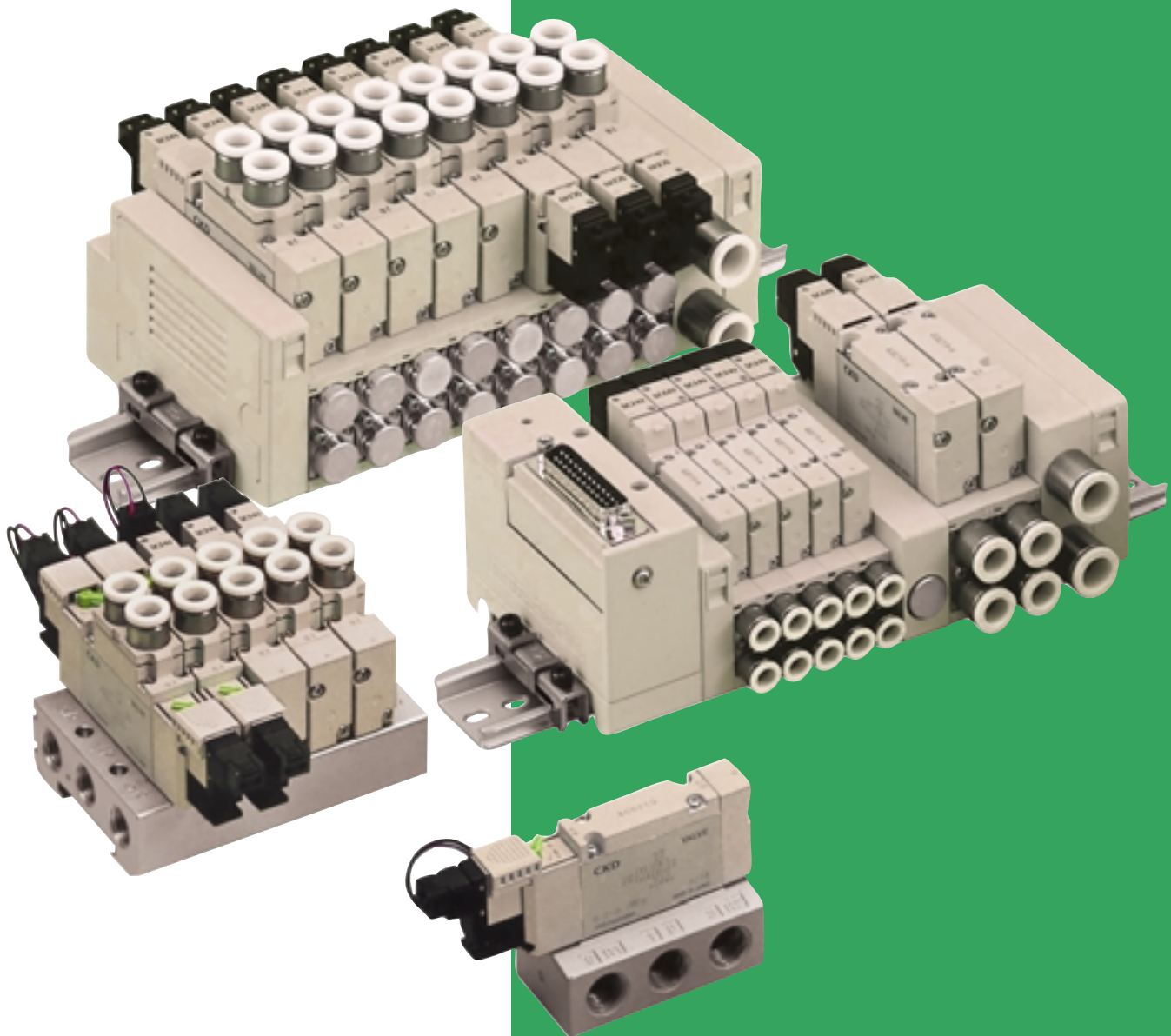


# CKD

## Pilot operated 3/2, 5/2 valve

4GA•4GB series



# Ecological pneumatic valves.

Ecological, reliable and flexible.

Small, high performance 3/2, 5/2 pneumatic valve

4G series (metal base type), MN4G series (block manifold type).

## Ecological **rade up**

### No painting (MN4G series)

No particle occurrence caused by pealed paint.

### Material name is displayed (MN4G series).

Considering recycle etc., materials names are stamped on main parts.



Metal base manifold  
**M4G<sub>B</sub>1/2 Series**



## Safety **rade up**

### Miss-operation prevention mechanism provided for connection key (MN4G series)

Connection key stored in block of cover.  
Closing cover automatically interlocks connection keys.

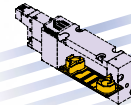
### Protective cover provided

Miss-operation by external force etc. prevented.  
Once locked, protective cover is never closed.  
PAT.



### Check valve incorporated

Preventing back pressure of single acting cylinder.  
Cylinder malfunction is prevented. Check valve is incorporated in pilot and main exhaust ports. PAT. (Option)



### Air supplying port filter provided

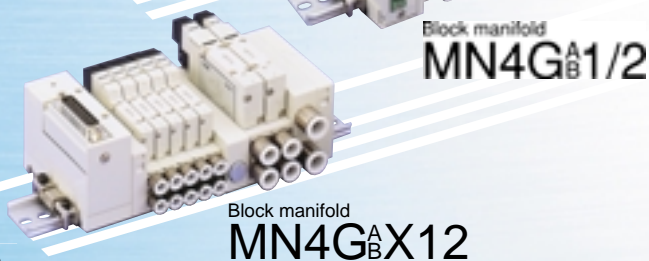
Foreign matter entry is prevented.  
Also provided to cylinder port (option).

## Flexibility **rade up**

### Flexible block construction

Mix manifold of 4G1/2 and multi-pressure use are available.

### Flexible increase/decrease of station No.



## Easy operation **rade up**

### Serial transmission, slot in and small size slave unit OPP4 is used (MN4G series).

Footprint dramatically reduced.

### Body porting and sub base porting types are available.

### TAG name plate is available (MN4G series).

For descriptions of solenoid valve type, circuit etc.

## Reliability **rade up**

New sliding structure accumulating valve technology results in remarkable advance in service life, reliability and response time.

### Response time 12ms±2ms (CKD comparison for 4G1 series)

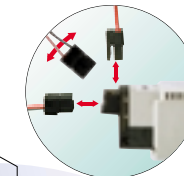
New sliding structure results in remarkable advance in service life, reliability and response time.

### Service life 60 millions cycles plus (5 bar clean air, 5/2, 5/3 valve)

60 millions cycles plus guaranteed by strict endurance test according to CKD standard.

### Wiring connector radial/axial common

Radial and axial connector can be switched by insert position. PAT.



### Tool not required manual override

Easy manual operation by a finger.  
Locking/non-locking common type.

### Easily replaced push in joint

### Reduced wiring connector radial/axial type

### Metal base 4GA/4GB Series

- Index
- Series variation

Page 1  
Page 2

### Block manifold MN4GA/MN4GB Series

- Index
- Series variation

Page 83  
Page 84

### Warranty

Page 164

10mm wide small size with high performance

4G series			MN4G series		
Series	Width	Flow rate (ℓ/min)	Series	Width	Flow rate (ℓ/min)
4G1	10mm	206	MN4G1	10.5mm	212
4G2	15mm	500	MN4G2	16mm	500

(Flow rate when check valve incorporated)

(Flow rate when check valve incorporated)



## Pneumatic components

# Safety precautions

Please carefully read this before starting use.

When designing and manufacturing a device using CKD products, the manufacturer is obligated to check that device safety mechanical mechanism, pneumatic control circuit, or water control circuit and the system operated by electrical control that controls the devices is secured.

It is important to select, use, handle, and maintain the product appropriately to ensure that the CKD product is used safely.

Observe warnings and precautions to ensure device safety.

Check that device safety is ensured, and manufacture a safe device.

## WARNING

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

**2** Use this product in accordance of specifications.

Contact CKD when using the product outside the unique specifications range, when using it outdoors, and when using it under the conditions or environment below. Do not attempt to modify or additionally machine the product.

- ① Use for special applications requiring safety including nuclear energy, railroad, aviation, ship, vehicle, medical equipment, equipment, or applications coming into contact with beverage or food, amusement equipment, emergency shutoff circuits, press machine, brake circuits, or for safeguard.
- ② Use for applications where life or assets could be adversely affected, and special safety measures are required.

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


ISO 4414, JIS B 8370 (pneumatic system rules), JIS B 8368 (pneumatic cylinder), JPAS 005 (principles for pneumatic cylinder use and selection), High Pressure Gas Maintenance Laws Occupational Safety and Sanitation Laws, and other safety regulations, corporate standards, and regulations.


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


- ① Inspect and service the machine and devices after confirming safety of the entire system related to this product.
- ② Note that there may be hot or charged sections even after operation is stopped.
- ③ 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 enough attention to possible water leakage and leakage of electricity.
- ④ When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.

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

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

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

 **WARNING:** When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries.

 **CAUTION:** When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

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



## Pneumatic components

# Safety precautions

Please carefully read this before starting use.

### ! WARNING

### Design & Selection

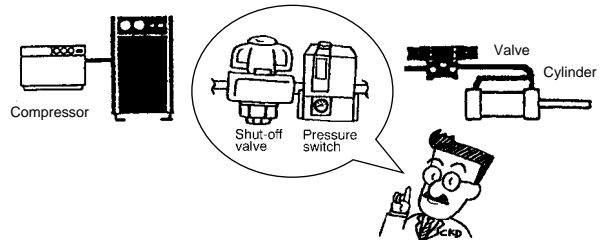
#### Designing the circuit

- 1** Thoroughly understand the characteristics of compressed air before designing the pneumatic circuit.
  - The same functions as mechanical, hydraulic, or electrical methods cannot be anticipated if instantaneous stop holding is required during an emergency stop.
  - Pop-out, air discharge, and leakage are caused by compression and expansion of air characteristics.
  - Air must be supplied to and exhausted from the valve simultaneously. If air is supplied first, the actuator switch over may be delayed. If air is exhausted first, it is not possible to control actuator speed and the pop-out may occur.
- 2** Confirm that the product will withstand the working environment.
  - This product cannot be used in an environment containing corrosive gas, chemical liquids, solvents, water, vapor, or ozone. If water drip, oil or metal chips (spatter or cutting chips, etc.) could come in contact with the product, provide appropriate guarding.
  - Only an explosion proof solenoid valve can be used in a flammable atmosphere.
- 3** Make sure that switch signals for the 2-position and 3-position double solenoid do not turn ON simultaneously.
- 4** Do not use the 3-position valve for braking or pressure holding.
  - The stop position could change or pressure drop if air leaks.

- 5** Take care of electrical circuits during emergency stops and cylinder operation during a service interruption.
  - If the 2-position double solenoid is operated once and changed, that state will be held until a reverse operation electrical signal is input.

- 6** Do not restrict the exhaust port for the manifold valve.
  - Other cylinders could malfunction due to back pressure created by the exhaust of the switching valve. In this case, exhaust both sides of the manifold, or use an independent valve with exhaust spacer, or an isolated valve.

- 7** Install a "pressure switch" and "shut-off valve" on the device's compressed air inlet.
  - The pressure switch will disable operation until set pressure is reached. The shut-off valve will exhaust compressed air in the pneumatic pressure circuit, and will prevent accidents caused by operation of pneumatic components by residual pressure.



### ! CAUTION

### Design & Selection

#### Designing the circuit

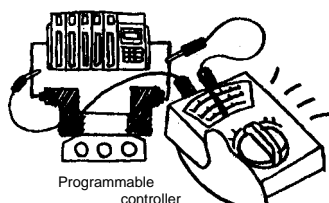
- 1** Determine lubrication method for correct maintenance of pneumatic equipment.
  - The 4G Series solenoid valve systems use pre-lubricated valves that usually do not require lubrication from the outside. If you have to lubricate a valve, use Type 1 turbine oil (ISO-VG32) without additives. Excessive lubrication and extremely low pressure may cause a longer response time. The response time in the catalogue assumes no lubrication from the outside and the air supply pressure of 5bar.

- 2** Indicate the maintenance conditions in the device's instruction manual.
  - The product's function can drop markedly with working status, working environment, and maintenance, and can prevent safety from being attained. With correct maintenance, the product functions can be used to the fullest.

#### Selecting the model

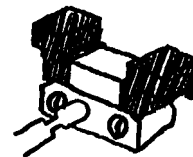
- 1** Check leakage current to prevent other fluid control components from malfunctioning due to leakage current.
  - When using a programmable controller, etc., leakage current could cause the solenoid valve to malfunction. The level at which the solenoid valve is affected by the leakage current differs with the solenoid valve.

For 110 VAC	2.0 mA or less
For 12 VDC	1.5 mA or less
For 24 VDC	1.8 mA or less



- 2** Extra dry air (atmospheric dew point -17 °C or less) is not suitable for pneumatic components.
  - Extra dry compressed air will shorten the life of pneumatic components. When using this type of compressed air, use a solenoid valve for DC voltage drive.

- 3** Avoid restricting the air supply port or using the valve released to air.
  - When using the internal pilot operated type, supply pressure could drop below the working range and malfunction. Use the external pilot operated type in this case.



Do not restrict air supplying port!

- 4** 5/2 bi-stable type valve should be energized for minimum 0.1 second (Same for manual operation).
  - However, depending on the load conditions at its secondary side, we would recommend to energize the valve until the cylinder reaches to the stroke end position (Same for manual operation).





## Pneumatic components

# Safety precautions

Please carefully read this before starting use.

## WARNING

### Installation & Adjustment

#### Installation

**1** Do not support valves with piping when installing valves.

- Install and fix the valve body.

**2** Avoid washing with water or solvents or painting after installation.

- Resin parts could be damaged.
- The paint could block the pilot exhaust port and cause malfunction.

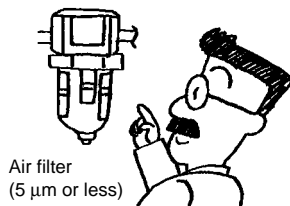
## CAUTION

### Installation & Adjustment

#### Installation

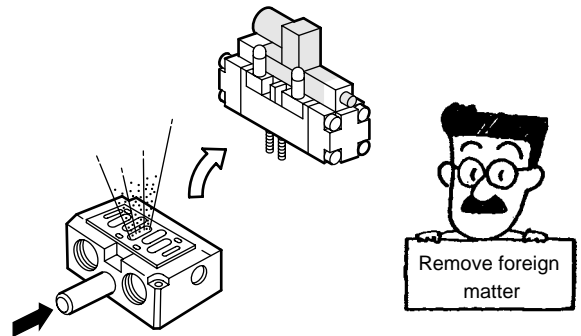
**1** Secure sufficient peripheral space for installing, removing, wiring, and piping the solenoid valve.

**2** Install the air filter just before the circuit using the pneumatic component.



**3** Always flush just before piping pneumatic component.

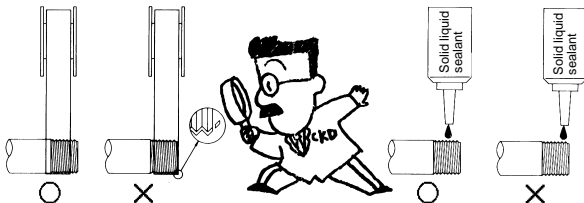
- Any foreign matter that has entered during piping must be removed so it does not enter the pneumatic component.



#### Piping

**1** When connecting pipes, wrap sealing tape in the opposite direction from threads starting 2 mm margin from the end of piping threads.

- If sealing tape protrudes from pipe threads, it could be cut when screwed in. This could cause the tape to enter the solenoid valve and lead to faults.



**2** Do not remove the solenoid valve's packaging or the piping port's dust-proof seal until just before piping.

- If the dust-proof seal is removed from the piping port before pipes are connected, foreign matter could enter the solenoid valve from the piping port and could lead to faults or malfunctions.

**4** Tighten pipes with the appropriate torque.

- Pipes must be connected with the appropriate torque to prevent air leakages and screw damage. First tighten the screw by hand to prevent damage to screw threads, then use a tool.



#### [Reference values]

Set screw	Tightening torque N·m
M3	0.3 to 0.6
M5	1.0 to 1.5
G 1/8	3 to 5
G 1/4	6 to 8

**5** Pipe so that piping connection does not deviate by the device's movement, vibration, tension, etc.

- Control of actuator speed will be disabled if piping on the exhaust side of the pneumatic circuit is disengaged.
- When using the chuck holding mechanism, the chuck will be released creating a hazardous state.
- When using the push in joint, cut the tube at right angles using a dedicated tool.
- Confirm that the tube has been inserted properly, and make sure that there is no tension during use. The tube could be dislocated or damaged if there is any tension.



## Pneumatic components

# Safety precautions

Please carefully read this before starting use.

## CAUTION

## Installation & Adjustment

- 6** Do not restrict the valve's exhaust port (including pilot exhaust port) to less than the piping connection port size.  
A breathing action is generated by valve operation at the valve's exhaust port, and foreign matter from around the exhaust port could be sucked in. If the exhaust port is installed facing upward, foreign matter could enter.  
Install a silencer or pipe the exhaust port so it faces downward.
- The actuator will not operate correctly if exhaust is not smooth. When using a manifold, exhaust could prevent other solenoid valves from operating correctly.
- 7** When supplying compressed air for the first time after connecting pipes, do not apply high pressure suddenly.
- Piping connection could be dislocated or the piping tube fly off, leading to accidents.
  - Caution: If compressed air is supplied too slowly, sealing pressure may not be generated by the sealing mechanism in the solenoid valve. This can lead to air leaks.
- 8** When supplying compressed air for the first time after connecting pipes, confirm that no air is leaking from any pipe connections.
- Apply a leakage detection agent on pipe connections with a brush, and check for air leaks.
- 9** Observe the following precautions when using nylon tubes or urethane tubes for piping material.
- Use a flame resistance tube or steel pipe when using in an environment where spatter could scatter.
  - Use a hydraulic hose when piping is to be used for hydraulic pressure.
  - When using the standard push in joint on the spiral tube, fix the base of the tube with a hose band. The tube could rotate and reduce holding performance.
  - Use a tightened joint when using in a high ambient temperature. The push in joint cannot be used.
- 10** Make sure that the joint and tube are not twisted or pulled, and that moment load is not applied.
- 11** Make sure that the tube is not worn or damaged.
- The tube could be crushed or could rupture and be dislocated.

### 12 For pipe connections

- Applicable tube  
For the solenoid valve with a push in fitting, use CKD specified tube.  
Soft nylon(F-1500 series)  
Urethane (U-9500 series)  
When selecting from tubes commercially available, carefully study the accuracy of the outside diameter as well as the wall thickness and the hardness. The hardness of an urethane tube should be 93 °C or more (as measured by a rubber hardness meter).  
With a tube that does not have a sufficient accuracy of the outside diameter of the specified hardness, a decrease in the chucking force may cause disconnection or difficulty in inserting.

#### Tube dimensions

O.D. (mm)	Internal dia (mm)	
	Nylon	Urethane
4 dia.	2.5 dia.	2 dia.
6 dia.	4 dia.	4 dia.
6.4 dia.	4.6 dia.	4.2 dia.
8 dia.	5.7 dia.	5 dia.

#### O.D. tolerance

Soft/hard nylon	± 0.1mm
Urethane 4, 6 dia.	+ 0.1mm - 0.15mm
8 dia.	+ 0.1mm - 0.2mm

#### ● Bending radius of a tube

Maintain the bending radius of the tube to more than the minimum bending radius. (May cause disconnection or leak)

Tube diameter	Minimum bending radius mm	
	Nylon	Urethane
4 dia.	10	10
6 dia.	20	20
8 dia.	30	30

#### ● Cutting a tube

Cut the tube at right angle to the tube axes by using the tube cutter. Inserting the tube not cut at right angle to its axes may cause air leak.

#### ● Condition of tube connection

Avoid sharp bending of a tube at fitting, have straight part keeping distance equal to O.D. of the tube. Do not apply the tension to the tube exceeding 40N by pulling to the sides.

#### ● Applicable blank plug

For the solenoid valve with push in fitting, use CKD specified blank plug.

Blank plug GWP□-B series



## Pneumatic components

# Safety precautions

Please carefully read this before starting use.



## CAUTION

### Installation & Adjustment

- 13 Securely insert the tube to the tube end, and make sure that the tube cannot be pulled off.
- 14 Cut the tube at right angles using a dedicated cutting tool.



## WARNING

### During use & Maintenance

#### Air quality

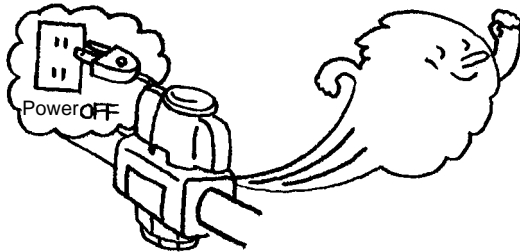
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- 1 Do not supply other than compressed air.
- 2 Use clean compressed air that does not contain corrosive gas.

#### During use & Maintenance

---

- 1 Before servicing the product, turn power OFF, stop the compressed air supply, and check that there is no residual pressure.
  - This is a requirement for ensuring safety.



- 2 Read the instruction manual enclosed with the product before disassembling or assembling the solenoid valve.
  - Thoroughly understand the solenoid valve's structure and principle of operation to ensure safety.
  - Personnel involved in this step must have passed the Pneumatic Pressure Skill Test Class 2 or higher.



## Pneumatic components

# Safety precautions

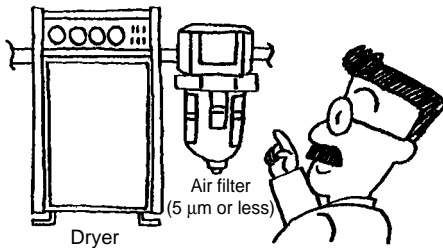
Please carefully read this before starting use.

## CAUTION

## During use & Maintenance

### Air quality

- 1 Use dry compressed air so that water drops do not form in pipes.



- Drainage will form if the temperature drops in the pneumatic piping or pneumatic component.
- Operation faults could occur if the drainage enters the air passage in the pneumatic component or if it temporarily blocks the passage.
- Drainage could cause rust to form and lead to pneumatic component faults.
- Drainage will remove lubricant, and cause lubrication faults.

- 2 Use clean compressed air that does not contain oxidized oil, tar, carbon, etc., from the air compressor.

- If oxidized oil, tar, or carbon enter the air compressor and solidify, resistance at the sliding section will increase, and could lead to operation faults.
- If the supplied lubricant mixes in with oxidized oil, tar, carbon, etc., the sliding section of the air compressor could be worn.

- 3 Use compressed air that does not contain solid foreign matter.

- Solid foreign matter in compressed air could enter the air compressor and cause wear at the sliding section or could cause sticking.

- 4 Once oil has been supplied to an oilless valve, oilless functions cannot be maintained. Check the status of grease before starting operation.

- Decide whether the pneumatic component is used oilless or lubricated, and make sure that the decided method is accurate and controlled.
- When using lubrication, do not use lubrication other than ISO VG32 (with no additives) turbine oil.

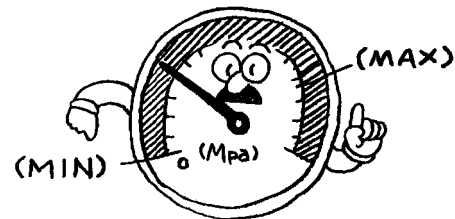
### During use & Maintenance

- 1 Plan daily inspections and periodic inspections to ensure that maintenance is correctly controlled.

- If maintenance is not correctly controlled, the product's functions could drop markedly and lead to a shortened life, damage, malfunctions, faults, and accidents.

#### 1. Control of supplied compressed air pressure

- Is the set pressure supplied? Does the pressure gauge indicate the set pressure during operation of the device?



#### 2. Control of pneumatics filter

- Is the drain correctly discharged?
- Is the bowl or element dirty?

#### 3. Control of compressed air leaks from piping connections

- Is the state of the connection, especially at movable sections, normal?

#### 4. Control of solenoid valve's operation

- Are any operations delayed? Is exhaust normal?

#### 5. Control of pneumatic actuator operation

- Is operation smooth? Is end stop normal? Is coupling with the load normal?

#### 6. Control of lubricator

- Is the oil rate correctly adjusted?

#### 7. Control of lubricant

- Is the regular lubricant supplied?





## Pneumatic components

# Safety precautions

Please carefully read this before starting use.



## CAUTION

### Precautions for reduced wiring valves

Carefully check polarity, voltage, and terminal number before wiring.

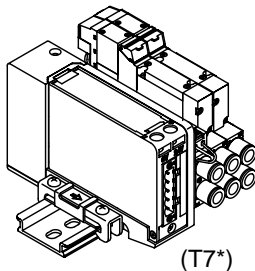
- Voltage could drop due to cable length if power is ON simultaneously.

Make sure that the voltage drop in respect to the solenoid is within 10% of the rated voltage.

## Serial transmission type (T7\*)

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- The working voltage is 24 VDC.
- If noise may have an effect, prepare a power supply for each manifold solenoid valve and wire independently when possible.
- Keep the power wire as short as possible.
- Do not use the same power supply for devices that generate noise, such as inverters or motors.
- Do not lay the power wire, signal wire, and other power cables in parallel.
- The slave unit is dedicated for each maker and is not compatible.
- Follow PLC maker instructions when connecting the slave unit.  
The slave unit's terminal numbers are indicated on the slave unit's installation surface.
- Contact each PLC maker for details on the PLC.
- When installing the manifold solenoid valve vertically, install the slave unit at the upper end.





## Pneumatic components

# Safety precautions

Please carefully read this before starting use.

3/2, 5/2 pilot operated valve 4G<sub>B</sub><sup>A</sup>/MN4G<sub>B</sub><sup>A</sup> series



## Warning

## About manual override

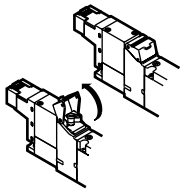
### Introduction

- ① 4G series is an internal pilot operated solenoid valve. If compressed air is not supplied to Port 1, the manual override is ineffective and the main valve does not switch.
- ② The protective cover of manual override is provided as standard. When shipping, protective cover of manual override is closed. Initially, manual override is covered. Open protective cover to operate manual override. If locking manual override is not released, protective cover will not close.
- ③ This is a non-locking/locking manual override. Push and turn the button to lock the manual override. If the button is turned without pushing, damage may occur to the manual override and air leakage may result.

### How to open/close protective cover of manual override

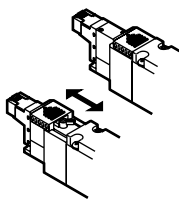
Do not apply excessive force to protective cover of manual override when opening or closing. Too much external force may cause failures. (under 5N)

4G1 series



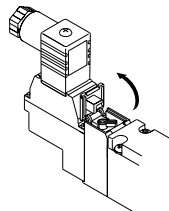
Turn type

4G2 series



Slide type

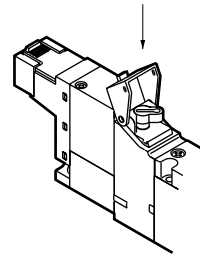
4G2 series  
DIN terminal box



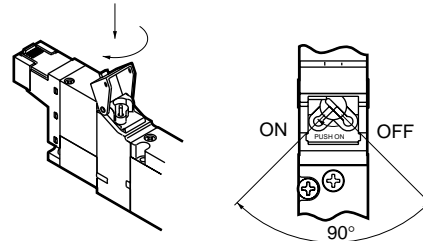
Turn type

### How to operate manual override

- ① For non-locking manual override  
Push it to arrow direction until it stops.  
If the button is released, manual override is released.



- ② For locking manual override  
Push and turn 90° in arrow direction.  
Even if the button is released, manual override remains operated.



### Warning

Confirm that there is no person near the cylinder to be operated before manual operation.



## Caution

## External pilot (K) piping port

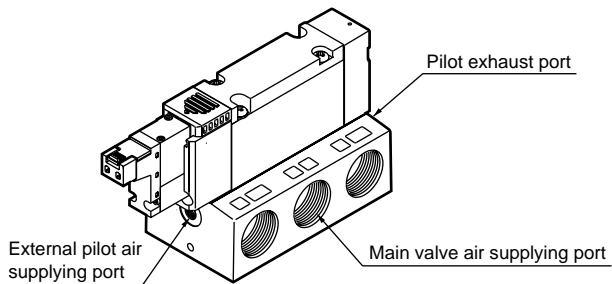
### Metal base 4G<sub>B</sub> series

For the external pilot (K) type, pilot air supply ports are individually provided. Both port sizes of supply and exhaust air are M5 thread. Confirm port locations prior to piping. Improper piping may cause malfunction.

#### Port display

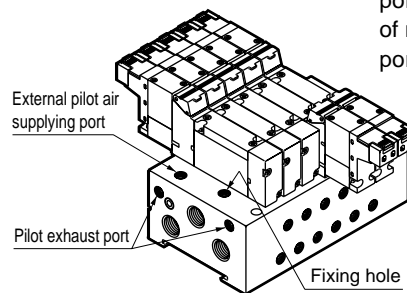
Applications		Display (ISO standards)
Pilot air	Air supplying port	12/14
	Exhaust port	82/84

Sub base porting - discrete valve (4GB1 and 2 common)



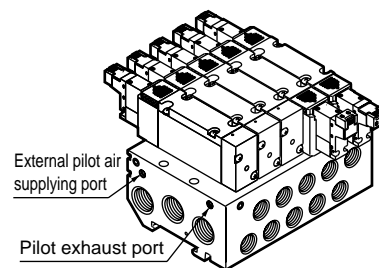
Viewed from main valve air supplying port, external pilot air supplying port is located on the left side.

#### Manifold M4G1



External pilot air supplying port is located on the top of manifold. There are two ports on both ends.

#### M4G2



External pilot air supplying port is located furthest from Port 4/2. There are two ports on both ends.

### Block manifold MN4G<sub>B</sub> series

For the external pilot (K) type, pilot air supply ports are individually provided. The port size of pilot air is 6mm dia. push in joint. Improper piping may cause malfunctions.

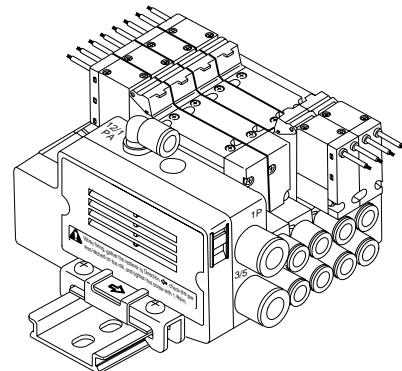
#### Port display

Applications		Display (ISO standards)
Pilot air	Air supplying port	12/14

\*Port 4/2 and Port 5/3 cannot be pressurized.

The valve of the models with 2 x 3/2 valves operates on the main supply pressure (1 port).  
 Make sure that the main pressure (1 port) does not exceed the pilot pressure (12/14 port).  
 Make sure that the main pressure (1 port) does not drop below 2bar (2bar).

#### MN4G1



External pilot air supplying port is 6 mm push in joint on the top of supply and exhaust block.



## Pneumatic components

# Safety precautions

Please carefully read this before starting use.

3/2, 5/2 pilot operated valve 4G<sub>B</sub><sup>A</sup>/MN4G<sub>B</sub><sup>A</sup> series

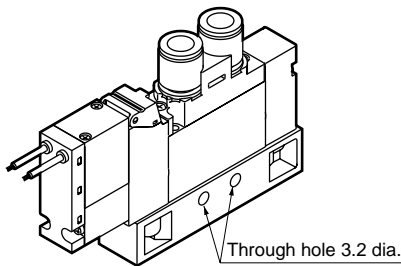
## ⚠ Caution How to install body porting (A) discrete valve 1

### For direct mount

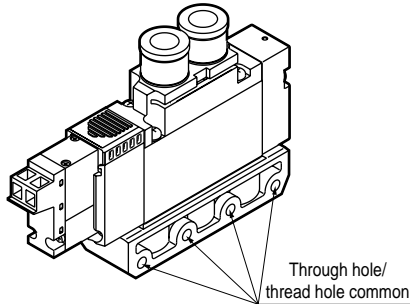
For body porting discrete valve 4GA2 series, (a) through hole, or (b) female thread hole is available for installation. When using thread hole, observe tightening torque.

Tightening torque 0.7 to 1.2 N·m

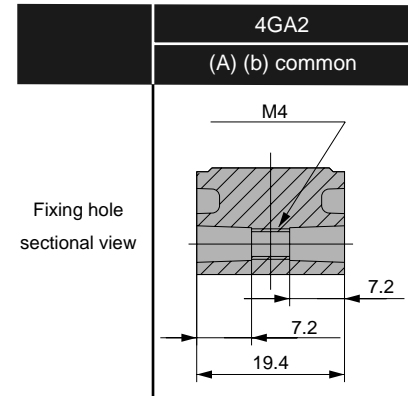
4GA1 series  
2- (a) through hole



4GA2 series  
4- (a) through hole, (b) screw hole common



Fixing hole shape



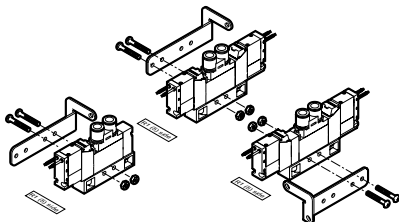
## ⚠ Caution How to install body porting (A) discrete valve 2

### When installation with Mounting plate (P)

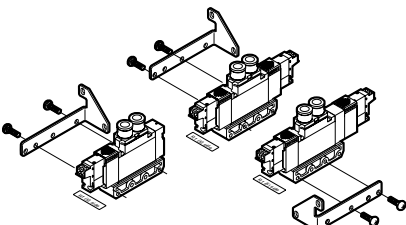
For mounting plate (P) of body porting discrete valve, installation method may differ depending on single, double or 3-position. Incorrect installation may cause failures.

### How to install Mounting plate (P)

4GA1 series



4GA2 series



Mounting plate (P) kit

	Kit model No.	Set part
4GA1	4G1-MOUNT-PLATE-KIT	Mounting plate, set screw 2 pcs., nuts 2 pcs.
4GA2	4G2-MOUNT-PLATE-KIT	Mounting plate, set screw 2 pcs.



## ⚠ Caution

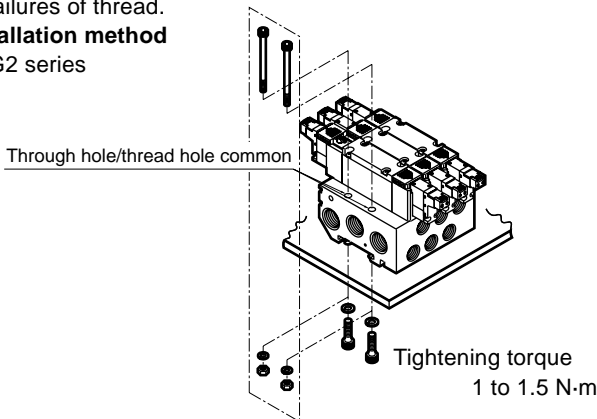
### How to install manifold 1 (metal base 4GA/B series)

#### For direct mount

For M4G2 series installation, tighten from the top of manifold base with through bolts or the rear with set screws.

When using female thread on the right table, confirm thread size and depth, (should be screwed more than 10 threads) and tightening torque. Improper screw selection may cause failures of thread.

#### Installation method M4G2 series



#### Fixing hole shape (sectional view)

	Standard manifold (internal pilot operated)		External pilot
	M4GA (body porting)	M4GB (sub base porting)	M4G-K
M4G2			

## ⚠ Caution

### How to install manifold 2 (metal base 4GA/B series)

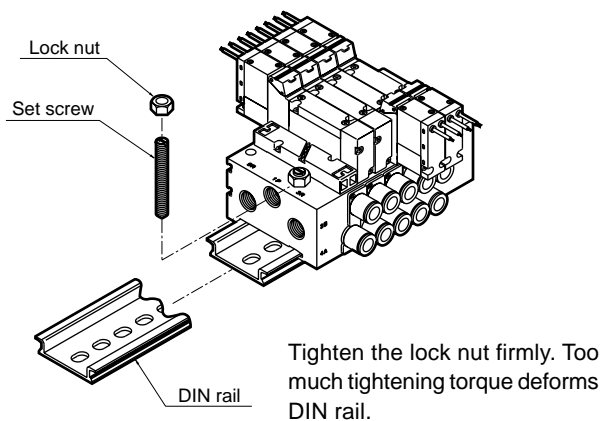
#### When installation with DIN rail

For M4G series, direct mount type can be replaced with DIN rail mount type. In this case, improper DIN rail installation may cause movement or damage of manifold. If the weight of manifold is more than 1kg or the working environment is subject to vibration or impact, fix the DIN rail 50 to 100mm pitch and confirm that the manifold is properly installed before starting use. Find the weight of manifold according to individual specifications. (Note: For M4GB1 (Page 66), direct mount only.) DIN rail installation is available up to 16 station.

#### How to install DIN rail

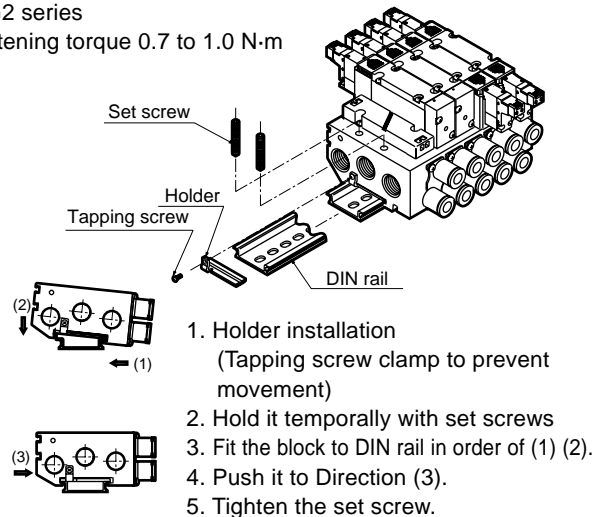
M4G1 series (Note. For M4GB1 (page 66), direct mount only.).

Tightening torque 0.3 to 0.5 N-m



M4G2 series

Tightening torque 0.7 to 1.0 N-m



#### DIN rail kit

	Model No.	Descriptions
M4G1	4GA1-BAA[Length]-[Option]D	DIN rail, set screw 2 pcs.
	4GB1-BAA[Length]-[Option]D	Lock nut 2 pcs.
M4G2	4GA2-BAA[Length]-[Option]D	Two DIN rail/holder
	4GB2-BAA[Length]-[Option]D	Tapping screw 2 pcs., set screw 4 pcs.

When DIN rail is not required, designate length as "0".

When using manifold for external pilot base, designate [Option] "K".

To decide DIN rail length according to your manifold length, refer to annex on Page 79.



## Pneumatic components

# Safety precautions

Please carefully read this before starting use.

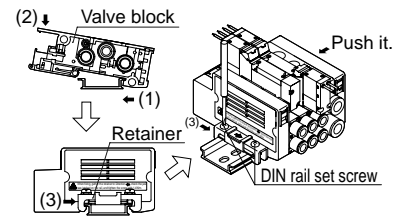
3/2, 5/2 pilot operated valve 4G<sub>B</sub><sup>A</sup>/MN4G<sub>B</sub><sup>A</sup> series

## ⚠ Caution How to install manifold 3 (block manifold)

### About installation attitude

- Due to DIN rail installation, if the weight of manifold is more than 1kg or the working environment is subject to vibration or impact, fix the DIN rail 50 to 100mm pitch and confirm that the manifold is properly installed before starting use. There is no restriction for installation attitude, however set screw loosened by vibration may cause movement of manifold. Confirm the conditions at operation.
- How to dismount manifold  
Dismounting  
Loosen DIN rail set screws (two both left and right/total 4 pcs).  
Mounting
  1. Fit the block to DIN rail in order of (1) (2).
  2. Push retainer to Direction (3) .
  3. Holding blocks without clearance, tighten DIN rail set screw (recommended tightening torque 1.2 to 1.6 N·m).

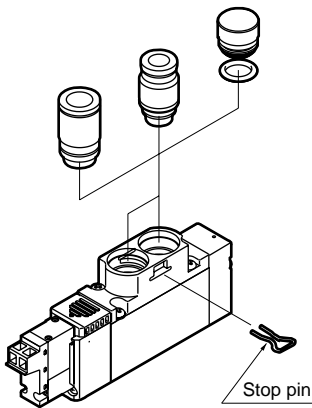
- If the jaw of retainer does not latch, air leakage or movement of product may be caused.



## ⚠ Caution How to replace cartridge joint

When changing sizes of push in joint, confirm the procedure to replace the joint properly. Improper installation, such as insufficient tightening torque, may cause air leakage.

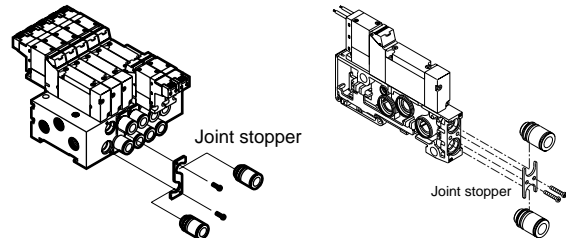
### Body porting (A) type



- (1) Remove the stop pin with a screw driver etc.
- (2) Pull the joint.
- (3) Insert a joint for replacement vertically until it stops.
- (4) Insert the stop pin. Pull the joint to check it is installed properly.

	Size	Tightening torque (N·m)
4G1	M1.7	0.18 to 0.22
4G2	M2.5	0.25 to 0.30

### Sub-base porting (B) type



- (1) Remove set screws.
- (2) Pull the stopper plate and the joint at the same time.
- (3) Match the stopper plate to the groove of a joint for replacement, and assemble them temporarily.
- (4) Assemble stopper plate and joint at the same time, and tighten them with set screws. Pull joint to confirm proper installation.

### Cartridge type quick connector model No.

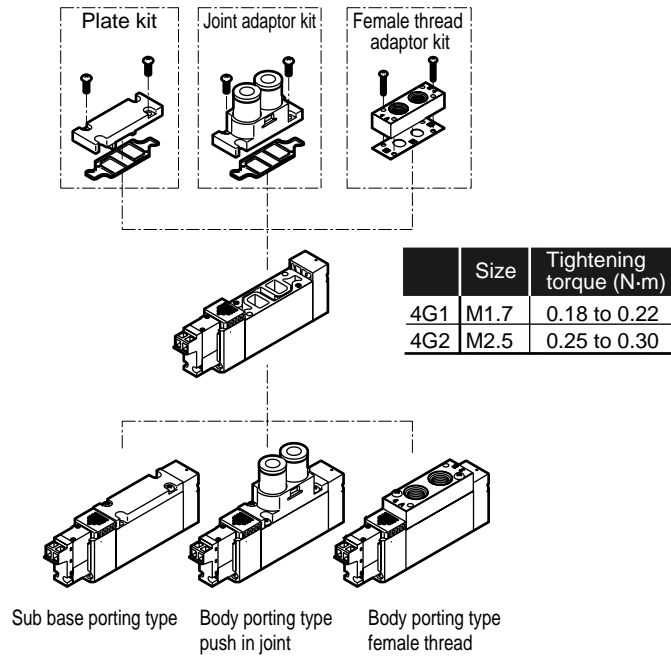
Model	Part name	Model No.
4G1	4 dia. straight type	4G1-JOINT-C4
	6 dia. straight type	4G1-JOINT-C6
	4 dia. radial	4G1-JOINT-CL4, CLL4
	6 dia. radial	4G1-JOINT-CL6, CLL6
	Plug cartridge	4G1-JOINT-CPG
4G2	4 dia. straight type	4G2-JOINT-C4
	6 dia. straight type	4G2-JOINT-C6
	8 dia. straight type	4G2-JOINT-C8
	6 dia. radial	4G2-JOINT-CL6, CLL6
	8 dia. radial	4G2-JOINT-CL8, CLL8
	Plug cartridge	4G2-JOINT-CPG



## Caution

## How to change piping specifications

When replacing mounting plate or joint adaptor, changing body porting to/from sub base porting, or push in joint of body porting to/from female thread etc, if set screws are not properly tightened, air leakage may be caused. Observe tightening torque as following.



### Plate kit

Model	Kit model No.	Set part
4G1	4G1-PLATE-KIT	Plate, gasket, set screw 2 pcs.
4G2	4G2-PLATE-KIT	Plate, gasket, set screw 2 pcs.

### Joint adaptor kit

Model	Part name	Kit model No.	Set part
4G1	4 mm dia. joint adaptor kit	NC	4G1-JNT-ADAPTOR-KIT-C4NC-[OPTION]
		NO	4G1-JNT-ADAPTOR-KIT-C4NO-[OPTION]
			4G1-JNT-ADAPTOR-KIT-C4-[OPTION]
	6 mm dia. joint adaptors kit	NC	4G1-JNT-ADAPTOR-KIT-C6NC-[OPTION]
		NO	4G1-JNT-ADAPTOR-KIT-C6NO-[OPTION]
			4G1-JNT-ADAPTOR-KIT-C6-[OPTION]
4G2	6 mm dia. joint adaptors kit	NC	4G2-JNT-ADAPTOR-KIT-C6NC-[OPTION]
		NO	4G2-JNT-ADAPTOR-KIT-C6NO-[OPTION]
			4G2-JNT-ADAPTOR-KIT-C6-[OPTION]
	8 mm dia. joint adaptor kit	NC	4G2-JNT-ADAPTOR-KIT-C8NC-[OPTION]
		NO	4G2-JNT-ADAPTOR-KIT-C8NO-[OPTION]
			4G2-JNT-ADAPTOR-KIT-C8-[OPTION]

### Female thread adaptor kit

Model	Kit model No.	Set part
4G1	4G1-FML-ADAPTOR-KIT-[Port size]-[OPTION]	Female thread adaptor, gasket, set screw 2 pcs.
4G2	4G2-FML-ADAPTOR-KIT-[Port size]-[OPTION]	Female thread adaptor, gasket, set screw 2 pcs.

When using filter incorporated in Port 4/2 type, designate [Option] "F".



## Pneumatic components

# Safety precautions

Please carefully read this before starting use.

3/2, 5/2 pilot operated valve 4G<sub>B</sub><sup>A</sup>/MN4G<sub>B</sub><sup>A</sup> series

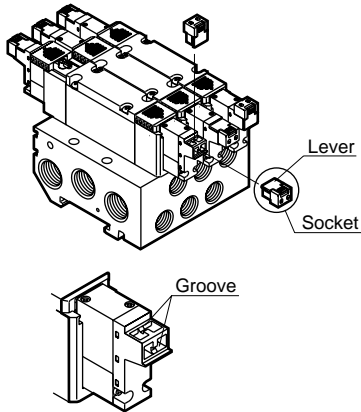


## Caution

E-connector is a radial/axial connector. When shipping, the socket assembly is attached, select the proper socket direction according to the installation conditions.

### How to dismount/mount socket

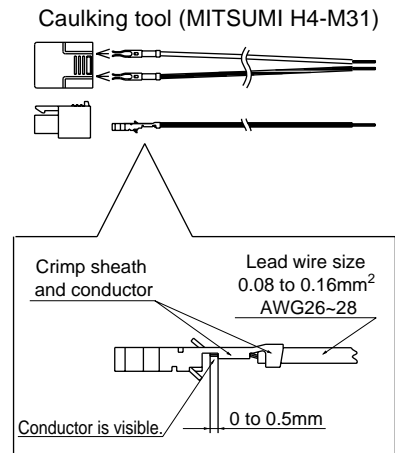
- (1) When installing a socket, hold the lever and the socket unit using your fingers, and insert them into the socket hole of connector. Set the jaw of lever onto the connector groove and lock them. Set socket attitude properly according to connector type (for radial type, put the lever front, while for axial type, put the lever top).
- (2) When removing the socket, depress the lever, remove the jaw from groove, and pull the socket straight out.



## How to use E-connector

### How to wire lead wire

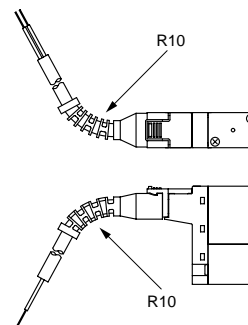
- (1) Peel sheath of lead wire 3mm from the top, arrange the top of conductor, and insert the conductor into the crimp terminal and crimp them with a crimping tool. Both sheath and conductor should be crimped. The margin of conductor should be 0 to 0.5mm.
- (2) After crimping, turn the crimp terminal as the following diagram, and insert it into the socket hole until the position is locked. Pull the wire lightly to confirm the terminal was locked.



## Caution

The bending rate of lead wire of E\*J-connector should be below than the dimensions of right diagram.

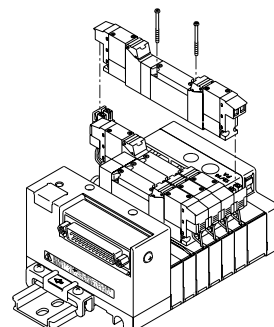
## How to use E\*J-connector



## Caution

A-connector is designed for downward radial connector of reduced wiring manifold. When installing/removing the socket, observe the instructions as well as E-connector.

## How to use A-connector





## **Warning** How to disassemble/wire/assemble DIN terminal box

When disassembling/assembling terminal box, there is a risk of electric shock. Please turn power off.

## **Caution** How to disassemble/wire/assemble DIN terminal box

### 1 Disassembling

- 1 Loosen Screw (1), pull Cover (2) in direction of Screw (1), to remove connector from coil assembly (12).
- 2 Remove Screw (1) from Cover (2).
- 3 Insert a small straight screw driver into the notch at the bottom of Gland (3) (be side of GDSN mark) between Housing (2) and Gland (3), and turn the screw driver to remove Gland (3) from Cover (2). (Refer to Figure 1.) Do not apply too much torque to avoid the damage.
- 4 Unscrew Cable gland (4), and remove Washer (5) and Rubber packing seal (6).

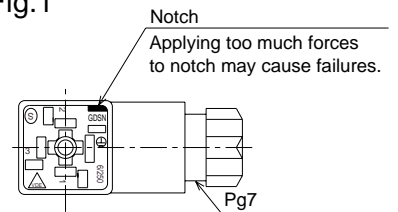
### 2 Wiring

- 1 Wiring preparations
  - Applicable dimensions of cable (7) is VCTF2 (3) conductor (3.5 to 7 mm dia.) conformable with JISC3306.
  - Peeling sheath length of lead wire is 10mm.
  - Both twist wire and single conductor are available.
  - When using twist wire, avoid wiring with a soldered lead wire.
  - When using Crimping sleeve (10) on the top of twist wire, select H0.5/6 (0.3 to 0.5mm<sup>2</sup>), H0.75/6 (0.75mm<sup>2</sup>), of Weidmuller Japan or equivalent. Please prepare crimping sleeve by yourself.
- 2 Wiring
  - Pass Cable gland (4), Washer (5), Rubber packing seal (6) over Cable (7) in turn, and insert cable into Cover (2).
  - Wire Terminal 1 and 2 (They are not polarized) on gland (3).
  - Recommended tightening torque is 0.2 to 0.25 N·m.

### 3 Assembly

- 1 Set wired Gland (3) to Cover (2). (Push it with a snap.)  
\*4 directions are available for gland (Fig.2).
- 2 Put rubber packing seal (6), washer (5) into the cable inlet of Cover (2) in turn, and tighten Cable gland (4) firmly.  
Remarks: Tightening torque of cable gland should be 1.0 to 1.5 N·m.  
Pull the cable to check it does not pull out.
- 3 Put gasket (8) between bottom of gland (3) and plug of coil assembly (12), insert the connector, tighten them with set screw (1) through cover (2).  
Remarks: Recommended tightening torque of screw is 0.2 to 0.25 N·m.

Fig.1



Deal drawing

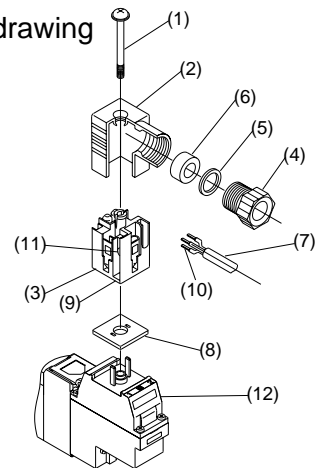
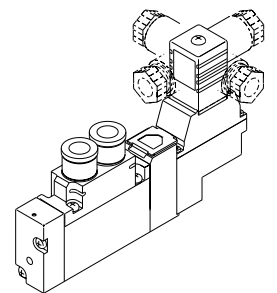


Fig.2



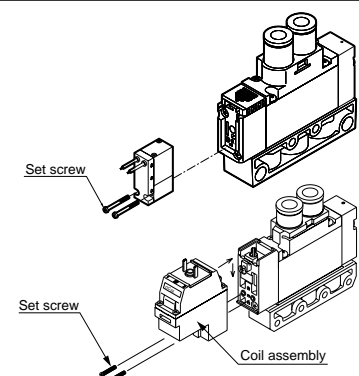
## **Warning** How to replace coil

### 1 Grommet lead wire, E, EJ-connector coil assembly

Remove set screws shown in the illustration on the right to replace a coil. Never remove other set screws because malfunction will be caused. When installing a new coil, confirm that the gasket on coil assembly side is fitted and observe the tightening torque. Improper installation may cause air leakage or malfunction.

### 2 DIN terminal box coil assembly

Remove set screws shown in the right figure to replace a coil assembly. Never remove other set screws because malfunction will be caused. When installing a new coil, confirm gasket on coil assembly side is fitted and observe the tightening torque. Improper installation may cause air leakage or malfunction. Coil assemblies of grommet lead wire, E-connector specifications and DIN terminal box specifications are not interchangeable.





## Pneumatic components

# Safety precautions

Please carefully read this before starting use.

### 3/2, 5/2 pilot operated valve 4G<sub>B</sub><sup>A</sup>/MN4G<sub>B</sub><sup>A</sup> series



## Caution

## About surge suppression

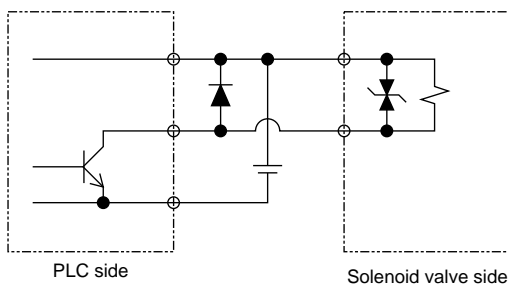
The purpose of the surge suppressor of a solenoid valve is to protect the contacts of output device driving the solenoid valve, but not protecting peripheral devices. The surge effect (damage or malfunction) may be applied to these peripheral devices. On the contrary, a surge suppressor absorbing the surge generated by other components may be burnt out or damaged. Please observe the following points.

(1) Surge suppressor reduces surge voltage peaks of hundred volts to a low level which the output contact withstands. Depending on output circuits, this protection may be insufficient, and damage and malfunctions may be caused. Please confirm this surge suppressor is usable or not according to surge voltage limiting level of solenoid valve, withstanding voltage and circuit configuration of output devices. If necessary, additional surge suppression should be provided. 4G series solenoid valve with surge suppressor reduces the reverse voltage surge to the level on the following table.

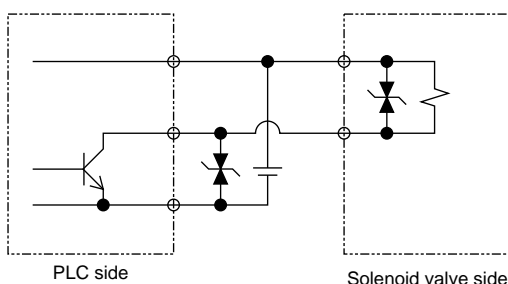
Specifications voltage	Reverse voltage value when OFF
DC12V	Approximate 27V
DC24V	Approximate 47V

(2) When NPN type output unit is used, install a protective circuit for possible surge voltage with reverse voltage value in above diagram plus power source voltage may be applied to the output transistor.

### < Example 1 of protective circuit for output transistor >



### < Example 2 of protective circuit for output transistor >



- (3) When connecting other components or solenoid valves to a solenoid valve in parallel, reverse voltage surge which occurs when the solenoid turns OFF will be applied to these components. Even with a 24V DC solenoid valve with surge suppressor, the surge voltage may amount to 60 to 70 volt and may cause damage or malfunction of components connected in parallel. Please avoid the connection to components weak to voltage of reversed polarity (e.g. LED display). When several solenoid valves are connected in parallel, surge from other solenoid valves will be applied to a solenoid valve with surge suppression. Depending on current, the surge suppressor may be burnt out. When several solenoid valves with surge suppressor are connected in parallel, surge will be concentrated to the suppressor whose surge voltage limit is lowest and the suppressor may be damaged. Even with the same model number, the dispersion of suppressed voltage may cause burning. Please avoid the connection of many solenoid valves in parallel.
- (4) The surge suppressor incorporated in a solenoid valve may short when the suppressor is damaged by over voltage or over current from other equipment. Large current will be applied when turning output ON after damaged. This may cause failures in output circuit or solenoid valves and may prevent a fire risk. Do not continue to energize after failure. Install a protective circuit for over current on power supply or drive circuit, or use power supply with over current protection.

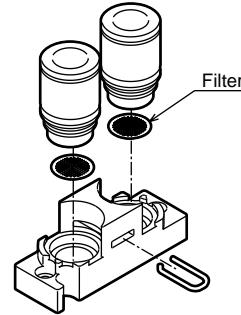
## ⚠ Caution

## About port filter

This port filter prevents foreign matters intrusion and troubles inside of valve, but does not improve the quality of compressed air. Please read safety precautions on the introduction Intro 6 to Intro 10 before starting use.

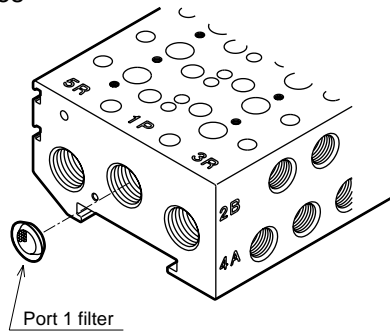
Avoid using excessive force on the port filter in order to remove or hold it.

A deformed filter may cause malfunction. If dirt or foreign matter are found on the surface of filter, flush the filter or remove using tweezers.



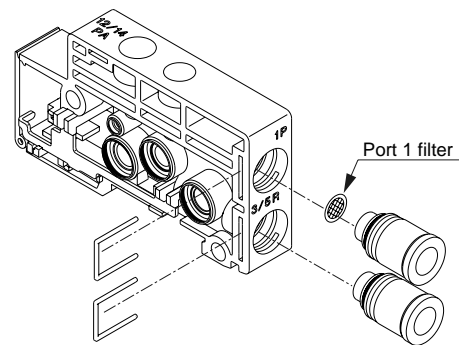
Port 4/2 filter option example

### M4G series



Port 1 filter (standard) example

### MN4G series



Port 1 filter (standard) example

## ⚠ Caution

## About lead wire wiring

Dependent upon the electrical connection used, the standard of cable specified for wiring may vary.

4G series employs lead wire in accordance with the following.

Electric connection symbol	Descriptions	Conductor size	Conductor cross-section areas	Isolator O.D.	Sheath O.D.
Blank	Grommet lead wire	AWG#26	Equivalent to 0.13	1.35	-
E*	E-connector (with lead wire)	AWG#26	Equivalent to 0.13	1.35	-
E*J	EJ-connector	AWG#25	Equivalent to 0.2	1.14	3.7

When installing the manifold and connecting cables, be careful to avoid applying the tension to the lead wires of the coil of the solenoid coils.

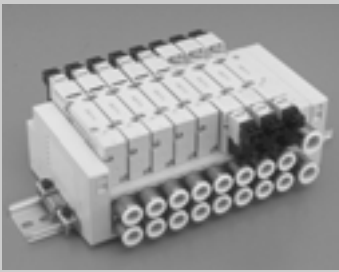
## ⚠ Caution

## About AC110V specifications

For AC110V, full wave rectified bridge is incorporated.

When using SSR for ON/OFF solenoid valve, return failure may be caused depending on type of solenoid valve.

Be careful for SSR selection. (Please consult with relay or PLC manufacturer.)



# Individual wiring block manifold Sub base porting **MN4GB1/2 Series**

• Applicable cylinder bore size: 20 to 80mm



## Manifold common specifications

Descriptions	
Manifold type	Block manifold
Installation method	DIN rail mount type
Air supply/exhaust air method	Common supply/exhaust (check valve incorporated)
Pilot exhaust method	Main/pilot valves' common exhaust (pilot exhaust check valve incorporated)
Piping direction	Sub-base side porting
Working fluid	Compressed air
Valve and solenoid type	Pilot operated soft spool valve
Max. working pressure bar	7.0
Min. working pressure bar	2.0 (5/2, 5/3)
Withstanding pressure bar	10.5
Ambient temperature °C	-5 to 55
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking type
Lubrication Note 1	Not required
Protection structure Note 2	Dust proof
Vibration/impact G	5 or less/30 or less
Working environment	Not to be subject to corrosive gas

- Note 1. For lubrication, please use turbine oil Class 1 ISOVG32.  
Too much lubrication, intermittent lubrication may cause unstable operation.
- Note 2. Protection structure is dust proof, but not drip proof.  
Not to be subject to water drip, oil etc.

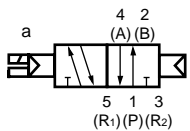
## Electrical specifications

Descriptions		
Rated voltage V	DC	12, 24
	AC	110
Fluctuation range		±10%
Holding current	DC24	0.023(0.025)
	DC12	0.046(0.050)
Note 3. A	AC110	0.009(0.011)
	DC24	0.55(0.6)
Power consumption Note 3. W	DC12	0.55(0.6)
	AC110	1.0(1.2)
Apparent power VA		
Heat proof class		B
Temperature rise °C		50
Surge suppressor		Option
Indicator		(Option) indicator light

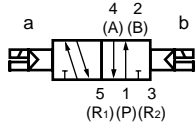
Note 3. For indicator light, refer to the value in ( ).

### • JIS symbol

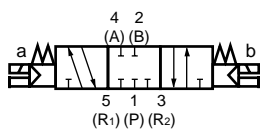
#### 5/2 mono-stable



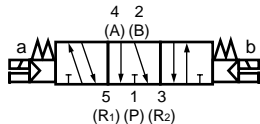
#### 5/2 bi-stable



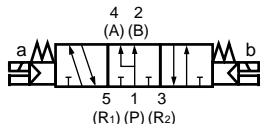
#### 5/3 all ports closed



#### 5/3 A/B/R connection



#### 5/3 P/A/B connection



## Individual specifications

Descriptions	MN3GB1/MN4GB1	MN3GB2/MN4GB2
Max. station number	24 station	20 station
Port size	Port 4/2	Push in joint 4,6 mm dia.
	Port 1/3/5	Push in joint 6, 8,6.4 mm dia.

Refer to "About installation attitude" on Page Intro 15 about DIN rail mount.  
Please refer to Page 96 about mass.

Descriptions	MN3GB1/MN4GB1		MN3GB2/MN4GB2	
	1 → 4/2	4/2 → 5/3	1 → 4/2	4/2 → 5/3
Flow rate l/min	Port size	Port 4/2	Push in joint 8 mm dia.	
	2 x 3/2 type		253	194
	5/2		294	212
	5/3		282	294
		All ports closed	282	294
		ABR connection	282	209
		PAB connection	323	294
			676	647

- Flow rate is the value at pressure 5bar, temperature 20°C.
- The flow rate of 5/2 valve, 2 x 3/2 valve and 5/3 ABR connection valve is the value with the integrated exhaust check valve.

Descriptions	MN3GB1/MN4GB1		MN3GB2/MN4GB2	
	When ON	When OFF	When ON	When OFF
Response time ms	2 x 3/2 type		9	12
	5/2	bi-stable	12	12
		mono-stable	9	-
	5/3	ABR connection	8	15
			17	30

The value of light, surge suppressor is shown. Response time is the value at supply pressure 5bar, 20°C, not lubricated.

The value varies depending on pressure and oil quality.

### How to order

Manifold model No.

**MN4GB1** (1) 0 - **C6** - **E20** **H** - **10** - **3** - **K2**

Discrete valve block with solenoid valve

**N4GB1** (1) 0 - **C6** - **E20** **H** - **3** - **K2**

Discrete solenoid valve

**4GB1** (1) 9 - 00 - **E20** **H** - **3** - **K2**

**A** Solenoid position

Model

**B** Port size  
Note 3  
Note 4  
Note 5  
Note 6

**D** Options

**C** Electric connection

### Precautions for selection guide

- Note 1. When 5/2, 5/3 valves mixed are selected, the model should be M4GB\*80. When mixing with masking plate is selected, the model should be M3GB\*80.
- Note 2. External pilot type is not available for 2 x 3/2 type. Dimensions are same as those of 5/2 bi-stable valve.
- Note 3. Plug specification of Port 4 or 2 is available only for 5/2 mono-stable. Designate port size of Port 1/3/5 in supply and exhaust block model No.
- Note 4. CL\* push in joint radial type (upward) is available only for single solenoid manifold, while Port 4: Long elbow, Port 2: short elbow.
- Note 5. When mix (CX) push in joint radial type (upward), Port 4/2 sizes are same. When CL\*NC/NO is designated, short elbow joint is provided.
- Note 6. Port size should be 00 for solenoid valve only.
- Note 7. Grommet with lead wire is only available with DC24V and DC12V.
- Note 8. For 5/3 all ports blocked and PAB connection, integrated exhaust check valve type is not available. Refer to Page 156 about check valve.
- Note 9. Consult with CKD about vacuuming of external pilot (K).
- Note 10. Indicate the mount location and quantity of spacer on the manifold specification sheet. Refer to Page 138 about the details.

**E** station #

**F** Voltage

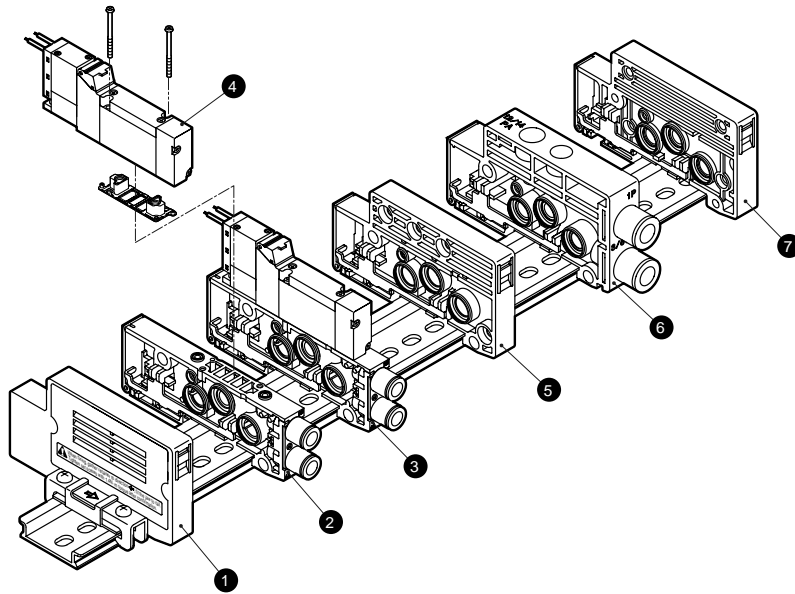
• Complete "manifold specification sheet" (Page 143 to 145).

Symbol		Descriptions		Model							
				Manifold				Discrete valve block with solenoid valve Discrete solenoid valve			
		2 x 3/2 type	5/2, 5/3								
		MN3GB1	MN3GB2	MN4GB1	MN4GB2	N3GB1/3GB1	N3GB2/3GB2	N4GB1/4GB1	N4GB2/4GB2		
<b>A Solenoid position</b>											
1	5/2 mono-stable			●	●			●	●		
2	5/2 bi-stable			●	●			●	●		
3	5/3 all ports closed			●	●			●	●		
4	5/3 ABR connection			●	●			●	●		
5	5/3 PAB connection			●	●			●	●		
66	2 x 3/2 type A side: Normally closed (type) B side: Normally closed (type) Note 1, 2	●	●			●	●				
8	Mix manifold	●	●	●	●						
<b>B Port size (Port 4/2)</b>											
C4	4 mm push in joint	●	●	●	●	●	●	●	●		
C6	6 mm push in joint	●	●	●	●	●	●	●	●		
C8	8 mm push in joint		●			●		●	●		
CL4	4 mm push in joint radial type (upward)			●				●			
CL6	6 mm push in joint radial type (upward)			●				●			
CL8	8 mm push in joint radial type (upward)			●				●			
CX	Mix push in joint	●	●	●	●						
Single plug		Port 4		Port 2							
C4NC	4 mm push in joint				●	●			●		
C6NC	6 mm push in joint				●	●			●		
C8NC	8 mm push in joint				●	●			●		
C4NO	Plug	4 mm push in joint			●	●			●		
C6NO		6 mm push in joint			●	●			●		
C8NO		8 mm push in joint			●	●			●		
CL4NC	4 mm push in joint radial (upward)				●				●		
CL6NC	6 mm push in joint radial (upward)				●				●		
CL8NC	8 mm push in joint radial (upward)				●				●		
CL4NO	Plug	4 mm push in joint radial (upward)			●				●		
CL6NO		6 mm push in joint radial (upward)			●	●			●		
CL8NO		8 mm push in joint radial (upward)			●	●			●		
<b>C Electric connection</b>											
Blank	Grommet lead wire (300mm)	Note 7	●	●	●	●	●	●	●		
B	DIN terminal box (Pg7)	surge suppressor/indicator light		●		●		●			
<b>E-connector (up/lateral common)</b>											
E00	Lead wire (500mm)		●	●	●	●	●	●	●		
E01	Lead wire (1000mm)		●	●	●	●	●	●	●		
E03	Lead wire (3000mm)		●	●	●	●	●	●	●		
E20	Lead wire (500mm)	surge suppressor/light	●	●	●	●	●	●	●		
E21	Lead wire (1000mm)	surge suppressor/light	●	●	●	●	●	●	●		
E23	Lead wire (3000mm)	surge suppressor/light	●	●	●	●	●	●	●		
<b>EJ-connector (socket with cover, radial/axial common)</b>											
E01J	Lead wire (1000mm)		●	●	●	●	●	●	●		
E03J	Lead wire (3000mm)		●	●	●	●	●	●	●		
E21J	Lead wire (1000mm)	surge suppressor/light	●	●	●	●	●	●	●		
E23J	Lead wire (3000mm)	surge suppressor/light	●	●	●	●	●	●	●		
<b>D Option</b>											
Blank	Blank		●	●	●	●	●	●	●		
H	Check valve	Note 8	●	●	●	●	●	●	●		
K	External pilot	Note 9			●			●			
A	Ozone/coolant proof		●	●	●	●	●	●	●		
F	Filter incorporated in Port 4/2 (Port 1: Provided as STD)		●	●	●	●	●	●	●		
Z1	Air supply spacer	Note 10	●	●	●	●					
<b>E Station #</b>											
1	1 station										
to	to		●	●	●	●					
24	24 station (max. station number of MN4GB2 is 20.)										
<b>F Voltage</b>											
5	AC110V (rectified bridge incorporated)		●	●	●	●	●	●	●		
3	DC24V		●	●	●	●	●	●	●		
4	DC12V		●	●	●	●	●	●	●		
is not available.											

# MN4GB1/2 Series

Individual wiring type block manifold: Body porting

## Explanation of manifold components and parts list



Main parts list (please refer to Page 128 to 139 about details.)

No.	Components name	Model No. (e.g.)	No.	Components name	Model No. (e.g.)
1	End block L	N4G1-EL-K2	5	Partition block	N4G1-S
2	Discrete valve block	N4GB1-V1-C6	6	Supply and exhaust block	N4G1-Q-8
3	Discrete valve block with solenoid valve	N4GB110-C6-H-3-K2	7	End block R	N4G1-ER-K2
4	Electromagnetic valve body	4GB119-00-H-3-K2			

### B type individual wiring mass

#### 4GB1

Block type	Model No.	Mass	Block type	Model No.	Mass
Valve block with solenoid valve	N4GB110-C6-K2	69	Supply and exhaust block	N4G1-Q-8	63
	N4GB120-C6-K2	84		N4G1-QK-8	68
	N4GB1 $\frac{3}{5}$ 0-C6-K2	85	End block	N4G1-E*-K2	57
Valve block with masking plate	N4GB1-MP-C6	37		N4G1-EX*-K2	57
			Partition block	N4G1-S	45

#### 4GB2

Block type	Model No.	Mass	Block type	Model No.	Mass
Valve block with solenoid valve	N4GB210-C8-K2	133	Supply and exhaust block	N4G2-Q-10	99
	N4GB220-C8-K2	148		N4G2-QK-10	104
	N4GB2 $\frac{3}{5}$ 0-C8-K2	159	End block	N4G2-E*-K2	83
Valve block with masking plate	N4GB2-MP-C8	76		N4G2-EX*-K2	84
			Partition block	N4G2-S	60

### Repair parts and related part list

No.	Parts name	Model No.	No.	Parts name	Model No.
-	Coil assembly	4G [Electric connection] * - COIL - [Voltage]	-	E-connector	4G - SOCKET - ASSY - [Electric connection]
		Blank: Standard A: Ozone proof Page 95 Select according to Electric connection.	-	Socket assembly	- [Voltage]
	Cartridge type quick connector and related parts	4 dia. straight type	-	EJ-connector	4G - SOCKET - ASSY - [Electric connection]
			6 dia. straight type	-	Socket assembly
		4 dia. radial		-	DIN terminal box assembly
			6 dia. radial	-	Silencer
		Plug cartridge		-	
			Blanking plug	-	
		4 dia. straight type		-	
			6 dia. straight type	-	
		8 dia. straight type		-	
			6 dia. radial	-	
		8 dia. radial type		-	
			Plug cartridge	-	
		Blanking plug		-	



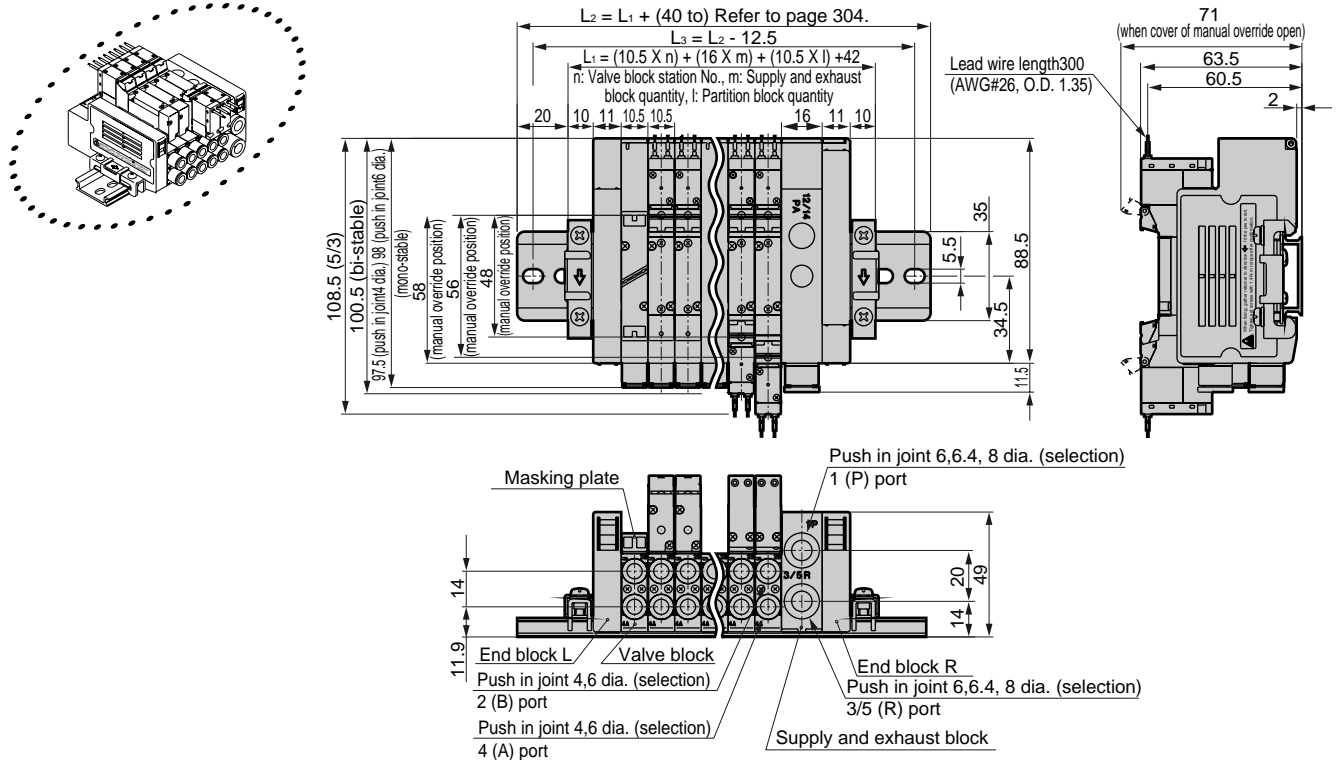
### Dimensions

Unit: mm

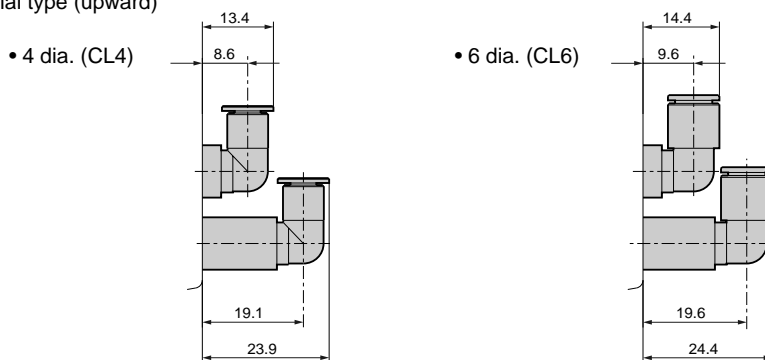
#### MN4GB1

- Grommet lead wire (blank)

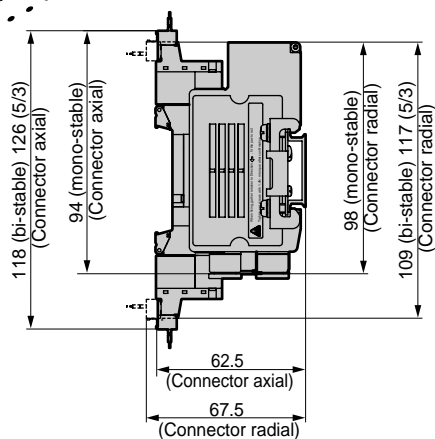
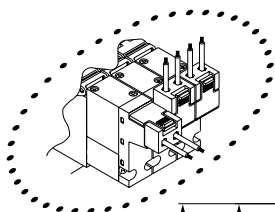
• The dimensions of 2 x 3/2 types are same as those of bi-stable types.



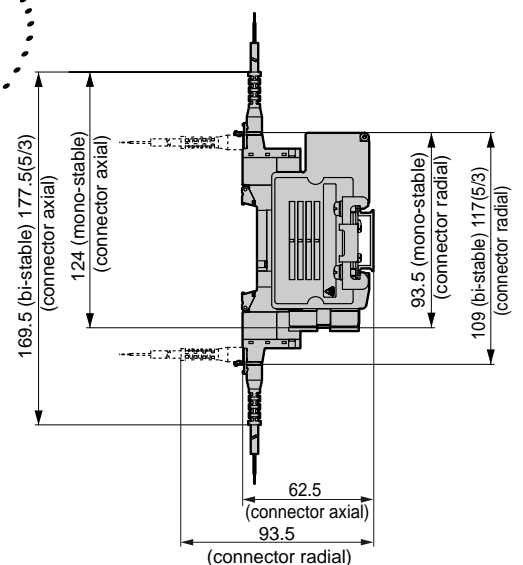
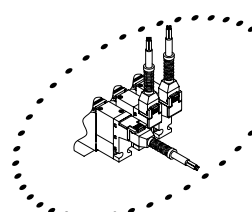
- Push in joint radial type (upward)



- E-connector type (E)



- EJ-connector type (E\*\*J)



# MN4GB2 Series

Individual wiring type block manifold: Body porting

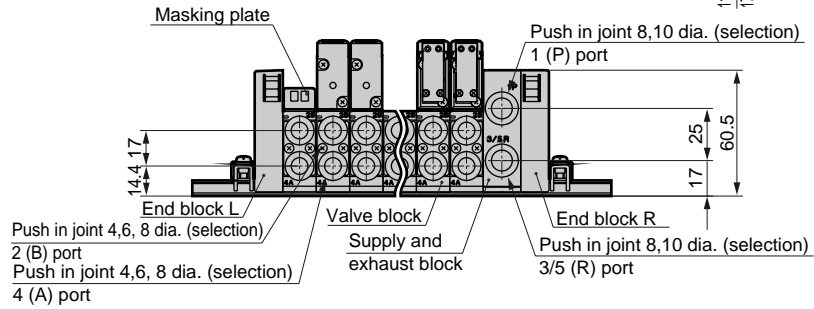
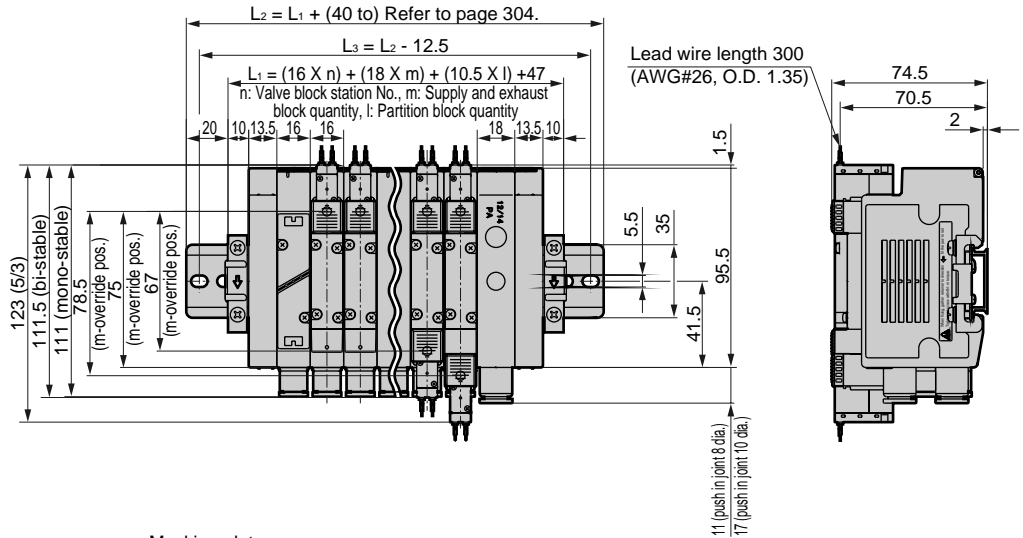
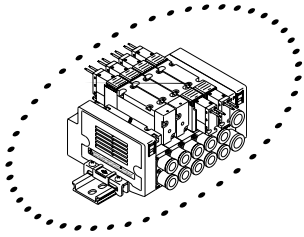
## Dimensions

Unit: mm

### MN4GB2

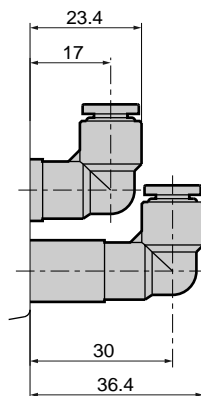
- Grommet lead wire (blank)

• The dimensions of 2 x 3/2 types are same as those of bi-stable types.

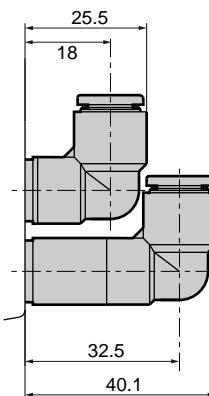


- Push in joint radial type (upward)

- 6 dia. (CL6)



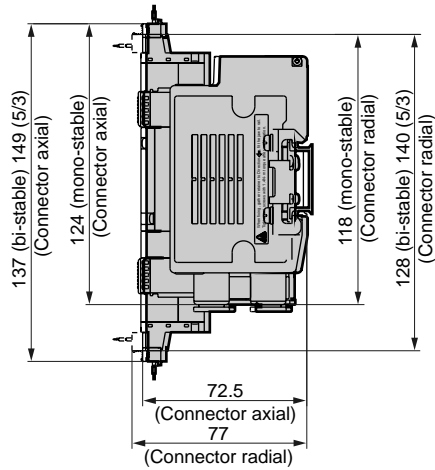
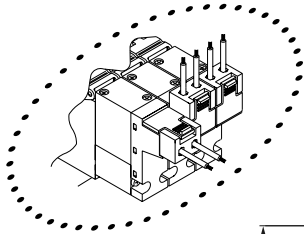
- 8 dia. (CL8)



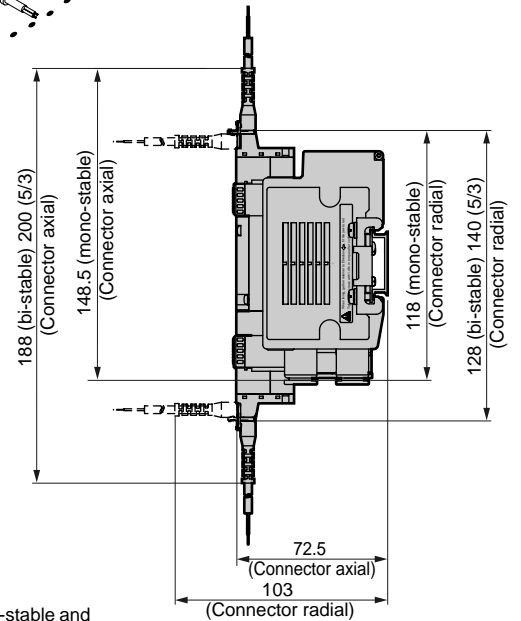
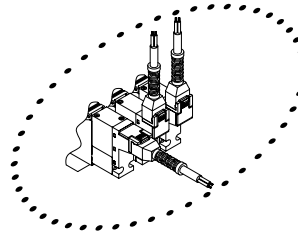
### Dimensions

Unit: mm

- E-connector type (E)



- EJ-connector type (E\*\*J)

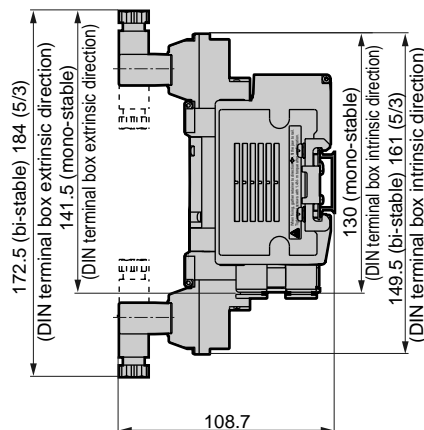
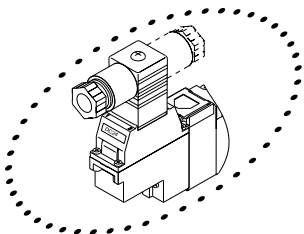


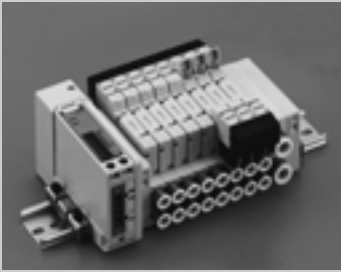
Note. Figure of E-connector (E), EJ-connector (E\*\*J) shows dimensions of DC specifications.

For AC specifications, valve overall length is 3.5mm longer for mono-stable type, 7mm longer for bi-stable and 5/3 type.

- DIN terminal box type (B)

Reduced wiring not available.





## Reduced wiring block manifold Sub base porting

# MN4GB1/2-T\* Series

- Applicable cylinder bore size: 20 to 80 mm



### Manifold common specifications

Descriptions	
Manifold type	Block manifold
Installation method	DIN rail mount type
Air supply/exhaust air method	Common supply/exhaust (check valve incorporated)
Pilot exhaust method	Main/pilot valves' common exhaust (pilot exhaust check valve incorporated)
Piping direction	Sub-base side porting

Other specifications are as same as MN4GB (Page 94).

Please refer to Page 84 about JIS symbol.

### Electrical specifications

Descriptions		
Rated voltage	DC	12, 24
Fluctuation range		±10%
Holding current	DC24V	0.025
	DC12V	0.050
Power consumption	DC24V	0.6
	DC12V	0.6
Heat proof class		B
Temperature rise	°C	50
Surge suppressor		Provided as standard
Indicator		Indicator light

### Individual specifications

Descriptions		MN3GB1/MN4GB1		
		T30	T53	T7*1
Max. station number	STD wiring	24 station	24 station	16 station
	Double wiring	12 station	12 station	8 station
Max. solenoid number		24 points	24 points	16 points
Port size	Port 4/2	Push in joint 4, 6 mm dia.		
	Port 1/3/5	Push in joint 6, 8, 6.4 mm dia.		

Descriptions		MN3GB2/MN4GB2		
		T30	T53	T7*1
Max. station number	STD wiring	20 station	20 station	16 station
	Double wiring	12 station	12 station	8 station
Max. solenoid number		24 points	24 points	16 points
Port size	Port 4/2	Push in joint 4, 6, 8 mm dia.		
	Port 1/3/5	Push in joint 8, 10 mm dia.		

Please refer to Page 114 about mass.

Descriptions			MN3GB1/MN4GB1		MN3GB2/MN4GB2		
			1 → 4/2	4/2 → 5/3	1 → 4/2	4/2 → 5/3	
Flow rate ℓ/min	Port size	Port 4/2	Push in joint 6 mm dia.		Push in joint 8 mm dia.		
	2 x 3/2 type		253	194	500	470	
	5/2		294	212	706	500	
	5/3	All ports closed		282	294	647	647
		ABR connection		282	209	647	500
		PAB connection		323	294	676	647

- Flow rate is the value at pressure 5bar, temperature 20°C.
- The flow rate of 5/2 valve, 2 x 3/2 valve and 5/3 ABR connection valve is the value with the integrated exhaust check valve.

## Reduced wiring specifications

Descriptions	T30	T53
Type	D-sub connector	26P flat cable connector no power supply terminal
Connector	MIL standards D-sub connector 25 terminals	MIL-C-83503 standards pressure welding socket 26P

## Serial transmission slave unit specifications (Refer to page 155 about compatible PLC table.)

Descriptions	T7G1 *1	T7D1 *2, 3
Communication network	CC-Link	DeviceNet
Power voltage	DC24V+10%-5% (unit/valve power supply common terminal)	DC24V+10%-5% (unit/valve power supply common terminal) Communication Power supply(V+,V-):DC11Vto25V
Consumption current	60mA or less (when all outputs ON)	60mA or less (when all outputs ON) load current is not included Communication power supply(V+,V-):50mA or less
Output No.	16 points	
Slave using memory no.	1 Slave unit for serial transmission	2 bite
Operating indication	LED (power supply and communication status)	

- 1 CC-Link is ver.1.10.
- 2 The communication power supply of T7D1 (V+ and V- of DeviceNet cable) is isolated from the power supply terminals.  
(unit power supply, valve power supply.)
- 3 For the EDS file, contact us.(EDS file: text file of parameters for communication with master made by various manufacturers).

# MN4GB1/2-T\* Series

Reduced wiring block manifold; Sub base porting

How to order (common gland/D-sub connector/flat cable connector)

Manifold model No.

MN4GB1 (1) 0 (C6) (T30) (W) (H) (10) (3) K2

Discrete valve block with solenoid valve

N4GB1 (1) 0 (C6) (A2N) (1) (H) (3) K2

• When cable is necessary, refer to P.131, and designate Cable length: (1). Blank, if not required.

• Complete "manifold specification sheet" (Page 143 to 145).

Discrete solenoid valve

4GB1 (1) 9 00 (A2N) (H) (3) K2

A Solenoid position

Model

F Station #

B Port size  
Note 3  
Note 4  
Note 5  
Note 6

G Voltage

• Refer to page 151 about the cable with D-sub connector.

C Reduced wiring connection  
• When placing an order of discrete valve, indicate "A2N".  
• Please refer to Page 87 about circuit diagram.

D Terminal/connector pin array

E Option

## ⚠ Precautions for selection guide

- Note 1. When mixed with 5/2, 5/3 valves, the model should be MN4GB\*80.  
When mixed with masking plate only, the model should be MN3GB\*80.
- Note 2. External pilot type is not available for 2 x 3/2 type. Dimensions are same as those of 5/2 bi-stable valve.
- Note 3. Plug specification of Port 4 or 2 is available only for 5/2 mono-stable. Designate port size of Port 1/3/5 in supply and exhaust block model No.
- Note 4. CL\* push in joint radial type (upward) is available only for single solenoid manifold, while  
Port 4: Long elbow, Port 2: short elbow.
- Note 5. When mix (CX) push in joint radial type (upward), Port 4/2 sizes are same.  
When CL\*NC/NO is designated, short elbow joint is provided.
- Note 6. Port size should be 00 for solenoid valve only.
- Note 7. Blank: Wired according to mounted valve type.  
W: Not depending on mounted valve type, wire for double solenoid is provided.
- Note 8. For 5/3 all ports blocked and PAB connection, integrated exhaust check valve type is not available.  
Refer to page 156 about check valve.
- Note 9. Consult with CKD about vacuuming of external pilot (K).
- Note 10. Indicate the mount location and quantity of spacer on the manifold specification sheet.  
Refer to Page 138 about the details.

Symbol	Descriptions	Model							
		Manifold				Discrete valve block with solenoid valve			
		2 x 3/2 type		5/2, 5/3		Discrete solenoid valve		Discrete solenoid valve	
		MN3GB1	MN3GB2	MN4GB1	MN4GB2	N3GB1/3GB1	N3GB2/3GB2	N4GB1/4GB1	N4GB2/4GB2
<b>A Solenoid position</b>									
1	5/2 mono-stable			●	●			●	●
2	5/2 bi-stable			●	●			●	●
3	5/3 all ports closed			●	●			●	●
4	5/3 ABR connection			●	●			●	●
5	5/3 PAB connection			●	●			●	●
66	2 x 3/2 type A side: Normally closed (type) B side: Normally closed (type) Note 1, 2	●	●			●	●		
8	Mix manifold	●	●	●	●				
<b>B Port size (Port 4/2)</b>									
C4	4 mm push in joint	●	●	●	●	●	●	●	●
C6	6 mm push in joint	●	●	●	●	●	●	●	●
C8	8 mm push in joint		●				●		●
CL4	4 mm push in joint radial type (upward)			●				●	
CL6	6 mm push in joint radial type (upward)			●	●			●	●
CL8	8 mm push in joint radial type (upward)				●				●
CX	Mix push in joint	●	●	●	●				
<b>C Reduced wiring connection (light/surge suppressor provided as standard)</b>									
T30	D-sub connector	Left	●	●	●	●			
T30R		Right	●	●	●	●			
T53	26 pin flat cable connector (no power supply terminal)	Left	●	●	●	●			
T53R		Right	●	●	●	●			
A2N	A-connector (downward)					●	●	●	●
<b>D Terminal/connector pin array</b>									
Blank	Standard wiring	Note 7	●	●	●	●			
W	Double wiring	Note 7	●	●	●	●			
<b>E Option</b>									
Blank	Blank		●	●	●	●	●	●	●
H	Check valve	Note 8	●	●	●	●	●	●	●
K	External pilot	Note 9			●	●		●	●
A	Ozone/coolant proof		●	●	●	●	●	●	●
F	Filter incorporated in Port 4/2 (Port 1: Provided as standard)		●	●	●	●	●	●	●
Z1	Air supply spacer	Note 10	●	●	●	●			
<b>F Station #</b>									
1	1 station								
to	to		●	●	●				
24	24 station (Refer to Page 110 about max. station number.)								
<b>G Voltage</b>									
3	DC24V		●	●	●	●	●	●	●
4	DC12V		●	●	●	●	●	●	●

is not available.

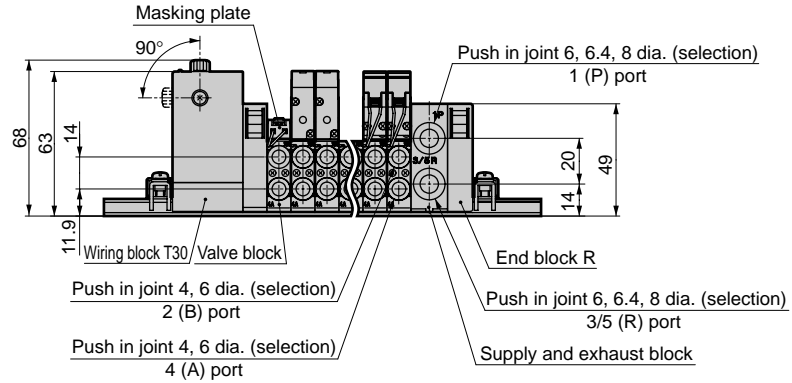
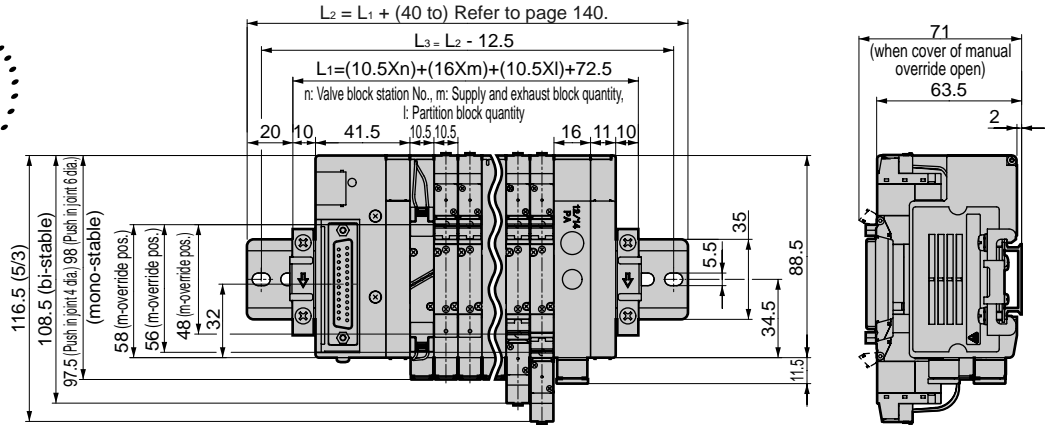
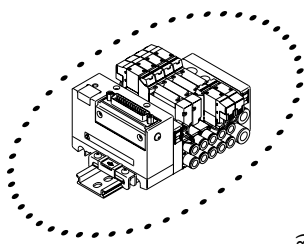
### Dimensions

Unit mm

#### MN4GB1

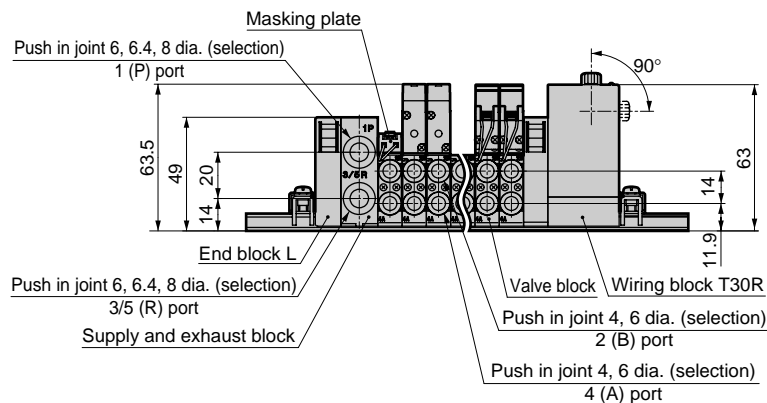
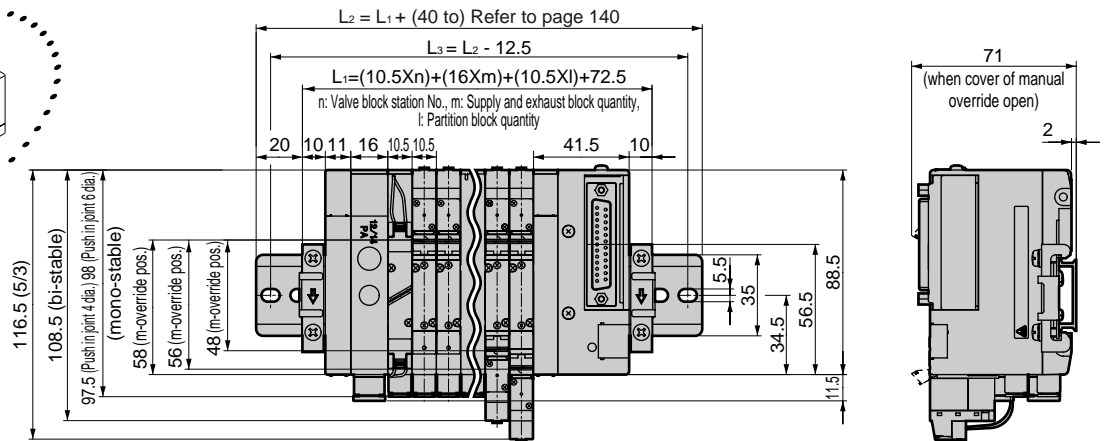
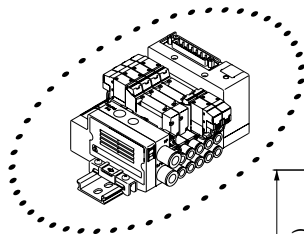
- D-sub connector left (T30)

• The dimensions of 2 x 3/2 types are same as those of bi-stable types.



- D-sub connector right (T30R)

Note: Please refer to Page 120 about CL\* push in joint radial type (upward).





# MN4GB2-T30 Series

Reduced wiring block manifold; Sub base porting

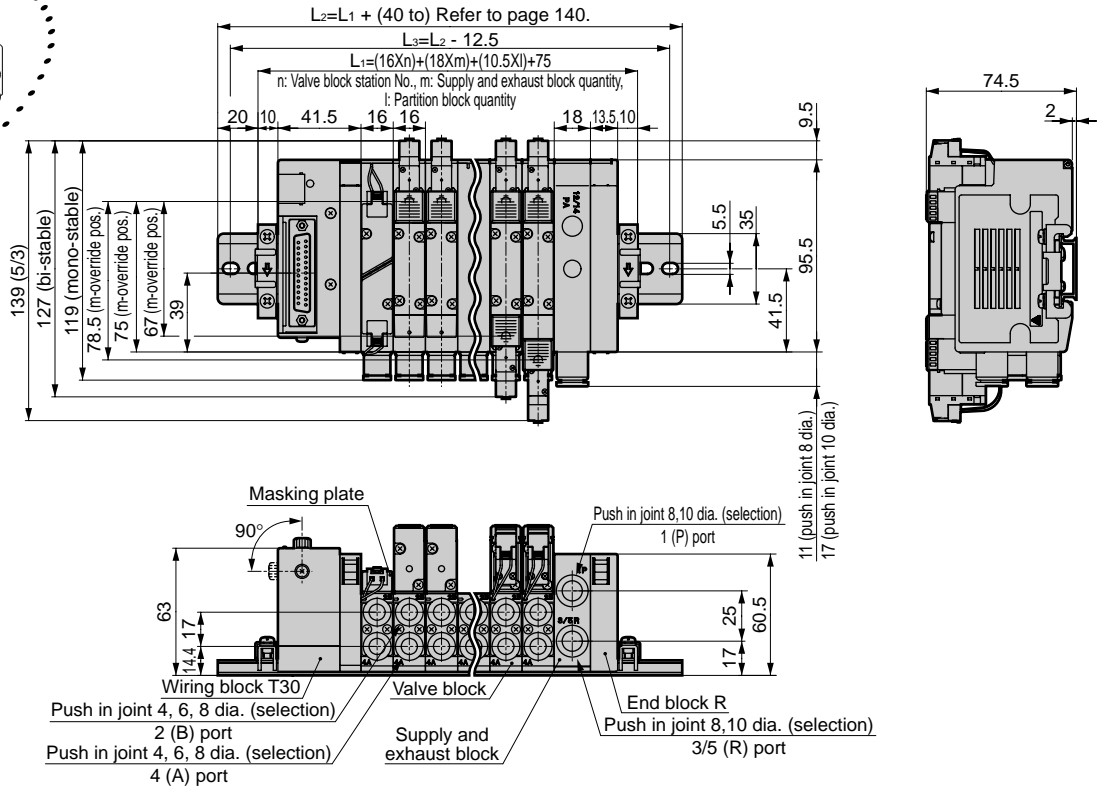
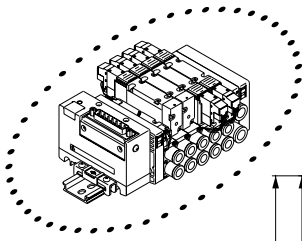
## Dimensions

Unit mm

### MN4GB2

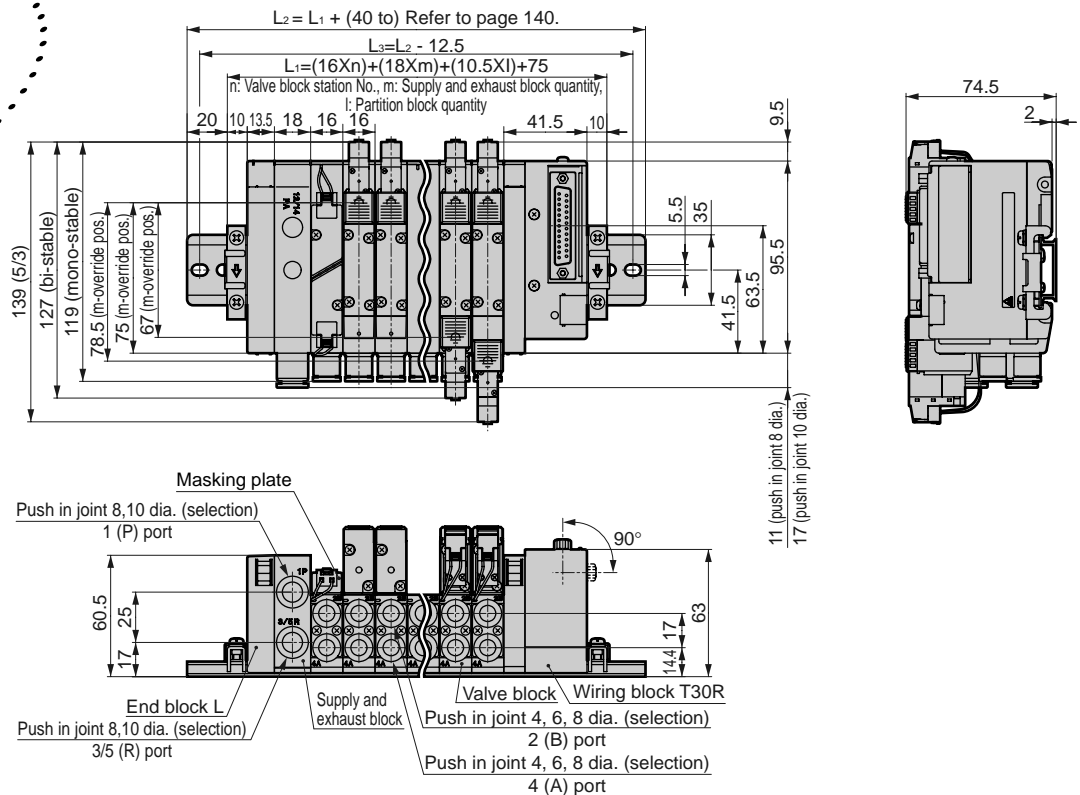
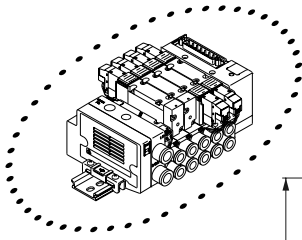
- D-sub connector left (T30)

- The dimensions of 2 x 3/2 types are same as those of bi-stable types.



- D-sub connector right (T30R)

Note: Please refer to Page 120 about CL\* push in joint radial type (upward).



# MN4GB1/2-T\* Series

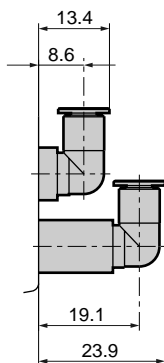
Reduced wiring block manifold; Sub base porting

Push in joint radial type (upward): Dimensions

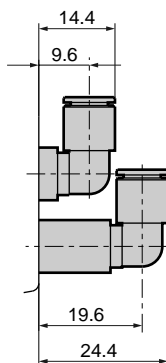
Unit mm

## MN4GB1

• 4 dia. (CL4)

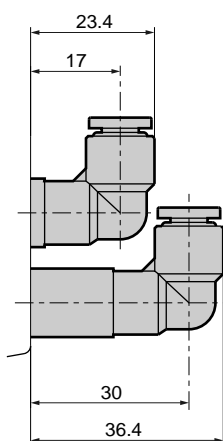


• 6 dia. (CL6)

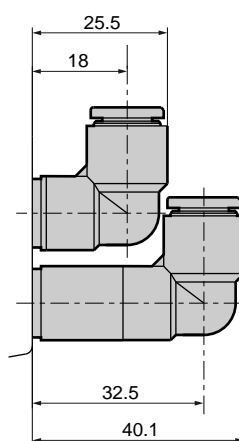


## MN4GB2

• 6 dia. (CL6)



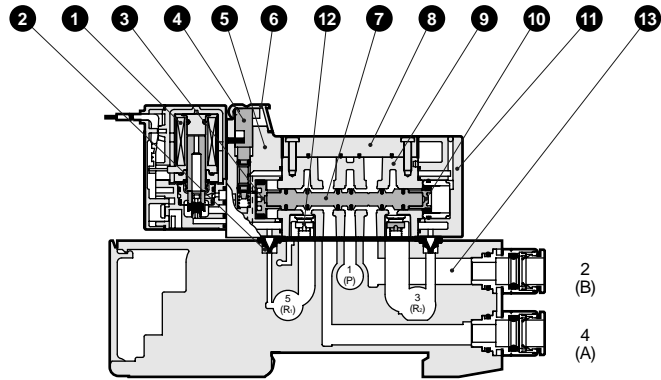
• 8 dia. (CL8)



## Internal structure and part list

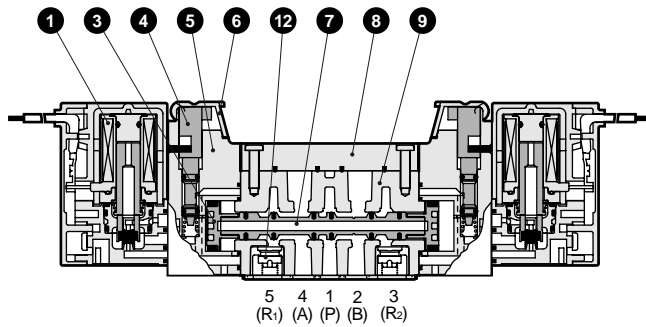
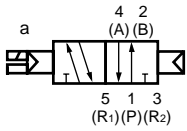
### N3GB1660/N3GB2660

- 2 x 3/2
- (A side:Normally closed (type) B side:Normally closed (type))
- grommet lead wire (blank)
- Refer to page 125.



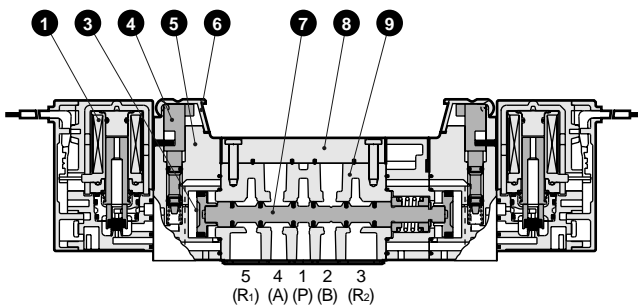
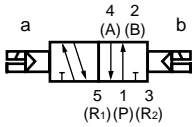
### N4GB110/N4GB210

- 5/2 mono-stable
- grommet lead wire (blank)



### N4GB120/N4GB220

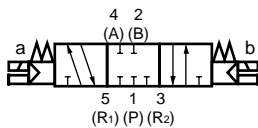
- 5/2 bi-stable
- grommet lead wire (blank)



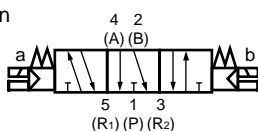
### N4GB1<sup>3</sup>/<sub>4</sub>0/N4GB2<sup>3</sup>/<sub>4</sub>0

- 5/3
- grommet lead wire (blank)

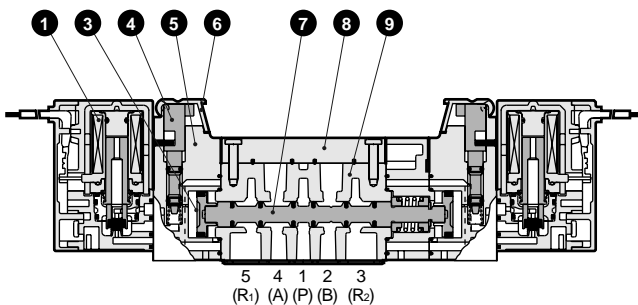
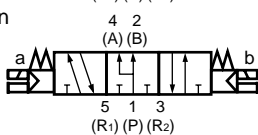
All ports closed



A/B/R connection



P/A/B connection



## Main part list

No.	Parts name	Material
1	Coil assembly	-
2	Pilot exhaust check valve	Nitrile rubber
3	Piston D assembly	-
4	Manual override	Resin
5	Piston room	Resin
6	Protective cover of manual override	Resin
7	Spool assembly	-
8	Joint adaptor	Resin
9	Body	Aluminum alloy die casting
10	Piston S assembly	-
11	Cap	Resin
12	Check valve	-
13	Valve block	Resin

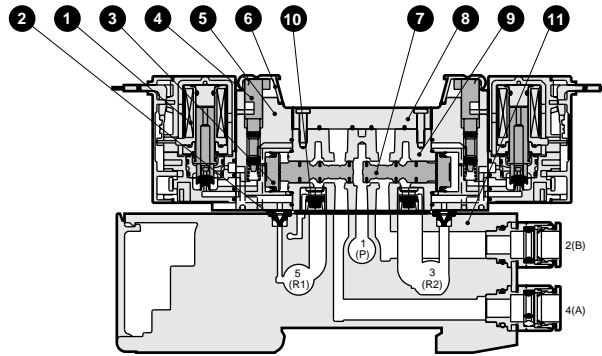
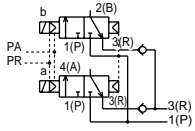
## Repair parts list

No.	Parts name	Model No.
1	Coil assembly	4G-[Electric connection]- * - COIL- [Voltage] Blank: Standard A: Ozone proof
-	E-connector socket assembly	4G-SOCKET-ASSY-[Electric connection]-[Voltage]
-	EJ-connector socket assembly	4G-SOCKET-ASSY-[Electric connection]
-	DIN terminal box assembly (4GB2 only)	4G-TERMINAL-BOX-[Voltage]

## Internal structure and part list

### N3GB1660/N3GB2660

- 2 x 3/2 type
- (A side:Normally closed (type) B side:Normally closed (type))
- Grommet lead wire (blank)

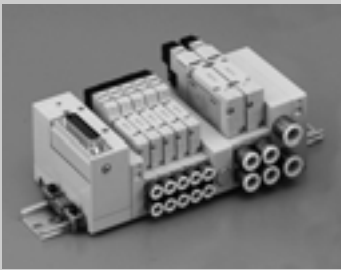


### Main part list

No.	Parts name	Model No.
1	Coil assembly	-
2	Pilot exhaust check valve	Nitrile rubber
3	Piston D assembly	-
4	Manual override	Resin
5	Piston room	Resin
6	Protective cover of manual override	Resin
7	Spool assembly	-
8	Plate	Resin
9	Body	Aluminum alloy die casting
10	Check valve	-
11	Valve block	Resin

### Repair parts list

No.	Parts name	Model No.
1	Coil assembly	4G-[Electric connection]- * - COIL- [Voltage] Blank: Standard A: Ozone proof
-	E-connector socket assembly	4G-SOCKET-ASSY-[Electric connection]-[Voltage]
-	EJ-connector socket assembly	4G-SOCKET-ASSY-[Electric connection]
-	DIN terminal box assembly (3GB2 only)	4G-TERMINAL-BOX-[Voltage]



## 4G1/2 mix manifold

# MN3GAX12, MN4GAX12 MN4GBX12 series

• Applicable cylinder bore size: 20 to 80 mm

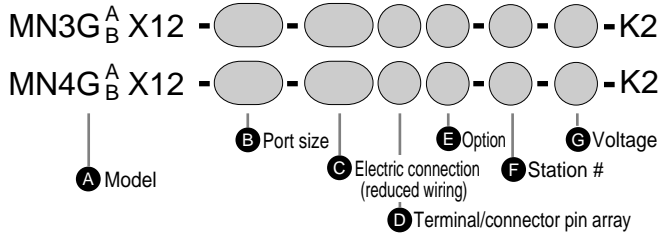


### Specifications

Common with each series.

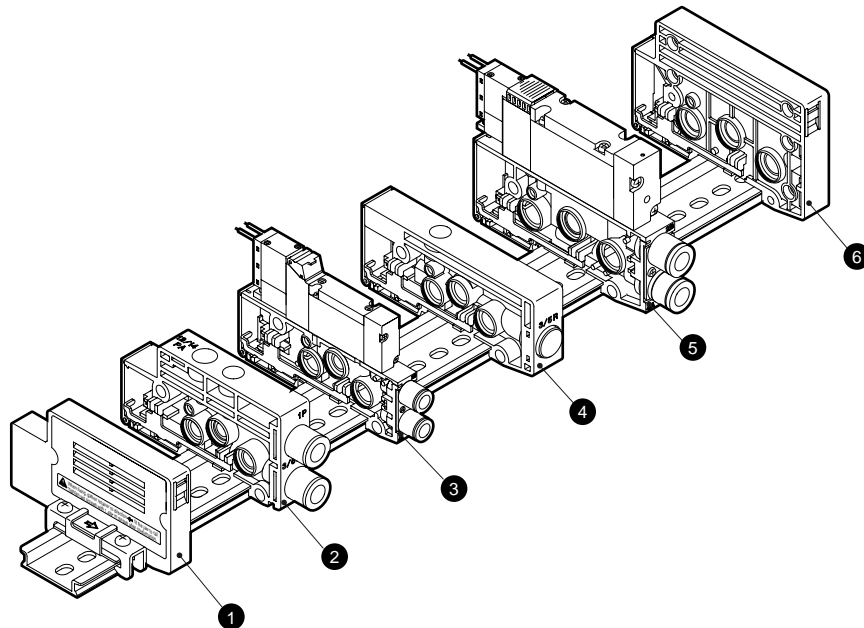
For individual wiring, refer to P.88 (body porting) or P.94 (sub base porting), while for reduced wiring, refer to P.100 (body porting) or P.110 (sub base porting).

### How to order



- Series model No. is "MN \* G \* X12-". Other descriptions are common with example of model number of other series.
- For individual wiring, refer to P.89 (body porting) or P.95 (sub base porting), while for reduced wiring, refer to P.102, 103 (body porting) or P.112, 113 (sub base porting).

### Explanation of manifold components and parts list



- Notes of 4G1/2 mix manifold  
Viewed from joint, left of mix block is 4G1 series, while right is 4G2 series.  
(Position setting of reverse direction is not available.).

### Main parts list (please refer to Page 128 to 139 about details.)

No.	Components name	Model No. (e.g.)
1	End block L	N4G1-EL-K2
2	Supply and exhaust block	N4G1-Q-8
3	Discrete valve block with solenoid valve	N4GB110-C6-H-3-K2
4	Mix block	N4G12-MIX
5	Discrete valve block with solenoid valve	N4GB210-C8-H-3-K2
6	End block R	N4G2-ER-K2

### Mass

N4G12-MIX: 49g

Please refer to each series specifications about other components.

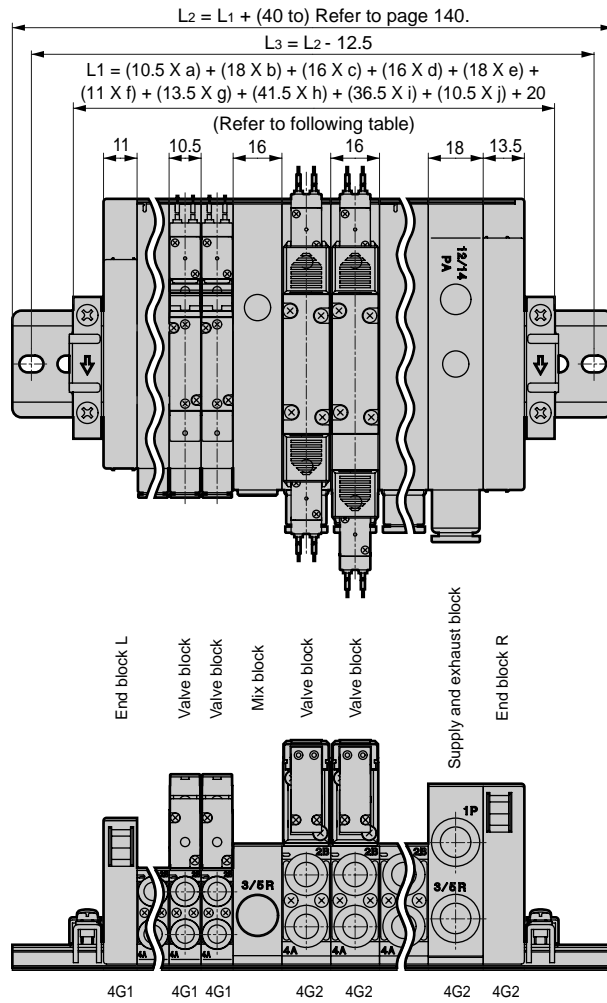
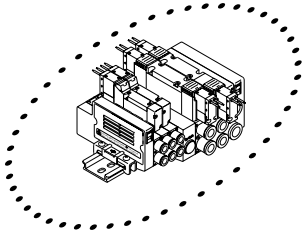
## Mix block: Dimensions

Unit: mm

### MN4GBX12

Note: Please refer to (MN4GA: Page 91 -, MN4GB: Page 97 -) about E-connector/EJ-connector/DIN terminal boxes.

Note: Please refer to Page 120 about CL\* push in joint radial type (upward).



This figure is one of examples of mix manifold. Other combinations are available. Dimensions are as following. Refer or the previous page to assemble them.

Parts name	Dimensions
a : 4G1 valve block quantity	10.5 X a
b : 4G2 valve block quantity	16 X b
c : Mix block quantity	16 X c
d : 4G1 supply and exhaust block quantity	16 X d
e : 4G2 supply and exhaust block quantity	18 X e
f : 4G1 end block L quantity	11 X f
g : 4G2 end block R quantity	13.5 X g
h : 4G1/2 reduced wiring T30/T53 quantity	41.5 X h
i : 4G1/2 reduced wiring T7* quantity	36.5 X i
j : 4G1/2 partition block quantity	10.5 X j

Note 1 : Mix block is always inserted between 4G1 and 4G2.

Note 2 : Max. station number is 20 station.

## Block manifold: Block parts construction

---

Flexible block structure enables easy increase/decrease of station and easy maintenance.

- **Valve block with solenoid valve**

- (1) Install required type and quantity of solenoid valves on DIN rail.  
Station No. is decided according to electric connection method. (Refer to Page 100, 110.)
- (2) Viewed from joint, solenoid valve number is allocated such as station 1.2.3...

- **Supply/exhaust block**

- (1) Install required quantity onto block connections.
- (2) Both internal and external pilot types are available. Please select the proper type according to solenoid valve type.

- **End block**

- (1) When individual wiring specifications, install the block on the both sides.
- (2) When reduced wiring specifications, install the block at the opposite side of wiring block.

- **Partition block**

- (1) When multi-pressure specifications, install the block with supply/exhaust block.

- **Mix block**

- (1) When mix manifold of 4G1 and 4G2 on the same DIN rail, install the mix block.  
Effect of reduced piping is obtained.



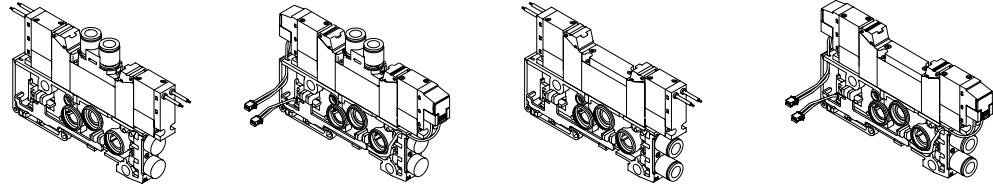
### Block manifold structure

#### Piping section

#### Piping block

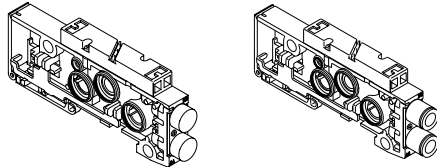
##### A Discrete valve block with solenoid valve

- Body porting for individual wiring
- Body porting for reduced wiring
- Sub base porting for individual wiring
- Sub base porting for reduced wiring



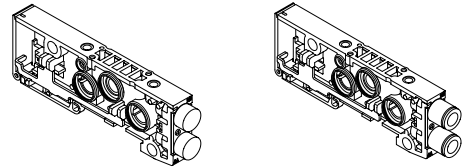
##### B Discrete valve block with masking plate

- Body porting
- Sub base porting



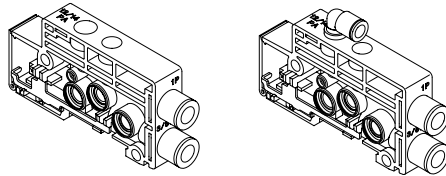
##### C Discrete valve block

- Body porting
- Sub base porting



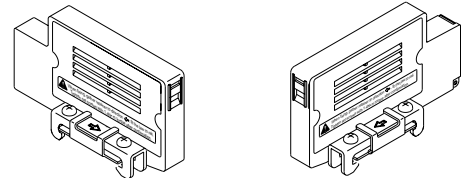
##### D Supply and exhaust block

- Internal pilot operated
- External pilot

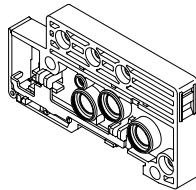


##### E End block

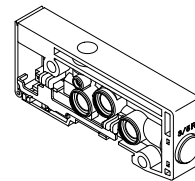
- Left
- Right



##### F Partition block



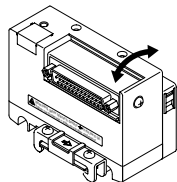
##### G Mix block



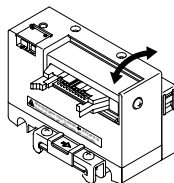
#### Wiring section

#### Wiring block

##### H D-sub connector block

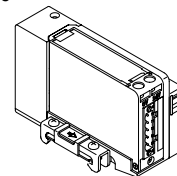


##### I Flat cable connector block



##### J Serial transmission block

- Thin slot type

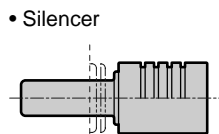
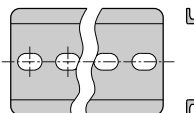


#### Related products

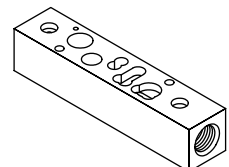
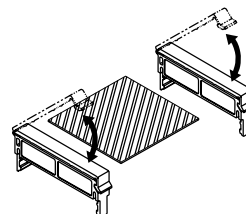
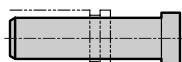
#### Related products

##### K Related products

- Mounting rail
- Silencer
- Tag plate
- Air supply spacer



- Blanking plug



# MN4GA/4GB Series

## Block manifold: Piping section

### Piping section

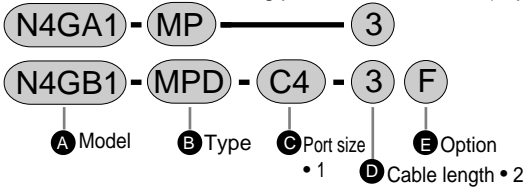
#### A. Discrete valve block with solenoid valve

This block is assembled with solenoid valve and valve block (separated resin base).  
Please refer to the following page about selection guide.

- Body porting individual wiring : Page 89
- Sub base porting individual wiring : Page 95
- Body porting reduced wiring : Page 102, 103
- Sub base porting reduced wiring : Page 112, 113

#### B. Discrete valve block with masking plate

Block assembled with masking plate and valve block (separated resin base)

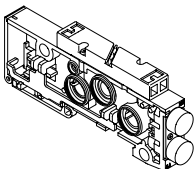


A Model	B Type	C Port size (only for 4GB1/4GB2) • 1	D Cable length • 2	E Option
N4GA1	MP	Individual wiring	C4	4 mm push in joint
N4GA2	MPS	Reduced wiring mono-stable	C6	6 mm push in joint
N4GB1	MPD	Reduced wiring bi-stable / 5/3	C8	8 mm push in joint (4GB2 only)
N4GB2			CL4	4 mm push in joint radial type (upward) (4GB1 only)
			CL6	6 mm push in joint radial type (upward)
			CL8	8 mm push in joint radial type (upward) (4GB2 only)
		Single plug specifications	Port A	Port B
		C4NC	4 mm push in joint	Plug
		C6NC	6 mm push in joint	
		C8NC	8 mm push in joint (4GB2 only)	
		C4NO	Plug	4 mm push in joint
		C6NO		6 mm push in joint
		C8NO		8 mm push in joint (4GB2 only)
		CL4NC	4 mm push in joint radial (upward) (4GB1 only)	Plug
		CL6NC	6 mm push in joint radial (upward)	
		CL8NC	8 mm push in joint radial (upward)	
		CL4NO	Plug	4 mm push in joint radial (upward) (4GB1 only)
		CL6NO		6 mm push in joint radial (upward)
		CL8NO		8 mm push in joint radial (upward) (4GB2 only)

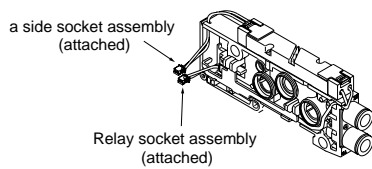
- 2. When purchasing for expansion of reduced wiring manifold, socket assembly is attached. Refer to the following page to select cable length, and fill out cable length. When placing order with the manifold specification sheet, cable length is not required.

• 1. CL\* push in joint radial type (upward) is available only for single solenoid.

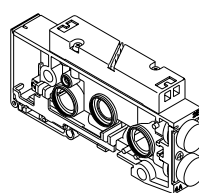
N4GA1-MP



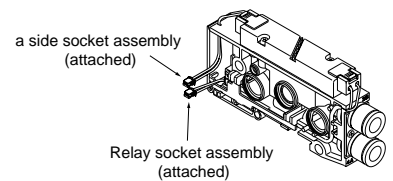
N4GB1-MPD-C4-3



N4GA2-MP



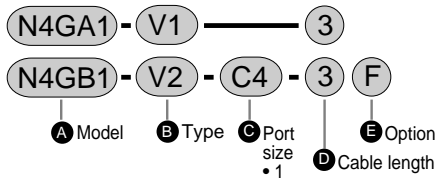
N4GB2-MPD-C6-5



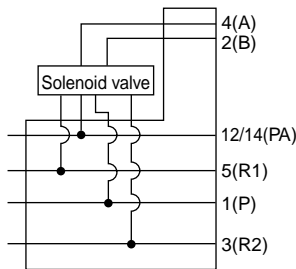
### Piping section

### C. Discrete valve block

Discrete valve block (separated resin base).



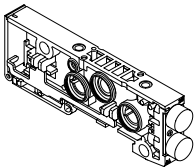
A Model	B Type	C Port size (only for 4GB1/4GB2) • 1	D Cable length	E Option
N4GA1	V1	Individual wiring	C4 4 mm push in joint	Blank Individual wiring
N4GA2		Reduced wiring mono-stable	C6 6 mm push in joint	Blank No option
N4GB1	V2	Reduced wiring bi-stable / 5/3	C8 8 mm push in joint (4GB2 only)	F Filter incorporated in Port 4/2
N4GB2		CL4 4 mm push in joint radial type (upward) (4GB1 only)	CL6 6 mm push in joint radial type (upward)	CL8 8 mm push in joint (4GB2 only)
		Single plug specifications		
		Port A	Port B	
		C4NC 4 mm push in joint	Plug	
		C6NC 6 mm push in joint		
		C8NC 8 mm push in joint (4GB2 only)		
		C4NO	Plug	4 mm push in joint
		C6NO		6 mm push in joint
		C8NO		8 mm push in joint (4GB2 only)
		CL4NC 4 mm push in joint radial (upward) (4GB1 only)	Plug	
		CL6NC 6 mm push in joint radial (upward)		
		CL8NC 8 mm push in joint radial (upward)		
		CL4NO	Plug	4 mm push in joint radial (upward) (4GB1 only)
		CL6NO		6 mm push in joint radial (upward)
		CL8NO		8 mm push in joint radial (upward) (4GB2 only)



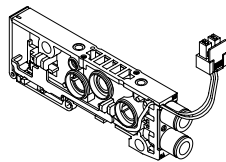
Discrete valve block circuit diagram

• 1. CL\* push in joint radial type (upward) is available only for single solenoid.

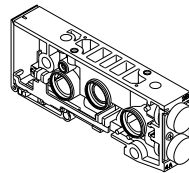
N4GA1-V1



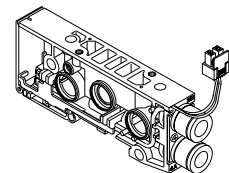
N4GB1-V2-C4



N4GA2-V1



N4GB2-V2-C6



### Valve block cable length for expansion

Find Distance W between expansion position and wiring block (Fig.1), and refer to <<Table 1>> to select adequate cable length.

Socket assemblies of Solenoid a and b are different.

Fig.1 shows left specifications wiring block. In the case of right specifications, calculate Distance W between expansion position and wiring block as well as left specifications.

Calculation of W

• When MN4G1

$$W = (10.5x_n) + (16x_m) + (10.5x_l)$$

• When MN4G2

$$W = (16x_n) + (18x_m) + (10.5x_l)$$

n : Valve block quantity, m: Supply/exhaust block quantity,  
l : Partition block quantity

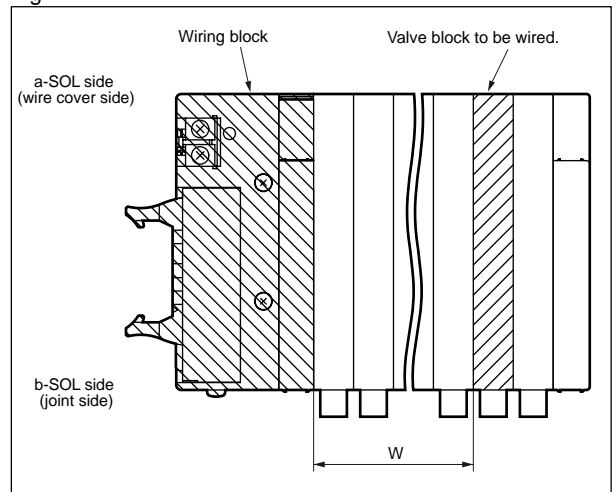
• When MN4GX

When calculation, width of mix block should be 16.

<<Table 1>> W length - selection No. table

Selection No.	Wire type		
	T10/11(R)	T30/53(R)	T7*
2		0	25 or less
3	20 or less	0 to 30	25 to 55
4	20 to 70	30 to 80	55 to 105
5	70 to 120	80 to 130	105 to 155
6	120 to 170	130 to 180	155 to 205
7	170 to 260	180 to 270	205 to 295
8	260 to 350	270 to 360	295 to 385
9	350 to 450	360 to 460	385 to 485
10	450 to 570	460 to 580	485 to 605

Fig.1



# MN4GA/4GB Series

## Block manifold: Piping section

### Piping section

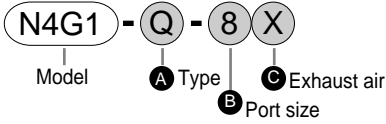
Some combination may cause malfunctions. Please select blocks after understanding each block function.

#### D. Supply/exhaust block

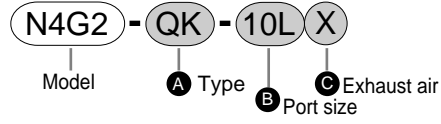
Supply/exhaust block can be installed at any location adjacent to the valve block.

When selecting combination with partition block or increasing supply and exhaust flow rate, install more than 2 units.

To prevent foreign matter entering, filter is incorporated in Port 1.

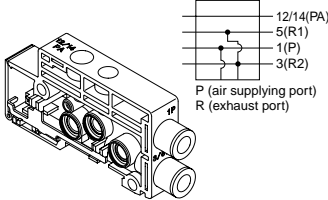


A Type	B Port size	C Exhaust air
Q Internal pilot	6 6 mm push in joint	Blank Common exhaust
QK External pilot	6L 6 mm push in joint Up	X Atmospheric release
	6.4 6.4 mm push in joint	(When X, for end block, select option of atmospheric release.)
	6.4L 6.4 mm push in joint Up	
	8 8 mm push in joint	
	8L 8 mm push in joint Up	

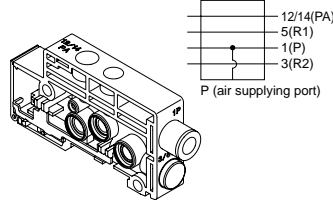


A Type	B Port size	C Exhaust air
Q Internal pilot	8 8 mm push in joint	Blank Common exhaust
QK External pilot	8L 8 mm push in joint Up	X Atmospheric release
	10 10 mm push in joint	(When X, for end block, select option of atmospheric release.)
	10L 10 mm push in joint Up	

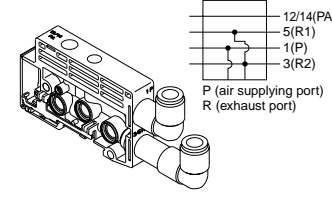
N4G1-Q-8



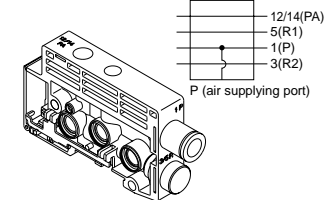
N4G1-Q-8X



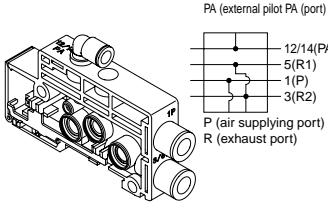
N4G2-Q-10L



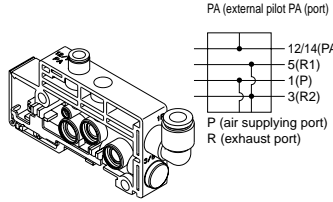
N4G2-Q-10X



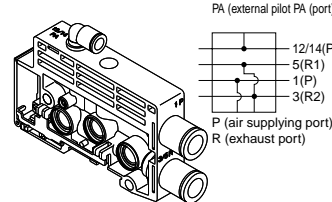
N4G1-QK-8



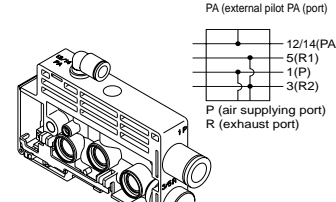
N4G1-QK-8LX



N4G2-QK-10



N4G2-QK-10X



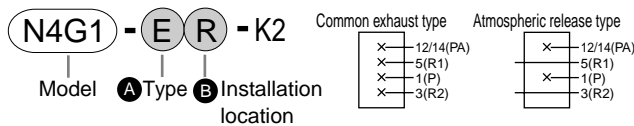
• External pilot port: 6 mm dia. push in joint

• External pilot port: 6 mm dia. push in joint

#### E. End block

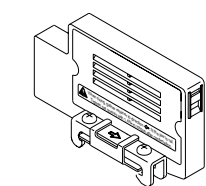
When individual wiring, for install manifold of both ends. When reduced wiring, install the block on the opposite side of wiring block.

For atmospheric release type, muffler is incorporated.

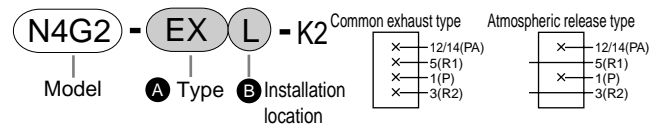
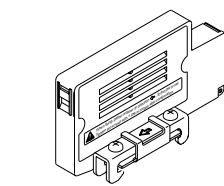


A Type	B Installation location
E Common exhaust	L For left side
EX Atmospheric release	R For right side

N4G1-EL-K2

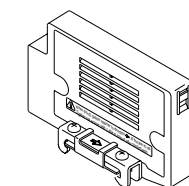


N4G1-ER-K2

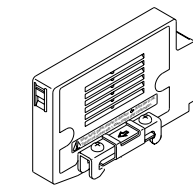


A Type	B Installation location
E Common exhaust	L For left side
EX Atmospheric release	R For right side

N4G2-EL-K2



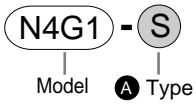
N4G2-ER-K2



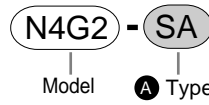
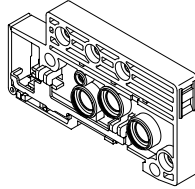
### Piping section

#### F. Partition block

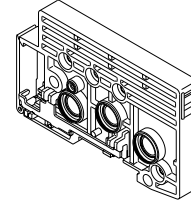
Combining partition block and supply/exhaust block enables multi-pressure mix manifold and prevents back pressure increase.



N4G1-S

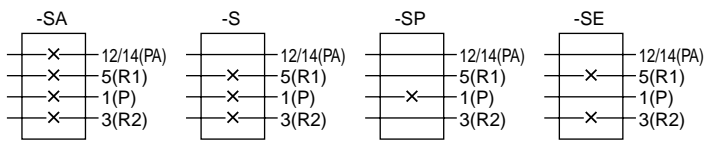


N4G2-S



A Type	
SA	1/3/5/12/14 not go
S	1/3/5 not go, 12/14 go
SP	1 not go, 3/5/12/14 go
SE	3/5 not go, 11/12/14 go

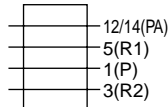
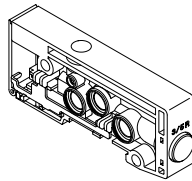
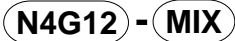
A Type	
SA	1/3/5/12/14 not go
S	1/3/5 not go, 12/14 go
SP	1 not go, 3/5/12/14 go
SE	3/5 not go, 11/12/14 go



#### G. Mix block

When mix manifold of 4G1 and 4G2, this block will be installed.

4G1 is installed at left side of mix block, while 4G2 is installed at right side.



# MN4GA/4GB Series

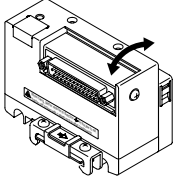
Block manifold: Wiring section

## Wiring section

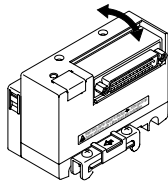
(Wiring block) \* When placing an order, discrete wiring block is not available.

### H. D-sub connector block

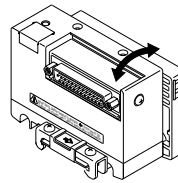
N4G1-T30



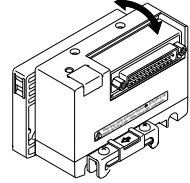
N4G1-T30R



N4G2-T30



N4G2-T30R

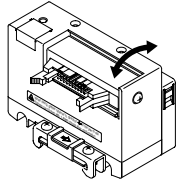


\* Refer to page 151 about the cable with D-sub connector.

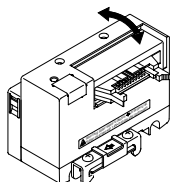
### I. Flat cable connector block

• No power supply terminal

N4G1-T53

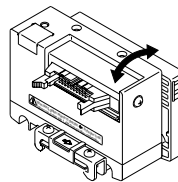


N4G1-T53R

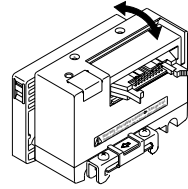


• No power supply terminal

N4G2-T53



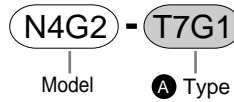
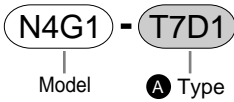
N4G2-T53R



• Pin quantity is different from the figure.

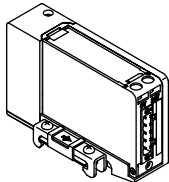
### J. Serial transmission block

• Thin slot type



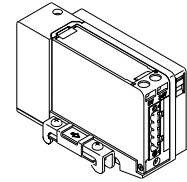
A Type	
T7D1	DeviceNet
T7G1	CC-Link

N4G1-T7\*



A Type	
T7D1	DeviceNet
T7G1	CC-Link

N4G2-T7\*



• Cable connector is attached.

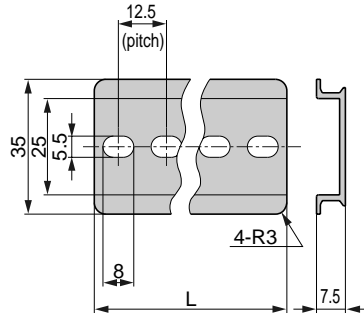
• Cable connector is attached.

## Related products

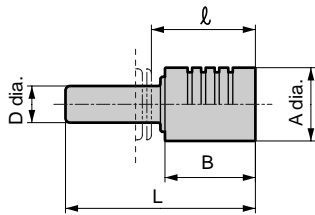
Mounting rail, silencer, blanking plug

### • Mounting rail

N4G-BAA <length>

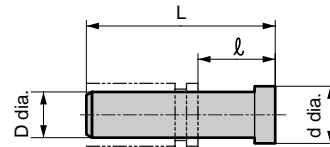


### • Silencer



Model No.	D	L	A	B	l
SLW-H6	6 dia.	41	16	20	23.5
SLW-H8	8 dia.	42	16	20	23
SLW-H10	10 dia.	53	20	27	31.5

### • Blanking plug



Model No.	D	L	l	d
GWP4-B	4 dia.	27	11	6
GWP6-B	6 dia.	29	11.5	8
GWP8-B	8 dia.	33	14	10
GWP10-B	10 dia.	40	18.5	12



# MN4GA/4GB Series

## Block manifold: Related products

### Related products

- **Tag plate** Attached to manifold body.  
If necessary, circle the tag plate column of manifold specifications on Page 142 to 145.

<Tag holder>

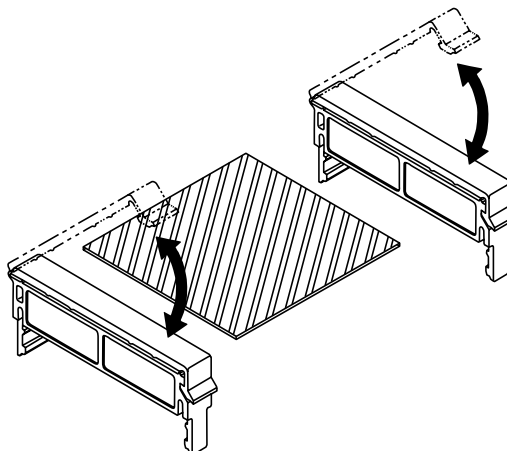
### N4G1 - TAG-HOLDER

**A** Model

N4G1

N4G2

(2 pcs./set.)



<Tag plate>

### N4G1 - TAG-PLATE - A - Length<sup>Note 1</sup>

A Model	B Type		C Length (mm) <sup>Note 1</sup>
N4G1	A	4GA1/2 common	200
	B1	Wide type for 4GB1	300
	B2	Narrow type for 4GB1 <sup>Note 2</sup>	400
N4G2	B	4GB2	

Note 1 : 3 types of length 200,300,400 are available.

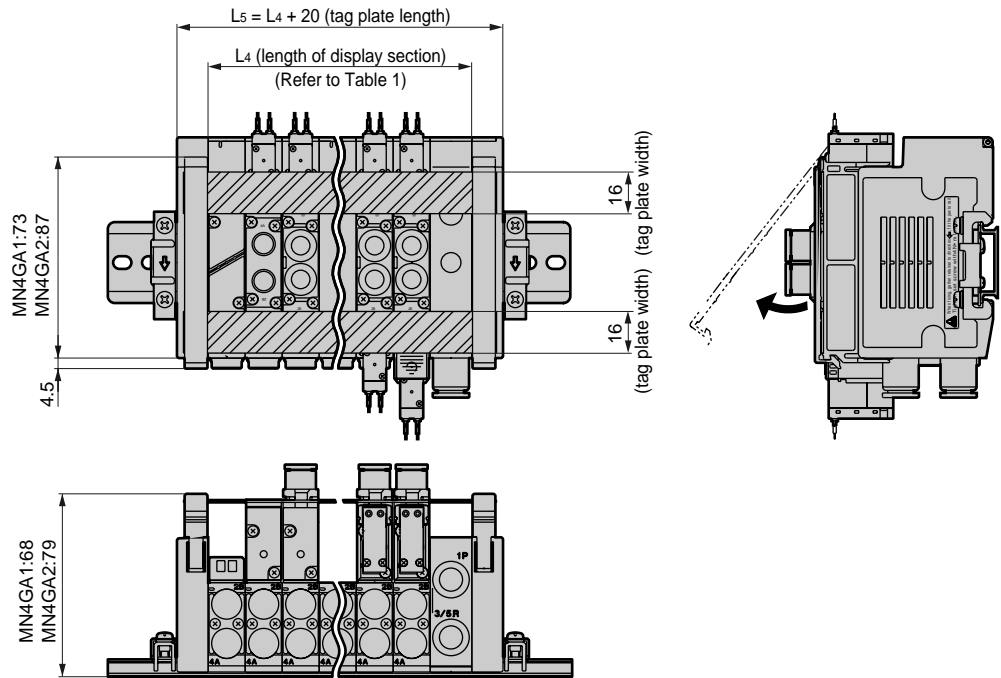
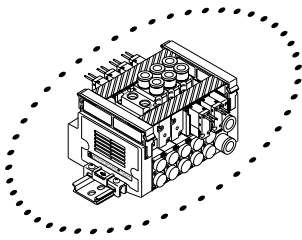
Note 2 : For narrow type, even the tag plate is covered, manual operation is possible.

### Dimensions: Tag plate

Unit: mm

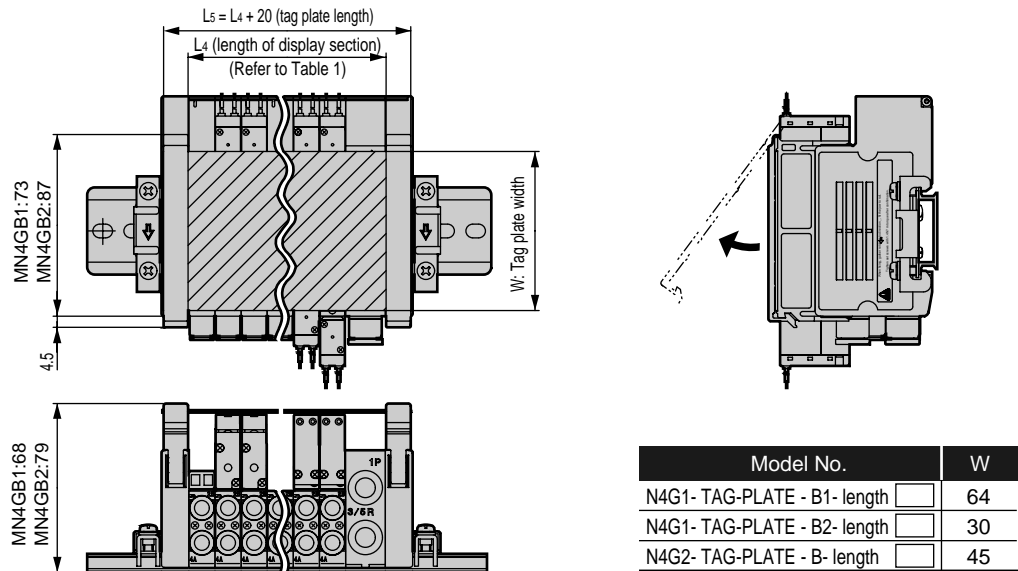
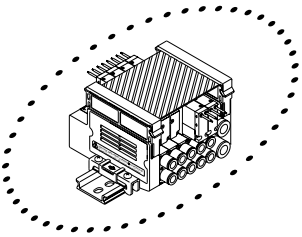
#### MN4GA1/2

- Tag plate (TAG)



#### MN4GB1/2

- Tag plate (TAG)



Model No.	W
N4G1- TAG-PLATE - B1- length	64
N4G1- TAG-PLATE - B2- length	30
N4G2- TAG-PLATE - B- length	45

Table 1: Formula of L4 (length of display section)

4 GA		4 GB	
MN4GA1	$L_4 = (10.5 \times n) + (16 \times m) + (10.5 \times l)$	MN4GB1	$L_4 = (10.5 \times n) + (16 \times m) + (10.5 \times l)$
MN4GA2	$L_4 = (16 \times n) + (18 \times m) + (10.5 \times l)$	MN4GB2	$L_4 = (16 \times n) + (18 \times m) + (10.5 \times l)$

n : Valve block quantity

m : Supply and exhaust block quantity

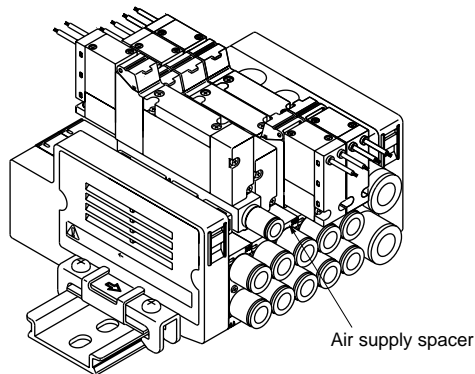
l : Partition block quantity

# MN4GA/4GB Series

Block manifold; Related product

## Related product

- Air supply spacer



## Specifications

Descriptions		4G1	4G2
Port size		M5	G1/8
Flow rate ℓ/min (Note 1)	1 → 4/2	164	431
	4/2 → 5/3	185	414
Mass (g)		8	35

Note 1: The above value is the value when the valve is mounted.

Note 2: Flow rate is the value at pressure 5bar, temperature 20°C.

## How to order

4G1 - P - K2

4G2 - P - K2

Air supply spacer

Attached: Set screw 2 pcs., PR check valve 2 pcs., body gasket 1pc.

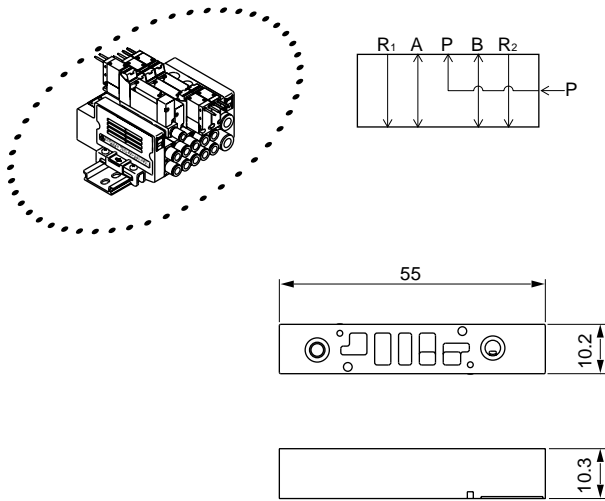


## Precautions for selection guide

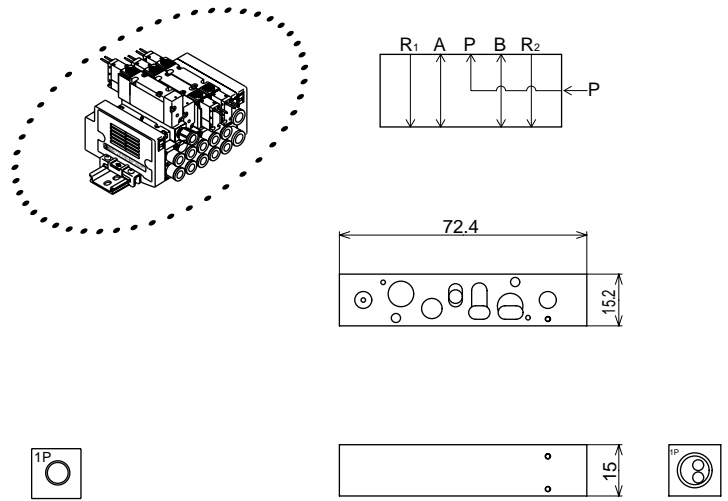
- Note 1 Specify the location and quantity of the supply spacer on the manifold specification sheet.
- Note 2 When elbow type joints are selected for ports 2 and 4 in combination with a separate air supply spacer, the supply port of the spacer will be positioned on the opposite side to the 'a' solenoid.
- Note 3 For a reduced wiring manifold with an elbow type 4/2 port joint, the supply spacer cannot be selected.
- Note 4 Combination with the masking plate is not available.

## Dimensions

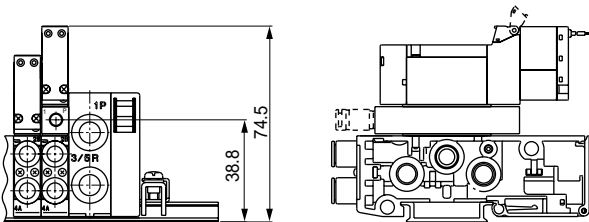
• 4G1



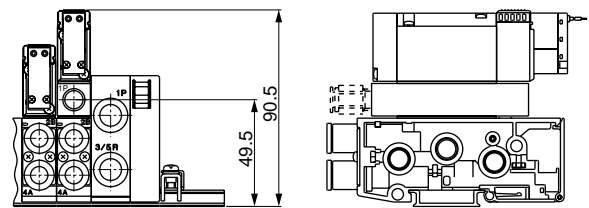
• 4G2



Dimensions for installation



Dimensions for installation



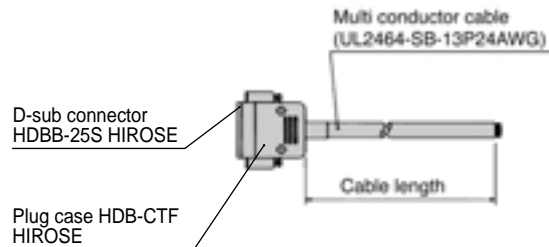
## How to order cable with D sub connector

**N4T** - **CABLE** - **D00** - **1**

Symbol		Model
A	0	N4T Cut only Round terminal for M3.5 screws
	1	
B	1	1m
	3	3m
	5	5m

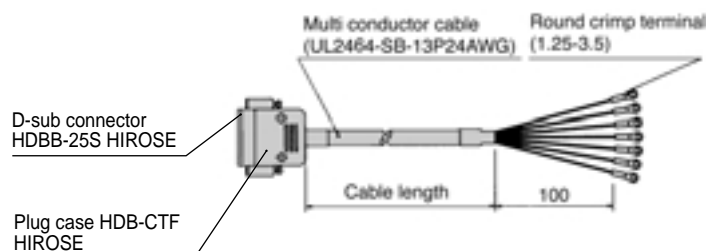
## D-sub connector No. and conductor

### • N4T-CABLE-D00-B



D-sub connector terminal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	
Conductor I.D.	Color of isolator	Orange	Orange	Yellow	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow
	Mark type	1 point	1 point	1 point	1 point	1 point	1 point	1 point	1 point	1 point	1 point	2 points	2 points	2 points
	Color of mark	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black
D-sub connector terminal No.	14	15	16	17	18	19	20	21	22	23	24	25		
Conductor I.D.	Color of isolator	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow	Yellow	Green	
	Mark type	2 points	2 points	2 points	2 points	2 points	2 points	2 points	3 points	3 points	3 points	3 points	3 points	
	Color of mark	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	

### • N4T-CABLE-D01-B



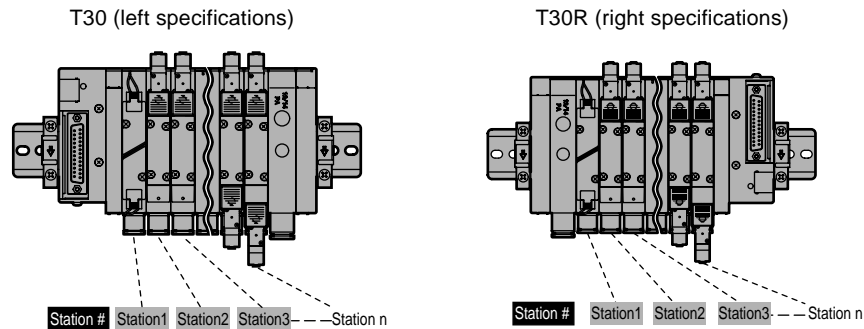
D-sub connector terminal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	
Conductor I.D.	Color of isolator	Orange	Orange	Yellow	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow
	Mark type	1 point	1 point	1 point	1 point	1 point	1 point	1 point	1 point	1 point	1 point	2 points	2 points	2 points
	Color of mark	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black
Mark tube No.	1	2	3	4	5	6	7	8	9	10	11	12	13	
D-sub connector terminal No.	14	15	16	17	18	19	20	21	22	23	24	25		
Conductor I.D.	Color of isolator	Yellow	Green	Green	Gray	Gray	White	White	Orange	Orange	Yellow	Yellow	Green	
	Mark type	2 points	2 points	2 points	2 points	2 points	2 points	2 points	3 points	3 points	3 points	3 points	3 points	
	Color of mark	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	Red	Black	
Mark tube No.	14	15	16	17	18	19	20	21	22	23	24	25		

• The cable is for 24 points. Cut the non-use wires.

### D-sub connector: Wiring method T30

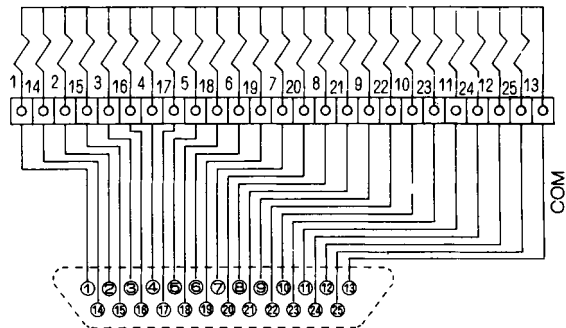
#### About T30 connector

Wiring method T30 connector is generally called as D-sub connector, widely used in FA and OA components. Especially, 25P type is conformable with RS232C standards and used for PC communication. Viewed from piping port, station No. is allocated from left.



#### Cautions for connector type T30

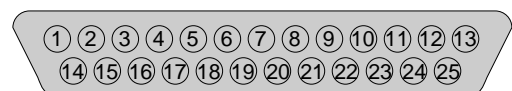
- (1) Signal arrays of PLC output unit and valve side should be matched.
- (2) Power source is DC24V or DC12V.
- (3) Voltage drop may occur depending on simultaneous energizing or cable length. Voltage drop of solenoid should be within 10% of rated voltage.



#### Connector pin array of wiring method T30 (e.g.)

\* 1: Valve No. 1a, 1b, 2a, 2b...numbers show Station 1, 2... while alphabet a and b show Solenoid a and b.  
Max. station number differs depending on model.  
Confirm individual specifications.

#### Connector pin No.



#### <Standard wire>

• When single solenoid valve only

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Valve No.	1a	3a	5a	7a	9a	11a	13a	15a	17a	19a	21a	23a	COM
Pin No.	14	15	16	17	18	19	20	21	22	23	24	25	
Valve No.	2a	4a	6a	8a	10a	12a	14a	16a	18a	20a	22a	24a	

• When double solenoid valve only

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a	COM
Pin No.	14	15	16	17	18	19	20	21	22	23	24	25	
Valve No.	1b	2b	3b	4b	5b	6b	7b	8b	9b	10b	11b	12b	

• When mix (single/double mixture)

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Valve No.	1a	3a	4a	5a	7a	8a	10a	11b	12b	14a	15b	17a	COM
Pin No.	14	15	16	17	18	19	20	21	22	23	24	25	
Valve No.	2a	3b	4b	6a	7b	9a	11a	12a	13a	15a	16a	17b	

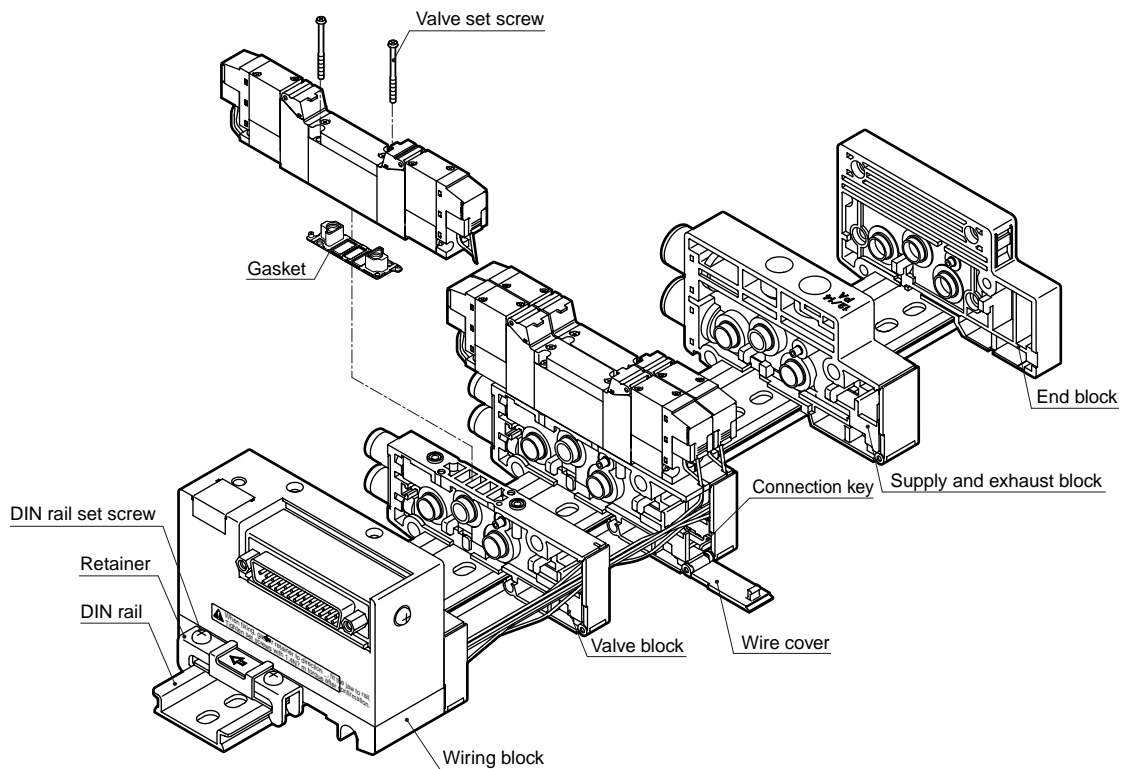
#### <Double wiring>

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a	COM
Pin No.	14	15	16	17	18	19	20	21	22	23	24	25	
Valve No.	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a	COM
Pin No.	14	15	16	17	18	19	20	21	22	23	24	25	
Valve No.	1b	2b	3b	4b	5b	6b	7b	8b	9b	10b	11b	12b	

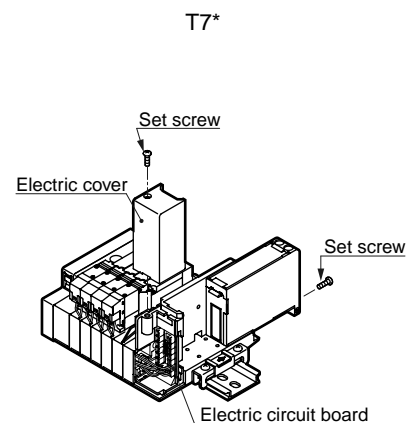
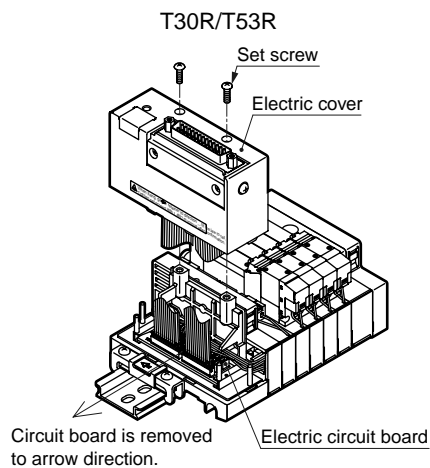
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13
Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a	COM
Pin No.	14	15	16	17	18	19	20	21	22	23	24	25	
Valve No.	(Void)	(Void)	3b	4b	(Void)	(Void)	7b	(Void)	(Void)	(Void)	(Void)	11b	12b

### MN4G (deal drawing of block manifold)



Example: When MN4GB1 D-sub connector right wiring specifications

### Dismounting of electric cover



### Valve replacement

#### Dismounting method

- (1) Remove the socket (signal wire).
- (2) Loosen set screws (two).
- (3) Remove valve from valve block.

#### Installation method

Perform the reverse way of dismounting.

Refer to right descriptions about recommended tightening torque of set screw.

Note) Valve blocks of (V1) for mono-stable and (V2) for bi-stable are different specifications. Therefore when changing mono-stable → bi-stable or change bi-stable → mono-stable, replace whole discrete valve block with solenoid.

#### Recommended tightening torque of valve set screw

	Size	Recommended tightening torque (N·m)
4G1	M1.7	0.18 to 0.22
4G2	M2.5	0.35 to 0.40

## Technical data 4) How to expand reduced wiring manifold

### Valve block expansion

- 1) Loosen DIN rail set screws of retainer. (Refer to deal drawing)
- 2) Open the wire cover.
- 3) Pull the connection key of station to be expanded with a snap to remove the connection between blocks.
- 4) Remove the cover of wiring block to bare electric circuit board. [Electric cover dismounting]
- 5) Connect signal wire (socket assembly) [• 1] to electric circuit board [• 2], and assemble signal wire to valve block. (Fig. 1)
  - 1 [Refer to how to select socket assembly model No. for expansion].
  - 2 [Refer to instruction manual of electric circuit board connection].
- 6) Install an additional valve block on DIN rail.
- 7) Put blocks not to make gaps, and push keys to connect them.
- 8) Close the wire cover, and fix the cover of wiring block not to bite signal wires. (Tightening torque: 0.35 to 0.50 N·m)
- 9) A) Fit the jaw of retainer to DIN rail,  
 B) Put blocks not to make gaps between blocks,  
 C) Push retainer to the arrow direction.  
 D) Tighten DIN rail set screw. (Fig. 2) (Tightening torque: 1.2 to 1.6 N·m)

\* If the block position is closer than the most farther location from wiring block, expansion is possible up to 2 station.

### How to select socket assembly model No. for expansion

Find Distance W between expansion position and wiring block (Fig. 3), and refer to <<Table 1>> to select adequate cable length. Socket assemblies of Solenoid a and b are different. Fig.3 shows left specifications wiring block. In the case of right specifications, calculate Distance W between expansion position and wiring block as well as left specifications.

#### Calculation of W

- When MN4G1  

$$W = (10.5 \times n) + (16 \times m) + (10.5 \times l)$$
- When MN4G2  

$$W = (16 \times n) + (18 \times m) + (10.5 \times l)$$

n: Valve block quantity, l: Partition block quantity,  
 m: Supply/exhaust block quantity
- When MN4GX  
 When calculation, width of mix block should be 16.

<<Socket assembly model No. for expansion >>

Solenoid a

N4G- SOCKET - ASSY - A - [Selection No.]

Solenoid b

N4G- RELAY - SOCKET - [Selection No.]

Fig. 1

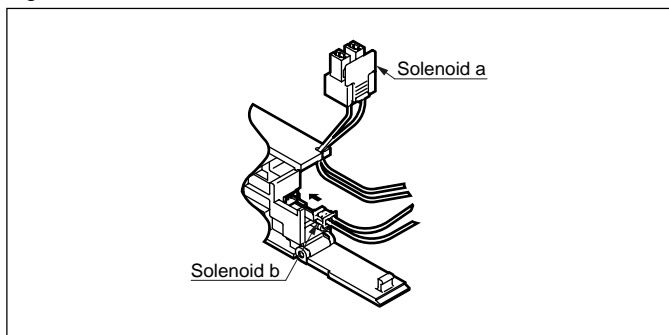


Fig. 2

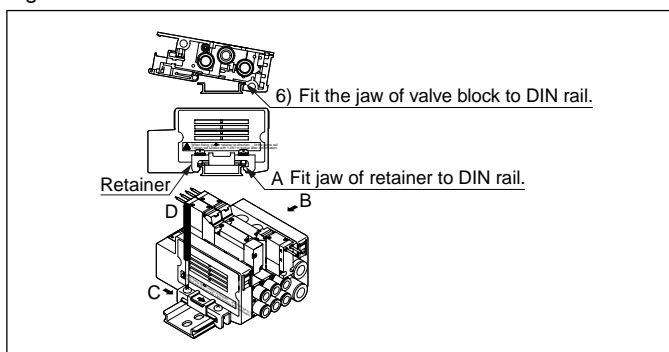
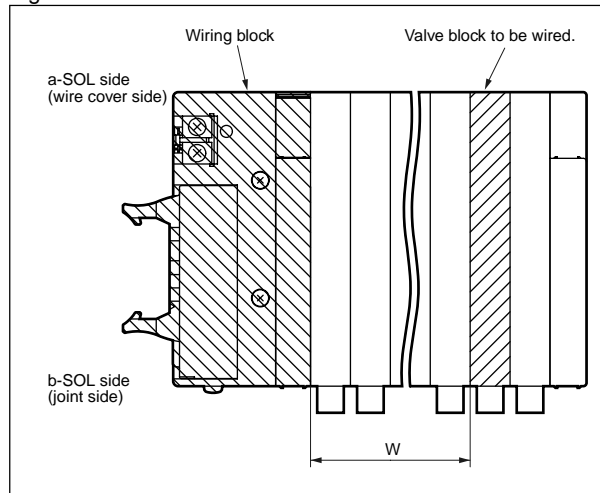


Fig. 3



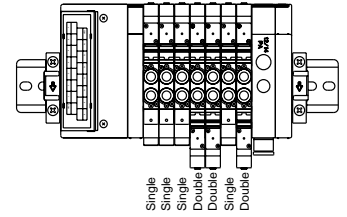
<<Table 1>> W length - selection No. table

Selection No.	Wire type		
	T10/11(R)	T30/5*/6*(R)	T7*
2		0	25 or less
3	20 or less	0 to 30	25 to 55
4	20 to 70	30 to 80	55 to 105
5	70 to 120	80 to 130	105 to 155
6	120 to 170	130 to 180	155 to 205
7	170 to 260	180 to 270	205 to 295
8	260 to 350	270 to 360	295 to 385
9	350 to 450	360 to 460	385 to 485
10	450 to 570	460 to 580	485 to 605



## Technical data 4) How to expand reduced wiring manifold

### Electric circuit board connection instruction (standard wire)



Connector and valve's compatibility on electric circuit board may differ depending on reduced wiring specifications (T30, T53, T7\*). When wiring connector, confirm connector No. printed on circuit board.

Wiring of mix manifold is shown according to example of manifold structure as right diagram.

	T30	T53																																																																																																																																																																																																																								
Electric circuit board assembly																																																																																																																																																																																																																										
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Compatibility with valves	<p>1) When single SOL (Max. 24 station)</p> <table border="1"> <tr><td>Connector No.</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr> <tr><td>Valve No.</td><td>1a</td><td>3a</td><td>5a</td><td>7a</td><td>9a</td><td>11a</td><td>13a</td><td>15a</td><td>17a</td><td>19a</td><td>21a</td><td>23a</td></tr> <tr><td>Connector No.</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td></tr> <tr><td>Valve No.</td><td>2a</td><td>4a</td><td>6a</td><td>8a</td><td>10a</td><td>12a</td><td>14a</td><td>16a</td><td>18a</td><td>20a</td><td>22a</td><td>24a</td></tr> </table> <p>2) When double SOL (Max. 12 station)</p> <table border="1"> <tr><td>Connector No.</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr> <tr><td>Valve No.</td><td>1a</td><td>2a</td><td>3a</td><td>4a</td><td>5a</td><td>6a</td><td>7a</td><td>8a</td><td>9a</td><td>10a</td><td>11a</td><td>12a</td></tr> <tr><td>Connector No.</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td></tr> <tr><td>Valve No.</td><td>1b</td><td>2b</td><td>3b</td><td>4b</td><td>5b</td><td>6b</td><td>7b</td><td>8b</td><td>9b</td><td>10b</td><td>11b</td><td>12b</td></tr> </table>	Connector No.	1	2	3	4	5	6	7	8	9	10	11	12	Valve No.	1a	3a	5a	7a	9a	11a	13a	15a	17a	19a	21a	23a	Connector No.	14	15	16	17	18	19	20	21	22	23	24	25	Valve No.	2a	4a	6a	8a	10a	12a	14a	16a	18a	20a	22a	24a	Connector No.	1	2	3	4	5	6	7	8	9	10	11	12	Valve No.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12a	Connector No.	14	15	16	17	18	19	20	21	22	23	24	25	Valve No.	1b	2b	3b	4b	5b	6b	7b	8b	9b	10b	11b	12b	<p>• When single SOL (Max. station number of MN4G: 24 station, MN4G2: 20 station)</p> <table border="1"> <tr><td>Pin No.</td><td>25</td><td>23</td><td>21</td><td>19</td><td>17</td><td>15</td><td>13</td><td>11</td><td>9</td><td>7</td><td>5</td><td>3</td><td>1</td></tr> <tr><td>Valve No.</td><td>COM</td><td>23a</td><td>21a</td><td>19a</td><td>17a</td><td>15a</td><td>13a</td><td>11a</td><td>9a</td><td>7a</td><td>5a</td><td>3a</td><td>1a</td></tr> <tr><td>Pin No.</td><td>26</td><td>24</td><td>22</td><td>20</td><td>18</td><td>16</td><td>14</td><td>12</td><td>10</td><td>8</td><td>6</td><td>4</td><td>2</td></tr> <tr><td>Valve No.</td><td>COM</td><td>24a</td><td>22a</td><td>20a</td><td>18a</td><td>16a</td><td>14a</td><td>12a</td><td>10a</td><td>8a</td><td>6a</td><td>4a</td><td>2a</td></tr> </table> <p>• When double SOL (Max. 12 station)</p> <table border="1"> <tr><td>Pin No.</td><td>25</td><td>23</td><td>21</td><td>19</td><td>17</td><td>15</td><td>13</td><td>11</td><td>9</td><td>7</td><td>5</td><td>3</td><td>1</td></tr> <tr><td>Valve No.</td><td>COM</td><td>12a</td><td>11a</td><td>10a</td><td>9a</td><td>8a</td><td>7a</td><td>6a</td><td>5a</td><td>4a</td><td>3a</td><td>2a</td><td>1a</td></tr> <tr><td>Pin No.</td><td>26</td><td>24</td><td>22</td><td>20</td><td>18</td><td>16</td><td>14</td><td>12</td><td>10</td><td>8</td><td>6</td><td>4</td><td>2</td></tr> <tr><td>Valve No.</td><td>COM</td><td>12b</td><td>11b</td><td>10b</td><td>9b</td><td>8b</td><td>7b</td><td>6b</td><td>5b</td><td>4b</td><td>3b</td><td>2b</td><td>1b</td></tr> </table>	Pin No.	25	23	21	19	17	15	13	11	9	7	5	3	1	Valve No.	COM	23a	21a	19a	17a	15a	13a	11a	9a	7a	5a	3a	1a	Pin No.	26	24	22	20	18	16	14	12	10	8	6	4	2	Valve No.	COM	24a	22a	20a	18a	16a	14a	12a	10a	8a	6a	4a	2a	Pin No.	25	23	21	19	17	15	13	11	9	7	5	3	1	Valve No.	COM	12a	11a	10a	9a	8a	7a	6a	5a	4a	3a	2a	1a	Pin No.	26	24	22	20	18	16	14	12	10	8	6	4	2	Valve No.	COM	12b	11b	10b	9b	8b	7b	6b	5b	4b	3b	2b	1b
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Wire in turn of arrow sequence.	<p>3) When mix manifold (Max. 24 solenoids)</p> <table border="1"> <tr><td>Connector No.</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr> <tr><td>Valve No.</td><td>1a</td><td>3a</td><td>4b</td><td>5b</td><td>7a</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td></tr> <tr><td>Connector No.</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td></tr> <tr><td>Valve No.</td><td>2a</td><td>4a</td><td>5a</td><td>6a</td><td>7b</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td></tr> </table> <p>• Wiring rule</p>	Connector No.	1	2	3	4	5	6	7	8	9	10	11	12	Valve No.	1a	3a	4b	5b	7a	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	Connector No.	14	15	16	17	18	19	20	21	22	23	24	25	Valve No.	2a	4a	5a	6a	7b	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	<p>• When mix (Max. 24 station)</p> <table border="1"> <tr><td>Pin No.</td><td>25</td><td>23</td><td>21</td><td>19</td><td>17</td><td>15</td><td>13</td><td>11</td><td>9</td><td>7</td><td>5</td><td>3</td><td>1</td></tr> <tr><td>Valve No.</td><td>COM</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>7a</td><td>5b</td><td>4b</td><td>3a</td><td>1a</td></tr> <tr><td>Pin No.</td><td>26</td><td>24</td><td>22</td><td>20</td><td>18</td><td>16</td><td>14</td><td>12</td><td>10</td><td>8</td><td>6</td><td>4</td><td>2</td></tr> <tr><td>Valve No.</td><td>COM</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>(Void)</td><td>7b</td><td>6a</td><td>5a</td><td>4a</td><td>2a</td></tr> </table> <p>• Wiring rule</p>	Pin No.	25	23	21	19	17	15	13	11	9	7	5	3	1	Valve No.	COM	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	7a	5b	4b	3a	1a	Pin No.	26	24	22	20	18	16	14	12	10	8	6	4	2	Valve No.	COM	(Void)	(Void)	(Void)	(Void)	(Void)	(Void)	7b	6a	5a	4a	2a																																																																																																														
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Compatibility with valves	<p>1) When single SOL only (Max. 16 station)</p> <table border="1"> <tr><td>Connector No.</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td><td>14</td><td>16</td></tr> <tr><td>Valve No.</td><td>2a</td><td>4a</td><td>6a</td><td>8a</td><td>10a</td><td>12a</td><td>14a</td><td>16a</td></tr> <tr><td>Connector No.</td><td>1</td><td>3</td><td>5</td><td>7</td><td>9</td><td>11</td><td>13</td><td>15</td></tr> <tr><td>Valve No.</td><td>1a</td><td>3a</td><td>5a</td><td>7a</td><td>9a</td><td>11a</td><td>13a</td><td>15a</td></tr> </table> <p>2) When double SOL only (Max. 8 station)</p> <table border="1"> <tr><td>Connector No.</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td><td>14</td><td>16</td></tr> <tr><td>Valve No.</td><td>1b</td><td>2b</td><td>3b</td><td>4b</td><td>5b</td><td>6b</td><td>7b</td><td>8b</td></tr> <tr><td>Connector No.</td><td>1</td><td>3</td><td>5</td><td>7</td><td>9</td><td>11</td><td>13</td><td>15</td></tr> <tr><td>Valve No.</td><td>1a</td><td>2a</td><td>3a</td><td>4a</td><td>5a</td><td>6a</td><td>7a</td><td>8a</td></tr> </table>	Connector No.	2	4	6	8	10	12	14	16	Valve No.	2a	4a	6a	8a	10a	12a	14a	16a	Connector No.	1	3	5	7	9	11	13	15	Valve No.	1a	3a	5a	7a	9a	11a	13a	15a	Connector No.	2	4	6	8	10	12	14	16	Valve No.	1b	2b	3b	4b	5b	6b	7b	8b	Connector No.	1	3	5	7	9	11	13	15	Valve No.	1a	2a	3a	4a	5a	6a	7a	8a
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