CKD

New Products

Intrinsically safe explosion-proof
pilot operated 3, 5-port valve

4GD/E EJ Series

Smallest explosion-proof class

Intrinsically safe explosion-proof solenoid valves widths from 10 mm

4GD/E1 to 4

Explosion-proof performance Ex ib IIC T4 Gb

Certification No.: DEK19.0049

CKD Corporation

CC-1445A 3

Smallest explosion-proof class

Intrinsically safe explosion-proof solenoid valves widths from 10 mm

4GD/E1 to 4 Series

Explosion-proof performance Ex ib IIC T4 Gb

Certification No . DEK19.0049

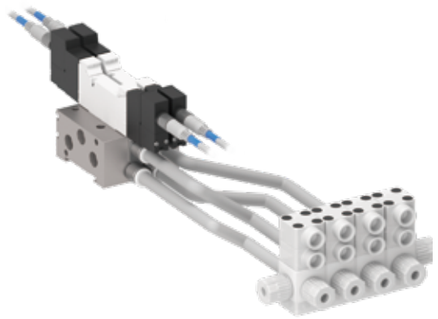
Degree of protection

IP67

Space saving/lightweight

Ideal for narrow explosion-proof areas.

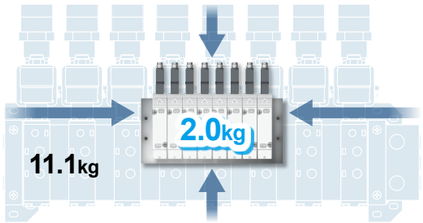
Lineup of types with two 3-port valves integrated



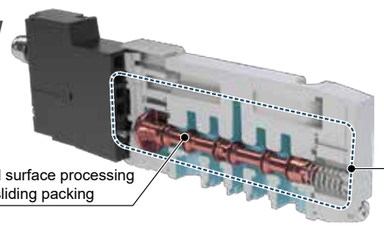
4GE3 and 4F3 footprint and weight comparison

Footprint	Ultra-lightweight
84% Reduced	82% Reduced

*Conventional 8-station model comparison



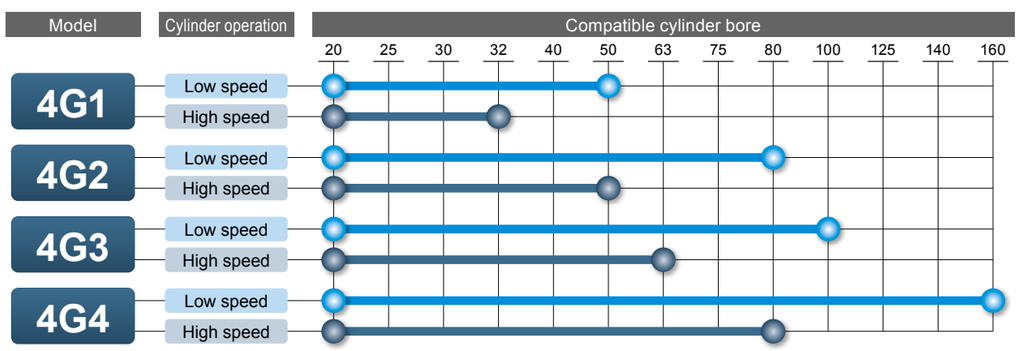
High durability



Durability count

50 million cycles or more

Wide-ranging series lineup



* The table is for reference. Varies according to piping conditions, load factor, etc.
For details of component selection, refer to Pneumatic Valves (No. CB-023SA) system selection.

High environmental performance, reliability and ease of use

Operation indicator

The pressurized state is shown by an indicator that operates only with air pressure. Contributes to improved solenoid valve maintainability.

Prevents manual malfunction

Manual override has a protective cover.

2-direction wiring outlet

Wiring direction can be selected according to the solenoid valve installation location.

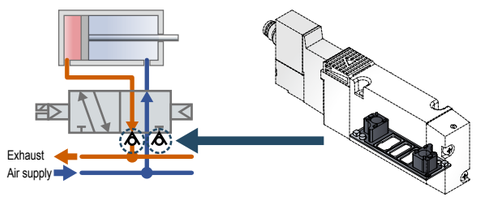
In-stop valve spacer

Valves can be replaced individually without stopping production line operation. (4G*1 to 4G*3 EJ compatible)

Helps prevent misoperation problems

[Exhaust check valve]

Equipped as standard with both metal base and resin block (Option "H" selection) (4G*1 to 4G*3 EJ compatible)



Applications

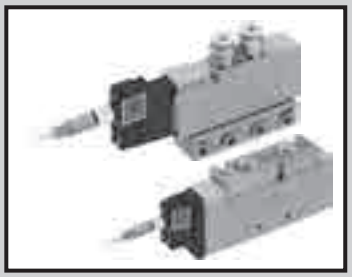
Ideal explosion-proof specifications for narrow spaces

Coating equipment

Liquid conditioning equipment

Analysis equipment

Solenoid valve space can be greatly reduced when intrinsic safety explosion-proof structures are required.



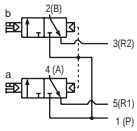
Discrete valve
Body piping

3GD1/2/4GD1/ 2/3 / 4*0EJ Series

● Applicable cylinder bore size: ø20 to ø140

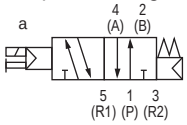
JIS symbol

● Two 3-port valves integrated
(A side valve: NC, B side valve: NC)

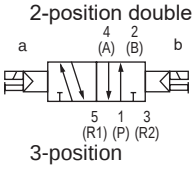


● 5-port valve

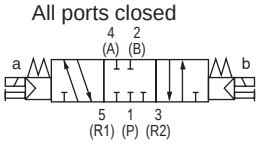
2 position single



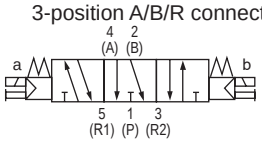
2-position double



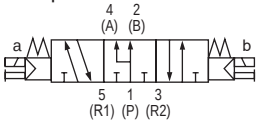
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Common specifications

Item	Description
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2
Proof pressure MPa	1.05
Ambient temperature °C	−5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common
Pilot exhaust method	Main valve/pilot valve common exhaust
Lubrication *1	Built-in controller eliminates controller installation space and wiring.
Degree of protection *2	IP67
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments

Solenoid specifications

Item	Description
Rated voltage V	12 DC
Voltage fluctuation range	+10% −20%
Rated current A	0.05
Power consumption W	0.6
Thermal class	B

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Tested according to the test method for IP67 (IEC60529) standards. Note that while the unit is protected from dust and water, it cannot be used immersed in water. Countermeasures such as covering the unit should also be taken if using in environments where it will be constantly exposed to dust or water.

Intrinsic safety explosion-proof specifications

Item	Description
Types of explosion-proof structures	Intrinsic safety explosion-proof structure (ib)
Target gas or above listed ignitability and flame-proof grade	Ex ib IIC T4 Gb
Barrier input voltage	24 VDC
Intrinsic safety circuit allowable voltage Ui	30 VDC
Intrinsic safety circuit allowable current Ii	200mA
Intrinsic safety circuit allowable power Pi	0.68 W
Internal inductance Li	Value that can be ignored
Internal capacitance Ci	Value that can be ignored

Individual specifications

Port size	3GD1/4GD1	3GD2/4GD2	4GD3	4GD4
2, 4-port (port A/B)	Push-in fitting ø1.8, ø4, ø6 M5	Push-in fitting ø4, ø6, ø8 Rc1/8	Push-in fitting ø6, ø8, ø10 Rc1/4	Push-in fitting ø8, ø10, ø12 Rc3/8
1, 3, 5-port (Port P/R1/R2)	M5	Rc1/8	Rc1/4	Rc1/4

Performance/characteristics by model

Item			3GD1		3GD2		4GD1		4GD2		4GD3		4GD4	
			ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		15	35	20	50	-	-	-	-	-	-	-	-
	2-position	Single	-	-	-	-	15	35	20	40	25	60	100	110
		Double	-	-	-	-	25	25	30	30	35	35	110	110
	3-position	ABR connection	-	-	-	-	20	40	25	45	35	60	100	160

The response times are values under continuous operation at supply pressure of 0.5 MPa, at rated voltage and at 20°C without lubrication. They depend on the pressure and the lubricant quality.

Weight

Item			4GD1	4GD2	4GD3	4GD4
Weightg	2-position	Single	61 (54)	120 (90)	155 (112)	296 (303)
		Double	81 (74)	140 (110)	176 (133)	329 (336)
	3Position	ABR connection	84 (77)	148 (118)	187 (143)	361 (367)

• Values in ( ) do not include the pipe adaptor. These values include the M8 connector (straight).
• 3 The weight of the two port valves integrated type is the same as that of 2-position double.

Flow Rate Characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
3GD1 4GD1	Two 3-port valves integrated		0.98	0.45	0.71	0.34
	2-position		1.2	0.47	0.72	0.37
	3-position	All ports closed	1.1	0.39	0.70	0.34
		ABR connection	1.1	0.33	0.72	0.34
		PAB connection	1.3	0.61	0.72	0.36
3GD2 4GD2	Two 3-port valves integrated		1.8	0.29	2.3	0.32
	2-position		2.4	0.33	2.8	0.30
	3-position	All ports closed	2.2	0.28	2.5	0.28
		ABR connection	2.3	0.26	2.8	0.27
		PAB connection	2.5	0.38	2.4	0.30
4GD3	2-position		3.4	0.29	4.0	0.24
	3-position	All ports closed	3.1	0.27	3.4	0.28
		ABR connection	3.1	0.33	4.1	0.20
		PAB connection	3.5	0.43	3.4	0.32
4GD4	2-position		8.1	0.4	8.0	0.31
	3-position	All ports closed	6.9	0.37	7.5	0.42
		ABR connection	6.9	0.38	8.4	0.34
		PAB connection	8.9	0.37	7.6	0.27

*1 : Formula for converting effective cross-sectional area S and sonic conductance C is S≈5.0×C.

3GD1/2/4GD1/ 2/3 / 4*0EJ Series

Discrete valve; Body piping

How to order (solenoid valve single unit)

● Discrete

4GD1	1	0	EJ	-	M5	-	RN		-	4
3GD1	66	0	EJ	-	C4	-	RN		-	4

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Explosion-proof Series Ⓓ Port size Ⓔ Electrical connections Ⓕ Option Ⓖ Voltage

Code	Description		Ⓐ Model No. 3GD1	3GD2	4GD1	4GD2	4GD3	4GD4
Ⓑ Solenoid position								
1	2 position single				●	●	●	●
2	2-position double				●	●	●	●
3	3-position all ports closed				●	●	●	●
4	3-position ABR connection				●	●	●	●
5	3-position PAB connection				●	●	●	●
66	3-port valve Two valves integrated *1	A valve side: Normally Closed	●	●				
		B valve side: Normally Closed						
Ⓒ Explosion-proof Series								
EJ	Japan Explosion-Proof Certified Product		●	●	●	●	●	●
Ⓓ Port size [ports 4(A), 2(B)]								
Port	4(A)/2(B) port		Port P/R1/R2 (1) = M5, (2) = Rc1/8, (3) = Rc1/4 (4) = Rc3/8 (5)=Rc1/2					
C18	ø1.8 push-in fitting		(1)		(1)			
C4	ø4 push-in fitting		(1)	(2)	(1)	(2)		
C6	ø6 push-in fitting		(1)	(2)	(1)	(2)	(3)	
C8	ø8 push-in fitting			(2)		(2)	(3)	(3)
C10	ø10 push-in fitting						(3)	(3)
C12	ø12 push-in fitting							(3)
M5	M5		(1)		(1)			
06	Rc1/8			(2)		(2)		
08	Rc1/4						(3)	
10	Rc3/8							(3)
Ⓔ Electrical connections								*2
RN	M8 connector without cable		●	●	●	●	●	●
R 1	M8 connector straight cable		●	●	●	●	●	●
R 2	M8 connector L-cable		●	●	●	●	●	●
Ⓕ Option								
Blank	Manual override of non-locking/locking common (standard)		●	●	●	●	●	●
H	With exhaust check valve	*3	●	●	●	●	●	
P	Mounting plate attached (for 2-position single only)				●	●	●	
A	Ozone/coolant proof		●	●	●	●	●	●
F	Port A/B filter	*4	●	●	●	●	●	●
Ⓖ Voltage								
4	12 VDC		●	●	●	●	●	●

⚠Precautions for model No. selection

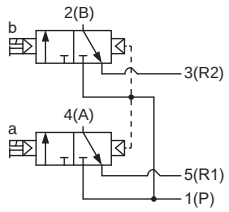
*1: Dimensions are the same as the respective 2-position double solenoid.
*2: M8 connector length is 300mm. Select other lengths from page 65 as needed.
*3: 3-position all ports closed and PAB connection are not provided with exhaust check valve specifications (H).
*4: A filter is built into port P as standard.
*5: Explosion-proof barrier sold separately. Select from page 69.

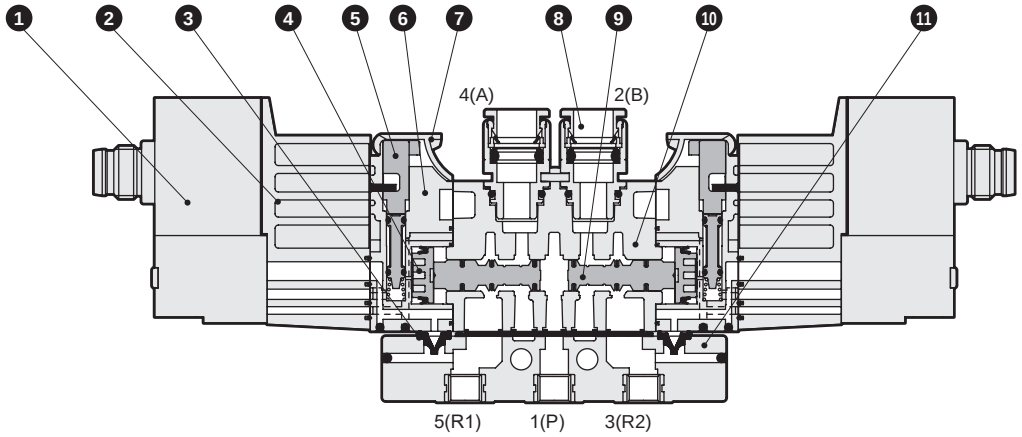
Internal structure diagram and parts list

3GD1 660EJ

● Two 3-port valves integrated
M8 connector without cable (RN)

A side valve: Normally Closed,
B side valve: Normally Closed

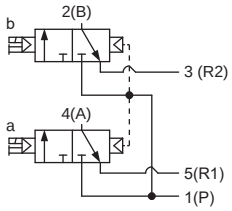


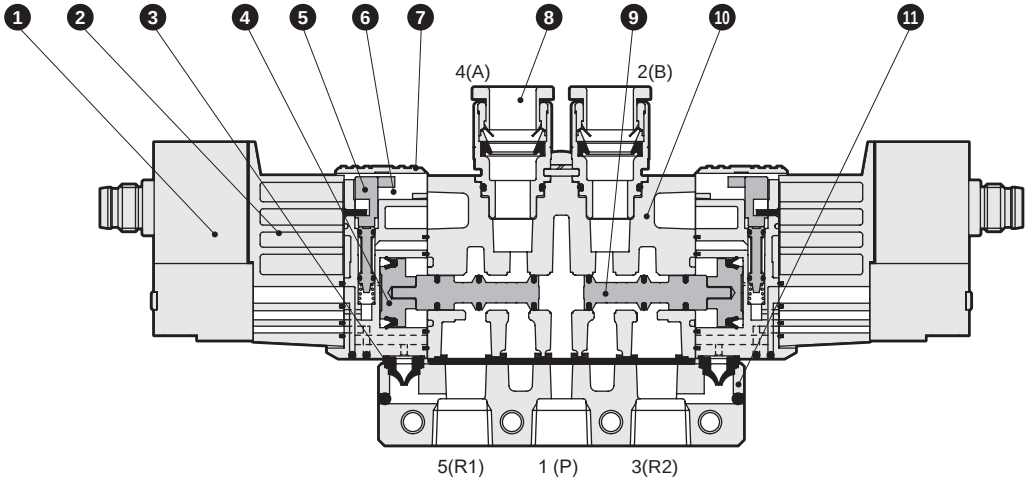


3GD 2660EJ

● Two 3-port valves integrated
M8 connector without cable (RN)

A side valve: Normally Closed,
B side valve: Normally Closed





Main parts list

Part No.	Part name	Material
1	Coil assembly	-
2	Adapter	Resin
3	Pilot exhaust check valve	Hydrogenated nitrile rubber
4	Piston D assembly	-
5	Manual override	Resin
6	Piston chamber	Resin
7	Manual protection cover	Resin
8	Cartridge push-in fitting	-
9	Spool assembly	-
10	Body	Aluminum alloy die-casting
11	Pipe adaptor	Resin

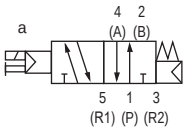
Parts list

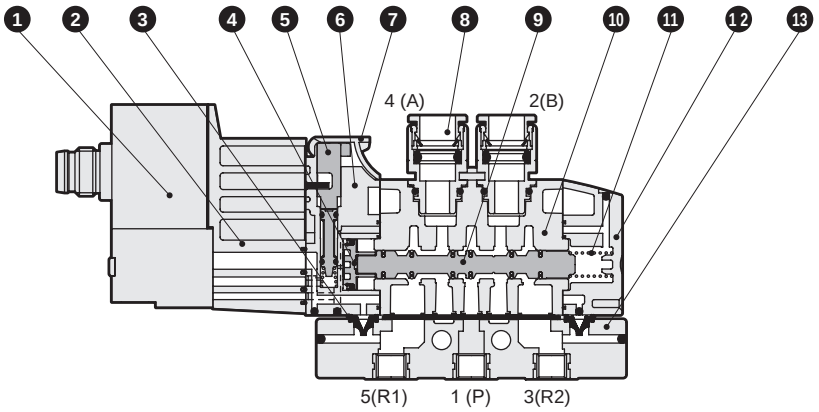
Part No.	Part name		Model No.
8	Cartridge push-in fitting and related parts	ø1.8 straight	4G1R-JOINT-C18
		ø4 straight	4G1R-JOINT-C4
		ø6 straight	4G1R-JOINT-C6
		Plug cartridge	4G1R-JOINT-CPG

Internal structure diagram and parts list

4GD110EJ

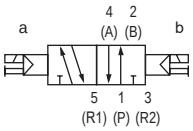
● 2 position single
M8 connector without cable (RN)

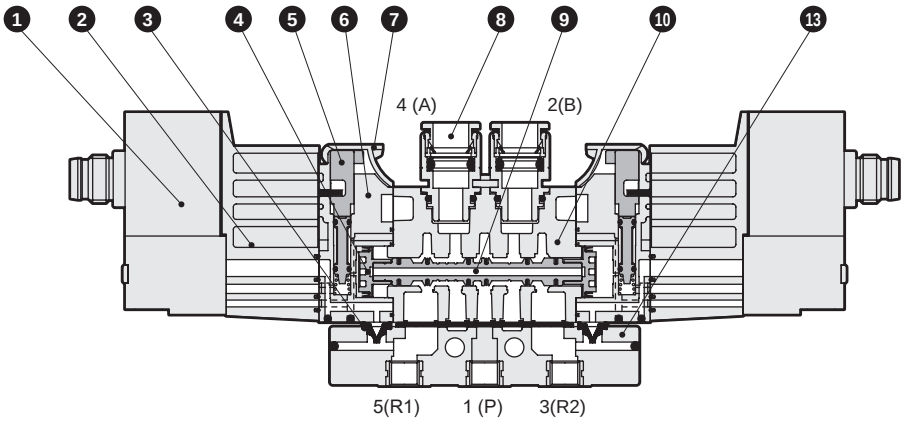




4GD120EJ

● 2-position double
M8 connector without cable (RN)

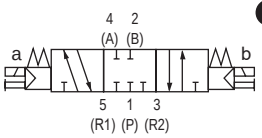




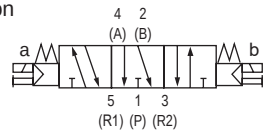
4GD1$^{3}_{4}_{5}$0EJ

● 3-position
M8 connector without cable (RN)

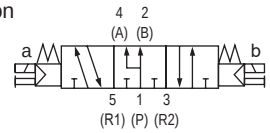
All ports closed

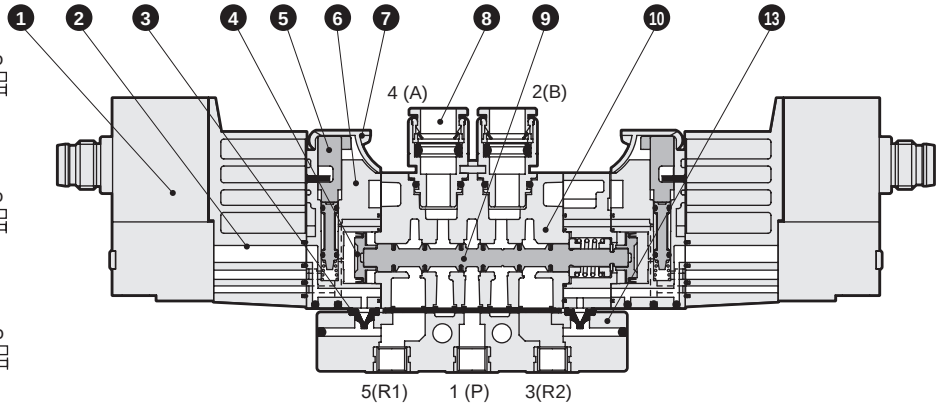


A/B/R connection



P/A/B connection





Main parts list

Part No.	Part name	Material
1	Coil assembly	-
2	Adapter	Resin
3	Pilot exhaust check valve	Hydrogenated nitrile rubber
4	Piston D assembly	-
5	Manual override	Resin
6	Piston chamber	Resin
7	Manual protection cover	Resin
8	Cartridge push-in fitting	-
9	Spool assembly	-
10	Body	Aluminum alloy die-casting
11	Spool spring	Stainless steel
12	Cap	Resin
13	Pipe adaptor	Resin

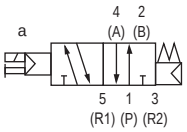
Parts list

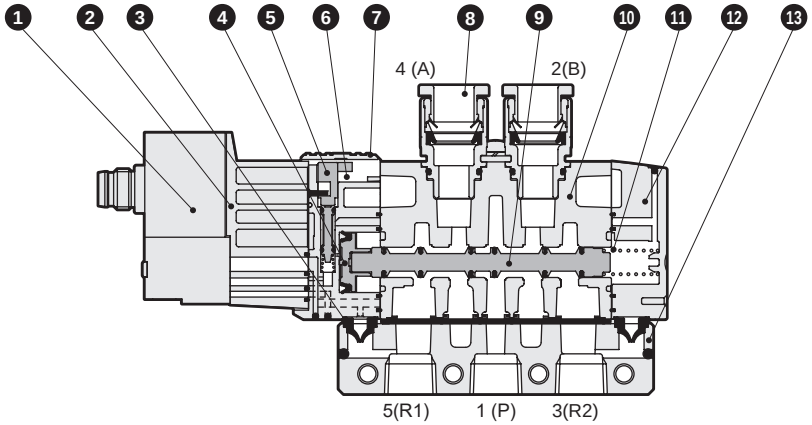
Part No.	Part name		Model No.
8	Cartridge push-in fitting and related parts	ø1.8 straight	4G1R-JOINT-C18
		ø4 straight	4G1R-JOINT-C4
		ø6 straight	4G1R-JOINT-C6
		Plug cartridge	4G1R-JOINT-CPG

Internal structure diagram and parts list

4GD210EJ/4GD310EJ

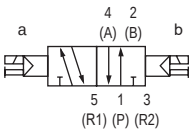
● 2 position single
M8 connector without cable (RN)

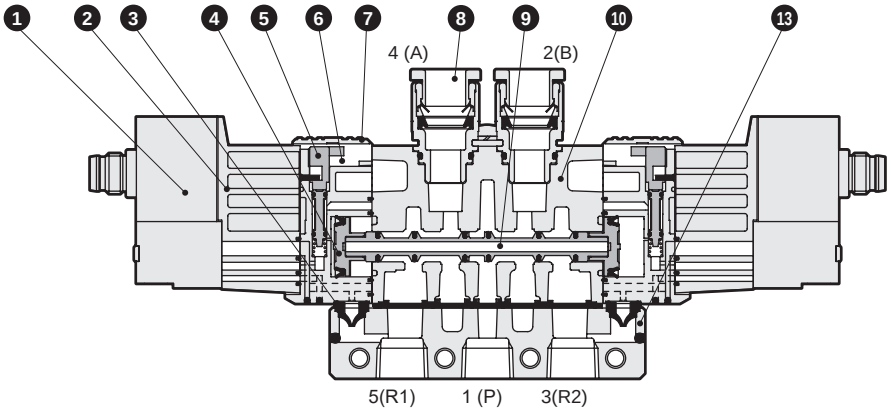




4GD220EJ/4GD320EJ

● 2-position double
M8 connector without cable (RN)

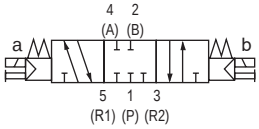




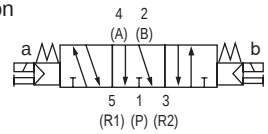
4GD $2^{3}_{4}_{5}$0EJ/4GD$3^{3}_{4}_{5}$0EJ

● 3-position
M8 connector without cable (RN)

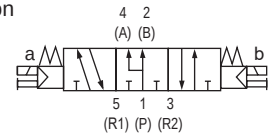
All ports closed

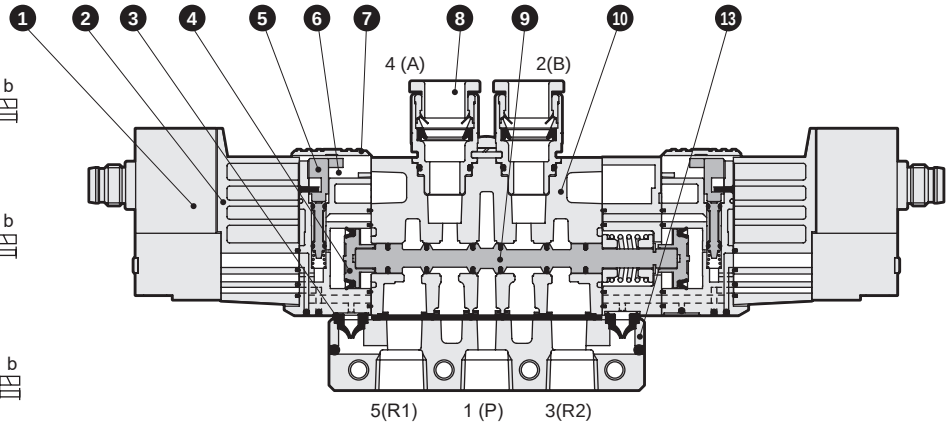


A/B/R connection



P/A/B connection





Main parts list

Part No.	Part name	Material
1	Coil assembly	-
2	Adapter	Resin
3	Pilot exhaust check valve	Hydrogenated nitrile rubber
4	Piston D assembly	-
5	Manual override	Resin
6	Piston chamber	Resin
7	Manual protection cover	Resin
8	Cartridge push-in fitting	-
9	Spool assembly	-
10	Body	Aluminum alloy die-casting
11	Spool spring	Stainless steel
12	Cap	Resin
13	Pipe adaptor	Aluminum alloy die-casting

Parts list

Part No.	Part name			Model No.
8	Cartridge push-in fitting and related parts	4G2	ø4 straight	4G2R-JOINT-C4
			ø6 straight	4G2R-JOINT-C6
			ø8 straight	4G2R-JOINT-C8
		4G3	ø6 straight	4G3R-JOINT-C6
			ø8 straight	4G3R-JOINT-C8
			ø10 straight	4G3R-JOINT-C10

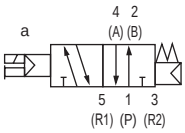
4GD4*0EJ Series

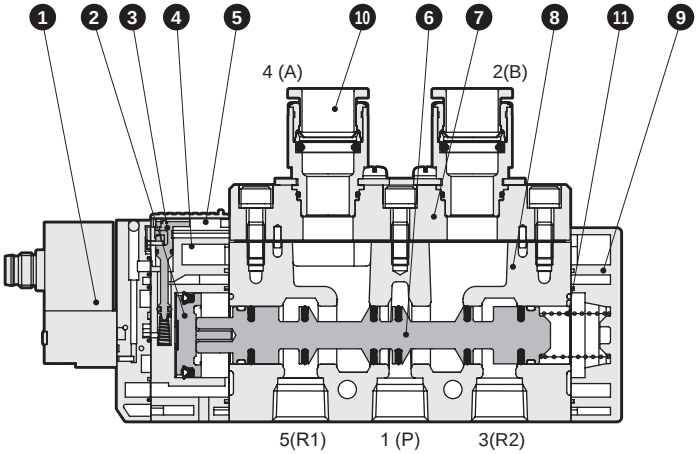
Discrete valve; Body piping

Internal structure diagram and parts list

4GD410EJ

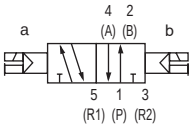
● 2 position single
M8 connector without cable (RN)

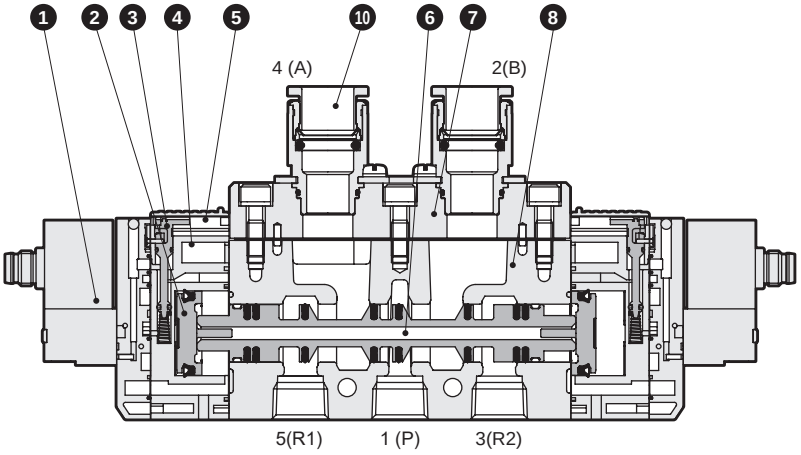




4GD420EJ

● 2-position double
M8 connector without cable (RN)

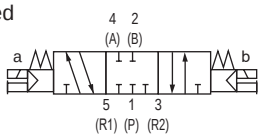




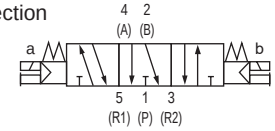
4GD4$^{3}_{4}_{5}$0EJ

● 3-position
M8 connector without cable (RN)

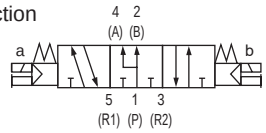
All ports closed

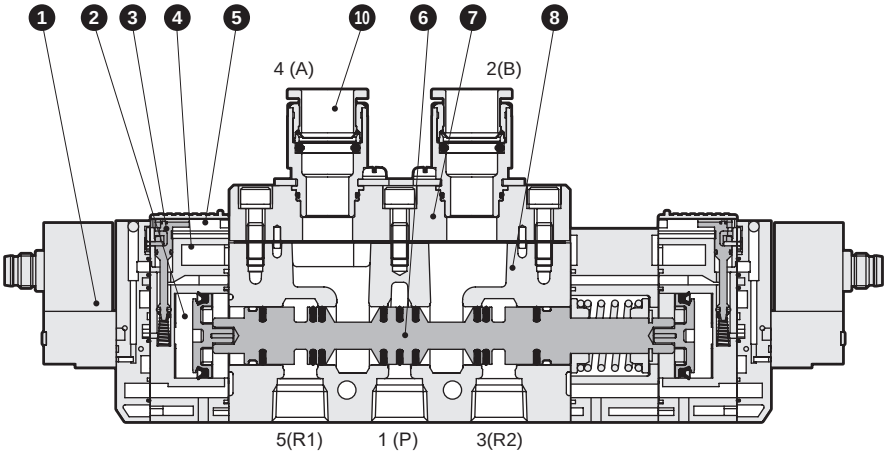


A/B/R connection



P/A/B connection





Main parts list

Part No.	Part name	Material
1	Coil assembly	-
2	Piston assembly	-
3	Manual override	Resin
4	Piston chamber	Resin
5	Manual protection cover	Resin
6	Spool assembly	-
7	Fitting adapter	Aluminum
8	Body	Aluminum alloy die-casting
9	Cap	Resin
10	Cartridge push-in fitting	-
11	Spool spring	Stainless steel

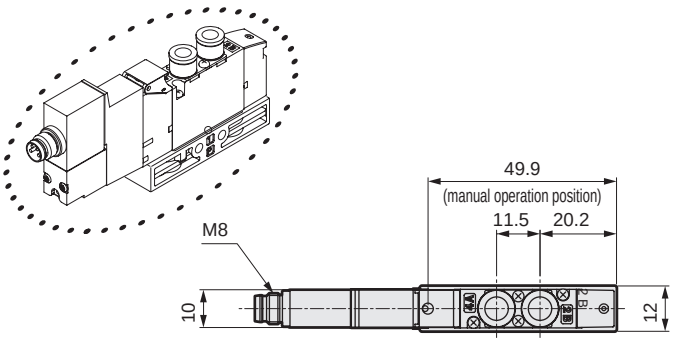
Parts list

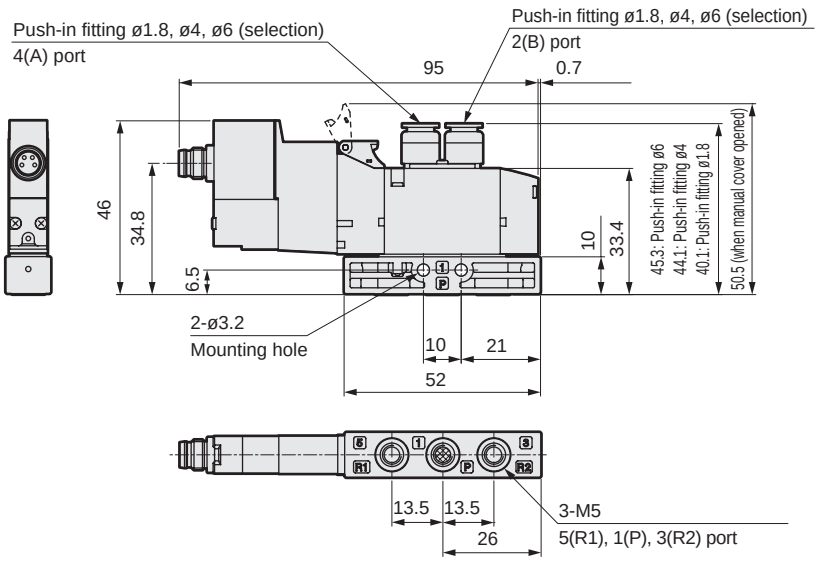
Part No.	Part name		Model No.
-	Cartridge push-in fitting and related parts	ø8 straight	**4G4-JOINT-C8**
		ø10 straight	**4G4-JOINT-C10**
		ø12 straight	**4G4-JOINT-C12**

Dimensions

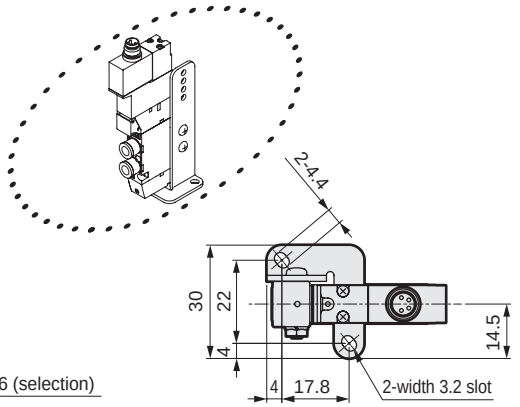
4GD110EJ

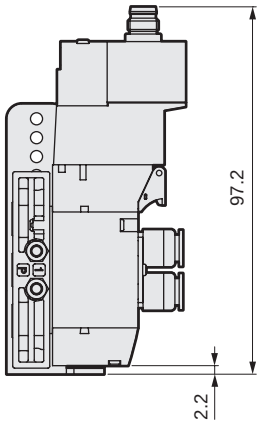
● 2-position single without connector (RN)



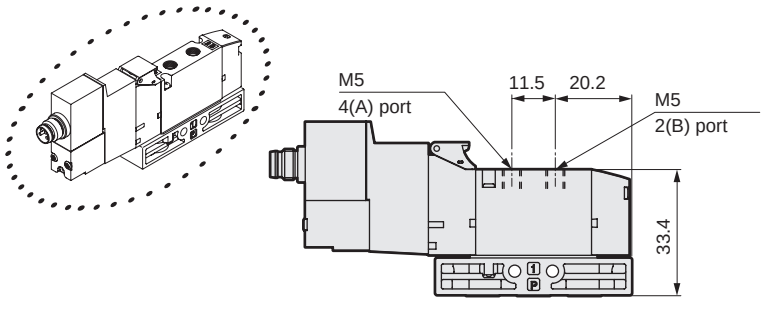


● Mounting plate (P)

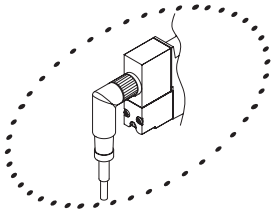




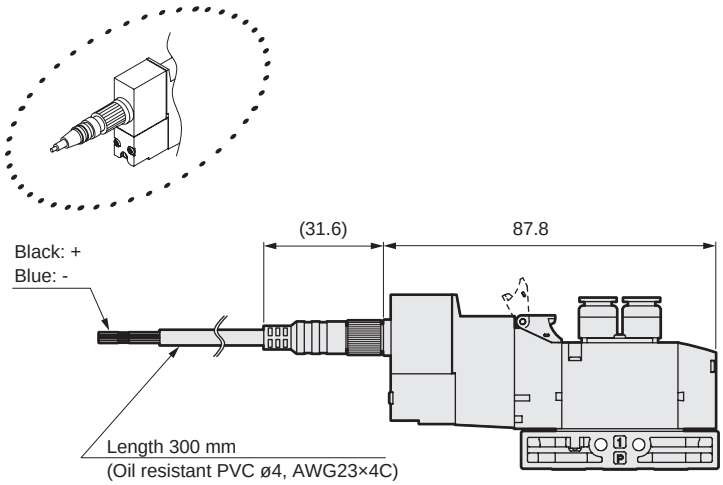
● M5 female thread (M5)

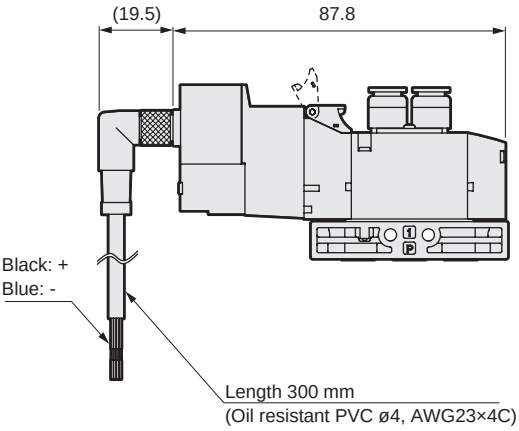


● M8 connector/L-cable (R2)



● M8 connector/straight cable (R1)

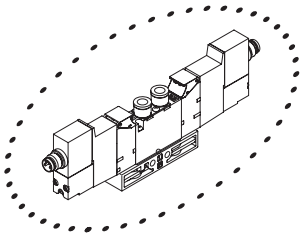


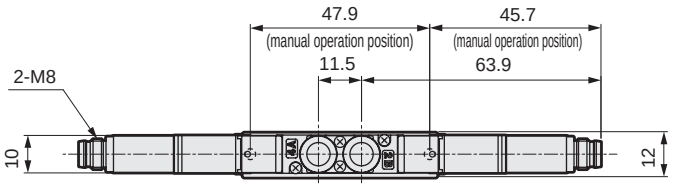


Dimensions

4GD120EJ

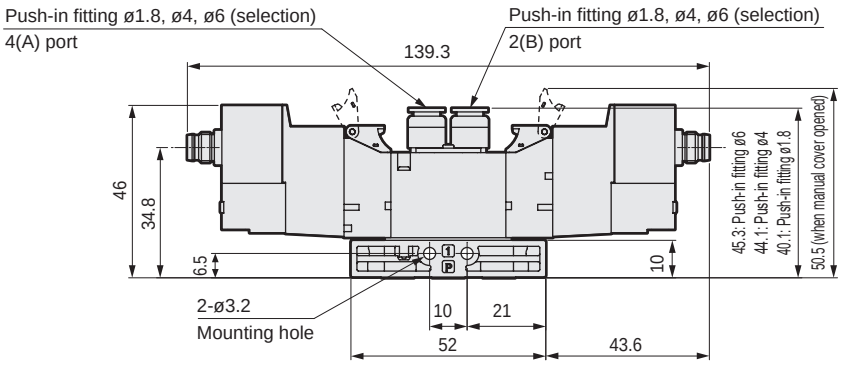
● 2-position double without connector (RN)



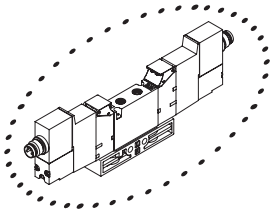


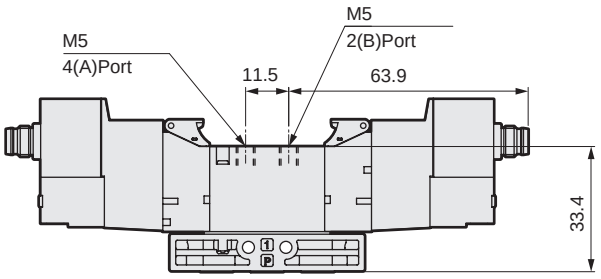
3GD1660EJ

● Two 3-port valves integrated without connector (RN)

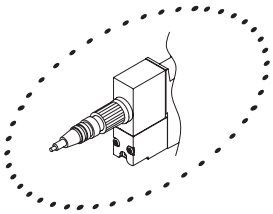


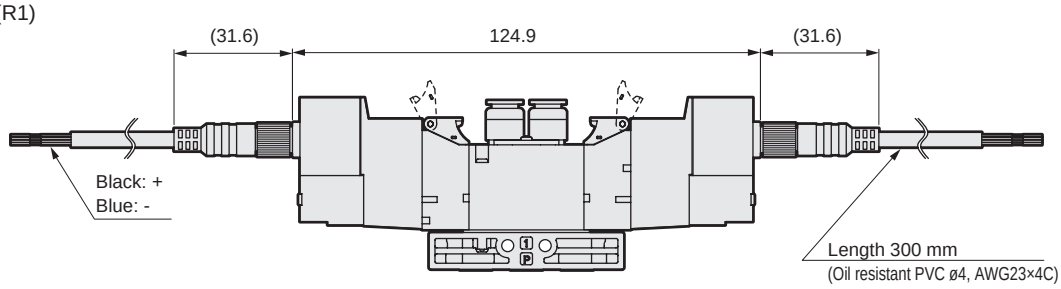
● M5 female thread (M5)



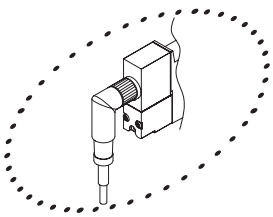


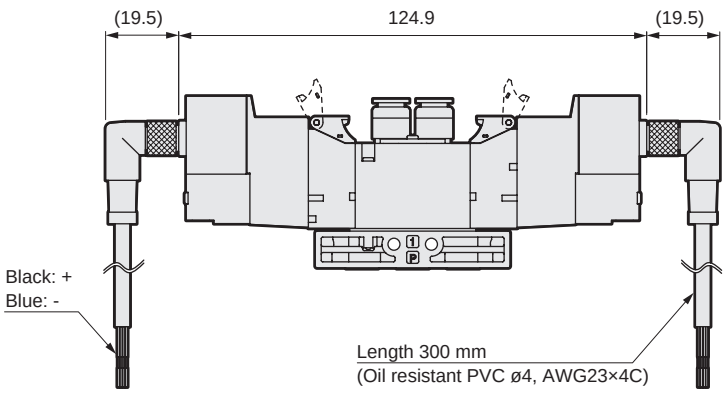
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)

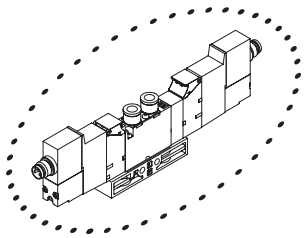


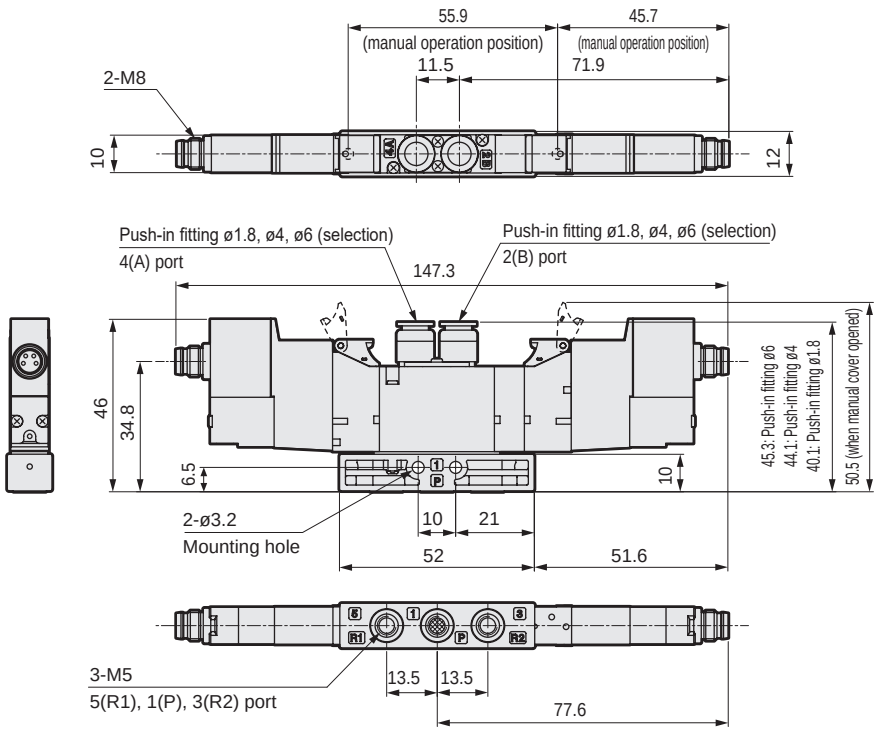


Dimensions

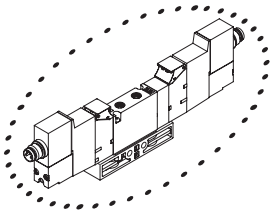
4GD1$^{3}_{4}_{5}$EJ

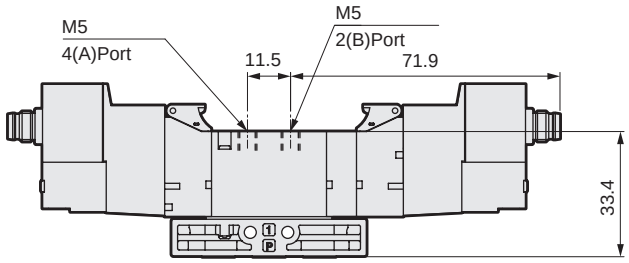
● 3-position without connector (RN)



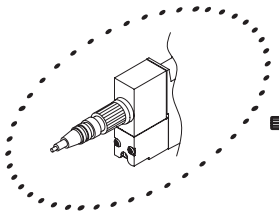


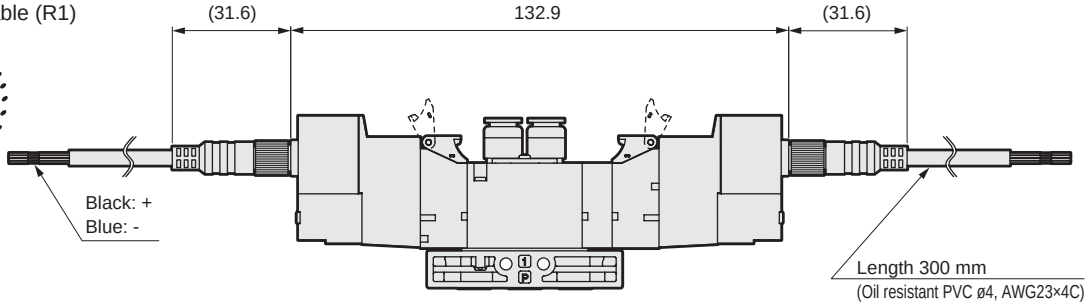
● M5 female thread (M5)



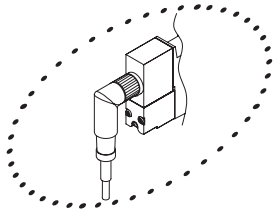


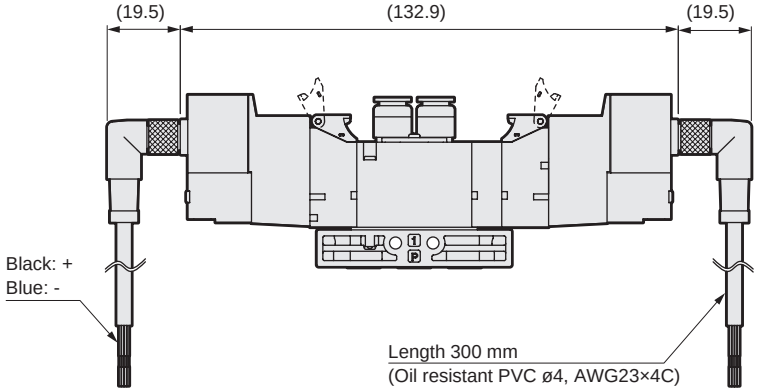
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)

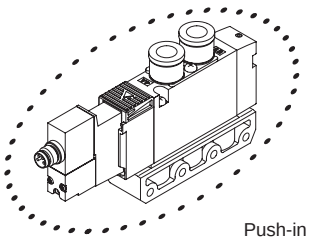


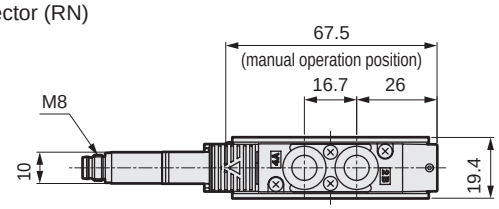


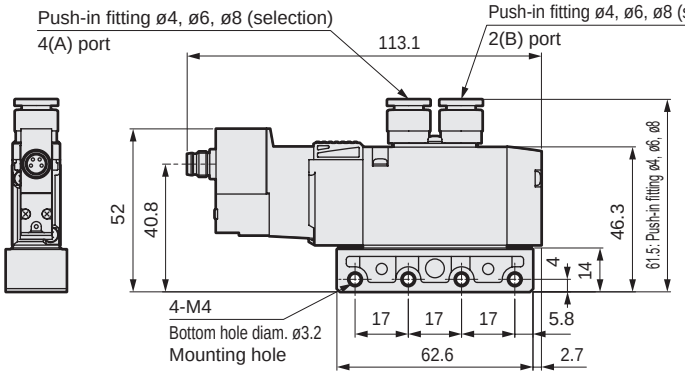
Dimensions

4GD210EJ

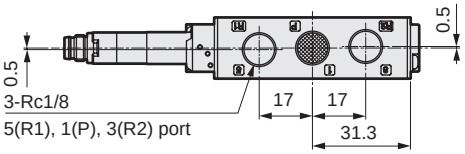
● 2-position single without connector (RN)



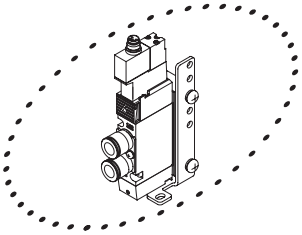


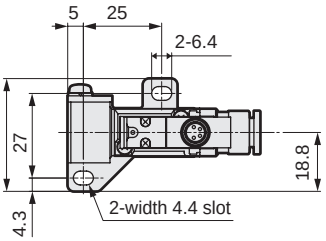


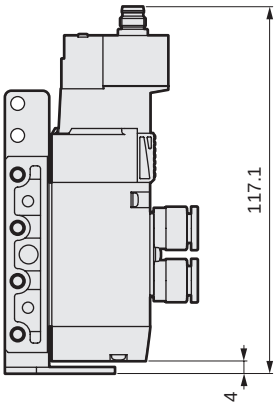
*Refer to page 78 for details on mounting holes.



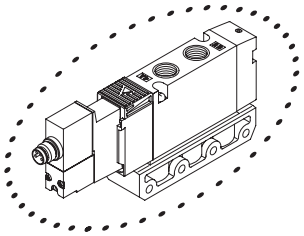
● Mounting plate (P)

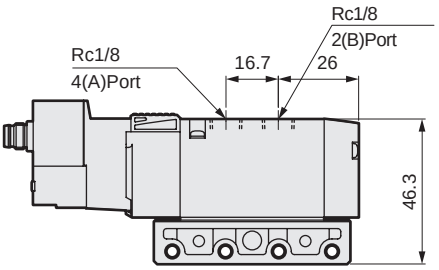




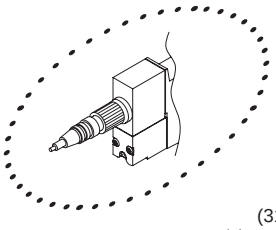


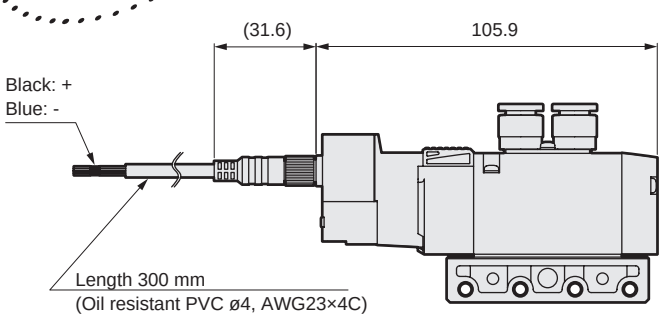
● Rc1/8 female thread (06)



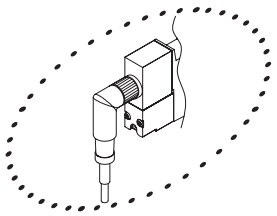


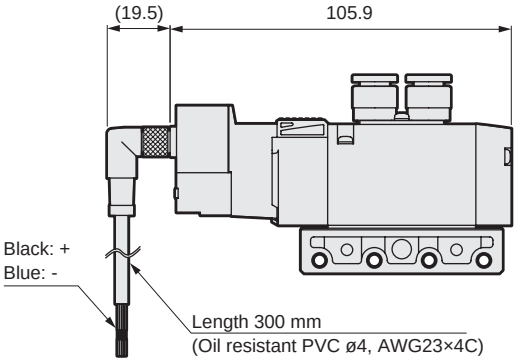
● M8 connector/straight cell (R1)





● M8 connector/L-cable (R2)





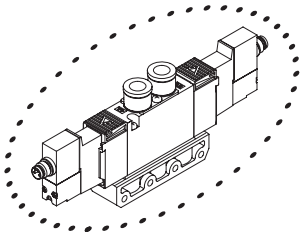
Dimensions

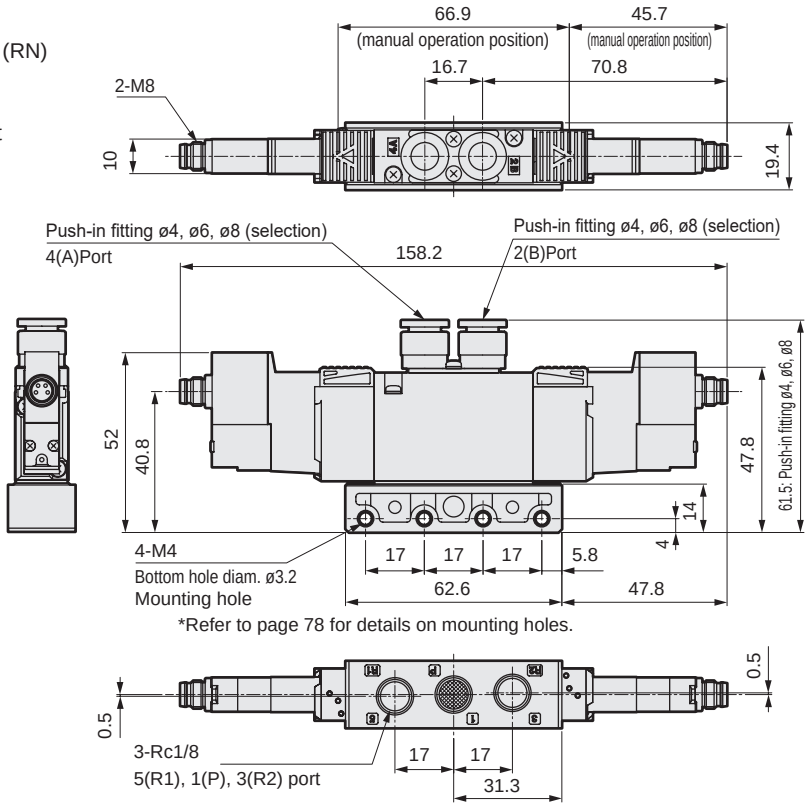
4GD220EJ

● 2-position double without connector (RN)

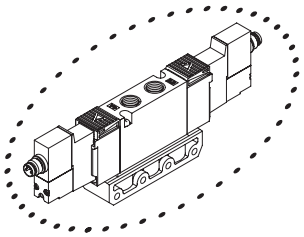
3GD2660EJ

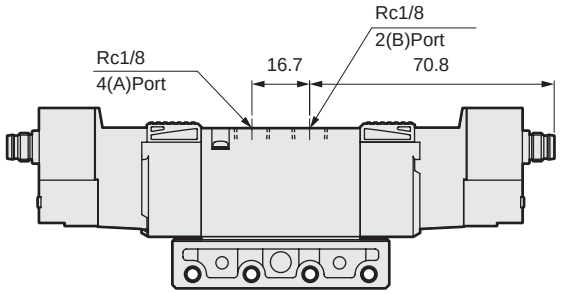
● Two 3-port valves integrated without connector (RN)



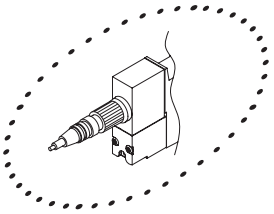


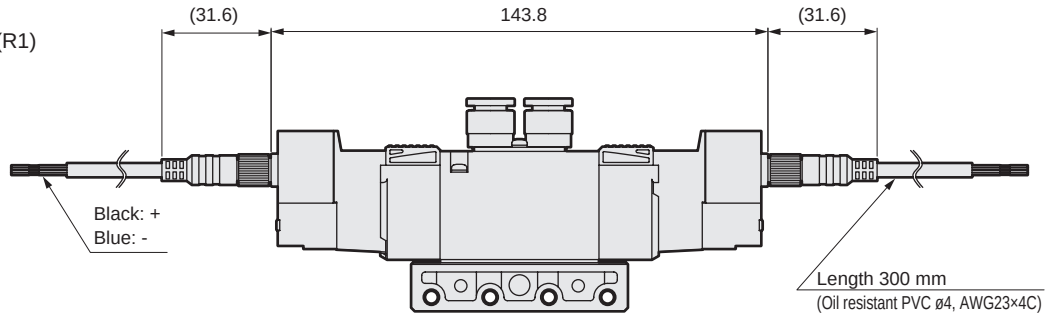
● Rc1/8 female thread (06)



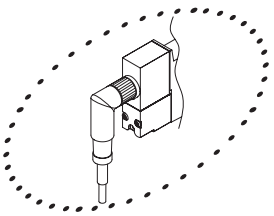


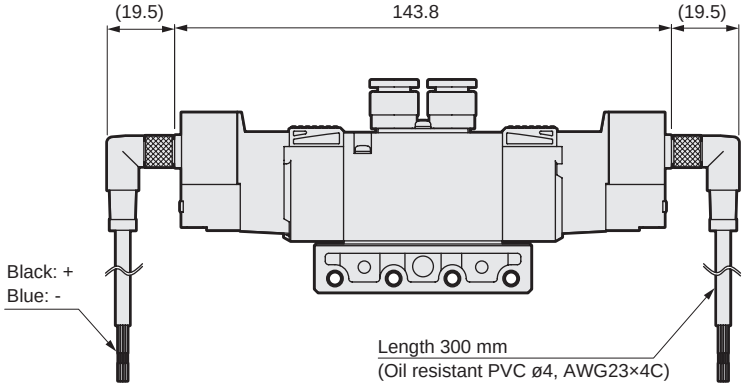
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)

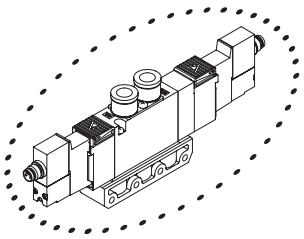


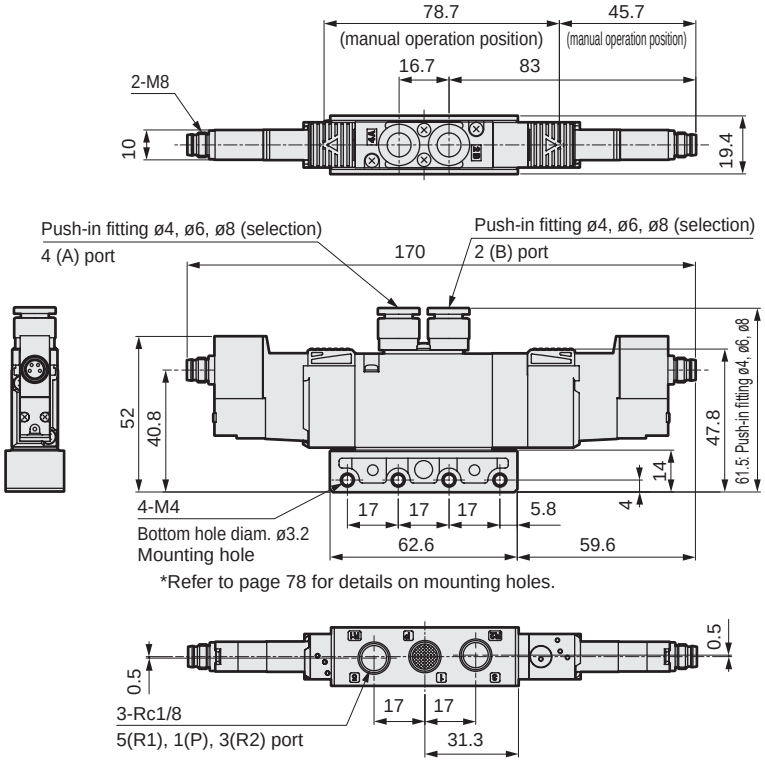


Dimensions

4GD2$^{3}_{5}$0EJ

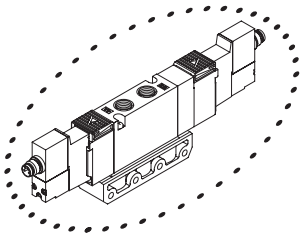
● 3-position without connector (RN)

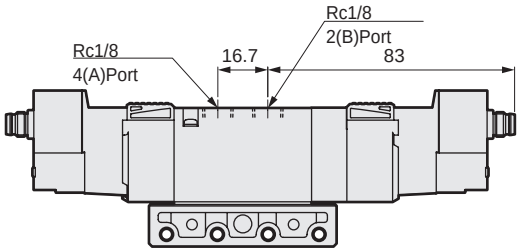




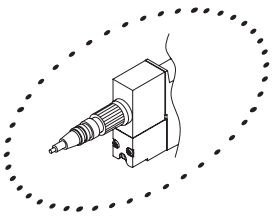
*Refer to page 78 for details on mounting holes.

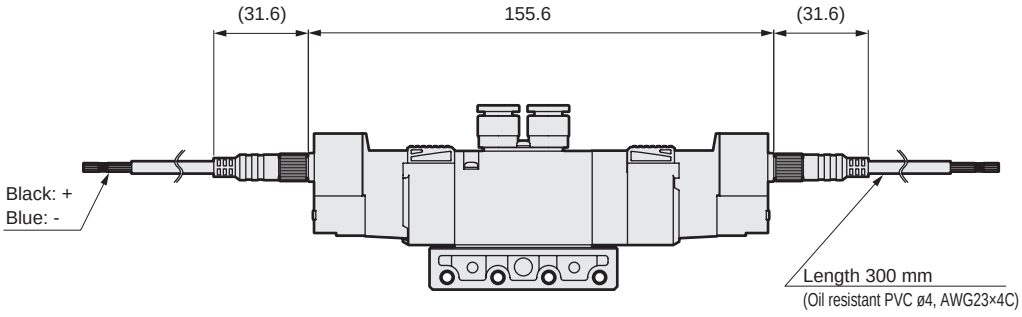
● Rc1/8 female thread (06)



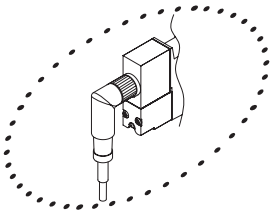


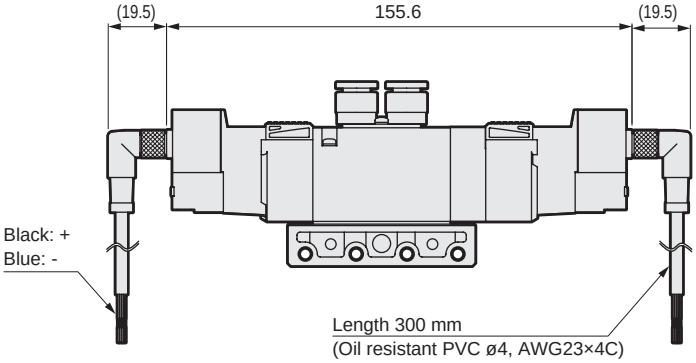
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)

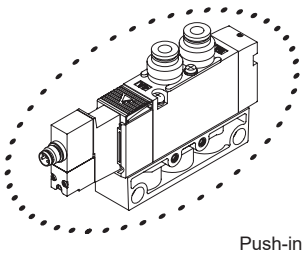


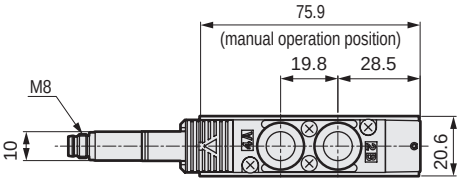


Dimensions

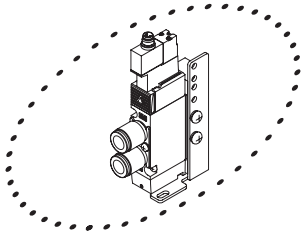
4GD310EJ

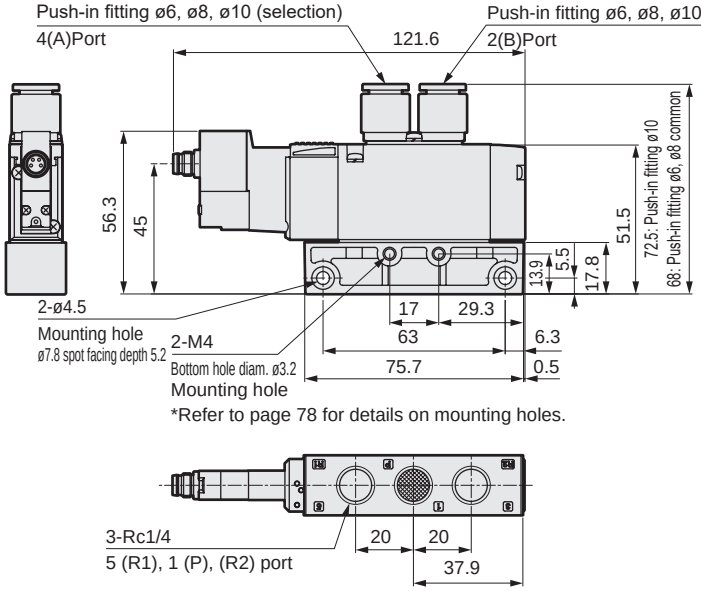
● 2-position single without connector (RN)

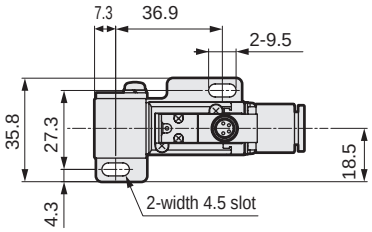




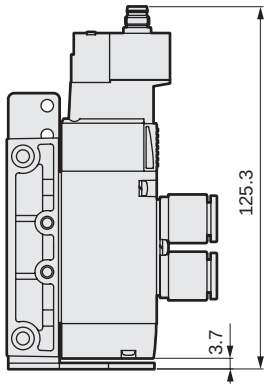
● Mounting plate (P)



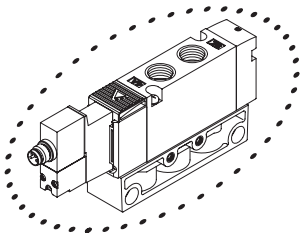


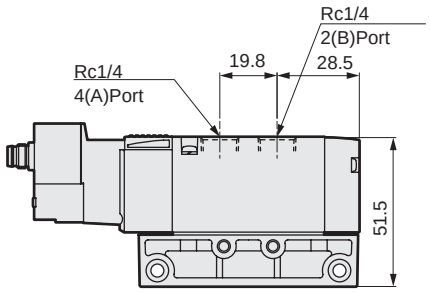


*Refer to page 78 for details on mounting holes.

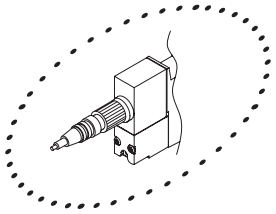


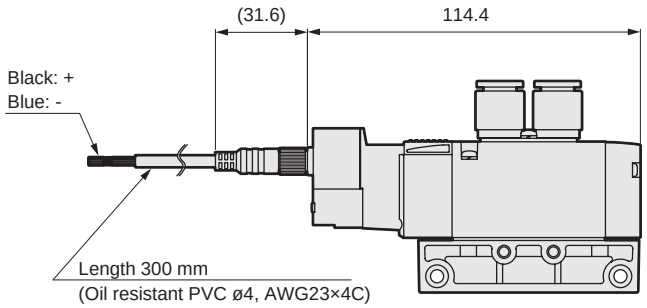
● Rc1/4 female thread (08)



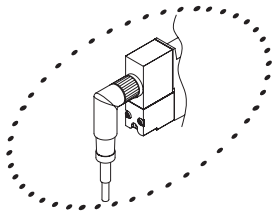


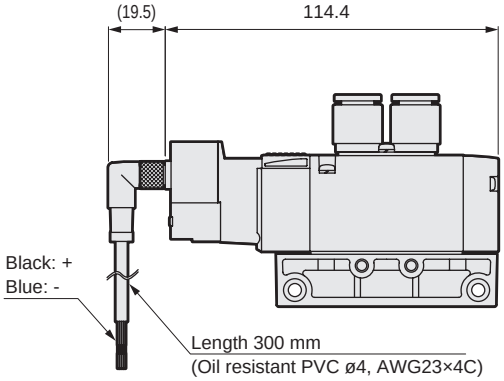
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)

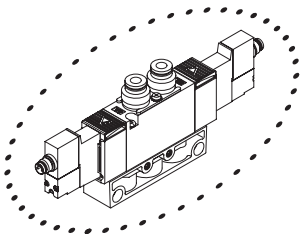


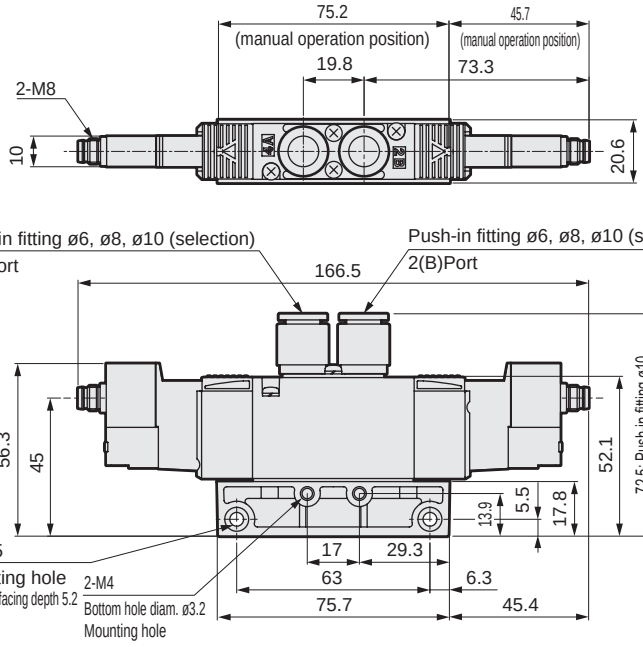


Dimensions

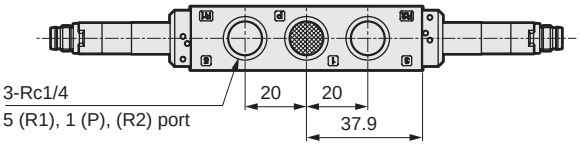
4GD320EJ

● 2-position double without connector (RN)

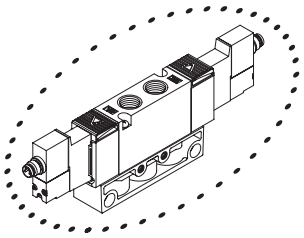


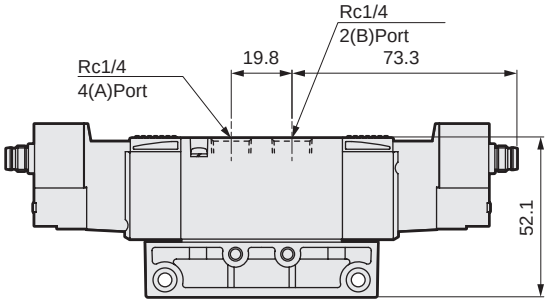


*Refer to page 78 for details on mounting holes.

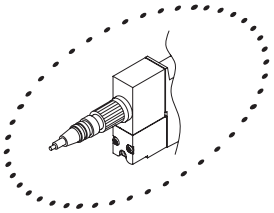


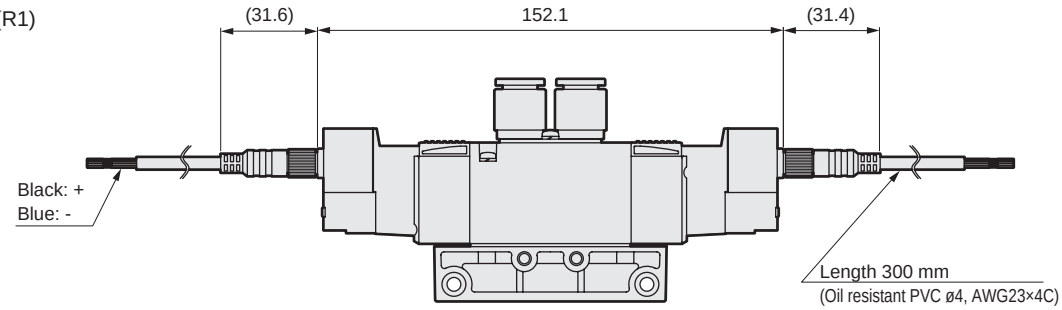
● Rc1/4 female thread (08)



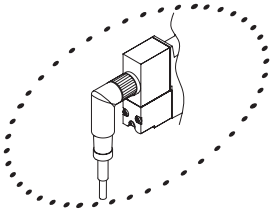


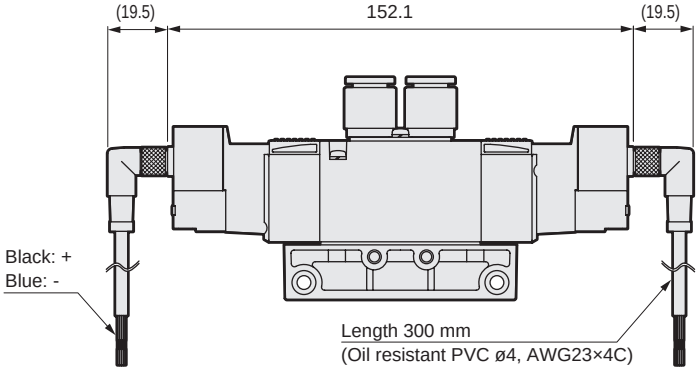
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)

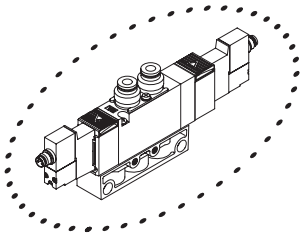


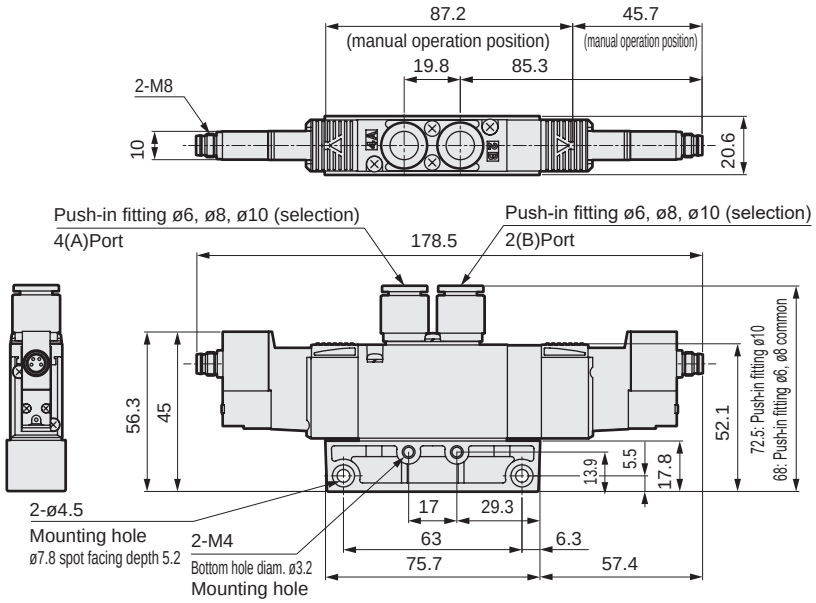


Dimensions

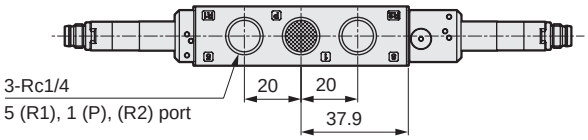
4GD3$^{3}_{4}_{5}$0EJ

● 3-position without connector (RN)

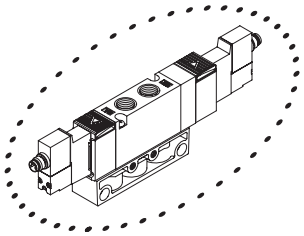


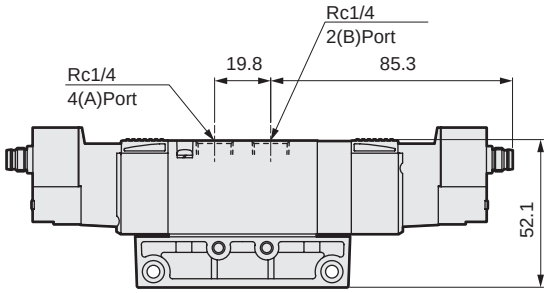


*Refer to page 78 for details on mounting holes.

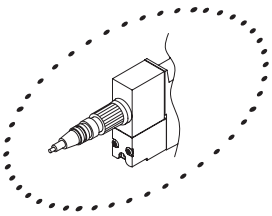


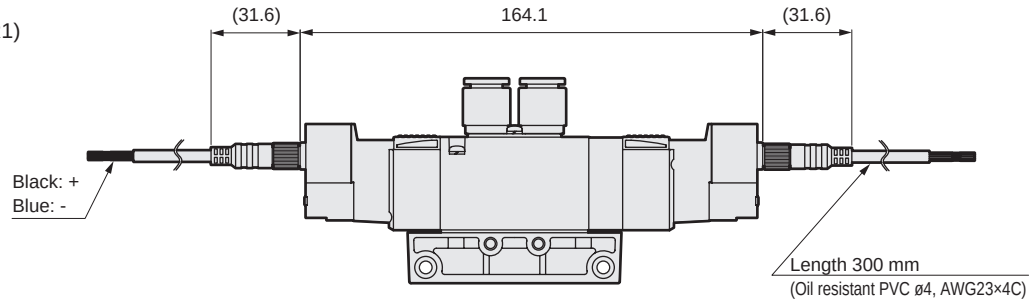
● Rc1/4 female thread (08)



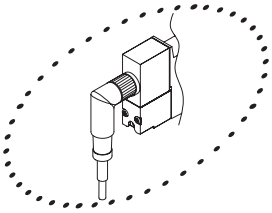


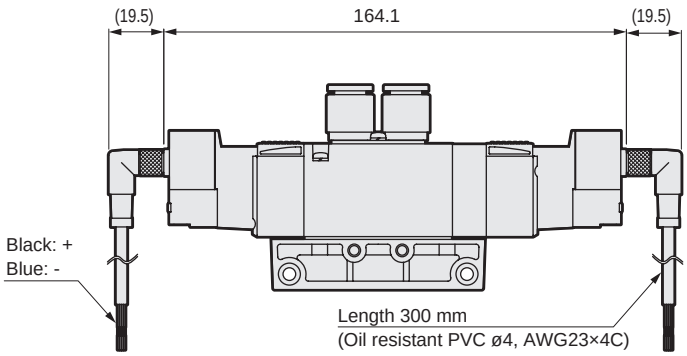
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)

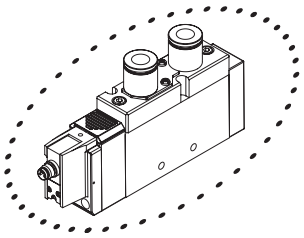


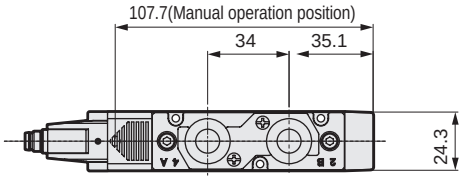


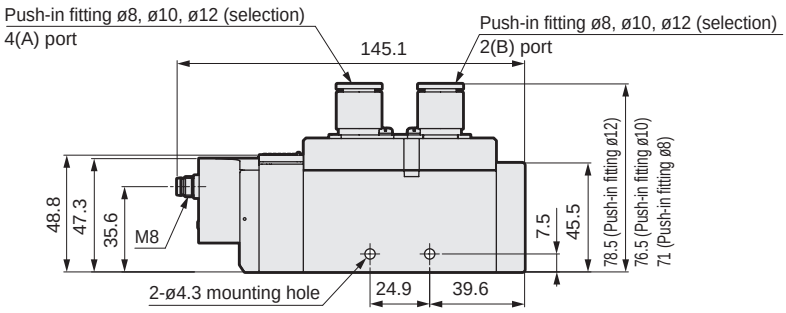
Dimensions

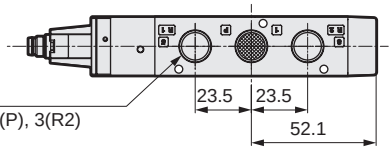
4GD410EJ

● 2-position single without connector (RN)

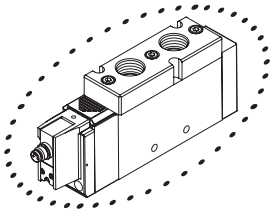


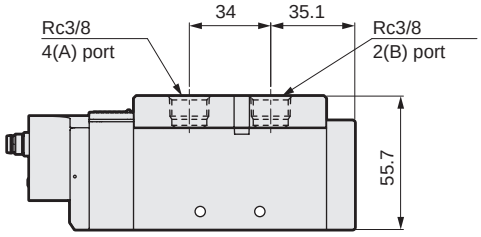




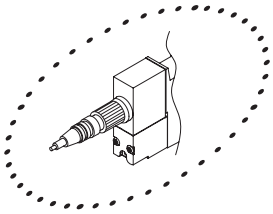


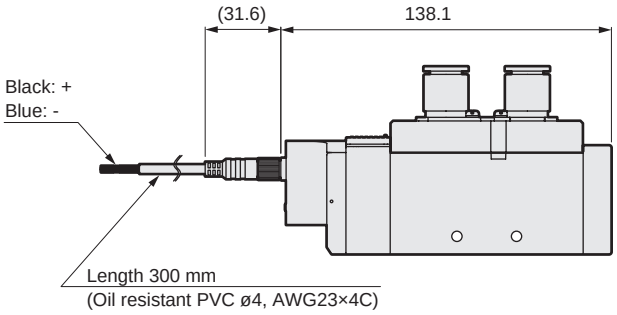
● Rc3/8 female thread (10)



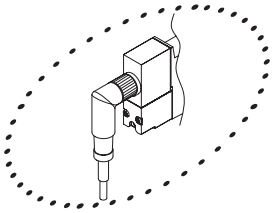


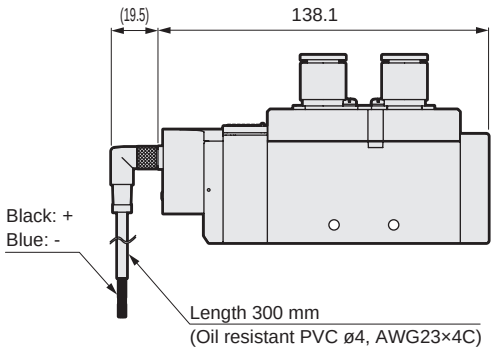
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)

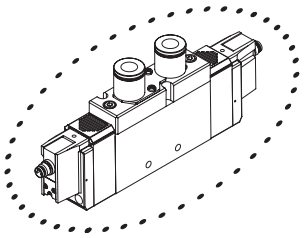


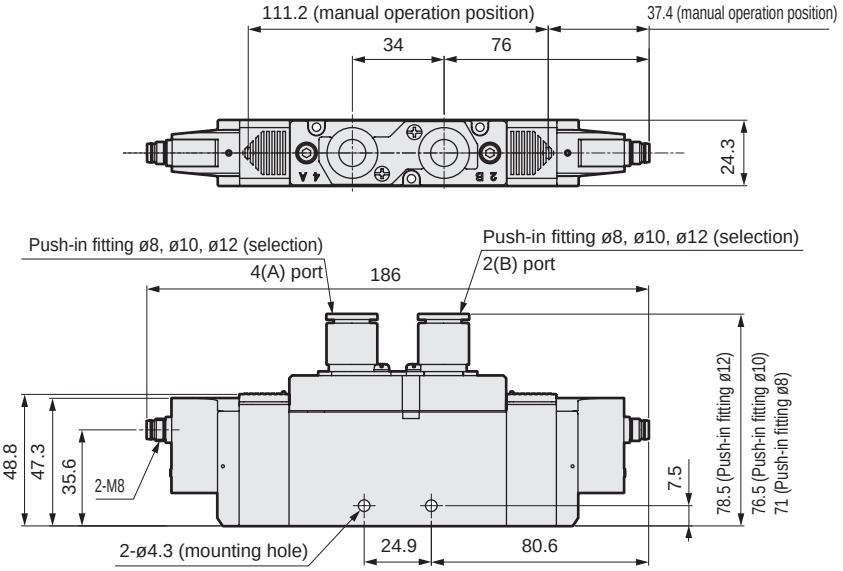


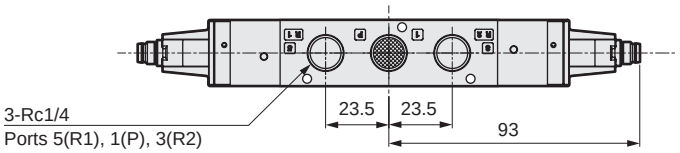
Dimensions

4GD420EJ

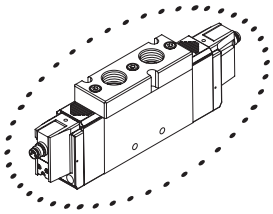
● 2-position double without connector (RN)

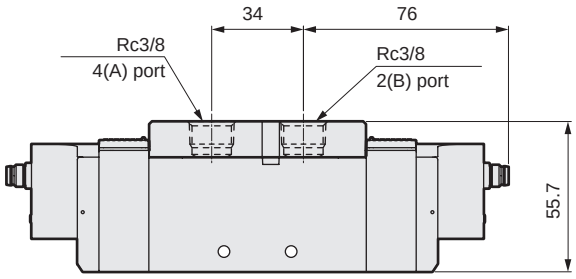




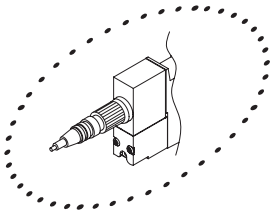


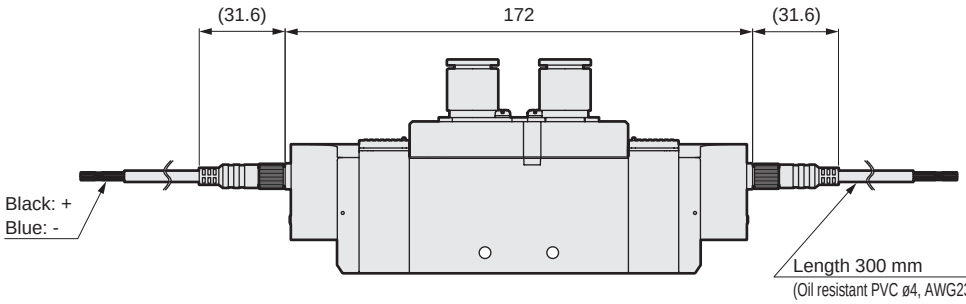
● Rc3/8 female thread (10)



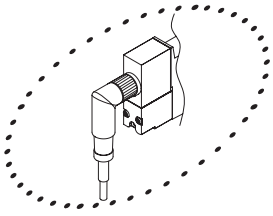


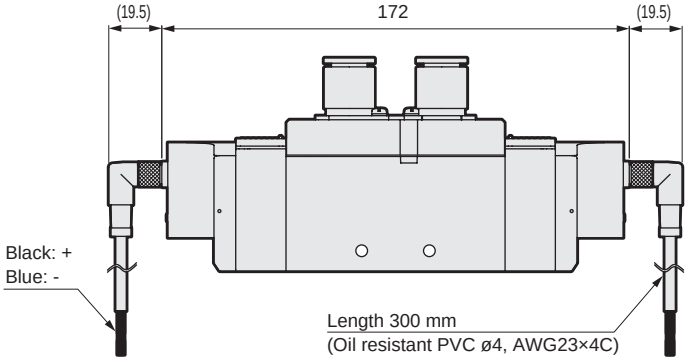
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)

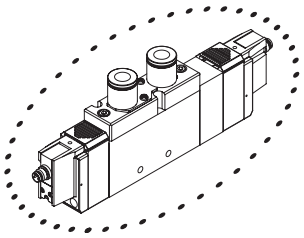


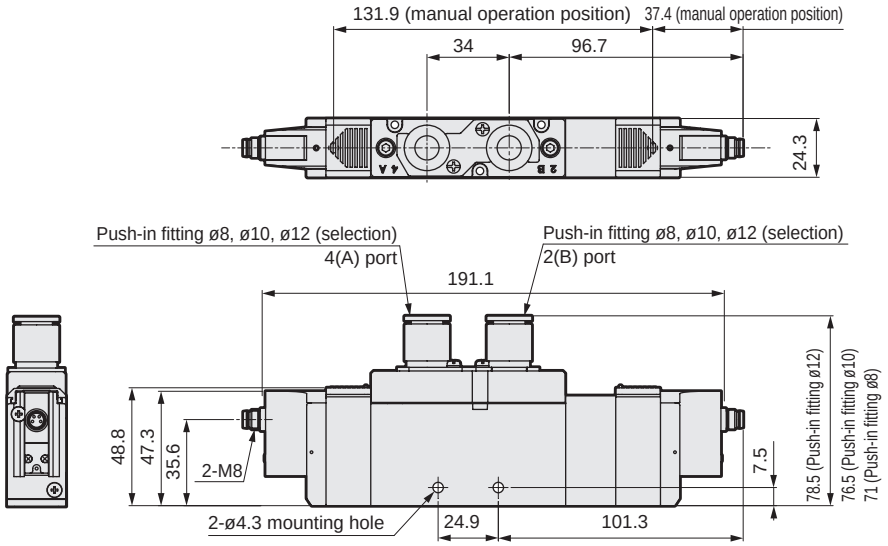


Dimensions

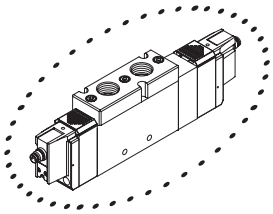
4GD4$^{3}_{4}_{5}$0EJ

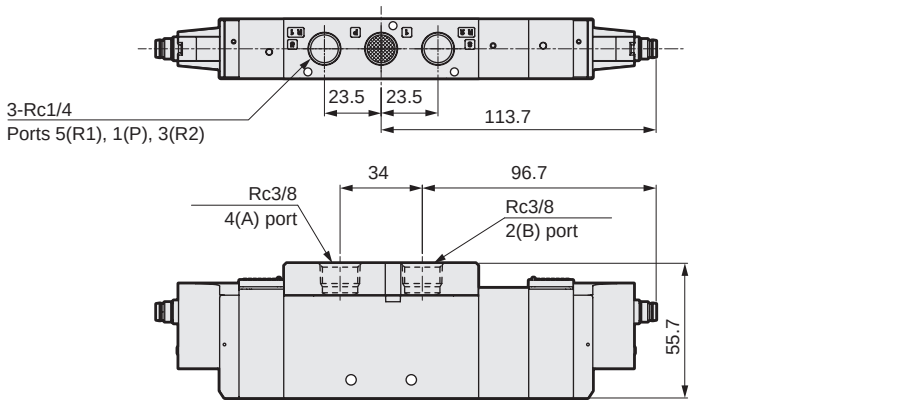
● 3-position without connector (RN)



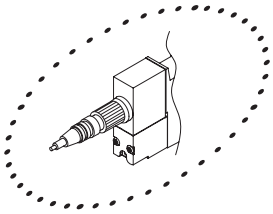


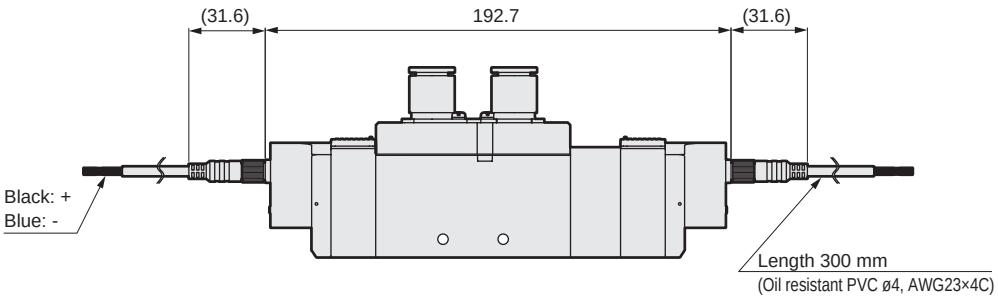
● Rc3/8 female thread (10)



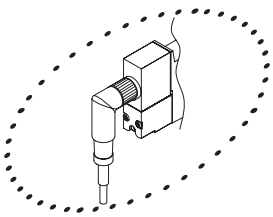


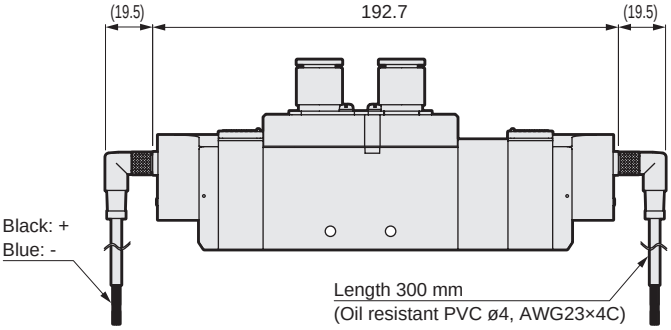
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)





MEMO

Discrete valve
Base piping

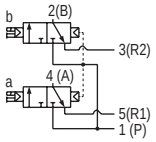
3GE1/2/4GE1/ 2/3 / 4*0EJ Series

● Applicable cylinder bore size: ø20 to ø160

CE RoHS

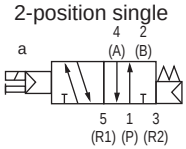
JIS symbol

● Two 3-port valves integrated
(A side valve: NC, B side valve: NC)

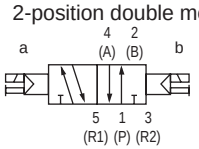


● 5-port valve

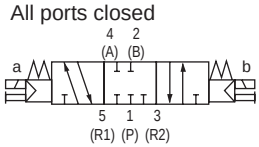
2-position single



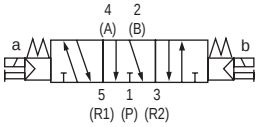
2-position double mounting



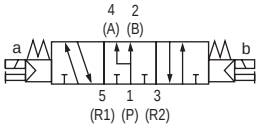
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Common specifications

Item	Description
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2
Proof pressure MPa	1.05
Ambient temperature °C	−5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	NNlock / lock common (standard)
Pilot exhaust method: Internal pilot	Main valve/pilot valve common exhaust
Lubrication *1	Built-in controller eliminates controller installation space and wiring.
Degree of protection *2	IP67
Vibration resistance m/s²	50 or less
Shock resistance m/s²	300 or less
Atmosphere	Cannot be used in corrosive gas environments

Solenoid specifications

Item	Description
Rated voltage V	12 DC
Voltage fluctuation range	+10% −20%
Rated current A	0.05
Power consumption W (*3)	0.6
Thermal class	B

*1 Use turbine oil Class 1 ISOVG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2 Tested according to the test method for IP67 (IEC60529) standards. Note that while the unit is protected from dust and water, it cannot be used immersed in water. Countermeasures such as covering the unit should also be taken if using in environments where it will be constantly exposed to dust or water.

Intrinsic safety explosion-proof specifications

Item	Description
Types of explosion-proof structures	Intrinsic safety explosion-proof structure (ib)
Target gas or above listed ignitability and flame-proof grade	Ex ib IIC T4 Gb
Barrier input voltage	24 VDC
Intrinsic safety circuit allowable voltage Ui	30 VDC
Intrinsic safety circuit allowable current Ii	200mA
Intrinsic safety circuit allowable power Pi	0.68 W
Internal inductance Li	Value that can be ignored
Internal capacitance Ci	Value that can be ignored

Individual specifications

Port size	3GE1/4GE1	3GE2/4GE2	4GE3	4GE4
2, 4-port (port A/B)	Rc1/8	Rc1/4	Rc1/4, Rc3/8	Rc3/8, Rc1/2
1, 3, 5-port (Port P/R1/R2)	Rc1/8	Rc1/4	Rc1/4, Rc3/8	Rc3/8, Rc1/2

Performance/characteristics by model

Item			3GE1		3GE2		4GE1		4GE2		4GE3		4GE4	
			ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		15	35	20	50	-	-	-	-	-	-	-	-
	2-position	Single	-	-	-	-	15	35	20	40	25	60	100	110
		Double	-	-	-	-	25	25	30	30	35	35	110	110
	3-position	ABR connection	-	-	-	-	20	40	25	45	35	60	100	160

The response times are values under continuous operation at supply pressure of 0.5 MPa, at rated voltage and at 20°C without lubrication. They depend on the pressure and the lubricant quality.

Weight

Item			4GE1	4GE2	4GE3	4GE4
Weightg	2-position	Single	97 (54)	173 (91)	246 (117)	551 (241)
		Double	118 (74)	194 (112)	267 (138)	584 (275)
	3-position	ABR connection	120 (77)	202 (120)	277 (148)	616 (306)

• Values in ( ) do not include the pipe adaptor. These values include the M8 connector (straight).
• 3 The weight of the two port valves integrated type is the same as that of 2-position double.

Flow Rate Characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm³/(s·bar)"]	b	C[dm³/(s·bar)"]	b
3GE1 4GE1	Two 3-port valves integrated		0.92	0.08	1.1	0.26
	2-position		1.3	0.27	1.2	0.22
	3-position	All ports closed	1.1	0.31	1.1	0.27
		ABR connection	1.1	0.31	1.3	0.29
		PAB connection	1.4	0.30	1.1	0.26
3GE2 4GE2	Two 3-port valves integrated		1.7	0.42	2.1	0.26
	2-position		2.6	0.20	2.6	0.19
	3-position	All ports closed	2.3	0.32	2.2	0.22
		ABR connection	2.2	0.23	2.6	0.16
		PAB connection	2.4	0.10	2.4	0.22
4GE3	2-position		4.3	0.24	4.2	0.24
	3-position	All ports closed	3.3	0.40	3.4	0.27
		ABR connection	3.3	0.36	4.2	0.18
		PAB connection	4.5	0.28	3.4	0.30
4GE4	2-position		11.0	0.19	13.0	0.19
	3-position	All ports closed	9.1	0.11	12.0	0.27
		ABR connection	8.8	0.28	13.9	0.25
		PAB connection	10.0	0.06	12.0	0.24

*1: Formula to convert effective cross-sectional area S and sonic conductance C is S≈5.0×C.

3GE1/2/4GE1/ 2/3 / 4*0EJ Series

Discrete valve; Base piping

How to order (solenoid valve single unit)

●Single unit

4GE1 | 1 | 0 | EJ | - | 06 | - | RN | | - | 4

3GE2 | 66 | 0 | EJ | - | 08 | - | RN | | - | 4

A Model No.
B Solenoid position
C Explosion-proof Series
D Port size
E Electrical connections
F Option
G Voltage

Code	Description	3GE1	3GE2	4GE1	4GE2	4GE3	4GE4
		A Model No.					
B Solenoid position							
1	2 position single			●	●	●	●
2	2-position double			●	●	●	●
3	3-position all ports closed			●	●	●	●
4	3-position ABR connection			●	●	●	●
5	3-position PAB connection			●	●	●	●
66	3-port valve Two valves integrated *1 — A valve side: Normally Closed / B valve side: Normally Closed	●	●				
C Explosion-proof Series							
EJ	Japan Explosion-Proof Certified Product	●	●	●	●	●	●
D Port size [ports 4(A), 2(B)]							
Port	4(A)/2(B) port	Port P/R1/R2 (1) = M5 (2) = Rc1/8 (3) = Rc1/4 (4) = Rc3/8 (5)=Rc1/2					
06	Rc1/8	(2)		(2)			
08	Rc1/4		(3)		(3)	(3)	
10	Rc3/8					(4)	(4)
15	Rc1/2						(5)
00	Valve for base mounting	●	●	●	●	●	●
E Electrical connections *2							
RN	M8 connector without cable	●	●	●	●	●	●
R1	M8 connector straight cable	●	●	●	●	●	●
R2	M8 connector L-cable	●	●	●	●	●	●
F Option							
Blank	Manual override of non-locking/locking common (standard)	●	●	●	●	●	●
H	With exhaust check valve *3	●	●	●	●	●	
A	Ozone/coolant proof	●	●	●	●	●	●
F	Port A/B filter *4	●	●	●	●	●	●
J	With indicator	●	●	●	●	●	
G Voltage							
4	12 VDC	●	●	●	●	●	●

⚠Precautions for model No. selection

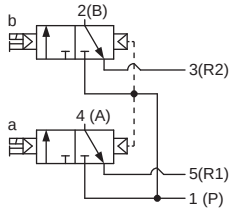
*1: Dimensions are the same as the respective 2-position double solenoid.
*2: M8 connector length is 300mm. Select other lengths from page 65 as needed.
*3: 3-position all ports closed and PAB connection are not provided with exhaust check valve specifications (H).
*4: A filter is built into port P as standard.
*5: Explosion-proof barrier sold separately. Select from page 69.

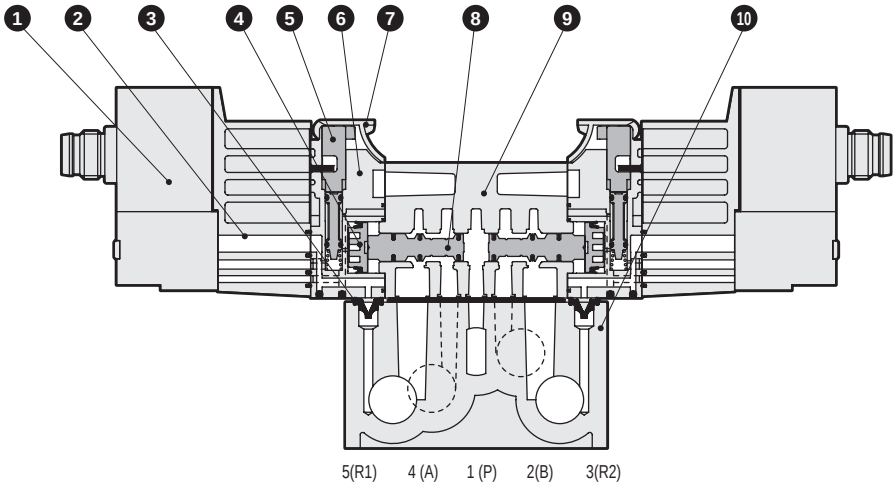
Internal structure diagram and parts list

3GE1660EJ

● Two 3-port valves integrated
M8 connector without cable (RN)

A side valve: Normally Closed,
B side valve: Normally Closed
NC/NC

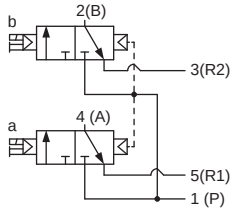


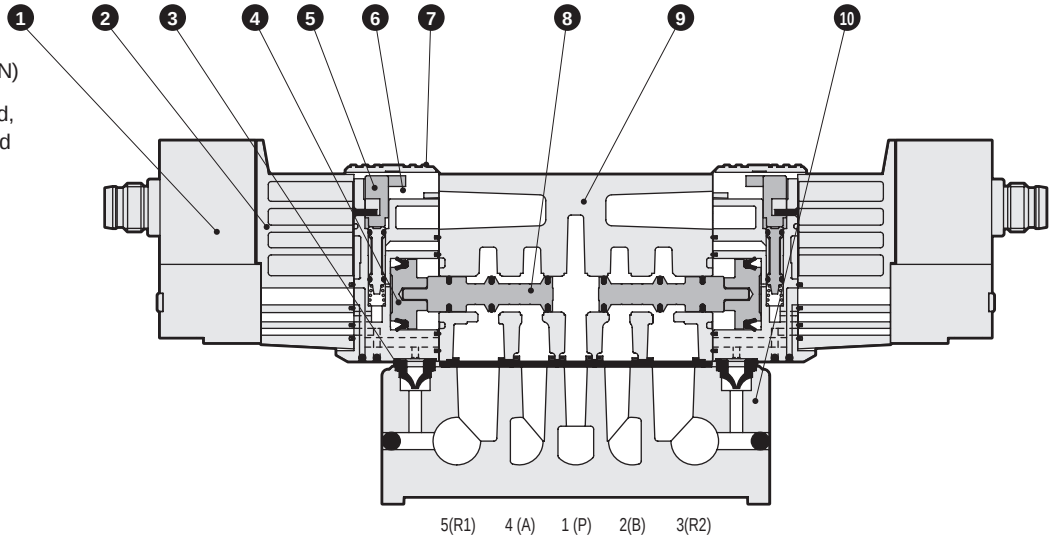


3GE2 660EJ

● Two 3-port valves integrated
M8 connector without cable (RN)

A side valve: Normally Closed,
B side valve: Normally Closed
NC/NC





Main parts list

Part No.	Part name	Material	Part No.	Part name	Material
1	Coil assembly	-	6	Piston chamber	Resin
2	Adapter	Resin	7	Manual protection cover	Resin
3	Pilot exhaust check valve	Hydrogenated nitrile rubber	8	Spool assembly	-
4	Piston assembly	-	9	Body	Aluminum alloy die-casting
5	Manual override	Resin	10	Sub-plate	Aluminum alloy die-casting

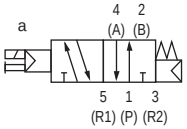
4GE1*0EJ Series

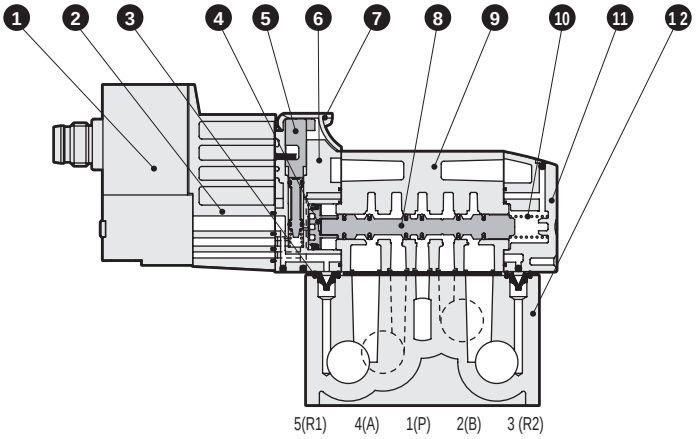
Discrete valve; Base piping

Internal structure diagram and parts list

4GE110EJ

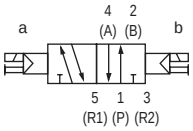
● 2 position single
M8 connector without cable (RN)

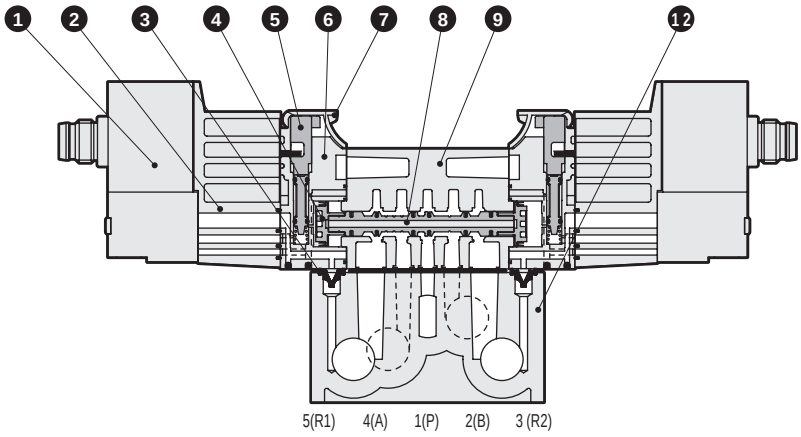




4GE120EJ

● 2-position double
M8 connector without cable (RN)

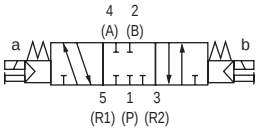




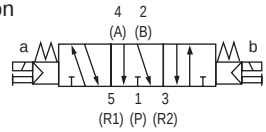
4GE1 $^{3}_{4}_{5}$ 0EJ

● 3-position
M8 connector without cable (RN)

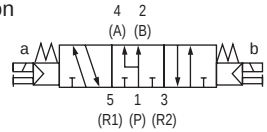
All ports closed

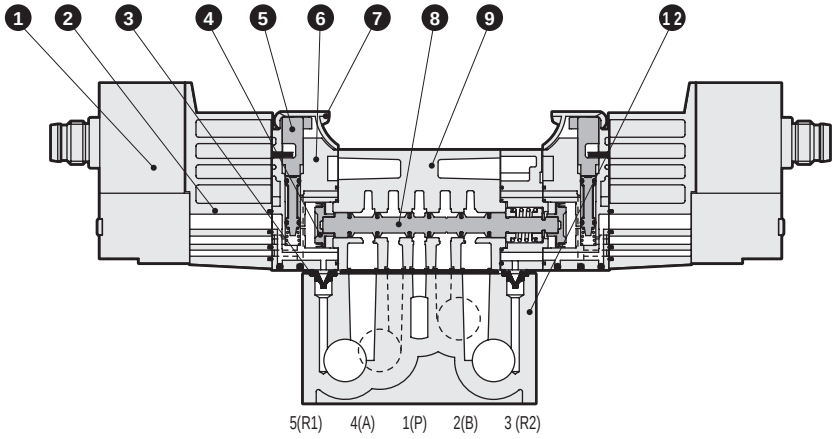


A/B/R connection



P/A/B connection





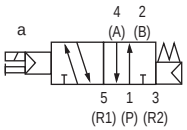
Main parts list

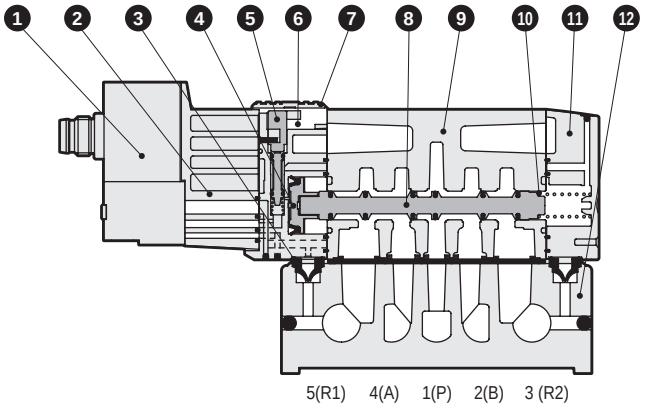
Part No.	Part name	Material	Part No.	Part name	Material
1	Coil assembly	-	7	Manual protection cover	Resin
2	Adapter	Resin	8	Spool assembly	-
3	Pilot exhaust check valve	Hydrogenated nitrile rubber	9	Body	Aluminum alloy die-casting
4	Piston D assembly	-	10	Spool spring	Stainless steel
5	Manual override	Resin	11	Cap	Resin
6	Piston chamber	Resin	12	Sub-plate	Aluminum alloy die-casting

Internal structure diagram and parts list

4GE210EJ/4GE310EJ

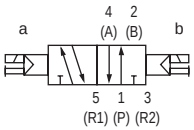
● 2 position single
M8 connector without cable (RN)

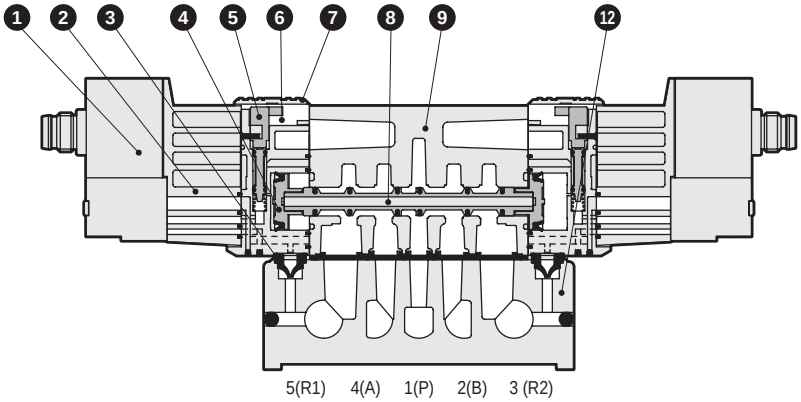




4GE220EJ/4GE320EJ

● 2-position double
M8 connector without cable (RN)

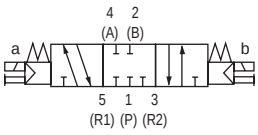




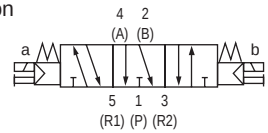
4GE2 $^{3}_{4}_{5}$0EJ/4GE3 $^{3}_{4}_{5}$0EJ

● 3-position
M8 connector without cable (RN)

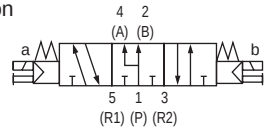
All ports closed

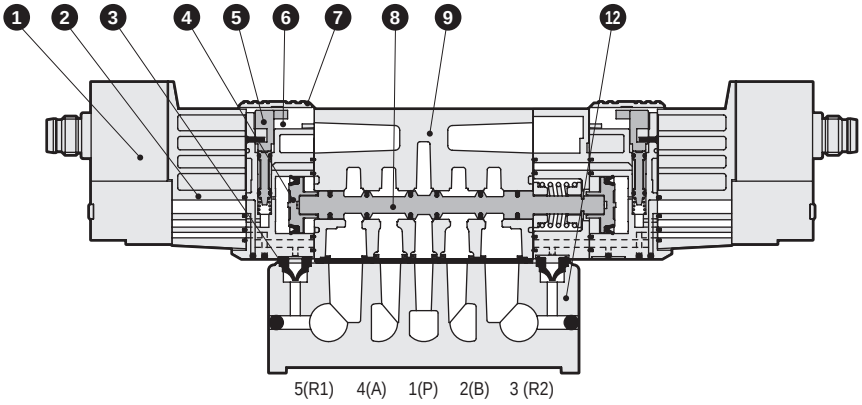


A/B/R connection



P/A/B connection





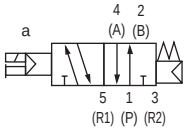
Main parts list

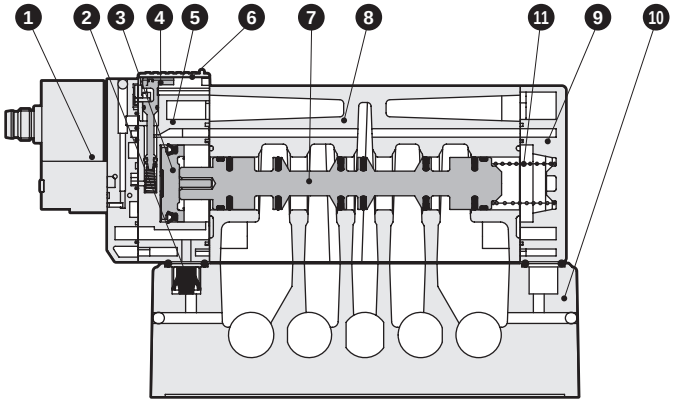
Part No.	Part name	Material	Part No.	Part name	Material
1	Coil assembly	-	7	Manual protection cover	Resin
2	Adapter	Resin	8	Spool assembly	-
3	Pilot exhaust check valve	Hydrogenated nitrile rubber	9	Body	Aluminum alloy die-casting
4	Piston D assembly	-	10	Spool spring	Stainless steel
5	Manual override	Resin	11	Cap	Resin
6	Piston chamber	Resin	12	Sub-plate	Aluminum alloy die-casting

Internal structure diagram and parts list

4GE410EJ

● 2 position single
M8 connector without cable (RN)

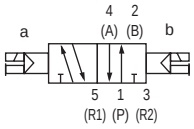


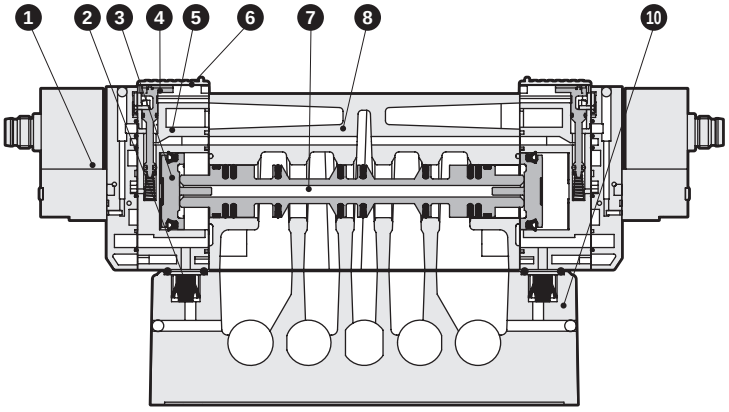


5(R1) 4 (A) 1 (P) 2(B) 3(R2)

4GE420EJ

● 2-position double
M8 connector without cable (RN)



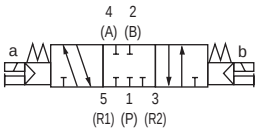


5(R1) 4 (A) 1 (P) 2(B) 3(R2)

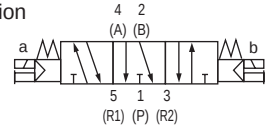
4GE4$^{3}_{4}_{5}$0EJ

● 3-position
M8 connector without cable (RN)

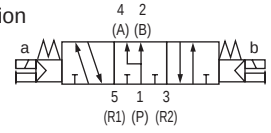
All ports closed

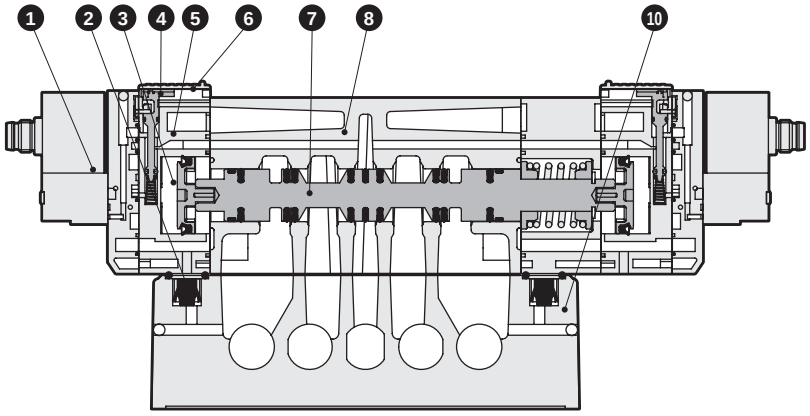


A/B/R connection



P/A/B connection





5(R1) 4 (A) 1 (P) 2(B) 3(R2)

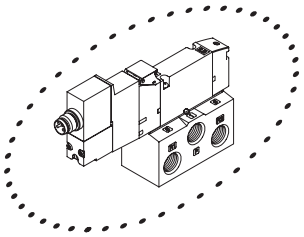
Main parts list

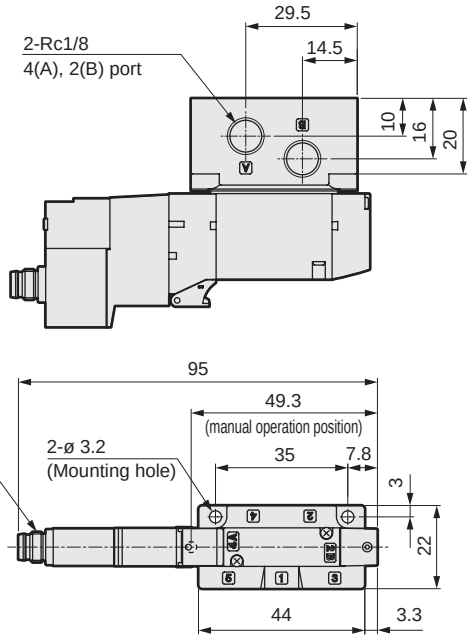
Part No.	Part name	Material	Part No.	Part name	Material
1	Coil assembly	-	6	Manual protection cover	Resin
2	Check valve	Hydrogenated nitrile rubber	7	Spool assembly	-
3	Piston assembly	-	8	Body	Aluminum alloy die-casting
4	Manual override	Resin	9	Cap	Resin
5	Piston chamber	Resin	10	Discrete sub-plate	Aluminum alloy die-casting
			11	Spool spring	Stainless steel

Dimensions

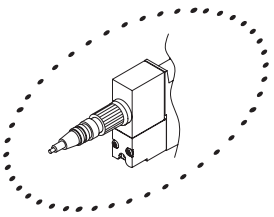
4GE110EJ

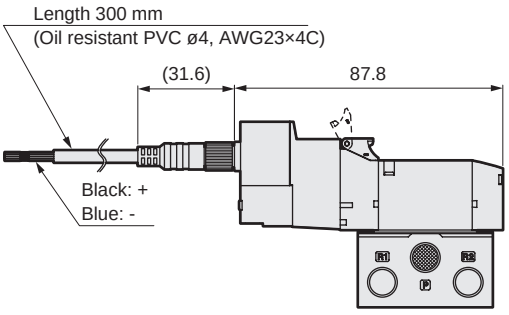
● 2-position single without connector (RN)



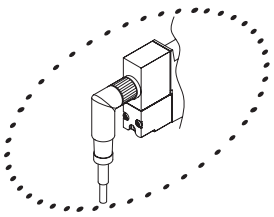


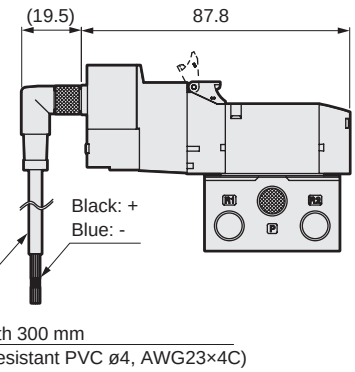
● M8 connector/straight cable (R1)



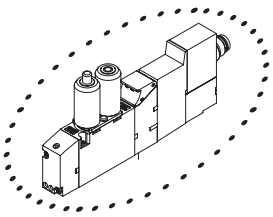


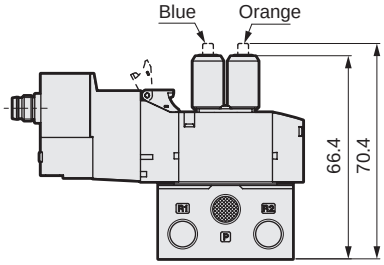
● M8 connector/L-cable (R2)





● With indicator (J)





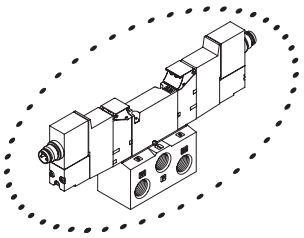
Dimensions

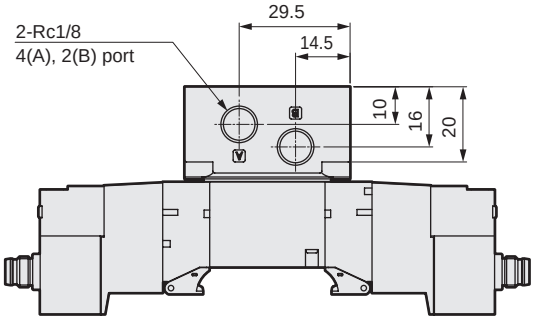
4GE120EJ

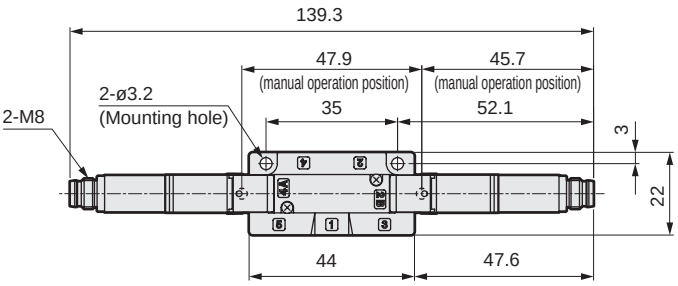
● 2-position double without connector (RN)

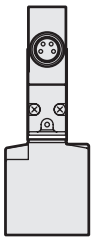
3GE1660EJ

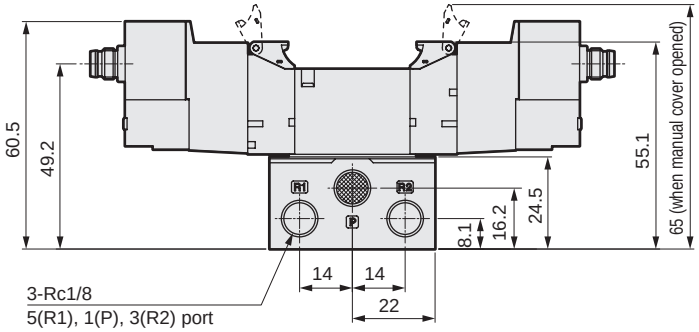
● Two 3-port valves integrated without connector (RN)



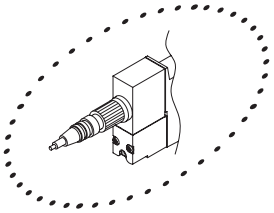


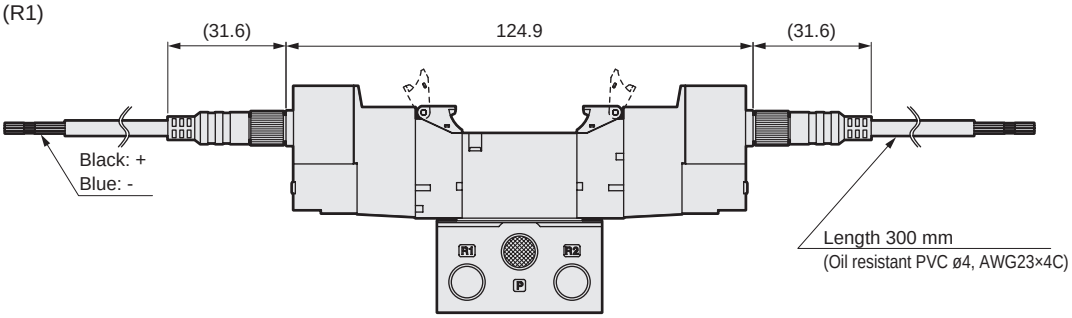




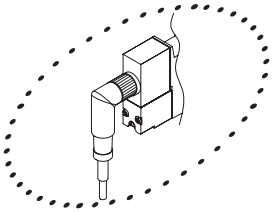


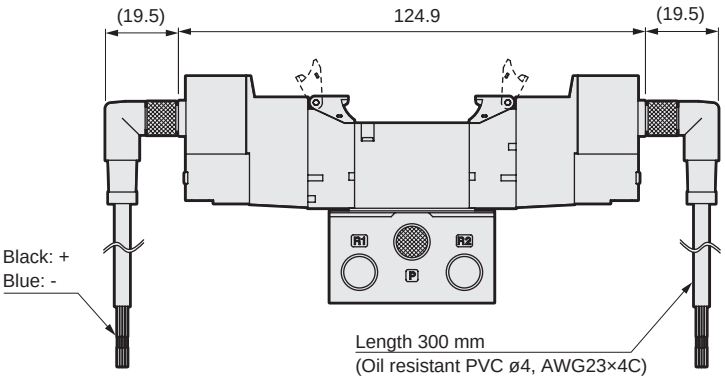
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)



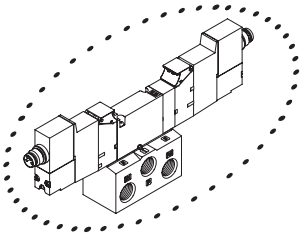


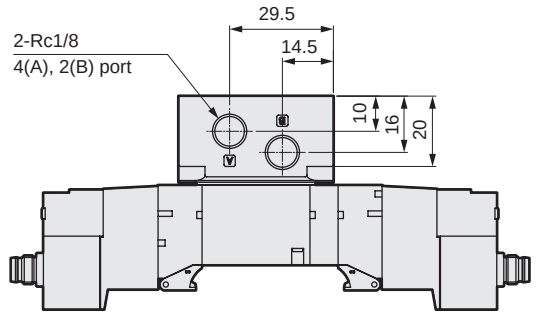
*For dimensions with indicator (J), refer to page 28.

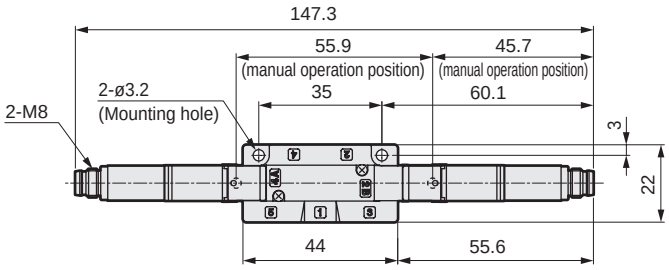
Dimensions

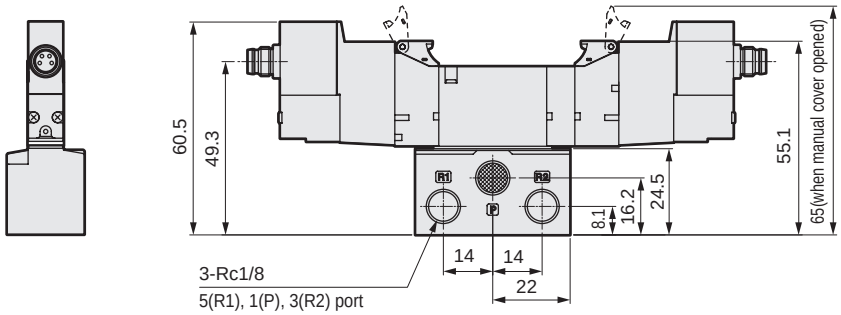
4GE1$^{3}_{4}_{5}$0EJ

● 3-position without connector (RN)

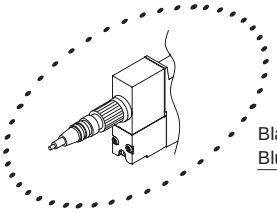


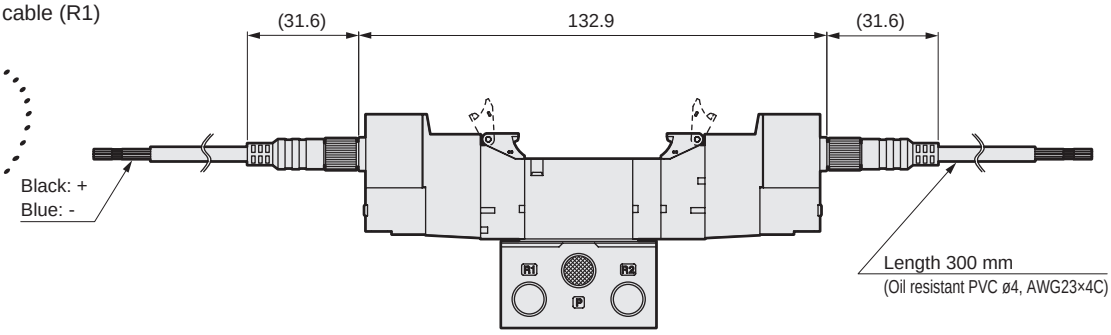




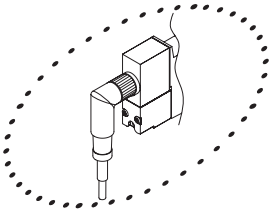


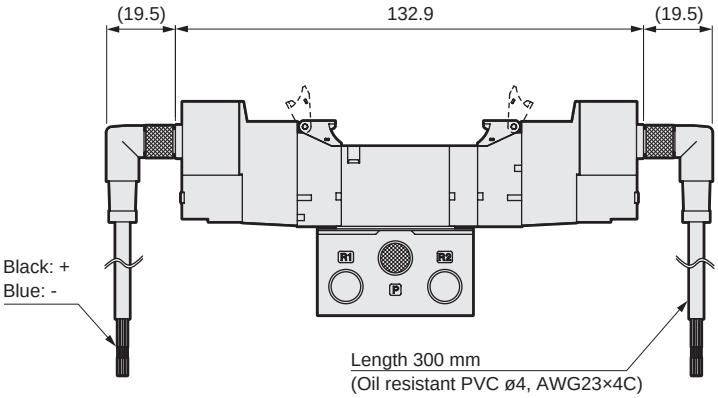
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)



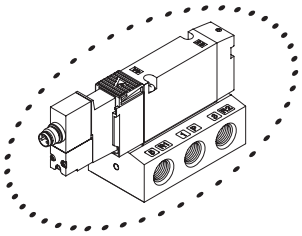


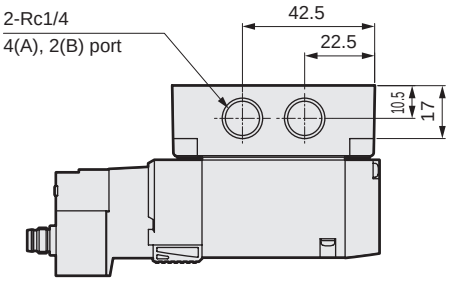
*For dimensions with indicator (J), refer to page 28.

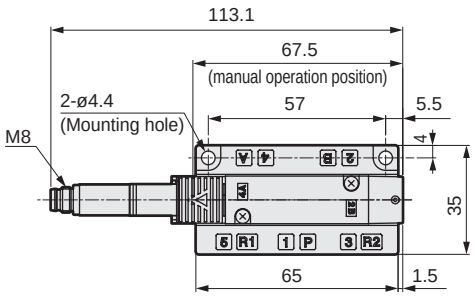
Dimensions

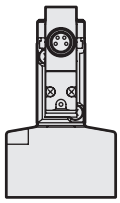
4GE210EJ

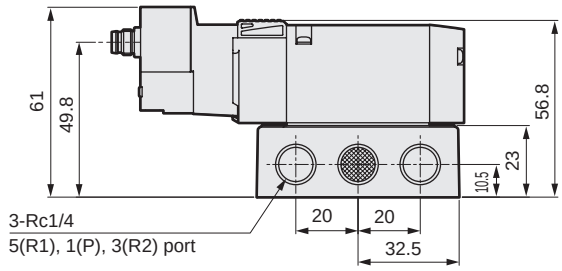
● 2-position single without connector (RN)



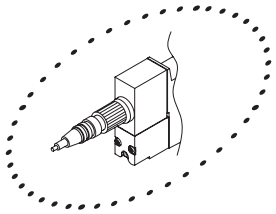




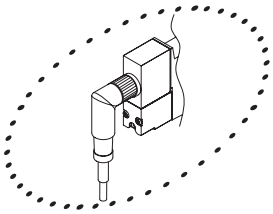




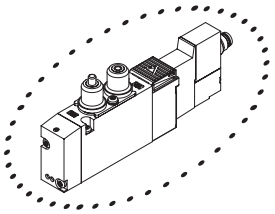
● M8 connector/straight cable (R1)

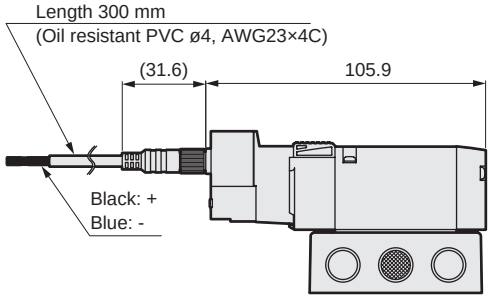


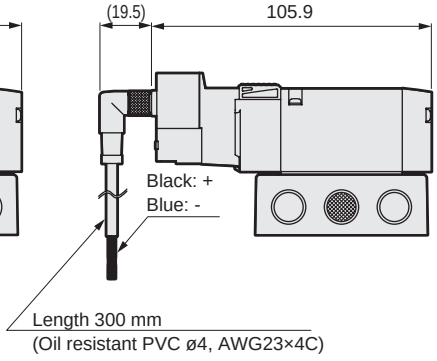
● M8 connector/L-cable (R2)

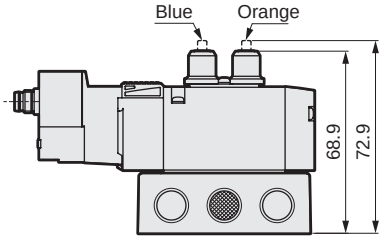


● With indicator (J)









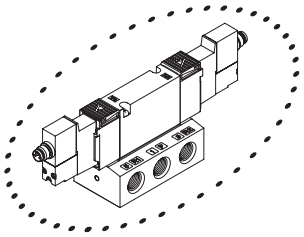
Dimensions

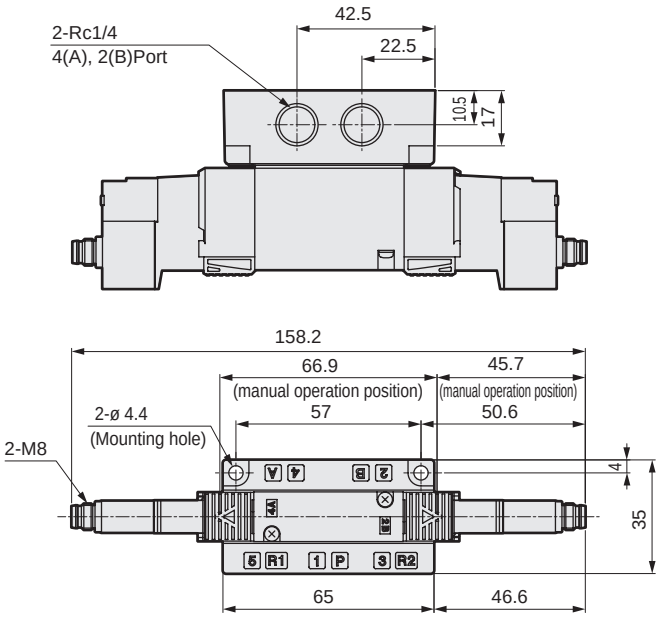
4GE220EJ

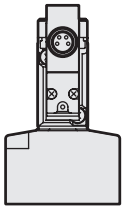
● 2-position double without connector (RN)

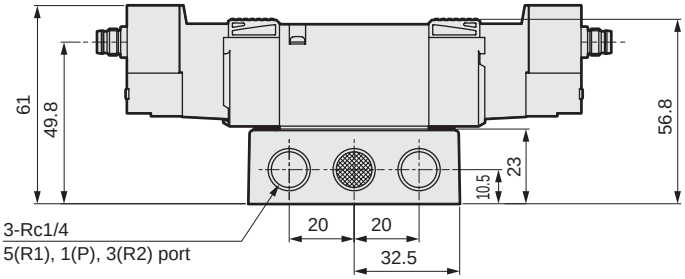
3GE2660EJ

● Two 3-port valves integrated without connector (RN)

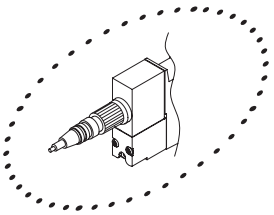


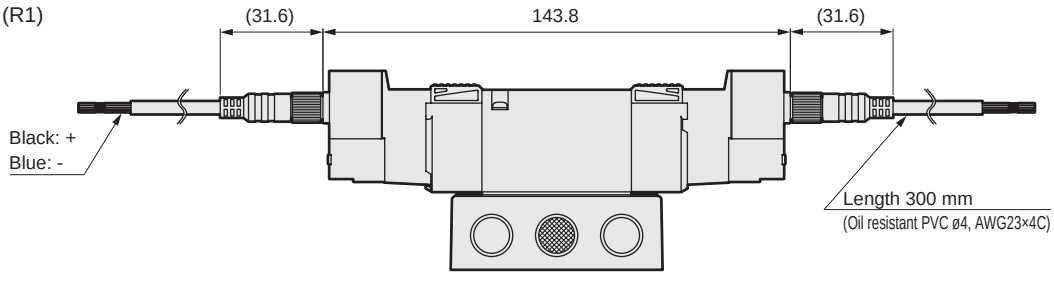




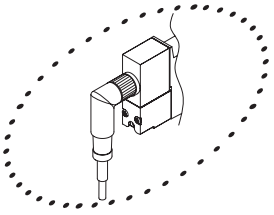


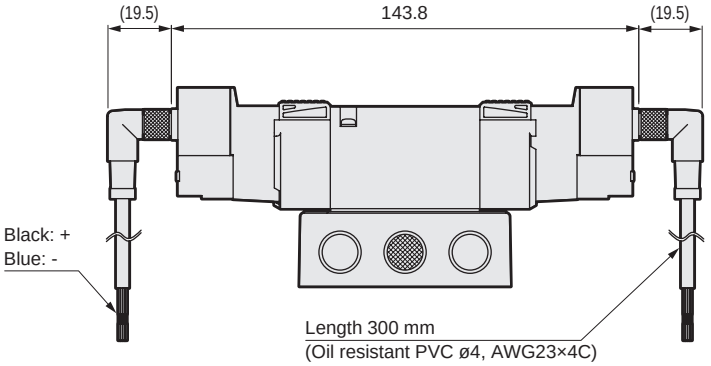
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)



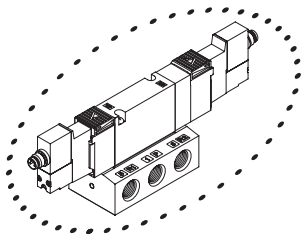


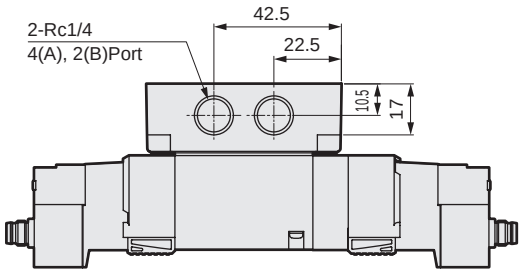
*For dimensions with indicator (J), refer to page 31.

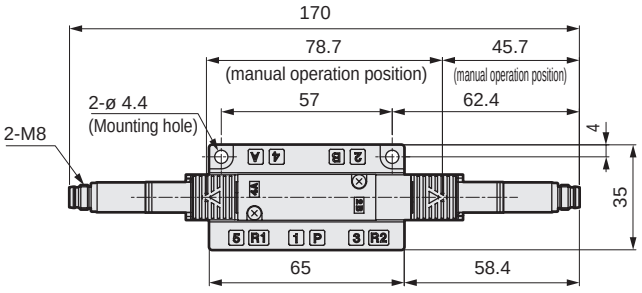
Dimensions

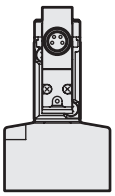
4GE2$^{3}_{5}$0EJ

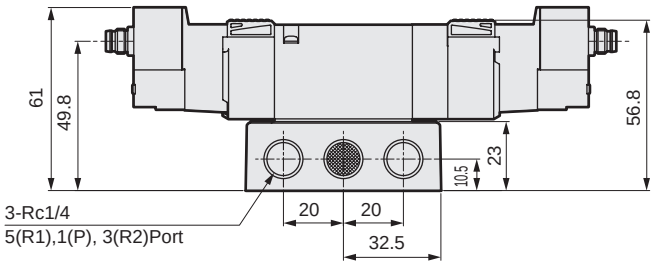
● 3-position without connector (RN)



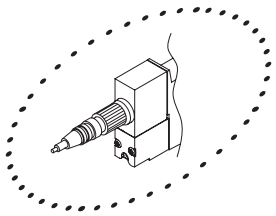


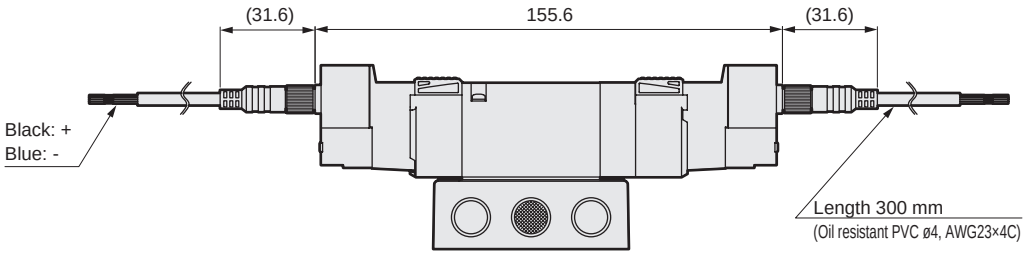




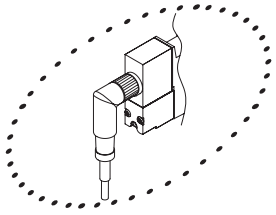


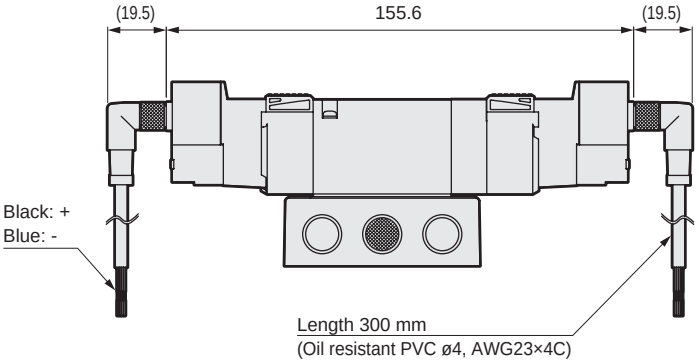
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)



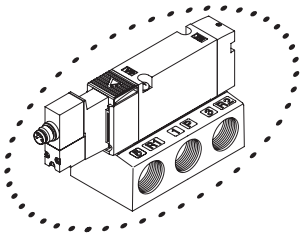


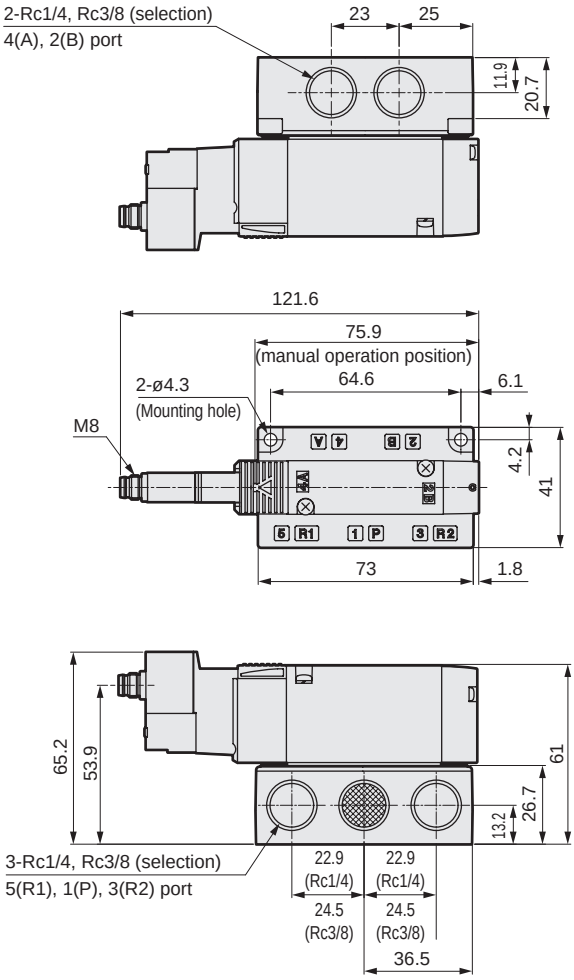
*For dimensions with indicator (J), refer to page 31.

Dimensions

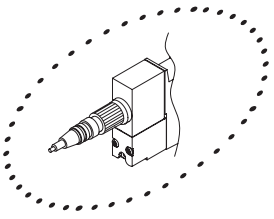
4GE310EJ

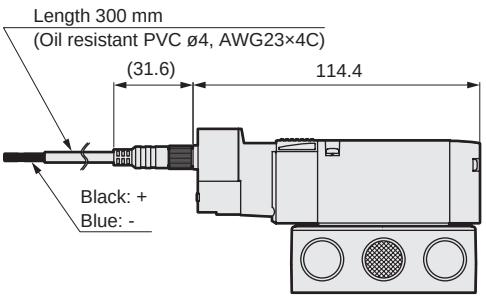
● 2-position single without connector (RN)



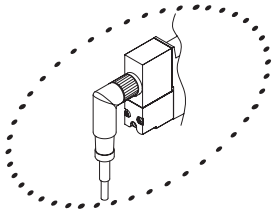


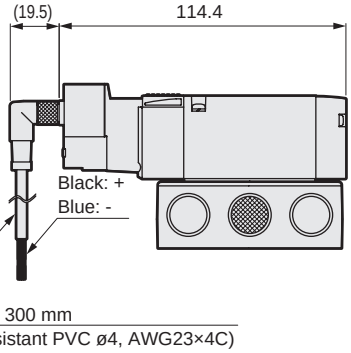
● M8 connector/straight cable (R1)



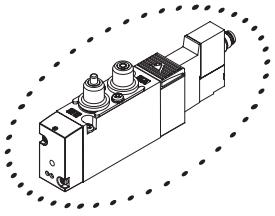


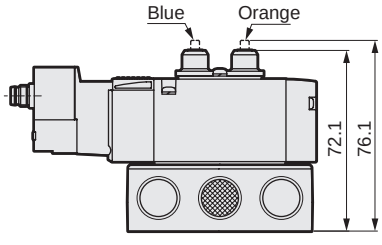
● M8 connector/L-cable (R2)





● With indicator (J)

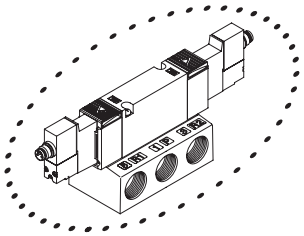


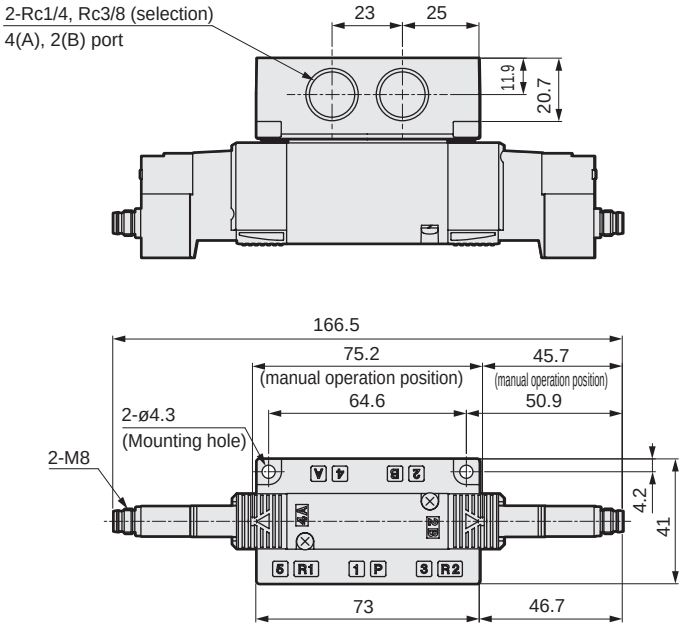


Dimensions

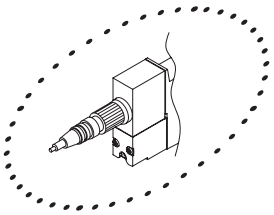
4GE320EJ

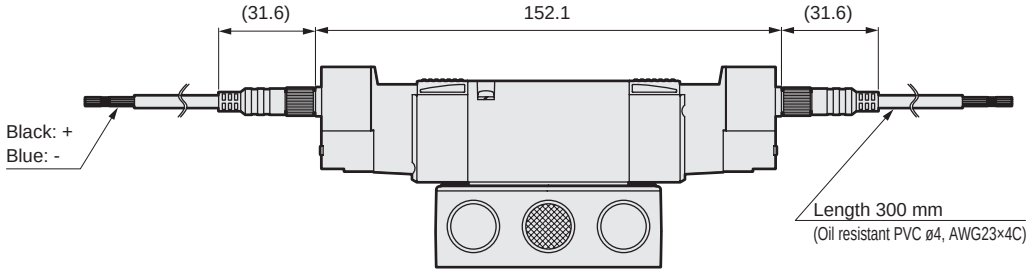
● 2-position double without connector (RN)



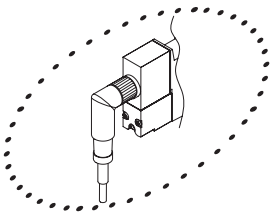


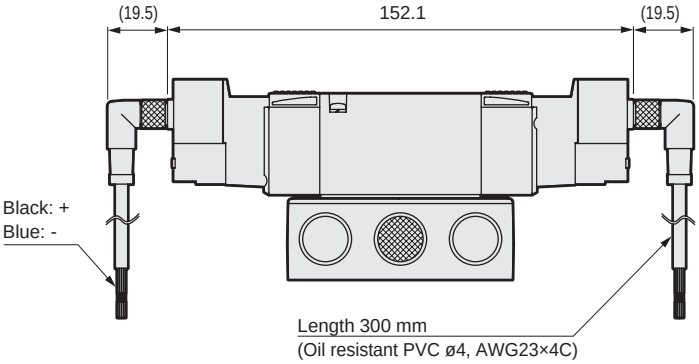
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)



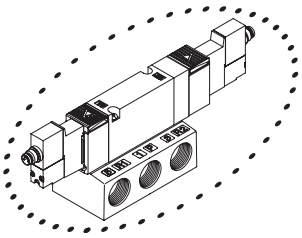


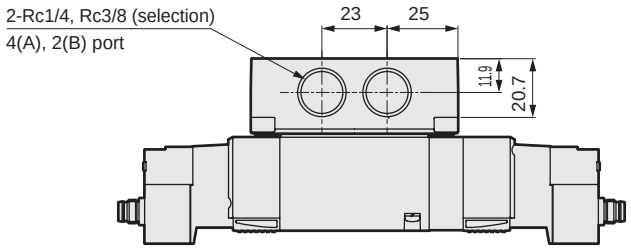
*For dimensions with indicator (J), refer to page 34.

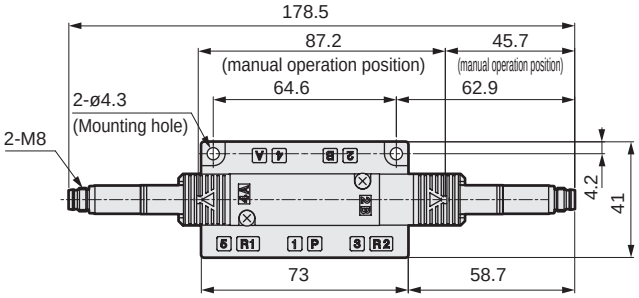
Dimensions

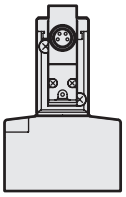
4GE3$^{3}_{5}$0EJ

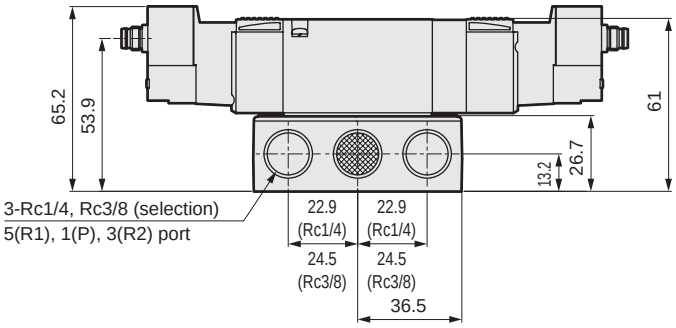
● 3-position without connector (RN)



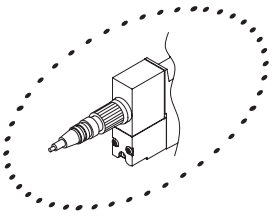


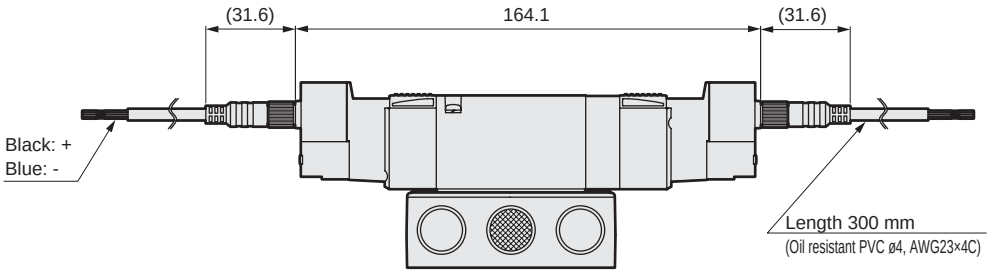




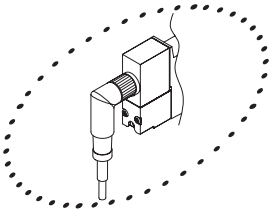


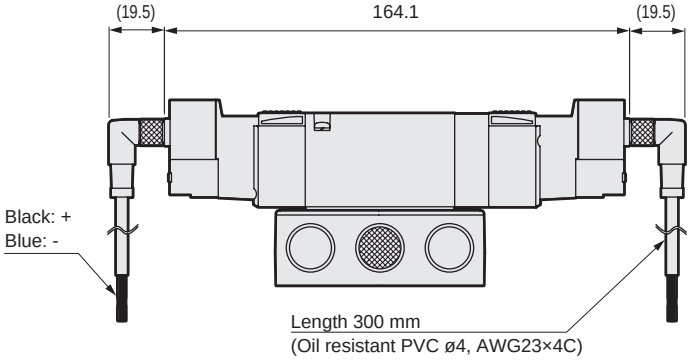
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)



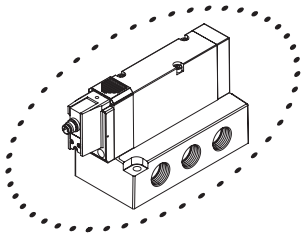


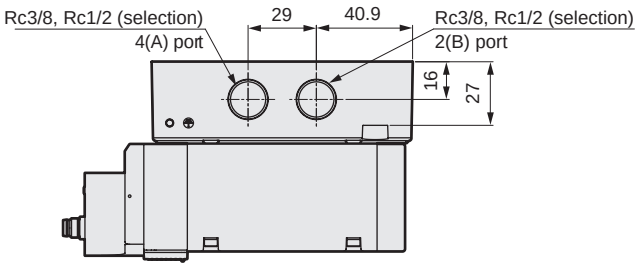
*For dimensions with indicator (J), refer to page 34.

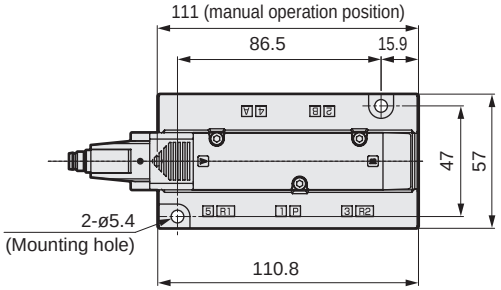
Dimensions

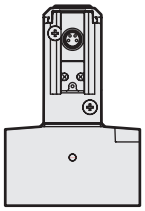
4GE410EJ

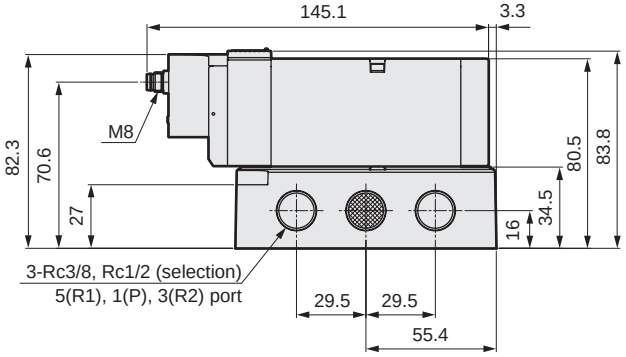
● 2 position single without connector (RN)



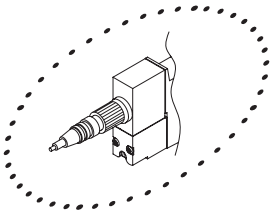


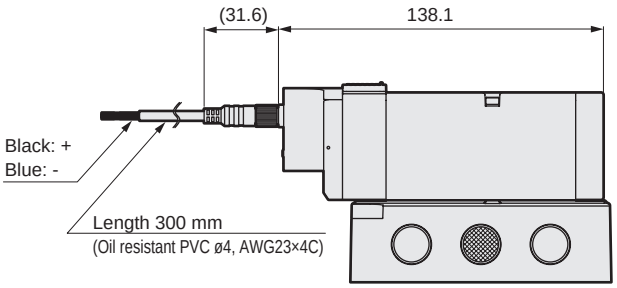




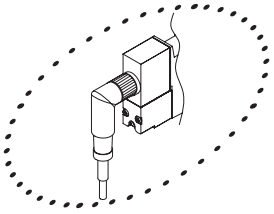


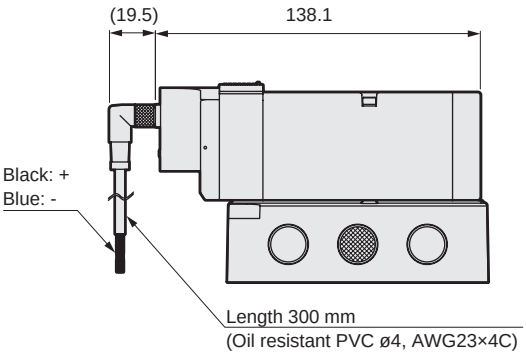
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)

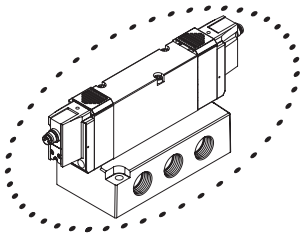


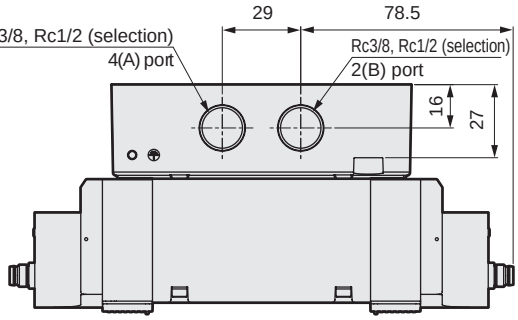


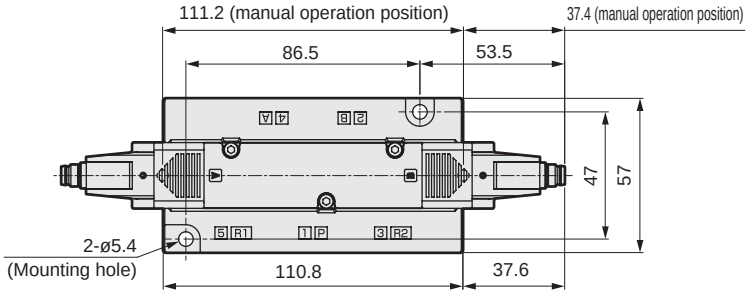
Dimensions

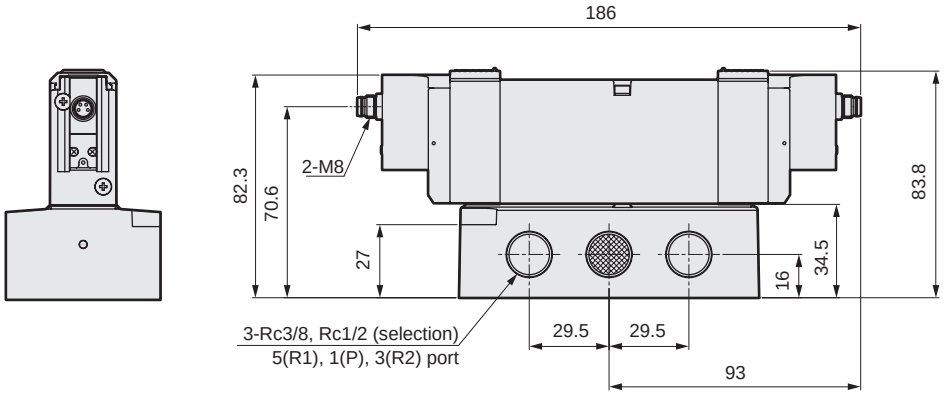
4GE420EJ

● 2-position double without connector (RN)

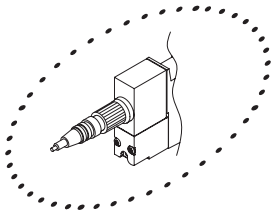


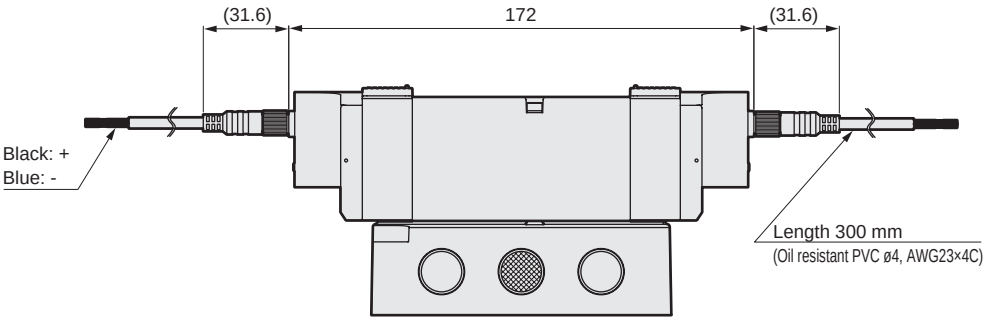




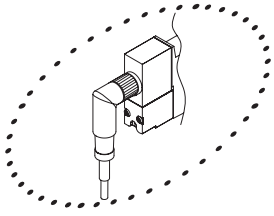


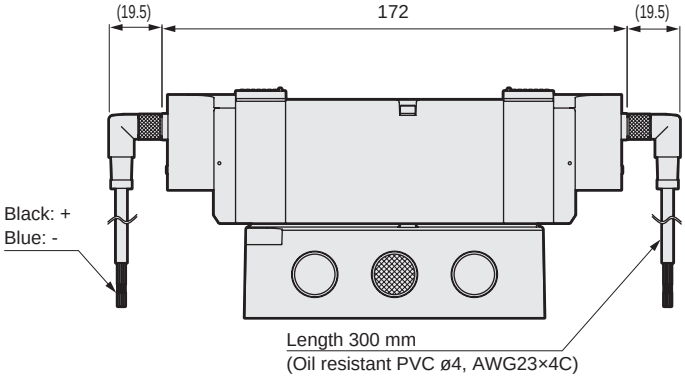
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)

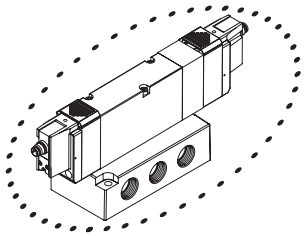


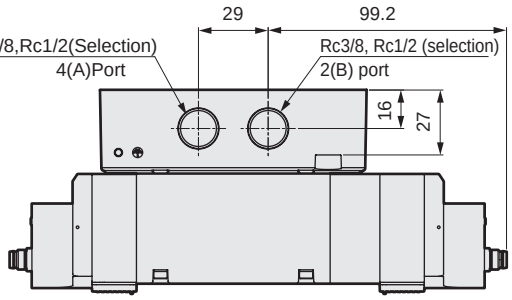


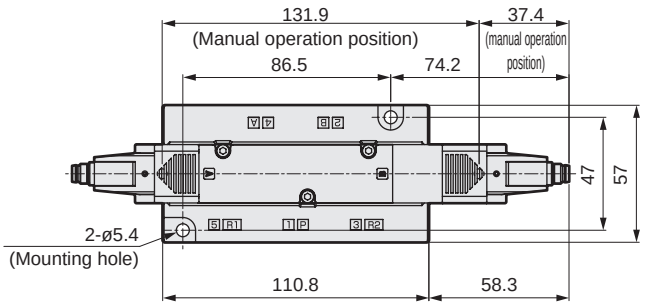
Dimensions

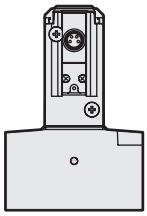
4GE4$^{3}_{4}_{5}$0EJ

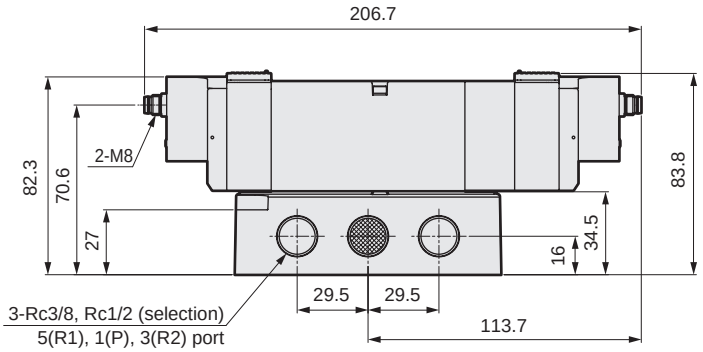
● 3-position without connector (RN)



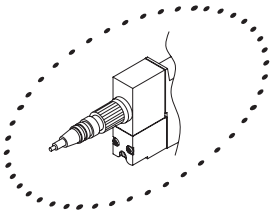


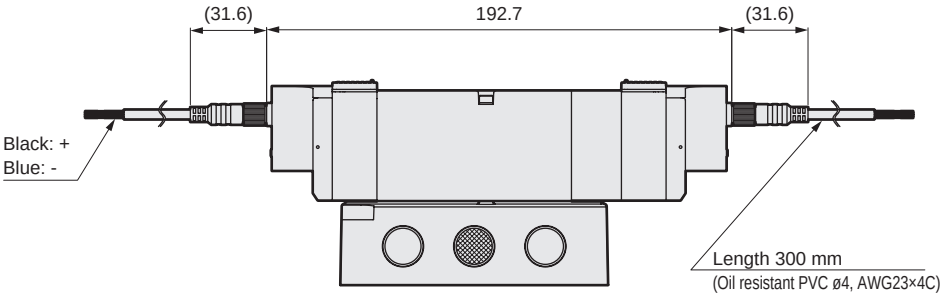




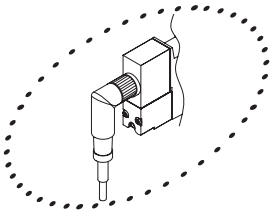


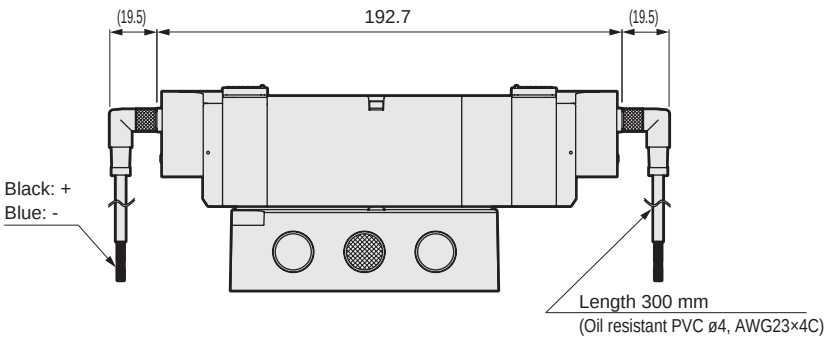
● M8 connector/straight cable (R1)





● M8 connector/L-cable (R2)





MEMO

Individual wiring manifold
Body piping
Direct mount/DIN rail mount

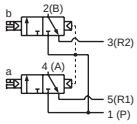
M3GD1/2EJ-(D)/M4GD1/ 2/3 /4EJ-(D) Series

● Applicable cylinder bore size: ø20 to ø140

CE RoHS

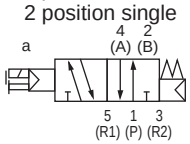
JIS symbol

● Two 3-port valves integrated
(A side Valve: NC, B side Valve: NC)

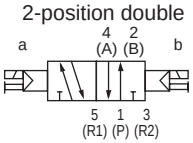


● 5-port valve

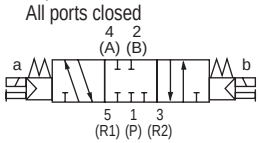
2 position single



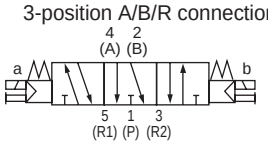
2-position double



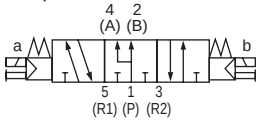
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Description
Manifold		Integrated base
Mounting method		Direct mount/DIN rail mount
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Standard) (Pilot exhaust check valve built-in)
Piping direction		Valve top direction
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2
Proof pressure MPa		1.05
Ambient temperature °C		-5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Lubrication *1		Built-in controller eliminates controller installation space and wiring.
Degree of protection *2		IP67
Vibration resistance m/s^2		50 or less
Shock resistance m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

Solenoid specifications

Item	Description
Rated voltage V	12 DC
Voltage fluctuation range	+10% −20%
Rated current A	0.05
Power consumption W	0.6
Thermal class	B

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Tested according to the test method for IP67 (IEC60529) standards. Note that while the unit is protected from dust and water, it cannot be used immersed in water. Countermeasures such as covering the unit should also be taken if using in environments where it will be constantly exposed to dust or water.

Intrinsic safety explosion-proof specifications

Item	Description
Types of explosion-proof structures	Intrinsic safety explosion-proof structure (ib)
Target gas or above listed ignitability and flame-proof grade	Ex ib IIC T4 Gb
Barrier input voltage	24 VDC
Intrinsic safety circuit allowable voltage Ui	30 VDC
Intrinsic safety circuit allowable current Ii	200mA
Intrinsic safety circuit allowable power Pi	0.68 W
Internal inductance Li	Value that can be ignored
Internal capacitance Ci	Value that can be ignored

Individual specifications

Port size	M3GD1/M4GD1		M3GD2/M4GD2		M4GD3		M4GD4
	Direct mount	DIN rail Mount	Direct mount	DIN rail Mount	Direct mount	DIN rail Mount	Direct mount
Max. station No.	20 stations	16 stations	20 stations	16 stations	20 stations	16 stations	15 stations
2, 4-port (port A/B)	Push-in fitting ø1.8,ø4,ø6 M5		Push-in fitting ø4,ø6,ø8 Rc1/8		Push-in fitting ø6,ø8,ø10 Rc1/4		Push-in fitting ø8,ø10,ø12 Rc3/8
1, 3, 5-port (Port P/R1/R2)	Rc1/8		Rc1/4		Rc3/8		Rc1/2
Manifold base Weight calculation formula (n: station No.) g	23n+52	25n+60	47n+64	49n+92	74n+88	76n+117	150n+199

Refer to "Cautions for mounting the DIN rail" (page 79), and select the manifold. For 10 or more manifold station No. (5 stations for 4G3 and 4G4), use ports on both sides for air supply and exhaust. The manifold base weight is the value for screw specifications. M4GD4 is only compatible with direct mounting.

Flow Rate Characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2			
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]		b	
M3GD1 M4GD1	Two 3-port valves integrated		0.86	0.31	1.1	(0.66)	0.19	(0.22)
	2-position		0.99	0.20	1.2	(0.70)	0.20	(0.12)
	3-position	All ports closed	0.94	0.23	1.1	—	0.20	—
		ABR connection	0.93	0.18	1.3	(0.70)	0.23	(0.02)
		PAB connection	1.1	0.28	1.1	—	0.23	—
M3GD 2 M4GD 2	Two 3-port valves integrated		1.7	0.40	2.3	(1.7)	0.29	(0.32)
	2-position		2.3	0.36	2.9	(1.7)	0.24	(0.33)
	3-position	All ports closed	2.1	0.35	2.5	—	0.32	—
		ABR connection	2.2	0.37	2.9	(1.8)	0.32	(0.29)
		PAB connection	2.4	0.34	2.5	—	0.33	—
M4GD3	2-position		3.2	0.37	3.8	(2.5)	0.13	(0.28)
	3-position	All ports closed	2.9	0.35	3.3	—	0.35	—
		ABR connection	3.0	0.34	3.8	(2.6)	0.12	(0.27)
		PAB connection	3.3	0.30	3.3	—	0.32	—
M4GD4	2-position		7.3	0.12	9.0	—	0.17	—
	3-position	All ports closed	6.4	0.15	8.2	—	0.22	—
		ABR connection	6.3	0.33	8.9	—	0.26	—
		PAB connection	8.0	0.08	8.3	—	0.22	—

*1: Effective cross-sectional area S and sonic conductance C use the conversion formula S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

M3GD1/ 2*EJ/M4GD1/ 2/3 / 4*EJ Series

Individual wiring manifold; Body piping

How to order

Manifold model No.

M 4GD1 1 0 EJ - C4 - RN H ○ - 6 - 4

3-port manifold model No.

M 3GD1 66 0 EJ - M5 - RN H ○ - 2 - 4

Discrete valve for integrated base

4GD1 1 9 EJ - C6 - RN H —— 4

3-port discrete valve for integrated base

3GD1 66 9 EJ - M5 - RN H —— 4

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Explosion-proof Series

Ⓓ Port size

Ⓔ Electrical connections

Ⓕ Option

Ⓖ Mount type

Ⓗ Station No.

Ⓘ Voltage

Code	Description	Ⓐ Model No. 3GD1	3GD2	4GD1	4GD2	4GD3	4GD4
Ⓑ Solenoid position							
1	2 position single			●	●	●	●
2	2-position double			●	●	●	●
3	3-position all ports closed			●	●	●	●
4	3-position ABR connection			●	●	●	●
5	3-position PAB connection			●	●	●	●
66	3-port valve Two valves integrated *1/2 — A valve side: Normally Closed	●	●				
	3-port valve Two valves integrated *1/2 — B valve side: Normally Closed	●	●				
8	Mix manifold (when there are multiple solenoid positions)	●	●	●	●	●	●
Ⓒ Explosion-proof Series							
EJ	Japan Explosion-Proof Inspected Product	●	●	●	●	●	●
Ⓓ Port size [2(B), 4(A) port]							
Port	4(A)/2(B) port	Port P/R1/R2 (2) = Rc1/8 (3) = Rc1/4 (4) = Rc3/8 (5)=Rc1/2					
C18	ø1.8 push-in fitting	(2)		(2)			
C4	ø4 push-in fitting	(2)	(3)	(2)	(3)		
C6	ø6 push-in fitting	(2)	(3)	(2)	(3)	(4)	
C8	ø8 push-in fitting		(3)		(3)	(4)	(5)
C10	ø10 push-in fitting					(4)	(5)
C12	ø12 push-in fitting						(5)
CX	Push-in fitting mix *3	(2)	(3)	(2)	(3)	(4)	(5)
M5	M5	(2)		(2)			
06	Rc1/8		(3)		(3)		
08	Rc1/4					(4)	
10	Rc3/8						(5)
00	Valve for base mounting	●	●	●	●	●	●
Ⓔ Electrical connections							
RN	M8 connector without cable	●	●	●	●	●	●
R 1	M8 connector Straight cable *4	●	●	●	●	●	●
R 2	M8 connector L-cable *4	●	●	●	●	●	●
Ⓕ Option							
Blank	Manual override of non-locking/locking common (standard)	●	●	●	●	●	●
H	With exhaust check valve *5, *7	●	●	●	●	●	
A	Ozone/coolant proof	●	●	●	●	●	●
F	Port A/B filter *6	●	●	●	●	●	●
Z1	Air supply spacer *7, *8	●	●	●	●	●	
Z2	In-stop valve spacer *7, *8	●	●	●	●	●	
Z3	Exhaust spacer *7, *8	●	●	●	●	●	
Ⓖ Mount type							
Blank	Direct mount	●	●	●	●	●	●
D	DIN rail mount *9	●	●	●	●	●	
Ⓗ Station No.							
2 to 20	2 stations / to / 20 stations (Refer to page 41 for the max. station number)	●	●	●	●	●	2 to 15
Ⓘ Voltage							
4	12 VDC	●	●	●	●	●	●

⚠ Precautions for model No. selection

*1 M4GE*80EJ when using a mix of 3, 5-port valves. valves. M3GD* 80EJ when used with a masking plate.

* 2 Dimensions are the same as the respective 2-position double solenoid.

*3 The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.

* 4 M8 connector length is 300mm. Select other lengths from page 65 as needed.

* 5 3-position all ports closed and PAB connection are not provided with exhaust check specifications (H). Refer to page 77 for details on the exhaust check valve.

* 6 A filter is built into port P as standard.

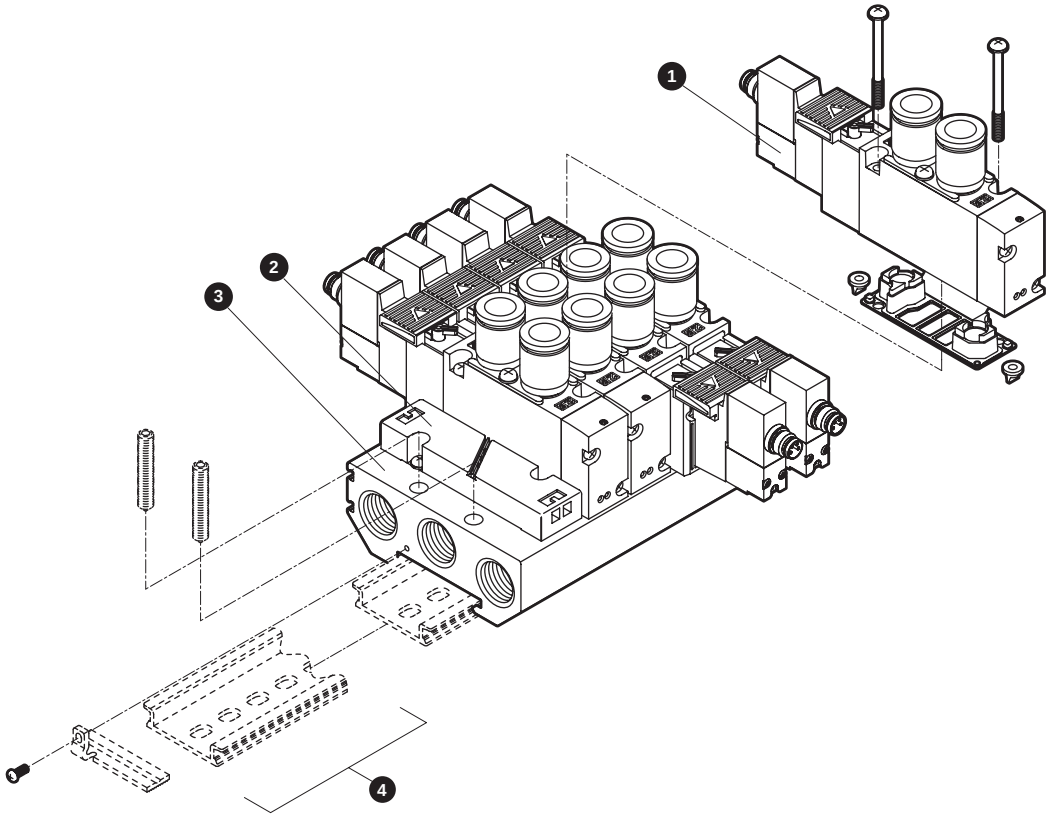
* 7 For 4G4, selection of exhaust check valves (H), air supply spacers (Z1), in-stop valve spacers (Z2), or exhaust spacers (Z3) is not available.

* 8 Specify the spacer mounting position/quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 59 to 63 for details.

* 9 4G4 cannot be selected for DIN rail mount (D).

* 10 Explosion-proof barrier sold separately. Select from page 69.

Manifold configuration explanation and parts list



Note:For 4G4, there is no DIN rail mount option.

Main configuration parts list

Part No.	Configuration parts name		Model No.	Description	Remarks
1	Discrete valve for integrated base		4GD/ / 9EJ- [Port size] - [Electric wire Connection] [Option] - [Voltage]; [Solenoid position]; [Series flow rate size]	Discrete valve Gasket Mounting screws 2 (PR check valve 2)	Details on page 43
2	Masking plate	3G1/4G1	4G1R-MP	Masking plate Gasket Mounting screws 2	*Two PR check valves are attached with 4G3/4G4.
		3G2/4G2	4G2R-MP		
		4G3	4G3R-MP		
		4G 4	4GA4-MP		
3	Manifold base assembly		M4GD/R-00 [Option] - [Station No.]; [Series flow rate size]	Manifold base	Even if "D" mounting is selected, the DIN rail kit must be handled separately.
4	DIN rail kit				Details on page 79

Parts list

Part No.	Part name	Model No.
-	M8 connector cable	4GEX-M8CC- [Direction] - [Length] *Details on page 65
-	Explosion-proof barrier	Details on pages 69 to 71

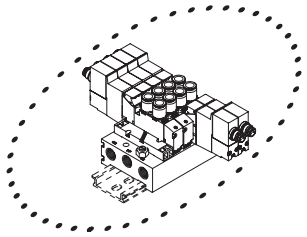
Part No.	Part name			Model No.
-	Cartridge push-in fitting and related parts	4G1	ø 1.8 straight	4G1R-JOINT-C 18
			ø4 straight	4G1R-JOINT-C4
			ø6 straight	4G1R-JOINT-C6
		4G2	ø4 straight	4G2R-JOINT-C4
			ø6 straight	4G2R-JOINT-C6
			ø8 straight	4G2R-JOINT-C8
		4G3	ø6 straight	4G3R-JOINT-C6
			ø8 straight	4G3R-JOINT-C8
			ø10 straight	4G3R-JOINT-C10
		4G 4	ø8 straight	4G4-JOINT-C8
			ø10 straight	4G4-JOINT-C10
			ø12 straight	4G4-JOINT-C12

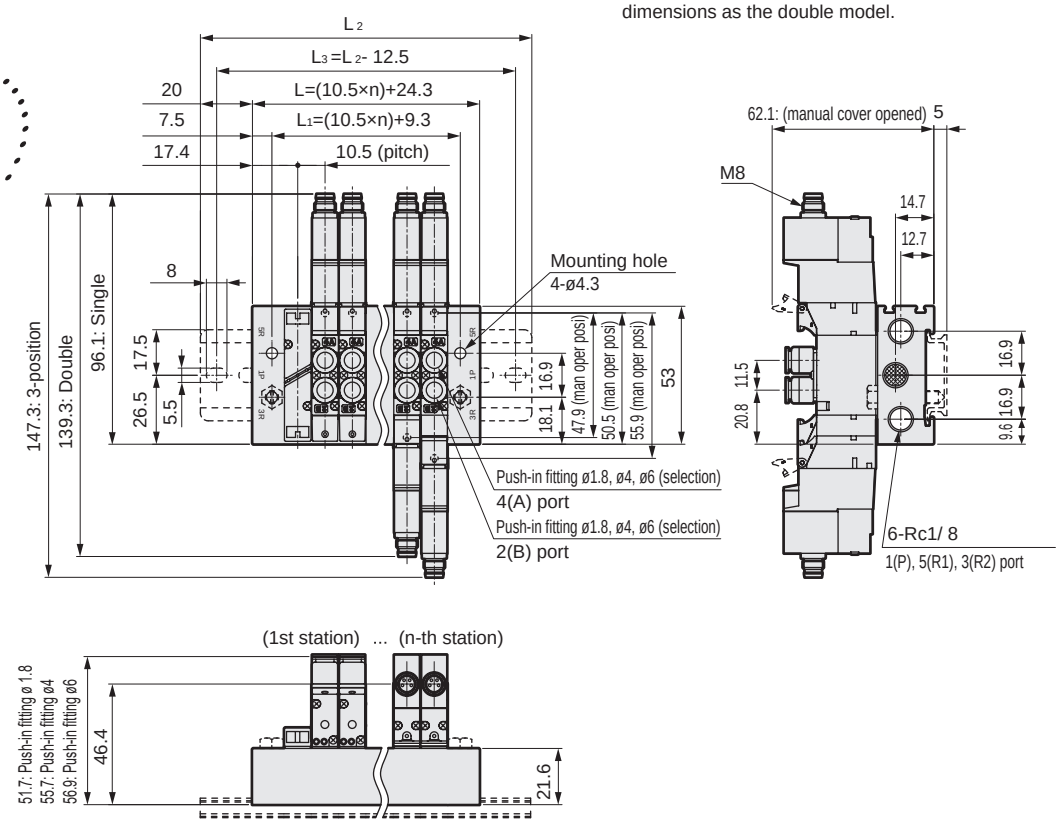
Dimensions

M4GD1*0EJ

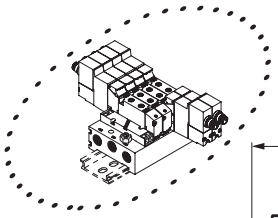
*The two 3-port valve built-in type has the same dimensions as the double model.

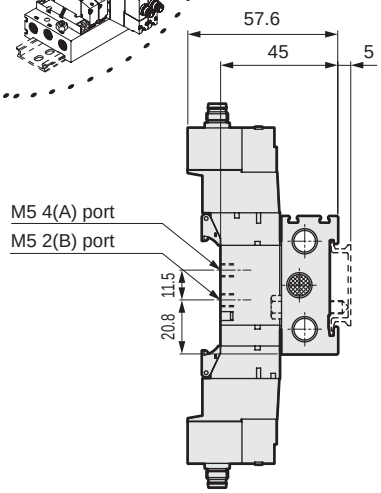
● Without connector (RN)



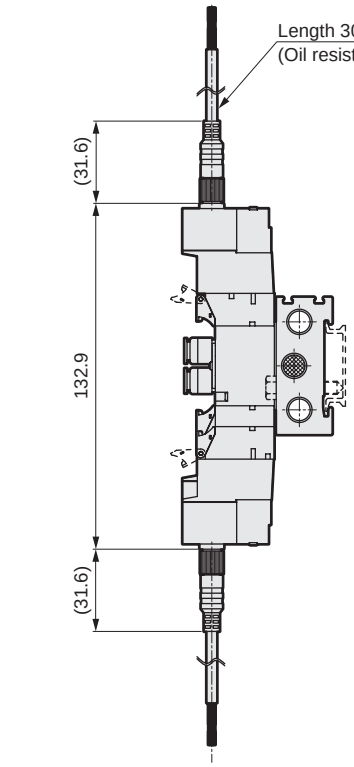


● M5 female thread (M5)

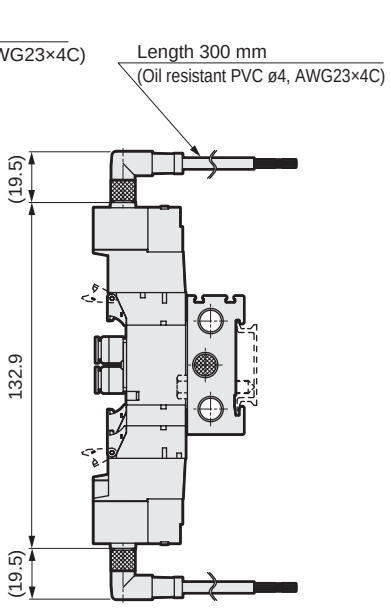




● M8 connector/straight cable (R1)



● M8 connector/L-cable (R2)



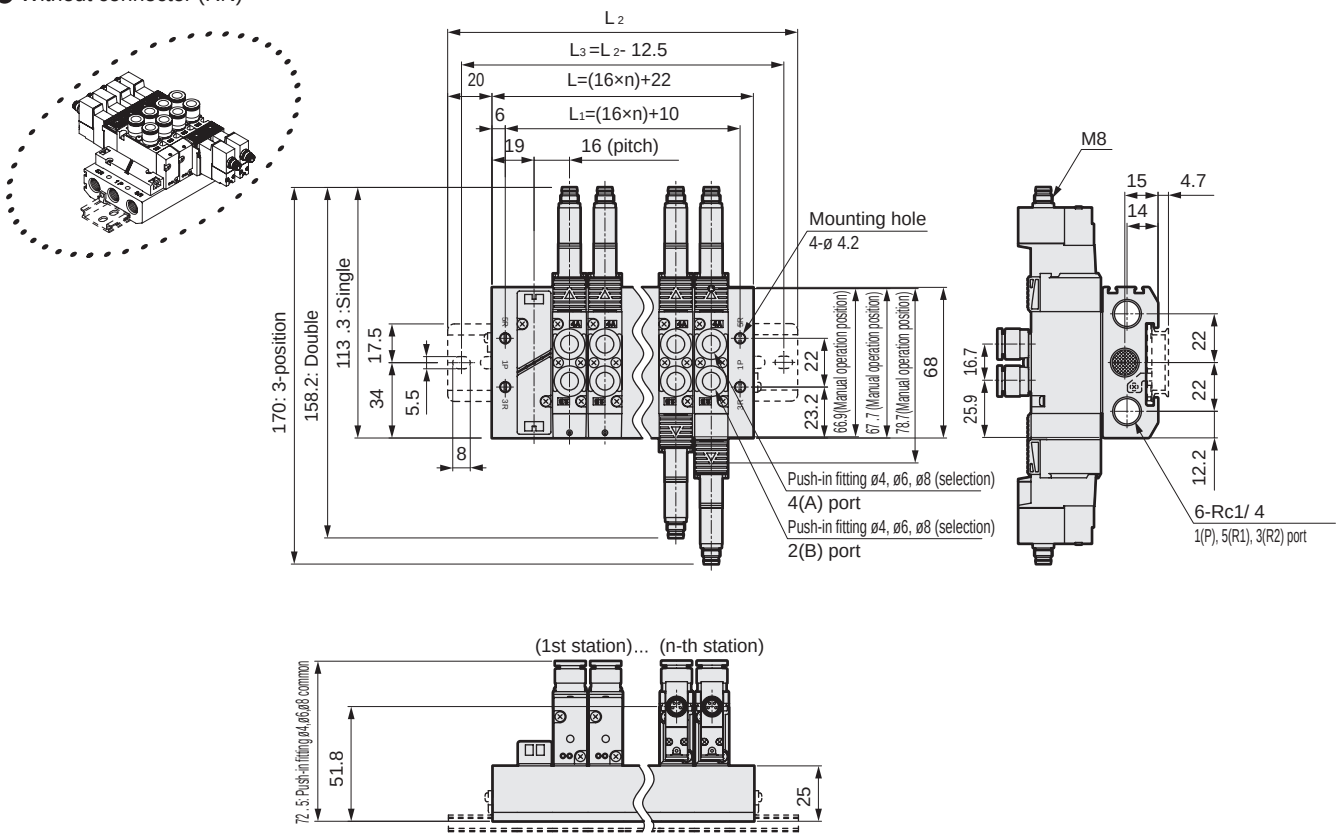
Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	45.3	55.8	66.3	76.8	87.3	97.8	108.3	118.8	129.3	139.8	150.3	160.8	171.3	181.8	192.3	202.8	213.3	223.8	234.3
L_1	30.3	40.8	51.3	61.8	72.3	82.8	93.3	103.8	114.3	124.8	135.3	145.8	156.3	166.8	177.3	187.8	198.3	208.8	219.3
L_2	87.5	100.0	112.5	125.0	137.5	150.0	150.0	162.5	175.0	187.5	200.0	212.5	212.5	225.0	237.5				
L_3	75.0	87.5	100.0	112.5	125.0	137.5	137.5	150.0	162.5	175.0	187.5	200.0	200.0	212.5	225.0				

Dimensions

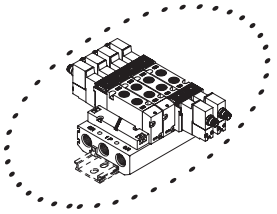
M4GD2*0EJ

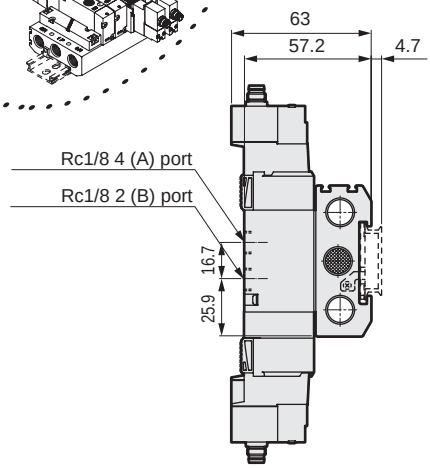
● Without connector (RN)

*3 The two 3-port valve built-in type has the same dimensions as the double model.

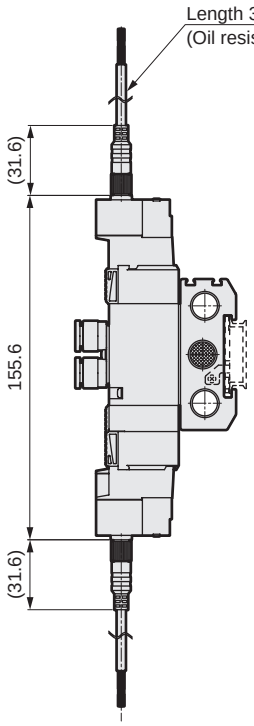


● Rc1/8 female thread (06)

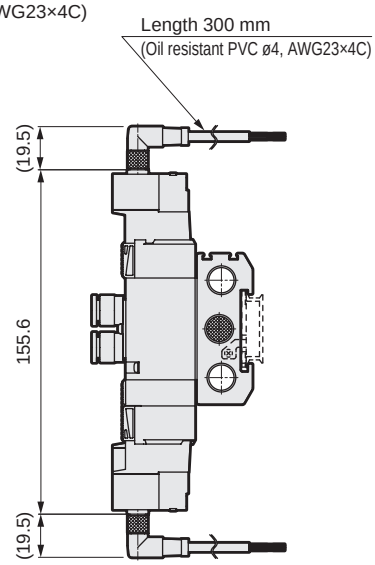




● M8 connector/straight cable (R1)



● M8 connector/L-cable (R2)



Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	54 .0	70 .0	86 .0	102 .0	118 .0	134 .0	150 .0	166 .0	182 .0	198 .0	214 .0	230 .0	246 .0	262 .0	278 .0	294 .0	310 .0	326 .0	342 .0
L1	42 .0	58 .0	74 .0	90 .0	106 .0	122 .0	138 .0	154 .0	170 .0	186 .0	202 .0	218 .0	234 .0	250 .0	266 .0	282 .0	298 .0	314 .0	330 .0
L2	100.0	112.5	137.5	150.0	162.5	175.0	200.0	212.5	225.0	250.0	262.5	275.0	287.5	312.5	325.0				
L3	87.5	100.0	125.0	137.5	150.0	162.5	187.5	200.0	212.5	237.5	250.0	262.5	275.0	300.0	312.5				

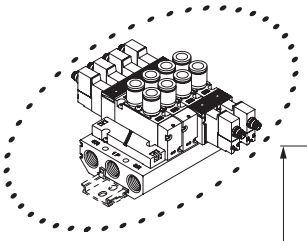
M4GD3*0EJ Series

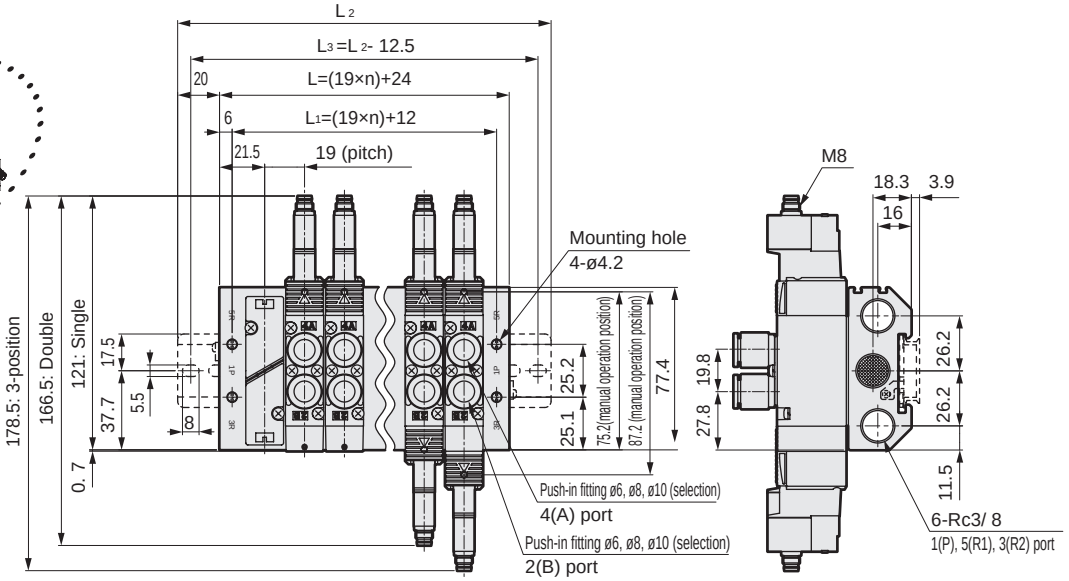
Individual wiring manifold; Body piping

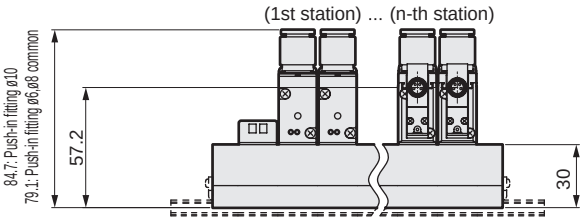
Dimensions

M4GD3*0EJ

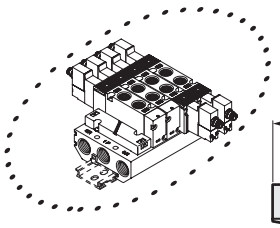
● Without connector (RN)

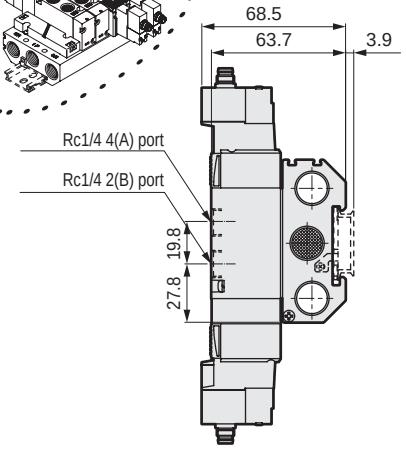




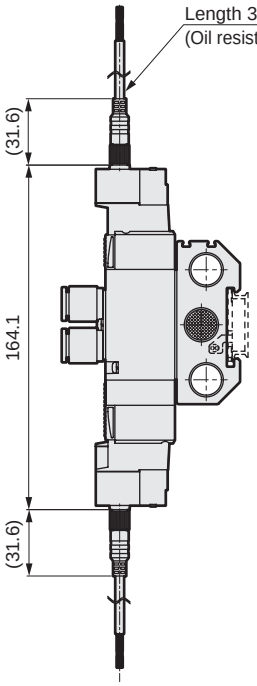


● Rc1/4 female thread (08)

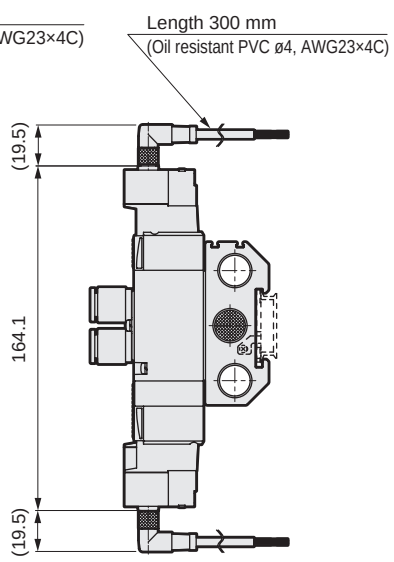




● M8 connector/straight cable (R1)



● M8 connector/L-cable (R2)

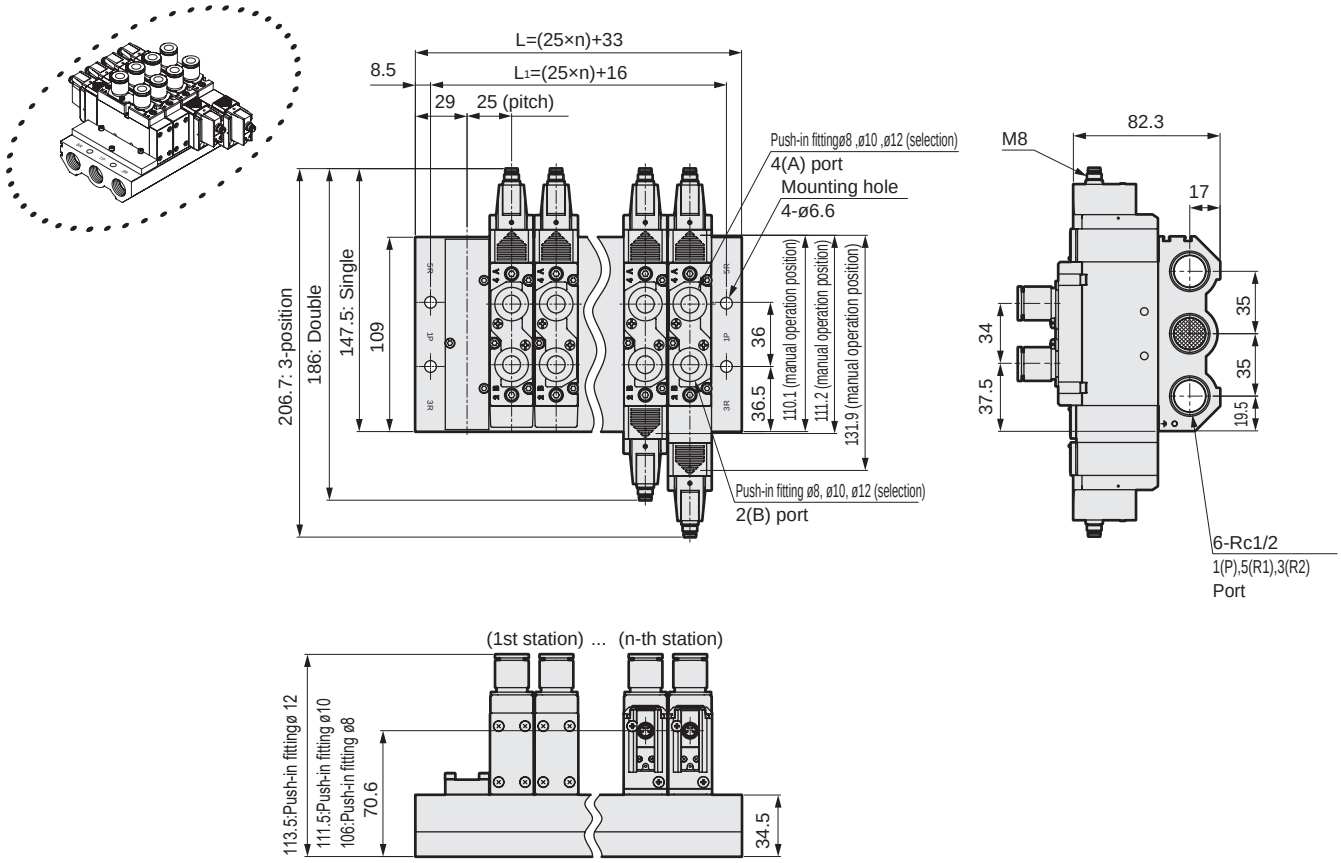


Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	62 .0	81 .0	100 .0	119 .0	138 .0	157 .0	176 .0	195 .0	214 .0	233 .0	252 .0	271 .0	290 .0	309 .0	328 .0	347 .0	366 .0	385 .0	404 .0
L1	50 .0	69 .0	88 .0	107 .0	126 .0	145 .0	164 .0	183 .0	202 .0	221 .0	240 .0	259 .0	278 .0	297 .0	316 .0	335 .0	354 .0	373 .0	392 .0
L2	112.5	125.0	150.0	162.5	187.5	200.0	225.0	237.5	262.5	275.0	300.0	312.5	337.5	350.0	375.0				
L3	100.0	112.5	137.5	150.0	175.0	187.5	212.5	225.0	250.0	262.5	287.5	300.0	325.0	337.5	362.5				

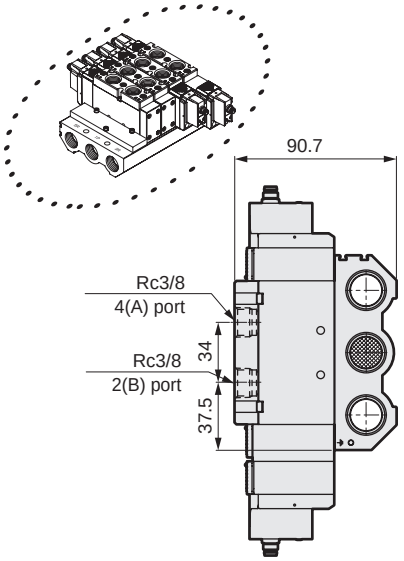
Dimensions

M4GD4*0EJ

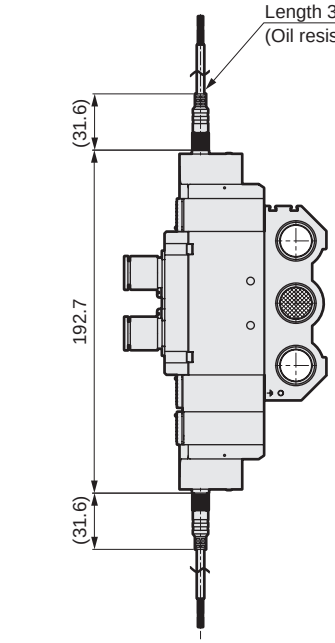
● Without connector (RN)



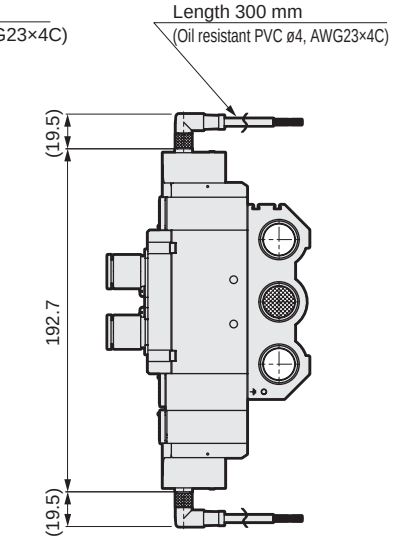
● Rc3/8 female thread (10)



● M8 connector/straight cable (R1)



● M8 connector/L-cable (R2)



Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15
L	83	108	133	158	183	208	233	258	283	308	333	358	383	408
L_1	66	91	116	141	166	191	216	241	266	291	316	341	366	391

Individual wiring manifold
Base piping
Direct mount/DIN rail mount

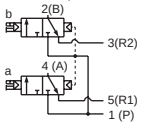
M3GE1, 2EJ/M4GE1, 2, 3, 4EJ-(D) Series

● Applicable cylinder bore size: ø20 to ø140

CE RoHS CAD

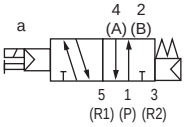
JIS symbol

● Two 3-port valves integrated
(A side valve: NC, B side valve: NC)

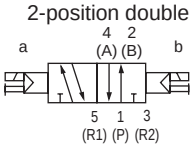


● 5-port valve

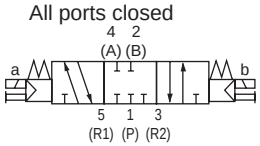
2 position single



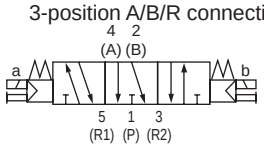
2-position double



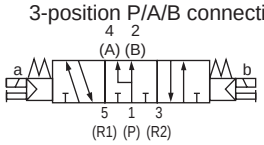
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Description
Manifold		Integrated base
Mounting method		Direct mount/DIN rail mount
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Standard) (Pilot exhaust check valve built-in)
Piping direction		Side direction of base
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2
Proof pressure MPa		1.05
Ambient temperature °C		−5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Lubrication *1		Built-in controller eliminates controller installation space and wiring.
Degree of protection *2		IP67
Vibration resistance m/s^2		50 or less
Shock resistance m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

Solenoid specifications

Item	Description
Rated voltage V	12 DC
Voltage fluctuation range	+10% −20%
Rated current A	0.05
Power consumption W (*3)	0.6
Thermal class	B

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Tested according to the test method for IP67 (IEC60529) standards. Note that while the unit is protected from dust and water, it cannot be used immersed in water. Countermeasures such as covering the unit should also be taken if using in environments where it will be constantly exposed to dust or water.

Intrinsic safety explosion-proof specifications

Item	Description
Types of explosion-proof structures	Intrinsic safety explosion-proof structure (ib)
Target gas or above listed ignitability and flame-proof grade	Ex ib IIC T4 Gb
Barrier input voltage	24 VDC
Intrinsic safety circuit allowable voltage Ui	30 VDC
Intrinsic safety circuit allowable current Ii	200mA
Intrinsic safety circuit allowable power Pi	0.68 W
Internal inductance Li	Value that can be ignored
Internal capacitance Ci	Value that can be ignored

Individual specifications

Port size	M3GE1/M4GE1		M3GE2/M4GE2		M4GE3		M4GE4	
	Direct mount	DIN rail Mount	Direct mount	DIN rail Mount	Direct mount	DIN rail Mount	Direct mount	
							Rc1/4 Rc3/8	Rc1/2
Max. station No.	20 stations	16 stations	20 stations	16 stations	20 stations	16 stations	15 stations	12 stations
2, 4-port (port A/B)	Push-in fitting ø1.8,ø4,ø6 M5		Push-in fitting ø4,ø6,ø8 Rc1/4		Push-in fitting ø6,ø8,ø10 Rc1/4		Push-in fitting ø8,ø10,ø12 Rc1/4, Rc3/8	Rc1/2
1, 3, 5-port (Port P/R1/R2)	Rc1/8		Rc1/8		Rc3/8		Rc3/8	Rc1/2
Manifold base Weight calculation formula (n: station No.) g	35n+61	36n+115	71n+106	73n+134	113n+170	115n+119	273n+329	391n+560

Refer to "Cautions for mounting the DIN rail" (page 79), and select the manifold. For 10 or more manifold station No. (5 stations for 4G3 and 4G4), use ports on both sides for air supply and exhaust. The manifold base weight is the value for screw specifications. M4GE4 is only compatible with direct mounting.

Flow Rate Characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2			
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]		b	
M3GE1 M4GE1	Two 3-port valves integrated		0.86	0.35	1.1	(0.67)	0.22	(0.23)
	2-position		1.1	0.22	1.2	(0.70)	0.20	(0.10)
	3-position	All ports closed	0.98	0.22	1.1	—	0.24	—
		ABR connection	0.97	0.35	1.3	(0.68)	0.22	(0.24)
		PAB connection	1.1	0.38	1.1	—	0.21	—
M3GE 2 M4GE 2	Two 3-port valves integrated		1.7	0.44	2.1	(1.6)	0.32	(0.30)
	2-position		2.4	0.34	2.7	(1.7)	0.24	(0.31)
	3-position	All ports closed	2.2	0.34	2.4	—	0.29	—
		ABR connection	2.2	0.34	2.8	(1.8)	0.24	(0.27)
		PAB connection	2.4	0.29	2.4	—	0.29	—
M4GE3	2-position		3.5	0.34	3.8	(2.6)	0.11	(0.27)
	3-position	All ports closed	3.1	0.33	3.3	—	0.22	—
		ABR connection	3.0	0.30	3.8	(2.7)	0.11	(0.22)
		PAB connection	3.6	0.36	3.3	—	0.28	—
M4GE4 1-port size Rc3/8	2-position		6.4	0.42	6.9	—	0.12	—
	3-position	All ports closed	6.0	0.37	6.8	—	0.12	—
		ABR connection	6.0	0.31	7.1	—	0.11	—
		PAB connection	6.0	0.37	6.8	—	0.13	—
M4GE4 1-port size Rc1/2	2-position		8.3	0.23	9.0	—	0.21	—
	3-position	All ports closed	7.4	0.15	8.8	—	0.19	—
		ABR connection	7.5	0.28	9.4	—	0.17	—
		PAB connection	7.7	0.21	8.7	—	0.18	—

*1: Effective cross-sectional area S and sonic conductance C use the conversion formula S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

M3GE1/2/M4GE1/ 2/3 / 4*0EJ Series

Individual wiring manifold; Base piping

How to order

Manifold model No.

M 4GE1 1 0 EJ - C4 - RN H ○ - 6 - 4

3-port manifold model No.

M 3GE1 66 0 EJ - M5 - RN H ○ - 2 - 4

Discrete valve for integrated base

4GE1 1 9 EJ - 00 - RN H —— 4

3-port discrete valve for integrated base

3GE1 66 9 EJ - 00 - RN H —— 4

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Explosion-proof Series

Ⓓ Port size

Ⓔ Electrical connections

Ⓕ Option

Ⓖ Mount type

Ⓗ Station No.

Ⓘ Voltage

Code	Description	Ⓐ Model No. 3GE1	3GE2	4GE1	4GE2	4GE3	4GE4
Ⓑ Solenoid position							
1	2 position single			●	●	●	●
2	2-position double			●	●	●	●
3	3-position all ports closed			●	●	●	●
4	3-position ABR connection			●	●	●	●
5	3-position PAB connection			●	●	●	●
66	3-port valve Two valves integrated *1/2 — A valve side: Normally Closed / B valve side: Normally Closed	●	●				
8	Mix manifold (when there are multiple solenoid positions)	●	●	●	●	●	●
Ⓒ Explosion-proof Series							
EJ	Japan Explosion-Proof Inspected Product	●	●	●	●	●	●
Ⓓ Port size [2(B), 4(A) port]							
Port	4(A)/2(B) port	Port P/R1/R2 (2) = Rc1/8 (3) = Rc1/4 (4) = Rc3/8 (5)=Rc1/2					
C18	ø1.8 push-in fitting	(2)		(2)			
C4	ø4 push-in fitting	(2)	(3)	(2)	(3)		
C6	ø6 push-in fitting	(2)	(3)	(2)	(3)	(4)	
C8	ø8 push-in fitting		(3)		(3)	(4)	(4)
C10	ø10 push-in fitting					(4)	(4)
C12	ø12 push-in fitting						(4)
CX	Push-in fitting mix	(2)	(3)	(2)	(3)	(4)	(4)
M5	M5	(2)		(2)			
06	Rc1/8		(3)		(3)		
08	Rc1/4					(4)	(4)
10	Rc3/8						(4)
15	Rc1/2						(5)
00	Valve for base mounting	●	●	●	●	●	●
Ⓔ Electrical connections							
RN	M8 connector without cable	●	●	●	●	●	●
R1	M8 connector Straight cable *3	●	●	●	●	●	●
R2	M8 connector L-cable *3	●	●	●	●	●	●
Ⓕ Option							
Blank	Manual override of non-locking/locking common (standard)	●	●	●	●	●	●
H	With exhaust check valve *4, *6	●	●	●	●	●	
A	Ozone/coolant proof	●	●	●	●	●	●
F	Port A/B filter *5	●	●	●	●	●	●
J	With indicator	●	●	●	●	●	
Z1	Air supply spacer *6, *7	●	●	●	●	●	
Z2	In-stop valve spacer *6, *7	●	●	●	●	●	
Z3	Exhaust spacer *6, *7	●	●	●	●	●	
Ⓖ Mount type							
Blank	Direct mount *8	●	●	●	●	●	●
D	DIN rail mount *9	●	●	●	●	●	
Ⓗ Station No.							*10
2 to 20	2 stations / to / 20 stations (Refer to page 49 for the max. station number)	●	●	●	●	●	2 to 15
Ⓘ Voltage							
4	12 VDC	●	●	●	●	●	●

⚠ Precautions for model No. selection

*1 M4GE*80EJ when using a mix of 3, 5-port valves. It will be M3GD * 80EJ when used mixed with a masking plate.

* 2 Dimensions are the same as the respective 2-position double solenoid.

*3 M8 connector length is 300mm. Select other lengths from page 65 as needed.

* 4 3-position all ports closed and PAB connection are not provided with exhaust check valve specifications (H). Refer to page 77 for details on the exhaust check valve.

* 5 A filter is built into port P as standard.

* 6 For 4G4, selection of exhaust check valves (H), air supply spacers (Z1), in-stop valve spacers (Z2), or exhaust spacers (Z3) is not available.

* 7 Specify the spacer mounting position/quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 59 to 63 for details.

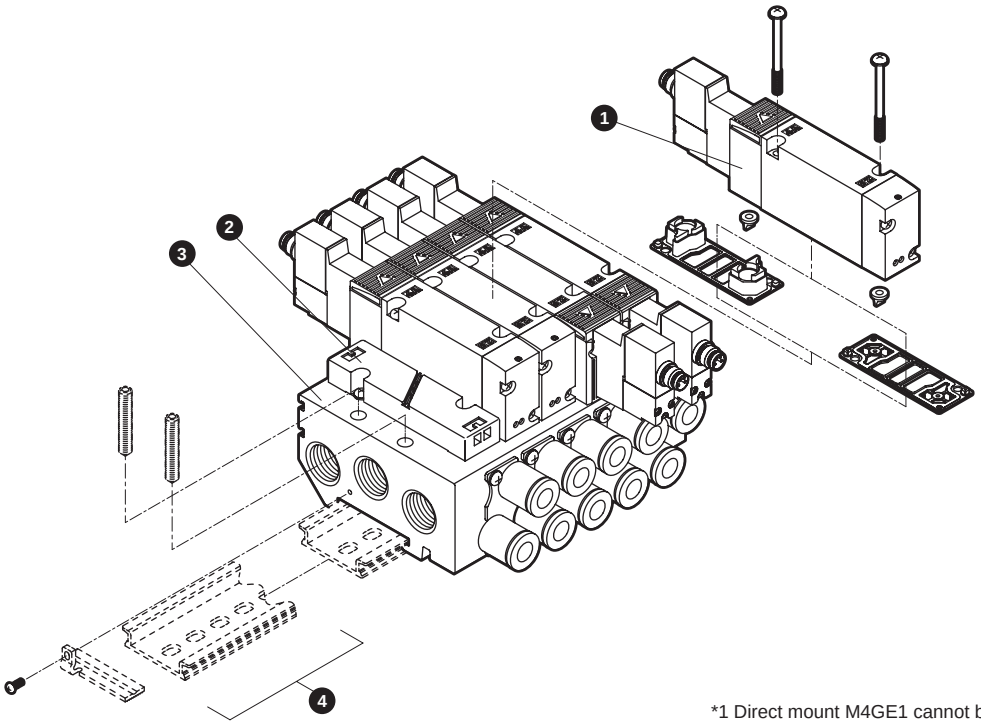
* 8 The direct mount type of M4GE1EJ cannot be changed after purchase to the DIN rail mount type.

* 9 4G4 cannot be selected for DIN rail mount (D).

* 10 The manifold max. station No. for port size 12 M4GE4 is 12.

* 11 Explosion-proof barrier sold separately. Select from page 69.

Manifold configuration explanation and parts list



*1 Direct mount M4GE1 cannot be changed to DIN rail mount.
*2 For 4G4, there is no DIN rail mount option.

Main configuration parts list

Part No.	Configuration parts name		Model No.	Description	Remarks
1	Discrete valve for integrated base		4GE □□9EJ -00 - Electric wire Connection / Option - Voltage; Solenoid position; Series flow rate size	Discrete valve Gasket Mounting screws 2 (2 PR check valves)	Details on page 51
2	Masking plate	3G1/4G1	4G1R-MP	Masking plate Gasket Mounting screws 2	*Two PR check valves are attached with 4G3/4G4.
		3G2/4G2	4G2R-MP		
		4G3	4G3R-MP		
		4G4	4GB4-MP		
3	Manifold base assembly		M4GE □R - Connection Bore size - Option D - Station No.; Series flow rate size; Mount type	Manifold base	Even if "D" mounting is selected, the DIN rail kit must be handled separately.
4	DIN rail kit				Details on page 79

Parts list

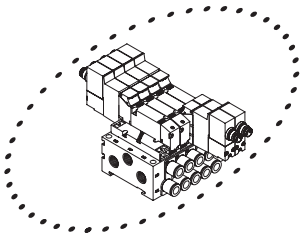
Part No.	Part name	Model No.
-	M8 connector cable	4GEX-M8CC- Direction - Length *Details on page 65
-	Explosion-proof barrier	Details on pages 69 to 71

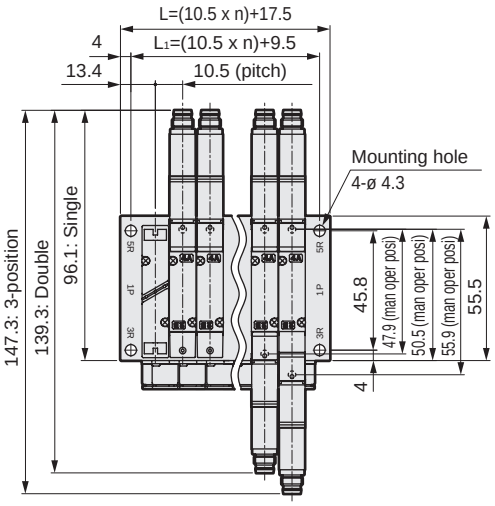
Part No.	Part name			Model No.
-	Cartridge push-in fitting and related parts	4G1	ø 1.8 straight	4G1R-JOINT-C 18
			ø4 straight	4G1R-JOINT-C4
			ø6 straight	4G1R-JOINT-C6
			Plug cartridge	4G1R-JOINT-CPG
		4G2	ø4 straight	4G2R-JOINT-C4
			ø6 straight	4G2R-JOINT-C6
			ø8 straight	4G2R-JOINT-C8
			Plug cartridge	4G2R-JOINT-CPG
		4G3	ø6 straight	4G3R-JOINT-C6
			ø8 straight	4G3R-JOINT-C8
			ø10 straight	4G3R-JOINT-C10
			Plug cartridge	4G3R-JOINT-CPG
		4G4	ø8 straight	4G4-JOINT-C8
			ø10 straight	4G4-JOINT-C10
			ø12 straight	4G4-JOINT-C12

Dimensions

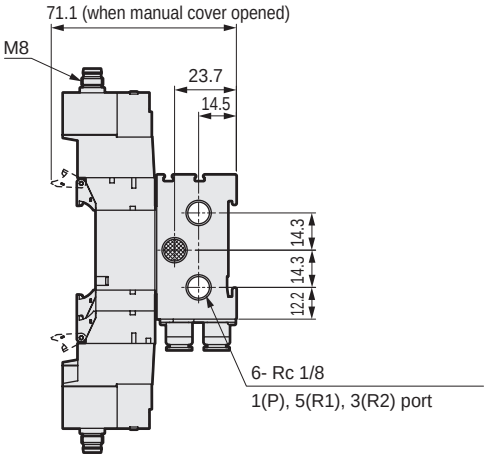
M4GE1*0EJ

● Direct mount installation
Without connector (RN)

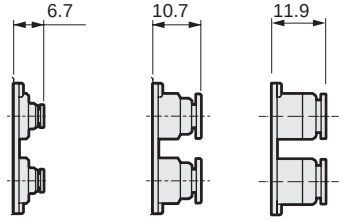


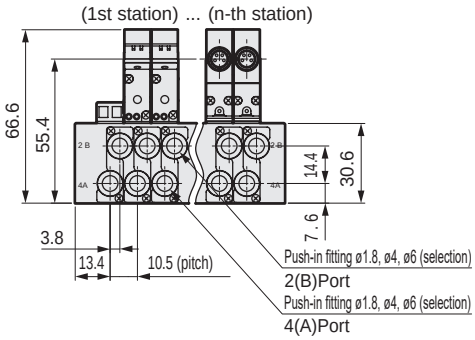


*1: Dedicated for direct mounting. This cannot be changed to DIN rail specifications.
*2: The two 3-port valve built-in type has the same dimensions as the double model.

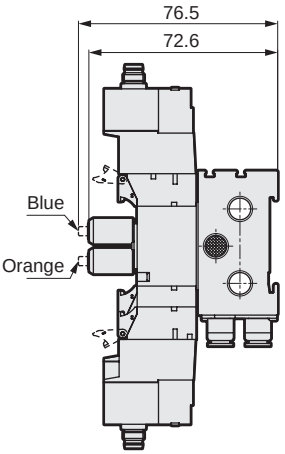


● ø1.8 (C18)
● ø4 (C4)
● ø6 (C6)

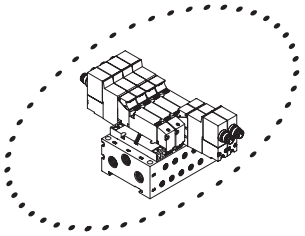


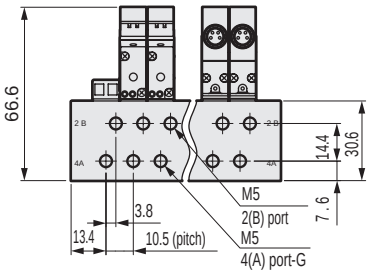


● With indicator (J)

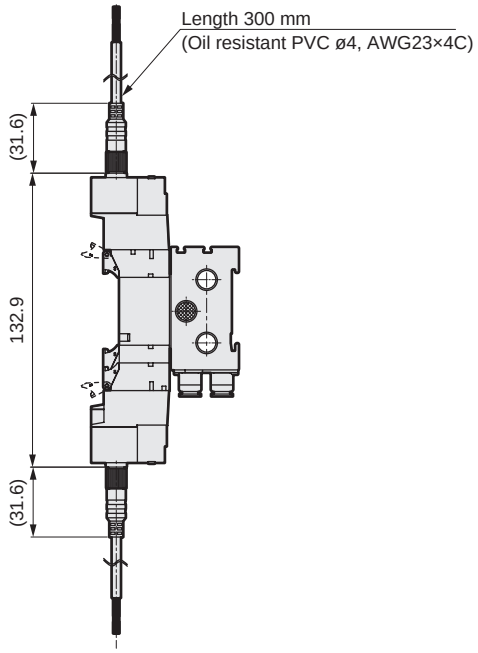


● M5 female thread (M5)

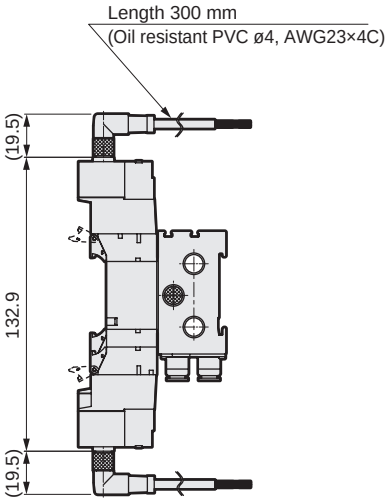




● M8 connector/straight cable (R1)



● M8 connector/L-cable (R2)

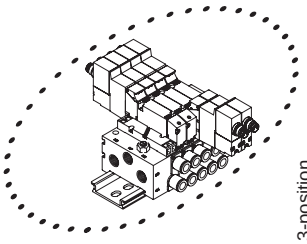


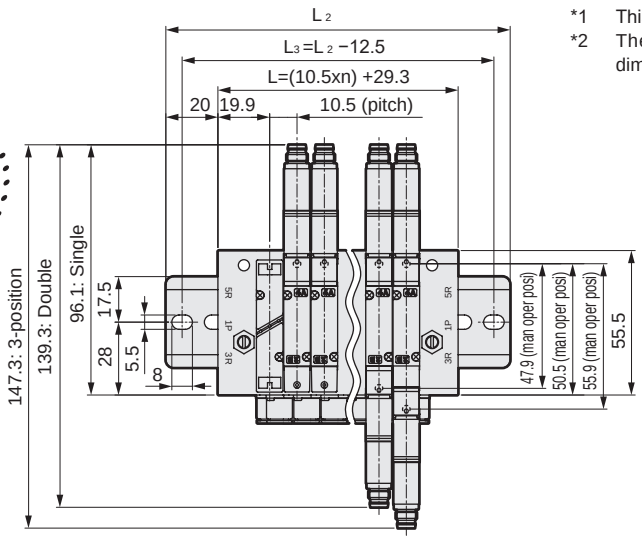
Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	38.5	49.0	59.5	70.0	80.5	91.0	101.5	112.0	122.5	133.0	143.5	154.0	164.5	175.0	185.5	196.0	206.5	217.0	227.5
L1	30.5	41.0	51.5	62.0	72.5	83.0	93.5	104.0	114.5	125.0	135.5	146.0	156.5	167.0	177.5	188.0	198.5	209.0	219.5

Dimensions

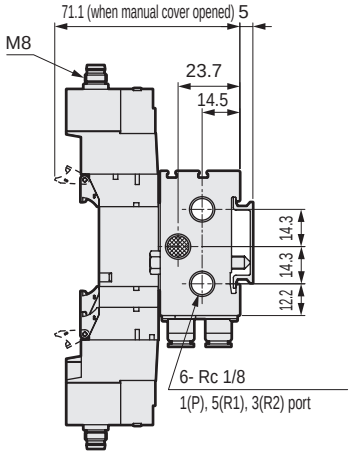
M4GE1*0EJ

● DIN rail installation (D)
Without connector (RN)

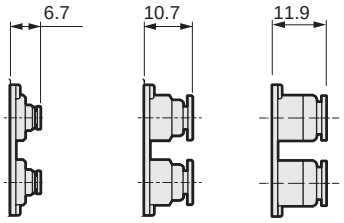


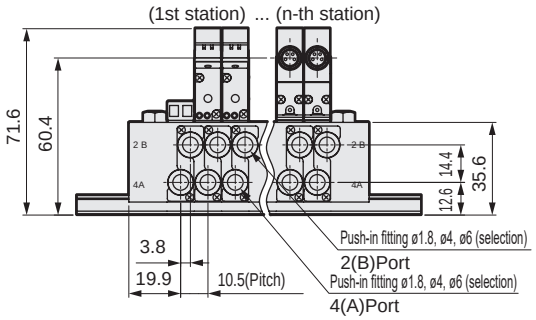


*1 This can be changed to direct mount specifications.
*2 The two 3-port valve built-in type has the same dimensions as the double model.

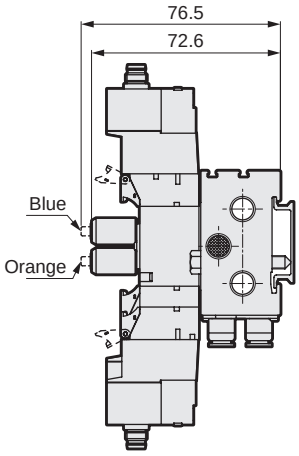


● ø1.8 (C18)
● ø4 (C4)
● ø6 (C6)

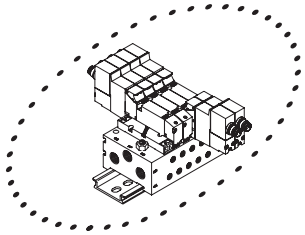


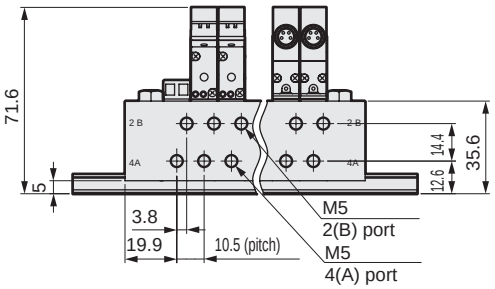


● With indicator (J)

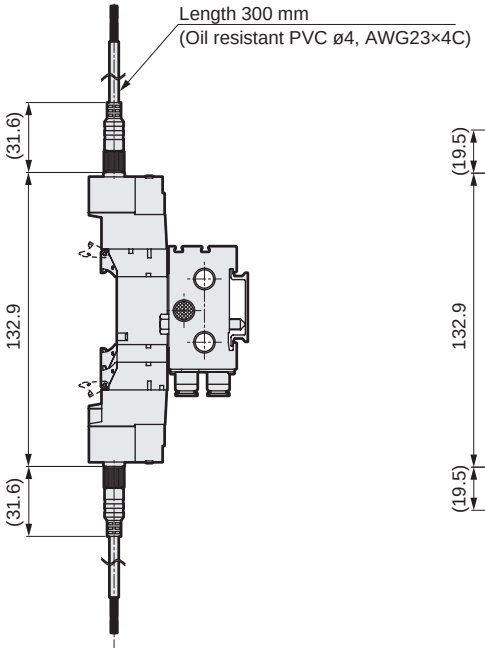


● DIN rail installation (D)
M5 female thread (M5)

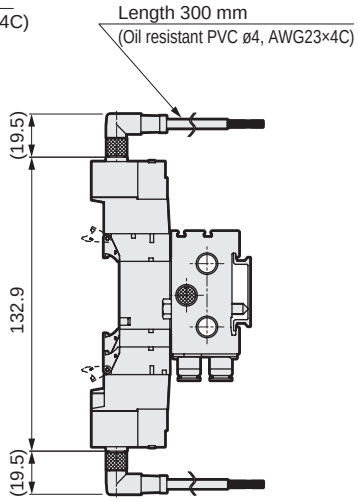




● DIN rail installation (D)
M8 connector/straight cable (R1)



● M8 connector/L-cable (R2)

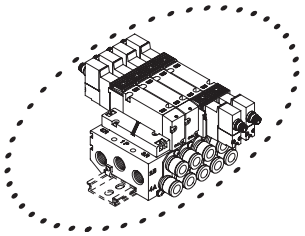


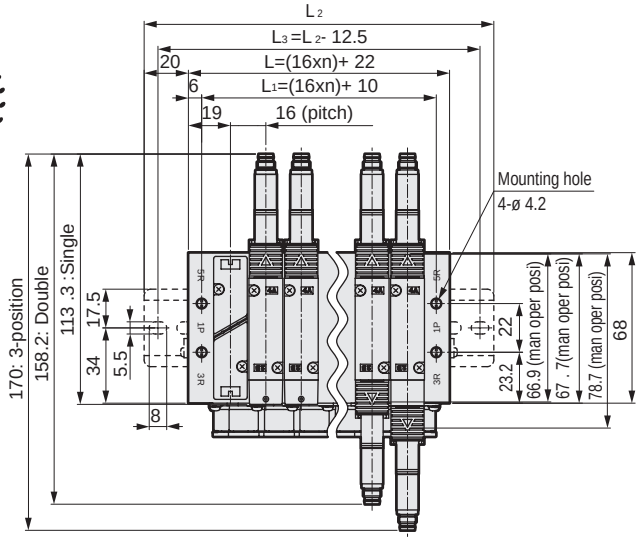
Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L	50.3	60.8	71.3	81.8	92.3	102.8	113.3	123.8	134.3	144.8	155.3	165.8	176.3	186.8	197.3
L_2	100.0	112.5	112.5	125.0	137.5	150.0	162.5	175.0	175.0	187.5	200.0	212.5	225.0	237.5	237.5
L_3	87.5	100.0	100.0	112.5	125.0	137.5	150.0	162.5	162.5	175.0	187.5	200.0	212.5	225.0	225.0

Dimensions

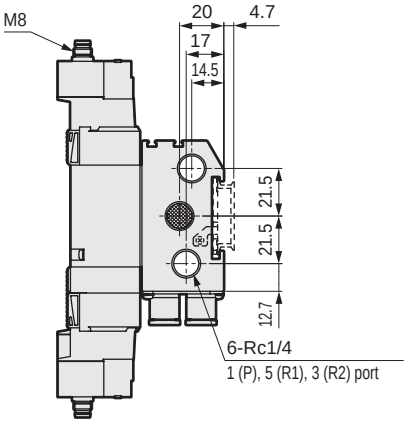
M4GE2*0EJ

● Without connector (RN)



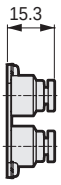


Note The two 3-port valve built-in type has the same dimensions as the double model.

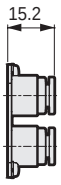


● Fitting straight

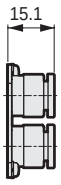
● ø4 (C4)

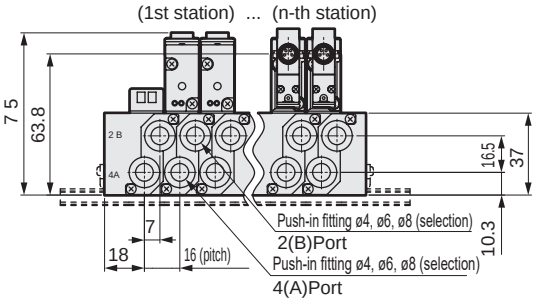


● ø6 (C6)

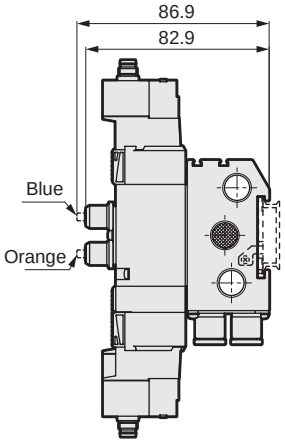


● ø8 (C8)

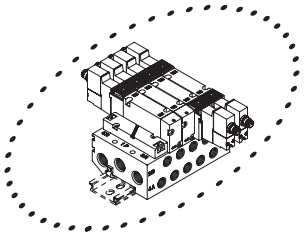


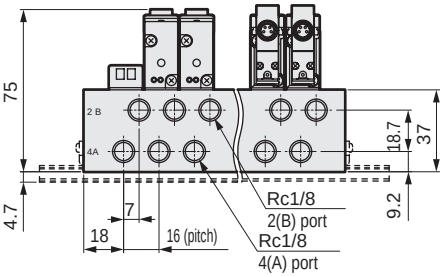


● With indicator (J)

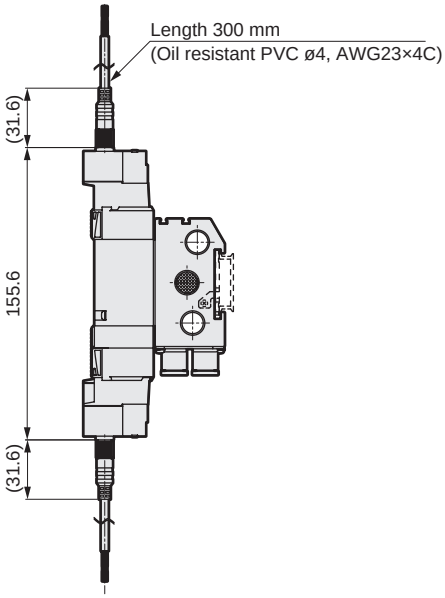


● Rc1/8 female thread (06)

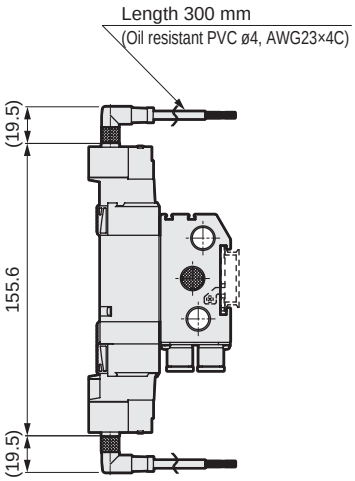




● M8 connector/straight cable (R1)



● M8 connector/L-cable (R2)

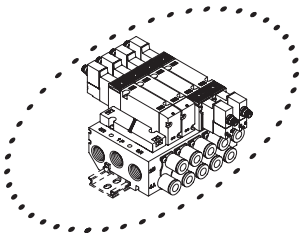


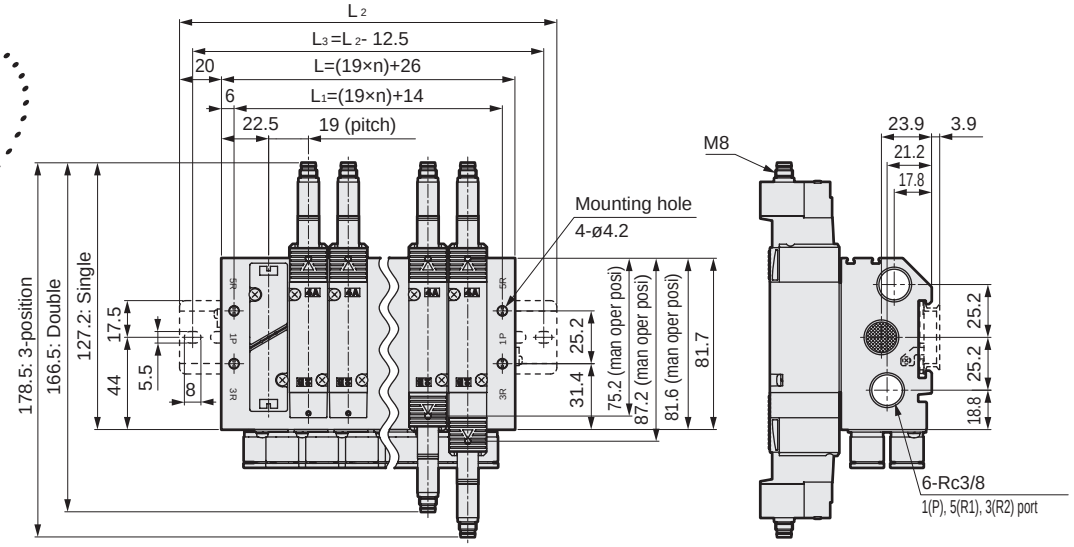
Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	54.0	70.0	86.0	102.0	118.0	134.0	150.0	166.0	182.0	198.0	214.0	230.0	246.0	262.0	278.0	294.0	310.0	326.0	342.0
L_1	42.0	58.0	74.0	90.0	106.0	122.0	138.0	154.0	170.0	186.0	202.0	218.0	234.0	250.0	266.0	282.0	298.0	314.0	330.0
L_2	100.0	112.5	137.5	150.0	162.5	175.0	200.0	212.5	225.0	250.0	262.5	275.0	287.5	312.5	325.0				
L_3	87.5	100.0	125.0	137.5	150.0	162.5	187.5	200.0	212.5	237.5	250.0	262.5	275.0	300.0	312.5				

Dimensions

M4GE3*0EJ

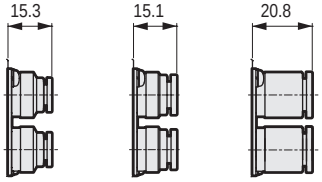
● Without connector (RN)

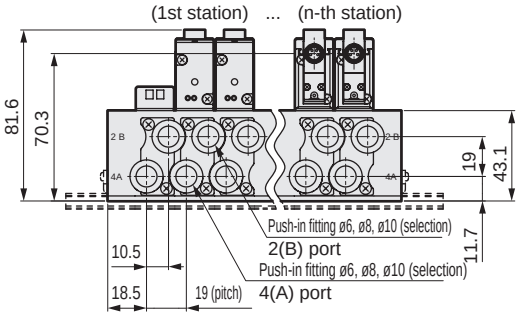




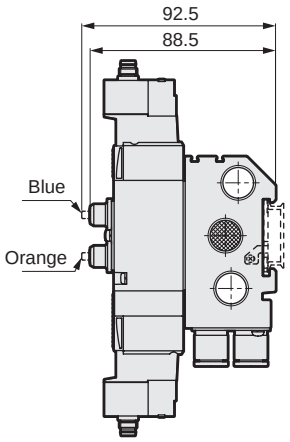
● Fitting straight

● ø6 (C6) ● ø8 (C8) ● ø10 (C10)

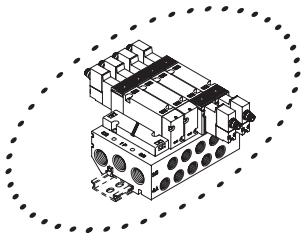


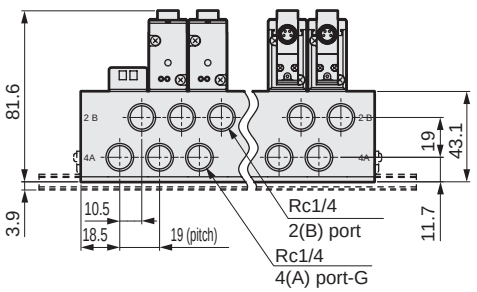


● With indicator (J)

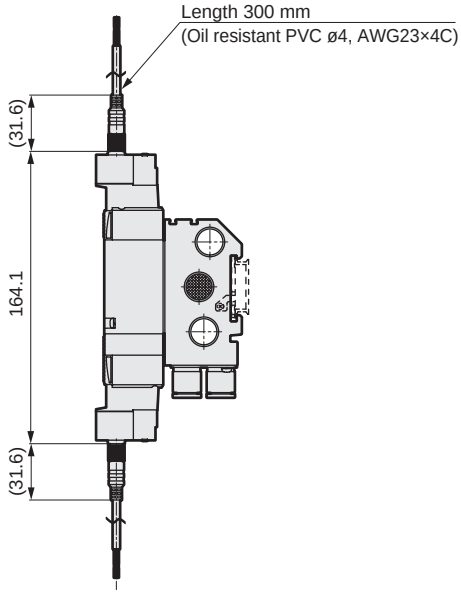


● Rc1/4 female thread (08)

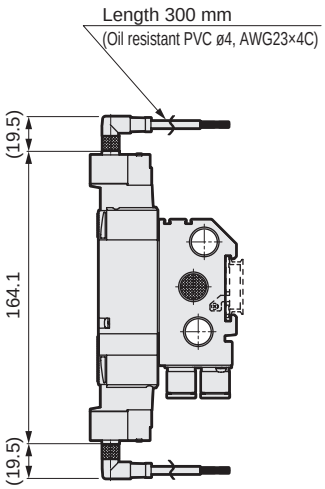




● M8 connector/straight cable (R1)



● M8 connector/L-cable (R2)

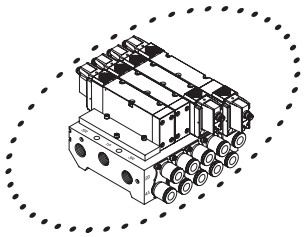


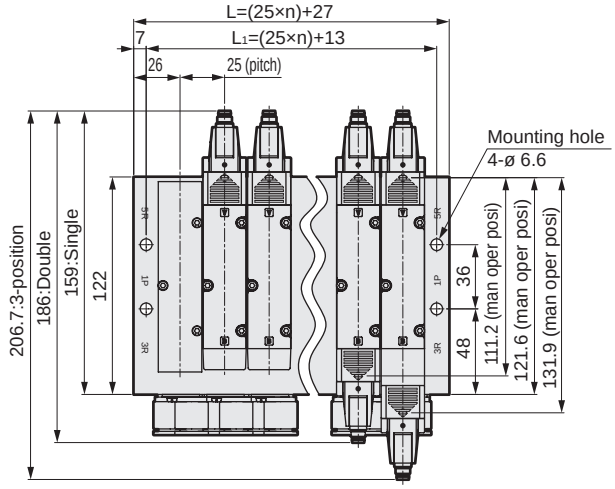
Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	64.0	83.0	102.0	121.0	140.0	159.0	178.0	197.0	216.0	235.0	254.0	273.0	292.0	311.0	330.0	349.0	368.0	387.0	406.0
L_1	52.0	71.0	90.0	109.0	128.0	147.0	166.0	185.0	204.0	223.0	242.0	261.0	280.0	299.0	318.0	337.0	356.0	375.0	394.0
L_2	112.5	125.0	150.0	162.5	187.5	200.0	225.0	237.5	262.5	275.0	300.0	325.0	337.5	362.5	375.0				
L_3	100.0	112.5	137.5	150.0	175.0	187.5	212.5	225.0	250.0	262.5	287.5	312.5	325.0	350.0	362.5				

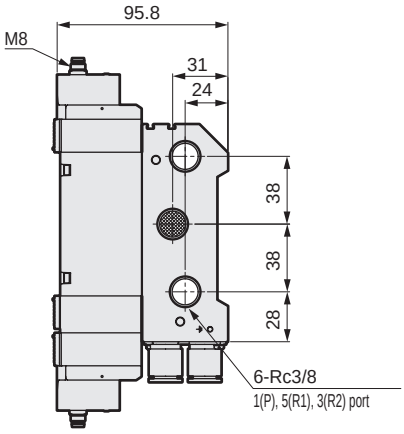
Dimensions

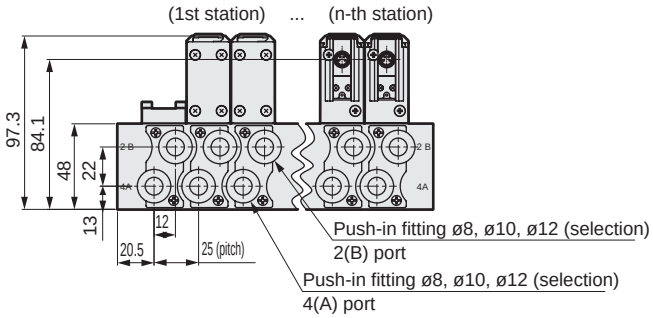
M4GE4*0EJ

● Without connector (RN)

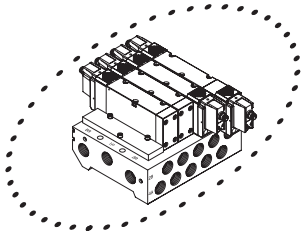


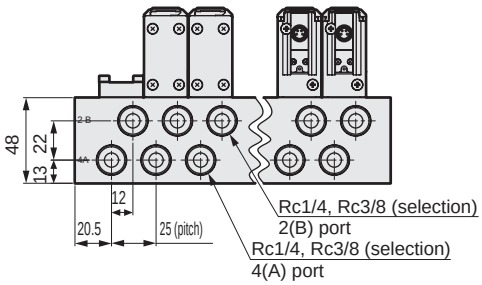




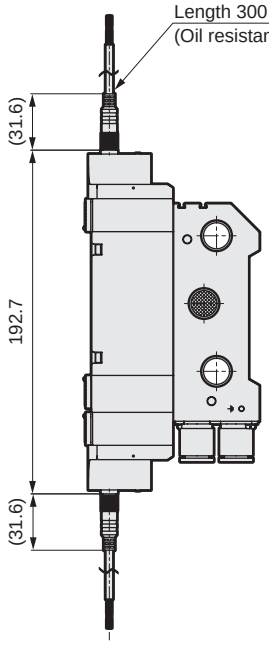


● Rc1/4, Rc3/8 female thread (08, 10)

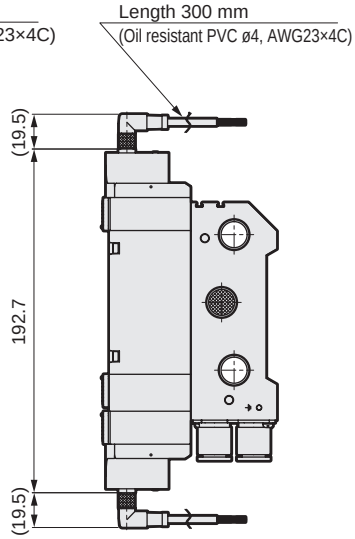




● M8 connector/straight cable (R1)



● M8 connector/L-cable (R2)

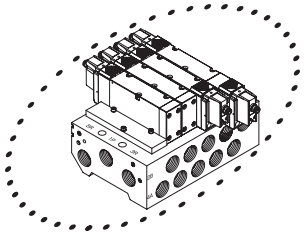


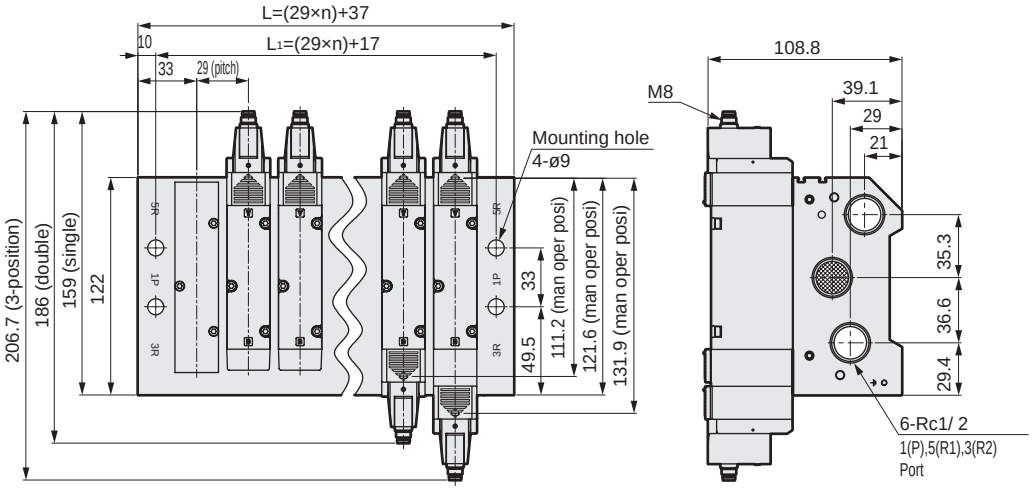
Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15
L	77	102	127	152	177	202	227	252	277	302	327	352	377	402
L1	63	88	113	138	163	188	213	238	263	288	313	338	363	388

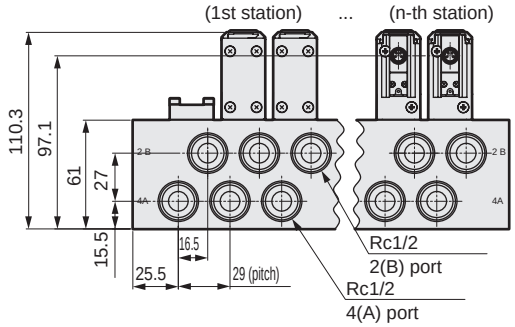
Dimensions

M4GE4*0EJ

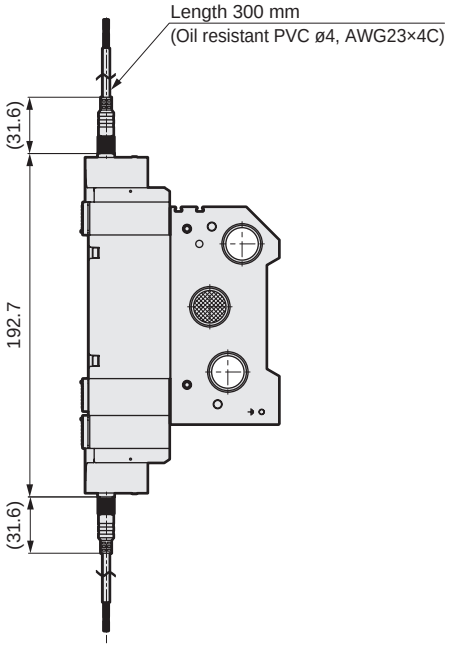
● Rc1/2 female thread
Without connector (RN)



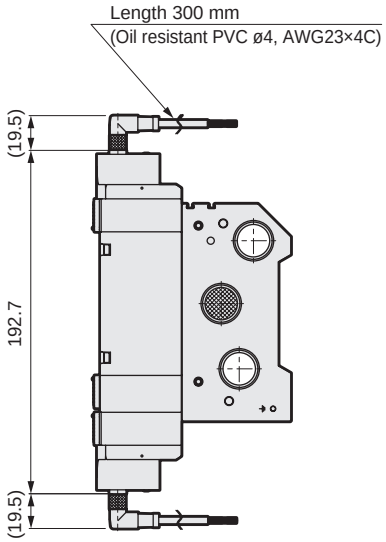




● M8 connector/straight cable (R1)



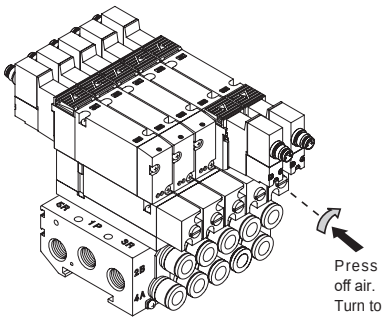
● M8 connector/L-cable (R2)



Station No.	2	3	4	5	6	7	8	9	10	11	12
L	95	124	153	182	211	240	269	298	327	356	385
L1	75	104	133	162	191	220	249	278	307	336	365

Related products

● In-stop valve spacer



Specifications

Model No.	P → A/B		A/B→R		Weight g
	C(dm³/(s·bar))	b	C(dm³/(s·bar))	b	
4G1	0.54	0.03	0.82	0.27	17
4G2	1.5	0.17	1.6	0.20	63
4G3	1.9	0.09	2.8	0.16	80

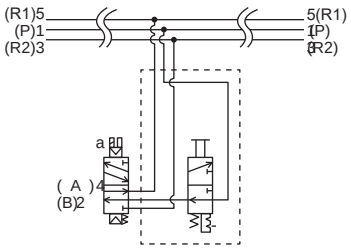
*1: Values with base piping and 2-position valve mounted.
*2: The effective cross-sectional area when discharging residual pressure is 1.0mm² (reference value).
*3: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
*4: For 4G4, in-stop valve spacers are not available.
Attachments: 2 PR check valves, 1 body gasket

How to order discrete units

4G1R - IS
4G2R - IS
4G3R - IS

In-stop valve spacer

JIS symbol

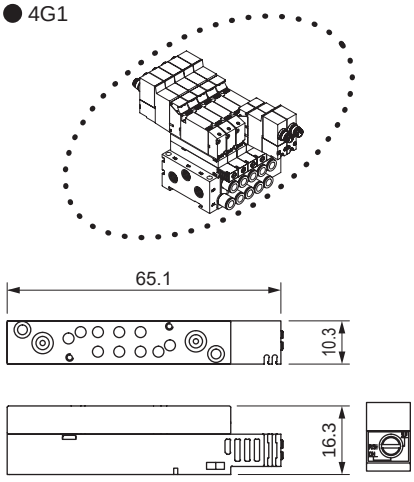


⚠ Precautions for model No. selection

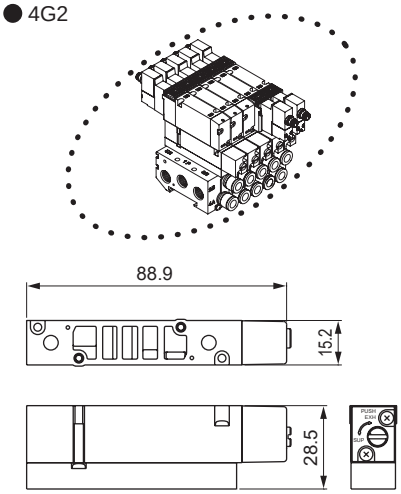
*1: Specify the spacer mounting position and quantity in manifold specifications sheet.

Dimensions

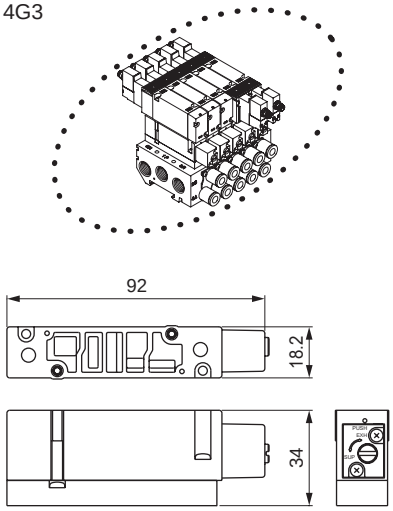
● 4G1



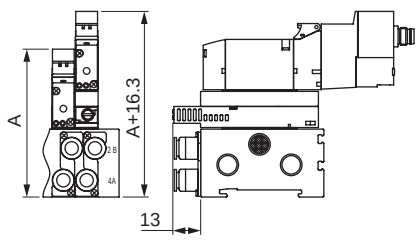
● 4G2



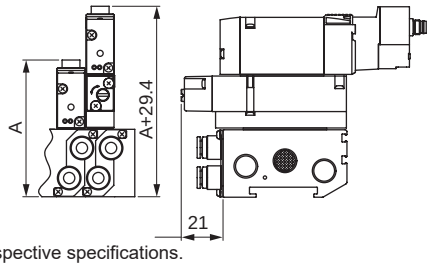
● 4G3



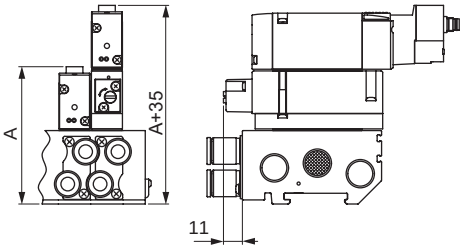
Dimensions when mounted



Dimensions when mounted



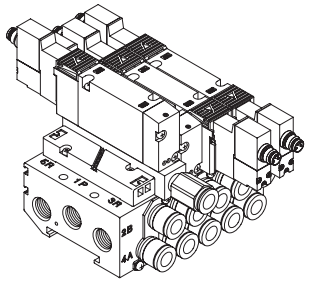
Dimensions when mounted



Note: For A dimensions, check the dimensions of the respective specifications.

Related products

● Air supply spacer



Specifications

Model No.	P → A/B		A/B→R		Weight g
	C(dm³/(s·bar))	b	C(dm³/(s·bar))	b	
4G1	0.70	0.23	0.93	0.16	8
4G2	1.6	0.17	1.8	0.16	35
4G3	2.6	0.22	3.1	0.14	56

*1: Values are when a valve is mounted.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order discrete units

● Air supply spacer

Air supply spacer model No.

4G 3 R - P - GWS10

Ⓐ Air supply spacer model No.

Ⓑ Port size *1

Code	Description	Valve model No. 4G1	4G2	4G3
Ⓐ Air supply spacer model No.				
1	For 4G1	●		
2	For 4G2		●	
3	For 4G3			●
Ⓑ Port size				
Blank	M5 thread (4G1), Rc thread (4G2/4G3)	①	②	③
GWS4	ø4 fitting	●		
GWS6	ø6 fitting	●	●	
GWS8	ø8 fitting		●	●
GWS10	ø10 fitting			●

is not available.

Accessories: 2 mounting screws, 2 PR check valves, 1 body gasket

⚠ Precautions for model No. selection

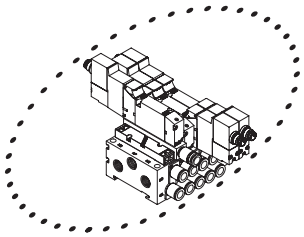
*1: Blank,① M5 ② Rc1/8 ③ Rc1/4.
*2: Specify the air supply spacer mounting position and quantity on the manifold specifications sheet of each catalog.
*3: Combination with the masking plate is not supported.
*4: 4G4 air supply spacers are made to order products. Contact CKD for details.

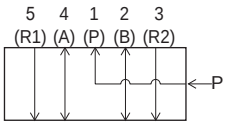
Related products

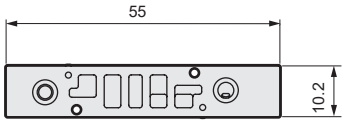
● Air supply spacer

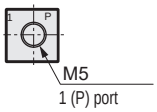
Dimensions

● 4G1

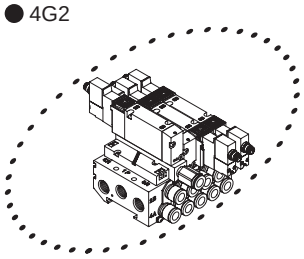


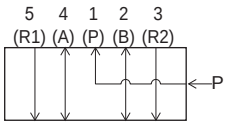


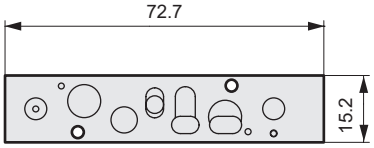


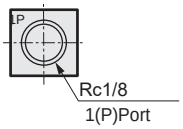


● 4G2

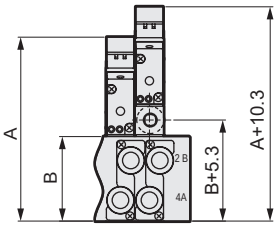


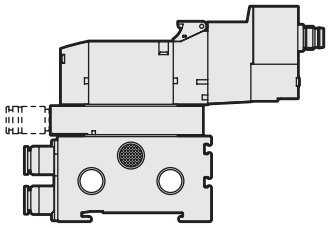




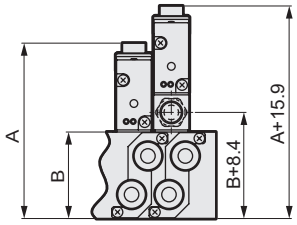


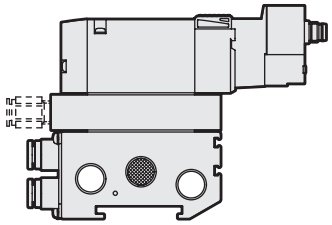
Dimensions when mounted



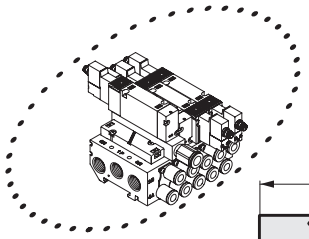


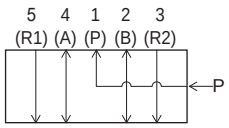
Dimensions when mounted

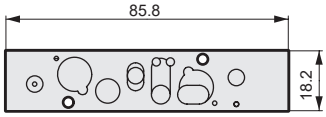


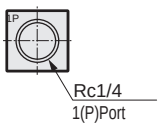


● 4G3

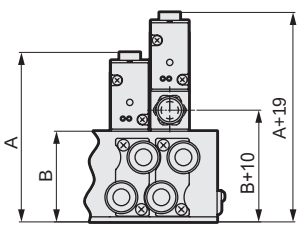


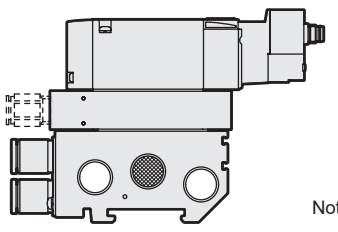






Dimensions when mounted

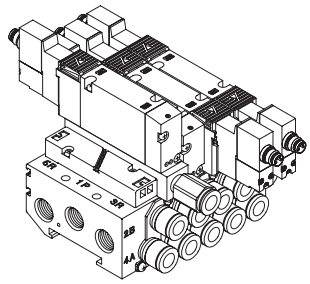




Note: For A and B dimensions, check the dimensions of the respective specifications.

Related products

● Exhaust spacer



Specifications

Model No.	P → A/B		A/B→R		Weight g
	C(dm³/(s·bar))	b	C(dm³/(s·bar))	b	
4G1	0.94	0.28	0.68	0.33	7
4G2	1.5	0.24	1.9	0.24	34
4G3	3.4	0.21	2.9	0.27	58

*1: Values are when a valve is mounted.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order discrete units

● Exhaust spacer

Exhaust spacer model No.

4G 3 R - R - GWS10

Ⓐ Exhaust spacer model No.

Ⓑ Port size *1

Code	Description	Valve model No. 4G1	4G2	4G3
Ⓐ Exhaust spacer model No.				
1	For 4G1	●		
2	For 4G2		●	
3	For 4G3			●
Ⓑ Port size				
Blank	M5 thread (4G1), Rc thread (4G2/4G3)	①	②	③
GWS4	ø4 fitting	●		
GWS6	ø6 fitting	●	●	
GWS8	ø8 fitting		●	●
GWS10	ø10 fitting			●

is not available.

Accessories: 2 mounting screws (*2), 2 PR check valves, 1 body gasket

⚠ Precautions for model No. selection

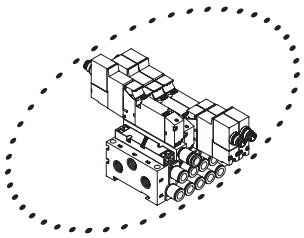
*1 Blank, ① M5 ② Rc1/8 ③ Rc1/4.
*2: Specify the exhaust spacer mounting position and quantity on the manifold specifications sheet of each catalog.
*3 Combination with the masking plate is not supported.
*4 4G4 exhaust spacers are made to order products. Contact CKD for details.

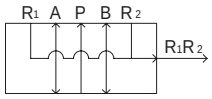
Related products

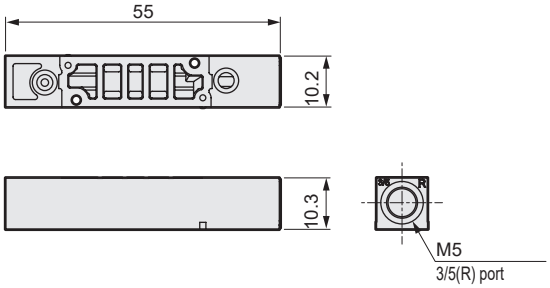
● Exhaust spacer

Dimensions

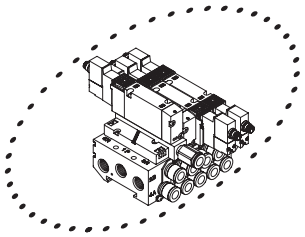
● 4G1

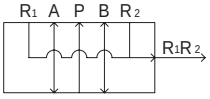


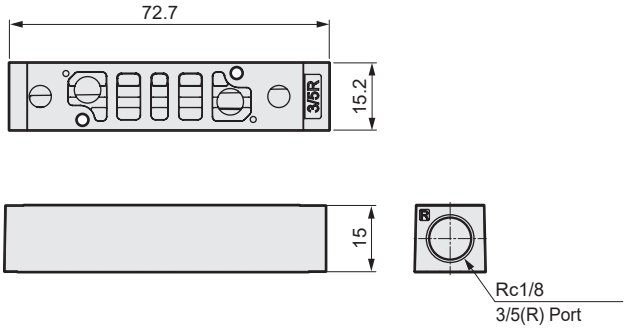




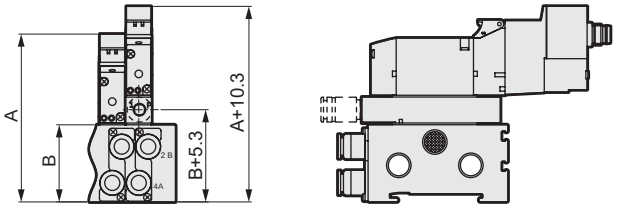
● 4G2



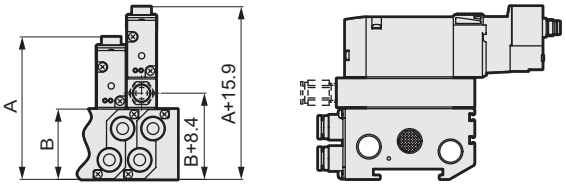




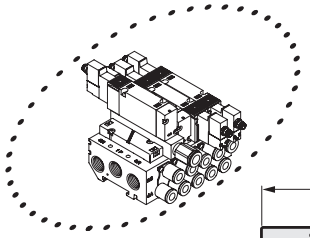
Dimensions when mounted

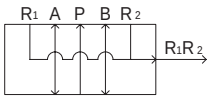


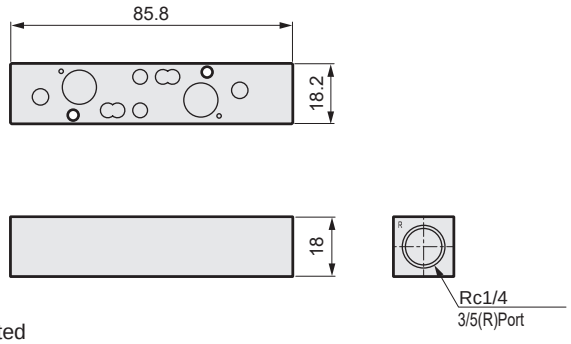
Dimensions when mounted



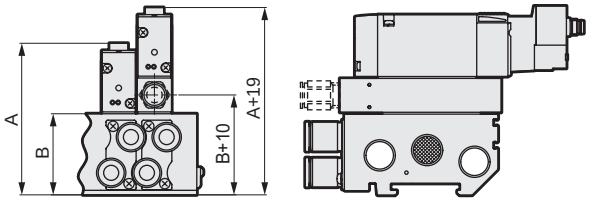
● 4G3







Dimensions when mounted

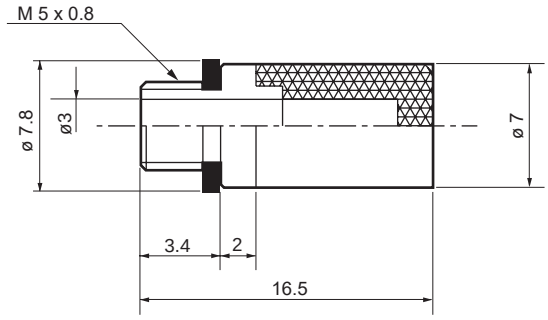


Note: For A and B dimensions, check the dimensions of the respective specifications.

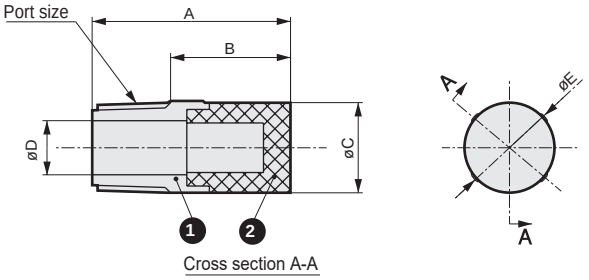
Related products

● Silencer

● SLM-M5

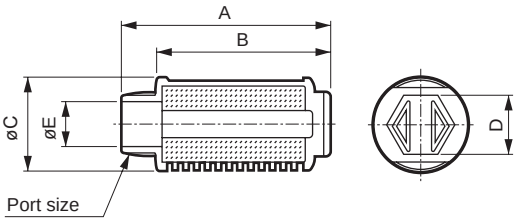


● SLW-6S, 8S



Model No.	Port size	A	B	C	D	E
SLW-6S	R 1/8	22	13.3	10.5	6	10.5
SLW-8S	R 1/4	28	19	14.8	9	15.4

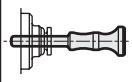
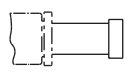
● SLW-6A, 8A, 10A, 10L, 15A



*1: Select the silencer mounting after confirming the dimensions.
*2: Use SLW-8S for the M4GD2 DIN rail mount. Interference occurs if SLW-8A is used.

Code / Model No.	Noise reduction effect dB (A)	Effective cross-sectional area mm²	A	B	C	D	E	Port size
SLW-6A	30 or more	10	34.5	28	16.5	10	7	R 1/8
SLW-8A	30 or more	20	44.5	36	20	13	8.5	R 1/4
SLW-10A	30 or more	30	58.5	48.5	25.5	17	12	R 3/8
SLW-10L	30 or more	60	68.2	58.4	28	19	12	R 3/8
SLW-15A	30 or more	75	71.4	58.4	28	19	15	R 1/2

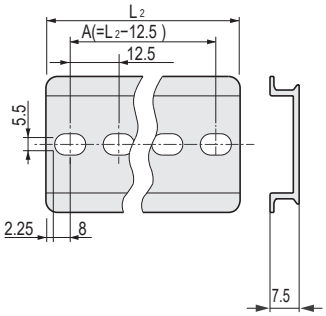
● Plug type

Part name	Model No.	Compatible bore size	Appearance
Blanking plug	PG-P2-B	ø1.8	
	GWP4-B	ø4	
	GWP6-B	ø6	
	GWP8-B	ø8	
	GWP10-B	ø10	
	GWP12-B	ø12	
Threaded plug	4G1R-M5P	M5	 (FPL-M5)
	4G2R-06P	Rc1/8	 Hexagon socket plug
	4G3R-08P	Rc1/4	
	4G3R-10P	Rc3/8	
	4G4-15P	Rc1/2	

● DIN rail

N4GR－BAA **L2**

Rail length



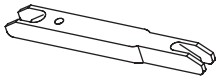
*1:Rail lengths not included in the list are made-to-order products.

L1:Manifold length	L2:Rail length	A: Mounting pitch
35 47.5 or less	87.5	75
Over 47.5 to 60	100	87.5
60 72.5	112.5	100
72.5 85	125	112.5
85 97.5	137.5	125
97.5 110	150	137.5
110 122.5	162.5	150
122.5 135	175	162.5
135 147.5	187.5	175
147.5 160	200	187.5
160 172.5	212.5	200
172.5 185	225	212.5
185 197.5	237.5	225
197.5 210	250	237.5
210 222.5	262.5	250
222.5 235	275	262.5
235 247.5	287.5	275
247.5 260	300	287.5
260 272.5	312.5	300
272.5 285	325	312.5
285 297.5	337.5	325
297.5 310	350	337.5
310 322.5	362.5	350
322.5 335	375	362.5
335 347.5	387.5	375
347.5 360	400	387.5
360 372.5	412.5	400
372.5 385	425	412.5
385 397.5	437.5	425
397.5 410	450	437.5
410 422.5	462.5	450
422.5 435	475	462.5
435 447.5	487.5	475
447.5 460	500	487.5
460 472.5	512.5	500
472.5 485	525	512.5
485 497.5	537.5	525
497.5 510	550	537.5

If the length exceeds 510, calculate using a multiple of 12.5.

● Push-in fitting tube remover

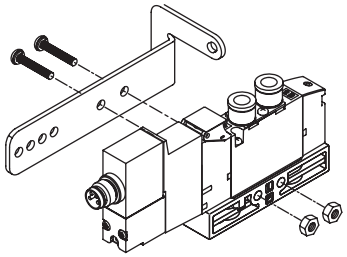
For ø1.8/ø4 push-in fitting
4GR-EOT18-4



For ø4/ø6 push-in fittings
4GR-EOT4-6

Related parts

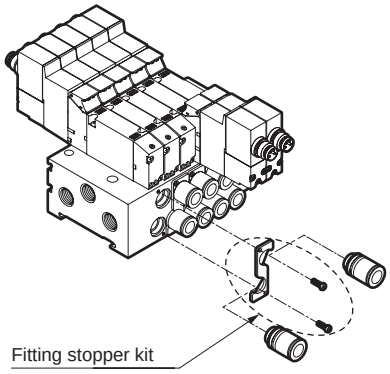
(1) Mounting plate (P) kit



Mounting (P) kit

Model	Kit model No.	Set parts
4GD1	4G1R-MOUNT-PLATE-KIT	Mounting plate, 2 mounting screws, 2 nuts
4GD 2	4G2R-MOUNT-PLATE-KIT	Mounting plate, 2 mounting screws
4GD3	4G3R-MOUNT-PLATE-KIT	Mounting plate, 2 mounting screws

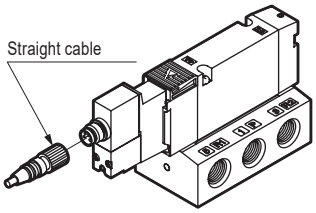
(2) Cartridge push-in fitting related parts Discrete



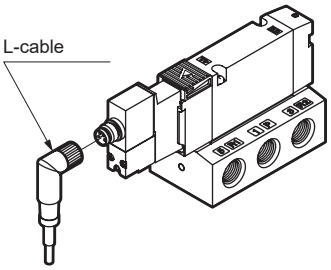
Fitting stopper plate kit

Model	Kit model No.
M4G1	4G1R-JNT-STP-PLATE-KIT
M4G2	4G2R-JNT-STP-PLATE-KIT
M4G3	4G3R-JNT-STP-PLATE-KIT
M4G4	4GB4-JNT-STP-PLATE-KIT

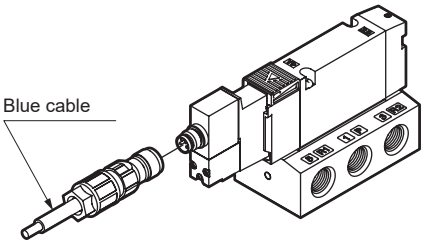
(3) M8 connector cable



Straight cable (R1)



L-cable (R2)



Straight cable (R3)

◆Cable Capacitance and Inductance

Type	Capacitance [nF/m] at 1kHz	Inductance [mH/m] at 1kHz
Straight (R1)	0.058	0.003
L type (R2)	0.125	0.003
Straight (R3)	0.065	0.002

◆Minimum bending radius of cable

Type	No load [mm]	With load [mm]
Straight (R1)	20.0	36.0
L type (R2)	23.5	42.3
Straight (R3)	20.0	-

4GEX - M8CC - R1 - 300

Ⓐ Direction Ⓑ Length

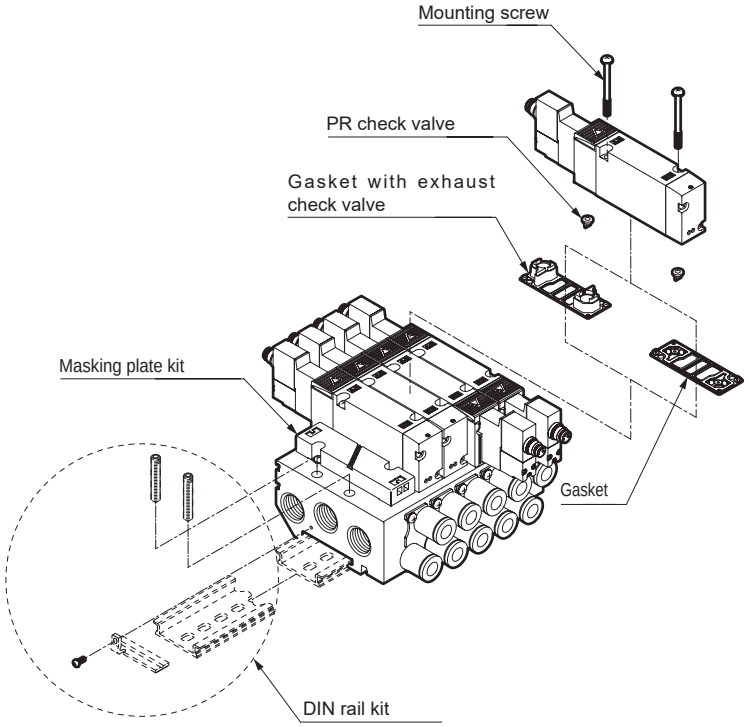
Ⓐ Direction		4G1	4G2	4G3	4G4
R1 *1	Straight cable (color: gray)	●	●	●	●
R2 *1	L-cable (color: black)	●	●	●	●
R3 *2	Straight cable (color: blue)		●	●	●

Ⓑ Length	
300	Cable length 300mm
500	Cable length 500mm
1000	Cable length 1000mm
3000	Cable length 3000mm

*1: R1 and R2 types come with a blue marker for identification.
*2: Available as made to order.

Related parts

(4) Manifold related parts



Masking plate kit

Model	Model No.	Description	Remarks
M3G1/M4G1	4G1R-MP	Masking plate Gasket 2 Mounting screws	4G3/4G4 have two PR check valves attached.
M3G2/M4G2	4G2R-MP		
M4G3	4G3R-MP		
M4GD4	4GA4-MP		
M4GE4	4GB4-MP		

Gasket

Model	Part model No.
3G1/4G1	4G1R-GASKET
3G1/4G1 (For masking plate)	4G1R-MP-GASKET
3G2/4G 2	4G2R-GASKET
3G2/4G2 (For masking plate)	4G2R-MP-GASKET
4G3	4G3R-GASKET
4GD4	4GA4-GASKET
4GE4	4GB4-GASKET

Gasket with exhaust check valve

Model	Part model No.
3G1/4G1	4G1R-CHECK-VALVE
3G2/4G 2	4G2R-CHECK-VALVE
4G3	4G3R-CHECK-VALVE

Note: 4G4 does not have a gasket with check valve.

PR check valve kit (2 per set)

Model	Kit model No.
3G1/4G1	4G1R-PR
3G2/4G2	4G2R-PR
4G3	4G3R-PR
4G 4	4G4-PR

Mounting screw (10 per set)

Model	Part model No.
3G1/4G1	4G1R-SET-SCREW
3G2/4G 2	4G2R-SET-SCREW
4G3	4G3R-SET-SCREW
4G 4	4G4-SET-SCREW

DIN rail kit

Model	Model No.	Description
M4G1	4GA1R-BAA length -D	DIN rail, 2 mounting screws 2 Lock nuts
	4GB1R-BAA length -D	
M4G2	4GA2R-BAA length -D	DIN rail/2 holders 2 tapping screws, 4 mounting screws
	4GB2R-BAA length -D	
M4G3	4GA3R-BAA length -D	
	4GB3R-BAA length -D	

Specify the length "0" when the DIN rail is not required.

Set the DIN rail length with reference to the current manifold dimensions.

Note: For 4G4, there is no DIN rail kit.

Related parts

(5) Sub-plate

How to order

● 4GD piping adapter

4G1 R-ADAPTOR-M5-○

Ⓐ Model No.

Code	Description	Ⓐ Model No. 3G1	3G2	4G1	4G2	4G3
Ⓑ Port size (Port P/R1/R2)						
M5	M5	●		●		
06	Rc1/8		●		●	
08	Rc1/4					●
Ⓒ Option						
P	With mounting plate (included)	●	●	●	●	●

is not available.

Note: For 4G4, there is no piping adapter.

● 4GE discrete sub-plate

4G1 R-SUB-BASE-06-○

Ⓐ Model No.

Code	Description	Ⓐ Model No. 3G1	3G2	4G1	4G2	4G3	4G4
Ⓑ Port size (Port A/B/P/RI/R2)							
06	Rc1/8	●		●			
08	Rc1/4		●		●	●	
10	Rc3/8					●	●
15	Rc1/2						●
Ⓒ Option							
F	A/B port filter integrated *1	●	●	●	●	●	●

*1: A filter is built into port P as standard.

is not available.

Related parts

(6) Manifold sub-plate kit individual wiring

● M4GD sub-plate

M4GD1 R - 00 - 2

Ⓐ Model No.

Code	Description
Ⓐ Model No.	
M4GD1	Metal base, 4G1 size, body piping
M4GD2	Metal base, 4G2 size, body piping
M4GD3	Metal base, 4G3 size, body piping
M4GD4	Metal base, 4G4 size, body piping

Ⓓ Station No.	
2	2 stations
to	to
20	Refer to the specifications page for the max. station number.

● M4GE1 sub-plate

M4GE1R - C4 - D - 2

Ⓐ Port size

Ⓑ Option

Ⓒ Mount type

Ⓓ Station No.

Code	Description	
Ⓐ Port size		
Port	**4(A), 2(B) port**	**Port P/R1/R2**
C18	ø1.8 push-in fitting	Rc1/8
C4	ø4 push-in fitting	
C6	ø6 push-in fitting	
M5	M5	

Ⓑ Option	
Blank	
F	Port A/B filter built in *1

Ⓒ Mount type	
Blank	Direct mount
D	DIN rail mount *2

Ⓓ Station No.	
2	2 stations
to	to
20	Refer to the specifications page for the max. station number.

*1: A filter is built into port P as standard.
*2: DIN rail kit needs to be prepared separately.

(7) Manifold sub-plate kit individual wiring

● M4GE2/3 sub-plate

M4GE2 R - C4 - 2

Ⓐ Model No.

Ⓑ Port size

Ⓒ Option

Ⓓ Station No.

Code	Description	Ⓐ Model No.	
		M4GE2	**M4GE3**
Ⓑ Port size			
Port	**4(A), 2(B) port**	**Port P/R1/R2 (1) = Rc1/4 (2) = Rc3/8**	
C4	ø4 push-in fitting	(1)	
C6	ø6 push-in fitting	(1)	(2)
C8	ø8 push-in fitting	(1)	(2)
C10	ø10 push-in fitting		(2)
06	Rc1/8	(1)	
08	Rc1/4		(3)

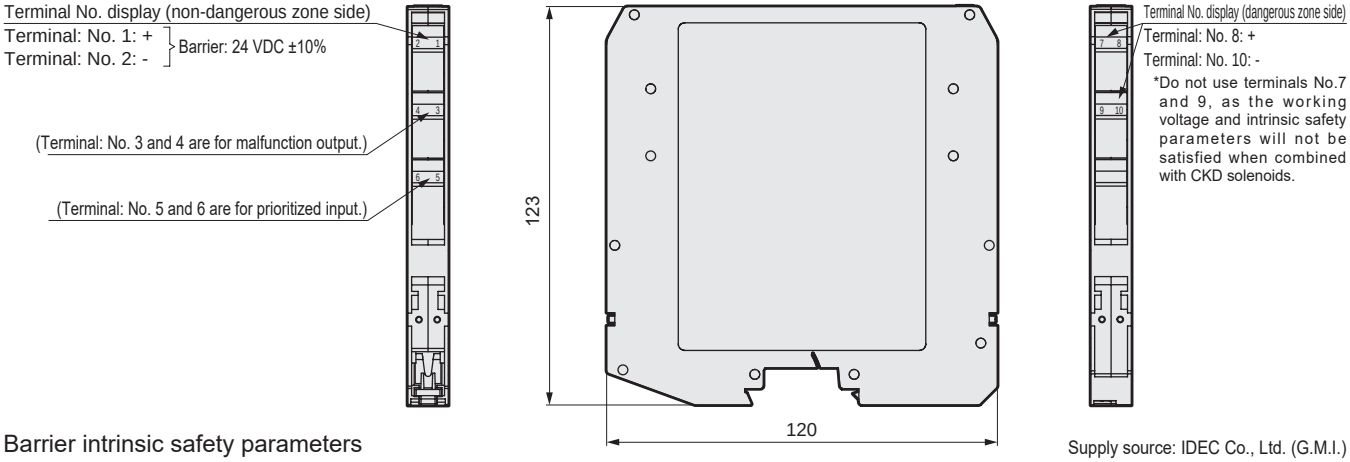
Ⓒ Option	
Blank	
F	Port A/B filter built in *1

Ⓓ Station No.	
2	2 stations
to	to
20	Refer to the specifications page for the max. station number.

*1: A filter is built into port P as standard.

INSULATED EXPLOSION PROOF BARRIER Dimensions

Model No.: **D5048S**



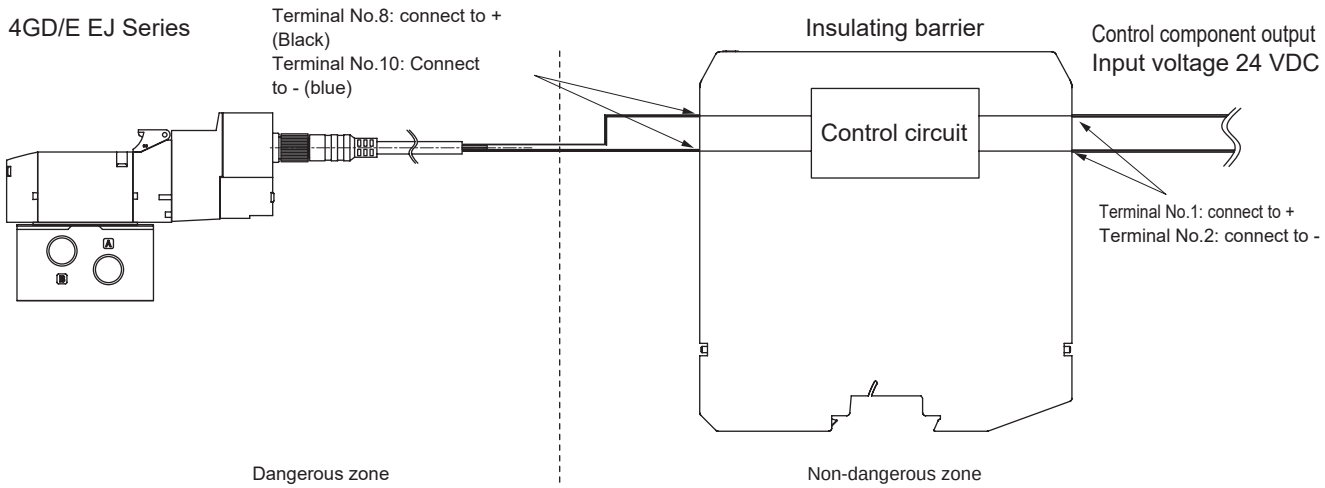
Barrier intrinsic safety parameters

Item	Between terminals No. 8-10
Intrinsic safety circuit max. voltage Uo	24.8V
Intrinsic safety circuit max. current Io	108mA
Intrinsic safety circuit max. power Po	667mW
Intrinsic safety circuit allowable capacitance Co	0.113 µF
Intrinsic safety circuit allowable inductance Lo	1.42mH
Operating ambient temperature range	-40 to 70°C

Supply source: IDEC Co., Ltd. (G.M.I.)
Detailed specifications / Refer to the IDEC Co., Ltd. or G.M.I catalog / website for the non-judgment document.

*1: Always use valves in combination with a barrier.
*2: Connection terminals are polarized. Take care to prevent incorrect wiring.
*3: Applicable wire is 0.25 to 2.5mm^2.
*4. Recommended terminal tightening torque is 0.5 to 0.6N·m.
*5: Barrier degree of protection is IP20.

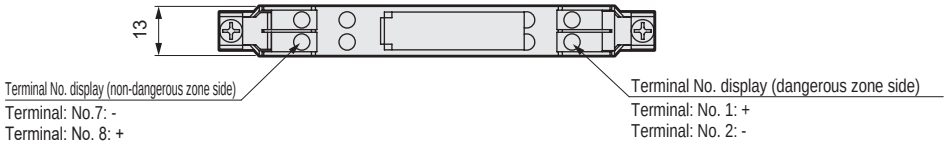
About Valve and Barrier Connections

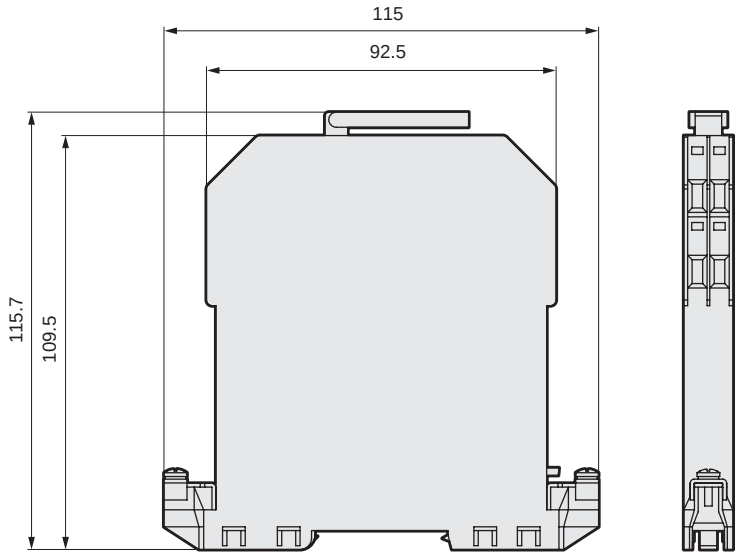


* Voltage equivalent to 12 VDC is supplied to the valve via an insulating barrier.

Zener barrier (1CH) Dimensions

Model No.: **Z728**





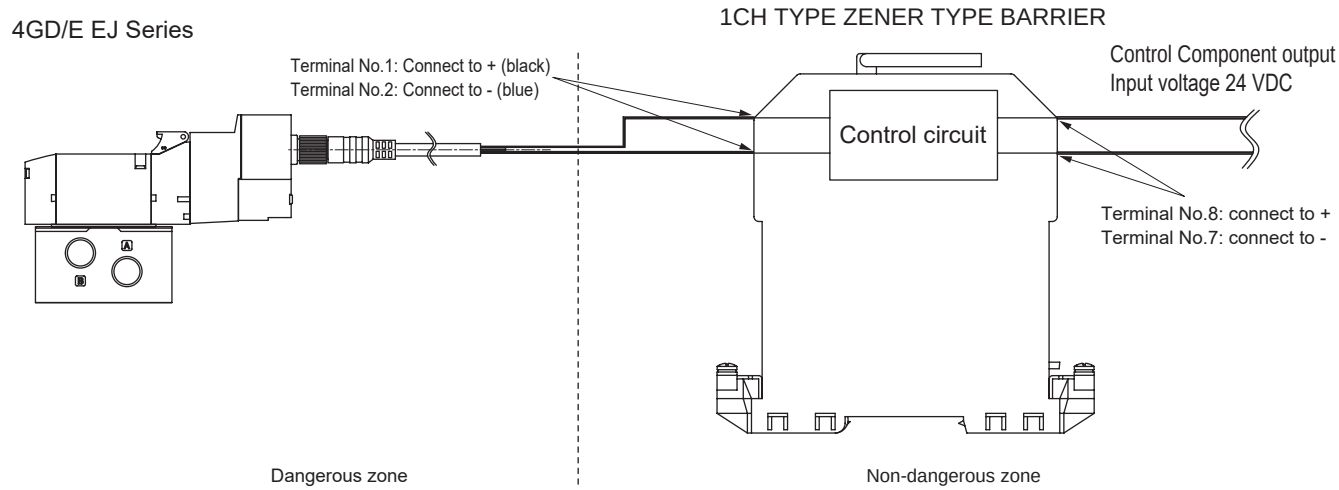
Supply sources:Pepperl+Fuchs Inc .
Detailed specifications / Refer to the Pepperl+Fuchs Inc. catalog / WEB for the non-judgment report, etc.

Barrier intrinsic safety parameters

Item	Description
Intrinsic safety circuit max. voltage Uo	28V
Intrinsic safety circuit max. current Io	93mA
Intrinsic safety circuit max. power Po	0.65 W
Intrinsic safety circuit allowable capacitance Co	0.083 µF
Intrinsic safety circuit allowable inductance Lo	3.05mH
Operating ambient temperature range	-20 to 60°C
Current limiting resistor	300 Ω

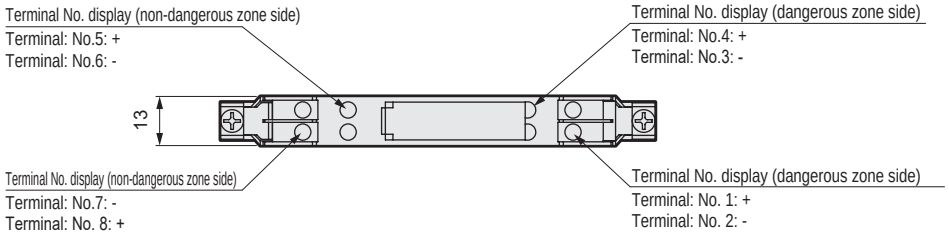
* Always use valves in combination with a barrier.
* Connection terminals are polarized.
  Miswiring can lead to barrier failure.
* Compatible wires have a allowable area of 2.5mm^2.
* Barrier degree of protection is IP20.
* Type A grounding is required for barrier installation.

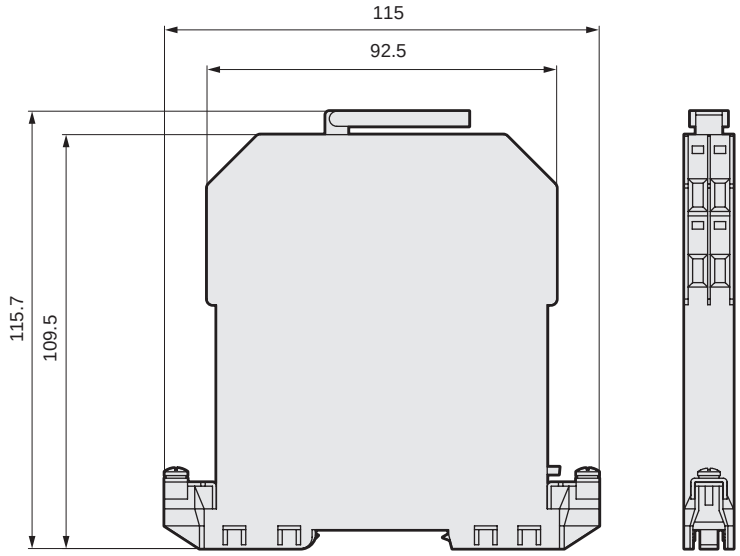
About Valve and Barrier Connections



Zener barrier (2CH) Dimensions

Model No.: **Z779**





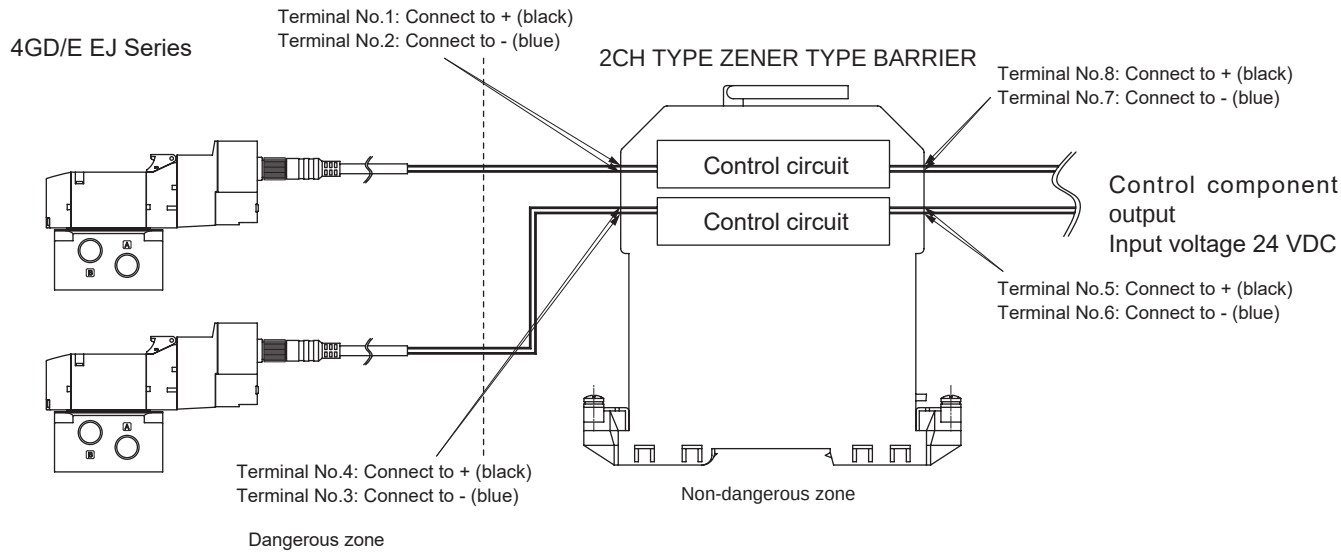
Supply source: Pepperl+Fuchs Inc.
Detailed specifications / Refer to the Pepperl+Fuchs Inc. catalog / WEB for the non-judgment report, etc.

Barrier intrinsic safety parameters

Item	Description	
	CH1	CH2
Intrinsic safety circuit max. voltage Uo	28V	28V
Intrinsic safety circuit max. current Io	93mA	93mA
Intrinsic safety circuit max. power Po	0.65 W	0.65 W
Intrinsic safety circuit allowable Capacitance Co	0.083 µF	0.083 µF
Intrinsic safety circuit allowable Inductance Lo	3.05mH	3.05mH
Operating ambient temperature range	-20 to 60°C	-20 to 60°C
Current limiting resistor	301 Ω	301 Ω

* Always use valves in combination with a barrier.
* Connection terminals are polarized.
  Miswiring can lead to barrier failure.
* Compatible wires have a allowable area of 2.5mm^2.
* Barrier degree of protection is IP20.
* Type A grounding is required for barrier installation.

About Valve and Barrier Connections



MEMO

M4G Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity/set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M G 0EJ-

Solenoid valves | Solenoid position | Port size | Electrical connections | Other options | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G 9EJ-																											
4G 9EJ-																											
4G 9EJ-																											
4G 9EJ-																											
4G 9EJ-																											
3G 9EJ-																											
3G 9EJ-																											
Masking plate 4G R-MP-																											
Air supply spacer 4G R-P-																											
In-stop valve spacer 4G R-IS																											
Exhaust spacer 4G R-R-																											

Mounting rail

L_2=
* Write an integer multiple of 12.5.

Included part

Blanking plug								For M/G 1/0EJ
GWP 4-B		GWP 6-B		GWP 8-B		GWP 10-B		Push-in fitting tube remover □ required (check)
Threaded plug								
4G1R-M5P		4G2R-06P		4G3R-08P				
Silencer								
SLW-6S		SLW-6A		SLW-8S		SLW-8A		SLW-10S		SLW-10A	

M4G4 individual wiring

M4G$^{D}_{E}$4Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity/set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M4G$^{D}_{E}$4 [ ] 0 E J - [ ] - [ ] [ ] [ ] - [ ] - [ ]

Solenoid position / Port size / Electrical connections / Option / Mount type / Station No. / Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G [ ] 4 [ ] 9EJ- [ ]																											
4G [ ] 4 [ ] 9EJ- [ ]																											
4G [ ] 4 [ ] 9EJ- [ ]																											
4G [ ] 4 [ ] 9EJ- [ ]																											
4G [ ] 4 [ ] 9EJ- [ ]																											
Masking plate 4G [ ] 4-MP																											

Mounting rail	Included part	Blanking plug					
L_2= [ ] * Write an integer multiple of 12.5.		GWP 8-B		GWP 10-B		GWP 12-B	
		Threaded plug					
		4G4-8 [ ] P		4G4-10 [ ] P		4G4-15 [ ] P	
		Silencer					
		SLW-6 [ ]		SLW-10 [ ]		SLW-15 [ ]	

Safety Precautions

Be sure to read this section before 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.

2 Use this product in accordance with specifications.

This product must be used within its stated specifications. In addition, never modify or additionally machine this product.
This product is intended for use in general industrial machinery equipment or parts. It is not intended for use outdoors (except for products with outdoor specifications) or for use under the following conditions or environments.
(Note that this product can be used when CKD is consulted prior to its usage and the customer consents to CKD product specifications. The customer should provide safety measures to avoid danger in the event of problems.)

❶ Use for applications requiring safety, including nuclear energy, railways, aircraft, marine vessels, vehicles, medical devices, devices or applications in contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
❷ Use for applications where life or assets could be significantly affected, and special safety measures are required.

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

ISO4414, JIS B 8370 (Pneumatics fluid power - General rules and safety requirements for systems and their components)
JFPS2008 (Principles for pneumatic cylinder selection and use)
Including the High Pressure Gas Safety Act, Industrial Safety and Health Act, other safety rules, organization 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 all systems 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 in the following pages to prevent accidents.

■ The precautions 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, and when there is a high degree of emergency to a warning.
⚠ WARNING:	If handled incorrectly, a dangerous situation may occur, resulting in death or serious injury.
⚠ 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.
Every item provides important information and must be observed.

Warranty

1 Warranty period

The product specified herein is warranted for one (1) year from the date of delivery to the location specified by the customer.

2 Warranty coverage

If the product specified herein fails for reasons attributable to CKD within the warranty period specified above, CKD will promptly provide a replacement for the faulty product or a part thereof or repair the faulty product at one of CKD's facilities free of charge.
However, following failures are excluded from this warranty:

1) Failure caused by handling or use of the product under conditions and in environments not conforming to those stated in the catalog, the Specifications, or the Instruction Manual.
2) Failure caused by use of the product exceeding its durability (cycles, distance, time, etc.) or caused by consumable parts.
3) Failure not caused by the product.
4) Failure caused by use not intended for the product.
5) Failure caused by modifications/alterations or repairs not carried out by CKD.
6) Failure caused by reasons unforeseen at the level of technology available at the time of delivery.
7) Failure caused by acts of nature and disasters beyond control of CKD.

The warranty stated herein covers only the delivered product itself. Any loss or damage induced by failure of the delivered product is excluded from this warranty.
Note: For details on the durability and consumable parts, contact your nearest CKD sales office.

3 Compatibility check

The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.

Pneumatic components

Safety Precautions

Be sure to read this section before use.
Refer to "Pneumatic Valves (No.CB-023SA)" for general precautions on valves.

Product-specific cautions: Pilot operated explosion-proof 3, 5-port valve 4G*/M4G* EJ Series

Design/selection

⚠ WARNING

- Usable in Class 1 and 2 danger zones (Zones 1 and 2) where there is combustible gas or steam. Cannot be used in Class 0 special danger zone.
- Explosion-proof performance is ExibIICT4Gb. Select models and perform installation in accordance with JIS.C.60079 "Factory Explosion-Proof Guidelines for Users JNIOSH-TR-NO.44 (2012)".
- Use in combination with a barrier. Valves cannot be used independently in dangerous zones.
- The 4GD/E*EJ Series has a certification range within Japan only.

⚠ CAUTION

■ Explosive gas and explosion-proof structure

The degree of explosive gas danger is classified according to the group and temperature class. Gases with equivalent risk are grouped into one group, and explosion-proof structure standards are set for each group.Codes to indicate the type, group and temperature class must be indicated in this order on the electrical components of explosion-proof structures. These codes indicate which group and temperature class the electrical components have been manufactured for, and which gases can be used. For the example of explosion-proof solenoid valve of ExibIICT4Gb:

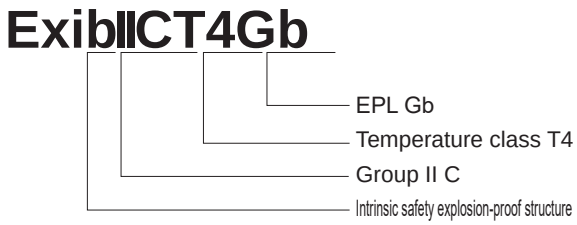


Table 2 indicates the classification of gases with a danger category of Group II C and temperature class T4 that are compatible with the product. Less dangerous gases are also listed that are guaranteed to be explosion-proof. Temperature class refers to the degree of ignition risk, and is classified into six classes according to the ignition point. It defines the maximum surface temperature of the device corresponding to each class (Table 1). Higher numbers indicate a higher risk that the gas will ignite at low igniting temperatures. Group refers to the risk of fire leaping to the exterior from small gaps. The level is classified into three grades according to the gap, and the codes shown in Table 1 are used. It can be said that this group expresses the classification by size of the explosive energy. Lower maximum safety clearance indicates more dangerous gases with higher explosive energy that can cause flames to pass through small gaps and leap to the exterior. EPL represents the component protection level. Gb indicates a component with a high protection level that can be used in Class 1 danger zones.

Table 1

Item	Code	Provision
Temperature class	T1	Max. surface temperature: 450°C
	T2	300°C
	T3	200°C
	T4	135°C
	T5	100°C
	T6	85°C
Group	II A	Max. safety clearance: 0.9 mm or more
	II B	Over 0.5 to less than 0.9
	II C	0.5 mm or less

Table 2

Temperature class / Group	T1	T2	T3	T4	T5
II A	Acetone Ammonia Carbon monoxide Ethane Acetic acid Ethyl acetate Toluene Propane Benzene Methanol Methane	Ethanol Isoamyl acetate Butane Acetic anhydride	Gasoline Hexane	Acetaldehyde	
II B		Ethylene Ethylene oxide		Ethyl ether	
II C	Hydrogen	Acetylene			Carbon disulfide

■ Dangerous zone

Situations where explosive gases and air mix at a high enough level to cause an explosion or fire are called "dangerous zones". These zones are classified into Class 0 special danger zones, Class 1 danger zones and Class 2 danger zones according to the time and frequency at which the dangerous atmosphere is reached. The explosion-proof structure that can be used is determined according to these classes.

● Special danger zone (Zone 0)(4GD/E*EJ Series cannot be used)

Zones where a dangerous atmosphere is or could be continuously generated, and where the concentration of explosive gas is maintained continuously or for long periods above the lower limit for explosions.

Example a:The open space above a flammable liquid inside a container or tank.
b: Inside a combustible gas container or tank.
c: Near flammable liquid in an open container.

● Class 1 special danger zone (Zone 1)

(1)Zones where explosive gas could accumulate to a dangerous concentration during operations such as the operation of the product take-out lid open/close / safety valve, etc.

(2)Zones where explosive gases are likely to accumulate to dangerous concentrations during repair or maintenance or due to leakage, etc.

● Class 2 special danger zone (Zone 2)

(1)Zones where combustible gases or flammable liquids are regularly handled, but where the gases and liquids are sealed in a vessel or equipment, and where the gases and liquids could leak to dangerous concentrations only if the vessel or equipment breaks by accident or due to misoperation.

1. Prohibition of Disassembly and Modification

⚠ WARNING

- Disassembly of pilot valves or barriers not only leads to the risk of decreased explosion-proof performances but may also cause accidents. Accordingly, customers are asked not to disassemble or modify their units.

2. Intrinsic safety explosion-proof circuit wiring

⚠ WARNING

- The intrinsic safety explosion-proof circuit wiring should not be mixed with other circuitry, nor should it be installed so as to be affected by static induction or electromagnetic induction from other circuits.

Intrinsic safety-related components (safety retainer, barrier) and intrinsic safety components (4G EJ Series) must meet the explosion-proof specifications below, as well as the safety retention ratings and parameters.

Intrinsic safety component	combination condition	Intrinsic safety related component
Explosion-proof structure and category: ia, ib, ic	≤	Explosion-proof structure and category: ia, ib, ic
Electrical Component group: IIA, IIB, IIC	≤	Electrical Component group: IIA, IIB, IIC
Ui:Intrinsic safety circuit allowable voltage (maximum addable voltage)	≥	Uo: Max. voltage (max. output voltage)
Ii:Intrinsic safety circuit allowable current (maximum addable current)	≥	Io: Max. current (max. output current)
Pi: Intrinsic safety circuit allowable power (max. input power)	≥	Po: Max. power (max. output power)
Ci+Cw Ci: Intrinsic Component's internal capacitance Cw: Intrinsic safety circuit wiring max. capacitance	≤	Co:Allowable capacitance (maximum connectable capacitance)
Li+Lw Li: Intrinsic Component's internal inductance Lw: Intrinsic safety circuit wiring max. inductance	≤	Lo:Allowable inductance (maximum connectable inductance)

The length of the intrinsic safety circuit external wiring can be calculated using the method below, in accordance with the above connection conditions.
Wiring capacitance and inductance are Co≥Ci+Cw and Lo≥Li+Lw.
The allowable wiring length must be less than or equal to the value of either (Co-Ci)/Cc or (Lo-Li)/Lc, whichever is smaller.
Cc: Capacitance per unit length, Lc: Inductance per unit length

3. When using the product in combination with low friction cylinders

■ Malfunctions could occur because of the exhaust pressure. Contact CKD.

4. Degree of protection IP67 IP67

■ 4GD/E* The EJ Series supports IP67 as standard, and while it is protected from dust and water, note that it cannot be used immersed in water. Countermeasures such as a protective cover for the unit should also be taken if using in environments where it will be constantly exposed to dust or water.

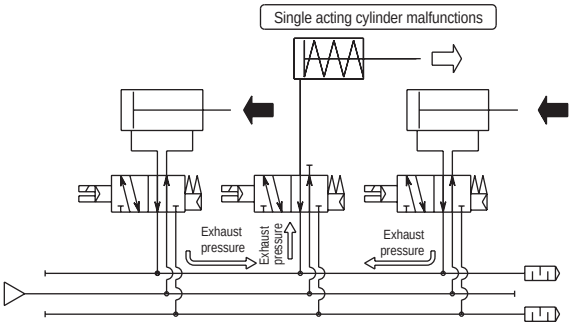
■ Barrier degree of protection is IP20.

5. Exhaust check valve

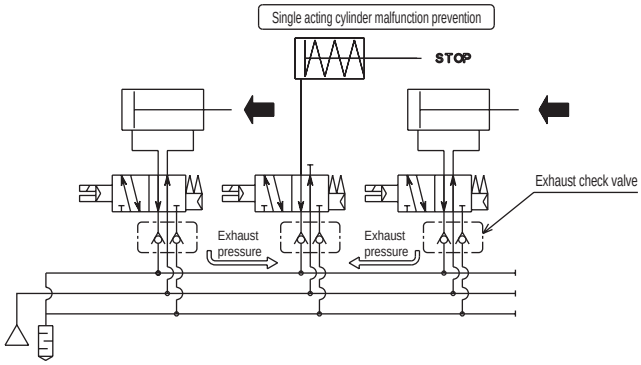
CAUTION:The exhaust check valve is a check valve. If the cylinder rod is manually operated directly without pressurization, the check valve opens and the air flow is shut off, preventing cylinder rod adjustment.

Generally, the double acting cylinder connected at the manifold to direct acting cylinders or ABR connection valves may malfunction when adversely affected by the exhaust pressure led in by operation of other cylinders. For the manifold of 4G Series, the "exhaust check valve" integrated to prevent this malfunction can be selected, except for all ports closed valves and PAB connection valves. However, with components that are affected by a small amount of leakage or pressure of low friction cylinders, etc., the functions may not operate properly. Moreover, 4G4 is not compatible with check valves.

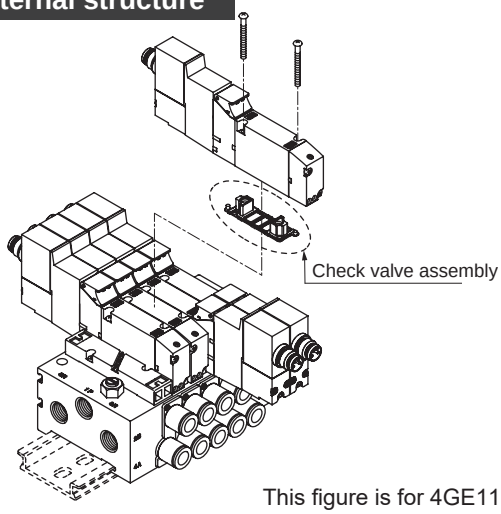
Example of pneumatic pressure system that may malfunction



4G Series pneumatic pressure system



Internal structure

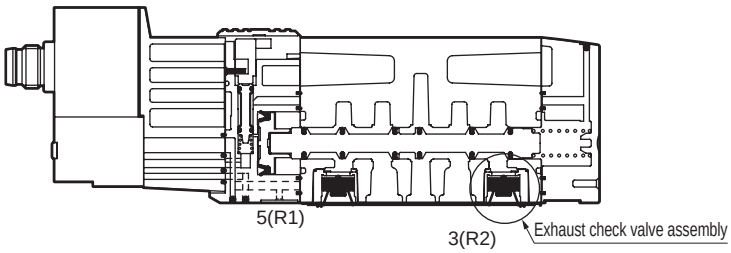


This figure is for 4GE119R

Standard specifications of check valve

Model No.	Flow path switching	Option (H) selection
3G D/E*669EJ	Two 3-port valves integrated NC/NC	Yes
4G D/E*19EJ	2 position single	Yes
4G D/E*29EJ	2-position double	Yes
4G D/E*39EJ	3-position all ports closed	No
4G D/E*49EJ	3-position ABR connection	Yes
4G D/E*59EJ	3-position PAB connection	No

Note:Because 3-position all ports closed type and PAB connection type are not adversely affected by the exhaust pressure led in from other cylinders at the neutral position, installation of a check valve is not required.



Mounting, installation and adjustment

1.Body piping (D) Discrete installation method

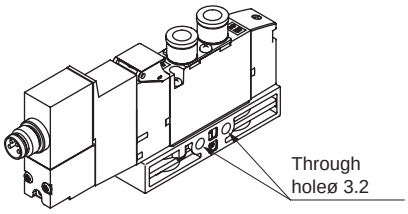
⚠CAUTION

■ When directly installing the manifold

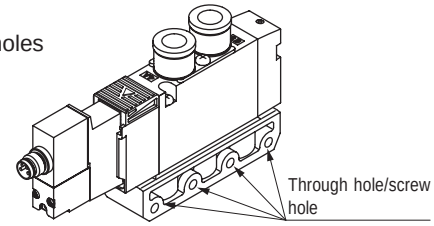
● The discrete body piping 4GD Series can be installed using the (a) through hole or (b) screw hole. When using the screw holes, be careful of the tightening torque.

Screw hole Tightening torque 0.7 to 1.2 N·m

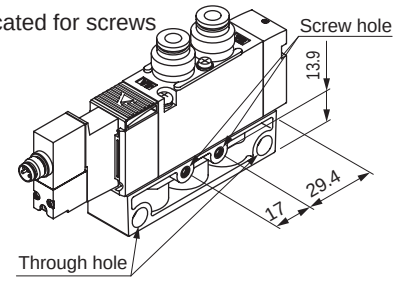
4GD1 Series
(a) 2 through holes



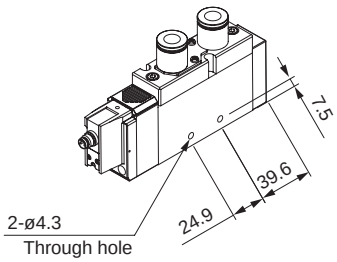
4 GD2 Series
(a) Through hole
(b) 4 common screw holes



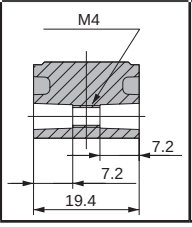
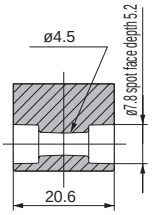
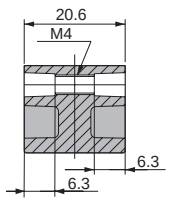
4 GD3 Series
(a) Through hole
(b) 2 places each, dedicated for screws



4 GD4 Series
(a) 2 through holes



Mounting hole shape

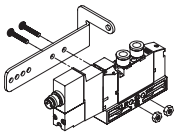
	4GD 2	4GD3	
	(a) (b) Common use	(a) Through hole	(b) Screw hole
Sectional view of mounting hole			

■ When installing the manifold with mounting plate (P)

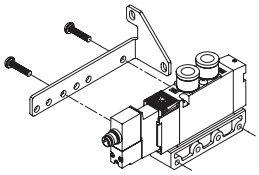
● Be careful of the mounting direction and orientation, as damage may result from incorrect mounting of body piping single mounting plate (P).

■ How to mount mounting plate (P)

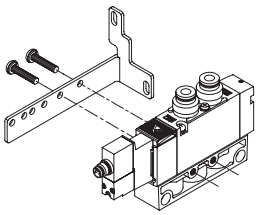
4GD1



4GD2



4GD3



Mounting plate (P) kit

	Kit model No.	Set parts
4GD1	4G1R-MOUNT-PLATE-KIT	Mounting plate, 2 mounting screws, 2 nuts
4GD 2	4G2R-MOUNT-PLATE-KIT	Mounting plate, 2 mounting screws
4GD3	4G3R-MOUNT-PLATE-KIT	Mounting plate, 2 mounting screws

*Mounting plate is compatible only with single type. Moreover, 4G4 is not compatible.

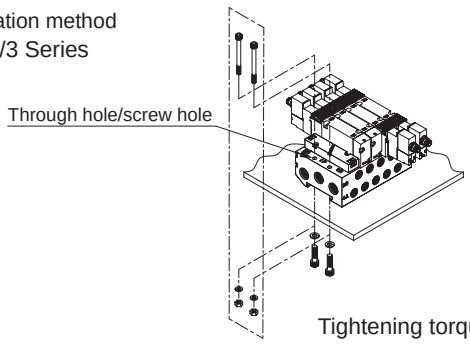
2 . How to install manifold (Metal base 4G$^{D}_{E}$Series)

⚠CAUTION

■ When directly installing the manifold

● For installation of the M4G2/3 Series, there are two methods of tightening the manifold with bolts: after passing it through the upper side of the manifold base and after tightening it with the bolts from the back side. When using a female thread as shown in the table below, check the thread depth, select a mounting bolt with 10 screw-in threads or more, and be careful with the tightening torque. The screw could be damaged if incorrectly installed.

Installation method
M4G2/3 Series

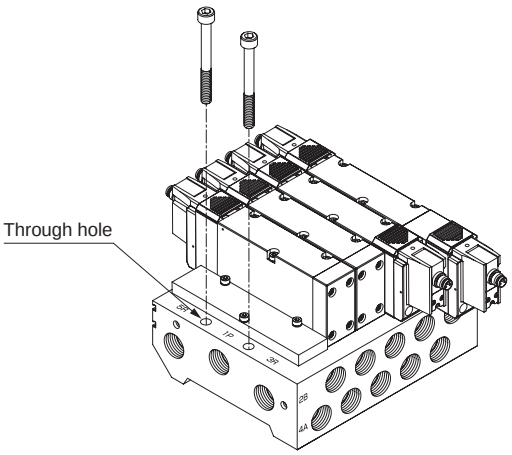


Tightening torque
1 to 1.5 N·m

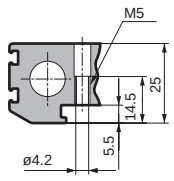
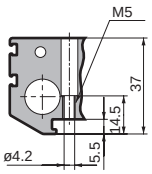
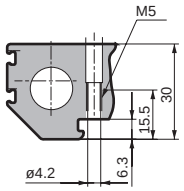
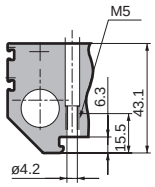
Mounting, installation and adjustment

M4G4 Series

- M4G$^{D}_{E}$For installation of Series 4, tighten the manifold with bolts after passing them through the upper side of the manifold base.



Mounting hole shape (sectional view)

	Standard manifold	
	M4GD (body piping)	M4GE (Base piping)
M4G2		
M4G3		

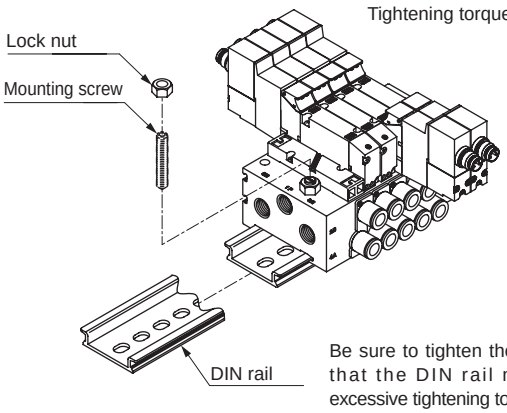
■When installing the manifold with DIN rail

M 4 G 1, 2, 3

- The manifold of the direct mounting specification can be changed to that of the DIN rail mounting specifications. Note that inappropriate mounting may result in falling off and damage of the manifold. If the manifold weighs more than 1 kg, or when using in an environment with vibration or impact, fix the DIN rail onto the surface at 50 to 100 mm intervals, and confirm that there is no problem with installation before starting operation. Use the individual specifications to calculate the weight.
  (CAUTION: Only the M4GE1 (page 53) is provided with a dedicated base for the direct mount type or DIN rail mount type. As for the mounting type, direct mount cannot be changed to DIN rail mounting, but the DIN rail mounting type can be direct mounted.
  The upper limit of station No. for DIN rail mounting is 16.

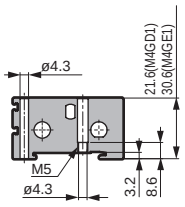
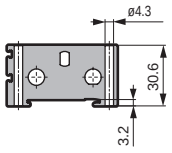
■How to mount DIN rail

- Only the M4GE1 Series is provided with a dedicated base for the direct mount type or DIN rail mount type. As for the mounting type, direct mount cannot be changed to DIN rail mounting, but the DIN rail mounting type can be direct mounted.)

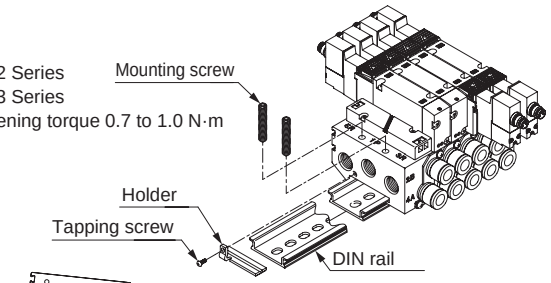


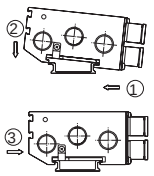
Be sure to tighten the lock nut. Note that the DIN rail may deform if excessive tightening torque is applied.

Mounting hole shape (sectional view)

M4GD1 M4GE1 (DIN rail mount)	M4GE1 (Direct mount)
	

M4G2 Series
M4G3 Series
Tightening torque 0.7 to 1.0 N·m





1. Holder mounting
   (Secure with bolts to prevent falling off)
2. Mounting screw temporarily fastened
3. ①② engauge the jaws with the DIN rail in order from .
4. ③push in the direction that
5. Tighten the mounting screws.

DIN rail kit

	Model No.	Description
M4G1	4GA1R-BAA length -D	DIN rail, 2 mounting screws, 2 lock nuts
	4GB1R-BAA length -D	
M4G2	4GA2R-BAA length -D	DIN rail/2 holdersTapping screw 2, mounting screw 4
	4GB2R-BAA length -D	
M4G3	4GA3R-BAA length -D	
	4GB3R-BAA length -D	

Specify the length "0" when the DIN rail is not required.

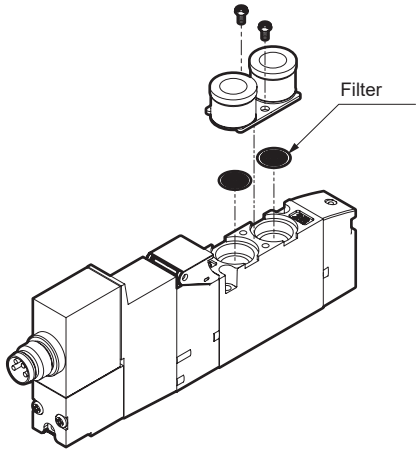
Set the DIN rail length with reference to the current manifold dimensions.

Mounting, installation and adjustment

3 . Port filter

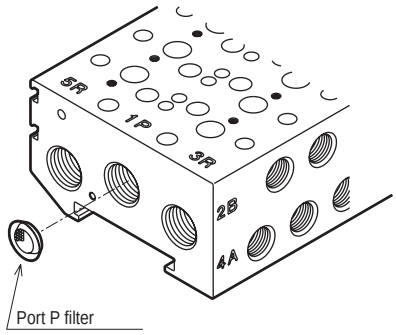
⚠CAUTION

■The port filter prevents the entry of foreign matter, and prevents problems from occurring in the valve. As this does not improve the quality of the compressed air, read Warnings and Precautions on the Intro pages of "Pneumatic Valves (No. CB-023SA)," then mount, install, and adjust accordingly. Do not detach or press down the port filter forcibly. The filter could deform, causing problems. If contaminants and foreign matter are found on the filter surface, blow them off lightly with air, or remove them with tweezers, etc.



Example of A/B port filter option combination

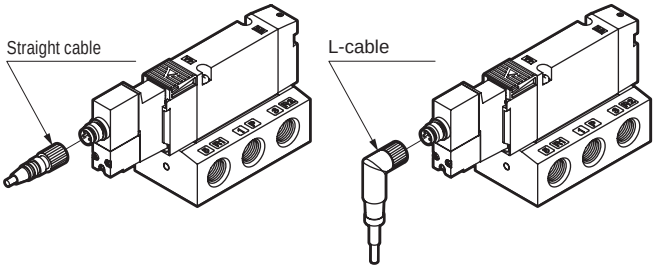
M4G Series



Port P filter (standard) example of embedding

4. M8 connector cable

M8 connector tightening torque is 0.38 to 0.42N·m. The degree of protection (IP67) will not be upheld if not tightened to the appropriate torque.



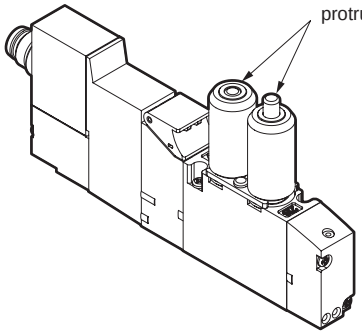
Straight cable L-cable

Wire the attached M8 connector cable as below.
- black: 12 V
- blue: 0 V
- brown and white: Not used.

Be careful as the solenoid has polarity.

5 . Indicator option

Make sure that there is no dust, etc., accumulated on the protruding part of the indicator. Snagging foreign matter may lead to malfunction or accidents.



Use/maintenance

1. Continuous energizing

⚠CAUTION

■ If a valve is used in a continuously energized state for long periods, the valve performance may deteriorate more quickly. Furthermore, use caution under the following working conditions likewise.

- When the energized time exceeds non-energized time in intermittent operation
- When one energizing session exceeds 30min in intermittent energizing

Give sufficient consideration to heat dissipation when installing the product.

2 . Manual override

⚠WARNING

■ The 4G Series is an internal pilot solenoid valve. If air is not supplied to port P, the main valve will not be switched even if the manual override is operated.

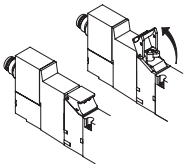
■ A manual protection cover is provided as standard. The manual protective cover is closed when the valve is shipped to protect it, which cannot be seen when delivered. Open the protective cover and operate the manual override. Note that the protective cover will not close unless the locking manual override is released.

■ Manual override is used for both non-locking and locking. The lock is applied by pressing down and turning the manual override. For locking, be sure to press down and turn. If manual override is turned without being pressed down, it could be damaged or air could leak.

■ Opening and closing the manual protection cover

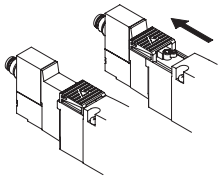
Do not excessively force the manual protection cover when opening and closing it. Excessive external force can cause breakdown. (Below 5 N)

4G1 Series



Rotary

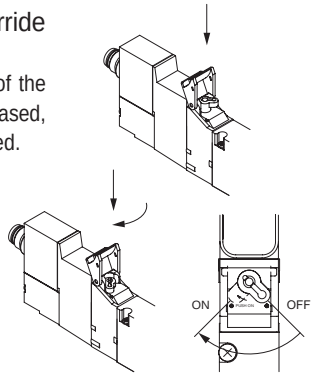
4G2 to 4 Series



Sliding

■ How to operate manual override

- Push non-locking operation
  Push straight in the direction of the arrow until it stops. When released, the manual operation is released.
- Push locking operation
  Push and hold the button and turn it 90° in the direction of the arrow. The function is not canceled even when the button is released.



■ When conducting manual operations, make sure that there are no people near the operating cylinder.

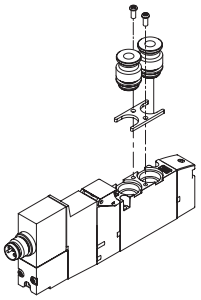
3 . How to replace the cartridge fitting

⚠CAUTION

■ Check procedures before changing the push-in fitting size. If installed incorrectly, or if the tightening of the mounting screw is insufficient, air leakage could occur.

■ Body piping (D)

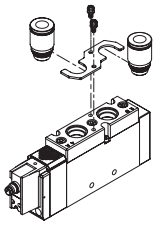
4G1, 2, 3



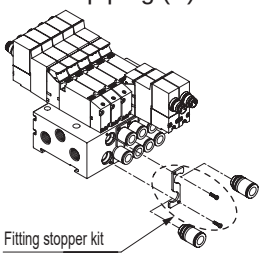
①Remove the mounting screw.
②Pull out the stopper plate and fitting together.
③ Align the groove of the replacement fitting with the stopper plate and assemble them temporarily.
④Assemble the stopper plate with the fitting, and tighten the mounting screw. Pull on the fitting to confirm that it is properly installed.

	Size	Tightening Torque (N·m)
4G1	M1.7	0.18 to 0.22
4G2	M2.5	0.25 to 0.30
4G3	M3	0.6 to 0.7
4G4	M3	0.6 to 0.7

4G4



■ Base piping (E)



①Remove the mounting screw.
②Pull out the stopper plate and fitting together.
③ Align the groove of the replacement fitting with the stopper plate and assemble them temporarily.
④Assemble the stopper plate with the fitting, and tighten the mounting screw. Pull on the fitting to confirm that it is properly installed.

Model No. of cartridge push-in fitting

Model	Part name	Model No.
4G1	ø1.8 straight	4G1R-JOINT-C18
	ø4 straight	4G1R-JOINT-C4
	ø6 straight	4G1R-JOINT-C6
	Plug cartridge	4G1R-JOINT-CPG
4G2	ø4 straight	4G2R-JOINT-C4
	ø6 straight	4G2R-JOINT-C6
	ø8 straight	4G2R-JOINT-C8
	Plug cartridge	4G2R-JOINT-CPG
4G3	ø6 straight	4G3R-JOINT-C6
	ø8 straight	4G3R-JOINT-C8
	ø10 straight	4G3R-JOINT-C10
	Plug cartridge	4G3R-JOINT-CPG
4G4	ø8 straight	4G4-JOINT-C8
	ø10 straight	4G4-JOINT-C10
	ø12 straight	4G4-JOINT-C12

Exporting

1. About Barriers

⚠ CAUTION

■ For the issue request / inquiry of the non-judgment document and the EAR judgment document, check below.

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For inquiries, please contact
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FAX :045-228-9503
Or request the issue from
https://www.gmijapan.co.jp/contact/

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For inquiries, please contact
Pepperl+Fuchs Inc .
TEL:045-624-9077
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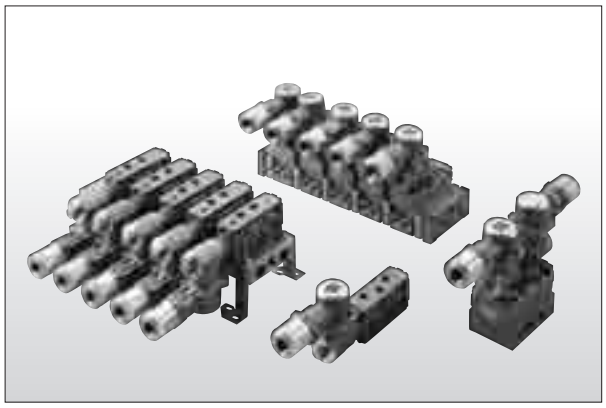
Pilot operated explosion-proof 5-port valve, pressure and explosion proof 4F**0EX Series

CC-1159A CC-1325A



■ Compliant with international explosion-proof guidelines
Explosion-proof performance Ex d II B T4
Pressure and explosion-proof structure d/Cable IIB/
Temperature characteristics T4
Test model qualification No.: TC20523
■ NAMUR standard compatible options available
■ Compatible with outdoor use
Degree of protection IP65 (dust-proof/water jet-proof)
■ Selectable cable diameter range expanded
Line-up of ø7.5 to ø13.5

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