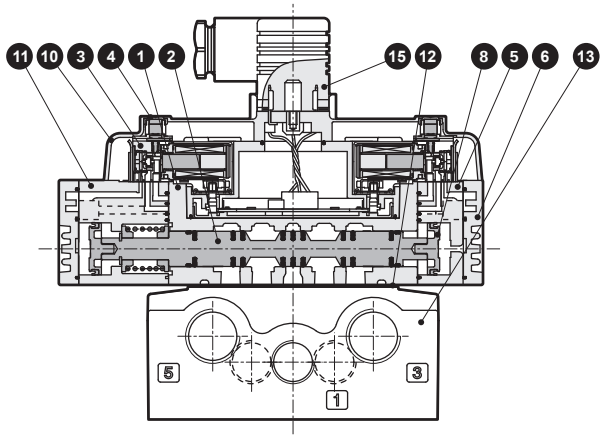


PV5G-8-FJG-D

● 3-position A/B/R connection

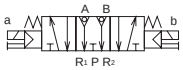
PV5G-8-FIG-D

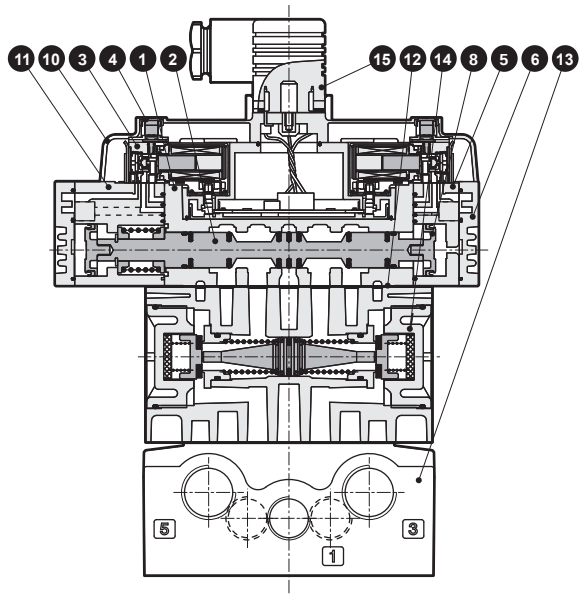
● 3-position P/A/B connection



PV5G-8-FPG-D

● 3-position all ports closed
non-leak type





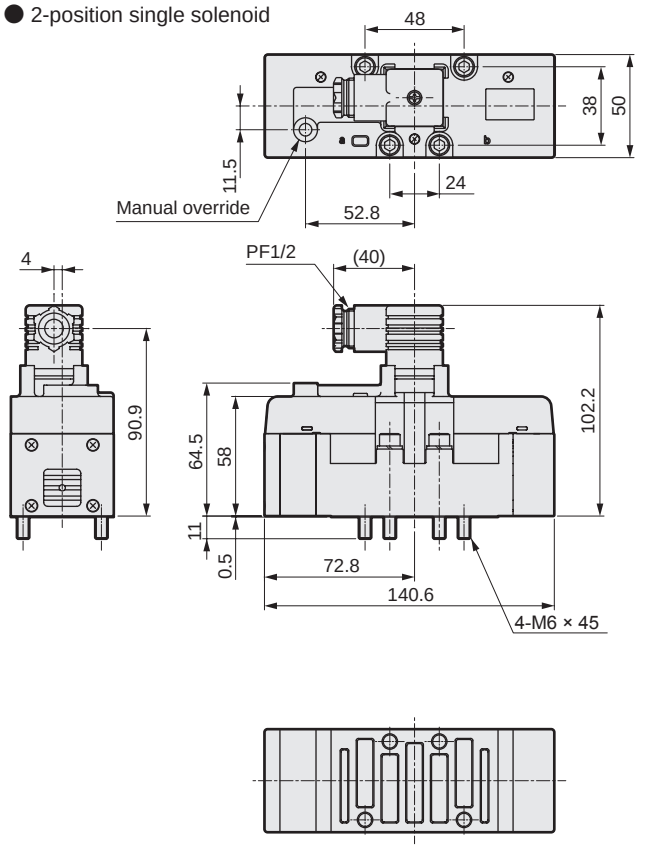
Main parts list

No.	Parts name	Material	No.	Parts name	Material
1	Body	Aluminum alloy die-casting	9	Spring S	-
2	Spool assembly	-	10	Electric 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	-			

Dimensions: DIN terminal box type (without sub-plate)

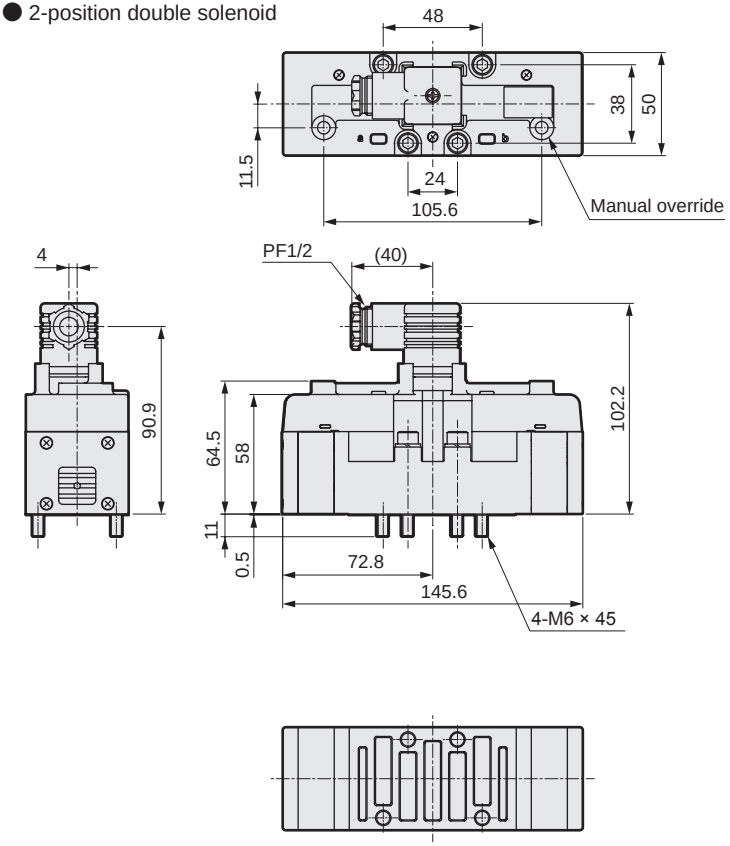
PV5G-8-FG-S-*
PV5G-8-YZ-S-*

● 2-position single solenoid



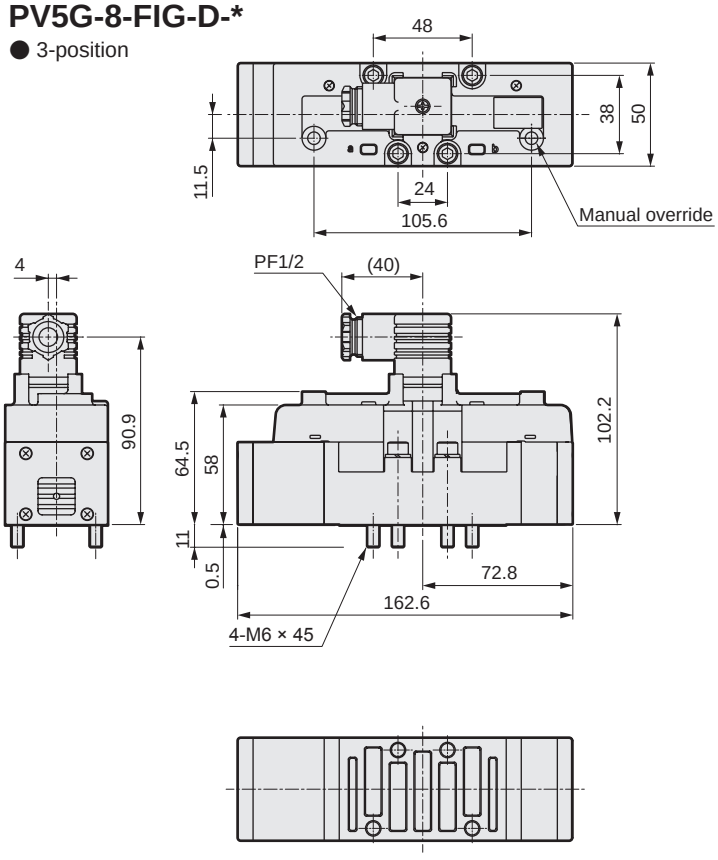
PV5G-8-FG-D-*
PV5G-8-YZ-D-*

● 2-position double solenoid



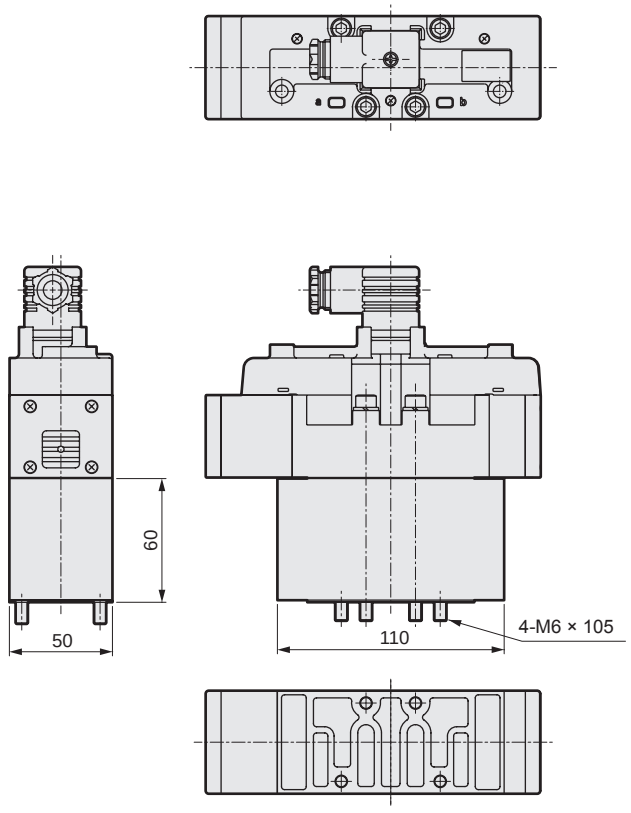
PV5G-8-FHG-D-*
PV5G-8-FJG-D-*
PV5G-8-FIG-D-*

● 3-position



PV5G-8-FPG-D-*

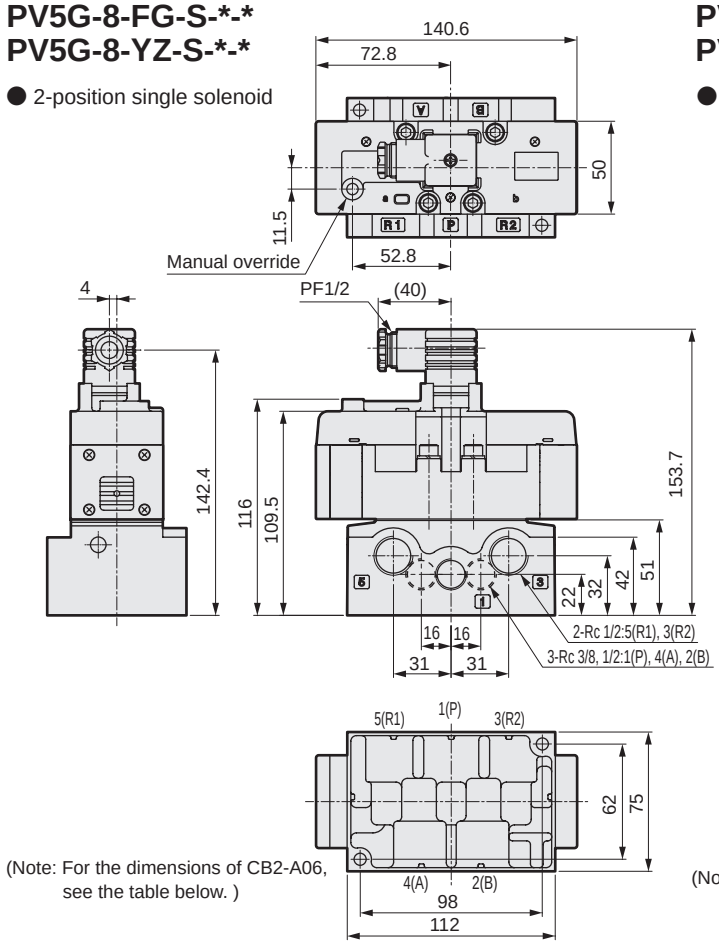
● 3-position non-leak type



Dimensions: DIN terminal box type (with sub-plate)

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

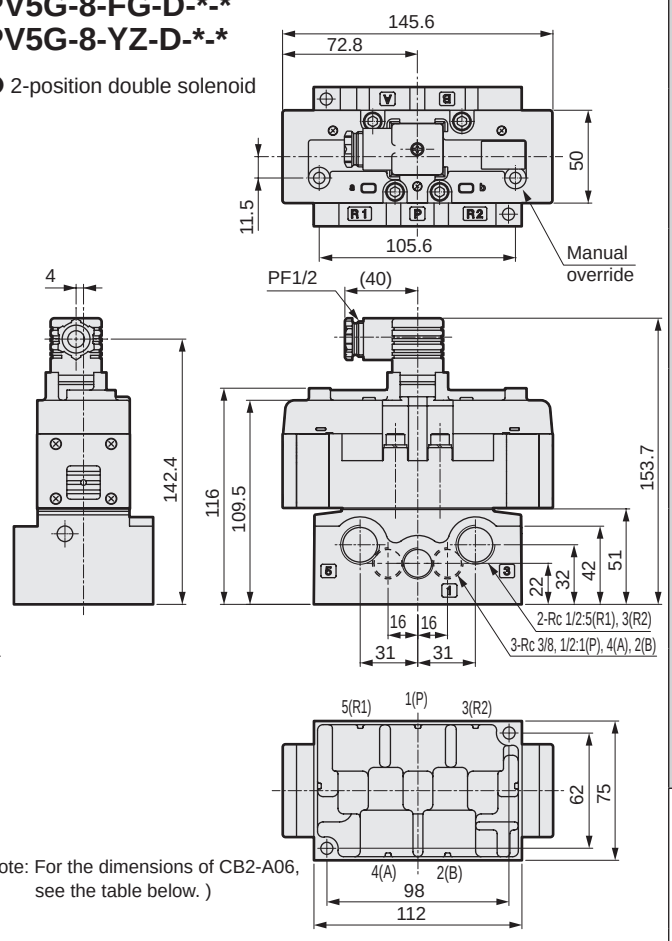
● 2-position single solenoid



(Note: For the dimensions of CB2-A06, see the table below.)

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

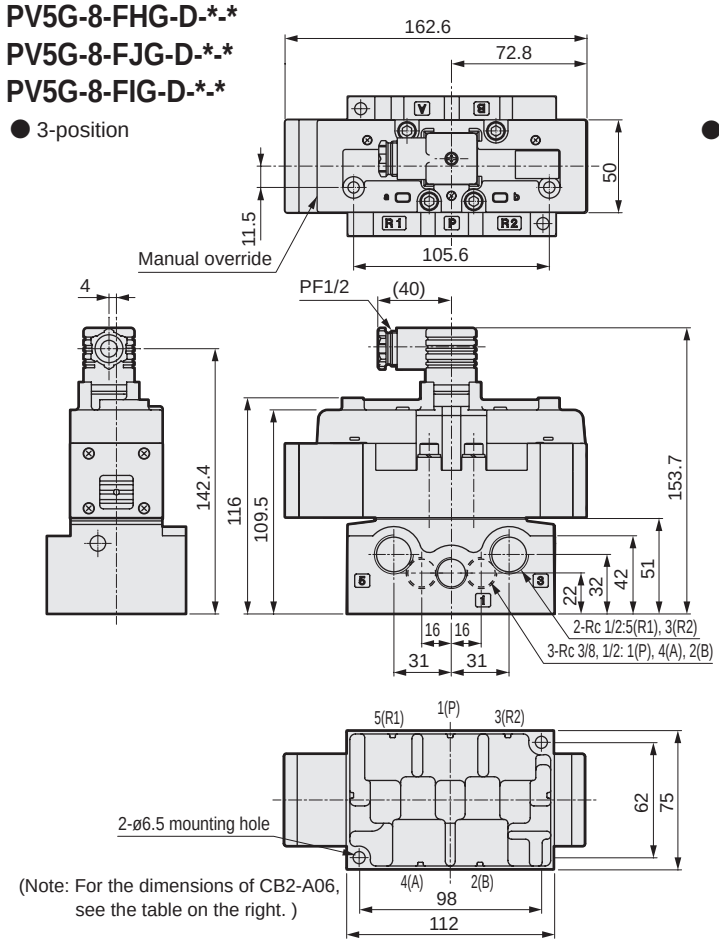
● 2-position double solenoid



(Note: For the dimensions of CB2-A06, see the table below.)

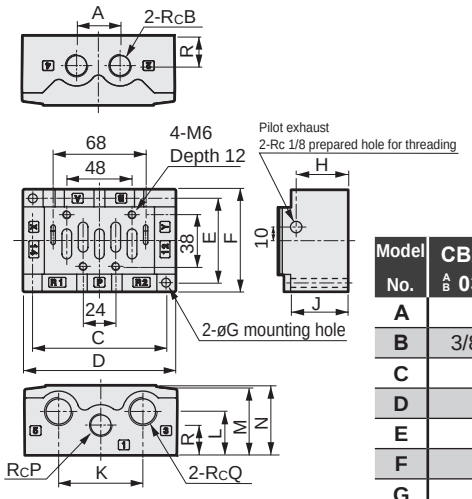
PV5G-8-FHG-D-*-*
PV5G-8-FJG-D-*-*
PV5G-8-FIG-D-*-*

● 3-position

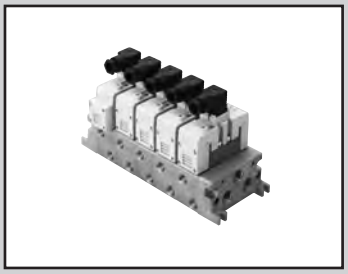


(Note: For the dimensions of CB2-A06, see the table on the right.)

● Sub-plate dimensions (CB2-*)



Model No.	CB2-A/B 03	CB2-A/B 04	CB2-A/B 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



Individual wiring manifold ISO size 1
DIN terminal box type
5 port pilot operated valve ISO conformed valve

GMF1 Series

● Applicable cylinder bore size: max. ø100

RoHS

Common specifications

Item	Description
Manifold method	Manifold integrated
Manifold type	Common supply/common exhaust, common supply/individual exhaust Individual supply/common exhaust, individual supply/individual exhaust Multi-pressure air supply
Station number	1 to 10 stations
Valve type 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) Note 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/jet-proof (equivalent to IP65)
Leakage cm^3/min (A, B→R port)	10 (ANR) or less 3-position all ports closed non-leak type only 0.3 (ANR) or less Note 2
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Containing corrosive gas is impermissible.

Note 1: For YZ-S only, use working pressure at R1 > R2 ≧ 0.15 MPa.
Note 2: Indicates the default.

Electrical specifications

Item			Description
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)
Figures in parentheses are for type with indicator light.	DC	12 V	1 (1.2)
		24 V	
Heat resistance class			B (molded coil)
How to wire			Electric plug connector

Individual specifications

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

Note 1: G threads and NPT threads are available for the piping port threads. Contact CKD for details.
Note 2: Response time is the value at working pressure of 0.5 MPa, oil-free and DC.
The value will change based on pressure and quality of oil supplied.

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 (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→A/B		A/B→R1/R2	
			C [$dm^3/(s\cdot bar)$]	b	C [$dm^3/(s\cdot bar)$]	b
GMF1	Rc 1/4	2-position single solenoid	4.8	0.25	5.2	0.26
		2-position double solenoid	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-leak)	3.2	-	2.8	-

Note 1 : Effective sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

DIN terminal box type How to order

● ISO size 1

GMF 1 5 - 02 L - HY1 B DU - SB F - ( ) ( )

Model No. | A Station No. | A/B port size 02 number | B A/B port size Note 1 | A/B port size 03 number | C A/B port position Note 2 | D P/R port size | E P/R port position Note 3 Note 4 | F HY configuration | G Silencer box Note 5 | H Option

Symbol	Description	Model No. GMF1
A Station No.		
1	1 station	●
to	to	●
10	10 stations	●
B A/B port size		
02	Rc 1/4	●
03	Rc 3/8	●
HX1	Rc 1/4, Rc 3/8 mix	●
C A/B port position		
Blank	Right	●
L	Left/right (select position with manifold specifications)	●
H	Left	●
Z	Rear	●
T	Flexible selection (plug attached)	●
D P/R port size		
03	Rc 3/8	●
04	Rc 1/2	●
HY1	Rc 3/8, Rc 1/2 mix	●
E P/R port position		
B	Both (U side and D side)	●
D	D side	●
U	U side	●
E	P U side, R D side	●
F	P D side, R U side	●
T	Flexible selection (plug attached)	●
F HY configuration		
Blank	D When HY1 is not selected for	●
DU	Rc 3/8 D side, Rc 1/2 U side	●
UD	Rc 3/8 U side, Rc 1/2 D side	●
G Silencer box		
Blank	None	●
SB	Selected (D side installation)	●
H Option		
Blank	None	●
F	P/A/B port filter integrated	●

⚠ Note on model No. selection

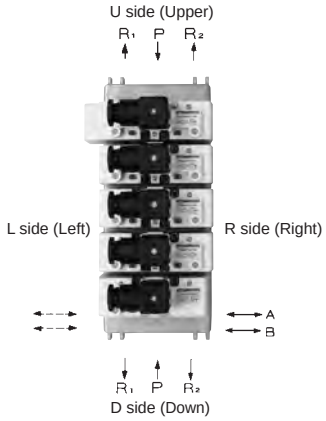
Note 1: The port size for HX is mixed. Contact CKD for details.
Note 2: C indicates the port position. All positions are plugged unless otherwise indicated.
Note 3: E indicates the port position. The opposite side of indicated port will be plugged.
Note 4: If G type with silencer box is selected, the P port position can be selected. Select from B, D, U, or T.
Note 5: If G type with silencer box is selected, U side and D side are both assembled with plugs.

<Example of model number>

GMF15-02L-HY1BDU-SBF

Model: Manifold ISO size 1

A Station number : 5 stations
B C A/B port : Rc 1/4 (left/right side porting)
D E F P/R port : Rc 3/8, Rc 1/2 mix
(Rc 3/8 D side, Rc 1/2 U side)
G Silencer box : Selected (D side installation)
H Option : P/A/B port filter integrated



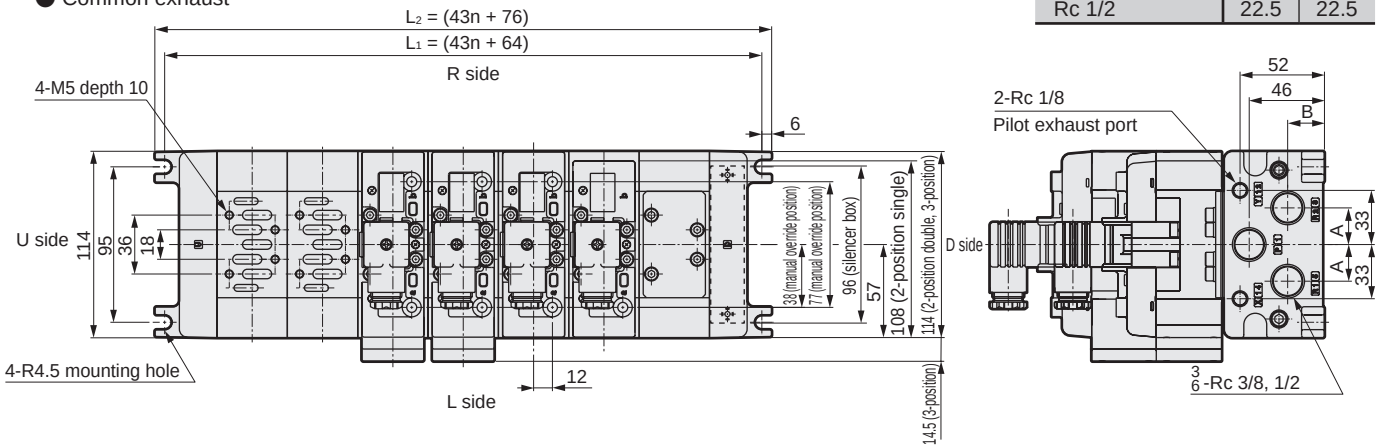
The valve is ordered separately. Refer to page 7 for for details on how to order. When ordering a manifold with a valve, each model and the **manifold specifications given on page 29 are required.**

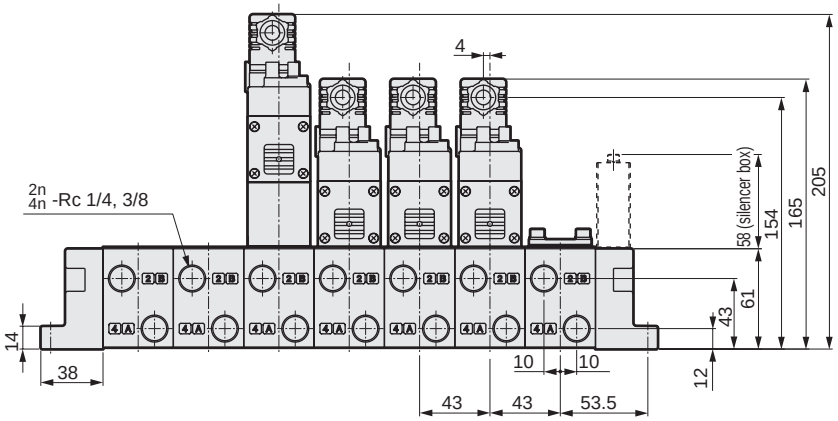
Dimensions: DIN terminal box type

GMF1

● Common exhaust

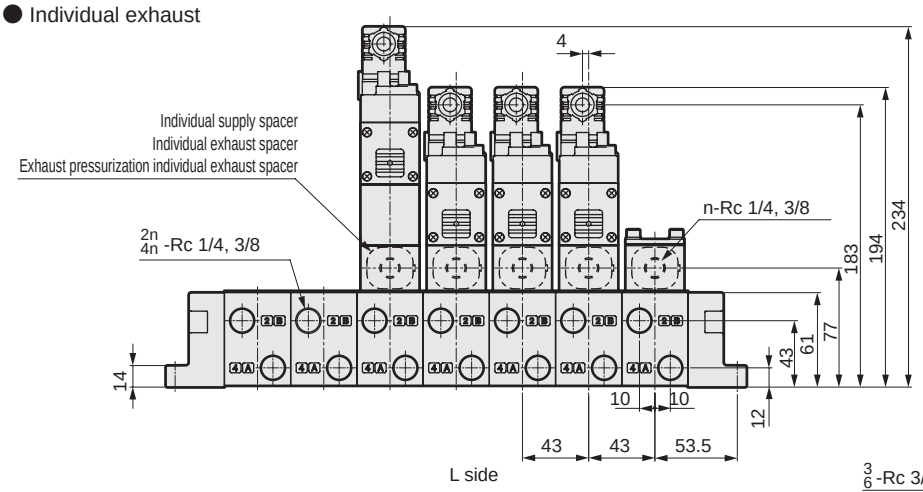
P/R port size	A	B
Rc 3/8	18.5	23.5
Rc 1/2	22.5	22.5





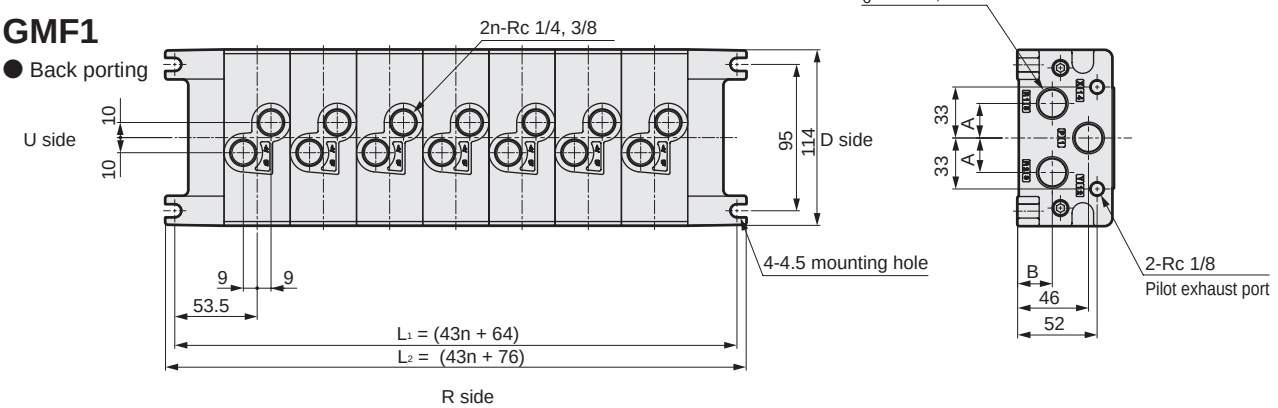
GMF1

● Individual exhaust



GMF1

● Back porting



How to order

● Spacer type regulator

CMF 1 - SR - A - T05 C

Ⓐ Size	
1	ISO size 1

Ⓑ Pressure reduction	
P	P port
A	A port
B	B port

Ⓒ Pressure gauge	
T05	MPa display (With limit mark)

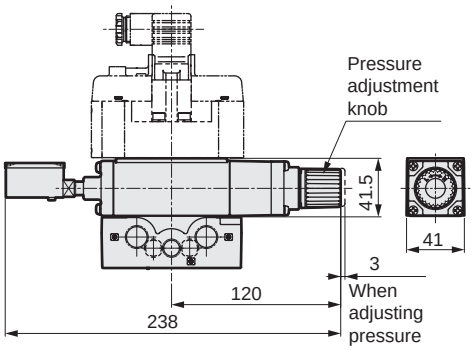
Ⓓ Check valve	
Blank	None
C	Provided

Indicate without a check valve (no symbol) for SR-P and with a check valve (C) for SR-A and SR-B.

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

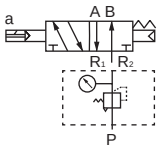
CMF1-SR-P-T05
CMF1-SR-B-T05C

● Spacer type regulator

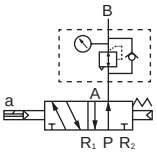


● JIS symbol

CMF1-SR-P-T05



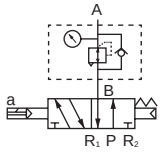
CMF1-SR-B-T05C

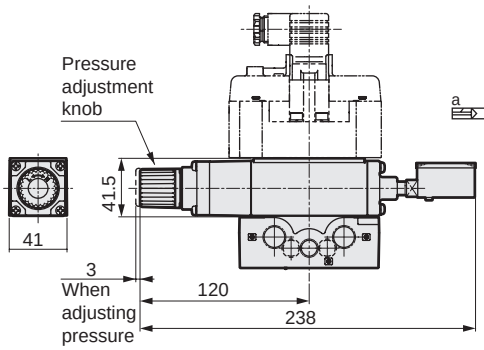


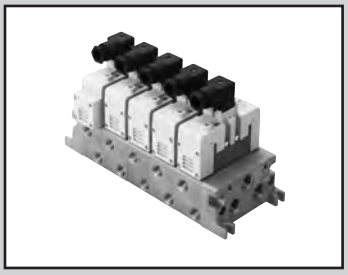
CMF1-SR-A-T05C

● JIS symbol

CMF1-SR-A-T05C







Individual wiring manifold ISO size 2
DIN terminal box type
5 port pilot operated valve ISO conformed valve

GMF2 Series

● Applicable cylinder bore size: max.ø160

RoHS

Common specifications

Item	Description
Manifold method	Manifold integrated
Manifold type	Common supply/common exhaust, common supply/individual exhaust Individual supply/common exhaust, individual supply/individual exhaust Multi-pressure air supply
Station number	1 to 10 stations
Valve type 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) Note 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/jet-proof (equivalent to IP65)
Leakage cm^3/min (A, B→R port)	10 (ANR) or less 3-position all ports closed non-leak type only 0.3 (ANR) or less Note 2
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Containing corrosive gas is impermissible.

Note 1: For YZ-S only, use working pressure at R1 > R2 ≧ 0.15 MPa.
Note 2: Indicates the default.

Electrical specifications

Item			Description
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)
Figures in parentheses are for type with indicator light.	DC	12 V	1 (1.2)
		24 V	
Heat resistance class			B (molded coil)
How to wire			Electric plug connector

Individual specifications

Item			GMF2	
Port size	P/R1/R2 port		Rc 1/2, Rc 3/4	
Note 1	A/B port		Rc 3/8	Rc 1/2
Response time Note 2 ms	2-position	Single	40 (when ON), 60 (when OFF)	
		Double	40	
	3-position		40 (when ON), 60 (when neutral)	

Note 1: G threads and NPT threads are available for the piping port threads. Contact CKD for details.
Note 2: Response time is the value at working pressure of 0.5 MPa, oil-free and DC.
The value will change based on pressure and quality of oil supplied.

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	Model No.	SB									
Added to manifold base (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→A/B		A/B→R1/R2	
			C [$dm^3/(s•bar)$]	b	C [$dm^3/(s•bar)$]	b
GMF2	Rc 3/8	2-position single solenoid	9.7	0.12	11.0	0.14
		2-position double solenoid	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-leak)	6.2	-	5.9	-

Note 1: Effective sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

DIN terminal box type How to order

● ISO size 2

GMF 2 5 - 03 L - 04 B ☐ - SB F - ☐☐

Model No. Ⓐ Station No. A/B port size 03 number

Ⓑ A/B port size Note 1 A/B port size 04 number

Ⓒ A/B port position Note 2

Ⓓ P/R port size

Ⓔ P/R port position Note 3 Note 4

Ⓕ HY configuration

Ⓖ Silencer box Note 5

Ⓗ Option

Symbol	Description	Model No. GMF2
Ⓐ Station number		
1	1 station	●
to	to	
10	10 stations	
Ⓑ A/B port size		
03	Rc 3/8	●
04	Rc 1/2	●
HX2	Rc 3/8, Rc 1/2 mix	●
Ⓒ A/B port position		
Blank	Right	●
L	Left/right (select position with manifold specifications)	●
H	Left	●
Z	Rear	●
T	Flexible selection (plug attached)	●
Ⓓ P/R port size		
04	Rc 1/2	●
06	Rc 3/4	●
HY2	Rc 1/2, Rc 3/4 mix	●
Ⓔ P/R port position		
B	Both (U side and D side)	●
D	D side	●
U	U side	●
E	P U side, R D side	●
F	P D side, R U side	●
T	Flexible selection (plug attached)	●
Ⓕ HY configuration		
Blank	ⒹWhen HY2 is not selected for	●
DU	Rc 1/2 D side, Rc 3/4 U side	●
UD	Rc 1/2 U side, Rc 3/4 D side	●
Ⓖ Silencer box		
Blank	None	●
SB	Selected (D side installation)	●
Ⓗ Option		
Blank	None	●
F	P/A/B port filter integrated	●

The valve is ordered separately. Refer to page 13 for for details on how to order. When ordering a manifold with a valve, each model and the **manifold specifications given on page 30 are required.**

⚠ Note on model No. selection

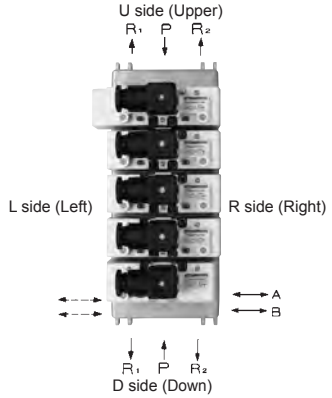
Note 1: The port size for HX is mixed. Contact CKD for details.
Note 2: Ⓒ indicates the port position. All positions are plugged unless otherwise indicated.
Note 3: Ⓔ indicates the port position. The opposite side of indicated port will be plugged.
Note 4: Ⓖ type with silencer box is selected, the P port position can be selected. Select from B, D, U, or T.
Note 5: If Ⓖ type with silencer box is selected, U side and D side are both assembled with plugs.

<Example of model number>

GMF25-03L-04B-SBF

Model: Manifold ISO size 2

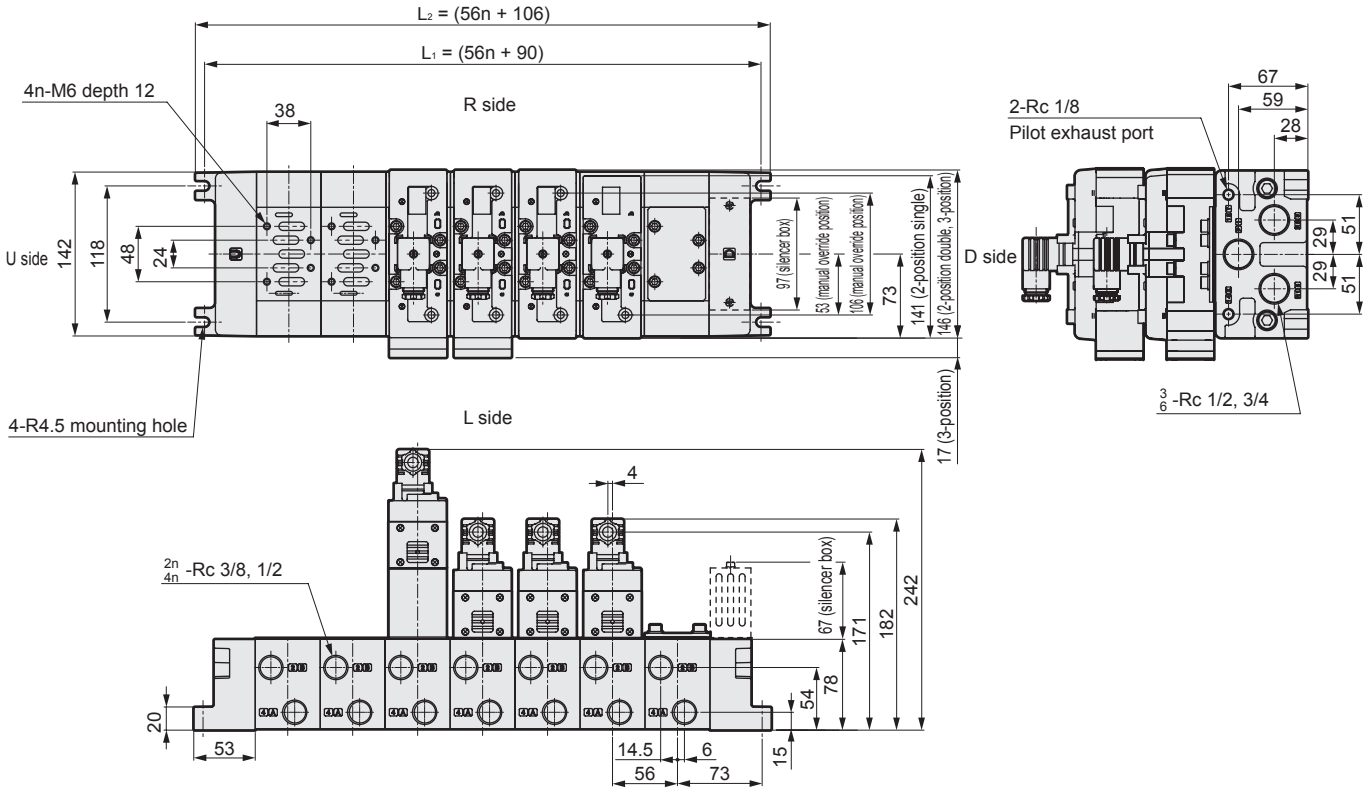
Ⓐ Station number : 5 stations
ⒷⒸ A/B port : Rc 3/8 (left/right porting)
ⒹⒺ P/R port : Rc 1/2 (U side/D side porting)
Ⓕ Silencer box : Selected (D side installation)
Ⓖ Option : P/A/B port filter integrated



Dimensions: DIN terminal box type

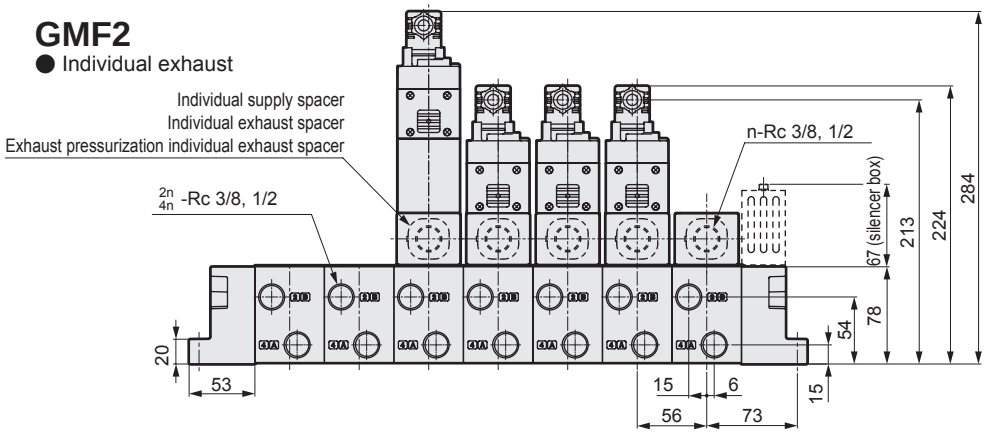
GMF2

● Common exhaust



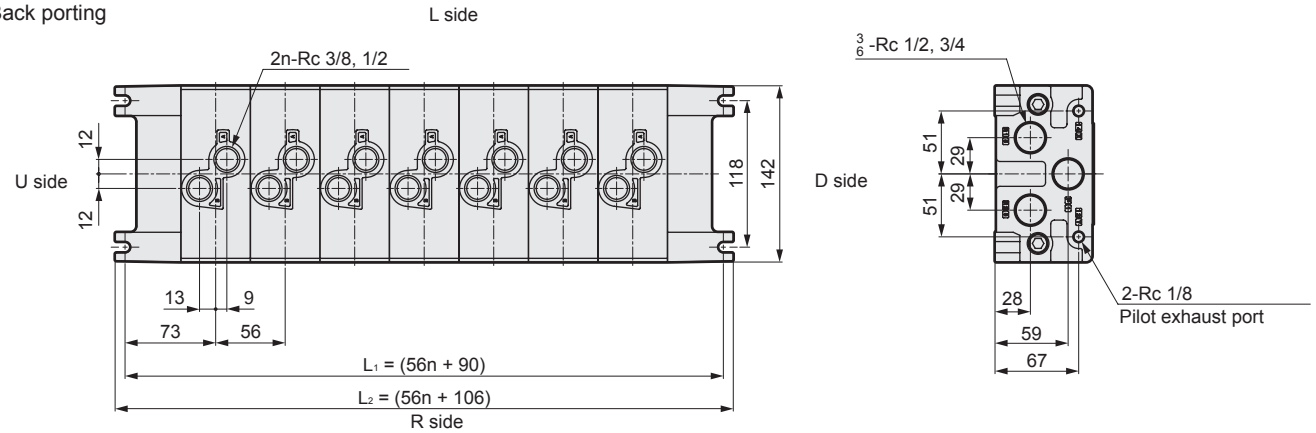
GMF2

● Individual exhaust



GMF2

● Back porting



How to order

● Spacer type regulator

CMF 2 - SR - A - T05 C

Ⓐ Size	
2	ISO size 2

Ⓑ Pressure reduction	
P	P port
A	A port
B	B port

Ⓒ Pressure gauge	
T05	MPa display (With limit mark)

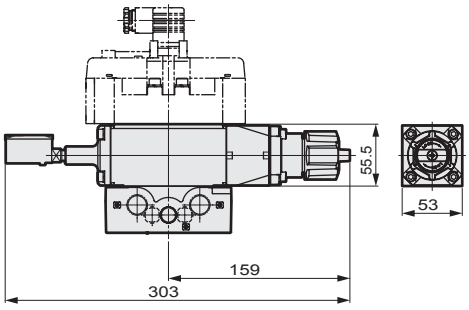
Ⓓ Check valve	
Blank	None
C	Provided

Indicate without a check valve (no symbol) for SR-P and with a check valve (C) for SR-A and SR-B.

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

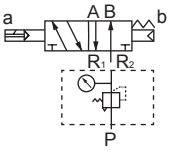
CMF2-SR-P-T05
CMF2-SR-B-T05C

● Spacer type regulator

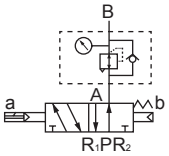


● JIS symbol

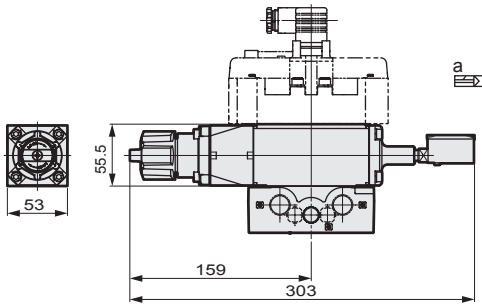
CMF2-SR-P-T05



CMF2-SR-B-T05C

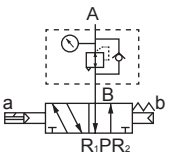


CMF2-SR-A-T05C



● JIS symbol

CMF2-SR-A-T05C



DIN terminal box type How to order

GMFZ 5 - HX3 L - HY3 B DU F - ( ) ( )

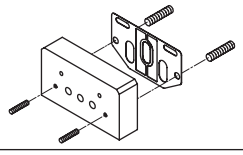
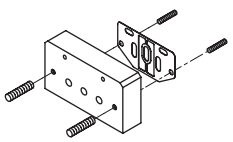
- GMFZ: ISO size 1/2 mix Manifold
- 5: Ⓐ Station No.
- HX3: ② A/B port size
- L: Ⓒ A/B port position Note 1
- HY3: Ⓓ P/R port size
- B: Ⓔ P/R port position Note 2
- DU: Ⓕ HY configuration
- ( ): Ⓖ Option
- Size 1 number
- Size 2 number

Symbol	Description	Model No. GMFZ
Ⓐ Station number		
2	2 stations	●
to	to	●
10	10 stations	●
Ⓑ A/B port size		
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	●
Ⓒ A/B port position		
Blank	Right	●
L	Left/right (select position with manifold specifications)	●
H	Left	●
Z	Rear	●
T	Flexible selection (plug attached)	●
Ⓓ P/R port size		
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	●
Ⓔ P/R port position		
B	Both (U side and D side)	●
D	D side	●
U	U side	●
E	P U side, R D side	●
F	P D side, R U side	●
T	Flexible selection (plug attached)	●
Ⓕ HY configuration		
DU	GMF1 is on D side, GMF2 is on D side.	●
UD	GMF1 is on U side, GMF2 is on D side.	●
Ⓖ Option		
Blank	None	●
F	P/A/B port filter integrated	●

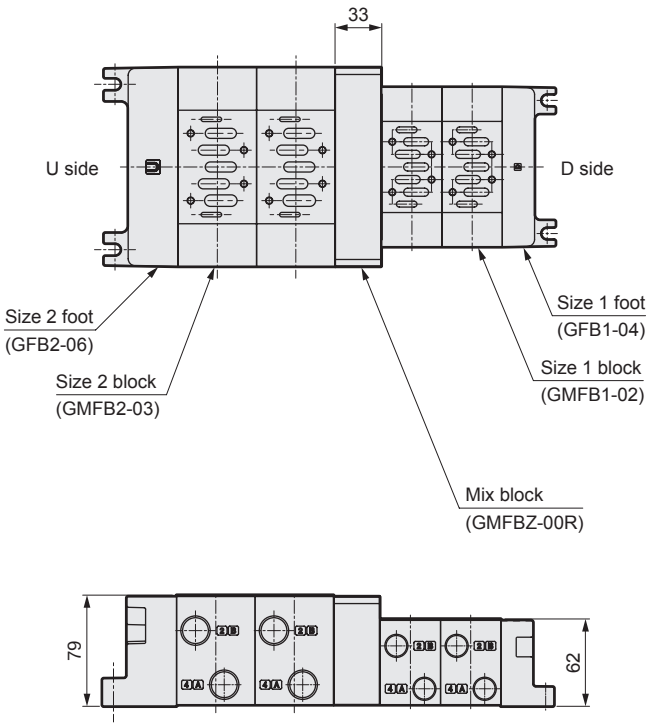
⚠ Note on model no. selection

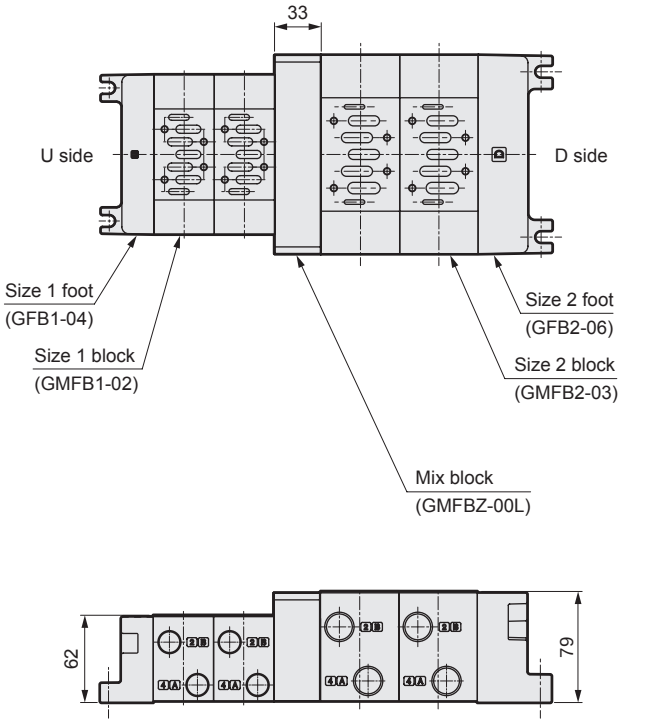
Note 1: Ⓒ indicates the port position. All positions are plugged unless otherwise indicated.
Note 2: Ⓔ indicates the port position. The side opposite that designated is plugged.

The valve is ordered separately. Refer to pages 7 and 13 for for details on how to order. When ordering a manifold with a valve, each model and the **manifold specifications given on page 31 are required.**

No.	Item	Model No.	Figure	Remarks
1	ISO size 1/2 mix Block	**GMFBZ-00L**		U side size 1 D side size 2 For mix block With bolts/gasket
		GMFBZ-00R		U side size 2 D side size 1 For mix block With bolts/gasket

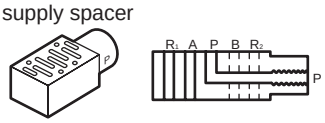
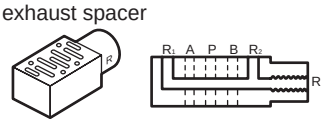
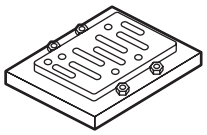
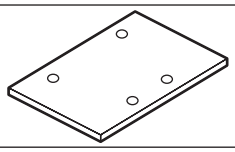
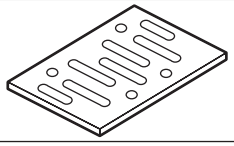
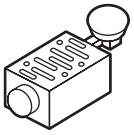
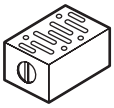
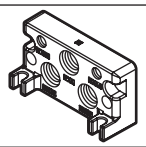
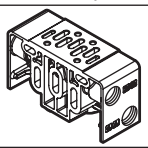
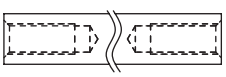
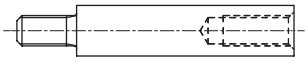
Mix manifold outline drawing





*The dimensions for the 1 and 2 foot sizes and the blocks are given on pages 19 and 23.

Manifold option

Options	Model No.		Remarks
	ISO size 1	ISO size 2	
1. Individual supply spacer 	CMF1-P-02 (Rc 1/4) 03 (Rc 3/8)	CMF2-P-03 (Rc 3/8) 04 (Rc 1/2)	1. Use for individual supply port clamp and various pressures 2. Individual exhaust for exhaust pressurizing
2. Individual exhaust spacer 	CMF1-R-02 (Rc 1/4) 03 (Rc 3/8)	CMF2-R-03 (Rc 3/8) 04 (Rc 1/2)	1port exhaust by individual exhaust (Back pressure proof)
3. Adapter 	CU1-00 (FS/FD2 Series, Rc 1/4, 3/8) CU1-01 (FS/FD3 Series, Rc 1/4, 3/8, 1/2)	CU2-00 (FS/FD3 Series, Rc 1/4, 3/8, 1/2) CU2-01 (FS/FD4 Series, Rc 1/2, 3/4)	PV5G-6 and PV5G-8 can be mounted on conventional models F^{S2}_{D3}. (Custom order)
4. Masking plate 	CM1-00	CM2-00	For PV5G-6 For PV5G-8 Discrete masking
5. Masking plate 	GM1-01	GM2-01	Manifold (GMF1/GMF2) P/R_1/R_2 port masking
6. Body gasket 	PV5G-6-BASE-GASKET	PV5G-8-BASE-GASKET	For PV5G-6 For PV5G-8 Cannot be used for the bottom of spacers.
	PV5-6-BASE-GASKET	PV5-8-BASE-GASKET	For the bottom of spacers
7. Set screw 	CMF1-M5X35	CMF2-M6X45	4 screws per set
8. Spacer type regulator 	CMF1-SR-P-T05 CMF1-SR-A-T05C CMF1-SR-B-T05C "How to order" page 20	CMF2-SR-P-T05 CMF2-SR-A-T05C CMF2-SR-B-T05C "How to order" page 24	Multi-pressure use
9. Air pilot check valve 	CMF1-PC	CMF2-PC	Cylinder intermediate position holding
10. Foot U side 	GFB1-$^{03}_{04}$U	GFB2-$^{04}_{06}$U	Two hexagon socket head cap screws and plugs (also a gasket for U-side foot) are enclosed.
D side	GFB1-$^{03}_{04}$D	GFB2-$^{04}_{06}$D	
11. Manifold block 	GMFB1-$^{02}_{03}$T	GMFB2-$^{03}_{04}$T	Two tie rods, plugs and a gasket are enclosed.
	GMFB1-$^{02}_{03}$Z	GMFB2-$^{03}_{04}$Z	Two tie rods and a gasket are enclosed.
12. Tie rod 	GMF1-TR-V *1 *1: 1 to 10 (station No.)	GMF2-TR-V *1 *1: 1 to 10 (station No.)	2 screws per set Tie rods of a length of 1 to 10 stations used when shipped.
13. Tie rod for expansion 	GMF1-TR-VZ	GMF2-TR-VZ	Set of two Use for extending the tie rod(s). Extends by the length of one station.

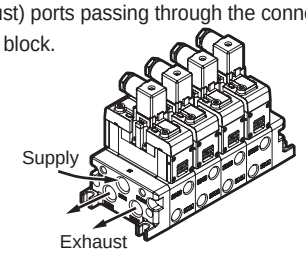
Manifold type

A wide range of air supply, exhaust, and piping combinations is available.
Select the functions best suited to your application.

1 General use

● Common exhaust method

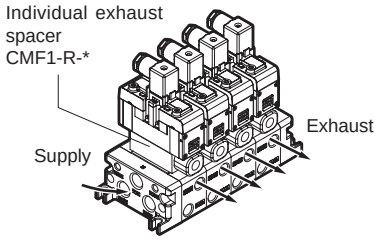
This is the most commonly used method. Each solenoid valve air supply and exhaust are grouped at one position with P (air supply) and R (exhaust) ports passing through the connected manifold block.



2 General applications

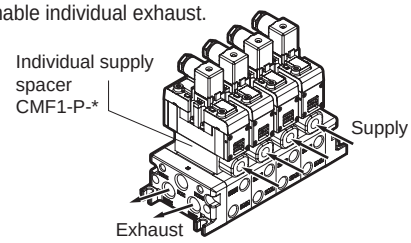
● Individual exhaust method

The R1 and 2 (exhaust) ports are separate for each solenoid valve, so popping out of adjacent cylinders by the back pressure can be prevented. An individual exhaust spacer (CMF1-R-*) should be used in combination to prevent back pressure.



● Individual supply method

The P (supply) port is independent for each valve so different pressures can be supplied to specific valves in the manifold.
An individual exhaust spacer (CMF1-P-*) can be inserted between the manifold block and valve to enable individual exhaust.



● Individual supply/individual exhaust method

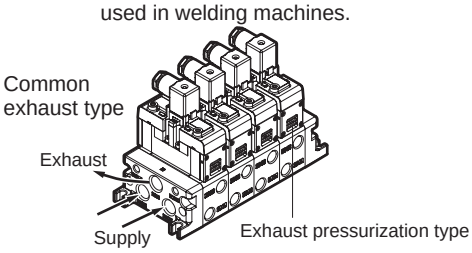
Use this when independent P (air supply) port and R (exhaust) port are to be used only for specific valves in the manifold.
Example: When using an oilless manifold but lubricating a specific valve.
Individual supply (CMF1-P-*) and exhaust (CMF1-R-*) spacers inserted between the manifold block and valve enable individual air supply and exhaust.

● Multi-pressure air supply method

This method supplies two different types of high and low pressures to one manifold. A masking plate (GM1-01) is inserted between the manifold blocks with different pressures.

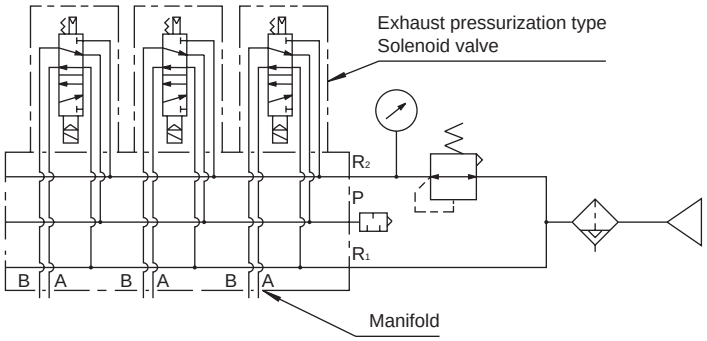
3 Special applications (exhaust pressurization)

This method is optimum for supplying two or more different types of pressure to one manifold.
Example: When driving a 2-piston cylinder used in welding machines.

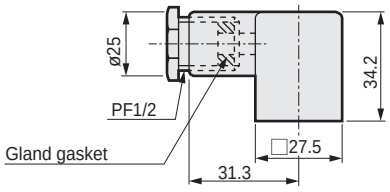


● Example of using exhaust pressurization type

Common exhaust type

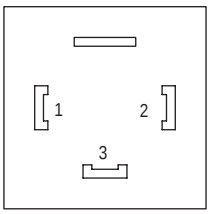


● Terminal box (model No.: PV5G-DIN-TRM-BOX)



Gland gasket inner diameter	Color	Applicable (cord/cable) outer diameter
ø10.5	Black	ø8.5 to ø11.5

How to wire



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

No polarity is designated when DC power is used.

4 Common descriptions for general and special purpose

● Back porting method

When pipes cannot be piped from the side, part or all of the A and B ports can be piped from the bottom of the manifold.

Manifold specifications

ISO size 1 DIN terminal box type

Issue / /

Your company name

Contact (Mr./Ms.)

Purchase order No.

● Contact ● Quantity Set ● Request date / /

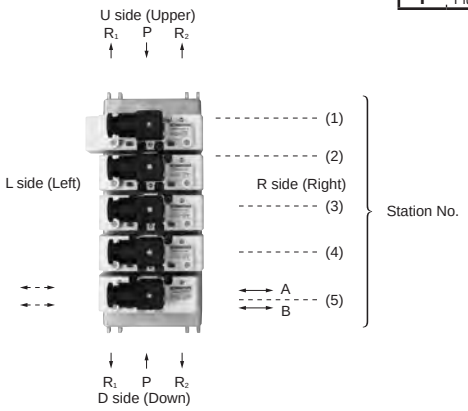
Slip No.	Order No.

● Manifold model No.

GMF 1 □ – □ □ – □ □ □ – □ – □ □

Ⓐ ISO size | Ⓑ Station No. | Ⓒ A/B port size | Ⓓ A/B port position | Ⓔ P/R port size | Ⓕ P/R port position | Ⓖ HY configuration | Ⓗ Silencer box | Ⓘ Manifold option | Ⓙ Voltage | Ⓚ Indicator light | Ⓛ Valve option

Ⓐ ISO size		Ⓑ Station No.		Ⓒ A/B port size		Ⓓ A/B port position		Ⓔ P/R port size		Ⓕ P/R port position		Ⓖ HY configuration		Ⓗ Silencer box		Ⓘ Manifold option	
1	PV5G-6	1	1 station	02	Rc1/4	Blank	Right	03	Rc3/8	B	Both (U side and D side)	Blank	When HY is not selected for Ⓔ	Blank	None	Blank	None
		to	to	03	Rc3/8	L	Left/right	04	Rc1/2	D	D side			SB	Selected (D side installation)	F	P/A/B port filter integrated
		10	10 stations	HX1	Rc1/4, Rc3/8 mix	H	Left	HY1	Rc3/8, Rc1/2 mix	U	U side	DU	Rc3/8D side, Rc1/2U side				
						Z	Rear			E	P U side, R D side						
						T	Plug attached			F	P D side, R U side	UD	Rc3/8U side, Rc1/2D side				
										T	Plug attached						



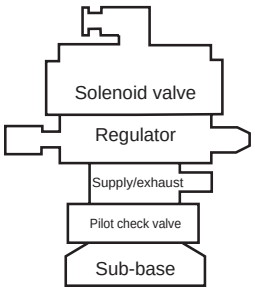
Ⓙ Voltage		Ⓚ Indicator light		Ⓛ Valve option	
1	100 VAC	Blank	None	Blank	None
2	200 VAC	N	With Indicator light	A	Coolant proof
3	24 VDC				
4	12 VDC				
5	110 VAC				
6	220 VAC				

Note: Ⓙ, Ⓚ and Ⓛ are options for mounted valves for manifold assembly.

★When placing an order, indicate the solenoid valve type No. (1) to (9) shown on the left in the following solenoid valve type No. field.
To select an option, draw a circle in the field for the relevant option below.

Station No.			1	2	3	4	5	6	7	8	9	10
Solenoid valve No.	PV5G-6											
When selecting L for Ⓓ, indicate the plug position.		R										
		L										
Option	Supply spacer											
	Exhaust spacer											
	Pilot check valve											
	Spacer type regulator	CMF*-SR-P										
		CMF*-SR-A										
		CMF*-SR-B										
	Masking plate	Supply passage masking										
		Exhaust passage masking										
	When selecting HX for Ⓒ, indicate a mixed port size configuration.	02										
		03										

	Solenoid valve 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-leak	PV5G-6-FPG-D (6)
2-position single solenoid exhaust pressurization	PV5G-6-YZ-S (7)
2-position double solenoid exhaust pressurization	PV5G-6-YZ-D (8)
Masking plate	CM1-00 (9)



Assembly sequence of option (spacer)

Note: The basic order of solenoid valves from the sub-base is shown on the left. Simply remove any unnecessary spacers, and stack up valves.

Manifold specifications

ISO size 2 DIN terminal box type

Issue / /

Your company name

Contact (Mr./Ms.)

Purchase order No.

● Contact ● Quantity Set ● Request date / /

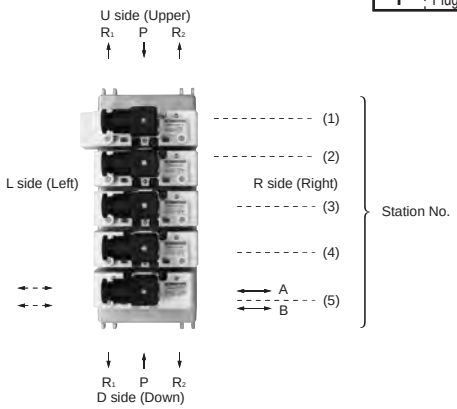
Slip No.	Order No.

● Manifold model No.

GMF **2** – – – – – – – – – – –

Ⓐ ISO size | Ⓑ Station No. | Ⓒ A/B port size | Ⓓ A/B port position | Ⓔ P/R port size | Ⓕ P/R port position | Ⓖ HY configuration | Ⓗ Silencer box | Ⓘ Manifold option | Ⓙ Voltage | Ⓚ Indicator light | Ⓛ Valve option

Ⓐ ISO size		Ⓑ Station No.		Ⓒ A/B port size		Ⓓ A/B port position		Ⓔ P/R port size		Ⓕ P/R port position		Ⓖ HY configuration		Ⓗ Silencer box		Ⓘ Manifold option	
2	PV5G-8	**1**	1 station	**03**	Rc 3/8	**Blank**	Right	**04**	Rc 1/2	**B**	Both (U side and D side)	**Blank**	When HY is not selected for Ⓔ	**Blank**	None	**Blank**	None
		to	to	**04**	Rc 1/2	**L**	Left/right	**06**	Rc 3/4	**D**	D side			**SB**	Selected (D side installation)	**F**	P/A/B port filter integrated
		10	10 stations	**HX2**	Rc 3/8, Rc 1/2 mix	**H**	Left	**HY2**	Rc 1/2, Rc 3/8 mix	**U**	U side	**DU**	Rc 1/2 D side, Rc 3/4 U side				
						Z	Rear			**E**	P U side, R D side						
						T	Plug attached			**F**	P D side, R U side	**UD**	Rc 1/2 U side, Rc 3/4 D side				
										T	Plug attached						

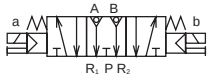
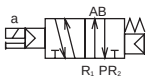


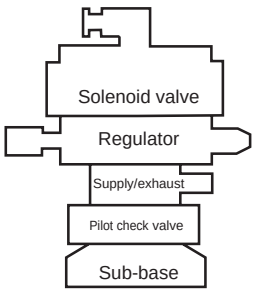
Ⓙ Voltage		Ⓚ Indicator light		Ⓛ Valve option	
1	100 VAC	**Blank**	None	**Blank**	None
2	200 VAC	**N**	With Indicator light	**A**	Coolant proof
3	24 VDC				
4	12 VDC				
5	110 VAC				
6	220 VAC				

Note: Ⓙ, Ⓚ and Ⓛ are options for mounted valves for manifold assembly.

★When placing an order, indicate the solenoid valve type No. (1) to (9) shown on the left in the following solenoid valve type No. field.
To select an option, draw a circle in the field for the relevant option below.

Station No.			1	2	3	4	5	6	7	8	9	10
Solenoid valve No.	PV5G-8											
When selecting L for Ⓓ, indicate the plug position.		R										
		L										
Option	Supply spacer											
	Exhaust spacer											
	Pilot check valve											
	Spacer type regulator	CMF*-SR-P										
		CMF*-SR-A										
		CMF*-SR-B										
	Masking plate	Supply passage masking										
		Exhaust passage masking										
	When selecting HX for Ⓒ, indicate a mixed port size configuration.	03										
		04										

		Solenoid valve 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-leak		PV5G-8-FPG-D	(6)
2-position single solenoid exhaust pressurization		PV5G-8-YZ-S	(7)
2-position double solenoid exhaust pressurization		PV5G-8-YZ-D	(8)
Masking plate		CM2-00	(9)



Assembly sequence of option (spacer)

Note: The basic order of solenoid valves from the sub-base is shown on the left. Simply remove any unnecessary spacers, and stack up valves.

Manifold specifications

ISO size 1/2 mix DIN terminal box type

Issue / /

Your company name

Contact (Mr./Ms.)

Purchase order No.

● Contact ● Quantity Set ● Request date / /

Slip No.	Order No.

● Manifold model No.

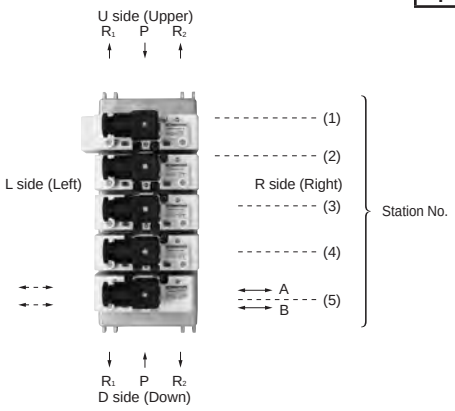
GMF Z □ – □ □ – □ □ □ □ – □ – □ □

Ⓐ ISO size | Ⓑ Station No. | Ⓒ A/B port size | Ⓓ A/B port position | Ⓔ P/R port size | Ⓕ P/R port position | Ⓖ HY configuration | Ⓗ Manifold option | Ⓘ Voltage | Ⓙ Indicator light | Ⓚ Valve option

Ⓐ ISO size		Ⓑ Station No.		Ⓒ A/B port size		Ⓓ A/B port position		Ⓔ P/R port size		Ⓕ P/R port position		Ⓖ HY configuration		Ⓗ Manifold option		Ⓘ Voltage	
Z	Size 1/2 mix	1	1 station	HX3	1: 02/2: 03	Blank	Right	HY3	1: 03/2: 04	B	Both (U side and D side)	DU	Size 1 D side, Size 2 U side	Blank	None	1	100 VAC
		to	to	HX4	1: 02/2: 04	L	Left/right	HY4	1: 03/2: 06	D	D side			F	P/A/B port filter integrated	2	200 VAC
		10	10 stations	HX5	1: 03/2: 03	H	Left	HY5	1: 04/2: 04	U	U side	UD	Size 1 U side, Size 2 D side			3	24 VDC
				HX6	1: 03/2: 04	Z	Rear	HY6	1: 04/2: 06	E	P U side, R D side					4	12 VDC
						T	Plug attached			F	P D side, R U side					5	110 VAC
										T	Plug attached					6	220 VAC

Ⓙ Indicator light		Ⓚ Valve option	
Blank	None	Blank	None
N	With Indicator light	A	Coolant proof

Note: Ⓘ, Ⓙ and Ⓚ are options for mounted valves for manifold assembly.

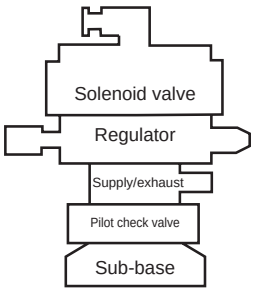


★When placing an order, indicate the solenoid valve type No. (1) to (9) shown on the left in the following solenoid valve type No. field.
To select an option, draw a circle in the field for the relevant option below.

Station No.			1	2	3	4	5	6	7	8	9	10
Solenoid valve No.	PV5G-6											
	PV5G-8											
When selecting L for Ⓓ, indicate the plug position.		R										
		L										
Option	Supply spacer											
	Exhaust spacer											
	Pilot check valve											
	Spacer type regulator	CMF*-SR-P										
		CMF*-SR-A										
		CMF*-SR-B										
	Masking plate	Supply passage masking										
		Exhaust passage masking										
	When selecting HX for Ⓒ, indicate a mixed port size configuration.	02										
		03										
		04										

		Solenoid valve 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-leak	PV5G-*-FPG-D	(6)
2-position single solenoid exhaust pressurization	PV5G-*-YZ-S	(7)
2-position double solenoid exhaust pressurization	PV5G-*-YZ-D	(8)
Masking plate	CM*-00	(9)

Note: The asterisk is "6" or "8" for the solenoid valve and "1" or "2" for the masking plate and option.

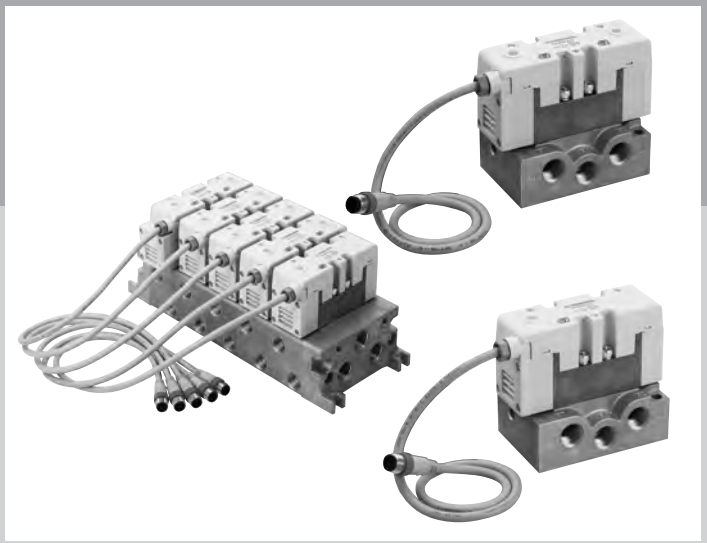


Assembly sequence of option (spacer)

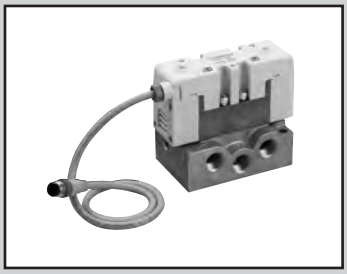
Note: The basic order of solenoid valves from the sub-base is shown on the left. Simply remove any unnecessary spacers, and stack up valves.

PV5/GMF
(I/O connector type)

5 port pilot operated valve — **ISO conformed valve**



CONTENTS



Discrete valve ISO size 1
I/O connector type
5 port pilot operated valve ISO conformed valve

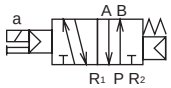
PV5-6R Series

● Applicable cylinder bore size: max. ø100

JIS symbol

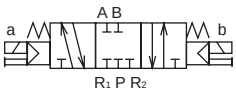
● 5-port valve

2-position single (FG-S)

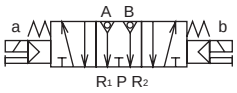


2-position double (FG-D)

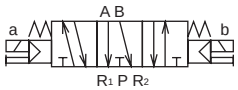
3-position all ports closed (FHG)



3-position all ports closed non-leak type (FPG)



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



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

Common specifications

Item	Description
Valve type 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)
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/jet-proof (equivalent to IP65)
Leakage cm^3/min	10 (ANR) or less
(A, B→R port)	3-position all ports closed non-leak type only 0.3 (ANR) or less Note 1
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Containing corrosive gas is impermissible.

Note 1: Indicates the default.

Electrical specifications

Item		Description
Rated voltage V	DC	24
Voltage fluctuation range		±10%
Power consumption W (current A)		1.2 (0.050) *Values in parentheses apply when a indicator light is installed.
Heat resistance class		B (molded coil)
How to wire		I/O connector

Individual specifications

Item			PV5-6R	
Port size Note 1			Rc 1/4	Rc 3/8
Response time ms Note 2	2-position	Single	30 (when ON), 40 (when OFF)	
		Double	30	
	3-position		30 (when ON), 50 (when neutral)	
Weight kg Note 3	2-position	Single	0.40	
		Double	0.44	
	3-position	Other than non-leak type	0.46	
		All ports closed non-leak type	1.12	

Note 1: G threads and NPT threads are available for the piping port threads. Contact CKD for details.
Note 2: Response time is the value at working pressure of 0.5 MPa and oil-free. The value will change based on pressure and quality of oil supplied.
Note 3: Weight does not include the sub-plate.

Flow characteristics

Model No.	Port size	Solenoid position	P→A/B		A/B→R1/R2	
			C $[dm^3/(s•bar)]$	b	C $[dm^3/(s•bar)]$	b
PV5-6R	Rc 1/4	2-position single solenoid	6.1	0.28	6.7	0.20
		2-position double solenoid	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-leak)	3.4	-	3.0	-

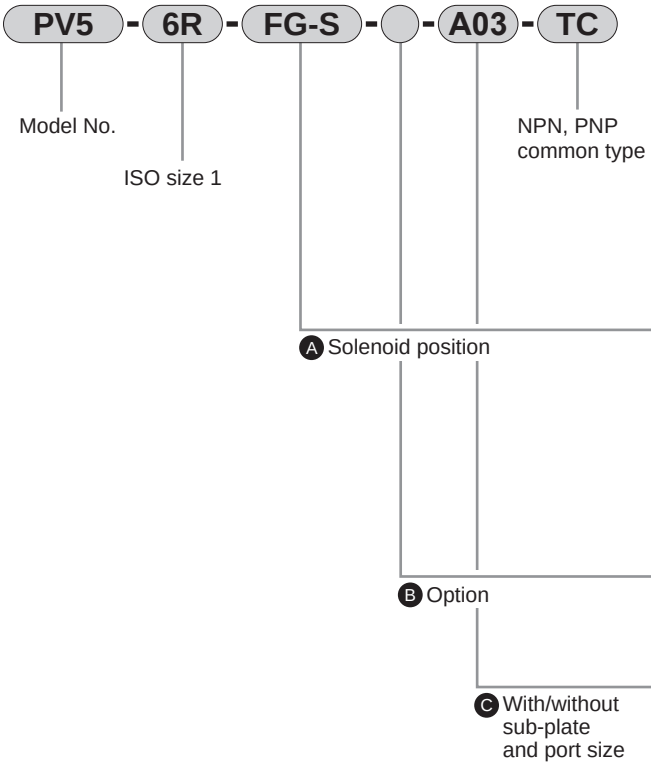
Note 1: Conversion for effective sectional area S and sonic conductance C is S ≈ 5.0 × C.

Coolant proof specifications

The specification can be selected with Ⓑ option "A" in How to order on page 34.

I/O connector type How to order

● ISO size 1



Symbol	Description		Model No. PV5-6R
Ⓐ Solenoid position			
FG-S	P pressurization type	2-position single	●
FG-D		2-position double	●
FHG-D		3-position all ports closed	●
FJG-D		3-position A/B/R connection	●
FIG-D		3-position P/A/B connection	●
FPG-D		3-position all ports closed (non-leak)	●
Ⓑ Option			
Blank	None		●
A	Coolant proof		●
Ⓒ With/without sub-plate and port size			
Blank	Without sub-plate		●
A02	Side porting Rc 1/4 (Rc 3/8 for R port only)		●
A03	Side porting Rc 3/8		●

<Example of model number>

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

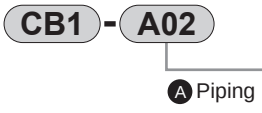
Model: PV5 ISO size 1 (I/O connector type)
Ⓐ Solenoid position classification : P pressurization type 2-position Single solenoid
Ⓒ Sub-plate port size : side porting Rc 3/8

● Note

Item	Description
(1) I/O connector	With I/O connector (M12) NPN, PNP common type
(2) Rated voltage	24 VDC
(3) Power indicator light	Standard with indicator light and surge suppressor

Note 1: For circuit diagrams of types with indicator light and surge suppressor, see page 3.

ISO size 1 Sub-plate specification and how to order

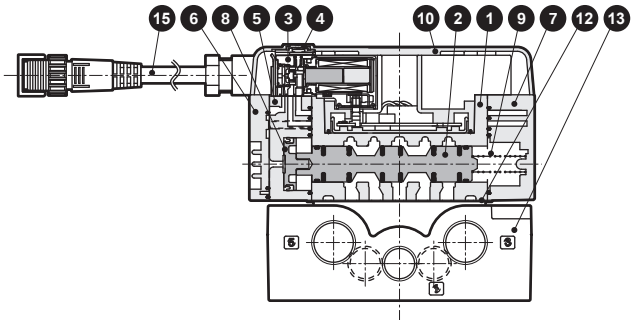


Symbol	Type	P/A/B port	R1/R2 port	Weight (kg)
Ⓐ Piping				
A02	Side porting	Rc 1/4	Rc 3/8	0.27
A03		Rc 3/8		

Internal structure and parts list: I/O connector type

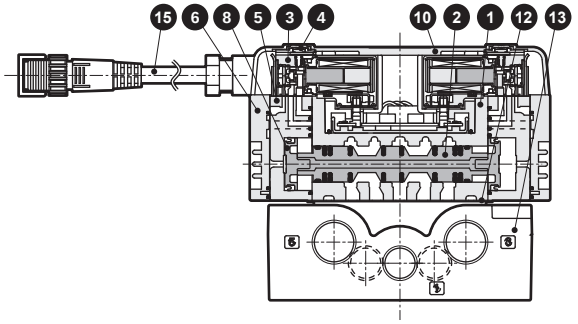
PV5-6R-FG-S

● 2-position single solenoid



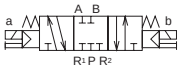
PV5-6R-FG-D

● 2-position double solenoid



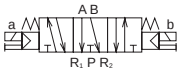
PV5-6R-FHG-D

● 3-position all ports closed



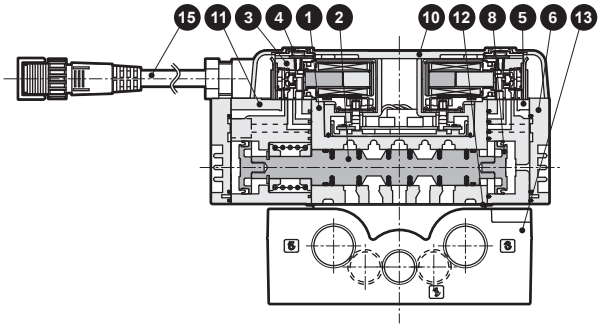
PV5-6R-FJG-D

● 3-position A/B/R connection



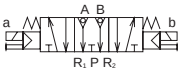
PV5-6R-FIG-D

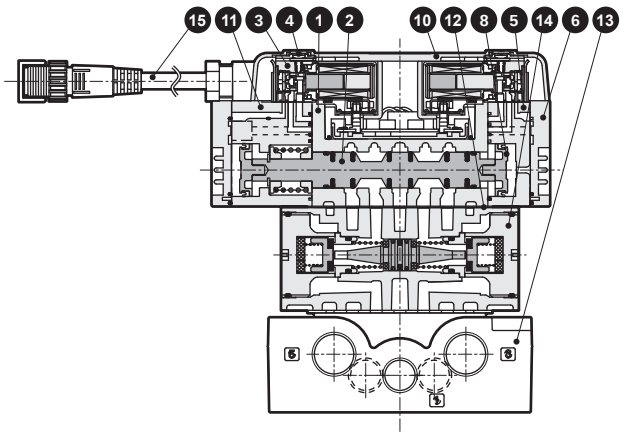
● 3-position P/A/B connection



PV5-6R-FPG-D

● 3-position all ports closed
non-leak type





Main parts list

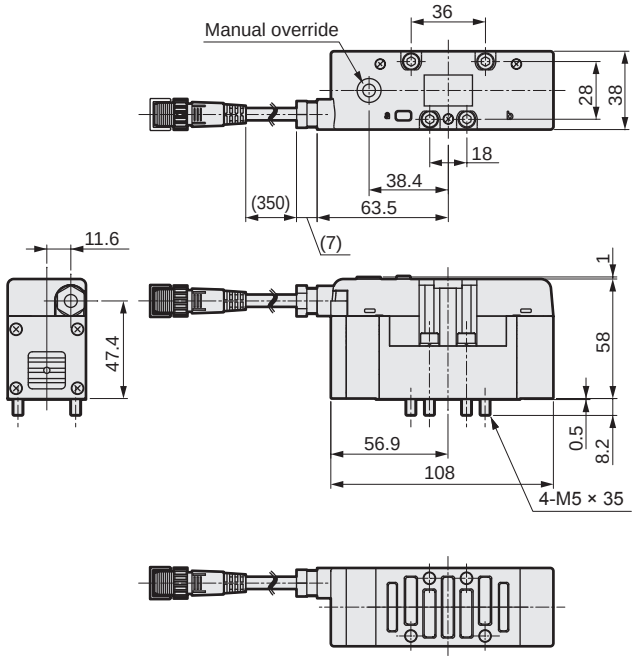
No.	Parts name	Material	No.	Parts name	Material
1	Body	Aluminum alloy die-casting	9	Spring S	-
2	Spool assembly	-	10	Electric cover	Resin
3	Pilot valve	-	11	Pilot valve assembly for 3-position	Resin
4	Manual override	-	12	Gasket	-
5	Pilot valve assembly for double	Resin	13	Sub-plate	Aluminum alloy die-casting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

MEMO

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

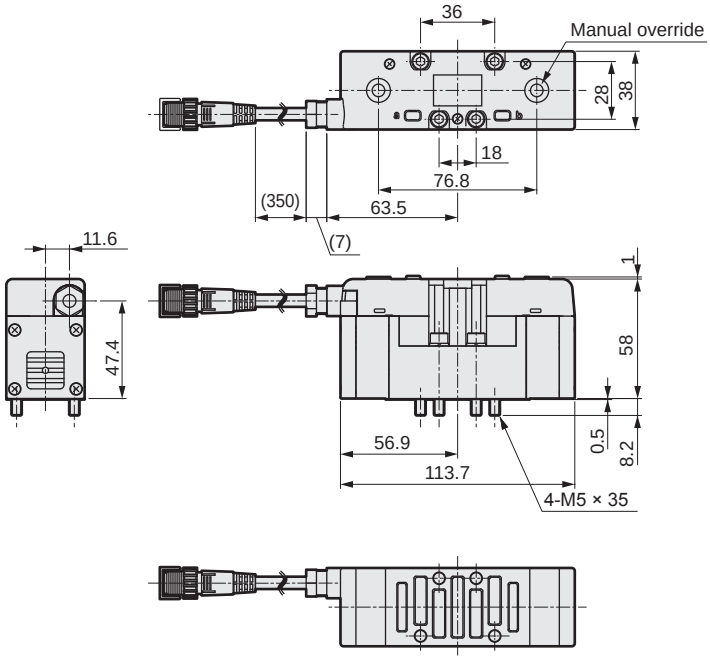
PV5-6R-FG-S

● 2-position single solenoid



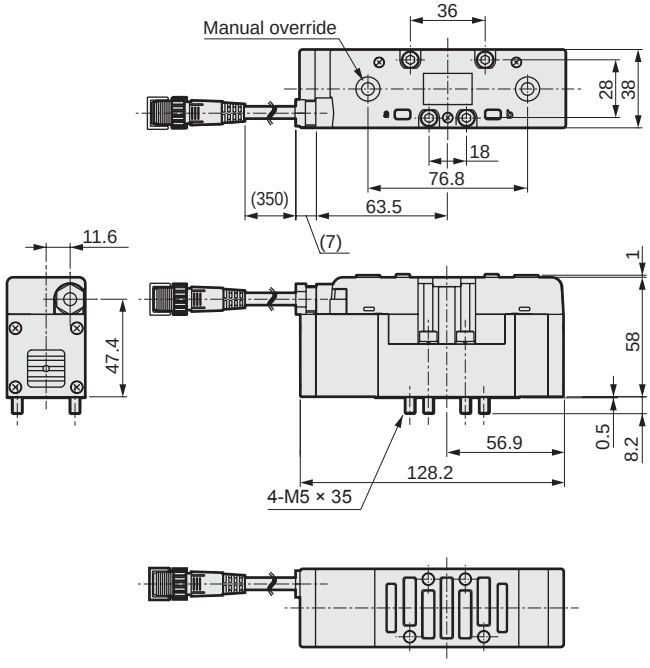
PV5-6R-FG-D

● 2-position double solenoid



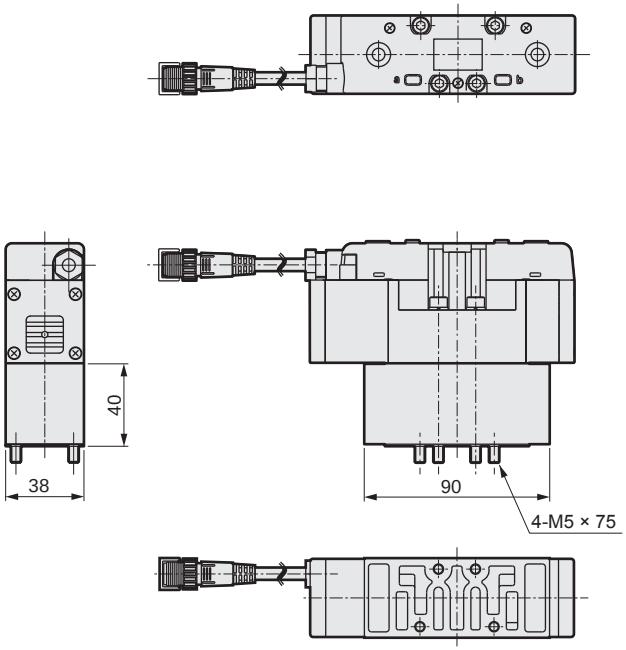
PV5-6R-FHG-D
PV5-6R-FJG-D
PV5-6R-FIG-D

● 3-position



PV5-6R-FPG-D

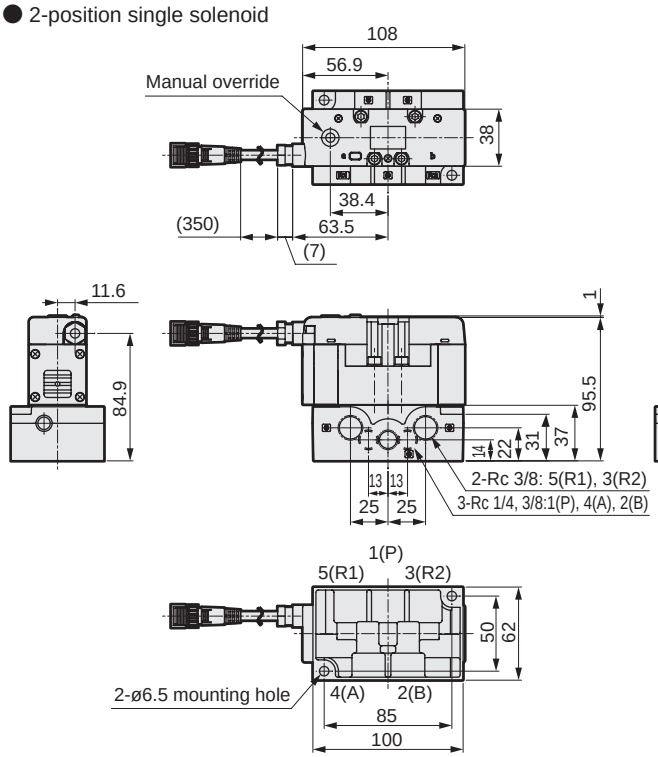
● 3-position non-leak type



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

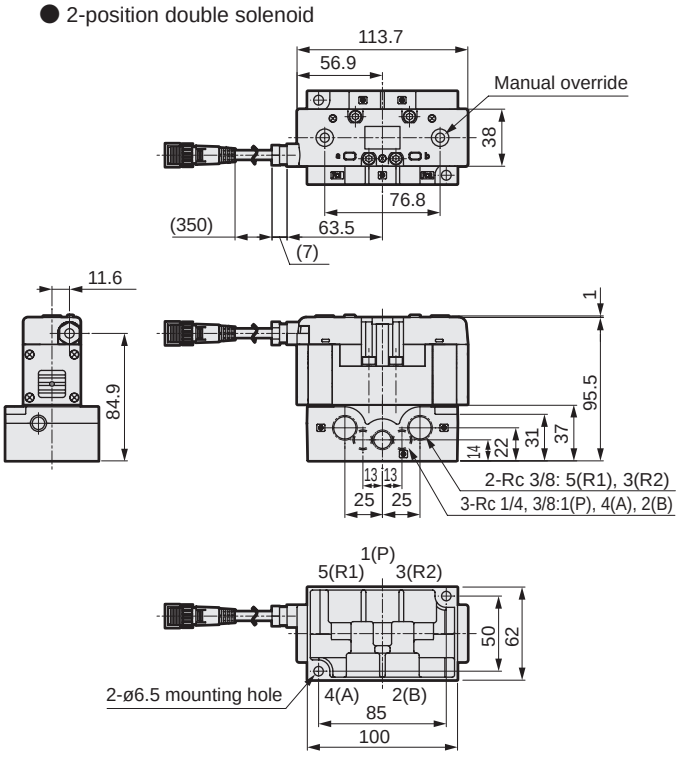
PV5-6R-FG-S-*

● 2-position single solenoid



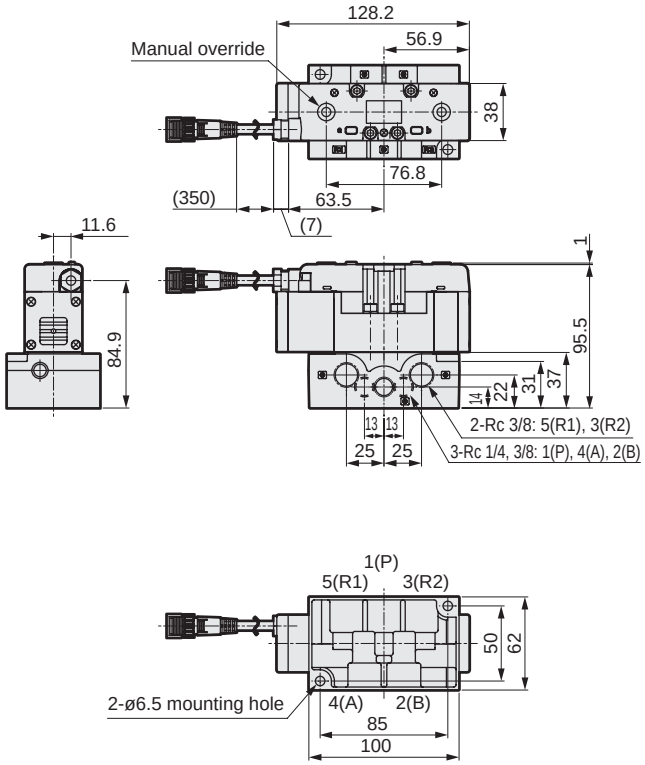
PV5-6R-FG-D-*

● 2-position double solenoid

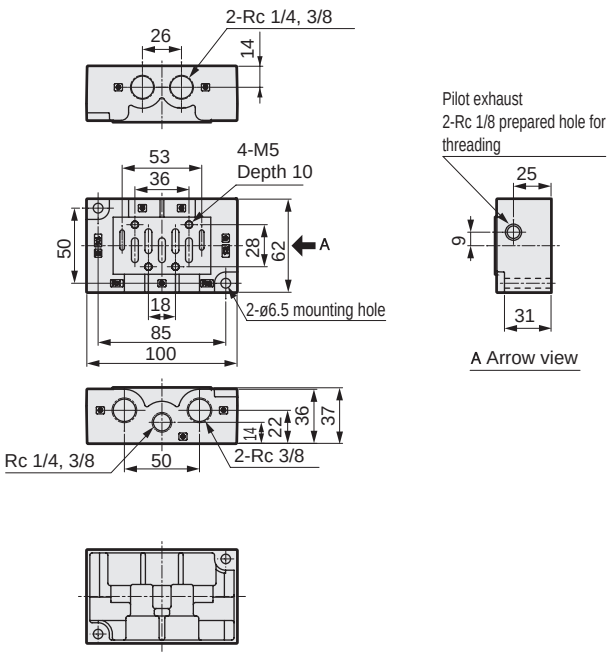


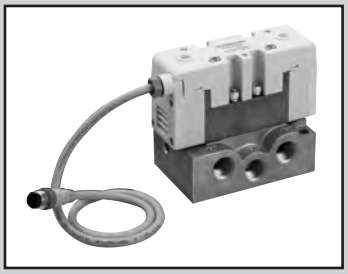
PV5-6R-FHG-D-*
PV5-6R-FJG-D-*
PV5-6R-FIG-D-*

● 3-position



● Sub-plate dimensions





Discrete valve ISO size 2
I/O connector type
5 port pilot operated valve ISO conformed valve

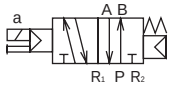
PV5-8R Series

● Applicable cylinder bore size: max. ø160

JIS symbol

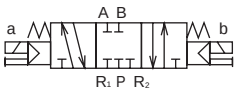
● 5-port valve

2-position single (FG-S)

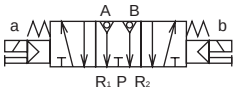


2-position double (FG-D)

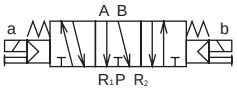
3-position all ports closed (FHG)



3-position all ports closed non-leak type (FPG)



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



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

Common specifications

Item	Description
Valve type 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)
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/jet-proof (equivalent to IP65)
Leakage cm^3/min	10 (ANR) or less
(A, B→R port)	3-position all ports closed non-leak type only 0.3 (ANR) or less Note 1
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Containing corrosive gas is impermissible.

Note 1: Indicates the default.

Electrical specifications

Item		Description
Rated voltageV	DC	24
Voltage fluctuation range		±10%
Power consumption W (current A)		1.2 (0.050) *Values in parentheses apply when a indicator light is installed.
Heat resistance class		B (molded coil)
How to wire		I/O connector

Individual specifications

Item			PV5-8R		
Port size Note 1			Rc3/8	Rc1/2	Rc3/4
Response time ms Note 2	2-position	Single	40 (when ON), 60 (when OFF)		
		Double	40		
	3-position		40 (when ON), 60 (when neutral)		
Weight kg Note 3	2-position	Single	0.62		
		Double	0.66		
	3-position	Other than non-leak type	0.69		
		All ports closed non-leak type	1.34		

Note 1: G threads and NPT threads are available for the piping port threads. Contact CKD for details.
Note 2: Response time is the value at working pressure of 0.5 MPa and oil-free. The value will change based on pressure and quality of oil supplied.
Note 3: Weight does not include the sub-plate.

Flow characteristics

Model No.	Port size	Solenoid position	P→A/B		A/B→R1/R2	
			C [$dm^3/(s•bar)$]	b	C [$dm^3/(s•bar)$]	b
PV5-8R	Rc3/8	2-position single solenoid	10.7	0.17	13.0	0.19
		2-position double solenoid	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-leak)	6.6	-	6.2	-

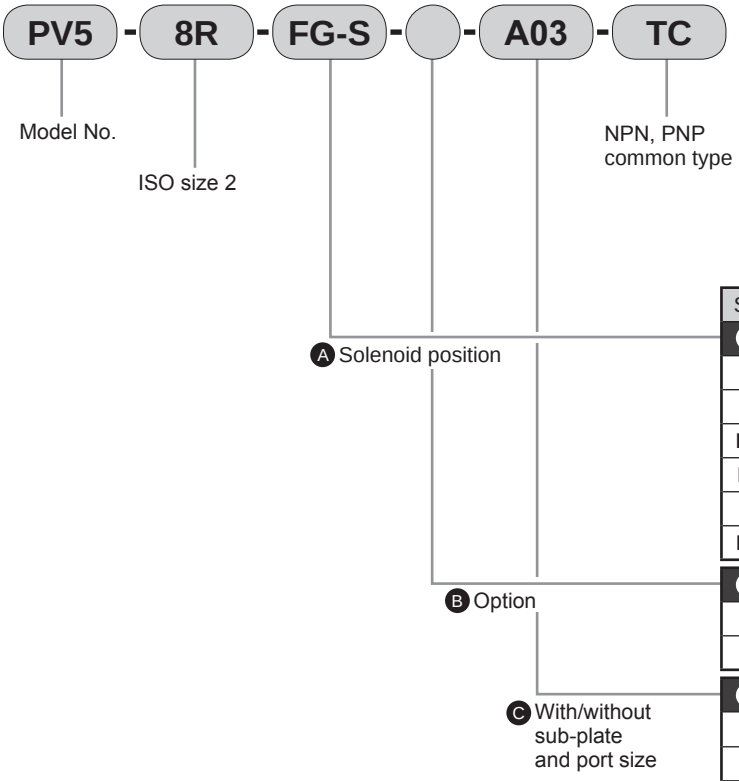
Note 1: Conversion for effective sectional area S and sonic conductance C is S ≈ 5.0 × C.

Coolant proof specifications

The specification can be selected with Ⓑ option "A" in How to order on page 40.

I/O connector type How to order

● ISO size 2



Symbol	Description		Model No. PV5-8R
Ⓐ Solenoid position			
FG-S	P pressurization type	2-position single	●
FG-D		2-position double	●
FHG-D		3-position all ports closed	●
FJG-D		3-position A/B/R connection	●
FIG-D		3-position P/A/B connection	●
FPG-D		3-position all ports closed (non-leak)	●
Ⓑ Option			
Blank	None		●
A	Coolant proof		●
Ⓒ With/without sub-plate and port size			
Blank	Without sub-plate		●
A03	Side porting Rc 3/8 (Rc 1/2 for R port only)		●
A04	Side porting Rc 1/2		●
A06	Side porting Rc 3/4		●

<Example of model number>

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

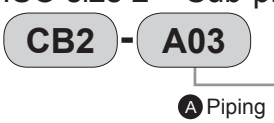
Model: PV5 ISO size 2 (I/O connector type)
Ⓐ Solenoid position classification : P pressurization type 2-position Single solenoid
Ⓒ Sub-plate port size ..... : side porting Rc 3/8 R port Rc 1/2

● Note

Item	Description
(1) I/O connector	With I/O connector (M12) NPN, PNP common type
(2) Rated voltage	24 VDC
(3) Power indicator light	Standard with indicator light and surge suppressor

Note 1: For circuit diagrams of types with indicator light and surge suppressor, see page 3.

ISO size 2 Sub-plate specification and how to order

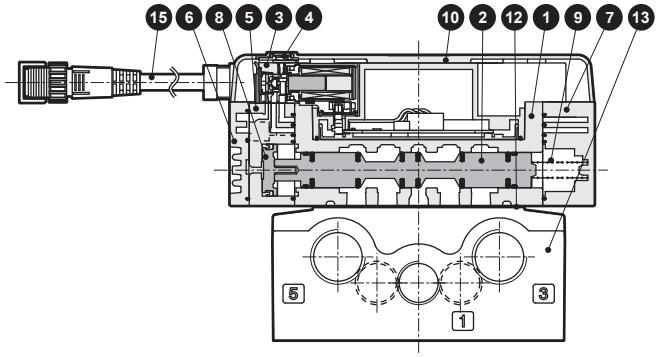


Symbol	Type	P/A/B port	R1/R2 port	Weight (kg)
Ⓐ Piping				
A03	Side porting	Rc 3/8	Rc 1/2	0.49
A04		Rc 1/2		
A06		Rc 3/4	Rc 3/4	1.40

Internal structure and parts list: I/O connector type

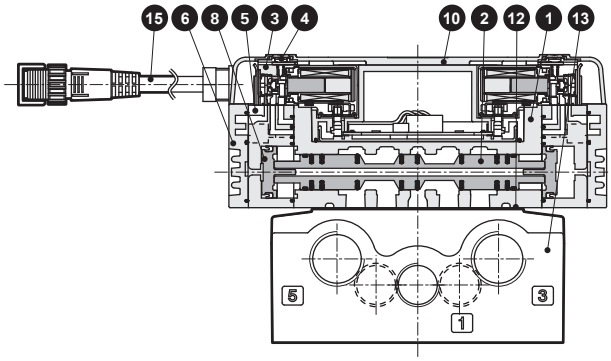
PV5-8R-FG-S

● 2-position single solenoid



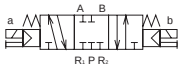
PV5-8R-FG-D

● 2-position double solenoid



PV5-8R-FHG-D

● 3-position all ports closed

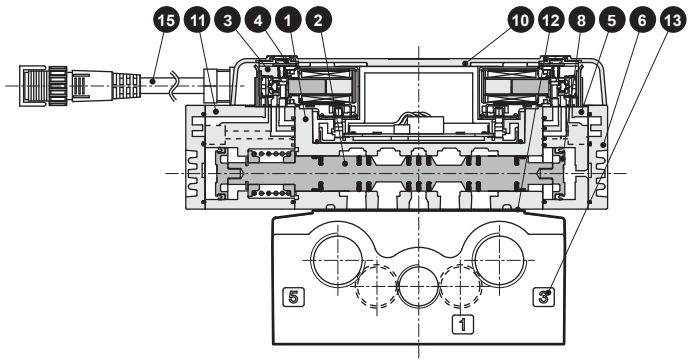


PV5-8R-FJG-D

● 3-position A/B/R connection

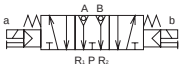
PV5-8R-FIG-D

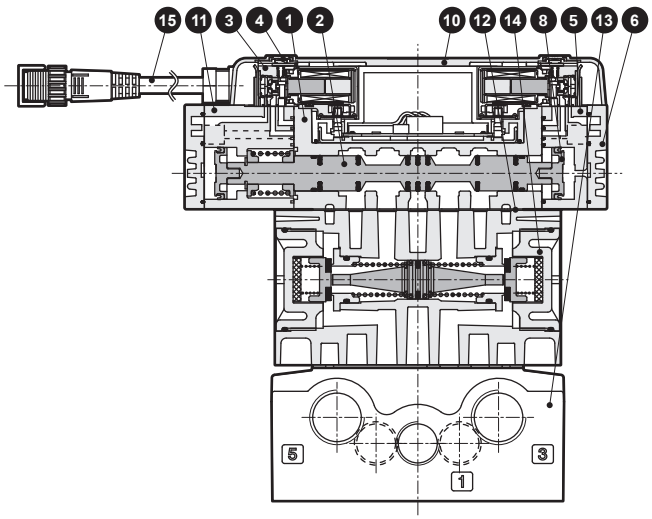
● 3-position P/A/B connection



PV5-8R-FPG-D

● 3-position all ports closed
non-leak type





Main parts list

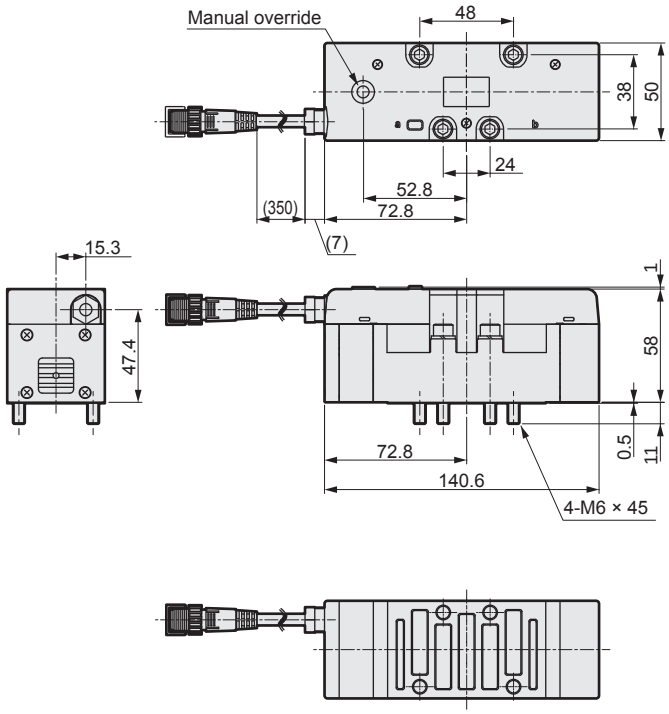
No.	Parts name	Material	No.	Parts name	Material
1	Body	Aluminum alloy die-casting	9	Spring S	-
2	Spool assembly	-	10	Electric cover	Resin
3	Pilot valve	-	11	Pilot valve assembly for 3-position	Resin
4	Manual override	-	12	Gasket	-
5	Pilot valve assembly for double	Resin	13	Sub-plate	Aluminum alloy die-casting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

MEMO

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

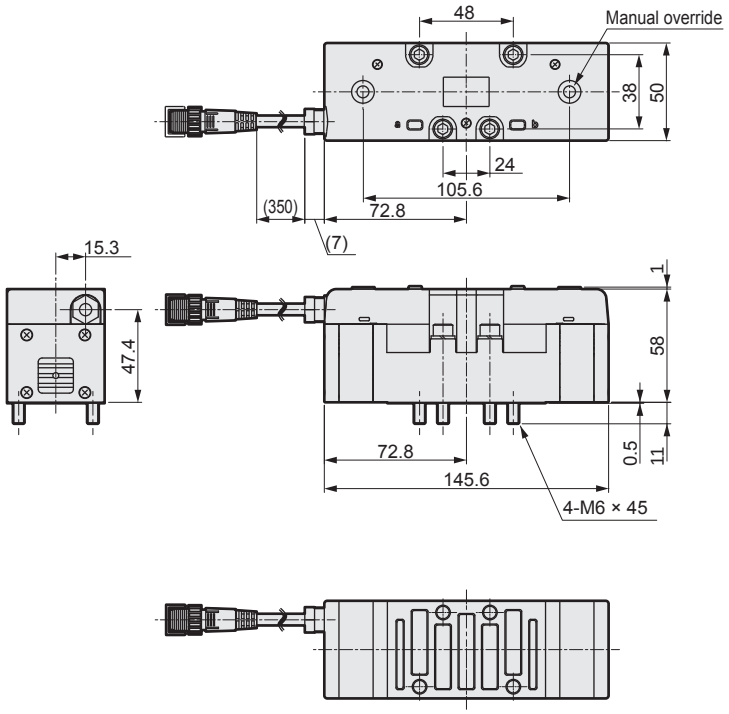
PV5-8R-FG-S

● 2-position single solenoid



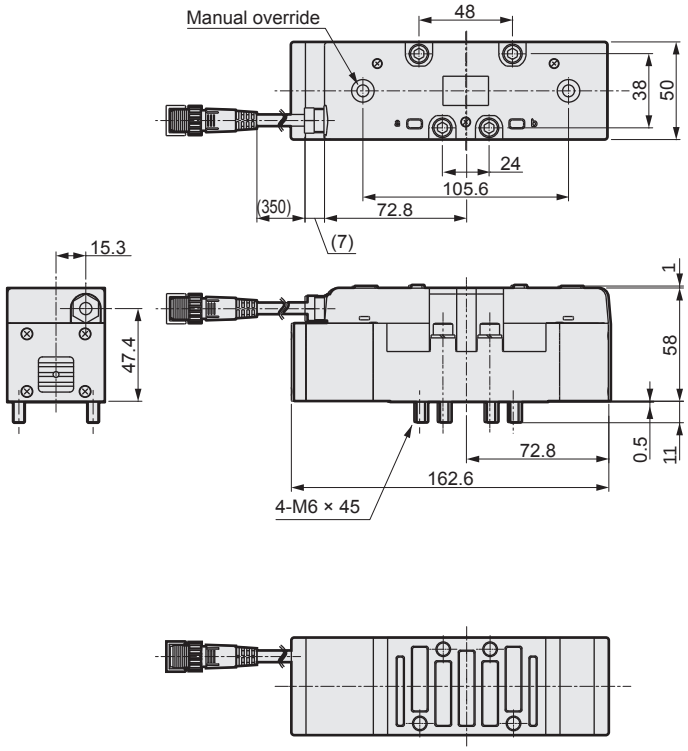
PV5-8R-FG-D

● 2-position double solenoid



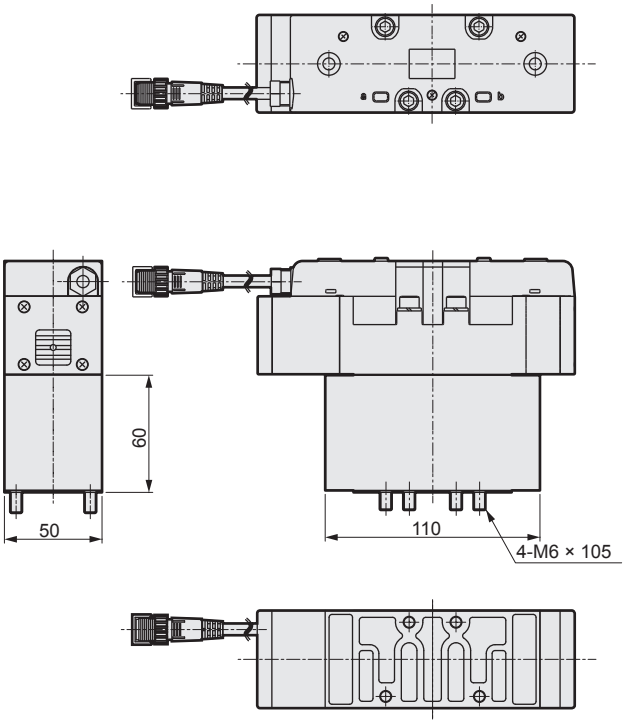
PV5-8R-FHG-D
PV5-8R-FJG-D
PV5-8R-FIG-D

● 3-position



PV5-8R-FPG-D

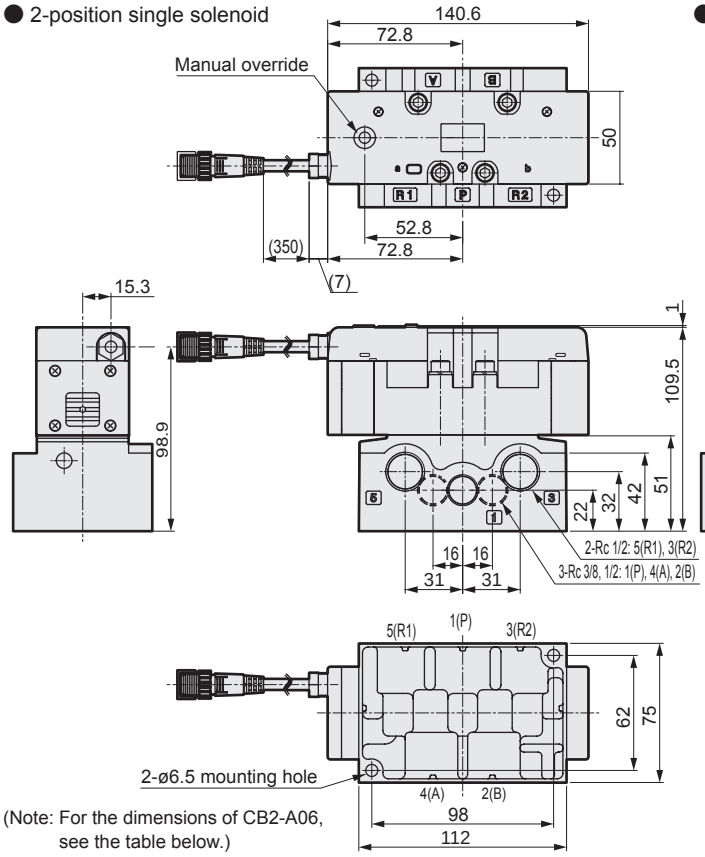
● 3-position non-leak type



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

PV5-8R-FG-S-*

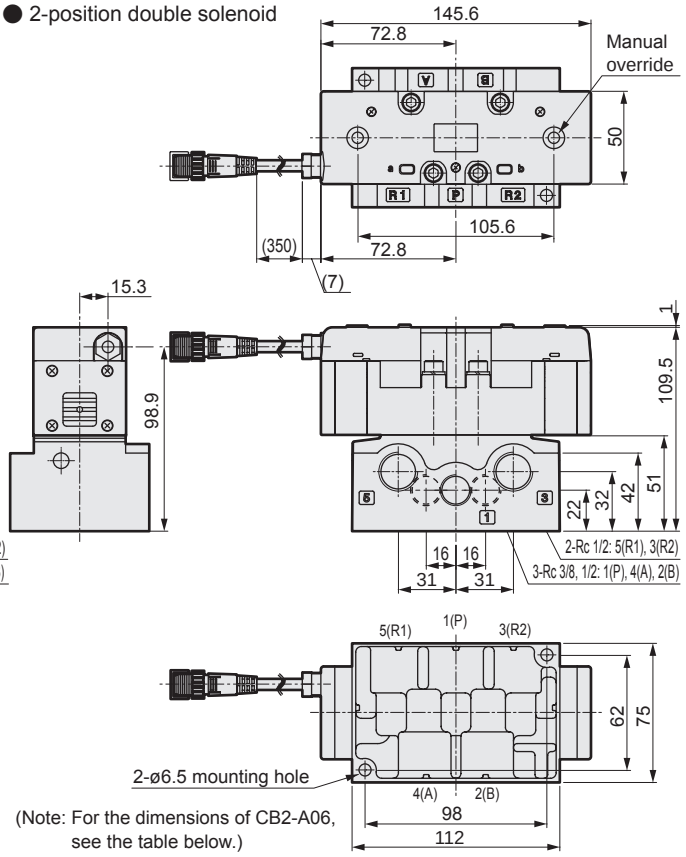
● 2-position single solenoid



(Note: For the dimensions of CB2-A06, see the table below.)

PV5-8R-FG-D-*

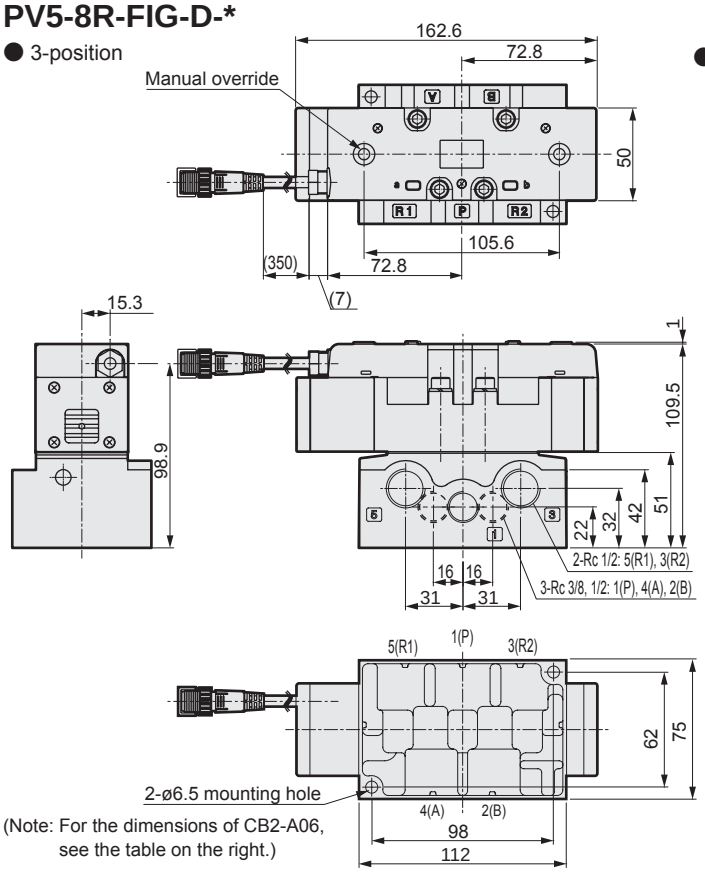
● 2-position double solenoid



(Note: For the dimensions of CB2-A06, see the table below.)

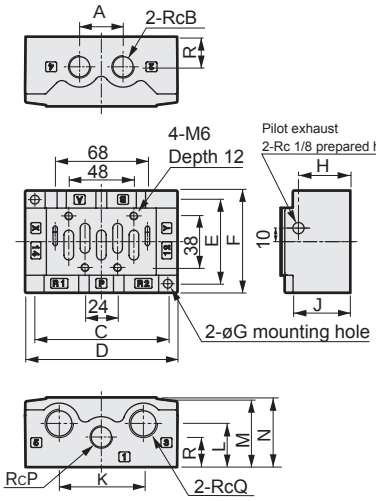
PV5-8R-FHG-D-*
PV5-8R-FJG-D-*
PV5-8R-FIG-D-*

● 3-position

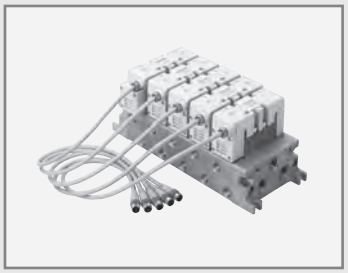


(Note: For the dimensions of CB2-A06, see the table on the right.)

● Sub-plate dimensions (CB2-*)



Model No.	CB2-A/B 03		CB2-A/B 04	CB2-A/B 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



Individual wiring manifold ISO size 1
I/O connector type
5 port pilot operated valve ISO conformed valve

GMF1 Series

● Applicable cylinder bore size: max. ø100

RoHS

Common specifications

Item	Description
Manifold method	Manifold integrated
Manifold type	Common supply/common exhaust, common supply/individual exhaust Individual supply/common exhaust, individual supply/individual exhaust Multi-pressure air supply
Station number	1 to 10 stations
Valve type 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)
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/jet-proof (equivalent to IP65)
Leakage cm^3/min (A, B→R port)	10 (ANR) or less 3-position all ports closed non-leak type only 0.3 (ANR) or less Note 1
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Containing corrosive gas is impermissible.

Note 1: Indicates the default.

Electrical specifications

Item		Descriptions
Rated voltage V	DC	24
Voltage fluctuation range		±10%
Power consumption W (current A)		1.2 (0.050) *Values in parentheses apply when a indicator light is installed.
Heat resistance class		B (molded coil)
How to wire		I/O connector

Individual specifications

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

Note 1: G threads and NPT threads are available for the piping port threads. Contact CKD for details.
Note 2: Response time is the value at working pressure of 0.5 MPa and oil-free.
The value will change based on pressure and quality of oil supplied.

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 (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→A/B		A/B→R1/R2	
			C [$dm^3/(s \cdot bar)$]	b	C [$dm^3/(s \cdot bar)$]	b
GMF1	Rc 1/4	2-position single solenoid	4.8	0.25	5.2	0.26
		2-position double solenoid	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-leak)	3.2	-	2.8	-

Note 1: Conversion for effective sectional area S and sonic conductance C is S ≈ 5.0 × C.

I/O connector type How to order

● ISO size 1

GMF 1 5 - 02 L - HY1 B DU - SB F - ○ ○

Model no. Ⓐ Station No. A/B port size 02 number Ⓑ A/B port size Note 1 A/B port size 03 number Ⓒ A/B port position Note 2 Ⓓ P/R port size Ⓔ P/R port position Note 3 Note 4 Ⓕ HY configuration Ⓖ Silencer box Note 5 Ⓗ Option

Symbol	Description	Model No. GMF1
Ⓐ Station number		
1	1 station	●
to	to	
10	10 stations	
Ⓑ A/B port size		
02	Rc 1/4	●
03	Rc 3/8	●
HX1	Rc 1/4, Rc 3/8 mix	●
Ⓒ A/B port position		
Blank	Right	●
L	Left/right (select position with manifold specifications)	●
H	Left	●
Z	Rear	●
T	Flexible selection (plug attached)	●
Ⓓ P/R port size		
03	Rc 3/8	●
04	Rc 1/2	●
HY1	Rc 3/8, Rc 1/2 mix	●
Ⓔ P/R port position		
B	Both (U side and D side)	●
D	D side	●
U	U side	●
E	P U side, R D side	●
F	P D side, R U side	●
T	Flexible selection (plug attached)	●
Ⓕ HY configuration		
Blank	Ⓓ When HY1 is not selected for	●
DU	Rc 3/8 D side, Rc 1/2 U side	●
UD	Rc 3/8 U side, Rc 1/2 D side	●
Ⓖ Silencer box		
Blank	None	●
SB	Selected (D side installation)	●
Ⓗ Option		
Blank	None	●
F	P/A/B port filter integrated	●

⚠ Note on model No. selection

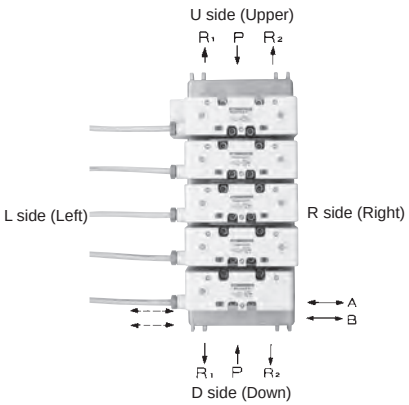
Note 1: The port size for HX is mixed. Contact CKD for details.
Note 2: Ⓒ indicates the port position. All positions are plugged unless otherwise indicated.
Note 3: Ⓔ indicates the port position. The opposite side of indicated port will be plugged.
Note 4: Ⓖ type with silencer box is selected, the P port position can be selected. Select from B, D, U, or T.
Note 5: Ⓖ type with silencer box is selected, U side and D side are both assembled with plugs.

<Example of model number>

GMF15-02L-HY1BDU-SBF

Model: Manifold ISO size 1

Ⓐ Station No : 5 stations
Ⓑ Ⓒ A/B port : Rc 1/4 (left/right side porting)
Ⓓ Ⓔ Ⓕ P/R port : Rc 3/8, Rc 1/2 mix (Rc 3/8 D side, Rc 1/2 U side)
Ⓖ Silencer box : Selected (D side installation)
Ⓗ Option : P/A/B port filter integrated



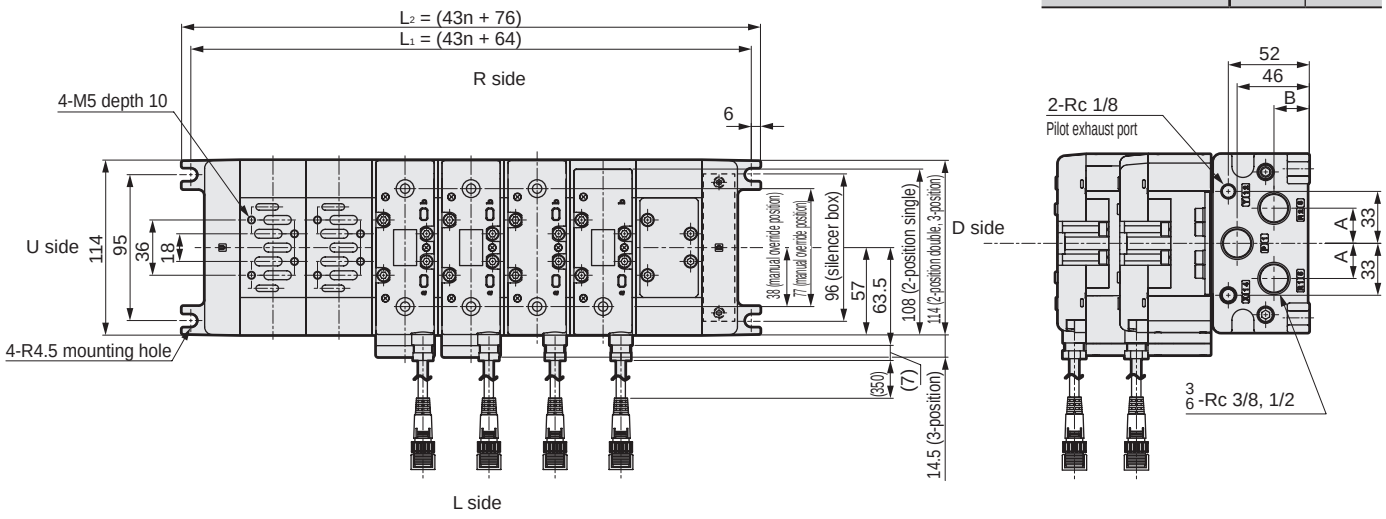
The valve is ordered separately. Refer to page 34 for for details on how to order. When ordering a manifold with a valve, each model and the **manifold specifications given on page 57 are required**.

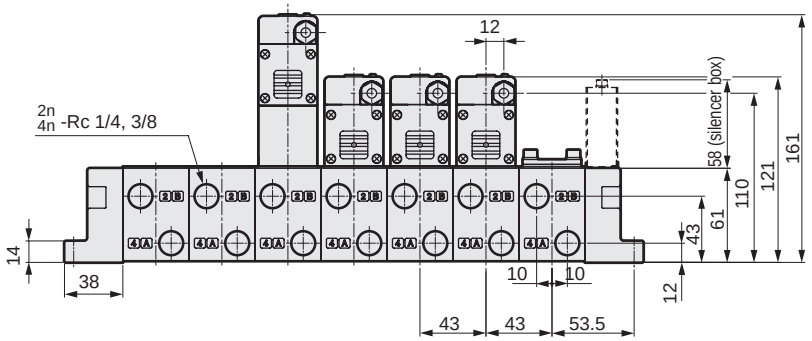
Dimensions: I/O connector type

GMF1

● Common exhaust

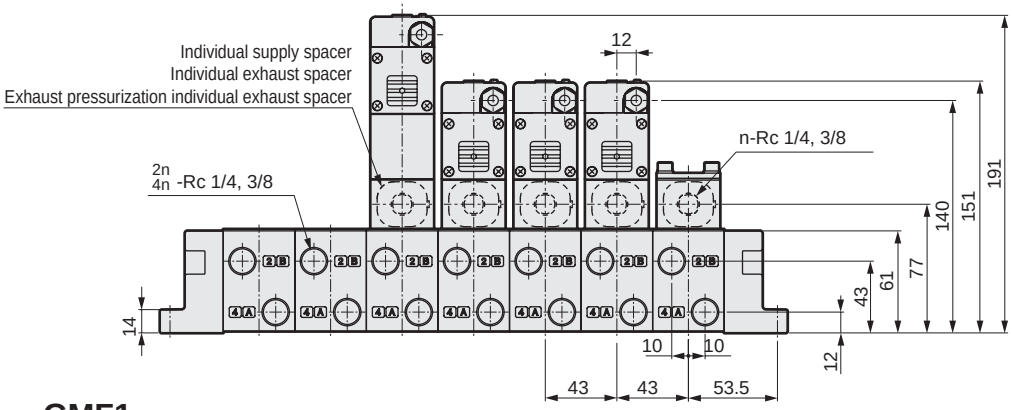
P/R port size	A	B
Rc 3/8	18.5	23.5
Rc 1/2	22.5	22.5





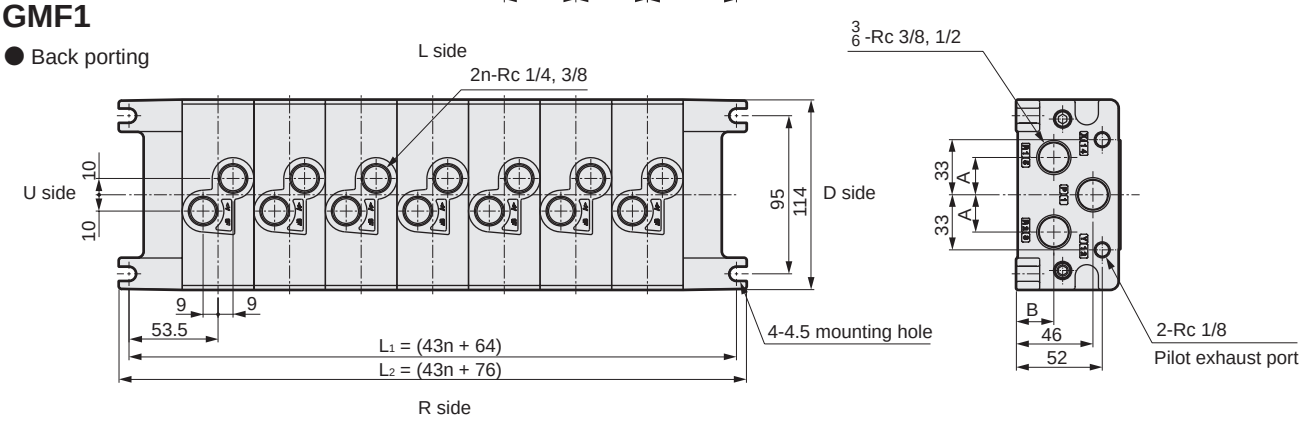
GMF1

● Individual exhaust



GMF1

● Back porting



How to order

● Spacer type regulator

CMF 1 - SR - A - T05 C

Ⓐ Size	
1	ISO size 1

Ⓑ Pressure reduction	
P	P port
A	A port
B	B port

Ⓒ Pressure gauge	
T05	MPa display (With limit mark)

Ⓓ Check valve	
Blank	None
C	Provided

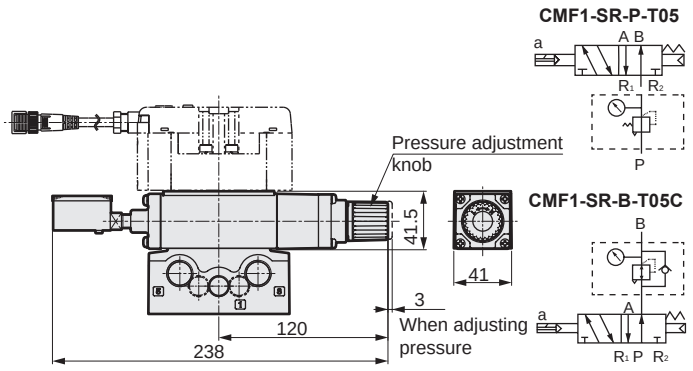
Indicate without a check valve (no symbol) for SR-P and with a check valve (C) for SR-A and SR-B.

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

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

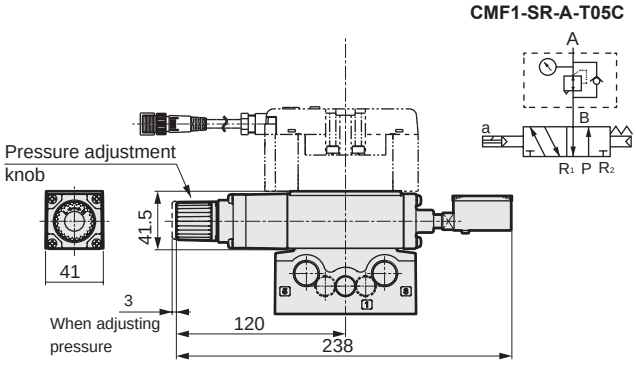
● Spacer type regulator

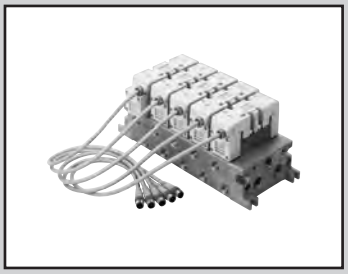
● JIS symbol



CMF1-SR-A-T05C

● JIS symbol





Individual wiring manifold ISO size 2
I/O connector type
5 port pilot operated valve ISO conformed valve

GMF2 Series

● Applicable cylinder bore size: max. ø160

RoHS

Common specifications

Item	Description
Manifold method	Manifold integrated
Manifold type	Common supply/common exhaust, common supply/individual exhaust Individual supply/common exhaust, individual supply/individual exhaust Multi-pressure air supply
Station number	1 to 10 stations
Valve type 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)
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/jet-proof (equivalent to IP65)
Leakage cm^3/min (A, B→R port)	10 (ANR) or less 3-position all ports closed non-leak type only 0.3 (ANR) or less Note 1
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Containing corrosive gas is impermissible.

Note 1: Indicates the default.

Electrical specifications

Item	Descriptions
Rated voltage V DC	24
Voltage fluctuation range	±10%
Power consumption W (current A)	1.2 (0.050) *Values in parentheses apply when a indicator light is installed.
Heat resistance class	B (molded coil)
How to wire	I/O connector

Individual specifications

Item			GMF1	
Port size	P/R1/R2 port		Rc 1/2, Rc 3/4	
Note 1	A/B port		Rc 3/8	Rc 1/2
Response time Note 2 ms	2-position	Single	40 (when ON), 60 (when OFF)	
		Double	40	
	3-position		40 (when ON), 60 (when neutral)	

Note 1: G threads and NPT threads are available for the piping port threads. Contact CKD for details.
Note 2: Response time is the value at working pressure of 0.5 MPa and oil-free.
The value will change based on pressure and quality of oil supplied.

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	Model No.	SB									
Added to manifold base (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→A/B		A/B→R1/R2	
			C [$dm^3/(s \cdot bar)$]	b	C [$dm^3/(s \cdot bar)$]	b
GMF2	Rc 3/8	2-position single solenoid	9.7	0.12	11.0	0.14
		2-position double solenoid	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-leak)	6.2	-	5.9	-

Note 1: Conversion for effective sectional area S and sonic conductance C is S ≈ 5.0 × C.

I/O connector type How to order

● ISO size 2

GMF 2 5 - 03 L - 04 B [ ] - SB F - [ ] [ ]

Model No. Ⓐ Station No. Ⓑ A/B port size Note 1 Ⓒ A/B port position Note 2 Ⓓ P/R port size Ⓔ P/R port position Note 3 Note 4 Ⓕ HY configuration Ⓖ Silencer box Note 5 Ⓗ Option

A/B port size 03 number

A/B port size 04 number

Symbol	Description	Model No. GMF2
Ⓐ Station number		
1	1 station	●
to	to	
10	10 stations	
Ⓑ A/B port size		
03	Rc 3/8	●
04	Rc 1/2	●
HX2	Rc 3/8, Rc 1/2 mix	●
Ⓒ A/B port position		
Blank	Right	●
L	Left/right (select position with manifold specifications)	●
H	Left	●
Z	Rear	●
T	Flexible selection (plug attached)	●
Ⓓ P/R port size		
04	Rc 1/2	●
06	Rc 3/4	●
HY2	Rc 1/2, Rc 3/4 mix	●
Ⓔ P/R port position		
B	Both (U side and D side)	●
D	D side	●
U	U side	●
E	P U side, R D side	●
F	P D side, R U side	●
T	Flexible selection (plug attached)	●
Ⓕ HY configuration		
Blank	When HY2 is not selected for Ⓓ	●
DU	Rc 1/2 D side, Rc 3/4 U side	●
UD	Rc 1/2 U side, Rc 3/4 D side	●
Ⓖ Silencer box		
Blank	None	●
SB	Selected (D side installation)	●
Ⓗ Option		
Blank	None	●
F	P/A/B port filter integrated	●

The valve is ordered separately. Refer to page 40 for for details on how to order. When ordering a manifold with a valve, each model and **the manifold specifications** given on page 58 are required.

⚠ Note on model No. selection

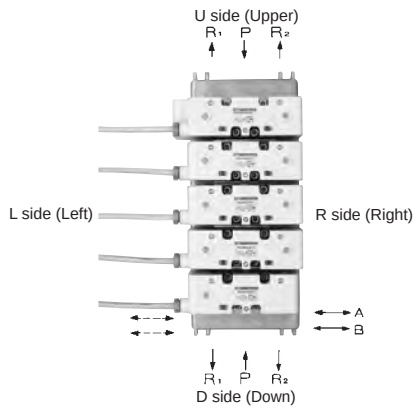
Note 1: The port size for HX is mixed. Contact CKD for details.
Note 2: Ⓒ indicates the port position. All positions are plugged unless otherwise indicated.
Note 3: Ⓔ indicates the port position. The opposite side of indicated port will be plugged.
Note 4: Ⓖ type with silencer box is selected, the P port position can be selected. Select from B, D, U, or T.
Note 5: If Ⓖ type with silencer box is selected, U side and D side are both assembled with plugs.

<Example of model number>

GMF25-03L-04B-SBF

Model: Manifold ISO size 2

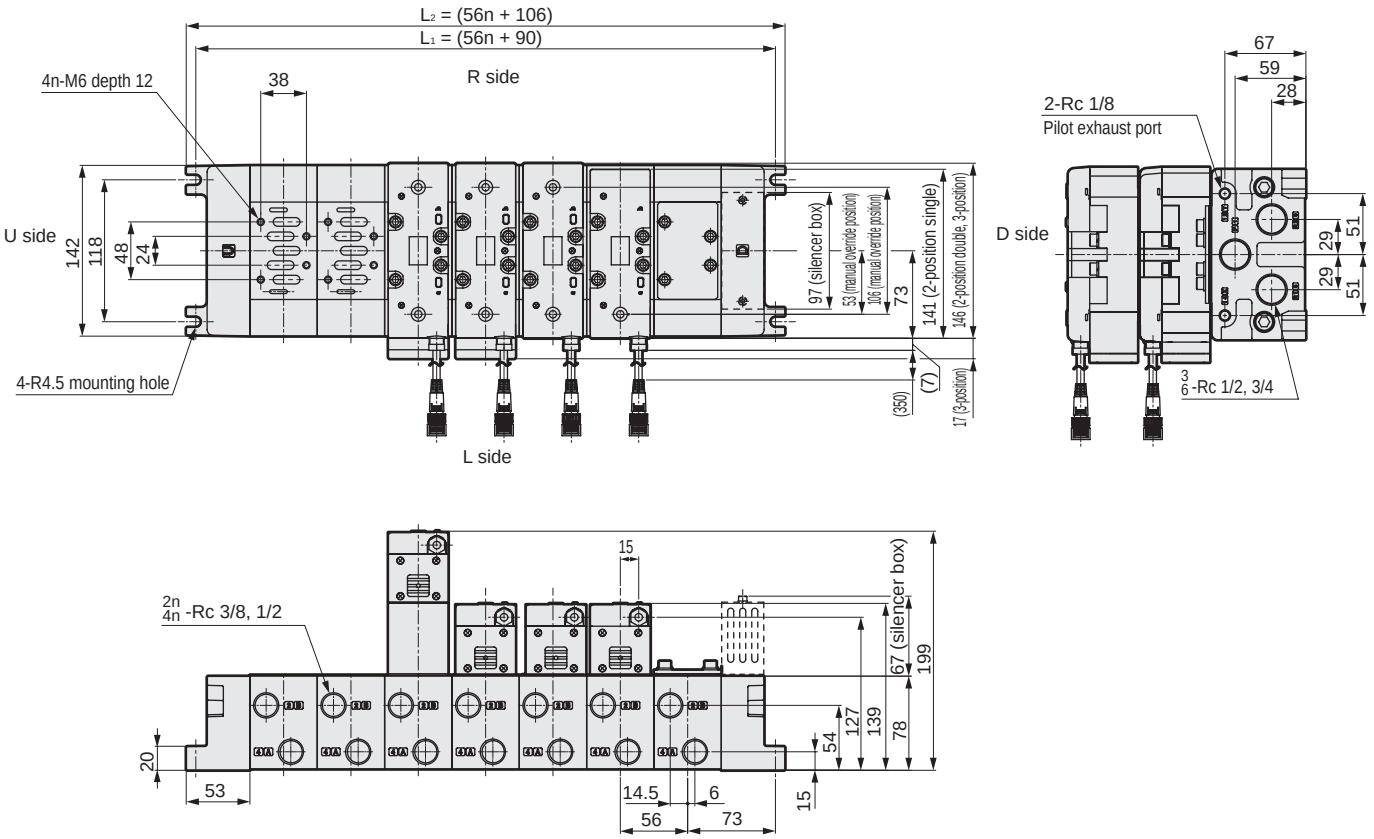
Ⓐ Station number : 5 stations
ⒷⒸ A/ B port : Rc 3/8 (left/right porting)
ⒹⒺ P/ R port : Rc 1/2 (U side/D side porting)
Ⓖ Silencer box : Selected (D side installation)
Ⓗ Option : P/A/B port filter integrated



Dimensions: I/O connector type

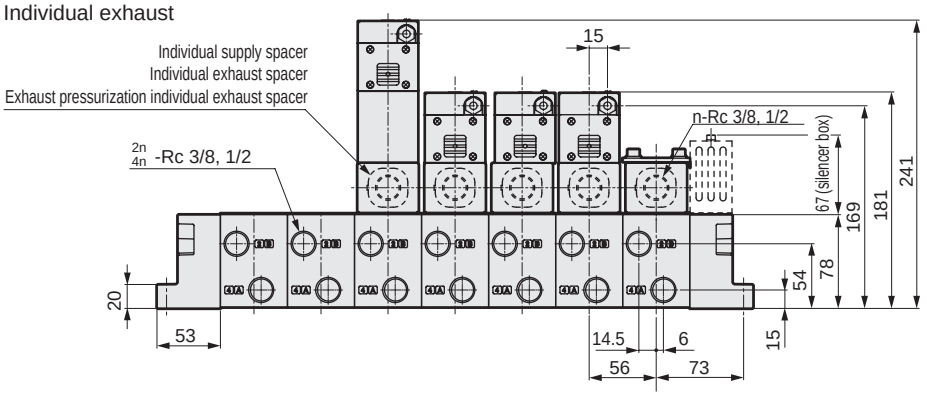
GMF2

● Common exhaust



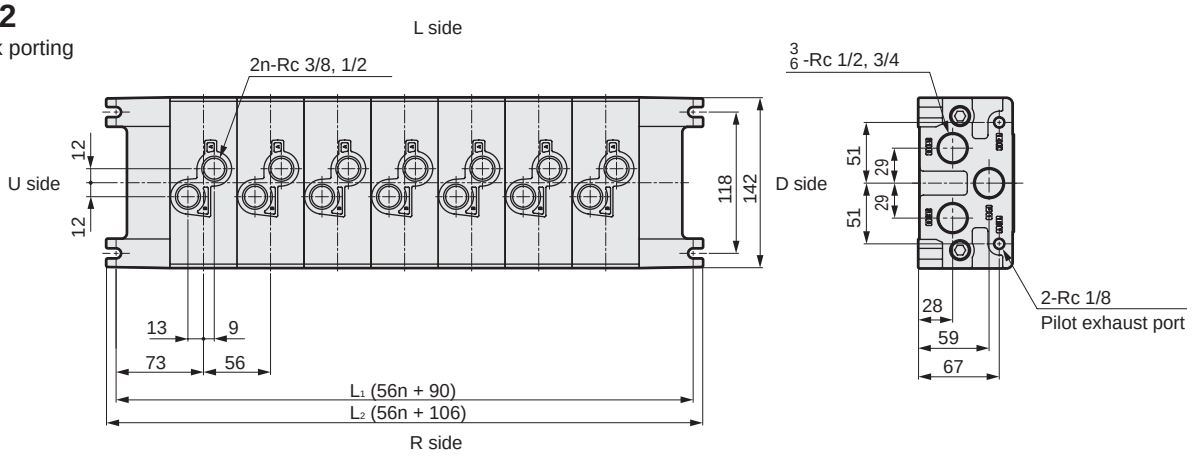
GMF2

● Individual exhaust



GMF2

● Back porting



How to order

● Spacer type regulator

CMF 2 - SR - A - T05 C

Ⓐ Size	
2	ISO size 2

Ⓑ Pressure reduction	
P	P port
A	A port
B	Port B

Ⓒ Pressure gauge	
T05	MPa display (With limit mark)

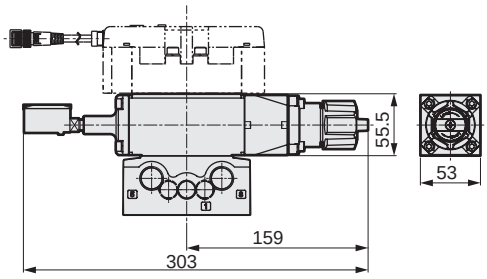
Ⓓ Check valve	
Blank	None
C	Provided

Indicate without a check valve (no symbol) for SR-P and with a check valve (C) for SR-A and SR-B.

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

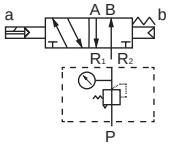
CMF2-SR-P-T05
CMF2-SR-B-T05C

● Spacer type regulator

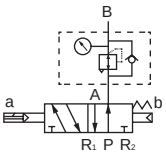


● JIS symbol

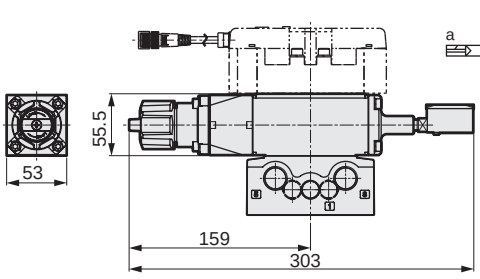
CMF2-SR-P-T05



CMF2-SR-B-T05C

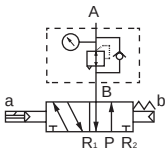


CMF2-SR-A-T05C



● JIS symbol

CMF2-SR-A-T05C



I/O connector type How to order

GMFZ 5 - HX3 L - HY3 B DU F - ○○

- GMFZ: ISO size 1/2 mix manifold
- 5: Ⓐ Station No.
- HX3: Ⓑ A/B port size
- L: Ⓒ A/B port position Note 1
- HY3: Ⓓ P/R port size
- B: Ⓔ P/R port position Note 2
- DU: Ⓕ HY configuration
- F: Ⓖ Option
- ○○: Size 1 number, Size 2 number

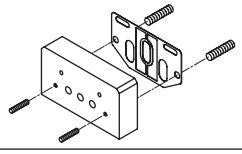
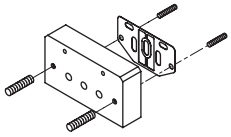
Symbol	Description	Model No. GMFZ
Ⓐ Station number		
2	2 stations	●
to	to	
10	10 stations	
Ⓑ A/B port size		
HX3	Size 1: 02/Size 2: 03	●
HX4	Size 1: 02/Size 2: 04	●
HX5	Size 1: 03/Size 2: 03	●
HX6	Size 1: 03/Size 2: 04	●
Ⓒ A/B port position		
Blank	Right	●
L	Left/right (select position with manifold specifications)	●
H	Left	●
Z	Rear	●
T	Flexible selection (plug attached)	●
Ⓓ P/R port size		
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	●
Ⓔ P/R port position		
B	Both (U side and D side)	●
D	D side	●
U	U side	●
E	P U side, R D side	●
F	P D side, R U side	●
T	Flexible selection (plug attached)	●
Ⓕ HY configuration		
DU	The smaller bore size is bottom and larger bore size is top. Or 1 is bottom and 2 is top.	●
UD	The smaller bore size is top and larger bore size is bottom. Or 1 is top and 2 is bottom.	●
Ⓖ Option		
Blank	None	●
F	P/A/B port filter integrated	●

⚠ Note on model no. selection

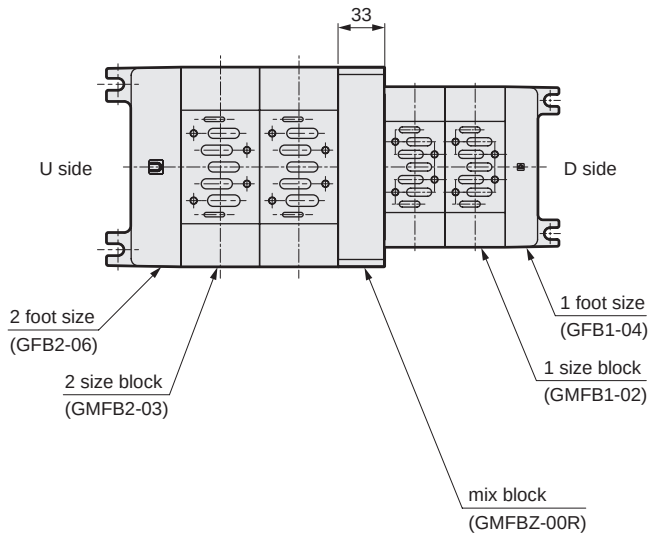
Note 1: Ⓒ indicates the port position.
All positions are plugged unless otherwise indicated.

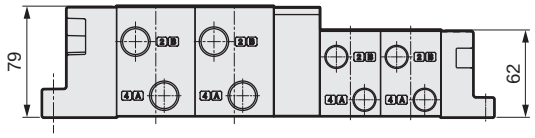
Note 2: Ⓔ indicates the port position.
The side opposite that designated is plugged.

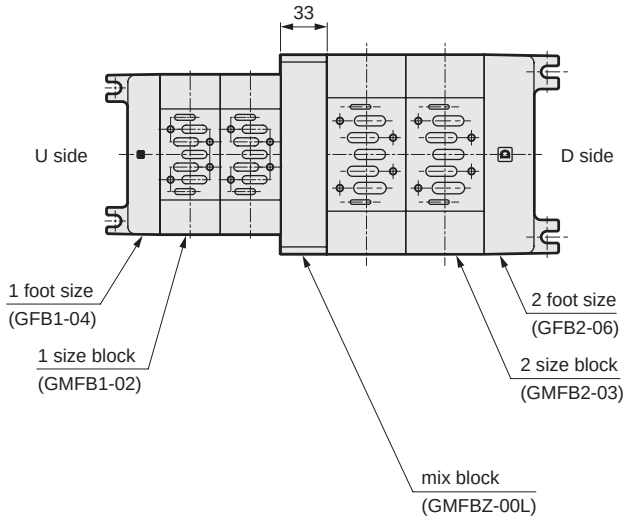
The valve is ordered separately. Refer to pages 34 and 40 for for details on how to order. When ordering a manifold with a valve, each model and the **manifold specifications given on page 59 are required.**

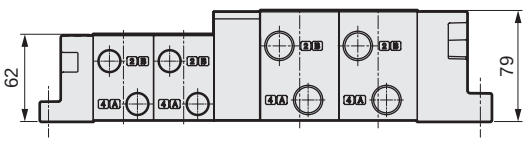
No.	Item	Model No.	Figure	Remarks
1	ISO size 1/2 mix closed	**GMFBZ-00L**		U side size 1 D side size 2 For mix block With bolts/gasket
		GMFBZ-00R		U side size 2 D side size 1 For mix block With bolts/gasket

Mix manifold outline drawing



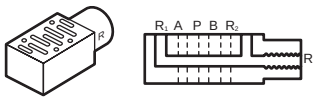
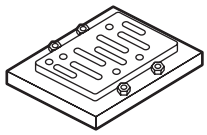
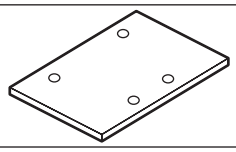
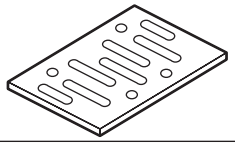
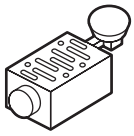
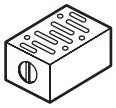
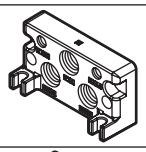
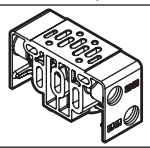
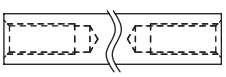
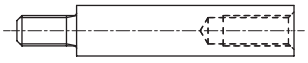






*The dimensions for the 1 and 2 foot sizes and the blocks are given on pages 47 and 51.

Manifold option

Options	Model No.		Remarks
	ISO size 1	ISO size 2	
1. Individual supply spacer 	CMF1-P-02 (Rc 1/4) 03 (Rc 3/8)	CMF2-P-03 (Rc 3/8) 04 (Rc 1/2)	1. Use for individual supply port clamp and various pressures 2. Individual exhaust for exhaust pressurizing
2. Individual exhaust spacer 	CMF1-R-02 (Rc 1/4) 03 (Rc 3/8)	CMF2-R-03 (Rc 3/8) 04 (Rc 1/2)	1 port exhaust by individual exhaust (Back pressure proof)
3. Adapter 	CU1-00 (FS/FD2 Series, Rc 1/4, 3/8) CU1-01 (FS/FD3 Series, Rc 1/4, 3/8, 1/2)	CU2-00 (FS/FD3 Series, Rc 1/4, 3/8, 1/2) CU2-01 (FS/FD4 Series, Rc 1/2, 3/4)	PV5-6R and PV5-8R can be mounted on conventional models F^{S2}_{D3}. (Custom order)
4. Masking plate 	CM1-00	CM2-00	For PV5-6R For PV5-8R Discrete masking
5. Masking plate 	GM1-01	GM2-01	Manifold (GMF1/GMF2) $P/R_1/R_2$ port masking
6. Body gasket 	PV5G-6-BASE-GASKET	PV5G-8-BASE-GASKET	For PV5-6R For PV5-8R Cannot be used for the bottom of spacers.
	PV5-6-BASE-GASKET	PV5-8-BASE-GASKET	For the bottom of spacers
7. Set screw 	CMF1-M5X35	CMF2-M6X45	4 screws per set
8. Spacer type regulator 	CMF1-SR-P-T05 CMF1-SR-A-T05C CMF1-SR-B-T05C "How to order" page 48	CMF2-SR-P-T05 CMF2-SR-A-T05C CMF2-SR-B-T05C "How to order" page 52	Multi-pressure use
9. Air pilot check valve 	CMF1-PC	CMF2-PC	Cylinder intermediate position holding
10. Foot U side 	GFB1-$^{03}_{04}$U	GFB2-$^{04}_{06}$U	Two hexagon socket head cap screws and plugs (also a gasket for U-side foot) are enclosed.
D side	GFB1-$^{03}_{04}$D	GFB2-$^{04}_{06}$D	
11. Manifold block 	GMFB1-$^{02}_{03}$T	GMFB2-$^{03}_{04}$T	Two tie rods, plugs and a gasket are enclosed.
	GMFB1-$^{02}_{03}$Z	GMFB2-$^{03}_{04}$Z	Two tie rods and a gasket are enclosed.
12. Tie rod 	GMF1-TR-V *1 *1: 1 to 10 (station No.)	GMF2-TR-V *1 *1: 1 to 10 (station No.)	2 screws per set Tie rods of a length of 1 to 10 stations used when shipped.
13. Tie rod for expansion 	GMF1-TR-VZ	GMF2-TR-VZ	2 screws per set Use for extending the tie rod(s). Extends by the length of one station.

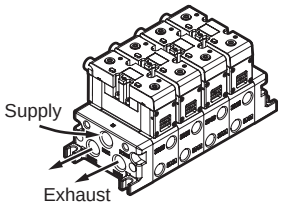
Manifold type

A wide range of air supply, exhaust and piping combinations is available.
Select the functions best suited to your application.

1 General use

● Common exhaust method

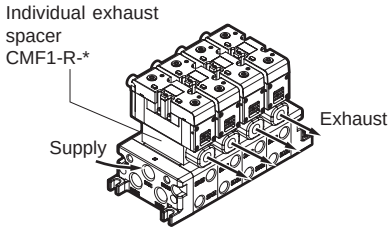
This is the most commonly used method. Each solenoid valve air supply and exhaust are grouped at one position with P (air supply) and R (exhaust) ports passing through the connected manifold block.



2 General applications

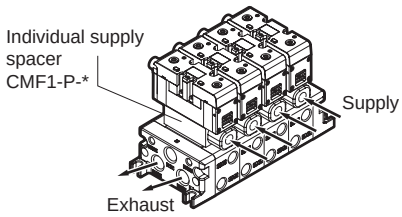
● Individual exhaust method

The R1 and 2 (exhaust) ports are separate for each solenoid valve, so popping out of adjacent cylinders by the back pressure can be prevented. An individual exhaust spacer (CMF1-R-*) should be used in combination to prevent back pressure.



● Individual supply method

The P (supply) port is independent for each valve so different pressures can be supplied to specific valves in the manifold.
An individual exhaust spacer (CMF1-P-*) can be inserted between the manifold block and valve to enable individual exhaust.



● Individual supply/individual exhaust method

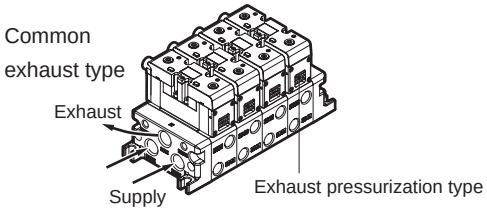
Use this when independent P (air supply) port and R (exhaust) port are to be used only for specific valves in the manifold.
Example: When using an oilless manifold but lubricating a specific valve.
Individual supply (CMF1-P-*) and exhaust (CMF1-R-*) spacers inserted between the manifold block and valve enable individual air supply and exhaust.

● Multi-pressure air supply method

This method supplies two different types of high and low pressures to one manifold. A masking plate (GM1-01) is inserted between the manifold blocks with different pressures.

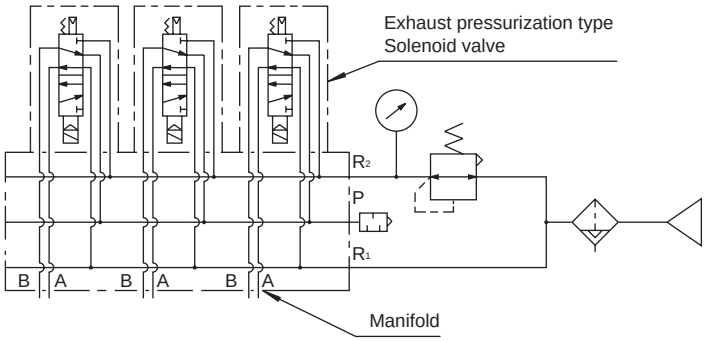
3 Special applications (exhaust pressurization)

This method is optimum for supplying two or more different types of pressure to one manifold.
Example: When driving a 2-piston cylinder used in welding machines.



● Example of using exhaust pressurization type

Common exhaust type



4 Common descriptions for general and special purpose

● Back porting method

When pipes cannot be piped from the side, part or all of the A and B ports can be piped from the bottom of the manifold.

Manifold specifications

ISO size 1 I/O connector type

Issue / /

Your company name

Contact (Mr./Ms.)

Purchase order No.

● Contact ● Quantity Set ● Request date / /

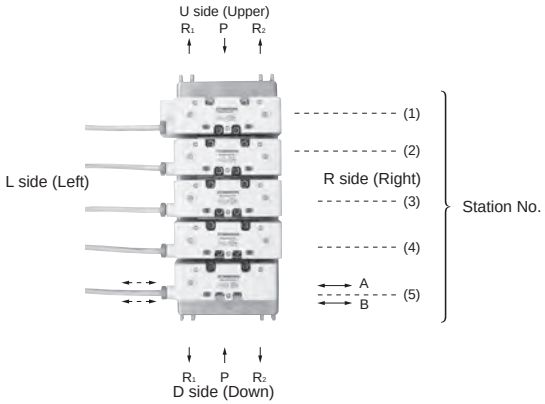
Slip No.	Order No.

● 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
J: Valve option

Ⓐ ISO size	Ⓑ Station No.	Ⓒ A/B port size	Ⓓ A/B port position	Ⓔ P/R port size	Ⓕ P/R port position	Ⓖ HY configuration	Ⓗ Silencer box	Ⓘ Manifold option
1 PV5-6R	1 1 station	02 Rc1/4	Blank Right	03 Rc3/8	B Both (U side and D side)	Blank When HY is not selected for Ⓔ	Blank None	Blank None
	to to	03 Rc3/8	L Left/right	04 Rc1/2	D D side		SB Selected (D side installation)	F P/A/B port filter integrated
	10 10 stations	HX1 Rc1/4•Rc3/8 mix	H Left	HY1 Rc3/8•Rc1/2 mix	U U side	DU Rc 3/8 D side, Rc 1/2 U side		
			Z Rear		E P U side, R D side			
			T Plug attached		F P D side, R U side	UD Rc 3/8 U side, Rc 1/2 D side		
					T Plug attached			



Ⓙ Valve option	
Blank	None
A	Coolant proof

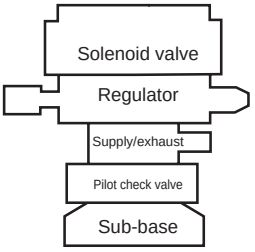
Note: Ⓙ is an option for mounted valves for manifold assembly.

⚠ The 24 VDC rated voltage is available only for the type with indicator light and surge suppressor.

★When placing an order, indicate the solenoid valve type No. (1) to (6) and (9) shown on the left in the solenoid valve type No. field.
To select an option, draw a circle in the field for the relevant option below.

Station No.		1	2	3	4	5	6	7	8	9	10
Solenoid valve No.	PV5-6R										
When selecting L for Ⓓ, indicate the plug position.	R										
	L										
Option: Supply spacer											
Exhaust spacer											
Pilot check valve											
Spacer type regulator	CMF*-SR-P										
	CMF*-SR-A										
	CMF*-SR-B										
Masking plate	Supply passage masking										
	Exhaust passage masking										
When selecting HX for Ⓒ, indicate a mixed port size configuration.	02										
	03										

	Solenoid valve 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-leak	PV5-6R-FPG-D-TC	(6)
Masking plate	CM1-00	(9)



Assembly sequence of option (spacer)

Note: The basic order of solenoid valves from the sub-base is shown on the left. Simply remove any unnecessary spacers, and stack up valves.

Manifold specifications

ISO size 2 I/O connector type

Issue / /

Your company name

Contact

Purchase order No.

● Contact ● Quantity Set ● Request date / /

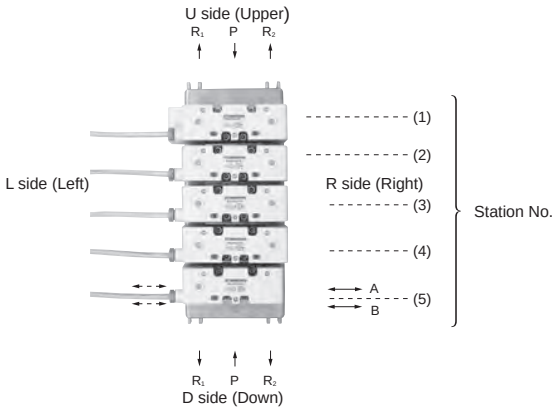
Slip No.	Order No.

● 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 · J Valve option

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 Rc3/8	Blank Right	04 Rc1/2	B Both (U side and D side)	Blank When HY is not selected for E	Blank None	Blank None
	to to	04 Rc1/2	L Left/right	06 Rc3/4	D D side		SB Selected (D side installation)	F P/A/B port filter integrated
	10 10 stations	HX2 Rc3/8•Rc1/2 mix	H Left	HY2 Rc1/2•Rc3/4 mix	U U side	DU Rc1/2 D side, Rc3/4 U side		
			Z Rear		E P U side, R D side			
			T Plug attached		F P D side, R U side	UD Rc1/2 U side, Rc3/4 D side		
					T Plug attached			



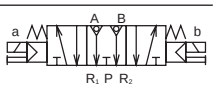
J Valve option	
Blank	None
A	Coolant proof

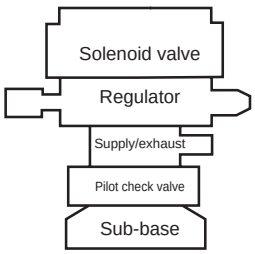
Note: J is an option for mounted valves for manifold assembly.

⚠ The 24 VDC rated voltage is available only for the type with indicator light and surge suppressor.

★When placing an order, indicate the solenoid valve type No. (1) to (6) and (9) shown on the left in the solenoid valve type No. field.
To select an option, draw a circle in the field for the relevant option below.

Station No.			1	2	3	4	5	6	7	8	9	10
Solenoid valve No.	PV5-8R											
When selecting L for Ⓓ, indicate the plug position.		R										
		L										
Option	Supply spacer											
	Exhaust spacer											
	Pilot check valve											
	Spacer type regulator	CMF*-SR-P										
		CMF*-SR-A										
		CMF*-SR-B										
	Masking plate	Supply passage masking										
		Exhaust passage masking										
	When selecting HX for Ⓒ, indicate a mixed port size configuration.	03										
		04										

Solenoid valve 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-leak		PV5-8R-FPG-D-TC	(6)
Masking plate		CM2-00	(9)



Assembly sequence of option (spacer)

Note: The basic order of solenoid valves from the sub-base is shown on the left. Simply remove any unnecessary spacers, and stack up valves.

Manifold specifications

ISO size 1/2 mix I/O connector type

Issue / /

Your company name

Contact (Mr./Ms.)

Purchase order No.

● Contact ● Quantity Set ● Request date / /

Slip No.	Order No.

● Manifold model No.

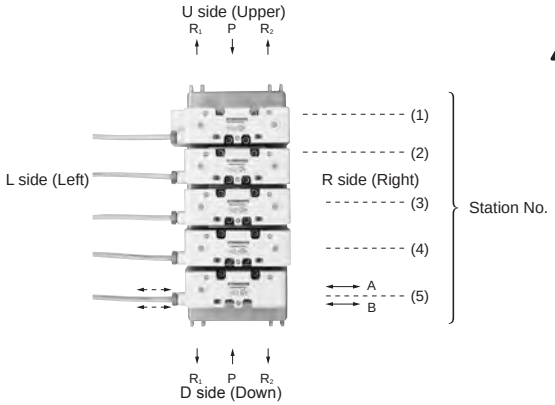
GMF Z □ - □ □ - □ □ □ □ - □ -TC

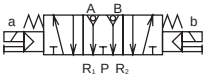
A: ISO size
B: Station No.
C: A/B port size
D: A/B port position
E: P/R port size
F: P/R port position
G: HY configuration
H: Manifold option
I: Valve option

Ⓐ ISO size	Ⓑ Station No.	Ⓒ A/B port size	Ⓓ A/B port position	Ⓔ P/R port size	Ⓕ P/R port position	Ⓖ HY configuration	Ⓗ Manifold option	Ⓘ Valve option
Z Size 1/2 mix	**1** to **10**: 1 station to 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 **H**: Left **Z**: Rear **T**: Plug attached	**HY3**: 1: 03/2: 04 **HY4**: 1: 03/2: 06 **HY5**: 1: 04/2: 04 **HY6**: 1: 04/2: 06	**B**: Both (U side and D side) **D**: D side **U**: U side **E**: P U side, R D side **F**: P D side, R U side **T**: Plug attached	**DU**: Size 1 D side, size 2 U side **UD**: Size 1 U side, size 2 D side	**Blank**: None **F**: P/A/B port filter integrated	**Blank**: None **A**: Coolant proof

Note: Ⓘ is an option for mounted valves for manifold assembly.

⚠ The 24 VDC rated voltage is available only for the type with indicator light and surge suppressor.

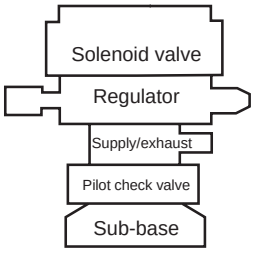


Solenoid valve No.			
2-position Single		PV5-*R-FG-S-TC	(1)
2-position Double		PV5-*R-FG-D-TC	(2)
3-position all ports closed		PV5-*R-FHG-D-TC	(3)
3-position A/B/R connection		PV5-*R-FJG-D-TC	(4)
3-position P/A/B connection		PV5-*R-FIG-D-TC	(5)
3-position all ports closed non-leak		PV5-*R-FPG-D-TC	(6)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

Note: The asterisk is "6" or "8" for the solenoid valve and "1" or "2" for the masking plate and option.

★When placing an order, indicate the solenoid valve type No. (1) to (6) and (9) shown on the left in the solenoid valve type No. field.
To select an option, draw a circle in the field for the relevant option below.

Station No.			1	2	3	4	5	6	7	8	9	10
Solenoid valve No.	PV5-6R											
	PV5-8R											
When selecting L for Ⓓ, indicate the plug position.		R										
		L										
Option	Supply spacer											
	Exhaust spacer											
	Pilot check valve											
	Spacer type regulator	CMF*-SR-P										
		CMF*-SR-A										
		CMF*-SR-B										
	Masking plate	Supply passage masking										
		Exhaust passage masking										
	Indicate a mixed port size configuration when selecting HX for Ⓒ	02										
		03										
		04										



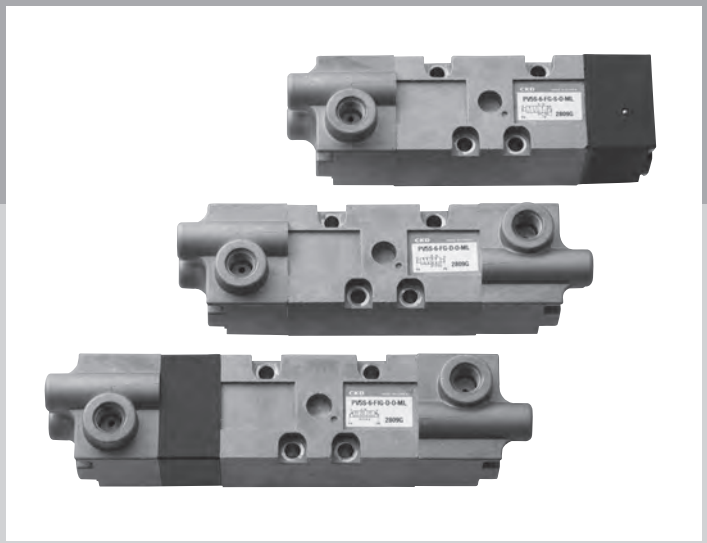
Assembly sequence of option (spacer)

Note: The basic order of solenoid valves from the sub-base is shown on the left. Simply remove any unnecessary spacers, and stack up valves.

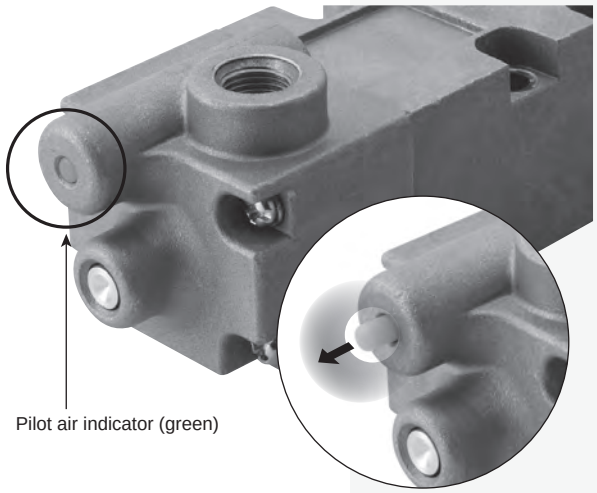
PV5S-0

ISO conformed master valve

5 port pilot operated valve



No indicator installation necessary Valve operation checked at a glance



* If pilot air is supplied, the indicator sticks out.

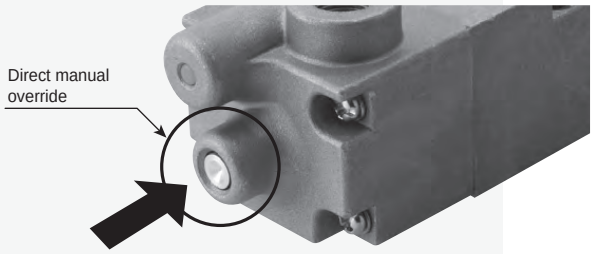
Visibility pursued

The operating state can be clearly checked both from the top and side faces.

Installation man-hours reduced

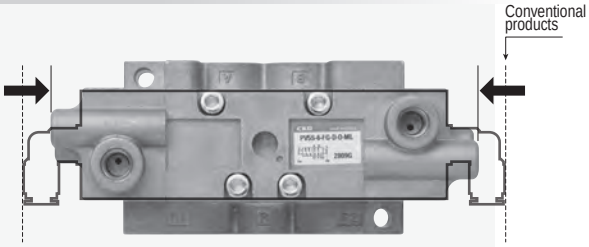
The provision of the air indicator eliminates the need for separate installation.

Direct operation without air



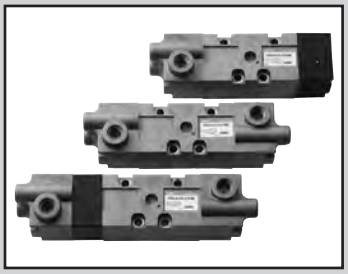
Pressing the spool allows switching even if no pilot air is supplied.

Reduction of space requirement



Space requirement reduced by 16% as compared with existing product (PV5-6 double)

⚠ Read Precautions on page 67 before use.



ISO conformed master valve

PV5S-0 Series

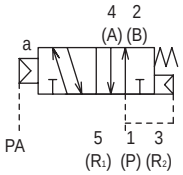
● Applicable cylinder bore size: max. ø100 (PV5S-6-0)
max. ø160 (PV5S-8-0)

RoHS

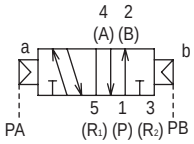
JIS symbol

● 5-port valve

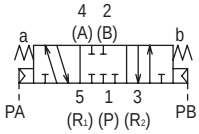
2-position single (FG-S)



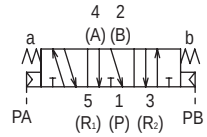
2-position double (FG-D)



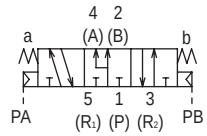
3-position all ports closed (FHG)



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



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



Specifications

Item	Description
Valve type and operation	Pilot-operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	1.0
Min. working pressure MPa	See Main pressure column in table below
Proof pressure MPa	1.50
Ambient temperature °C	-5 to 60 (no freezing)
Fluid temperature °C	5 to 60
Lubrication	Not required
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Containing corrosive gas is impermissible.

Individual specifications

Model No.	Solenoid position	Pilot port PA/PB	Main pressure [MPa]	Pilot signal pressure [MPa]
PV5S-6	2-position single solenoid	Rc1/8	0.15 to 1.0	(0.6 × Main pressure + 0.06) to 1.0
	2-position double solenoid		0 to 1.0	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 solenoid	Rc 1/8	0.15 to 1.0	(0.6 × Main pressure + 0.06) to 1.0
	2-position double solenoid		0 to 1.0	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 solenoid	0.31
	2-position double solenoid	0.36
	3-position	0.39
PV5S-8	2-position single solenoid	0.48
	2-position double solenoid	0.52
	3-position	0.56

Note 1: Weight is for option symbol ML without the sub-plate.

Flow characteristics

C [dm^3/(s•bar)]

Model No.	Solenoid position	P ⇒ A/B	A/B ⇒ R
PV5S-6	2-position single solenoid	4 and over	4 and over
	2-position double solenoid		
	3-position all ports closed		
	3-position A/B/R connection		
	3-position P/A/B connection		
PV5S-8	2-position single solenoid	9 and over	9 and over
	2-position double solenoid		
	3-position all ports closed		
	3-position A/B/R connection		
	3-position P/A/B connection		

Note 2 : Effective sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order

PV5S - 6 - FG-S - 0 - ML - A02

- PV5S: Model No.
- 6: ISO size 1: 6, ISO size 2: 8
- FG-S: Ⓐ Solenoid position
- 0: Master valve
- ML: Ⓑ Option
- A02: Ⓒ Sub-plate

Symbol	Descriptions	Model No. PV5S-6	Model No. PV5S-8
Ⓐ Solenoid position			
FG-S	2-position single solenoid	●	●
FG-D	2-position double	●	●
FHG-D	3-position all ports closed	●	●
FJG-D	3-position ABR connection	●	●
FIG-D	3-position PAB connection	●	●
Ⓑ Option			
M	With direct manual override	●	●
ML	With direct manual override and pilot air indicator	●	●
Ⓒ Sub-plate			
Blank	Without sub-plate	●	●
A02	Side porting Rc 1/4 (Rc 3/8 for R port only)	●	
A03	Side porting Rc 3/8	●	●
A04	Side porting Rc 1/2 (Rc 1/2 for R port only)		●
A06	Side porting Rc 3/4		●

ISO size 1 Sub-plate specification and how to order

CB1 - A02

- A02: Ⓐ Piping

Symbol	Type	P/A/B port	R1/R2 port	Weight (kg)
Ⓐ Piping				
A02	Side porting	Rc 1/4	Rc 3/8	0.27
A03		Rc 3/8		

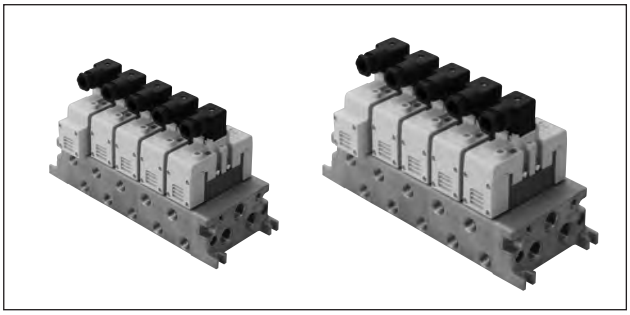
ISO size 2 Sub-plate specification and how to order

CB2 - A03

- A03: Ⓐ Piping

Symbol	Type	P/A/B port	R1/R2 port	Weight (kg)
Ⓐ Piping				
A03	Side porting	Rc 3/8	Rc 1/2	0.49
A04		Rc 1/2		0.49
A06		Rc 3/4	Rc 3/4	1.40

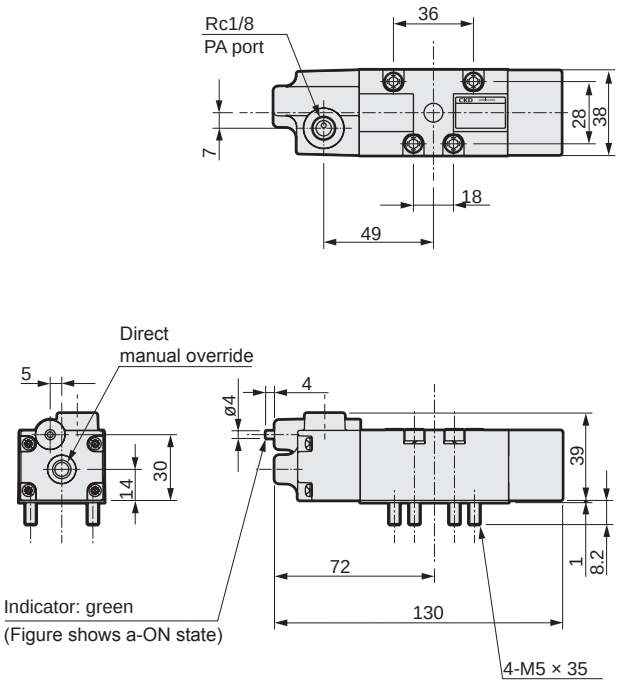
This master valve (PV5S-0 Series) cannot be shipped as a manifold.
For use as a manifold, separately purchase the GMF Series.
Refer to page 17 to 28 for details about the GMF Series.



Dimensions: ISO size 1 (without sub-plate)

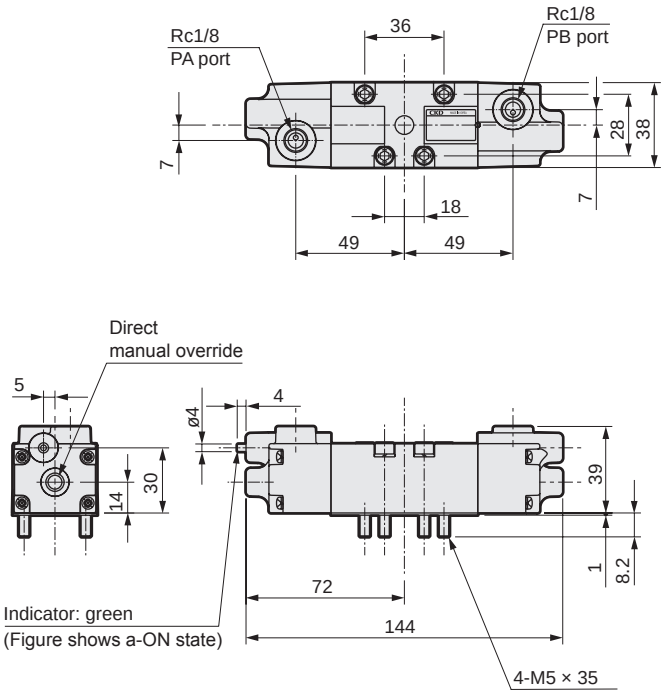
PV5S-6-FG-S-0-*

● 2-position single solenoid



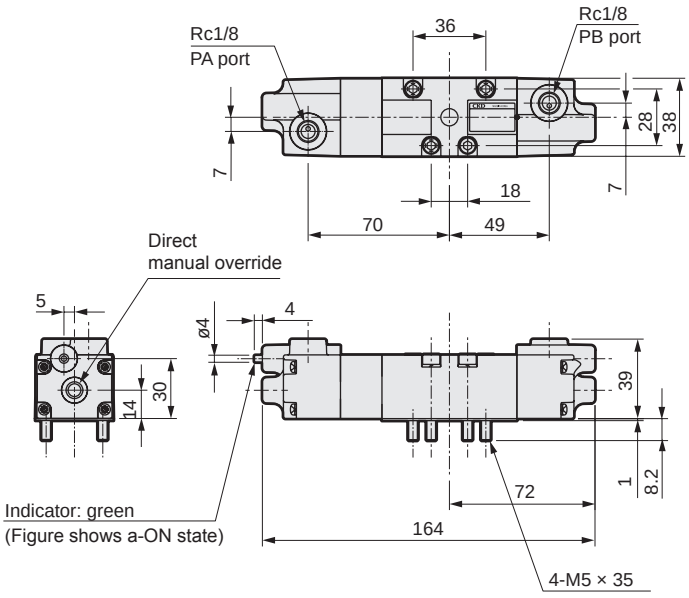
PV5S-6-FG-D-0-*

● 2-position double solenoid



PV5S-6-FHG-D-0-*
PV5S-6-FJG-D-0-*
PV5S-6-FIG-D-0-*

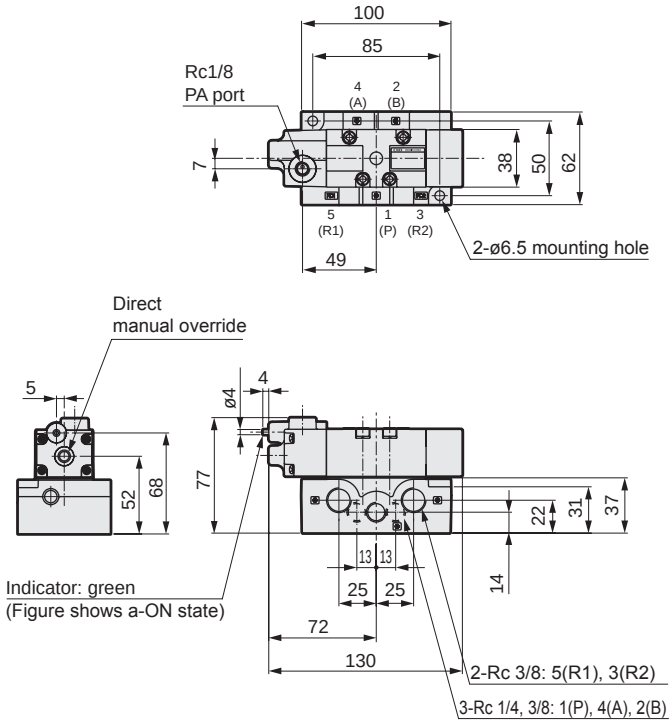
● 3-position



Dimensions: ISO size 1 (with sub-plate)

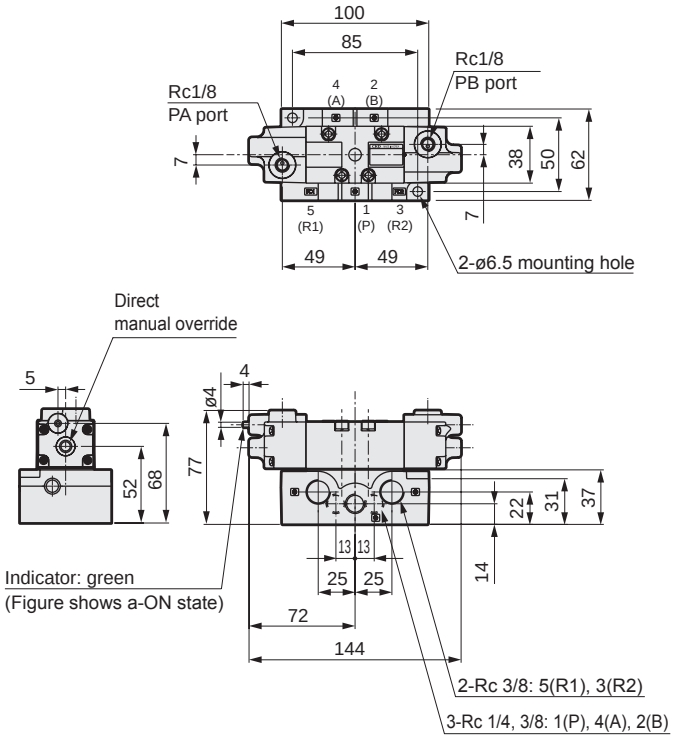
PV5S-6-FG-S-0-*-A0*

● 2-position single solenoid



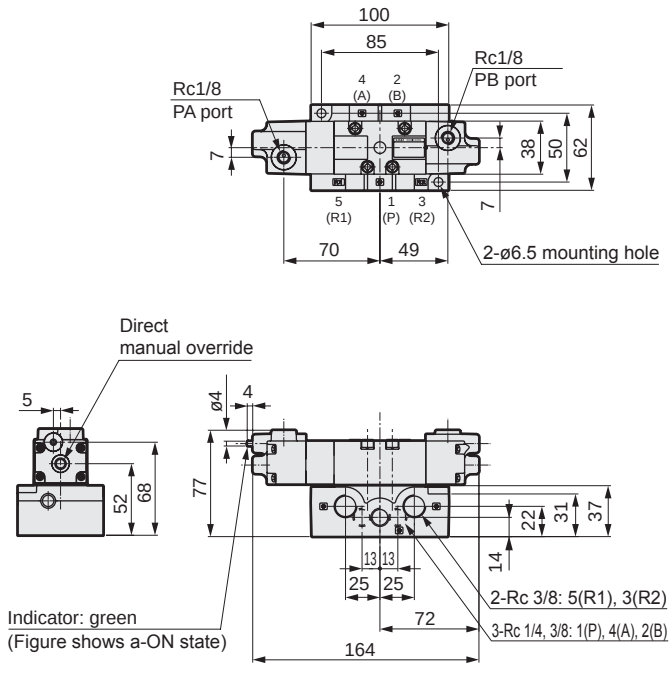
PV5S-6-FG-D-0-*-A0*

● 2-position double solenoid

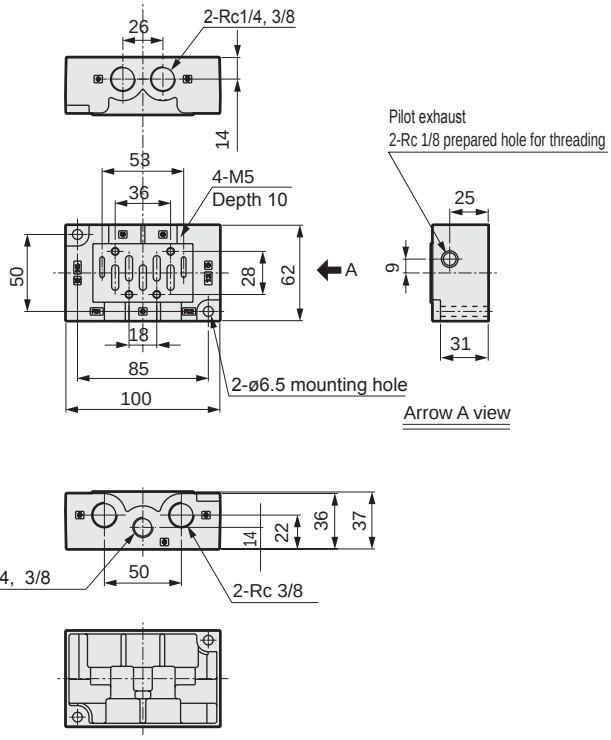


PV5S-6-FHG-D-0-*-A0*
PV5S-6-FJG-D-0-*-A0*
PV5S-6-FIG-D-0-*-A0*

● 3-position



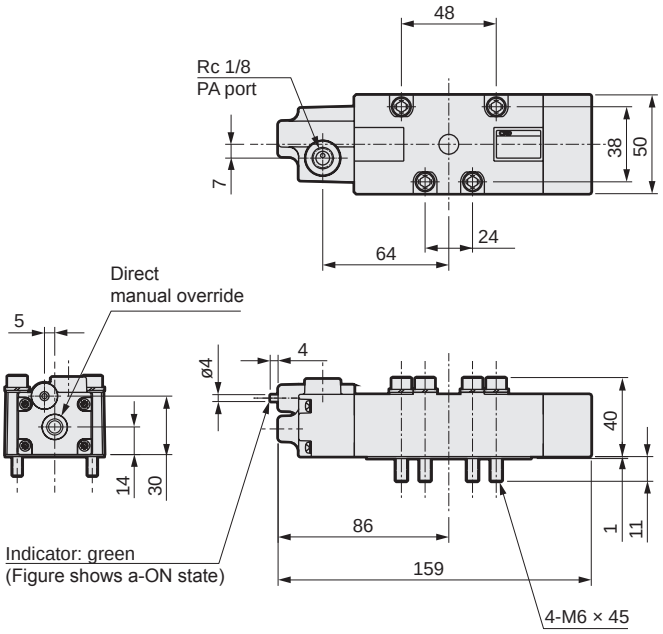
● Sub-plate dimensions



Dimensions: ISO size 2 (without sub-plate)

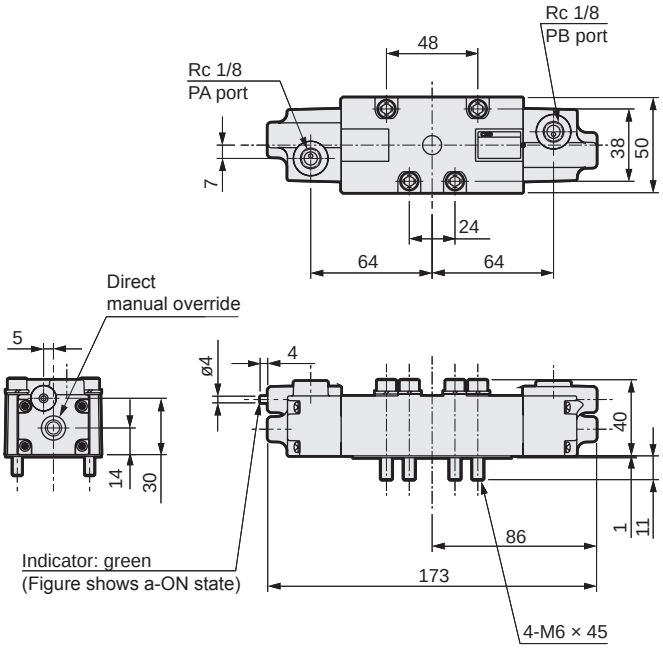
PV5S-8-FG-S-0-*

● 2-position single solenoid



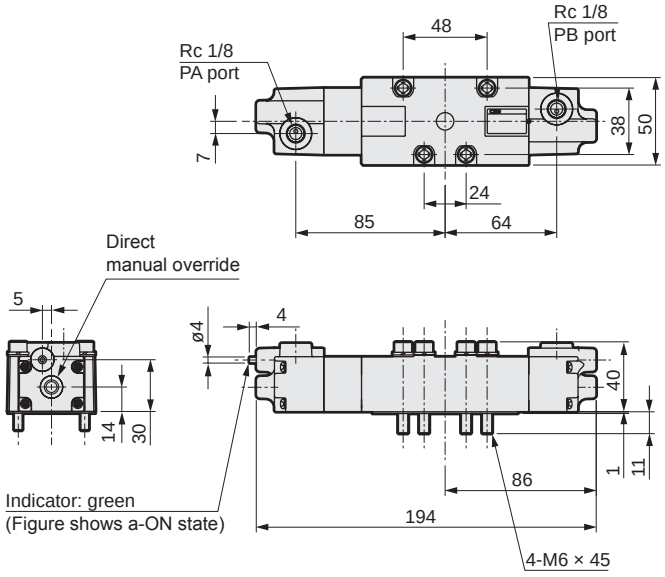
PV5S-8-FG-D-0-*

● 2-position double solenoid



PV5S-8-FHG-D-0-*
PV5S-8-FJG-D-0-*
PV5S-8-FIG-D-0-*

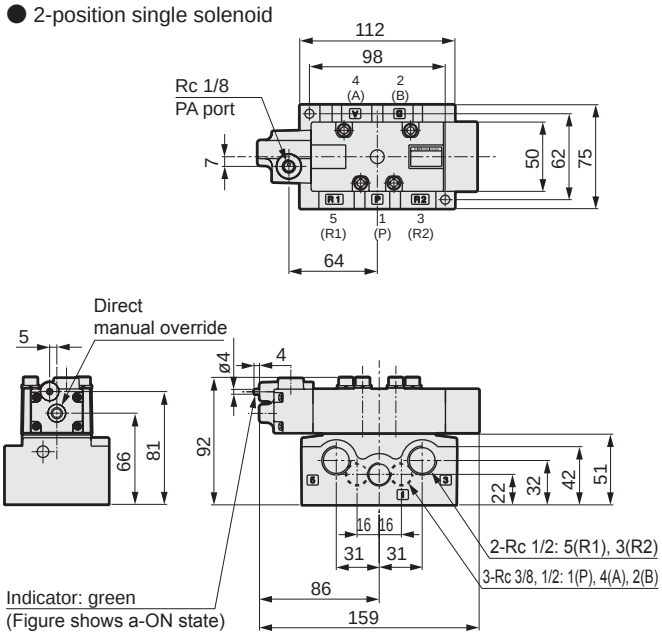
● 3-position



Dimensions: ISO size 2 (with sub-plate)

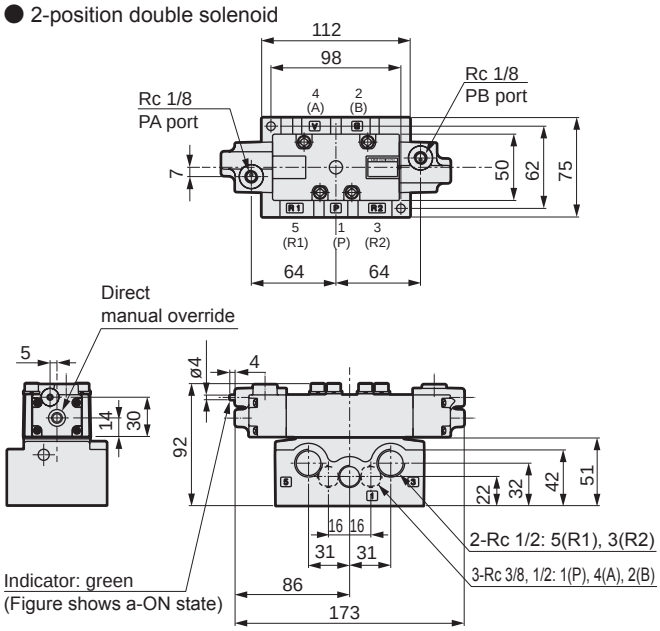
PV5S-8-FG-S-0-*-A0*

● 2-position single solenoid



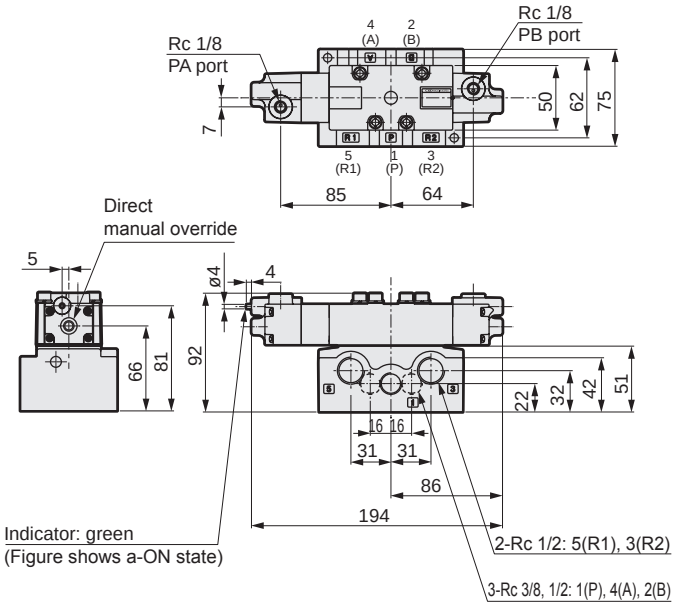
PV5S-8-FG-D-0-*-A0*

● 2-position double solenoid

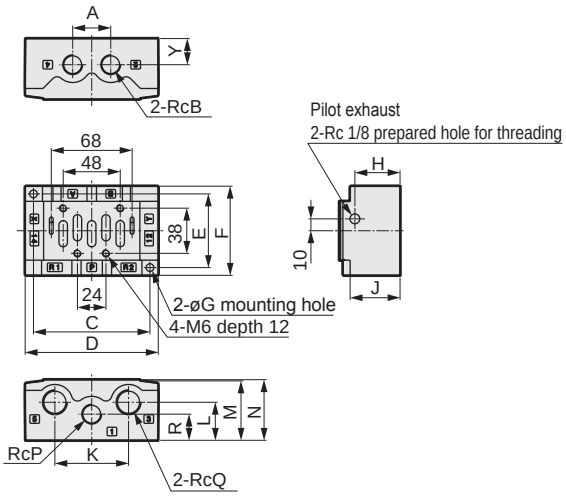


PV5S-8-FHG-D-0-*-A0*
PV5S-8-FJG-D-0-*-A0*
PV5S-8-FIG-D-0-*-A0*

● 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

Safety Precautions

Always read this section before starting use.

When designing and manufacturing a device using CKD products, the manufacturer is obligated to check that device safety mechanism, pneumatic control circuit, or water control circuit and the system operated by electrical control that controls the devices is secured.
It is important to select, use, handle, and maintain the product appropriately to ensure that the CKD product is used safely.
Observe warnings and precautions to ensure device safety.
Check that device safety is ensured, and manufacture a safe device.

WARNING

1 This product is designed and manufactured as a general industrial machine part.
It must be handled by an operator having sufficient knowledge and experience in handling.

2 Use this product in accordance with specifications.

This product must be used within its stated specifications. Do not attempt to modify or additionally machine the product.
This product is intended for use as a general-purpose industrial device or part. It is not intended for use outdoors or for use under the following conditions or environment.
(If you consult CKD upon adoption and consent to CKD product specification, it will be applicable; however, safeguards should be adopted that will circumvent dangers in the event of failure.)

❶ Use for special applications requiring safety including nuclear energy, railroad, aviation, ship, vehicle, medical equipment, equipment or applications coming into contact with beverage or food, amusement equipment, emergency shutoff circuits, press machine, brake circuits, or for safeguard.
❷ Use for applications where life or assets could be adversely affected, and special safety measures are required.

3 Observe corporate standards and regulations, etc., related to the safety of device design and control, etc.

ISO 4414, JIS B 8370 (Pneumatic system rules)
JFPS 2008 (Principles for pneumatic cylinder selection and use)
Including High Pressure Gas Maintenance Law, Occupational Safety and Sanitation Laws, other safety rules, body standards and regulations, etc.

4 Do not handle, pipe, or remove devices before confirming safety.

❶ Inspect and service the machine and devices after confirming safety of the entire system related to this product.
❷ Note that there may be hot or charged sections even after operation is stopped.
❸ When inspecting or servicing the device, turn off the energy source (air supply or water supply), and turn off power to the facility. Discharge any compressed air from the system, and pay attention to possible water leakage and leakage of electricity.
❹ When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.

5 Observe warnings and cautions on the pages below to prevent accidents.

■The safety cautions are ranked as "DANGER," "WARNING" and "CAUTION" in this section.

DANGER:	When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, or when there is a high degree of emergency to a warning.
WARNING:	When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries.
CAUTION:	When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

Note that some items described as “CAUTION” may lead to serious results depending on the situation.
In any case, important information that must be observed is explained.

Disclaimer

1 Warranty Period

”Warranty Period" is one (1) year from the first delivery to the customer.

2 Scope of warranty

In case any defect attributable to CKD is found during the Warranty Period, CKD shall, at its own discretion, repair the defect or replace the relevant product in whole or in part, according to its own judgment.
Note that the following faults are excluded from the warranty term:
(1) Product abuse/misuse contrary to conditions/environment recommended in its catalogs/specifications
(2) Failure caused by other than the delivered product
(3) Use other than original design purposes.
(4) Third-party repair/modification
(5) Faults caused by reason that is unforeseeable with technology put into practical use at the time of delivery.
(6) Failure attributable to force majeure.
The warranty mentioned here covers the discrete delivered product. Only the scope of warranty shall not cover losses induced by the failure of the delivered product.

3 Compatibility confirmation

In no event shall CKD be liable for merchantability or fitness for a particular purpose, notwithstanding any disclosure to CKD of the use to which the product is to be put.

Pneumatic components

Safety Precautions

Be sure to read the instructions before use.
Refer to Pneumatic Valves Catalog No. CB-023S for the general valves.

Specific precautions: 5 port pilot operated valve PV5G/PV5/GMF Series

Design & Selection

1. Design for Safety

⚠WARNING

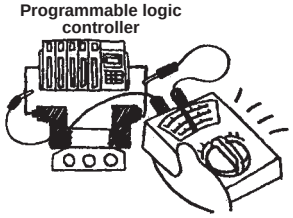
■ Use within the product's specific specification range.
Products in this catalog are for use only in a compressed air system. Use with pressure or temperature exceeding the specification range may result in damage or operation faults. (Refer to specifications.)
Contact CKD when using for fluids other than compressed air.

■ When using the 3-position valve all port block as a brake, operation will not stop at an accurate position because of air compression characteristics. When using for pressure holding applications, devices such as the valve and cylinder tolerate air leakage, so the brake position may change or pressure may drop.

■ Take measures to protect personnel and equipment against injury or damage if this product fails.

⚠CAUTION

■ Check leakage current to prevent other fluid control components from malfunctioning due to leakage current.
When using a programmable controller, etc., the solenoid valve could malfunction because of leakage current.
The value affected by leakage current differs depending on the solenoid valve.



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

2. Common

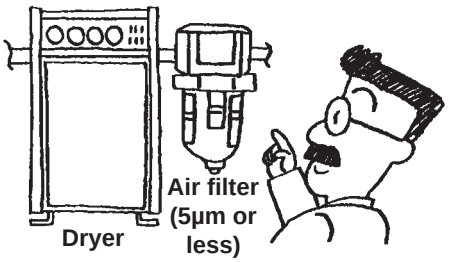
⚠WARNING

■ Do not restrict the exhaust port of a manifold valve.
Other cylinders could malfunction due to back pressure generated by switch valve exhaust. Exhaust from both sides of the manifold or use a discrete exhaust valve with a spacer or discrete valve for the valve.

⚠CAUTION

■ Keep the momentary power on and manual operation time of the double-solenoid type 2-position valve at 0.1 seconds or more.
It is recommended that it is energized/manually operated until it reaches the stroke end since the cylinder may malfunction depending on the secondary load.

■ Use dry compressed air that does not cause condensation in piping.



- Drainage will form if the temperature drops in the pneumatic piping or pneumatic components.
- Operation faults could occur if drainage enters the air flow path in pneumatic components to temporarily block passage.
- Drainage could cause rust, making the pneumatic device fail.
- Drainage may also wash out lubricant and cause lubrication faults.

Design & Selection

3. Surge suppressor

⚠ CAUTION

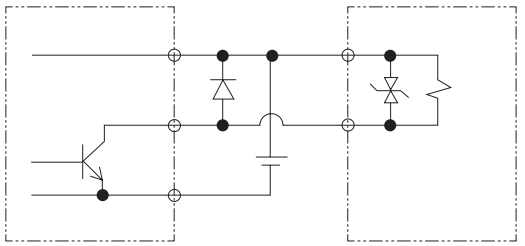
■ The surge suppressor attached to the solenoid valve is intended to protect output contacts for solenoid valve drive. There is no significant protection for the other peripheral devices, and devices could be damaged or malfunction by the surge. Surge generated by other devices could be absorbed, which may result in an accident such as burning. Care must be taken for points below.

- The surge suppressor functions to limit a solenoid valve surge voltage, which can reach several hundred V, to a low voltage level that the output contact can withstand. Depending on the type of output circuit being used, this may be inadequate and cause damage or malfunction. Check whether the surge suppressor can be used by 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. If necessary, provide other surge measures. Solenoid valves with surge suppressors suppress the reverse voltage surge generated during OFF operation to the levels below.

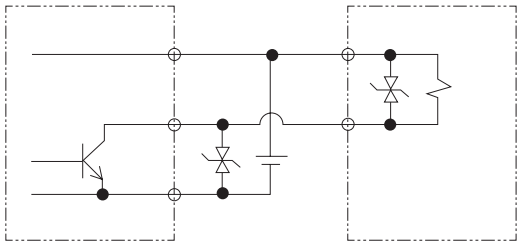
Specified voltage	Reverse voltage when the power is turned off
12 VDC	Approx. 27 V
24 VDC	Approx. 47 V

- When using an NPN type output unit, the voltage given in the above table plus a surge voltage equivalent to the power voltage could be applied on the output transistor. In this case, increase the contact protection circuits.

<Example of output transistor protective circuit installation 1>



<Example of output transistor protective circuit installation 2>



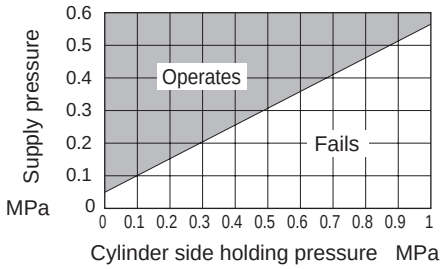
- If other devices or solenoid valves are connected in parallel to the solenoid valve, reverse voltage surges generated when the solenoid valve is off are applied to these devices as well. Even when using the solenoid valve with a 24 VDC surge suppressor, the surge voltage could reach several tens of volts depending on the model. This revere polarity voltage could damage devices connected in parallel or cause them to malfunction. Avoid parallel connection of devices suspected of reversing polarity voltages, e.g., LED indicators. When driving several solenoid valves in parallel, the surge from other solenoid valves could enter the surge suppressor of one solenoid valve with a surge suppressor. Depending on the current value, that surge suppressor could burn. 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. Even if the solenoid valve type is the same, the surge suppressor's limit voltage can be inconsistent, and in the worst case, could result in burning. Avoid driving several solenoid valves in parallel.
- The surge suppressor integrated in the solenoid valve often short-circuits if damaged by overvoltage or overcurrent from a source other than the solenoid valve. Therefore, if a large current is flowing when output is on after the surge suppressor is damaged, the output circuit or solenoid valve could be damaged or ignite. Do not keep power on in a faulty state. Provide an overcurrent protection circuit on the power or drive circuit or use a power supply with overcurrent protection so that a large current does not flow continuously.

Installation & Adjustment

1. Common

⚠ CAUTION

■ When the pilot check valve (PV5G-*-FPG-D, CMF*-PC) is used to hold the cylinder, if pressure supplied next is too low, operation could fail because of the pressure balance on the poppet valve's primary and secondary sides.



■ If back pressure is applied on exhaust ports R1 and R2 when the pilot check valve is used, the cylinder or braking accuracy could drop. An individual exhaust spacer (CMF*-R) should be used in combination to prevent back pressure.

■ Do not hold cables when transporting the solenoid valve. The cable could break.

■ Turn power off externally before starting installation or wiring work. There is a risk of electrical shock or damage.

■ Check the product's rated voltage and terminal layout, and wire correctly. Connecting a power with incorrect rating or connecting the wires incorrectly could lead to fires or faults.

■ Tighten the waterproof connector and terminal screws within the specified torque range. A loose connection could result in fires or malfunctions.

■ Do not use this product where it will be continuously submerged in water.

■ Apply adequate torque when connecting pipes.
Pipes must be connected with the appropriate torque to prevent air leakages and screw damage.
To avoid scratches on the screw thread, tighten it with a hand at first, then tighten it using tools.

[Reference value]

Port Thread	Tightening torque N・m
Rc 1/8	3 to 5
Rc 1/4	6 to 8
Rc 3/8	13 to 15
Rc 1/2	16 to 18
Rc 3/4	19 to 40

2. DIN terminal box

⚠ CAUTION

■ Use a JIS C 3312 (600 V vinyl insulated vinyl cable) with a core cross-section of 0.75 mm^2 or 1.25 mm^2 with 2, 3, or 4 cores (outer diameter: ø8.5 to 11.5) for the cable.

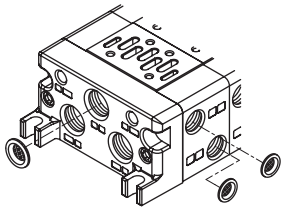
■ Use a crimp terminal on the cable to prevent connection faults and disconnection.
(Example: Use a 1.25Y-3U, 1.25-3.5S, 1.25-4M with inner diameter of M3.5 and outer diameter of 7 mm or less.)

■ Incorrect terminal connections will cause malfunctions.
Refer to page 3 for correct connection.

3. Port filter

⚠ CAUTION

■ Port filter is used to prevent foreign materials from entering, and problems in a valve. This does not improve the quality of compressed air, so read Warnings and Precautions on page 61, then set up, install, and adjust the filter.
Do not remove or force the port filter.
The filter could deform and result in problems. If contaminants or foreign materials are found on the filter surface, blow lightly, or remove them by tweezers, etc.



Example of integrating P/A/B port filter option

During Use & Maintenance

1. Assembling & Disassembling

⚠ WARNING

■ Read the instruction manual enclosed with the product before disassembling or assembling the solenoid valve.
- Understand the structure and operational principle of the solenoid valve to secure safety.
- The grade not less than Pneumatics technique certification grade 2 is required.

2. Pneumatic pressure source

⚠ CAUTION

■ If a pre-lubricated valve is once lubricated, oil-free property can not be maintained.
Once lubricated, continue lubricating.
- Decide whether the pneumatic component is used oilless or lubricated, and make sure that the decided method is accurate and controlled.
- When using a lubricant, use only ISO VG32 (additive-free) turbine oil.

MEMO

MEMO

WORLD-NETWORK

CKD Corporation

Website http://www.ckd.co.jp/

☐ Overseas Sales Administration Department.
2-250 Ouji Komaki, Aichi 485-8551, Japan
☐ PHONE +81-(0)568-74-1338 FAX +81-(0)568-77-3461

U.S.A.
CKD USA CORPORATION
● Chicago Headquarters
4080 Winnetka Avenue, Rolling Meadows, IL 60008 USA
PHONE +1-847-368-0539 FAX +1-847-788-0575

Europe
CKD Corporation Europe Branch
De Fruittuinen 28, Hoofddorp, the Netherlands
PHONE +31-(0)23-5541490 FAX +31-(0)23-5541491

Malaysia
M-CKD Precision Sdn. Bhd.
● Head Office
Lot No.6,Jalan Modal 23/2, Seksyen 23, Kawasan, MIEL,
Fasa 8, 40300 Shah Alam,Selangor Darul Ehsan, Malaysia
PHONE +60-(0)3-5541-1468 FAX +60-(0)3-5541-1533

Thailand
CKD Thai Corporation Ltd.
● Sales Headquarters
Suwan Tower, 14/1 Soi Saladaeng 1, North Sathorn Road, Kwaeng
Silom, Khet Bangrak, Bangkok 10500, Thailand
PHONE +66-(0)2-267-6300 FAX +66-(0)2-267-6305

Singapore
CKD Singapore Pte. Ltd.
33 Tannery Lane, #04-01 Hoesteel Industrial Building, Singapore 347789, Singapore
PHONE +65-67442623 FAX +65-67442486
CKD Corporation Branch Office
33 Tannery Lane, #04-01 Hoesteel Industrial Building, Singapore 347789, Singapore
PHONE +65-67447260 FAX +65-68421022

Taiwan
Taiwan CKD Corporation
16F-3, No. 7, Sec. 3, New Taipei Blud., Xinzhuang Dist.,
New Taipei City 242, Taiwan
PHONE +886-(0)2-8522-8198 FAX +886-(0)2-8522-8128

China
CKD (Shanghai) Corporation
● Sales Headquarters / Shanghai Office
Room 601, Yuanzhongkeyan Building, No. 1905 Hongmei Road,
Xuhui District, Shanghai 200233, China
PHONE +86-(0)21-61911888 FAX +86-(0)21-60905356

Korea
CKD Korea Corporation
● Headquarters
(3rd Floor), 44, Sinsu-ro,
Mapo-Gu, Seoul 121-856, Korea
PHONE +82-(0)2-783-5201～5203 FAX +82-(0)2-783-5204

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