Safety Precautions

Always read this section before use.
Refer to 328 for general precautions for using valves.

3, 5 port pilot operated valve 4G*/MN4G* Series

Design & selection

1. Surge suppressor

⚠CAUTION

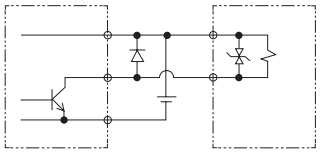
■ "The surge suppressor enclosed with the solenoid valve is used to protect the output contact driving the solenoid valve. There is no significant protection for the other peripheral devices, and devices could be damaged or malfunction by the surge. Surge generated by other devices could be absorbed and cause damage such as burning. Note the following points."

● "The surge suppressor regulates the solenoid valve surge voltage that can reach a few hundred volts to a lower voltage level that the output contact can tolerate. Depending on the output circuit that is being used, this may be insufficient, resulting in damage or malfunction. Before use, check the surge voltage limiting level of your solenoid valve, and the output component's proof pressure and circuit composition or return delay time, in order to determine whether or not to use the component. If necessary, implement a separate anti-surge protection. 4G Series solenoid valve with surge suppressor can also suppress inverse voltage surge that occurs when the product is turned OFF to the level shown in the table below.

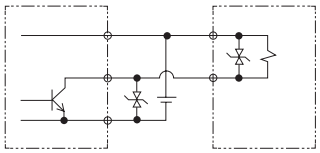
Voltage specification	Reverse voltage value when power turned OFF
3 VDC	Approx. 6.2 V
5 VDC	Approx. 13 V
12 VDC	Approx. 27 V
24 VDC	Approx. 47 V
When Option "S", "E" selected	Approx. 1 V

● If the output unit is NPN, always connect a contact protection circuit or select option S in order to avoid the risk of surge voltage equivalent to the sum of the voltage shown in the table above and the power supply voltage being applied to the output transistor.

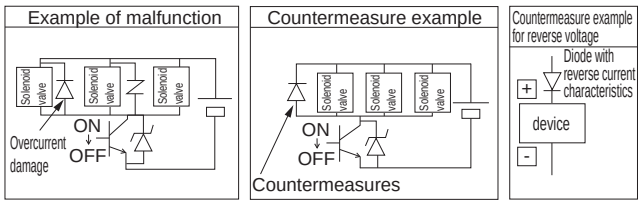
[Example of output transistor protective circuit installation 1]



[Example of output transistor protective circuit installation 2]



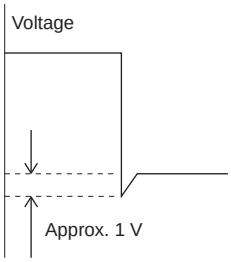
● "If another device or solenoid valve is connected in parallel to the solenoid valve, the inverse voltage surge generated when the solenoid valve is OFF would apply to those devices. Even in the case of a solenoid valve for 24 VDC with surge suppressor, surge voltage may reach several tens of volts for some models, and this inverse voltage may cause damage to or malfunction in the other parallel-connected components. Avoid parallel connection with components that are vulnerable to inverse voltage (example LED indicator lights). Furthermore, in the case of operating multiple solenoid valves in parallel, surge from another solenoid valve may flow into the surge suppressor of a solenoid valve with surge suppressor, and with certain current value, cause that surge suppressor to burn out. When driving several solenoid valves with surge suppressors in parallel, surge current could concentrate at the surge suppressor with the lowest limit voltage and cause similar burning. Due to variations in surge suppressor limiting voltages that also exist among solenoid valves of the same model No., in the worst case the surge suppressor may burn out. Avoid parallel operation of multiple solenoid valves.



● "The surge suppressor incorporated in the solenoid valve may often be short-circuited if it is damaged by an overvoltage or overcurrent from the other solenoid valves. For that reason, large current flows when the output is turned ON after the damage is incurred. In the worst case, this may result in damage/fire in the output circuit and/or solenoid valve. Do not continue energizing in a state of malfunction. Additionally, to prevent large currents from continuing to flow, connect an overcurrent protection circuit to the power supply and drive circuit, or use a power supply with overcurrent protection.

2. Surgeless

■ The surgeless has a built-in diode to reduce the solenoid valve surge voltage to around 1 V. There is no polarity.

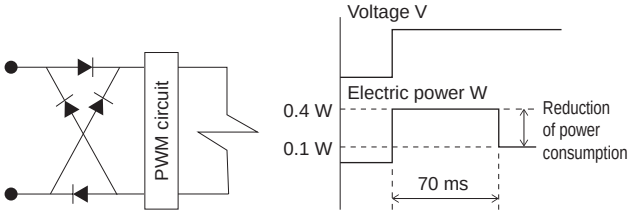


3. Low exoergic/energy saving circuit

■ With the type with low exoergic, energy-saving circuit, the PWM circuit is built into the solenoid valve. The power when the coil is sucked and held is lowered with this structure. As a result, power consumption is reduced to 1/4 comparing to standard products. There is no polarity.

[Specifications for low exoergic, energy saving]

Descriptions		Current A	Power consumption W
Starting	12 VDC	0.033	0.4
	24 VDC	0.017	0.4
Holding	12 VDC	0.017	0.1
	24 VDC	0.008	0.1



⚠CAUTION

- Do not use this valve in an environment where the vibration and impact exceeding specifications are made. Doing so may result in a valve malfunction.
- The valve cannot be kept energized if instantaneous power outage of 30 ms or less occurs on the power source driving the solenoid valve. If instantaneous power outage of 30 ms or less occurs on the power source driving the solenoid valve due to a disturbance, cut the power off for 50 ms or longer to turn the solenoid valve on again.
- Do not use the device with the voltage increasing gradually. If doing so, the valve will not operate.

4. AC voltage specifications

⚠CAUTION

- AC voltage specification has a built-in all wave rectified circuit. If an SSR is used to turn the solenoid valve ON and OFF, depending on the type of SSR, a return failure may occur to the solenoid valve. Use caution when selecting SSRs. (It is recommended to consult with the relay or sequencer manufacturer.)

5. When using the product in combination with low sliding cylinders

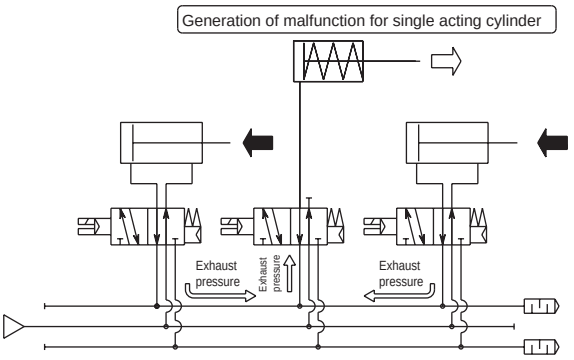
- Malfunctions could occur because of the exhaust pressure. Contact CKD.

6. Exhaust check valve

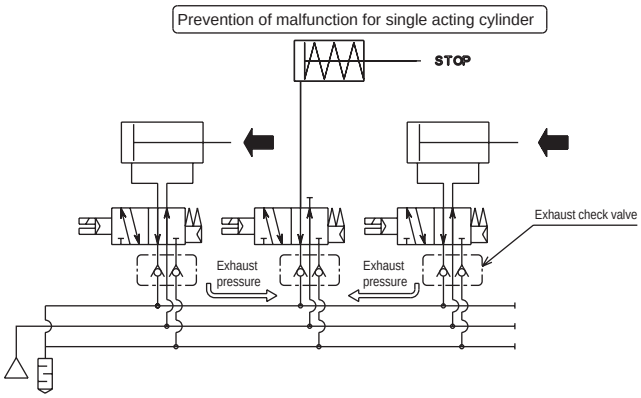
⚠**CAUTION**: The exhaust check valve is a check valve. Note that when operating the cylinder rod directly without pressurized, the check valve opens and the cylinder rod does not move.

Generally, the double acting cylinder connected at the manifold to single acting cylinders or ABR connection valves may malfunction when it is adversely affected by the exhaust pressure coming around due to the operation of other cylinders. For the manifold of 4G Series, the "exhaust check valve" integrated for preventing this malfunction can be selected except for all ports closed valve and PAB connection valve. When using components that are affected by a small amount of leakage or pressure of low sliding cylinders, it may not function properly.

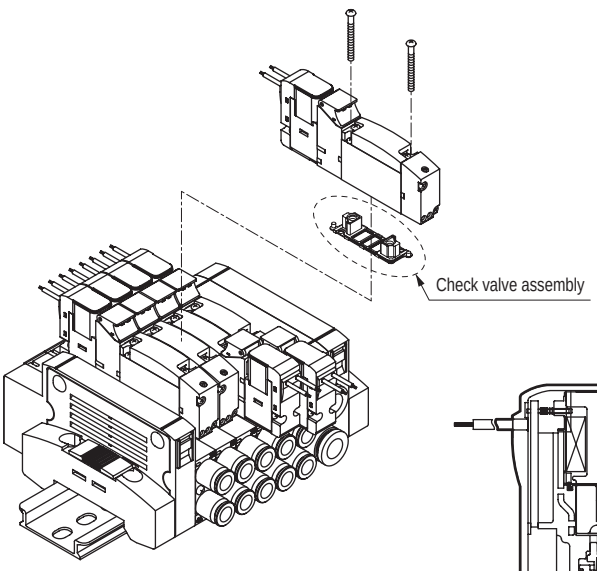
Example of pneumatic pressure system that may malfunction



4G Series pneumatic pressure system



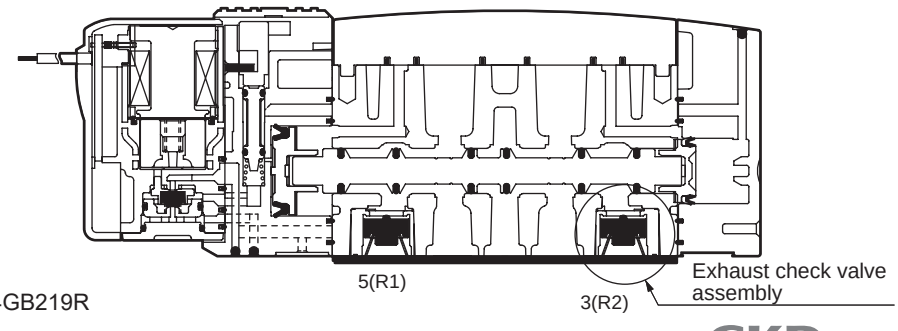
Internal structure



Standard specifications of check valve

Model No.		Flow path switching	Option (H) selection
4G	MN4G		
3GA*19R	3GA*10R	2-position single NC	Selected
3GA*119R	3GA*110R	2-position single NO	Selected
3G $^{A}_{B}$*669R	3G $^{A}_{B}$*660R	Dual 3 port valve integrated NC/NC	Selected
4G $^{A}_{B}$*19R	4G $^{A}_{B}$*10R	2-position single	Selected
4G $^{A}_{B}$*29R	4G $^{A}_{B}$*20R	2-position double	Selected
4G $^{A}_{B}$*39R	4G $^{A}_{B}$*30R	3-position all ports closed	None
4G $^{A}_{B}$*49R	4G $^{A}_{B}$*40R	3-position ABR connection	Selected
4G $^{A}_{B}$*59R	4G $^{A}_{B}$*50R	3-position PAB connection	None

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



This figure is for 4GB219R

Mounting, installation and adjustment

1. External pilot (K) piping port

⚠CAUTION

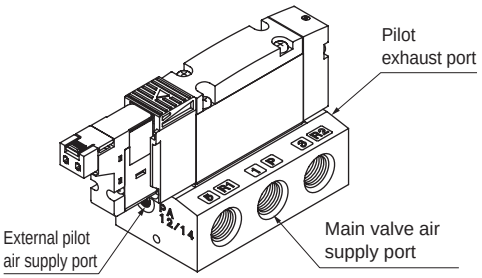
■ Metal base 4G$^{A}_{B}$ Series

- The external pilot (K) has a separate pilot air exhaust. M5 screw ports are used to supply and exhaust the pilot air, so check that the piping connection position is correct. Improper wiring could result in operation failures.

Port indication

Applications		Indication (ISO standards)
Pilot air	Supply port	12/14
	Exhaust port	82/84

Discrete base piping

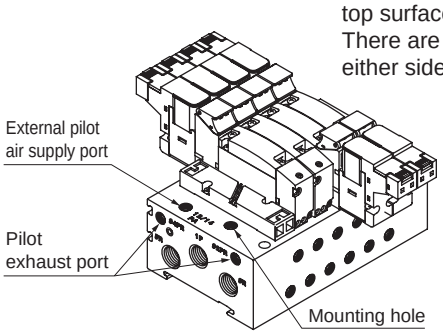


The port position of external pilot air supply port is at the left side when the valve air supply port is at front side.

Manifold

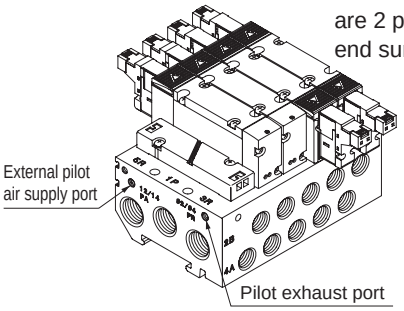
M4G1

The port position of external pilot air supply port is on the top surface of the manifold. There are 2 positions on the either side.



M4G2/3

The port position of external pilot air supply port is at the far side from A/B port. There are 2 positions on the either end surface.



■ Block manifold MN4G$^{A}_{B}$ Series

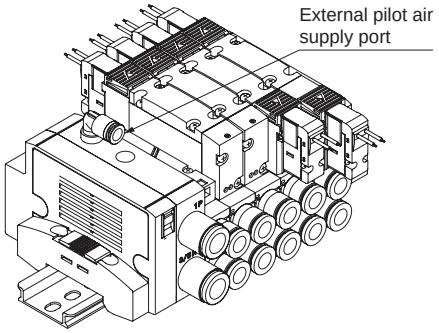
- The external pilot (K) has a separate pilot air supply. ø 6 push-in fitting is used to supply the pilot air, so be careful that the piping connection position is correct. Improper wiring could result in operation failures.

Port indication

Applications		Indication (ISO standards)
Pilot air	Supply port	12/14

* A/B ports and the R port cannot be pressurized.

MN4G2



The external pilot air supply port is the ø6 push-in fitting on the top of the supply/exhaust block.

■ Note supply pressure for dual 3 port valve integrated

- The valving element of dual 3 port valve integrated is operated with the main (P port) supply pressure.
  (1) Check that the main pressure (P port) is not higher than the pilot pressure (PA port).
  (2) Check that the main pressure (P port) does not drop below 0.2 MPa.

Mounting, installation and adjustment

2. How to install discrete body piping (A)

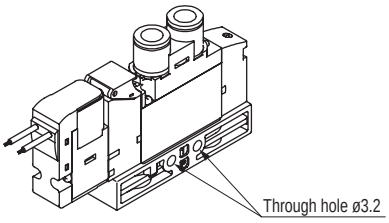
⚠CAUTION

■ When directly installing the manifold

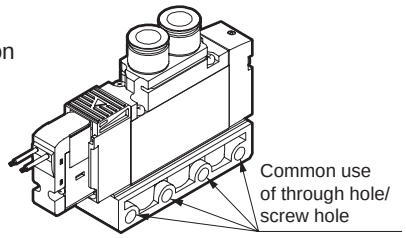
●The discrete body piping 4GA Series can be installed using (a) through hole or (b) screw hole. When using the screw holes, be careful about the tightening torque.

Screw hole Tightening torque 0.7 to 1.2 N·m

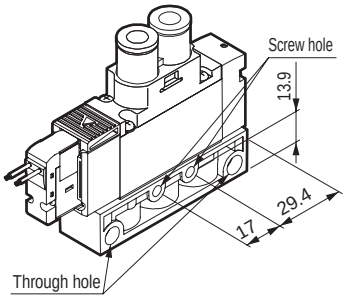
4GA1 Series
(a) 2 positions for through hole



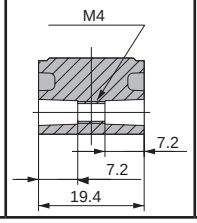
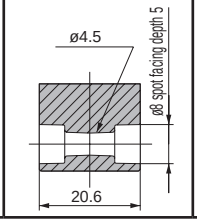
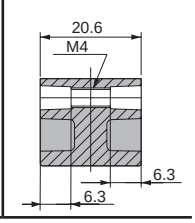
4GA2 Series
(a) Through hole
(b) 4 positions for common use of screw hole



4GA3 Series
(a) Through hole
(b) 2 positions each for exclusive use of screw



Mounting hole shape

	4GA2	4GA3	
	(a) (b) Common use	(a) Through hole	(b) Screw hole
Sectional view of mounting hole			

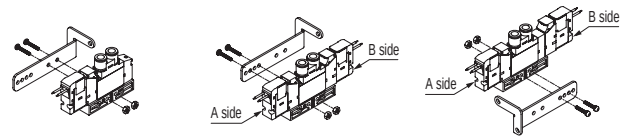
■ When installing the manifold with mounting plate (P)

● Mounting method of the mounting plate (P) for discrete body piping differs depending on the position of single, double and 3-position. Be careful for the mounting position and direction since damage could be occurred if incorrectly installed.

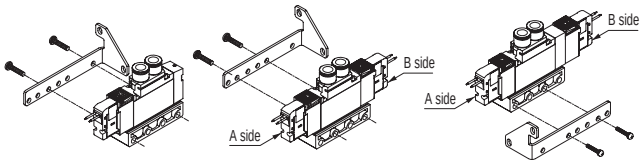
■ How to mount mounting plate (P)

● Grommet lead wire and E connector (DC voltage)

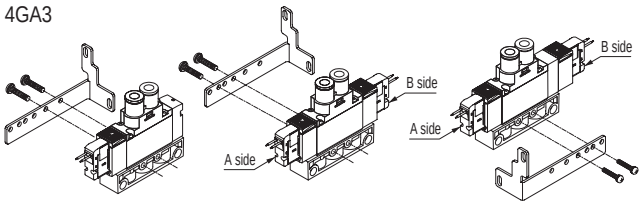
4GA1



4GA2

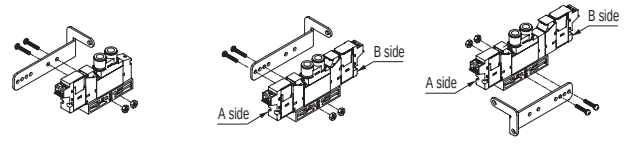


4GA3

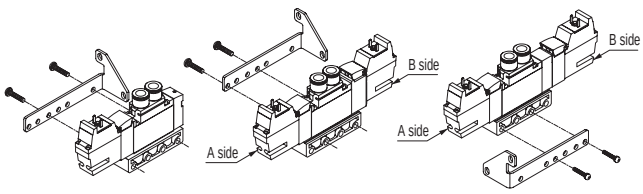


● DIN terminal box and E connector (AC voltage)

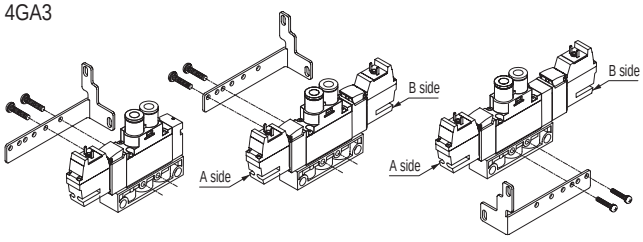
4GA1



4GA2



4GA3



Mounting (P) kit

	Kit model No.	Accessory part
4GA1	4G1R-MOUNT-PLATE-KIT-P70	Mounting plate, 2 set screws, 2 nuts
4GA2	4G2R-MOUNT-PLATE-KIT-P70	Mounting plate, 2 set screws
4GA3	4G3R-MOUNT-PLATE-KIT-P70	Mounting plate, 2 set screws

Mounting, installation and adjustment

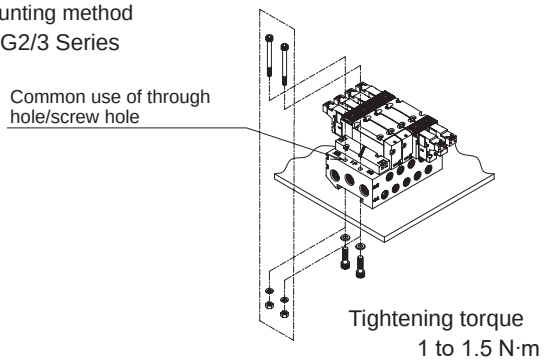
3. How to install manifold (Metal base 4G$^{A}_{B}$ Series)

⚠CAUTION

■ When directly installing the manifold

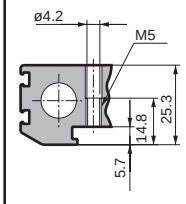
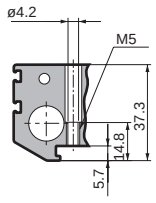
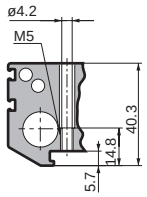
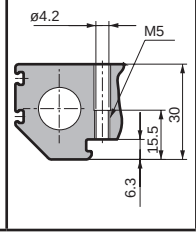
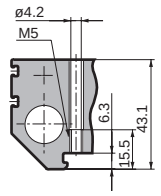
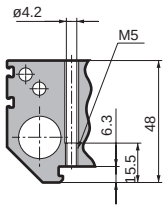
● For Mounting of the M4G2/3 Series, there are 2 methods of tightening the manifold with bolts after passing them through the upper side of the manifold base or after inserting them from the back side.
When using the female screw as shown in the figure below, check the thread depth, select the mounting bolt that can screw in for 10 threads and over, and be careful for the tightening torque. The screw could be damaged if incorrectly installed.

Mounting method
M4G2/3 Series



Tightening torque
1 to 1.5 N·m

Mounting hole shape (sectional view)

	Standard manifold (internal pilot)		External pilot
	M4GA (direct piping)	M4GB (base piping)	M4G-K
M4G2			
M4G3			

■ When mounting the manifold with DIN rail
M4G1, 2, 3

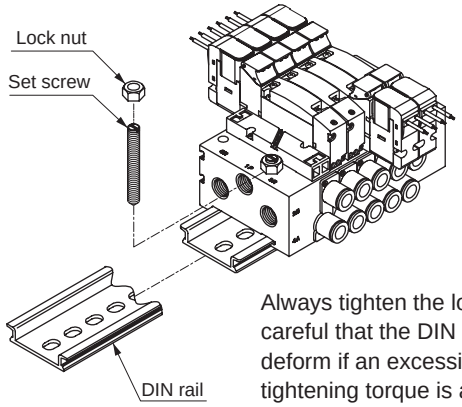
● The manifold of direct mounting specification can be changed to that of DIN rail mounting specification for its use. Be careful that the manifold could drop off or be damaged if incorrectly installed. If the manifold weighs more than 1 kg, or when using in an environment with vibration or impact, fix the DIN rail onto the surface at 50 to 100 mm intervals, and confirm that there is no problem with mounting before starting operation. Use the individual specifications to calculate the weight.
(CAUTION: Only for M4GB1 (page 523), its dedicated base is provided with either of direct mount or DIN rail mount. The direct mounting cannot be changed to the DIN rail mounting, but the direct mounting type can be directly mounted.)
The upper limit of station No. for DIN rail mounting is 16.

Mounting, installation and adjustment

■ How to mount DIN rail

● Only for M4GB1, its dedicated base is provided with either of direct mount or DIN rail mount type. The direct mounting cannot be changed to the DIN rail mounting.

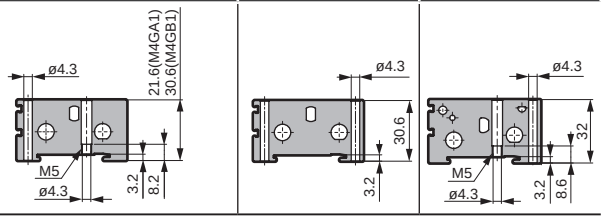
Tightening torque 0.3 to 0.5 N·m



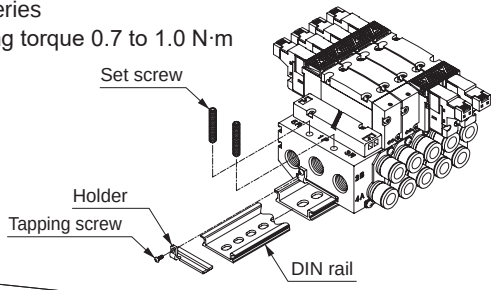
Always tighten the lock nut. Be careful that the DIN rail may deform if an excessive tightening torque is applied.

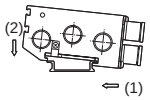
Mounting hole shape (sectional view)

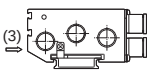
Internal pilot		External pilot
M4GA/D1 M4GB/E1 (DIN rail mount)	M4GB/E1 (Direct mount)	M4GA1-K M4GB1-K



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







1. Attach the holder (Tightening with tapping screw for preventing drop off)
2. Temporally set the set screw
3. Catch the jaws into the DIN rail in the order of (1) (2).
4. Apply pushing force to the direction of (3).
5. Tighten the set screw.

DIN rail kit

	Model No.	Content
M4G1	4GA1R-BAA length - Option D-P70	DIN rail, 2 set screws, 2 lock nuts
	4GB1R-BAA length - Option D-P70	
M4G2	4GA2R-BAA length - Option D-P70	DIN rail/holder 2 Tapping screw 2, set screw 4
	4GB2R-BAA length - Option D-P70	
M4G3	4GA3R-BAA length - Option D-P70	
	4GB3R-BAA length - Option D-P70	

If the DIN rail is not required, specify the length with "0". When using the kit for a manifold base for external pilot, specify the option with "K".

For setting the DIN rail length, refer to dimensions and DIN rail length quick reference table (page 701) for the manifold in use.

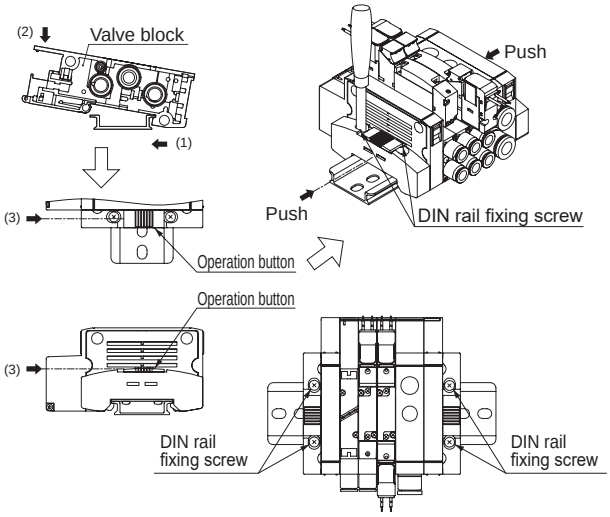
4. How to install manifold (Block manifold)

⚠CAUTION

■ Mounting orientation

● The Block manifold is mounted on a DIN rail. If the manifold's total weight exceeds 1 kg, or when using the MEVT in an environment with vibration or impact, fix the DIN rails on the mounting surface at pitch of 50 to 100 mm. Check that there are no problems with mounting.
Although there is no restriction in mounting direction and orientation, attention should be paid to loose set screws caused by resonance due to vibration that may cause drop of manifold during operation.

● How to mount and remove manifold
Removal
Loosen the four DIN rail fixing screws (two each on left/right).
Mounting
1. Catch the jaws into the DIN rail in the order of (1) (2).
2. Push the operation button to the direction indicated by (3).
3. While holding down so that there is no gap between blocks, tighten DIN rail set screws. (recommended tightening torque 1.2 to 1.6 N·m).



5. Lead wire connection

⚠CAUTION

■ Lead wire standards differ depending on the type of electrical connections. Connect wires according to each lead wire to be used.

Electrical connection code	Content	Conductor size	Conductor sectional area	Outer diameter of insulator	Outer diameter of covering
Blank	Grommet lead wire	AWG#26	0.13 equiv.	1.3	-
E□	E connector (with lead wire)	AWG#26	0.13 equiv.	1.3	-
E□J	EJ connector	AWG#24	0.16 equiv.	1.14	3.7

When installing the manifold and making electrical connections, check that tension by lead wires is not applied to the solenoid valve coil.

Mounting, installation and adjustment

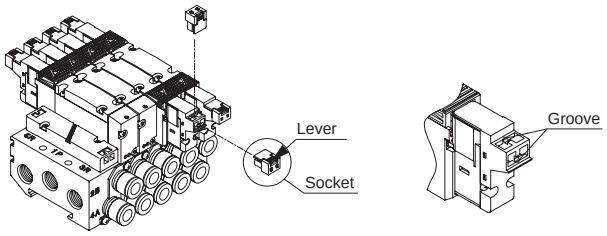
6. How to use the E connector

⚠CAUTION

■ The E connector has top and side connecting portions to which sockets can be connected either from the top or side directions. The socket assembly is connected from the side direction at shipment. Select the connection direction based on the mounting environment.

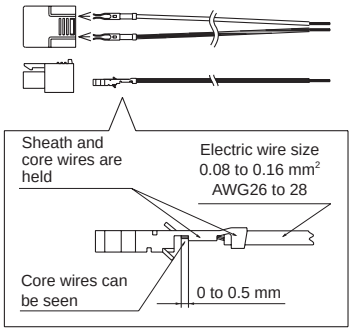
■ How to mount and remove socket

- When mounting the socket, hold the lever and socket with fingers and insert straight into the square window on the connector body. Align the lever jaw with the groove on the connector body and lock it. When mounting from the top, position the socket so that the lever faces the front. When mounting from the side, position the socket so that the lever is in an upward direction.
- When pulling out the socket, press down the lever to release its jaw from the groove, then pull straight out.



■ How to connect lead wire

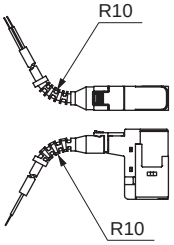
- Strip about 3 mm of the lead wire end. Align the end of core wires, insert them into the contact terminal, and crimp with a crimp tool. When crimping, check that both the sheath and core wires are held, and 0 to 0.5 mm of the core wire end is visible.
- After crimping, position the contact terminal as shown below, and insert into the square window on the socket. The terminal locks when it is inserted to the end. After inserting, pull the terminal lightly to check that it is locked.



7. How to use E □ J connector

⚠CAUTION

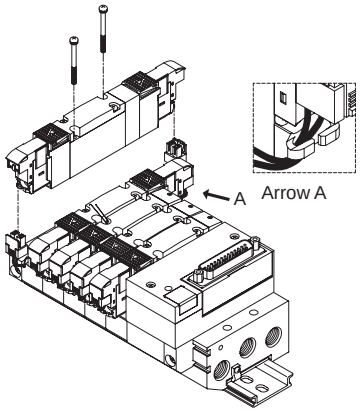
■ Use the lead wire with limitation of bending dimension as shown in the figure right.



8. How to use the A connector

⚠CAUTION

■ The A connector is a connector for exclusive use of reduced wiring manifold mounting, which can be connected from the bottom direction. When mounting or removing the socket, similar attention as how to use E connector is required.



9. DIN terminal box

⚠WARNING

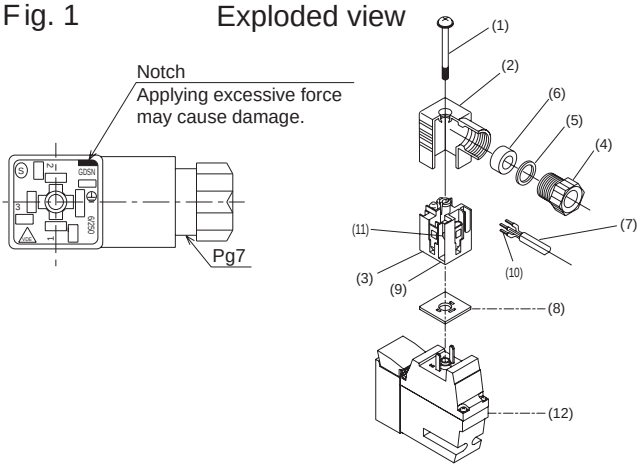
■ As there is a risk of electric shock when assembling or disassembling the terminal box, perform the assembly and/or disassembly after turning OFF the power supply.

⚠CAUTION

■ Disassembly

- Loosen screw (1) and pull cover (2) in the direction of screw (1) to remove the connector from coil assembly (12).
- Pull out screw (1) from cover (2).
- Notch (9) (next to the GDSN mark) can be found at the bottom of terminal block (3). Insert a compact flathead screwdriver in the gap between housing (2) and terminal block (3) and pry to remove terminal block (3) from cover (2) (Refer to Fig. 1). Remove the terminal block without applying excessive force. There is a risk of damage.
- Remove cable terminal block (4) and take out washer (5) and rubber packing (6).

Fig. 1 Exploded view



Mounting, installation and adjustment

■Wiring

● Wiring preparation

- The applicable dimensions for cable ⑦ are the VCTF2(3) core (ø3.5 to 7) defined in JIS C3306.
- The length of the lead wire stripping of the cable is 10 mm.
- Both stranded wires and solid wires can be used for wiring.
- When using a stranded wire, avoid connecting a pre-soldered wire.
- When using a crimp sleeve ⑩ at the end of the twisted wire, select H0.5/6 (0.3 to 0.5 mm^2) or H0.75/6 (0.75 mm^2) made by Weidmüller Japan, or an equivalent product. Crimp sleeves are not included.

● Wiring

- Pass cable ⑦ through cable gland ④, washer ⑤, and rubber packing ⑥ in this order, and insert it into cover ②.
- Connect it to terminals 1 and 2. There is no polarity.
- The recommended tightening torque is 0.2 to 0.25 N·m.
- Be sure to lay ground wiring for AC. However, DC type does not require ground wiring.

■Assembly

● Set the wired terminal block ③ on cover ②. (Push in until it clicks.)

* The terminal block can be set in any of the four different directions (Fig.2).

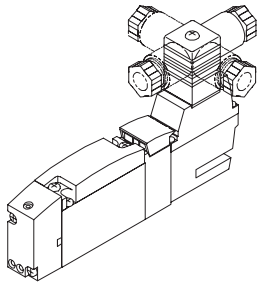
● Insert rubber packing ⑥, and washer ⑤, in this order into the cable through hole in cover ②, and securely tighten cable gland ④.

Remarks: The recommended tightening torque for the cable gland is 1.0 to 1.5 N·m.
Pull the cable to check that it does not become loose.

● Place gasket ⑧ between the bottom part of terminal block ③ and the plug of the coil assembly ⑫, insert the connector, insert screw ② from over the cover ① and tighten it.

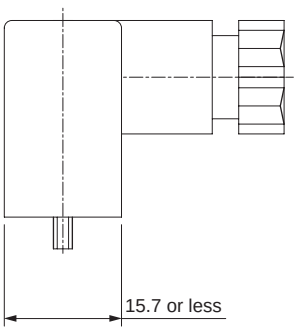
Remarks: The recommended tightening torque for screws is 0.4 to 0.45 N·m.

Fig. 2



■Terminal box

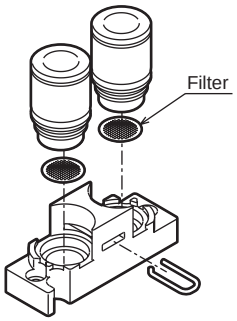
● When not using CKD's terminal box, make sure to use a EN175301-803 Type C (DIN 43650-C) compliant product. For the dimensions of solenoid valve side (below), select the terminal box of 15.7 or less.



10. Port filter

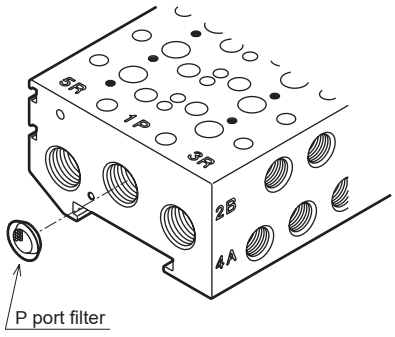
⚠CAUTION

■The port filter prevents the entry of foreign matter, and prevents problems from occurring in the valve. As this does not improve the quality of the compressed air, read Warnings and Precautions on Intro Pages 61 to 68, then mount, install, and adjust the filter accordingly.
Do not detach or press down the port filter forcibly. The filter could deform, causing problems. If contaminants and foreign matters are found on the filter surface, blow them lightly, or remove them by tweezers, etc.



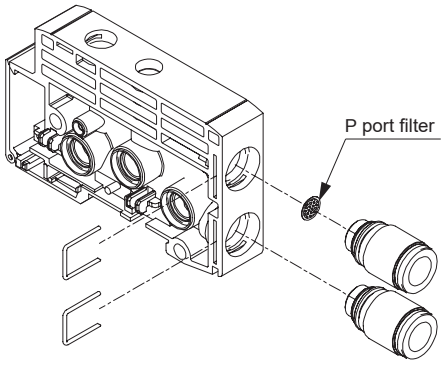
Example of A/B port filter option combination

M4G Series



P port filter (standard) example of embedding

MN4G Series



P port filter (standard) example of embedding

Use/maintenance

1. Continuous energizing

⚠CAUTION

■ When using in a continuously energized state for long periods, use the low exoergic/energy saving type.

■ If a valve other than the low exoergic/energy saving type 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 30 minutes in intermittent operation

Give sufficient consideration to heat dissipation when installing the product.

■ When using the AC voltage in a continuously energized state, the temperature of the coil's outer surface will be high. It may cause burns. Do not touch it when it is energized.

2. Manual ocerride

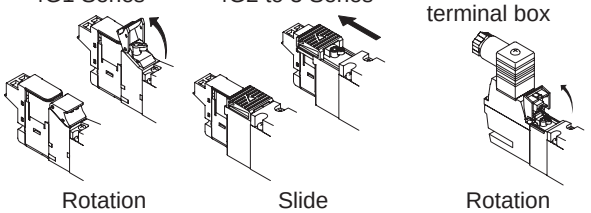
⚠WARNING

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

■ Manual override protective cover is provided as standard. The protective cover is closed when shipped. Therefore, the manual override device cannot be seen when delivered. Open the protective cover to operate the manual override. Note that the protective cover will not close unless the locking manual override is released.

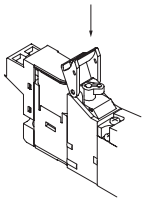
■ Manual override is used for both non-locking and locking. Holding down and turning the button locks the valve. For locking, be sure to press down and turn. If manual override is turned without being pressed down, it could be damaged or air could leak.

■ Opening and closing the manual protective cover
Do not excessively force the manual protective cover when opening and closing it. Excessive external force could cause failures. (Below 5 N)

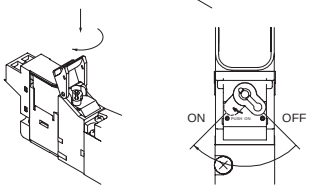


■ How to operate manual override

- Push non-locking operation
Push straight in the direction of the arrow until it stops
Release to cancel.



- Push & locking operation
Push manual override and turn 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.

During use & maintenance

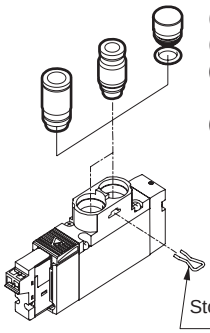
3. How to replace cartridge fitting

⚠ 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 (A)

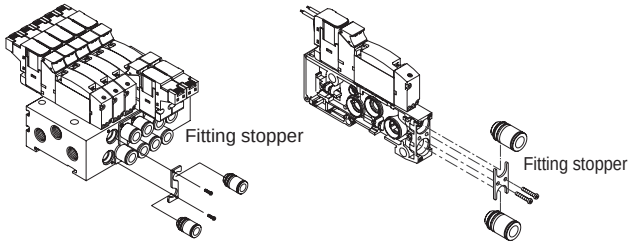
4G1, 2, 3



(1) Remove the stopper pin with a screwdriver.
(2) Pull the joint out.
(3) Insert the joint for replacement vertically until it reaches the back.
(4) Insert the stopper pin. 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

■ Base piping (B)



(1) Remove the mounting screw.
(2) Pull out the stopper plate and fitting together.
(3) Align the groove of the replacement fitting with the stopper plate and assemble them temporarily.
(4) Assemble 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 barbed		4G1R-JOINT-CF-P70
	ø1.8 straight		4G1R-JOINT-C18-P70
	ø4 straight		4G1R-JOINT-C4-P70
	ø6 straight		4G1R-JOINT-C6-P70
	ø8 straight		4G1R-JOINT-C8-P70
	ø1.8 elbow		4G1R-JOINT-CL18, CLL18-P70
	ø4 elbow		4G1R-JOINT-CL4, CLL4-P70
	ø6 elbow		4G1R-JOINT-CL6, CLL6-P70
	ø1/8” straight		4G1R-JOINT-C3N-P70
	ø5/32” straight		4G1R-JOINT-C4N-P70
	ø1/8” elbow	(*1)	4G1R-JOINT-CL3N, CLL3N-P70
	ø5/32” elbow	(*1)	4G1R-JOINT-CL4N, CLL4N-P70
	Plug cartridge		4G1R-JOINT-CPG-P70
4G2	ø4 straight		4G2R-JOINT-C4-P70
	ø6 straight		4G2R-JOINT-C6-P70
	ø8 straight		4G2R-JOINT-C8-P70
	ø10 straight	(*2)	4G2R-JOINT-C10-P70
	ø6 elbow		4G2R-JOINT-CL6, CLL6-P70
	ø8 elbow		4G2R-JOINT-CL8, CLL8-P70
	ø1/4” straight		4G2R-JOINT-C6N-P70
	ø5/16” straight		4G2R-JOINT-C8N-P70
	ø1/4” elbow	(*1)	4G2R-JOINT-CL6N, CLL6N-P70
	ø5/16” elbow	(*1)	4G2R-JOINT-CL8N, CLL8N-P70
	Plug cartridge		4G2R-JOINT-CPG-P70
4G3	ø6 straight		4G3R-JOINT-C6-P70
	ø8 straight		4G3R-JOINT-C8-P70
	ø10 straight		4G3R-JOINT-C10-P70
	ø8 elbow		4G3R-JOINT-CL8, CLL8-P70
	ø10 elbow		4G3R-JOINT-CL10, CLL10-P70
	ø5/16” straight		4G3R-JOINT-C8N-P70
	ø3/8” straight		4G3R-JOINT-C10N-P70

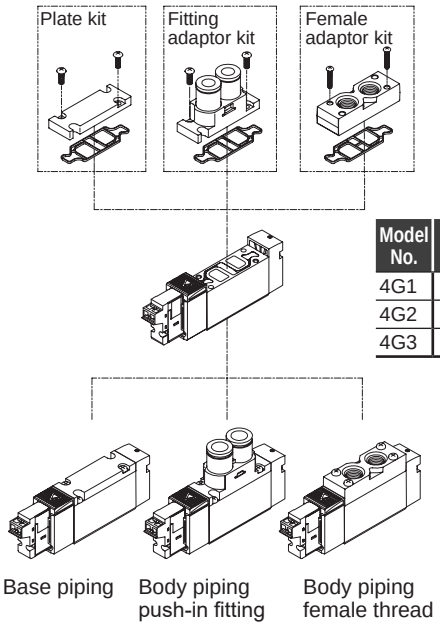
*1: Custom order. *2: Common product with the 4G3 ø10 straight.

During use & maintenance

4. How to change piping connection specification

⚠ CAUTION

■ When replacing the plate or fitting adaptor on the body, changing the body piping and base piping, or changing the push-in fitting and female thread of body piping, be sure to use appropriate tightening torque since air may leak if the mounting screws are loose.



Model No.	Size	Tighten 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

Plate kit

Model No.	Kit model No.	Accessory part
4GB1	4G1R-PLATE-KIT-P70	Plate, gasket, 2 set screws
4GB2	4G2R-PLATE-KIT-P70	Plate, gasket, 2 set screws
4GB3	4G3R-PLATE-KIT-P70	Plate, gasket, 2 set screws

Fitting adaptor kit

4G1 R-JNT-ADAPTOR-KIT- C4 NC - F - P70

Ⓐ Model No. Ⓑ Port size Ⓒ NC/NO Ⓓ Option Ⓔ Clean room specifications

Code	Content	Ⓐ Model No. 3G1	3G2	3G3	4G1	4G2	4G3
Ⓑ Port size							
CF	ø1.8 barbed	●			●		
C18	ø1.8 straight	●			●		
C4	ø4 straight	●	●			●	
C6	ø6 straight	●	●	●		●	●
C8	ø8 straight		●	●		●	●
C10	ø10 straight			●			●
C3N	ø1/8 inch straight	●			●		
C4N	ø5/32 inch straight	●			●		
C6N	ø1/4 inch straight		●			●	
C8N	ø5/16 inch straight		●	●		●	●
C10N	ø3/8 inch straight			●			●
Ⓒ NC/NO							
NC	For 3GA□10	●	●	●			
NO	For 3GA□110	●	●	●			
Blank	3GA□10, 3GA□110 excluded	●	●		●	●	●
Ⓓ Option							
Blank		●	●	●	●	●	●
F	A/B port filter integrated	●	●	●	●	●	●

Ⓔ Clean room specifications

	Structure	Material restriction	3G1	3G2	3G3	4G1	4G2	4G3
P70	Exhaust treatment	—	●	●	●	●	●	●
P74	Exhaust treatment	Copper-based/silicon-based/ halogen-based materials (fluorine, chlorine, bromine) are prohibited	●	●	●	●	●	●

Note: Fitting adaptor (with fitting), gasket and set screws (2) are included in a set.

Female adaptor kit

Model No.	Kit model No.	Accessory part
4G1	4G1R - FML - ADAPTOR - KIT - Port size - Option -P70	Female screw adaptor, gasket, 2 set screws
4G2	4G2R - FML - ADAPTOR - KIT - Port size - Option -P70	Female screw adaptor, gasket, 2 set screws
4G3	4G3R - FML - ADAPTOR - KIT - Port size - Option -P70	Female screw adaptor, gasket, 2 set screws, 2 body set screws

When using the A/B port filter integrated, specify the Option with "F".

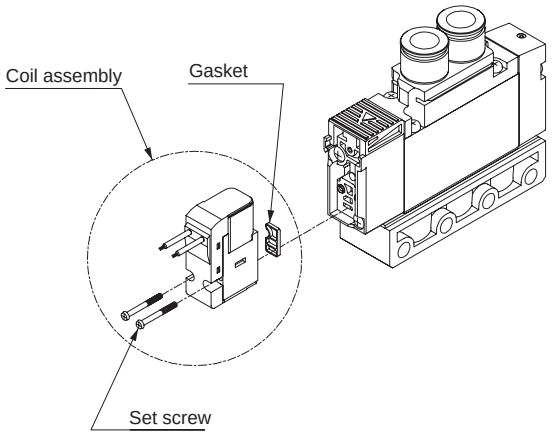
During use & maintenance

5. How to replace coil

⚠ WARNING

■ Grommet lead wire, E and EJ connector coil assemblies

Replace the coil by removing the set screws shown below. Loosening other screws could cause operation failures. When installing, check that the gasket is installed on the coil side and tightening torque is proper. Improper mounting could result in air leakage or operation failures.



■ DIN terminal box coil assembly

Replace the coil assembly by removing the set screws shown below. Loosening other screws could cause operation failures. When installing, check that the gasket is installed on the coil assembly side and tightening torque is proper. Improper mounting could result in air leakage or operation failures.

The coil assembly of grommet lead wire, E-connector specification and DIN terminal box specification cannot be replaced. Recommended tightening torque 0.15 to 0.19 N·m