Single valve; body piping/sub-plate piping
Direct acting 3-port small pneumatic valve

3MA0/3MB0 Series

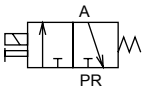
● Cylinder bore size: φ6 to φ16

CE Refer to the Ending for details.

RoHS CAD

JIS symbol

● 3-port valve NC



Common specifications

Descriptions	Content
Valve and operation	Direct acting poppet valve
Working fluid	Compressed air
Max. working pressure MPa	0.70 (≈100 psi, 7 bar)
Min. working pressure MPa	0.00 (≈0 psi, 0 bar)
Proof pressure MPa	1.05 (≈150 psi, 10.5 bar)
Ambient temperature °C	5 (41°F) to 50 (122°F)
Fluid temperature °C	5 (41°F) to 50 (122°F)
Lubrication	Not required
Degree of protection	Dust-proof
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

Electrical specifications

Descriptions	Content	
Rated voltage V	24 DC	12 DC
Voltage fluctuation range	±10%	
Rated current A *1	0.025 (0.029)	0.050 (0.058)
Power consumption W *2	0.6 (0.7)	0.6 (0.7)
Thermal class	B	
Temperature rise °C	50 (122°F)	

*1 : The values in ( ) are with a surge suppressor and indicator lamp.
*2 : The power consumption for 6/5 VDC will be 0.9 (1.0) W.

Individual specifications

Descriptions			3MA0	3MB0
Port size	P/R port		M3 *3	M3 *3
	A port		φ4 Barbed fitting	
Effective cross-sectional area *1		mm^2	P→A:0.1, A→R:0.15	
Response time *2		ms	10 or less	
Weight		g	18	

*1 : The effective cross-sectional area is the value for the single unit solenoid valve unit.
*2 : The response time is the value at 0.5 MPa supply pressure, with no lubrication, and with the power ON. It depends on the pressure and the lubricant quality.
*3 : Use barbed fitting FTS4-M3 with port size M3.

Ozone-proof specifications

** - Voltage - **P11** *4

*4 : The power consumption will be 0.9 (1.0) W.

How to order single valve

● Body piping

3MA0 1 0 - T4 - C2 - 3

● Sub-plate piping

3MB0 1 0 - M3 - C2 - 3

● Single unit solenoid valve unit (without sub-plate)

3MB0 1 9 - 00 - C2 - 3

Ⓐ Model No.

Solenoid position: 2-position single solenoid, normally closed

Solenoid valve operation classification

Ⓑ Port size

Ⓒ Electrical connections *2

* Refer to page 1543 for the circuit diagram with surge suppressor/lamp.

Ⓓ Voltage

Code	Content	Ⓐ Model No. Body piping 3MA0	Ⓐ Model No. Sub-plate piping 3MB0
Ⓑ Port size			
Port name	A port / P/R port		
T4	φ4 Barbed fitting / M 3×0.5	● *1	
M3	M 3×0.5		●
Ⓒ Electrical connections			
Blank	Grommet lead wire (300 mm)	●	●
C type connector (lead wire lateral direction)			
C	Lead wire (300 mm)	●	●
C00	Lead wire (500 mm)	●	●
C01	Lead wire (1000 mm)	●	●
C02	Lead wire (2000 mm)	●	●
C1	Without lead wire	●	●
C2	Lead wire (300 mm), surge suppressor/indicator lamp	●	●
C20	Lead wire (500 mm), surge suppressor/indicator lamp	●	●
C21	Lead wire (1000 mm), surge suppressor/indicator lamp	●	●
C22	Lead wire (2000 mm), surge suppressor/indicator lamp	●	●
C3	No lead wire, with surge suppressor/indicator lamp	●	●
D type connector (lead wire upward direction)			
D	Lead wire (300 mm)	●	●
D00	Lead wire (500 mm)	●	●
D01	Lead wire (1000 mm)	●	●
D02	Lead wire (2000 mm)	●	●
D1	Without lead wire	●	●
D2	Lead wire (300 mm), surge suppressor/indicator lamp	●	●
D20	Lead wire (500 mm), surge suppressor/indicator lamp	●	●
D21	Lead wire (1000 mm), surge suppressor/indicator lamp	●	●
D22	Lead wire (2000 mm), surge suppressor/indicator lamp	●	●
D3	No lead wire, with surge suppressor/indicator lamp	●	●
Ⓓ Voltage			
3	Standard: 24 VDC	●	●
4	Standard: 12 VDC	●	●
DC6V	Option: 6 VDC	●	●
DC5V	Option: 5 VDC	●	●

⚠ Precautions for model No. selection

*1 : Use the tubes of the following model No. for the A port piping of 3MA0.
FH-3224, F-1504, U-9532, U-9504

*2 : The lead wire used is AWG26 size. (7/0.16, outer diameter φ1.35, 0.13 mm²)

[Example of model No.]

3MA010-T4-C-3

Ⓐ Model: 3MA0 (body piping)
Solenoid position : 2-position single solenoid, normally closed

Ⓑ Port size : φ4 barbed fitting (A port), M3 (P/R port)

Ⓒ Electrical connections : With C type connector/lead wire (300 mm)

Ⓓ Voltage : 24 VDC

Individual wiring manifold; body piping/sub-plate piping
3-port direct acting small pneumatic valve

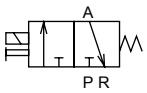
M3MA0/M3MB0 Series

● Cylinder bore size: φ6 to φ16

CE Refer to the Ending for details. RoHS CAD

JIS symbol

● 3-port valve NC



Common specifications

Descriptions	Content
Manifold method	Manifold integrated
Manifold	Common supply/common exhaust
Station No.	2 to 20 stations
Valve and operation	Direct acting poppet valve
Working fluid	Compressed air
Max. working pressure MPa	0.70 (≈100 psi, 7 bar)
Min. working pressure MPa	0.00 (≈0 psi, 0 bar)
Proof pressure MPa	1.05 (≈150 psi, 10.5 bar)
Ambient temperature °C	5 (41°F) to 50 (122°F)
Fluid temperature °C	5 (41°F) to 50 (122°F)
Lubrication	Not required
Degree of protection	Dust-proof
Vibration resistance m/s²	50 or less
Shock resistance m/s²	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

Electrical specifications

Descriptions	Content	
Rated voltage V	24 DC	12 DC
Rated voltage fluctuation range	±10%	
Rated current A *1	0.025 (0.029)	0.050 (0.058)
Power consumption W *2	0.6 (0.7)	0.6 (0.7)
Thermal class	B	
Temperature rise °C	50 (122°F)	

*1: The values in ( ) are with a surge suppressor and indicator lamp.
*2: The power consumption for 6/5 VDC will be 0.9 (1.0) W.

Individual specifications

Descriptions		3MA0	3MB0
Port size	P port	M5	
	A port	φ4 Barbed fitting	M3, M5, φ4 Push-in fitting φ4, φ6 Barbed fitting
	R port	M5	
Effective cross-sectional area *1 mm²		P→A:0.1, A→R:0.15	
Response time *2 ms		10 or less	
Weight (single only) g		10+26 × station No.	

*1: The effective cross-sectional area is the value for the single unit solenoid valve unit.
*2: The response time is the value at 0.5 MPa supply pressure, with no lubrication, and with the power ON. It depends on the pressure and the lubricant quality.

Ozone-proof specifications

** - Voltage - **P11** *3

*3: The power consumption will be 0.9 (1.0) W.

[Mix manifold]

● How to list combination descriptions
When selecting a combination manifold (write 8 from Ⓑ), list the code (refer to table on right) for required functions and the arrangement No. (numbering up to specified station No. with left side as 1) in the field for remarks below the normal model No. display as shown in the example.

Code	Function
S1	2-position single
MP	Masking plate

1	2	3	4	5	6	7
2-position single (S1)	2-position single (S1)	2-position single (S1)	2-position single (S1)	2-position single (S1)	Masking plate (MP)	Masking plate (MP)

Example

The model No. when using a combination manifold of 7 stations with an array such as that in the figure at left with A port of M3 MB0 and 24 VDC is

M3MB080-M3-7-3- 5 2
S1 MP
(**S1** = **1** to **5**, **MP** = **6**/**7**)

Enter the quantity to be used and display 0 even when none are going to be used.

● With a mix manifold, when using 10 or more actuators of the same model No., specify using the codes in the table below.

Actuator quantity	10	11	12	13	14	15	16	17	18	19
Code	A	B	C	D	E	F	G	H	I	J

How to order individual wiring manifold

● Single solenoid valve for manifold (body piping)

3MA0 1 9 - T4 - C2 —— 3

● Individual wiring manifold (body piping)

M 3MA0 1 0 - T4 - C2 - 2 - 3 - 1 1

● Single solenoid valve for manifold (sub-plate piping)

3MB0 1 9 - 00 - C2 —— 3

Indicate the valve function based quantity display position for when using a mix manifold. Refer to page 1546.

● Individual wiring manifold (sub-plate piping)

M 3MB0 1 0 - M3 - C2 - 2 - 3 - 1 1

Ⓐ Model No.

Solenoid valve operation classification

Ⓑ Solenoid position

Ⓒ Port size

Ⓓ Electrical connections

*4

* Refer to page 1543 for the circuit diagram with surge suppressor/lamp.

Ⓔ Station No.

Ⓕ Voltage

● For how to order masking plates, refer to page 1554.

Code	Content	Ⓐ Model No. Body piping 3MA0	Ⓐ Model No. Sub-plate piping 3MB0
Ⓑ Solenoid position			
1	2-position single normally closed	●	●
8	Mix manifold (for multiple solenoid positions)	●	●
Ⓒ Port size			
Port name	A port / P/R port		
T4	φ4 barbed fitting / M5	● *1	● *2
T6	φ6 barbed fitting / M5		● *2
M3	M3 / M5		●
M5	M5 / M5		●
GS4	φ4 push-in fitting / M5		● *3
Ⓓ Electrical connections			
Blank	Grommet lead wire (300 mm)	●	●
C type connector (lead wire lateral direction)			
C	Lead wire (300 mm)	●	●
C00	Lead wire (500 mm)	●	●
C01	Lead wire (1000 mm)	●	●
C02	Lead wire (2000 mm)	●	●
C1	Without lead wire	●	●
C2	Lead wire (300 mm), surge suppressor/indicator lamp	●	●
C20	Lead wire (500 mm), surge suppressor/indicator lamp	●	●
C21	Lead wire (1000 mm), surge suppressor/indicator lamp	●	●
C22	Lead wire (2000 mm), surge suppressor/indicator lamp	●	●
C3	No lead wire, with surge suppressor/indicator lamp	●	●
D type connector (lead wire upward direction)			
D	Lead wire (300 mm)	●	●
D00	Lead wire (500 mm)	●	●
D01	Lead wire (1000 mm)	●	●
D02	Lead wire (2000 mm)	●	●
D1	Without lead wire	●	●
D2	Lead wire (300 mm), surge suppressor/indicator lamp	●	●
D20	Lead wire (500 mm), surge suppressor/indicator lamp	●	●
D21	Lead wire (1000 mm), surge suppressor/indicator lamp	●	●
D22	Lead wire (2000 mm), surge suppressor/indicator lamp	●	●
D3	No lead wire, with surge suppressor/indicator lamp	●	●
Ⓔ Station No.			
2	2 stations	●	●
to	to		
20	20 stations		
Ⓕ Voltage			
3	Standard / 24 VDC	●	●
4	Standard / 12 VDC	●	●
DC6V	Option / 6 VDC	●	●
DC5V	Option / 5 VDC	●	●

⚠ Precautions for model No. selection

*1 : Use the tubes of the following model No. for the A port piping of 3MA0.
FH-3224, F-1504, U-9532, U-9504

*2 : For T4 and T6, screw in barbed fitting FTS4-M5 and FTS6-M5.

*3 : For GS4, screw push-in fitting GWS4-M5-S into the A port.

*4 : The lead wire used is AWG26 size. (7/0.16, φ1.35, 0.13 mm²)

[Example of model No.]

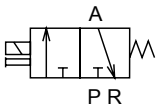
M3MA010-T4-C-7-3

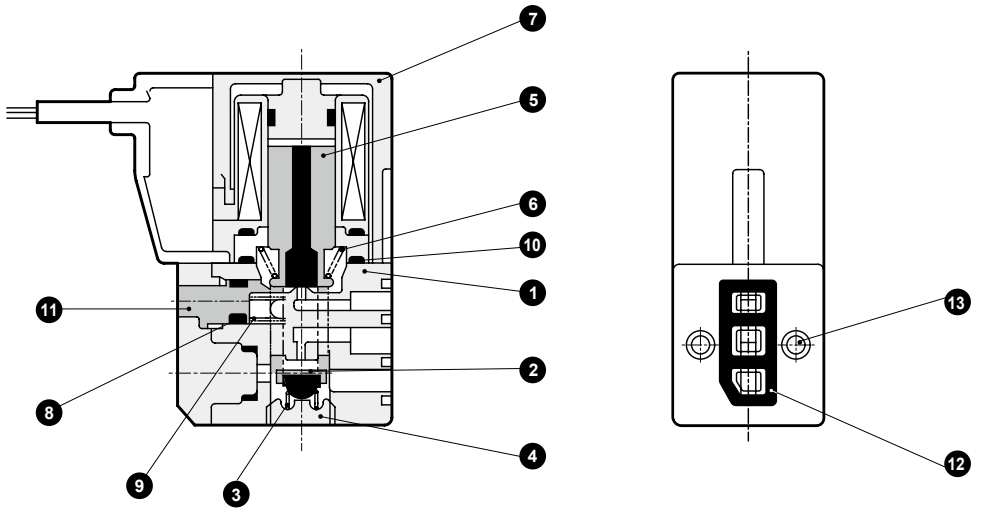
Ⓐ Model: M3MA0 (body piping)
Ⓑ Solenoid position : 2-position single Normally closed
Ⓒ Port size : φ4 Barbed fitting (A port), M5 (P/R port)
Ⓓ Electrical connections : With C type connector/ lead wire (300 mm)
Ⓔ Station No. : 7 stations
Ⓕ Voltage : 24 VDC

Internal structure and parts list

3MA0/3MB0

●3-port NC

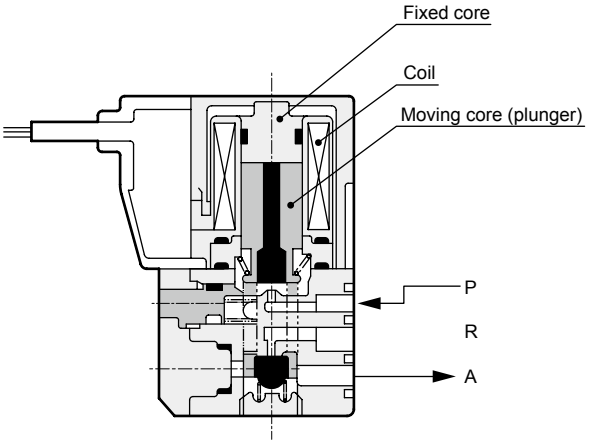




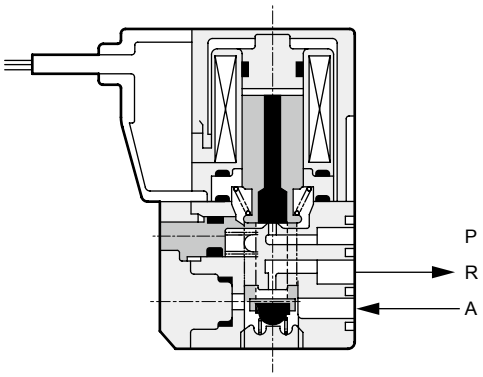
Main parts list

No.	Part name	Material	No.	Part name	Material
1	Body	Resin	8	O-ring	Fluoro rubber
2	Valve seat	Nitrile rubber	9	Manual spring	Stainless steel
3	Valve spring	Stainless steel	10	O-ring	Fluoro rubber
4	Bottom	Resin	11	Manual shaft	Resin
5	Plunger	Stainless steel, nitrile rubber	12	Body gasket	Fluoro rubber
6	Plunger spring	Stainless steel	13	Set screw	Steel
7	Coil assembly	-			

Operational principle



● When energized
When energizing the coil, the plunger is adsorbed onto the fixed core and the compressed air will flow from P to A.

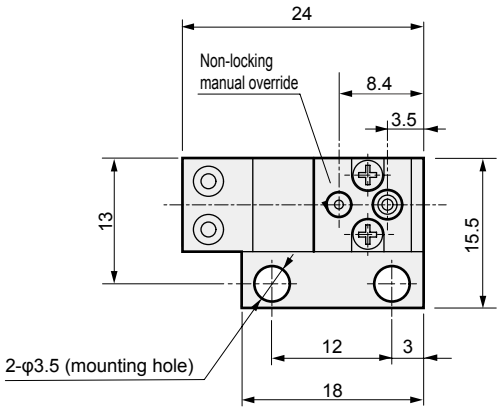


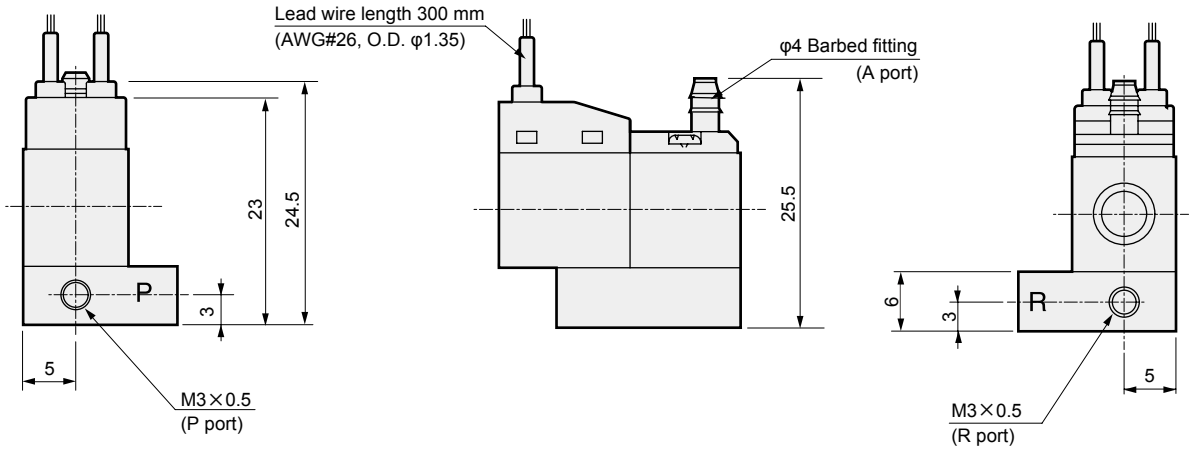
● When not energized
When the coil is placed in a non-energized state, the plunger will move away from the fixed core and the compressed air will flow from A to R.

Dimensions

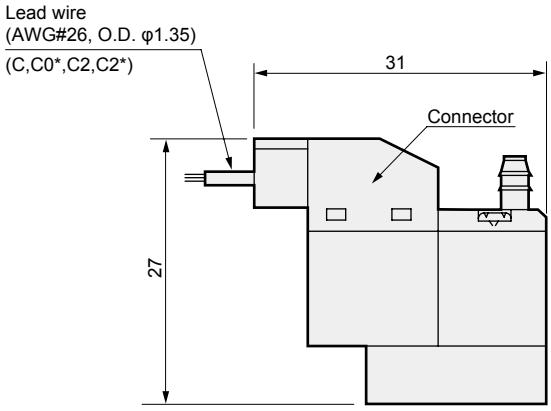
3MA010-T4

● 3-port NC: grommet lead wire

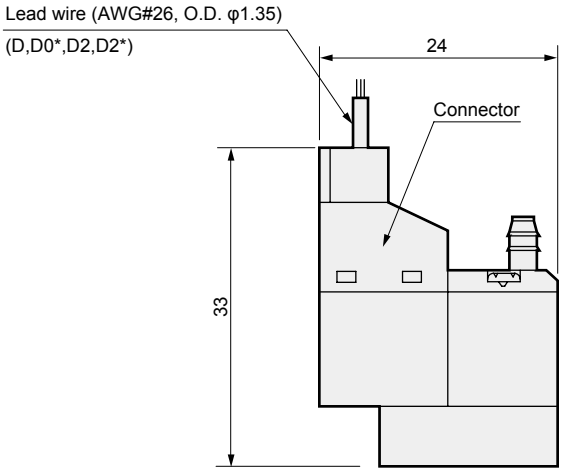




● C type connector: (C/C0*/C1/C2/C2*/C3)



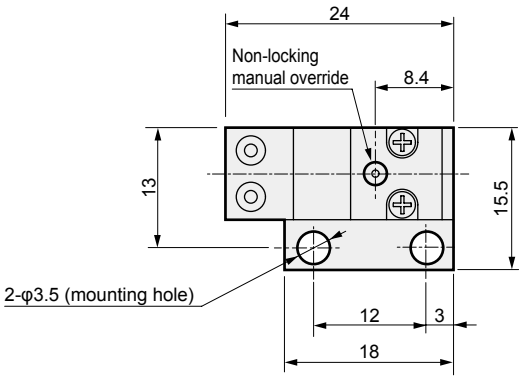
● D type connector: (D/D0*/D1/D2/D2*/D3)

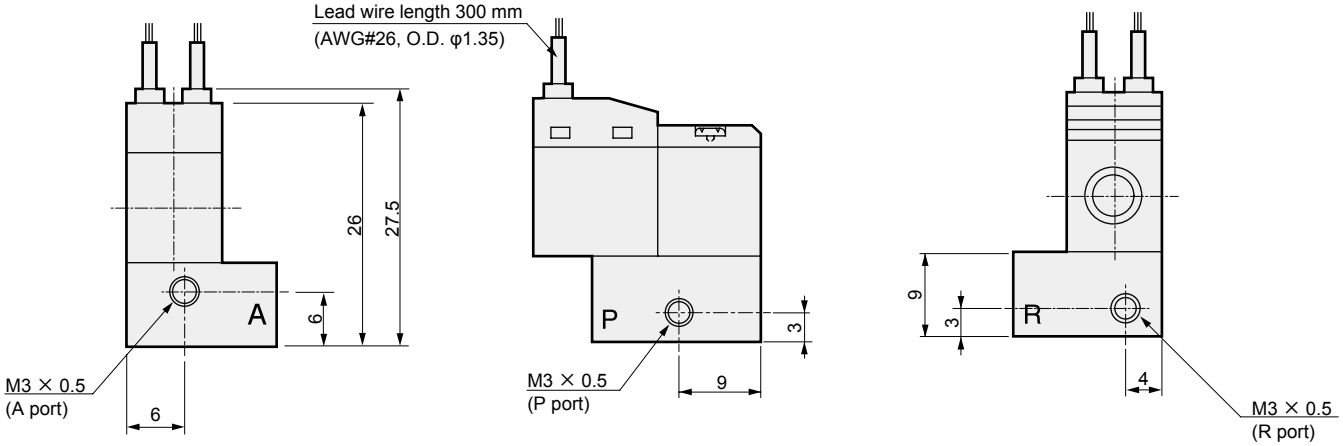


Dimensions CAD

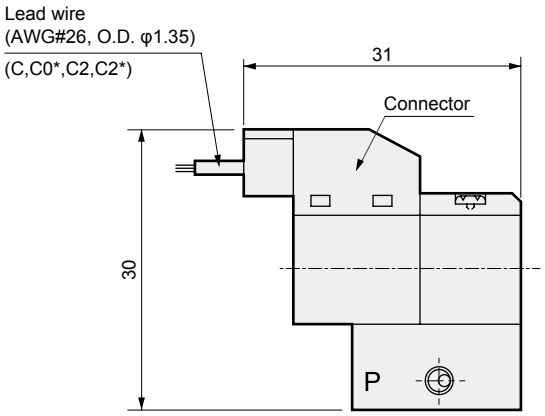
3MB010-M3

● 3-port NC: grommet lead wire

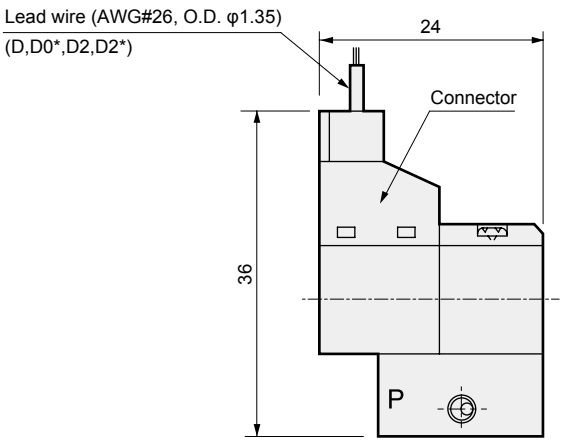




● C type connector: (C/C0*/C1/C2/C2*/C3)



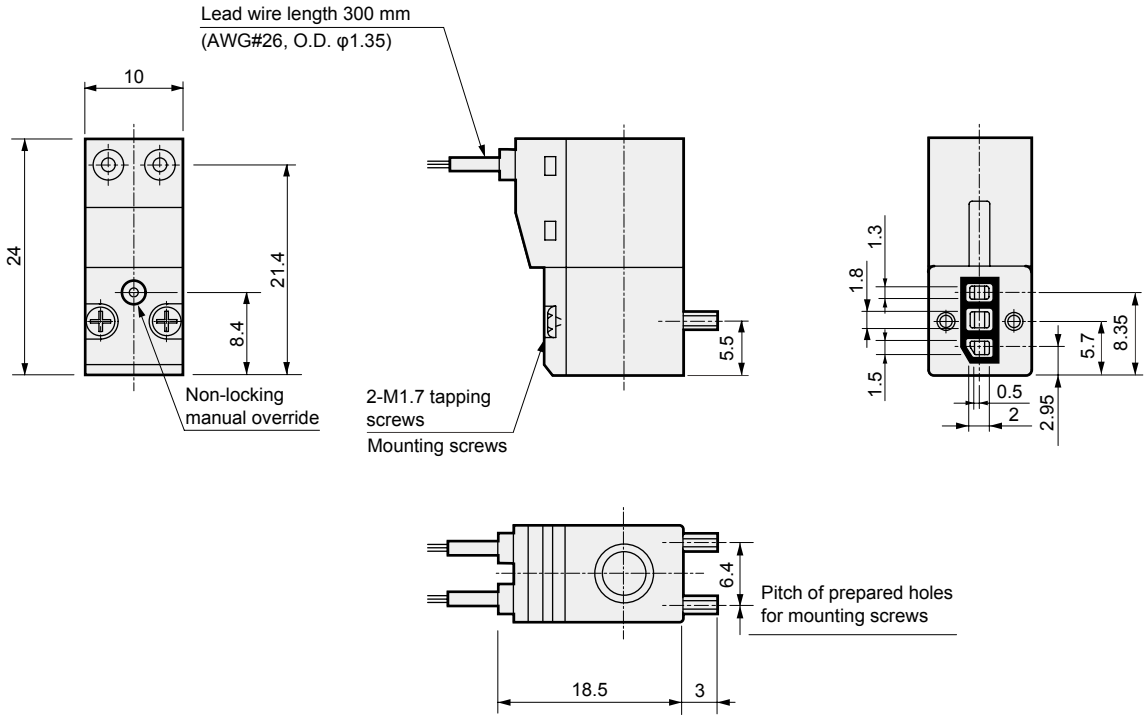
● D type connector: (D/D0*/D1/D2/D2*/D3)



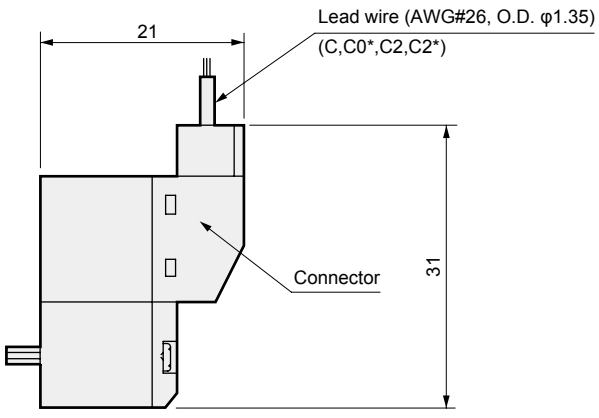
Dimensions

3MB019-00

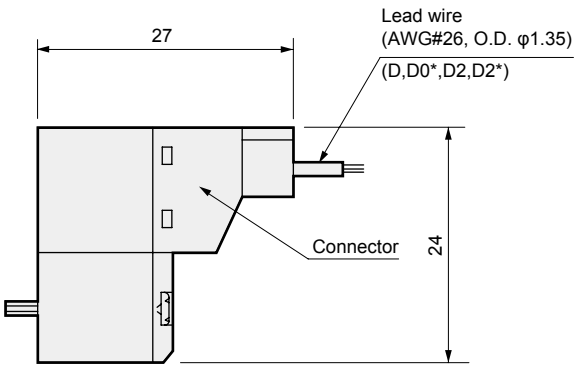
● Single solenoid valve for manifold: grommet lead wire



● C type connector: (C/C0*/C1/C2/C2*/C3)



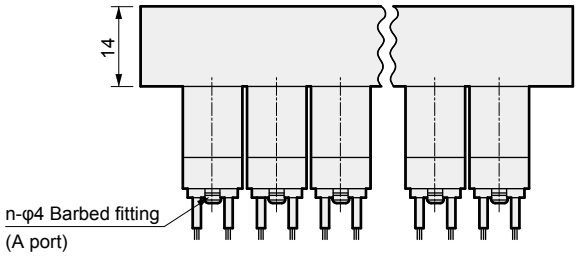
● D type connector: (D/D0*/D1/D2/D2*/D3)

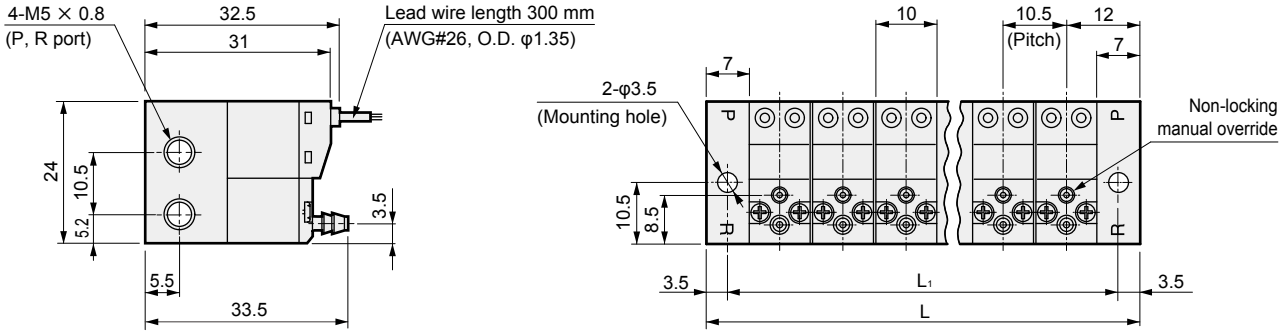


Dimensions CAD

M3MA010-T4

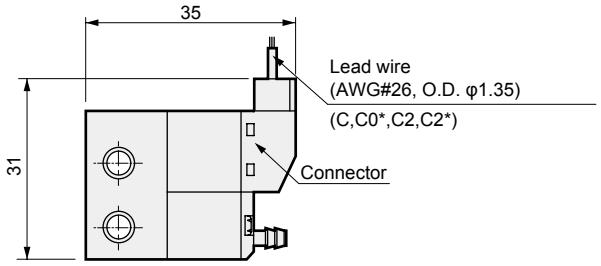
● Body piping A type: grommet lead wire



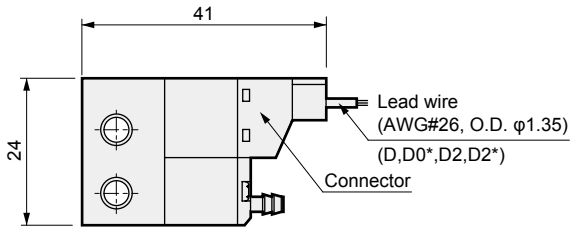


Stn No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L_1	27.5	38	48.5	59	69.5	80	90.5	101	111.5	122	132.5	143	153.5	164	174.5	185	195.5	206	216.5
L	34.5	45	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5

● C type connector: (C/C0*/C1/C2/C2*/C3)



● D type connector: (D/D0*/D1/D2/D2*/D3)

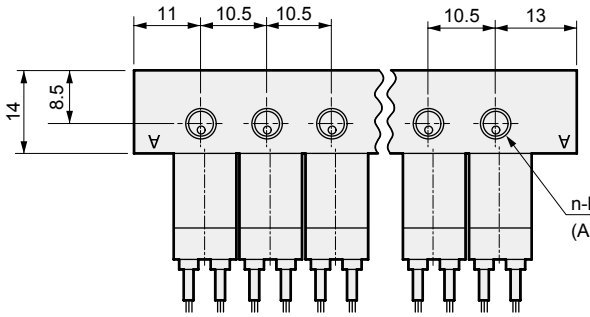


Dimensions CAD

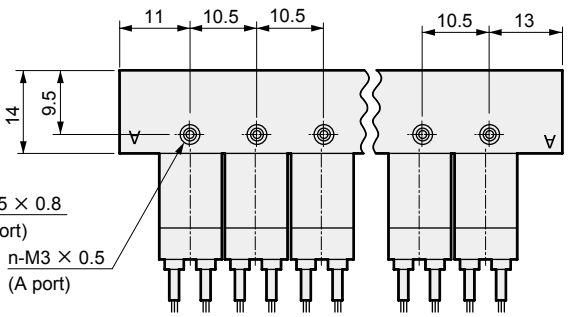
M3MB010-M3/M5

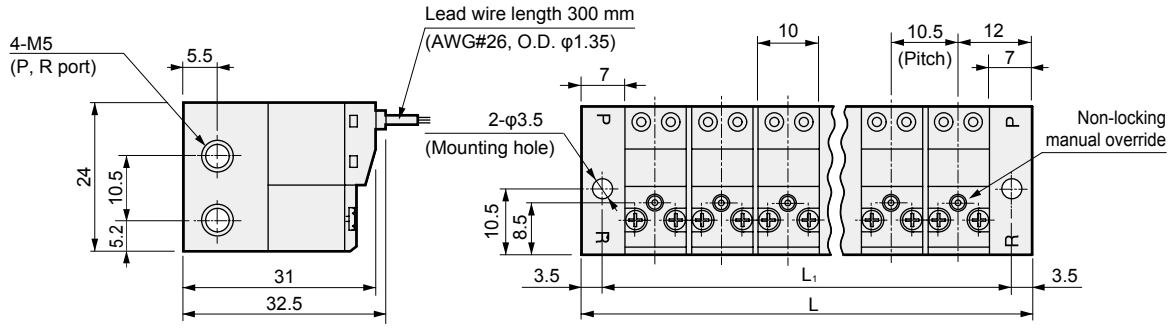
● Sub-plate piping B type: grommet lead wire

A port: M5



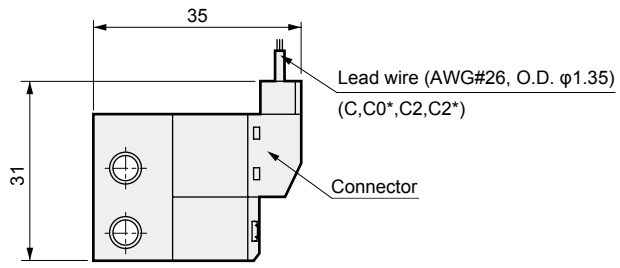
A port: M3



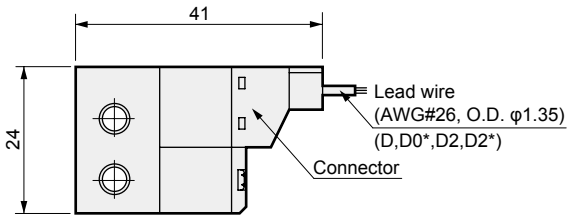


Stn No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L_1	27.5	38	48.5	59	69.5	80	90.5	101	111.5	122	132.5	143	153.5	164	174.5	185	195.5	206	216.5
L	34.5	45	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5

● C type connector: (C/C0*/C1/C2/C2*/C3)



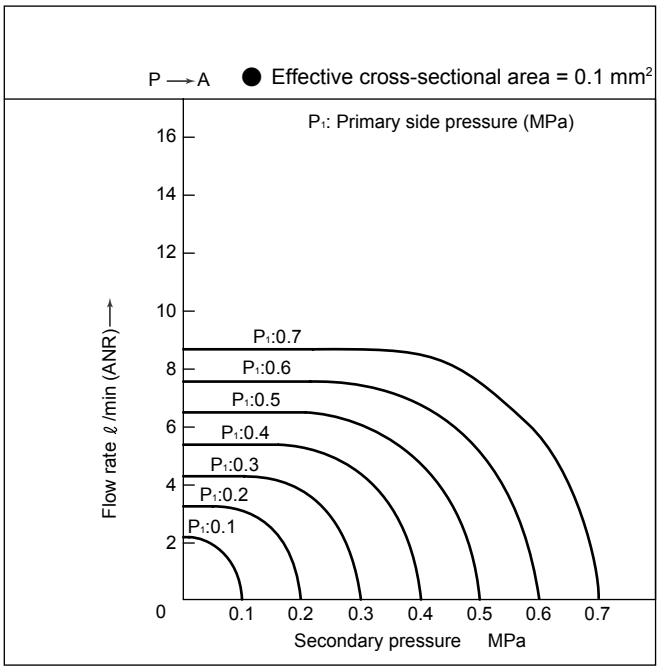
● D type connector: (D/D0*/D1/D2/D2*/D3)

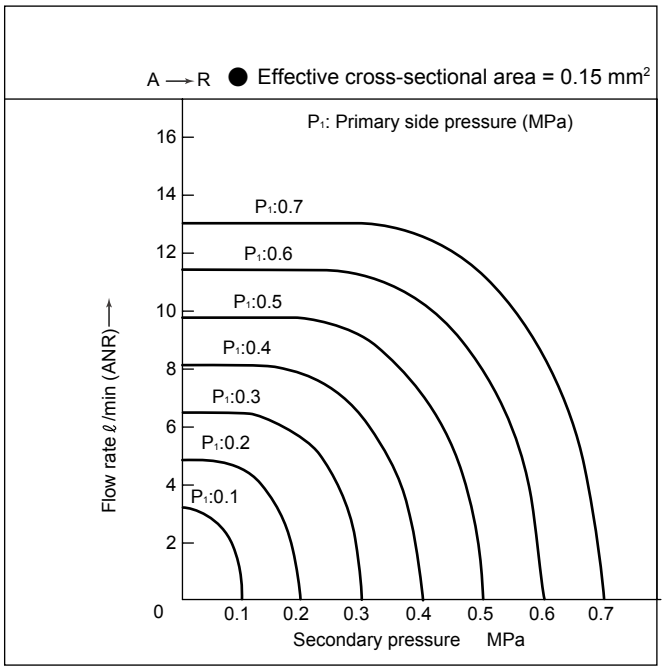


Flow characteristics

3MA0/3MB0

Note) The flow rate will vary depending on the sub-plate, fitting, and tube. Use the values as a reference only.



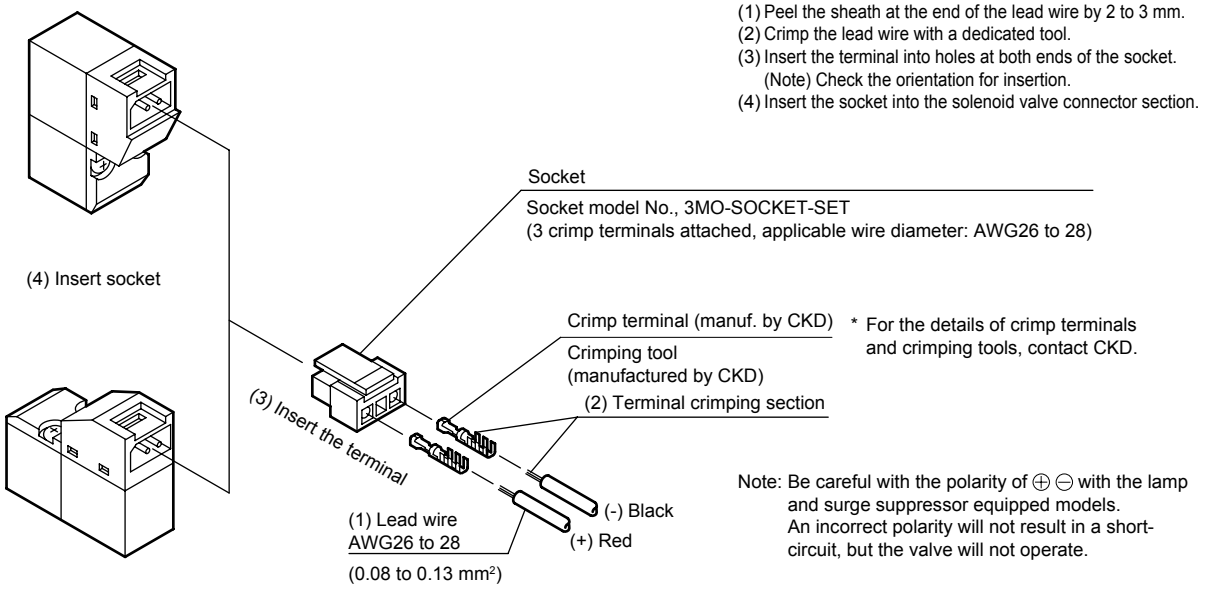


C type / D type connector wiring method

Referring to the figure below, wire the connectors with (1) to (4).

[Procedure]

(1) Peel the sheath at the end of the lead wire by 2 to 3 mm.
(2) Crimp the lead wire with a dedicated tool.
(3) Insert the terminal into holes at both ends of the socket.
(Note) Check the orientation for insertion.
(4) Insert the socket into the solenoid valve connector section.



Note: Be careful with the polarity of ⊕ ⊖ with the lamp and surge suppressor equipped models. An incorrect polarity will not result in a short-circuit, but the valve will not operate.

How to order masking plate (gasket/mounting screws attached)

● Body piping

M3MA010 - MP - KIT

● Sub-plate piping

M3MB010 - MP - KIT