

Direct acting 3-port valve  
Discrete valve/sub-plate piping

## 3QE Series

Individual wiring manifold/sub-plate piping

## M3QE Series

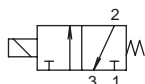
● Cylinder bore size:  $\varnothing 6$  to  $\varnothing 20$



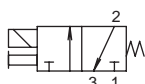
### JIS symbol

- 2-position  
Single (NC)

Without manual override



With manual override



### Common specifications

Item	Description
Valve and operation	Direct acting poppet valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0
Proof pressure MPa	1.05
Ambient temperature °C	-5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	None/Non-locking manual/ Locking manual override
Lubrication *1	Not required
Degree of protection *2	Dust-proof
Vibration resistance m/s <sup>2</sup>	50 or less
Impact resistance m/s <sup>2</sup>	300 or less
Atmosphere	In a corrosive gas atmosphere Not available
Port size	M5

\*1. Use turbine oil Class 1 ISO VG32 for lubrication.  
\*2. Avoid water drops or oil, etc., during use.

### Electrical specifications

Item	Description		
	Standard	Low exoergic/low energy	
Rated voltage (V)	DC3, 5, 12, 24V 100 VAC	12, 24 VDC	
Voltage fluctuation range	±10%		
Holding current A	3 VDC	0.120 (0.136)	-
	5 VDC	0.072 (0.082)	-
	12 VDC	0.030 (0.034)	(0.010)
	24 VDC	0.015 (0.017)	(0.005)
Power consumption W	3 VDC	0.35 (0.40)	-
	5 VDC	0.35 (0.40)	-
	12 VDC	0.35 (0.40)	0.10
	24 VDC	0.35 (0.40)	0.10
Apparent power VA Values in ( ) are with lamp	100 VAC	0.93 (0.98)	-
Thermal class	B		
Surge suppressor	Option		
Indicator	LED		

\*3. Values in ( ) apply when lamp is included. In addition, the type with low exoergic/energy circuit is only available with lamp.

### Performance/characteristics

Item	3QE
Flow characteristic C [dm <sup>3</sup> /(s·bar)]	1 → 2: 0.04, 2 → 3: 0.06
Response time *4 ms	ON:6 OFF:3
Weight *5 g	16

\*4: According to JIS B 8419:2010 Dynamic performance testing.  
(Initial values at supply pressure 0.5 MPa, 20°C, no lubrication, rated voltage, continuous operation)  
\*5: The weight listed is the weight without the base.

### Ozone-proof specifications

Conforms to low-concentration ozone specifications as standard.

### CE marking specifications

\*\* - Voltage - **ST**

• Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

4GA/B  
M4GA/B  
MN4GA/B  
4GA/B (master)  
4GB  
With sensor  
4GD/E  
M4GD/E  
MN4GD/E  
4GA4/B4  
MN3E  
MN4E  
W4GA/B2  
W4GB4  
MN3S0  
MN4S0  
4SA/B0  
4KA/B  
4KA/B (master)  
4F  
4F (master)  
PV5G  
GMF  
PV5  
GMF  
PV5S-0  
**3Q**  
MV3QR  
3MA/B0  
3PA/B  
P/M/B  
NP/NAP  
NVP  
4G\*0EJ  
4F\*0EX  
4F\*0E  
HMV  
HSV  
2QV  
3QV  
SKH  
Silencer  
TotAirSys (Total Air)  
TotAirSys (Gamma)  
Ending

### How to order

- Discrete valve

3QE1 1 0 - M5 - M E2 A — 3

- Discrete valve for mounting base

3QE1 1 9 - 00 - E2 E — 3

- Manifold model No.  
Side piping manifold

M3QE1 1 0 - M5 - M1 — 10 - 3

Rear piping manifold

M3QZ1 1 0 - M5 - M1 — 10 - 3



### ⚠ Precautions for model No. selection

- \*1 : The grommet lead wire specifications support DC voltage only.
- \*2 : E2\* type and E2\*J type connectors support 12/24 VDC only. In addition, surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.
- \*3 : Surgeless specifications.
- \*4 : A filter is built into port P as standard.

### [Example of model No.]

#### M3QE110-M5-M1E0A-10-3

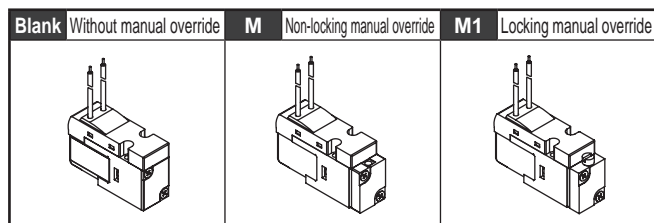
- A Model No. : Side layout manifold
- B Solenoid position : 2-position normally closed
- C Port size : M5
- D Manual override : Locking manual override
- E Electrical connections : E-connector lead wire 300 mm
- F Option : Fluorine specification
- G Station No. : 10 stations
- H Voltage : 24 VDC

### How to order masking plate kit

#### 3QE1 - MP - KIT

\* Gasket/mounting screw included

### Manual override



### Electrical connections

Blank	Grommet lead wire	E*	E-connector	EJ*	EJ-connector	E1	E-connector With socket/terminal	E0N	E-connector Without socket
Lead wire length 300 mm		Lead wire length 300 mm, 500 mm, 1000 mm, 2000 mm, 3000 mm		Lead wire length 1000 mm, 2000 mm, 3000 mm					

A Model No.	
3QE1	M3QZ1 M3QE1

B Solenoid position		
1	2-position single normally closed	● ●
8	Mix manifold	● ●

C Port size		
M5	M5	● ●

D Manual override		
Blank	Without manual override	● ●
M	Non-locking manual override	● ●
M1	Locking manual override	● ●

E Electrical connections		
Blank	Grommet lead wire (300 mm)	*1 ● ●
E0	E-connector lead wire (300 mm)	● ●
E00	E-connector lead wire (500 mm)	● ●
E01	E-connector lead wire (1000 mm)	● ●
E02	E-connector lead wire (2000 mm)	● ●
E03	E-connector lead wire (3000 mm)	● ●
E0N	E-connector without lead wire (without socket)	● ●
E1	E-connector without lead wire (with socket/terminal)	● ●
E2	E-connector, lead wire (300 mm) with lamp/surge suppressor	● ●
E20	E-connector, lead wire (500 mm) with lamp/surge suppressor	● ●
E21	E-connector, lead wire (1000 mm) with lamp/surge suppressor	● ●
E22	E-connector, lead wire (2000 mm) with lamp/surge suppressor	● ●
E23	E-connector, lead wire (3000 mm) with lamp/surge suppressor	● ●
E2N	E-connector without lead wire (without socket) with lamp/surge suppressor	● ●
E3	E-connector without lead wire (with socket/terminal) with lamp/surge suppressor	● ●
E01J	EJ-connector, lead wire (1,000 mm)	● ●
E02J	EJ-connector, lead wire (2,000 mm)	● ●
E03J	EJ-connector, lead wire (3,000 mm)	● ●
E21J	EJ-connector, lead wire (1,000 mm) with lamp/surge suppressor	● ●
E22J	EJ-connector, lead wire (2,000 mm) with lamp/surge suppressor	● ●
E23J	EJ-connector, lead wire (3,000 mm) with lamp/surge suppressor	● ●

F Option		
A	Ozone/coolant proof	● ●
S	Surgeless	*2 ● ●
E	Low exoergic/energy circuit	*2, *3 ● ●
F	Port A filter integrated	*4 ● ●

G Station No.		
2	2 stations	●
to	to	●
20	20 stations	●

H Voltage		
1	100 VAC (rectifier integrated)	● ●
3	24 VDC	● ●
4	12 VDC	● ●
7	3 VDC	● ●
8	5 VDC	● ●

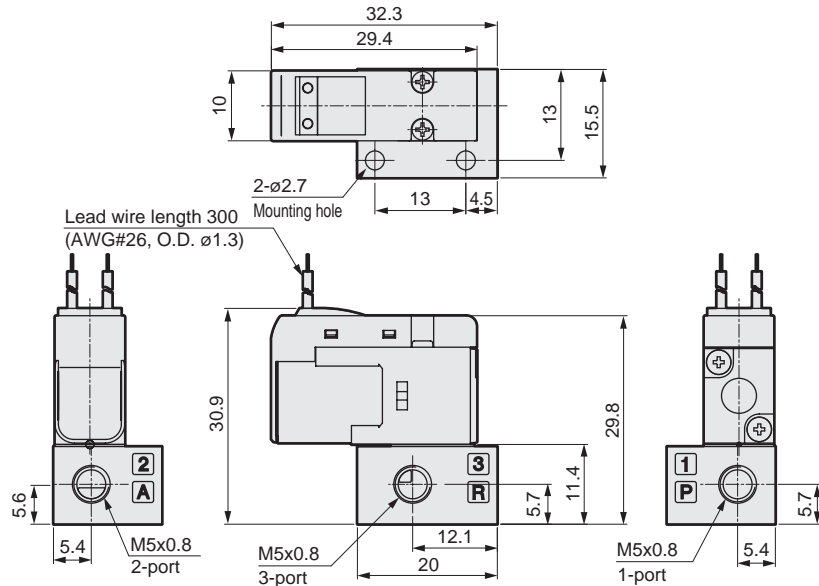
4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G
GMF
PV5
GMF
PV5S-0
<b>3Q</b>
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP
NVP
4G*0EJ
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

## Dimensions (3QE)

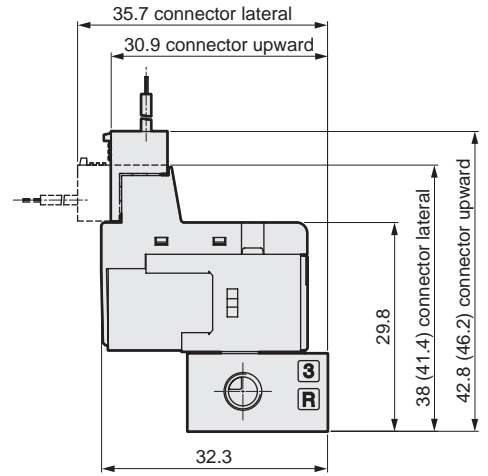
4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G GMF
PV5 GMF
PV5S-0
<b>3Q</b>
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP NVP
4G*0EJ
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

### 3QE110-M5

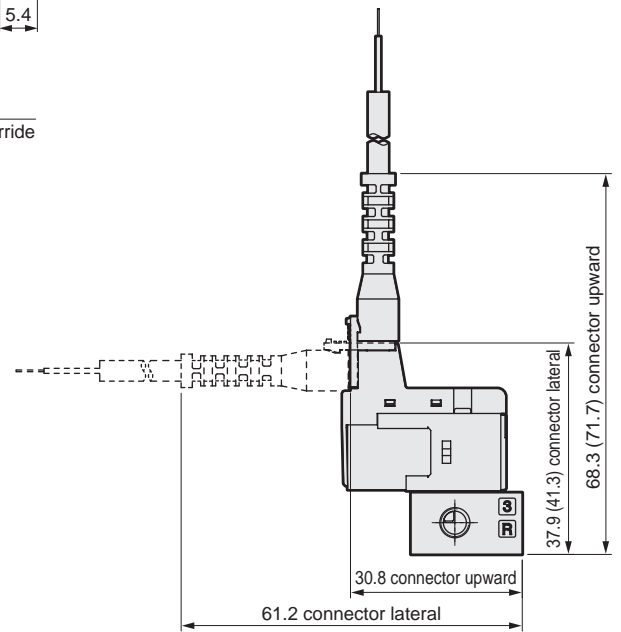
· 2-position single: grommet lead wire



· E-connector (E)

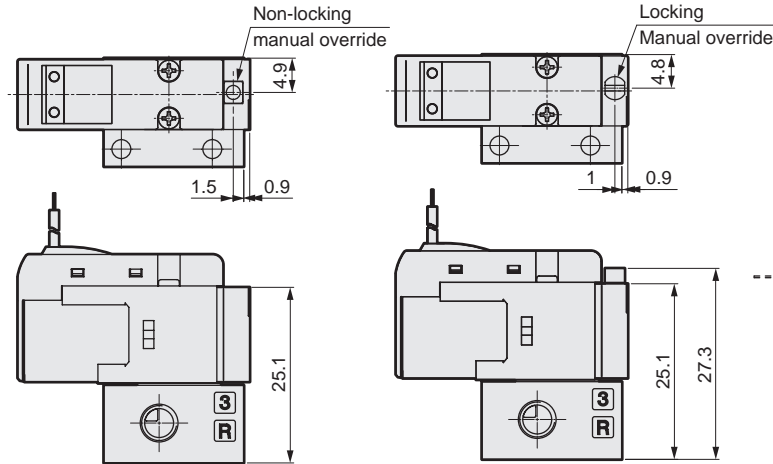


· EJ-connector (E\*J)



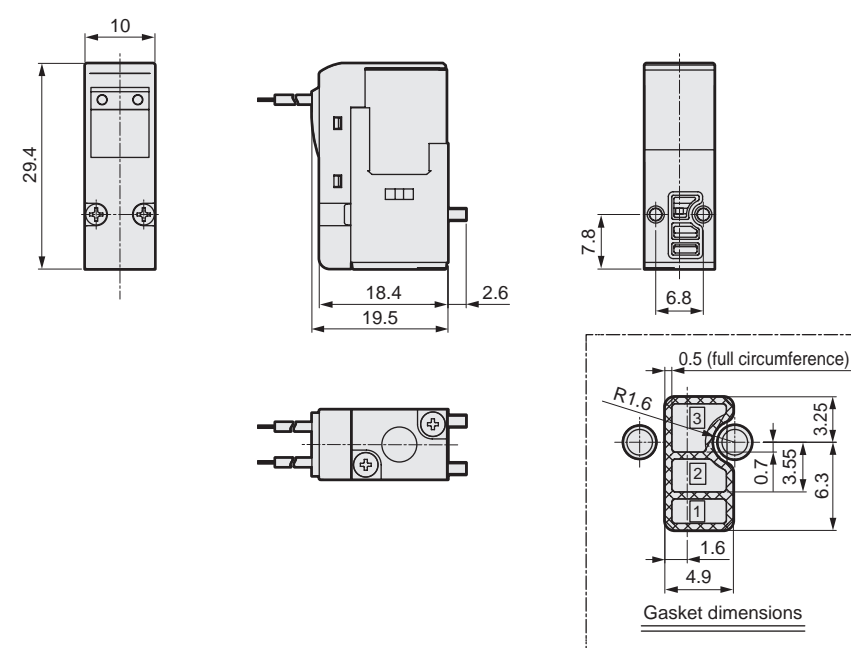
· Non-locking manual override (M)

· Locking manual override (M1)

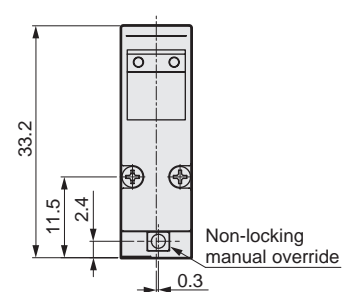


### 3QE119-00

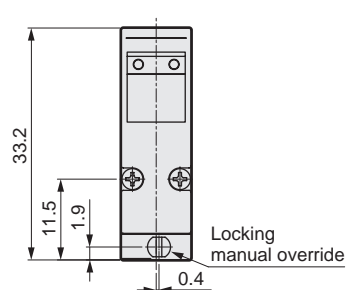
· 2-position single: grommet lead wire



· Non-locking manual override (M)



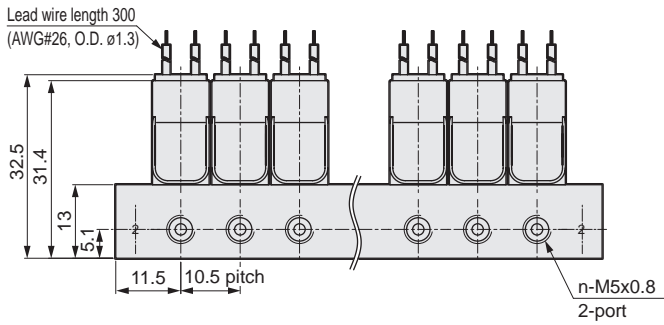
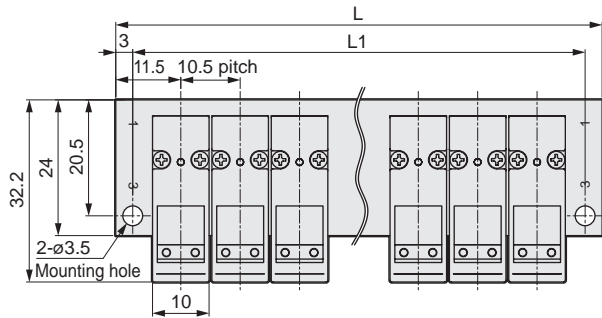
· Locking manual override (M1)



### Dimensions (M3QE/M3QZ)

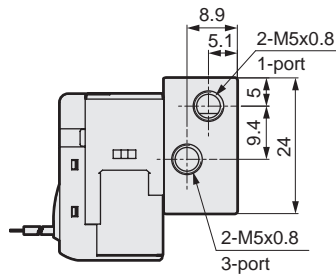
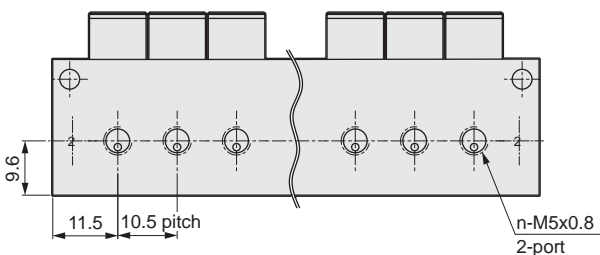
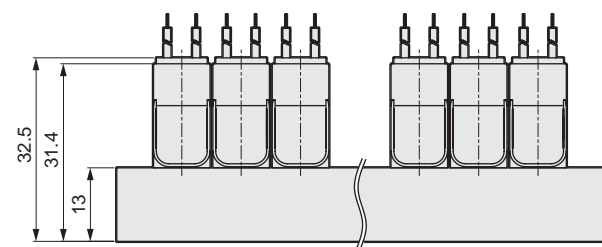
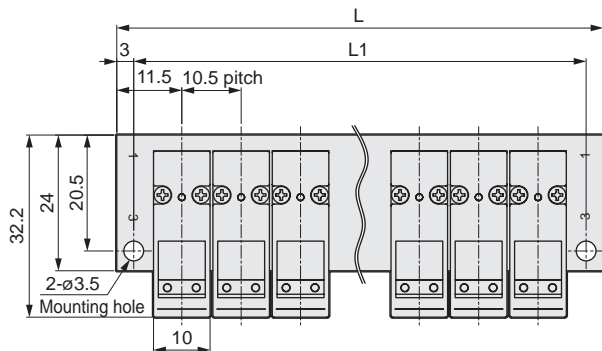
#### M3QE110-M5

· 2-position single: grommet lead wire

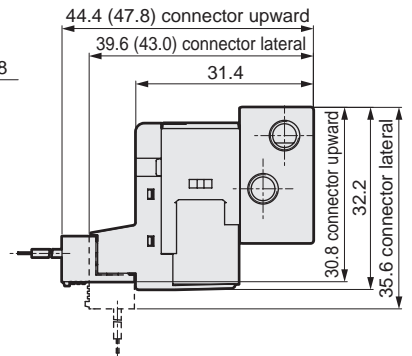


#### M3QZ110-M5

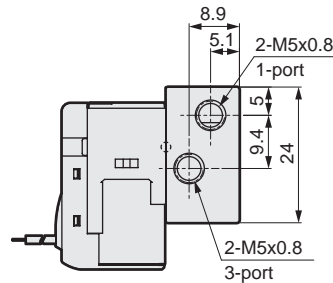
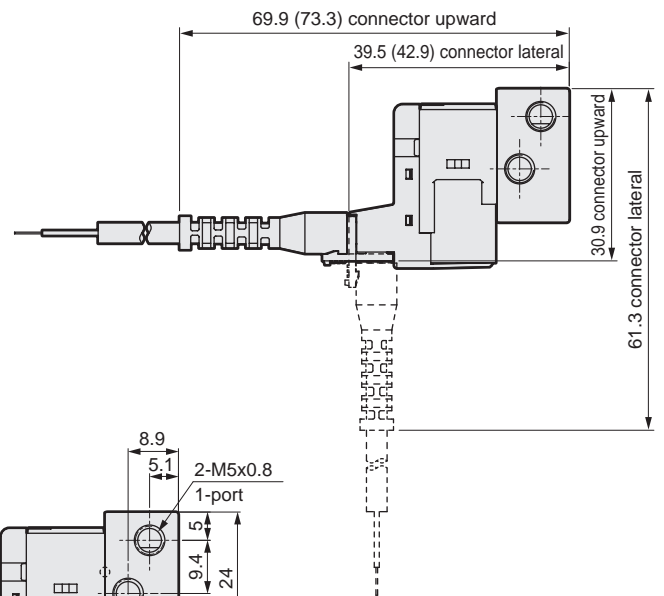
· 2-position single: grommet lead wire



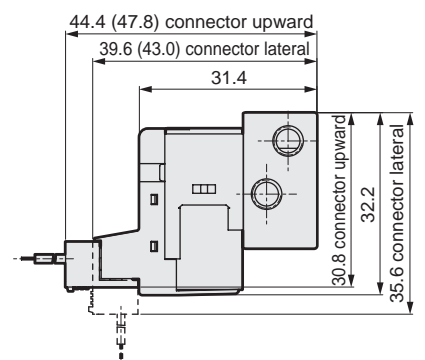
· E-connector (E)



· EJ-connector (E\*J)



· E-connector (E)



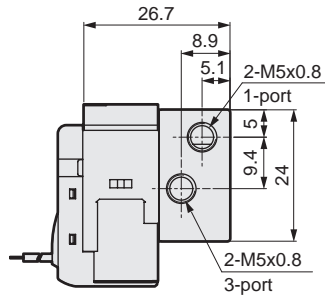
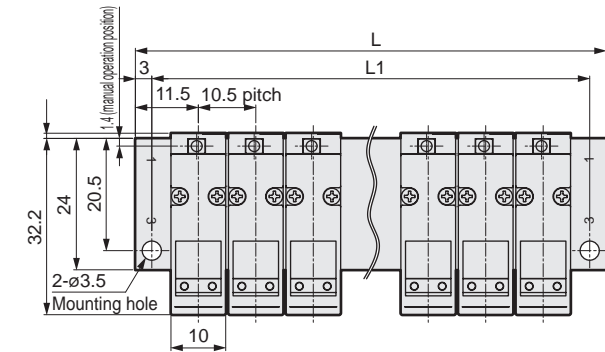
Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	33.5	44.0	54.5	65.0	75.5	86.0	96.5	107.0	117.5	128.0	138.5	149.0	159.5	170.0	180.5	191.0	201.5	212.0	222.5
L1	27.5	38.0	48.5	59.0	69.5	80.0	90.5	101.0	111.5	122.0	132.5	143.0	153.5	164.0	174.5	185.0	195.5	206.0	216.5

4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G
GMF
PV5
GMF
PV5S-0
<b>3Q</b>
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP
NVP
4G*0EJ
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

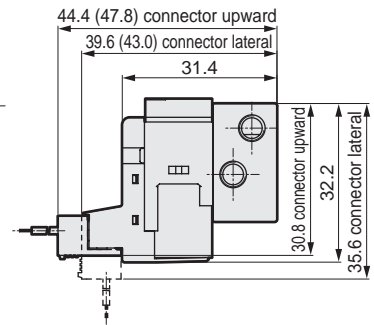
## Dimensions (M3QE)

### M3QE110-M5

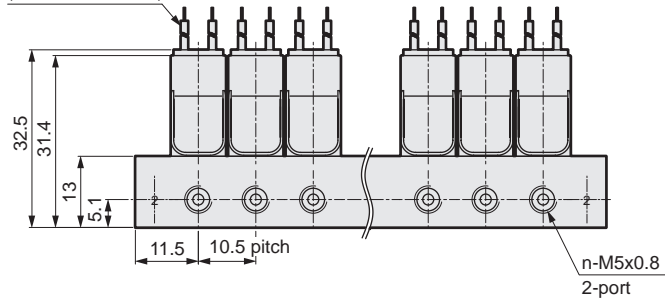
· Non-locking manual override (M)



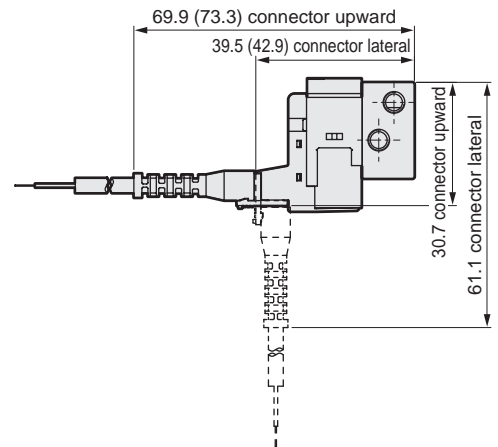
· E-connector (E)



Lead wire length 300 (AWG#26, O.D. ø1.3)

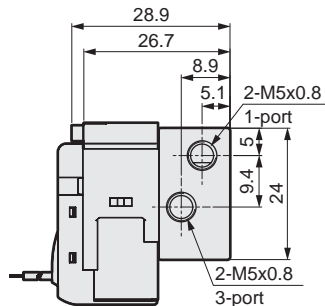
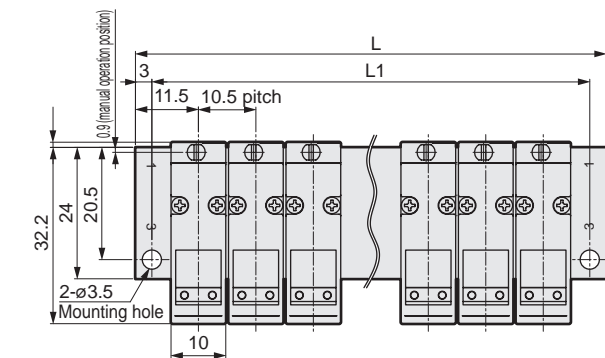


· EJ-connector (E\*J)

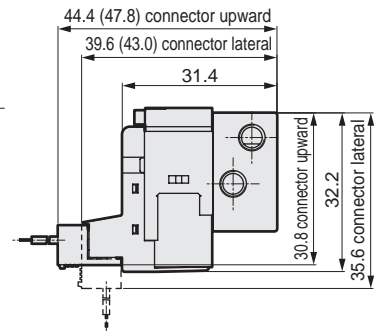


### M3QE110-M5

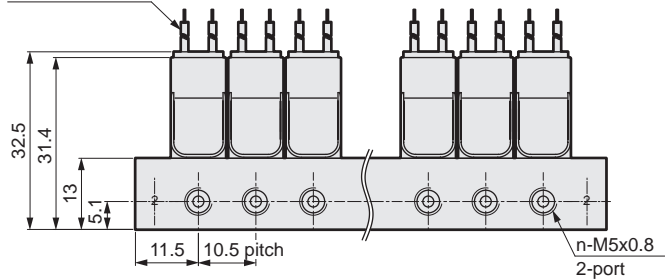
· Locking manual override (M1)



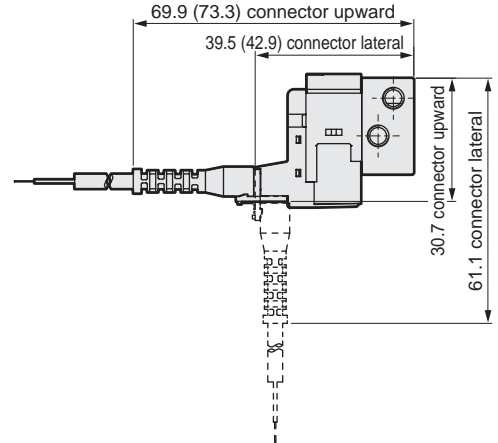
· E-connector (E)



Lead wire length 300 (AWG#26, O.D. ø1.3)

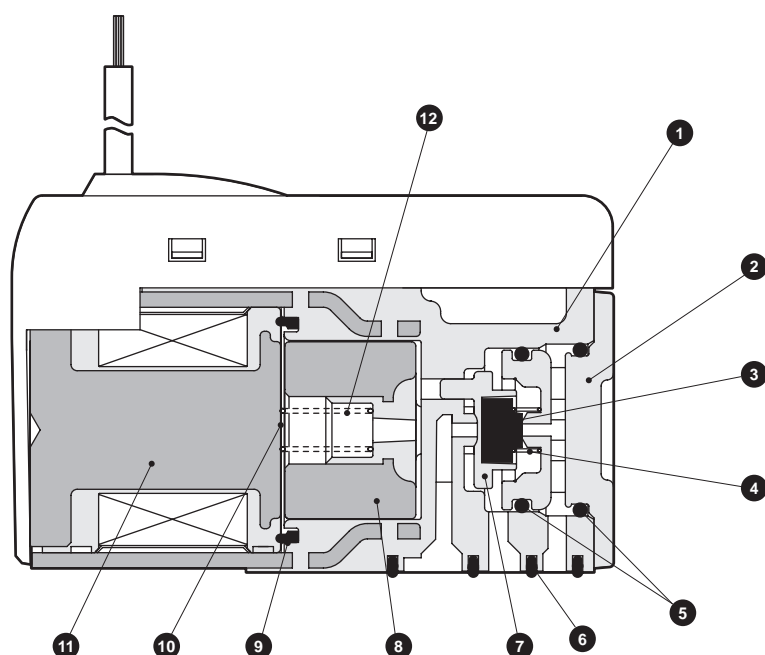


· EJ-connector (E\*J)



Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	33.5	44.0	54.5	65.0	75.5	86.0	96.5	107.0	117.5	128.0	138.5	149.0	159.5	170.0	180.5	191.0	201.5	212.0	222.5
L1	27.5	38.0	48.5	59.0	69.5	80.0	90.5	101.0	111.5	122.0	132.5	143.0	153.5	164.0	174.5	185.0	195.5	206.0	216.5

### Internal structure and parts list



No.	Part name	Material
1	Body	Resin
2	Body (plug)	Resin
3	Valve seat	Nitrile rubber
4	Valve spring	Stainless steel
5	O-ring	Hydrogenated nitrile rubber
6	Body gasket	Hydrogenated nitrile rubber
7	Valve guide	Resin
8	Plunger	Stainless steel
9	Coil gasket	Silicone rubber
10	Buffer sheet	Resin
11	Coil assembly	-
12	Plunger spring	Stainless steel

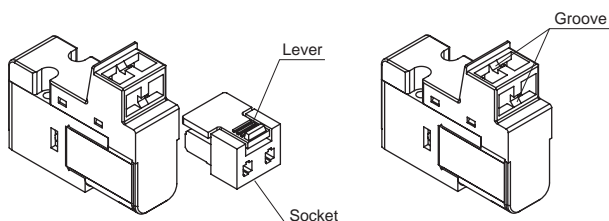
### How to use E and EJ models

#### How to use E-connector

■ The E-connector has top and side connectors to which sockets can be connected. The socket assembly is connected from the upward direction at shipment. Select the connection direction based on the installation environment.

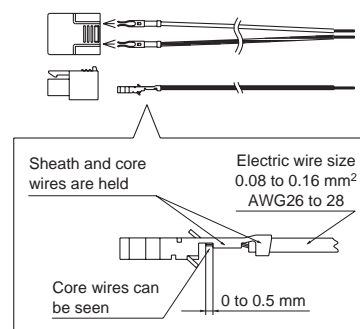
#### ■ How to mount and remove socket

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



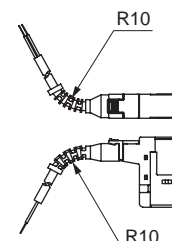
#### ■ How to connect lead wire

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



#### How to use E□J-connector

■ Use the lead wire with limited bending as shown in the figure below.



4GA/B  
M4GA/B  
MN4GA/B  
4GA/B (master)  
4GB With sensor  
4GD/E  
M4GD/E  
MN4GD/E  
4GA4/B4  
MN3E  
MN4E  
W4GA/B2  
W4GB4  
MN3S0  
MN4S0  
4SA/B0  
4KA/B  
4KA/B (master)  
4F  
4F (master)  
PV5G  
GMF  
PV5  
GMF  
PV5S-0  
**3Q**  
MV3QR  
3MA/B0  
3PA/B  
P/M/B  
NP/NAP  
NVP  
4C\*0EJ  
4F\*0EX  
4F\*0E  
HMV  
HSV  
2QV  
3QV  
SKH  
Silencer  
TotAirSys (Total Air)  
TotAirSys (Gamma)  
Ending



# Direct acting 3-port valve

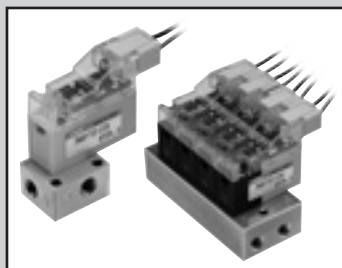
Discrete valve/sub-plate piping

## 3QB Series

Individual wiring manifold/sub-plate piping

## M3QB Series

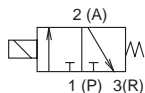
● Cylinder bore size:  $\varnothing 6$  to  $\varnothing 20$



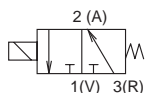
### JIS symbol

- 2-position Single (NC)

#### 3QB1-H(P)



#### 3QB1-HV



### Common specifications

Item	Description
Valve and operation	Direct acting poppet valve
Working fluid	Compressed air, low vacuum
Max. working pressure MPa	Refer to Individual specifications listed below
Min. working pressure MPa	Refer to Individual specifications listed below
Proof pressure MPa	1.05
Ambient temperature °C	0 to 50
Fluid temperature °C	5 to 50
Lubrication	Not available
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 environments

### Electrical specifications

Item	Standard specifications	
Rated voltage V	DC	12, 24
Voltage fluctuation range	$\pm 10\%$	
Starting current A	24 VDC	0.092
	12 VDC	0.183
Holding current A	24 VDC	0.025
	12 VDC	0.050
Power consumption W	0.6 *1	
Thermal class	B	

\*1: 2.2W for 20ms after start.

### Individual specifications

Item	3QB110-H	3QB110-HP	3QB110-HV
Max. working pressure MPa	0.3 *3	0.65	0
Min. working pressure MPa	-0.1 *3	0.1	-0.1

### Performance/characteristics

Item	3QB110-H	3QB110-HP	3QB110-HV
Response time *2 ms	5 or less		
Flow characteristics C [dm <sup>3</sup> /(s·bar)]	1 → 2: 0.11, 2 → 3: 0.11		2 → 1: 0.18, 3 → 2: 0.11
Weight g	12.5		

\*2: According to JIS B 8419:2010 Dynamic performance testing.

(Initial values at 20°C, no lubrication, rated voltage, continuous operation)

\*3: The weight listed is the weight without the base.

### Ozone-proof specifications

Conforms to low-concentration ozone specifications as standard.

### CE marking specifications

\*\* - Voltage - **ST**

- Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

### Specifications for rechargeable battery

Conforms to CKD P4 Series equivalent specifications as standard.

### UL standards specifications

\*\* - Voltage - **UL** (Made to order)

### How to order

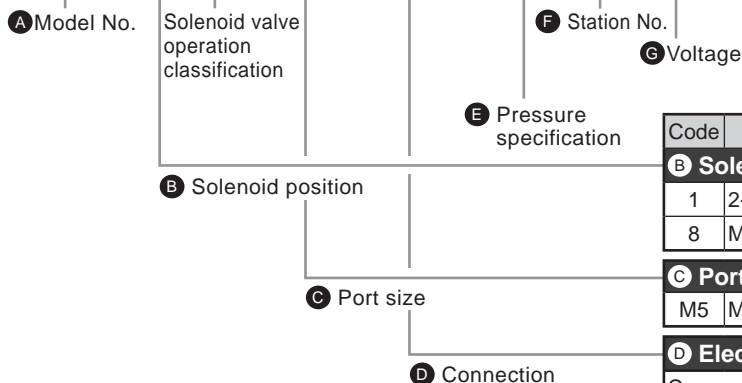
· Sub-plate piping



· Single solenoid valve



· Manifold



		A Model No.	
Code	Description	3QB1	M3QB1
<b>B Solenoid position</b>			
1	2-position single normally closed	●	●
8	Mix manifold *1		●
<b>C Port size</b>			
M5	M5	●	●
<b>D Electrical connections</b>			
C-connector (lead wire lateral direction)			
C2	Lead wire (300 mm) with surge suppressor/lamp	●	●
C20	Lead wire (500 mm) with surge suppressor/lamp	●	●
C21	Lead wire (1000 mm) with surge suppressor/lamp	●	●
C22	Lead wire (2000 mm) with surge suppressor/lamp	●	●
C2N	Without lead wire (without socket)	●	●
C3	Without lead wire (with socket/terminal)	●	●
D-connector (lead wire upward direction)			
D2	Lead wire (300 mm) with surge suppressor/lamp	●	●
D20	Lead wire (500 mm) with surge suppressor/lamp	●	●
D21	Lead wire (1000 mm) with surge suppressor/lamp	●	●
D22	Lead wire (2000 mm) with surge suppressor/lamp	●	●
D2N	Without lead wire (without socket)	●	●
D3	Without lead wire (with socket/terminal)	●	●
<b>E Pressure specification</b>			
Blank	Positive/negative pressure specification (-0.1 to 0.3 MPa) *2	●	●
P	Positive pressure specification (0.1 to 0.65 MPa)	●	●
V	Negative pressure specification (-0.1 to 0 MPa)	●	●
<b>F Station No.</b>			
2	2 stations		
to	to		●
20	20 stations		
<b>G Voltage</b>			
3	24 VDC	●	●
4	12 VDC	●	●

### Precautions for model No. selection

- \*1 : Combination with a masking plate. The pressure specification options Blank, P and V cannot be combined.
- \*2 : Vacuum the negative pressure from port 3 (R). This will be the NO specification.

### [Example of model No.]

#### M3QB110-M5-C2H-7-3

- A Model : M3QB1
- B Solenoid position : 2-position single
- C Port size : M5
- D Electrical connections : Lead wire (300 mm)
- E Pressure specification : Blank
- F Station No. : 7 stations
- G Voltage : 24 VDC

### How to order masking plate kit

#### 3QB1- MP - KIT

#### 3QB1- MP - KIT - V \*3

- \*3: Pressure specification (V dedicated)
- \* Gasket/mounting screw included

### Electrical connections

#### ● 3QB

C2	C-connector with lead wire with surge suppressor and indicator lamp	D2	D-connector with lead wire with surge suppressor and indicator lamp
<ul style="list-style-type: none"> <li>Lead wire length</li> <li>C2 : 300 mm</li> <li>C20 : 500 mm</li> <li>C21 : 1000 mm</li> <li>C22 : 2000 mm</li> </ul>		<ul style="list-style-type: none"> <li>Lead wire length</li> <li>D2 : 300 mm</li> <li>D20 : 500 mm</li> <li>D21 : 1000 mm</li> <li>D22 : 2000 mm</li> </ul>	

- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (master)
- 4GB With sensor
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E MN4E
- W4GA/B2
- W4GB4
- MN3S0 MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (master)
- 4F
- 4F (master)
- PV5G GMF
- PV5 GMF
- PV5S-0
- 3Q**
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP NVP
- 4G\*0EJ
- 4F\*0EX
- 4F\*0E
- HMV HSV
- 2QV 3QV
- SKH
- Silencer
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Ending



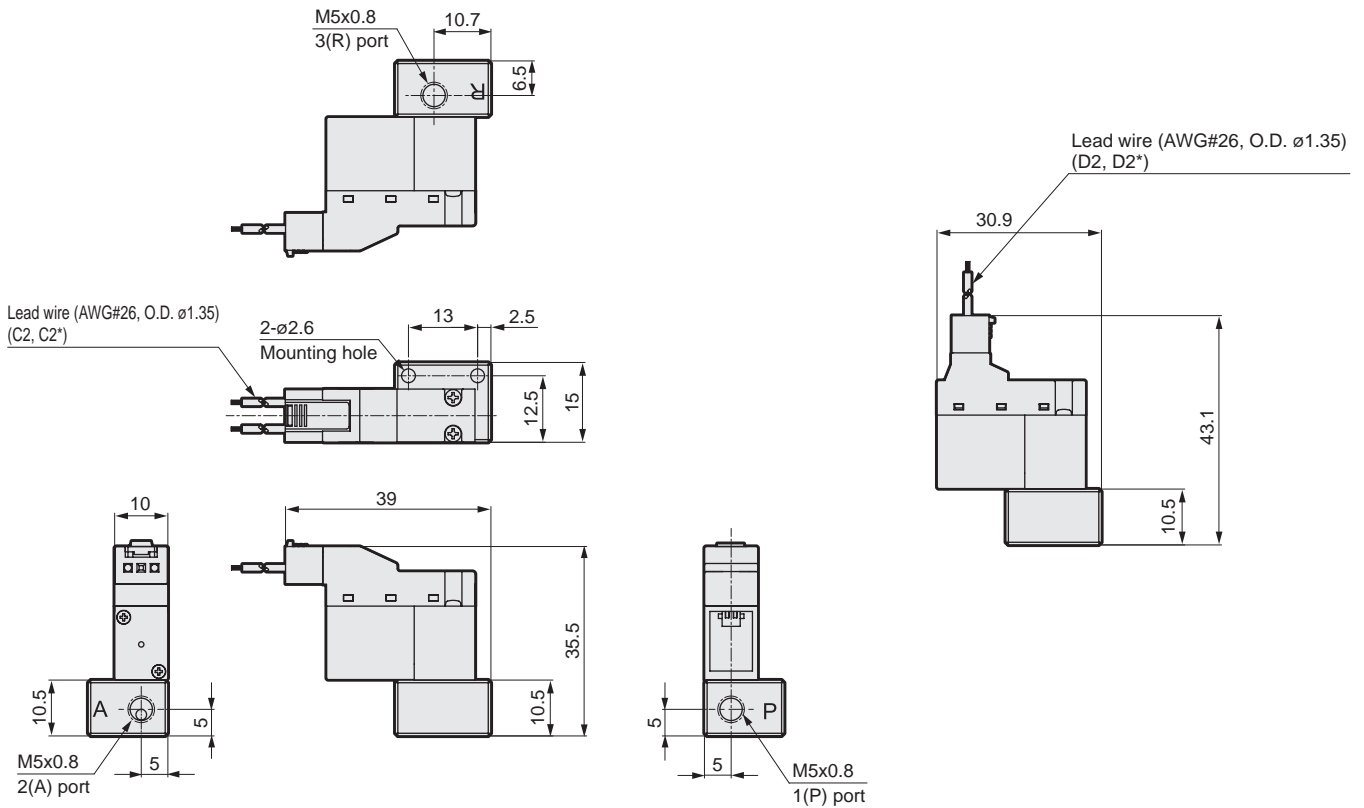
## Dimensions (3QB110)

4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G
GMF
PV5
GMF
PV5S-0
<b>3Q</b>
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP
NVP
4G*0EJ
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

### 3QB110-M5 Options Blank, P

· 2-position single: C-connector (C2/C3)

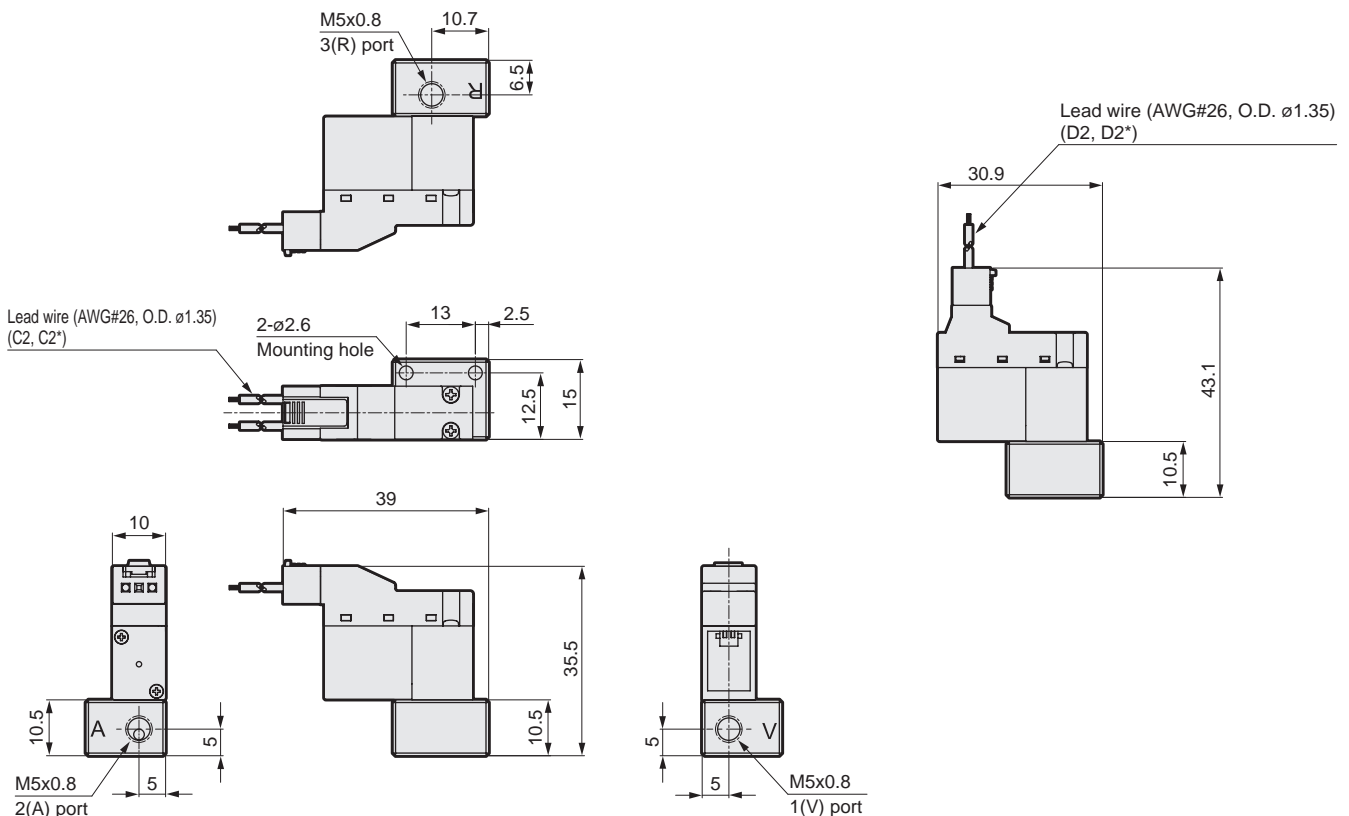
· D-connector (D2/D3)



### 3QB110-M5 Option V

· 2-position single: C-connector (C2/C3)

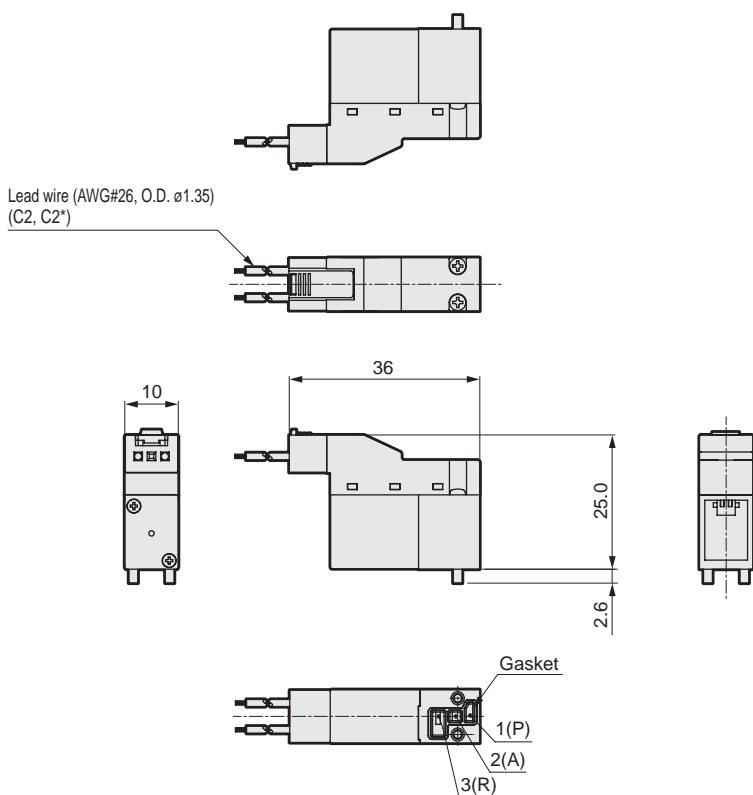
· D-connector (D2/D3)



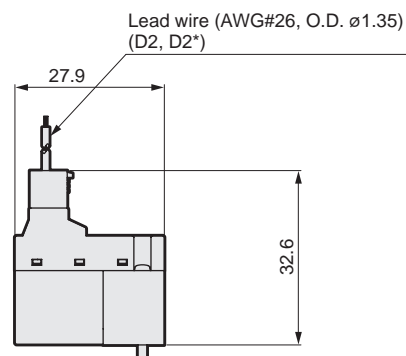
### Dimensions (3QB119)

#### 3QB119-00 Options Blank, P

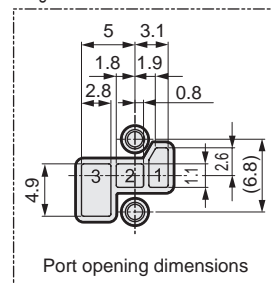
· 2-position single: C-connector (C2/C3)



· D-connector (D2/D3)

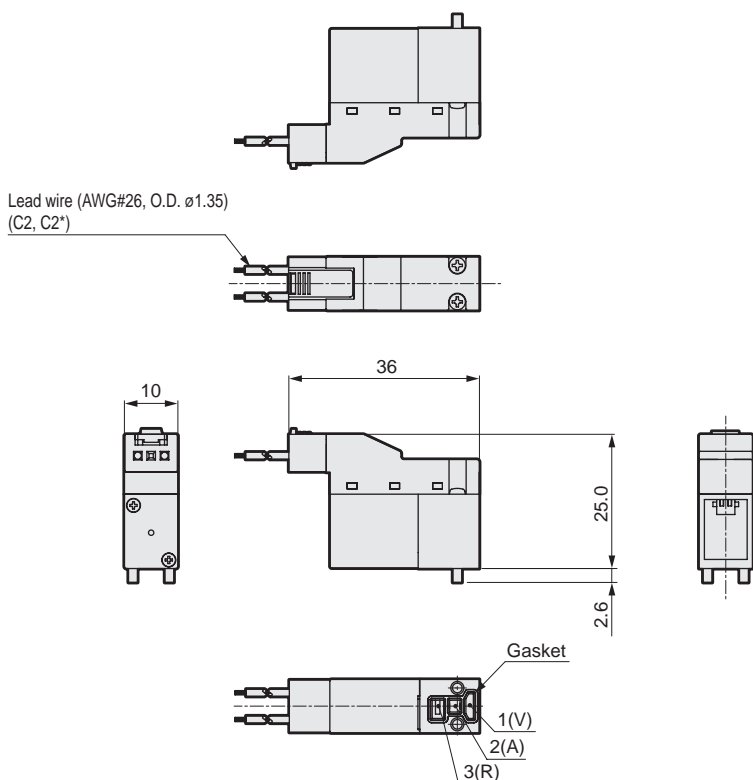


Single solenoid valve back surface

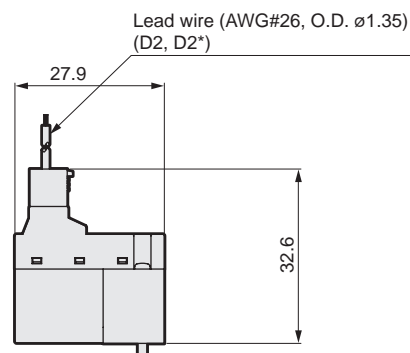


#### 3QB119-00 Option V

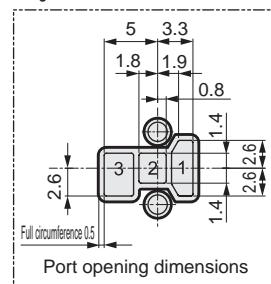
· 2-position single: C-connector (C2/C3)



· D-connector (D2/D3)



Single solenoid valve back surface



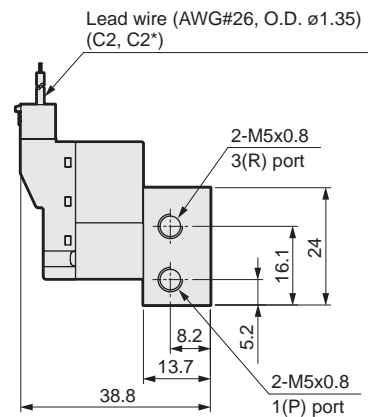
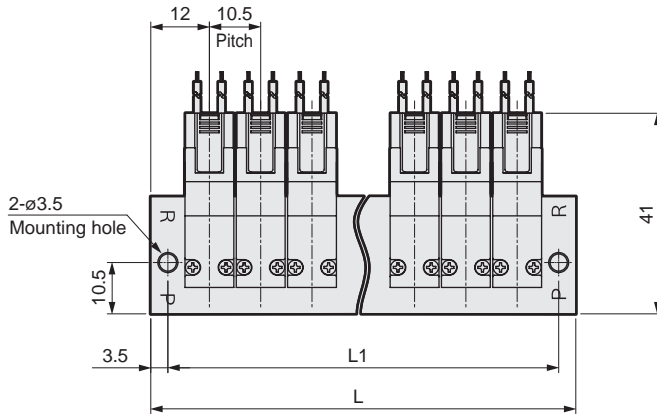
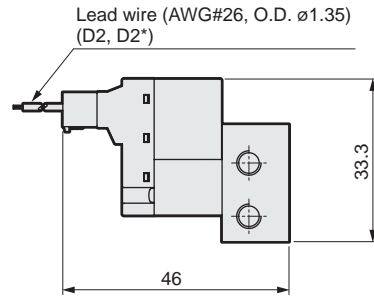
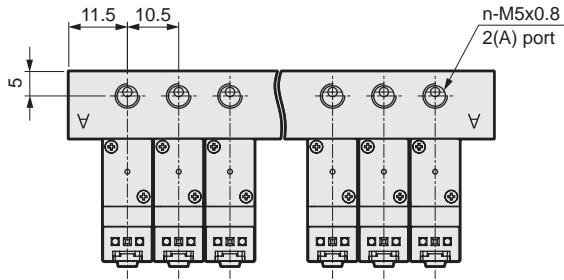
4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G
GMF
PV5
GMF
PV5S-0
<b>3Q</b>
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP
NVP
4G*0EJ
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

## Dimensions (M3QB110)

### M3QB110-M5 Options Blank, P

· 2-position single: C-connector (C2/C3)

· D-connector (D2/D3)

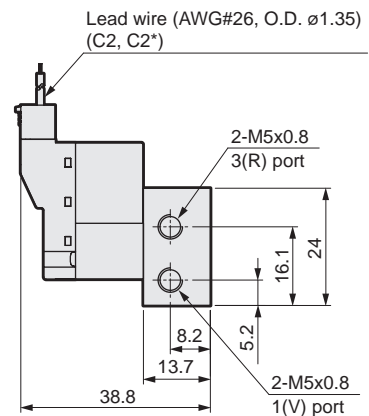
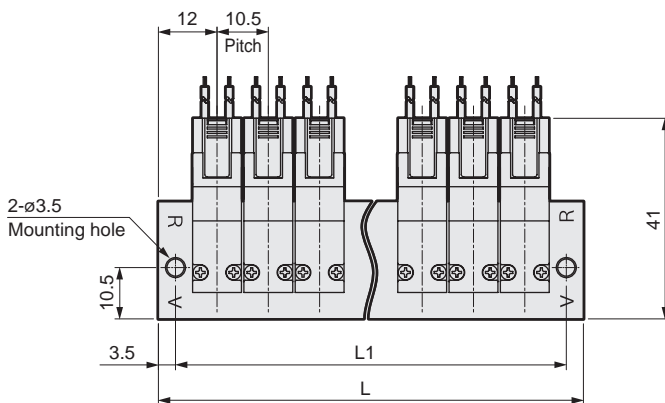
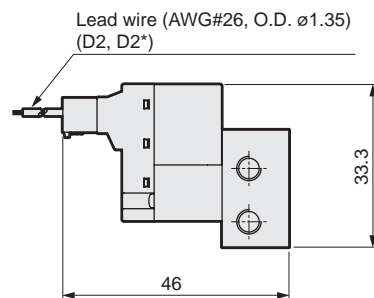
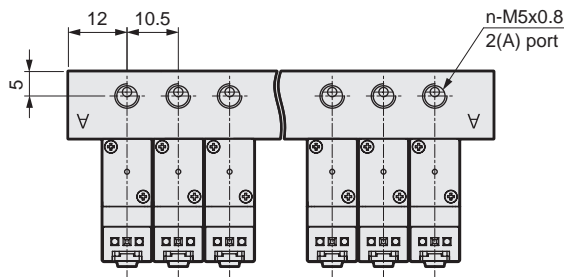


Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	34.5	45	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5
L1	27.5	38	48.5	59	69.5	80	90.5	101	111.5	122	132.5	143	153.5	164	174.5	185	195.5	206	216.5

### M3QB110-M5 Option V

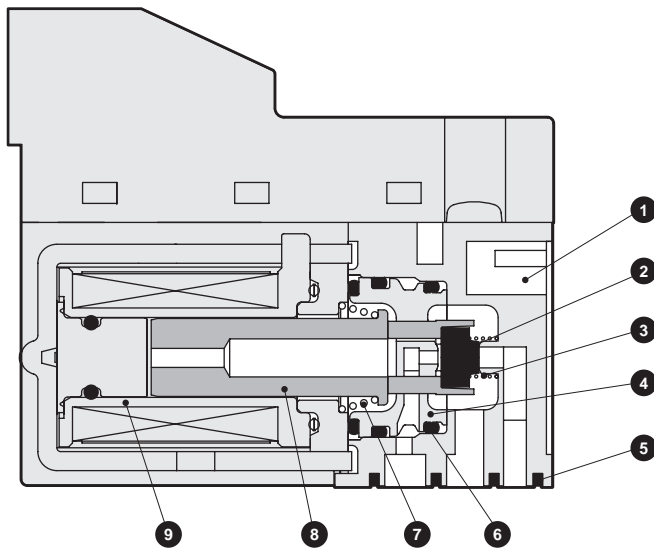
· 2-position single: C-connector (C2/C3)

· D-connector (D2/D3)



Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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
L1	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

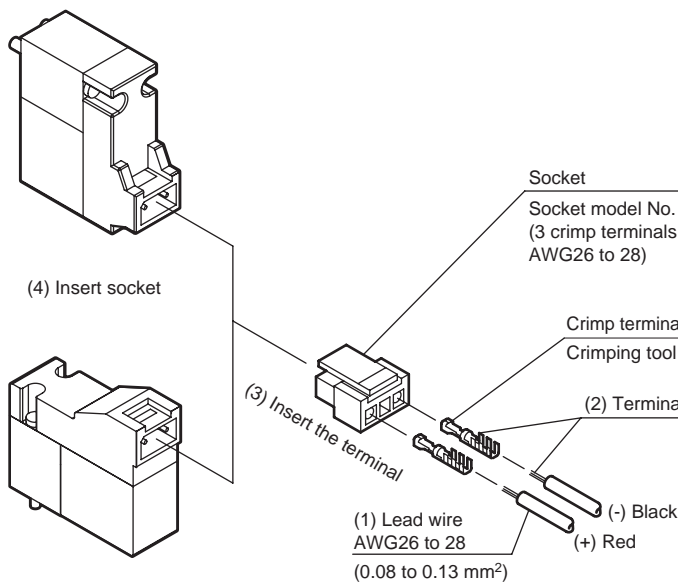
### Internal structure and parts list



No.	Part name	Material
1	Body	Resin
2	Valve seat	Nitrile rubber
3	Valve spring	Stainless steel
4	Plug	Resin
5	Body gasket	Fluoro rubber
6	O-ring	Fluoro rubber
7	Plunger spring	Stainless steel
8	Plunger	Stainless steel
9	Coil assembly	-

### C-/D-connector wiring method

Wire (1) to (4) referring to the figure below.



#### [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  $\oplus$   $\ominus$  with the lamp and surge suppressor equipped models.  
An incorrect polarity will not result in a short-circuit, but the valve will not operate.

4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G GMF
PV5 GMF
PV5S-0
<b>3Q</b>
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP NVP
4G*0EJ
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# Direct acting 3-port valve

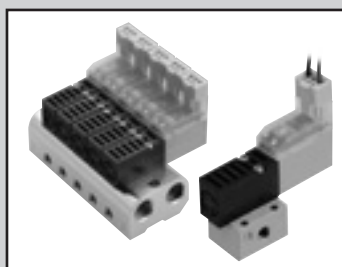
Discrete valve body piping/sub-plate piping

## 3QRA/3QRB Series

Individual wiring manifold body piping/sub-plate piping

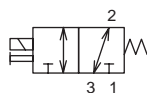
## M3QRA/M3QRB Series

● Cylinder bore size:  $\varnothing 6$  to  $\varnothing 25$



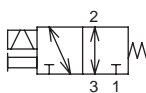
### JIS symbol

● 2-position universal (Self-reset)



Port No.item1,2,3is  
PortG1:P,NC  
PortG2:A,COM  
PortG3:R,NO

(self-hold)



Port No.item1,2,3is  
PortG1:P,NC  
PortG2:A,COM  
PortG3:R,NO

### Common specifications

Item	Description
Valve and operation	Direct acting poppet valve
Working fluid	Compressed air, low vacuum
Max. working pressure MPa	0.70
Min. working pressure MPa	Low vacuum: -100 kPa
Proof pressure MPa	1.05 (low vacuum: -101 kPa)
Max. working pressure differential MPa	0.70
Ambient temperature °C	-5 to 50 (no freezing)
Fluid temperature °C	5 to 50
Lubrication	Unavailable - *1
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.

\*1: Lubrication will degrade the performance.

### Electrical specifications

Item	Standard specifications		Large flow rate specifications H
	Rated voltage V	DC	24, 12
Energizing rate	Intermittent *2   Continuous *3		
Voltage fluctuation range	±10%		
Starting current A	24 VDC	-	0.13
Holding current A	12 VDC	-	0.27
	24 VDC	0.08	0.10
Power consumption W	12 VDC	0.17	0.20
	24 VDC	2.0	2.4 *4
Thermal class	B		

\*2: Limit continuous energizing to within 5 minutes and energization ratio to 50% or less. Min. time of excitation for self-holding is 50 ms.

\*3: Refer to the precautions for continuous energization on page 1568.

\*4: 3.2W for 20ms after start.

### Individual specifications

Item	3QRA11	3QRB11	3QRA12	3QRB12	M3QRA11	M3QRB11	M3QRA12	M3QRB12
	Port size	M5				Rc1/8		
	M5				M5			
	M5				Rc1/8			

### Performance/characteristics

Item	3QRA11	3QRB11	3QRA12	3QRB12	M3QRA11	M3QRB11	M3QRA12	M3QRB12
Response time *5 ON/OFF ms	4±1/1.5±1		5 or less		4±1/1.5±1		5 or less	
Weight g	24	27	28	31	19 (single solenoid valve)		23 (single solenoid valve)	

\*5: JIS B 8419:2010 Dynamic performance test depends.

(Initial values at supply pressure 0.5MPa, 20°C, no lubrication, rated voltage, continuous operation)

### Flow characteristics

Model No.	Option	Port 1→2		Port 2→1		Port 2→3		Port 3→2	
		C [dm <sup>3</sup> /(s·bar)]	S (ref val) [mm <sup>2</sup> ]	C [dm <sup>3</sup> /(s·bar)]	S (ref val) [mm <sup>2</sup> ]	C [dm <sup>3</sup> /(s·bar)]	S (ref val) [mm <sup>2</sup> ]	C [dm <sup>3</sup> /(s·bar)]	S (ref val) [mm <sup>2</sup> ]
3QRA1	Blank	0.30	1.5	0.32	1.6	0.32	1.6	0.30	1.5
	H	0.36	1.8	0.38	1.9	0.38	1.9	0.36	1.8
3QRB1	Blank	0.30	1.5	0.34	1.7	0.36	1.8	0.34	1.7
	H	0.36	1.8	0.40	2.0	0.40	2.0	0.40	2.0
M3QRA1	Blank	0.30	1.5	0.32	1.6	0.32	1.6	0.30	1.5
	H	0.36	1.8	0.38	1.9	0.38	1.9	0.36	1.8
M3QRB1	Blank	0.30	1.5	0.34	1.7	0.36	1.8	0.34	1.7
	H	0.36	1.8	0.40	2.0	0.40	2.0	0.40	2.0

### Ozone-proof specifications

Conforms to low-concentration ozone specifications as standard.

### Specifications for rechargeable battery

Conforms to CKD P4 Series equivalent specifications as standard.

### CE marking specifications

Available as standard.

• Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

4GA/B  
M4GA/B  
MN4GA/B  
4GA/B (master)  
4GB With sensor  
4GD/E  
M4GD/E  
MN4GD/E  
4GA4/B4  
MN3E  
MN4E  
W4GA/B2  
W4GB4  
MN3S0  
MN4S0  
4SA/B0  
4KA/B  
4KA/B (master)  
4F  
4F (master)  
PV5G  
GMF  
PV5  
GMF  
PV5S-0  
3Q  
MV3QR  
3MA/B0  
3PA/B  
P/M/B  
NP/NAP  
NVP  
4G\*0EJ  
4F\*0EX  
4F\*0E  
HMV  
HSV  
2QV  
3QV  
SKH  
Silencer  
TotAirSys (Total Air)  
TotAirSys (Gamma)  
Ending

### How to order

· Single solenoid valve

**3QRB1** **1** **0** - **M5** - **D2** — **3**

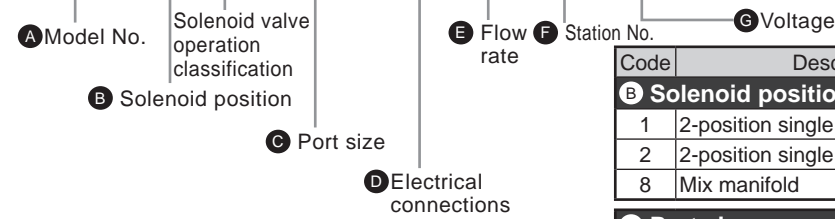
· Single solenoid valve

**3QRA1** **1** **9** - **M5** - **D2** — **3**

**3QRB1** **1** **9** - **00** - **D2** — **3**

· Manifold

**M3QRA1** **1** **0** - **M5** - **C2** - **8** - **3**



### ⚠ Precautions for model No. selection

\*1 : For connection with the grommet lead wire (300 mm), "2", 2-position single solenoid (self-hold) for **B** Solenoid position, and "H", large flow rate for **E** Flow rate are not selectable.

\*2 : For "2", 2-position single solenoid (self-hold) for **B** Solenoid position, "H" for **E** Flow rate and "4" for **G** Voltage are not selectable.

\*3 : Combination with a masking plate.  
 Combination of A and B types is not available.  
 Solenoid positions "1" and "2" cannot be mixed.

### [Example of model No.]

#### M3QRA110-M5-C2-7-3

- A** Model: M3QRA1 (body piping)
- B** Solenoid position : 2-position single
- C** Port size : M5
- D** Electrical connections : Lead wire 300 mm with surge suppressor and indicator lamp
- E** Flow rate : Standard 2 W
- F** Station No. : 7 stations
- G** Voltage : 24 VDC

### How to order masking plate kit

#### 3QR1 - MP - KIT

\* Gasket/mounting screw included

### Electrical connections

#### ● 3QRA11/3QRB11

Blank	Grommet lead wire	C2	C3	D2	D3
	Lead wire 300 mm	Lead wire length C2 : 300 mm C20: 500 mm C21: 1000 mm C22: 2000 mm		Lead wire length D2 : 300 mm D20: 500 mm D21: 1000 mm D22: 2000 mm	

#### ● 3QRA12/3QRB12

C2	C3	D2	D3
Lead wire length C2 : 300 mm C20: 500 mm C21: 1000 mm C22: 2000 mm		Lead wire length D2 : 300 mm D20: 500 mm D21: 1000 mm D22: 2000 mm	

		<b>A Model No.</b>			
		Single unit		Manifold	
		Body piping	Sub-plate piping	Body piping	Sub-plate piping
Code	Description	3QRA1	3QRB1	M3QRA1	M3QRB1
<b>B Solenoid position</b>					
1	2-position single (self-reset)	●	●	●	●
2	2-position single (self-hold) *2	●	●	●	●
8	Mix manifold *3			●	●
<b>C Port size</b>					
M5	M5	●	●	●	●
<b>D Electrical connections</b>					
Grommet lead wire					
Blank	Grommet lead wire (300 mm) *1	●	●	●	●
C-connector (lead wire lateral direction)					
C2	Lead wire (300 mm) with surge suppressor/lamp	●	●	●	●
C20	Lead wire (500 mm) with surge suppressor/lamp	●	●	●	●
C21	Lead wire (1000 mm) with surge suppressor/lamp	●	●	●	●
C22	Lead wire (2000 mm) with surge suppressor/lamp	●	●	●	●
C3	Without lead wire, with surge suppressor/lamp	●	●	●	●
D-connector (lead wire upward direction)					
D2	Lead wire (300 mm) with surge suppressor/lamp	●	●	●	●
D20	Lead wire (500 mm) with surge suppressor/lamp	●	●	●	●
D21	Lead wire (1000 mm) with surge suppressor/lamp	●	●	●	●
D22	Lead wire (2000 mm) with surge suppressor/lamp	●	●	●	●
D3	Without lead wire, with surge suppressor/lamp	●	●	●	●
<b>E Flow rate</b>					
Blank	Standard 2 W	●	●	●	●
H	Large flow rate 3.2 W→2.4 W	●	●	●	●
<b>F Station No.</b>					
2	2 stations			●	●
to	to				
20	20 stations				
<b>G Voltage</b>					
3	24 VDC	●	●	●	●
4	12 VDC	●	●	●	●

4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G GMF
PV5 GMF
PV5S-0
<b>3Q</b>
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP NVP
4G*0EJ
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending



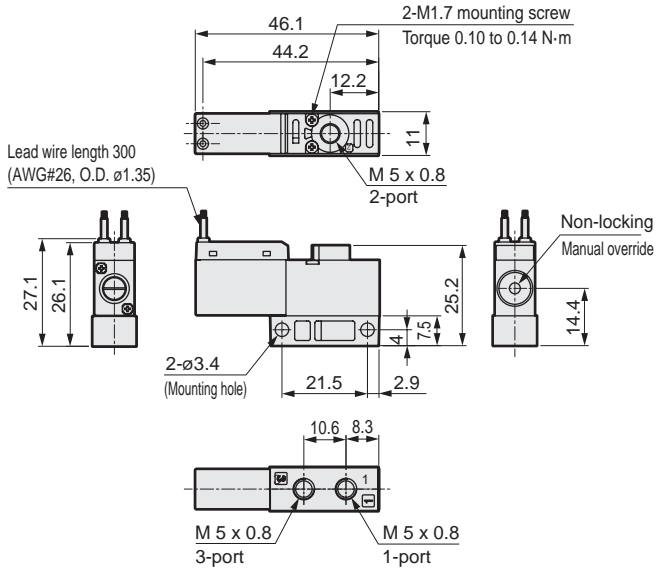
# 3QRA/3QRB Series

Discrete valve

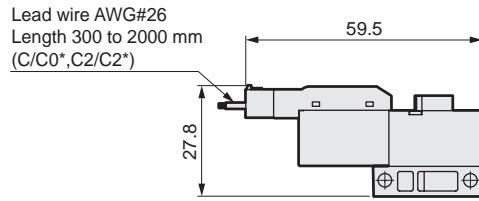
## Dimensions (3QRA11/3QRB11)

### 3QRA110-M5

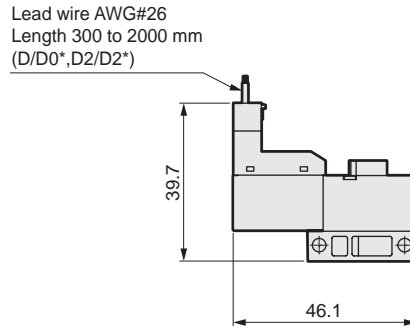
• 2-position single: grommet lead wire



• C-connector (C2/C3)

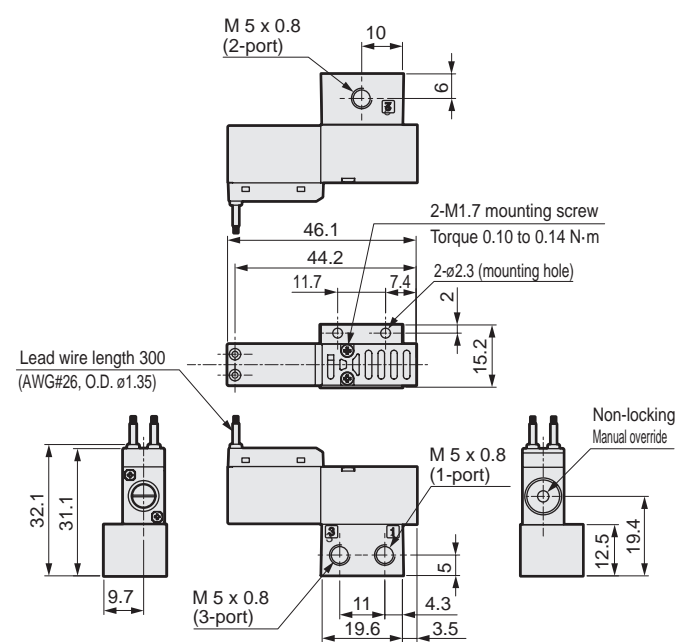


• D-connector (D2/D3)

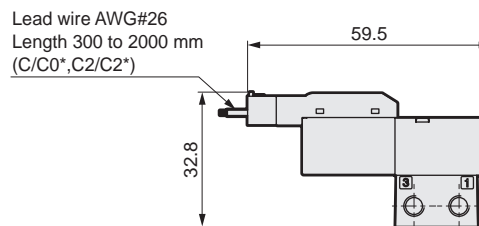


### 3QRB110-M5

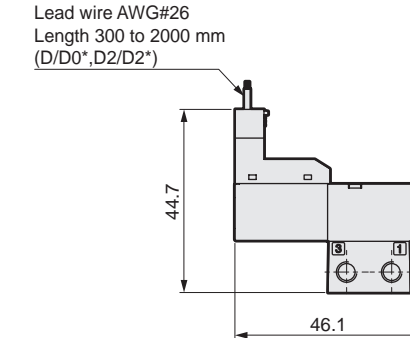
• 2-position single: grommet lead wire



• C-connector (C2/C3)

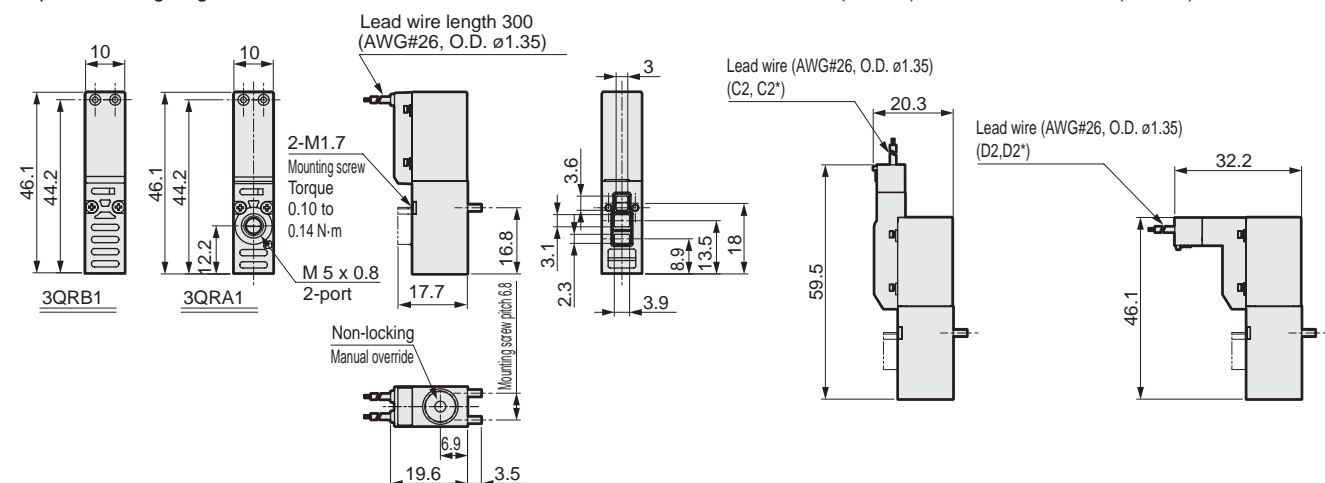


• D-connector (D2/D3)



### 3QRA/B119-00 (single solenoid valve)

• 2-position single: grommet lead wire



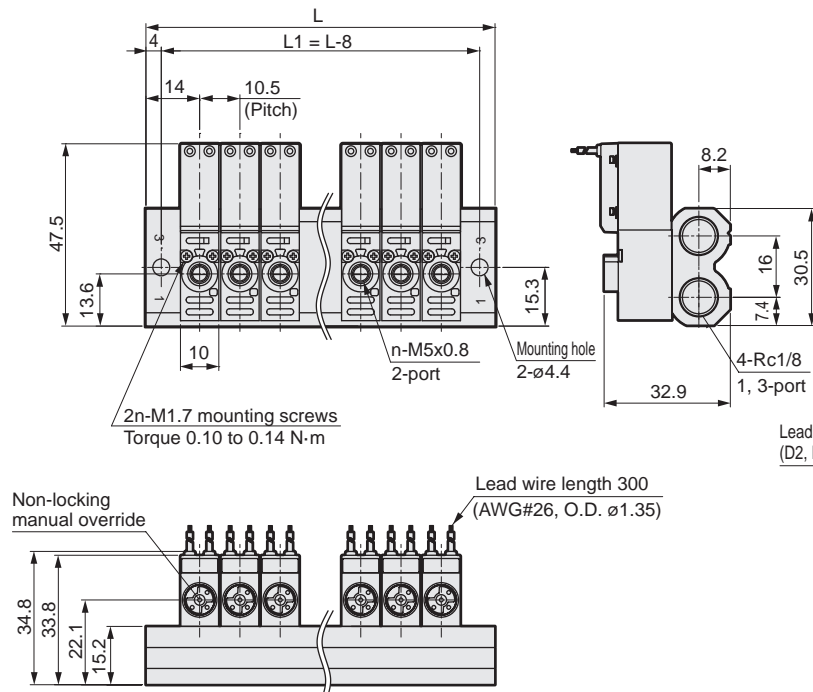
• C-connector (C2/C3)

• D-connector (D2/D3)

### Dimensions (M3QRA11/M3QRB11)

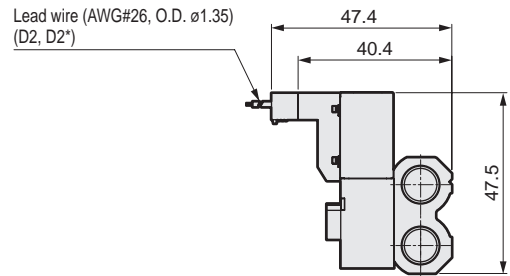
#### M3QRA110-M5

· 2-position single: grommet lead wire



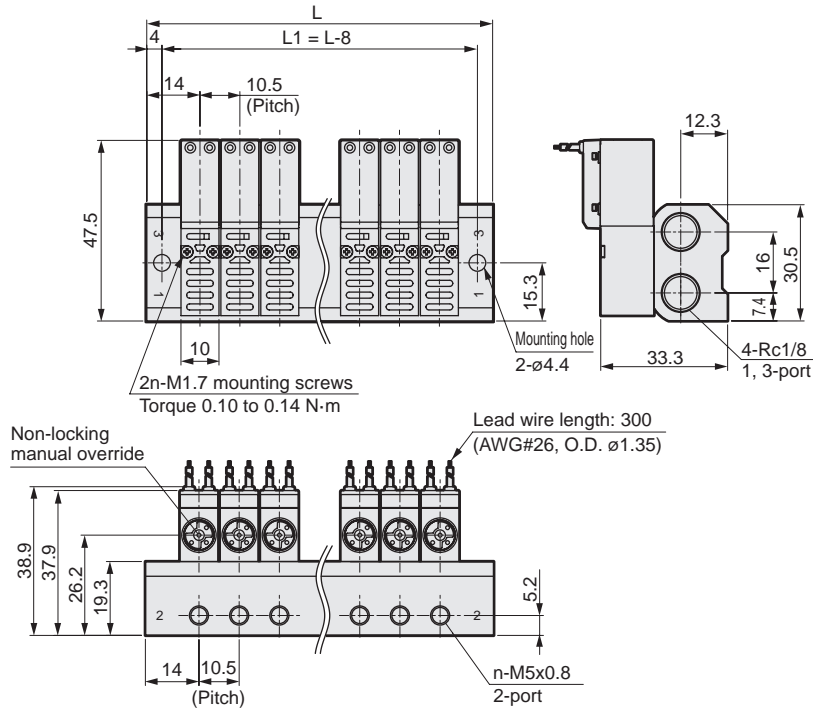
· C-connector (C2/C3)

· D-connector (D2/D3)



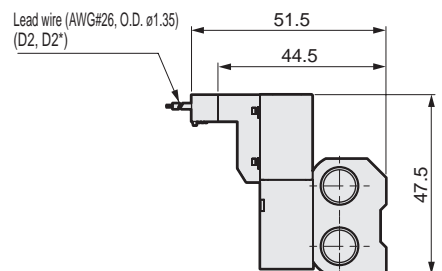
#### M3QRB110-M5

· 2-position single: grommet lead wire



· C-connector (C2/C3)

· D-connector (D2/D3)



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

4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G
GMF
PV5
GMF
PV5S-0
<b>3Q</b>
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP
NVP
4G*0EJ
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# 3QRA/3QRB Series

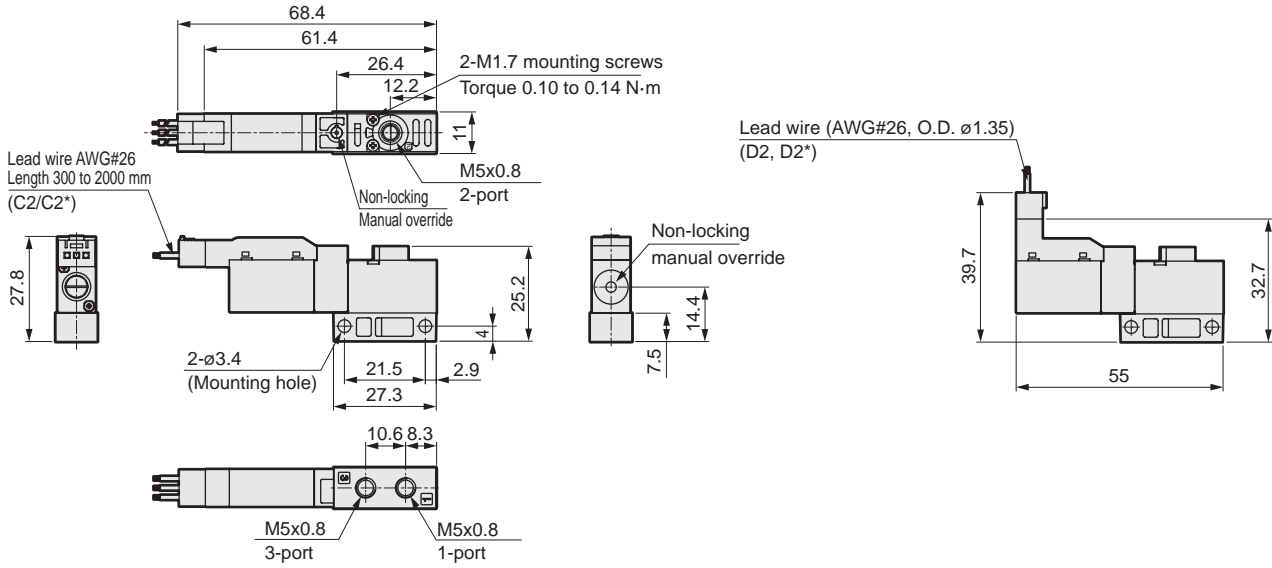
Individual wiring manifold

## Dimensions (3QRA12/3QRB12)

### 3QRA120-M5

· 2-position single: C-connector (C2/C3)

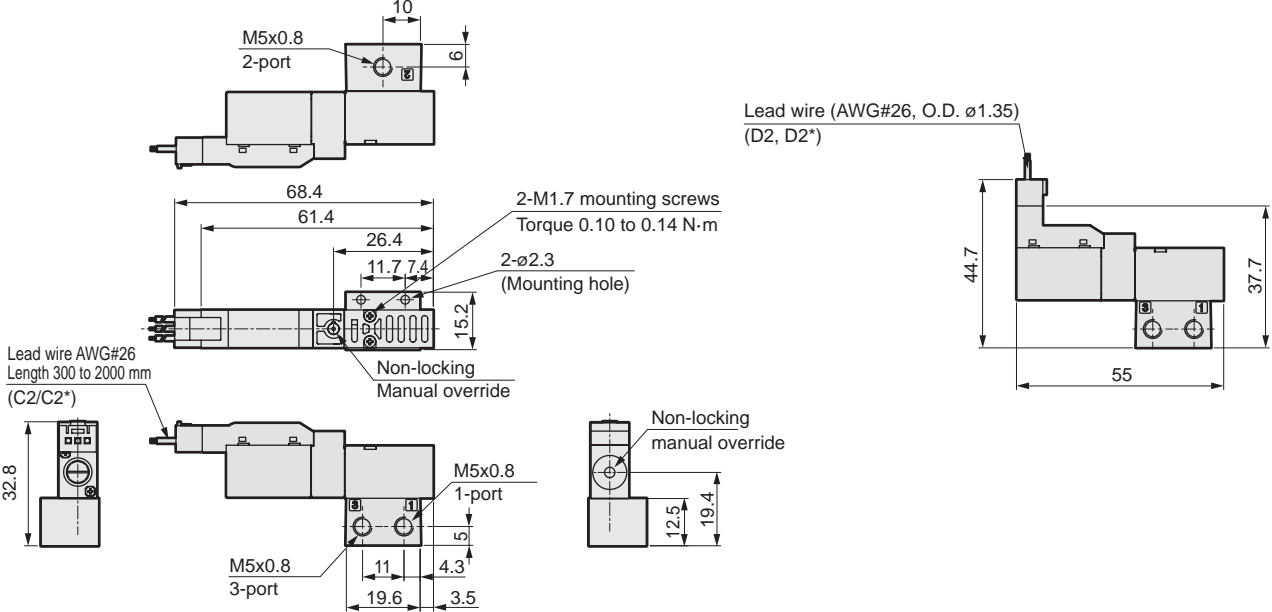
· D-connector (D2/D3)



### 3QRB120-M5

· 2-position single: C-connector (C2/C3)

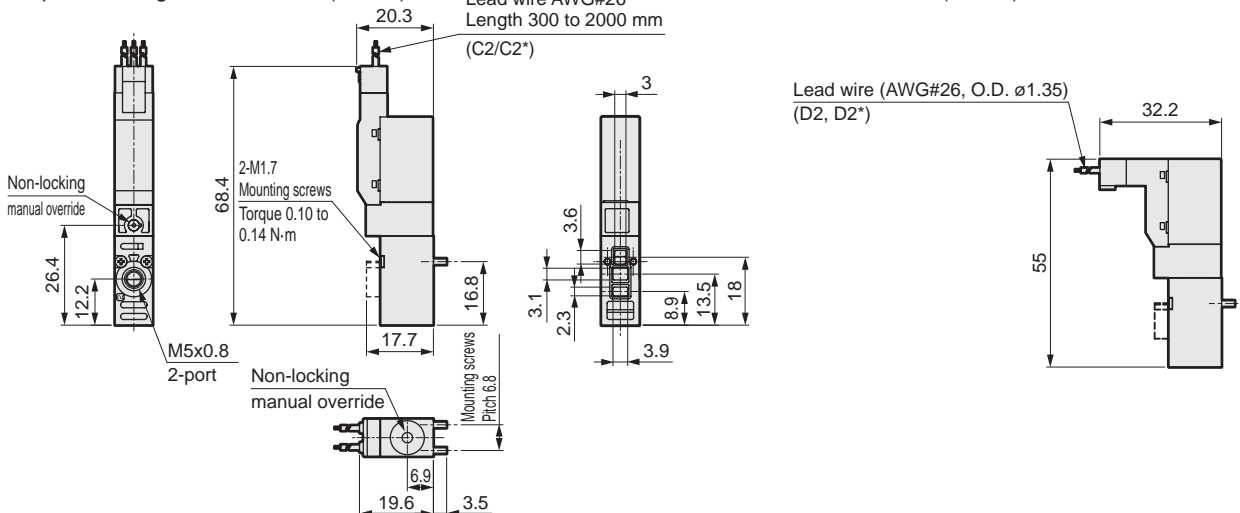
· D-connector (D2/D3)



### 3QRA/3QRB129-00 (single solenoid valve)

· 2-position single: C-connector (C2/C3)

· D-connector (D2/D3)

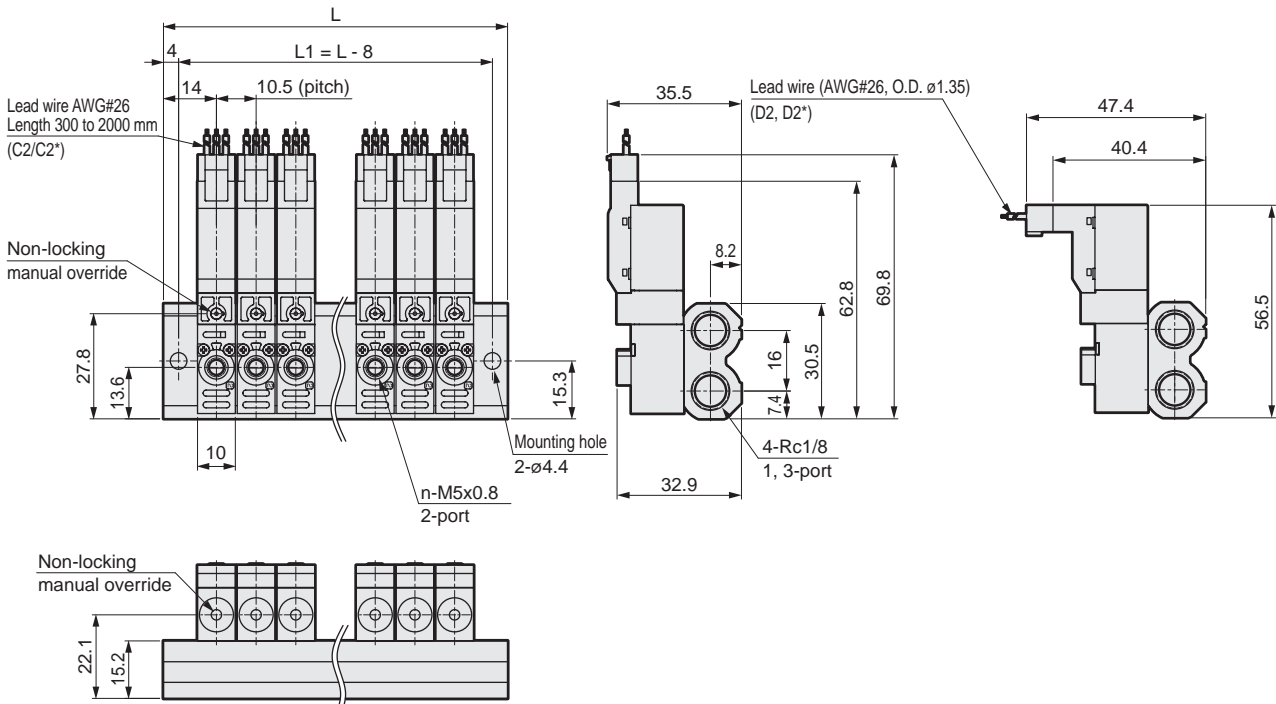


### Dimensions (M3QRA12/M3QRB12)

#### M3QRA120-M5

· 2-position single: C-connector (C2/C3)

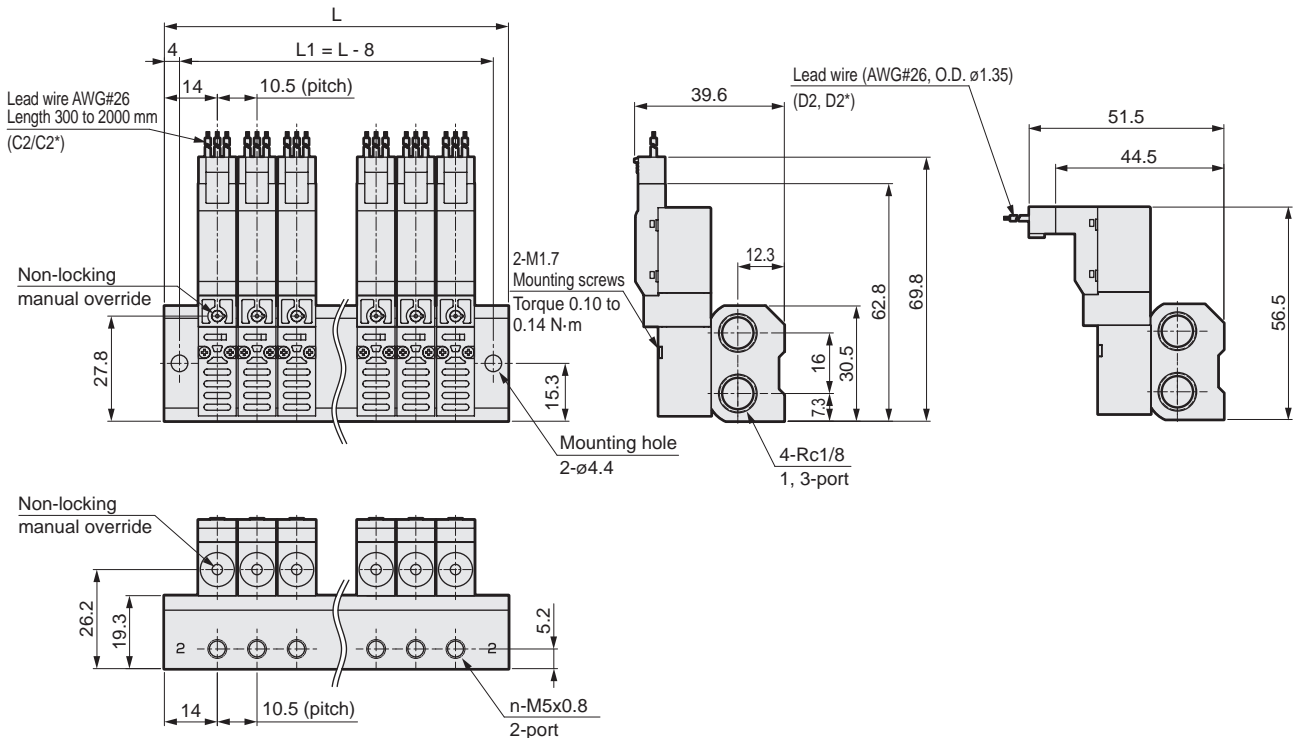
· D-connector (D2/D3)



#### M3QRB120-M5

· 2-position single: C-connector (C2/C3)

· D-connector (D2/D3)



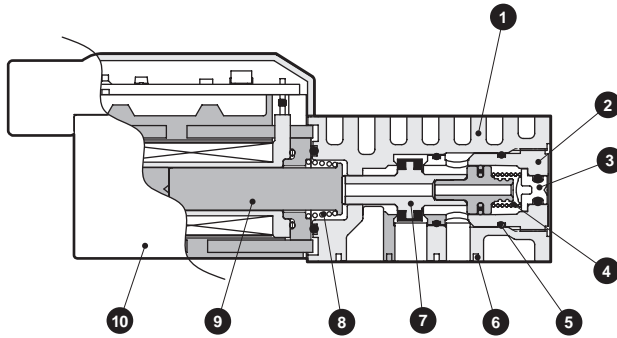
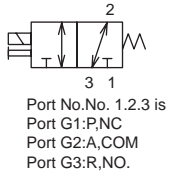
Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	38.5	49.0	59.5	70.0	80.5	91.0	101.5	112.0	122.5	133.0	143.5	154.0	164.5	175.0	185.5	196.0	206.5	217.0	227.5
L1	30.5	41.0	51.5	62.0	72.5	83.0	93.5	104.0	114.5	125.0	135.5	146.0	156.5	167.0	177.5	188.0	198.5	209.0	219.5

4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G
GMF
PV5
GMF
PV5S-0
<b>3Q</b>
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP
NVP
4G*0EJ
4F*0EX
4F*0E
HMV
HSV
2QV
3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# 3QRA/3QRB Series

## Internal structure and parts list

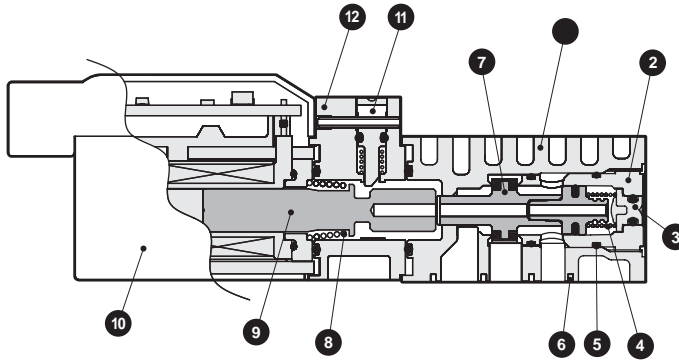
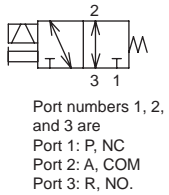
### ● 2-position single (self-reset)



### Main parts list

No.	Part name	Material
1	Body	Resin
2	Body (plug)	Resin
3	Manual button	Resin
4	Valve spring	Stainless steel
5	O-ring	Fluoro rubber
6	Body gasket	Fluoro rubber
7	Valve body	Aluminum, Hydrogenated nitrile rubber
8	Plunger spring	Stainless steel
9	Plunger	Stainless steel
10	Coil assembly	-

### ● 2-position single (self-hold)



### Main parts list

No.	Part name	Material
1	Body	Resin
2	Body (plug)	Resin
3	Manual button A	Resin
4	Valve spring	Stainless steel
5	O-ring	Fluoro rubber
6	Body gasket	Fluoro rubber
7	Valve body	Aluminum, Hydrogenated nitrile rubber
8	Plunger spring	Stainless steel
9	Plunger	Stainless steel
10	Coil assembly	-
11	Manual button B	Resin
12	Manual block	Resin

## 3Q

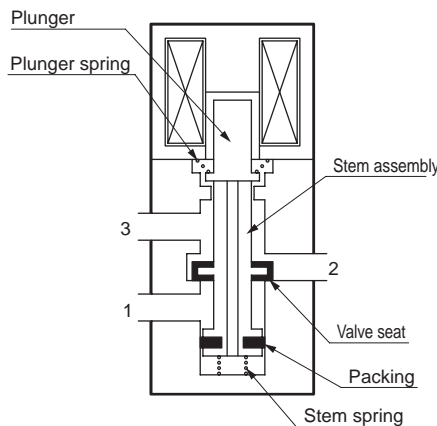
## Operational principle

### ● 2-position single (self-reset)

The 3QR Series structure is a pressure balanced type poppet valve, which is not affected by the working pressure and achieves a low wattage, large flow rate performance. It can be pressurized from any of ports 1, 2, or 3. The stem assembly valve seat and packing have the same diameter, so each port pressure differential is canceled by the stem assembly's through hole and pressure is balanced at both ON and OFF.

#### ● When not energized

The stem assembly is pushed toward port 1 side by the plunger spring force transmitted by the plunger. Port 1 is closed due to the stem assembly valve seat and packing. Ports 2 and 3 are opened.



#### ● When energized

When the coil is energized, the plunger is suctioned to the coil side, the stem assembly is actuated by the stem spring, and ports 1 and 2 open. Port 3 is closed.

