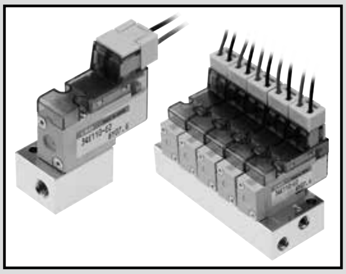


Direct acting 3-port valve
Discrete valve/sub-plate piping

3QE Series

Individual wiring manifold/sub-plate piping

M3QE Series

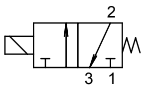
● Cylinder bore size: ø6 to ø20

CE RoHS

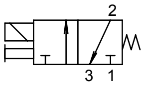
JIS symbol

● 2-position
Single (NC)

Without manual override



With manual override



Common specifications 1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Description
Valve and operation	Direct acting poppet valve
Working fluid	Compressed air
Max. working pressure MPa	0.7 (≈101 psi, 7 bar)
Min. working pressure MPa	0 (≈0 psi, 0 bar)
Proof pressure MPa	1.05 (≈152 psi, 10 bar)
Ambient temperature °C	-5 (23°F) to 55 (131°F) (no freezing)
Fluid temperature °C	5 (41°F) to 55 (131°F)
Manual override	None/Non-locking manual/ Locking manual
Lubrication *1	Not required
Degree of protection *2	Dust-proof
Vibration resistance m/s^2	50 or less
Impact resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments
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		3, 5, 12, 24 VDC 100 VAC	12, 24 VDC
Voltage fluctuation range		±10%	
Holding current A *3	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)
	100 VAC	0.009 (0.010)	-
Power consumption W *3	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^3/(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

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

Ⓐ Model No. Operation Ⓑ Solenoid position Ⓒ Port size Ⓓ Manual override Ⓔ Electrical connections Ⓕ Option Ⓖ Station No. Ⓗ Voltage

		Ⓐ Model No.: 3QE1	M3QZ1 M3QE1
Ⓑ Solenoid position			
1	2-position single normally closed	●	●
8	Mix manifold		●
Ⓒ Port size			
M5	M5	●	●
Ⓓ Manual override			
Blank	Without manual override	●	●
M	Non-locking manual override	●	●
M1	Locking manual override	●	●
Ⓔ 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	●	●
Ⓕ Option			
A	Ozone/coolant proof	●	●
S	Surgeless *2	●	●
E	Low exoergic/energy circuit *2, *3	●	●
F	Port A filter integrated *4		●
Ⓖ Station No.			
2 to 20	2 stations to 20 stations		●
Ⓗ Voltage			
1	100 VAC (rectifier integrated)	●	●
3	24 VDC	●	●
4	12 VDC	●	●
7	3 VDC	●	●
8	5 VDC	●	●

⚠ 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

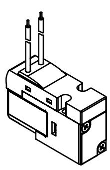
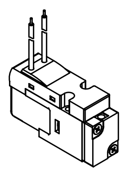
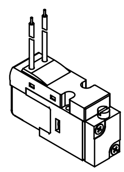
Ⓐ Model No. : Side layout manifold
Ⓑ Solenoid position : 2-position normally closed
Ⓒ Port size : M5
Ⓓ Manual override : Locking manual override
Ⓔ Electrical connections : E-connector lead wire 300 mm
Ⓕ Option : Fluorine specification
Ⓖ Station No. : 10 stations
Ⓗ Voltage : 24 VDC

How to order masking plate kit

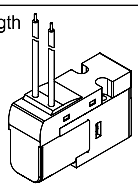
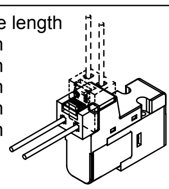
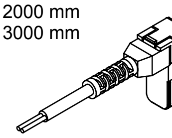
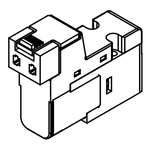
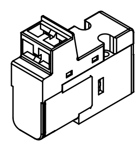
3QE1 - MP - KIT

* Gasket/mounting screw included

Manual override

Blank Without manual override	M Non-locking manual override	M1 Locking manual override
		

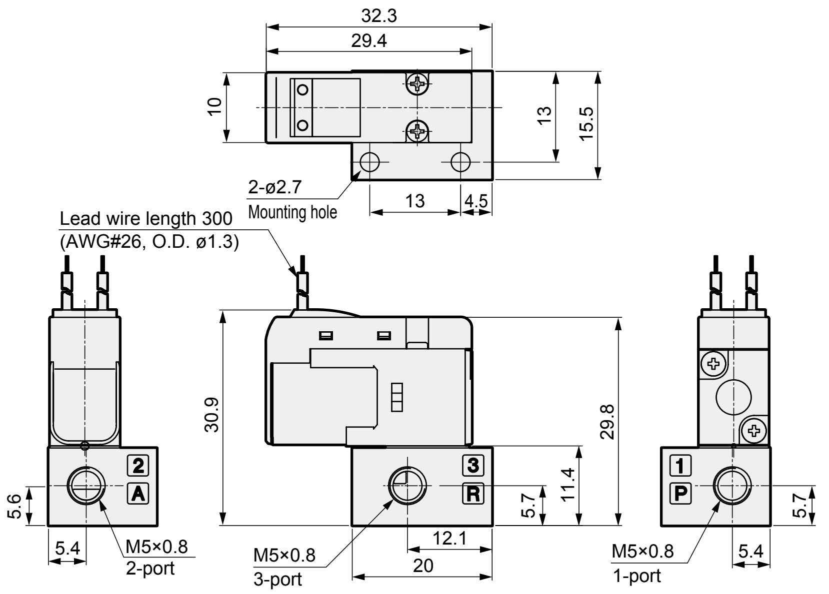
Electrical connections

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 		

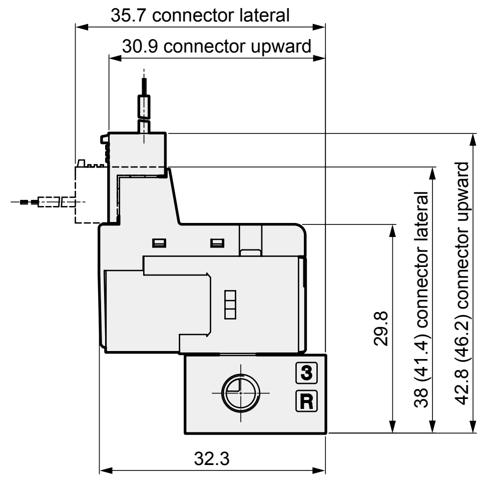
Dimensions (3QE)

3QE110-M5

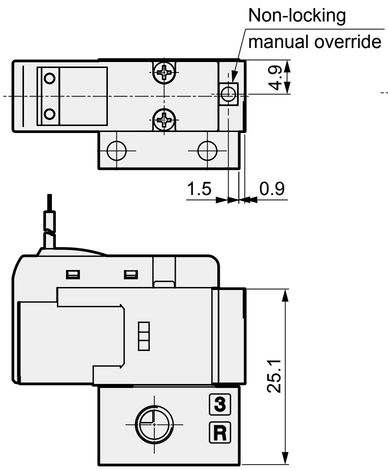
· 2-position single: grommet lead wire



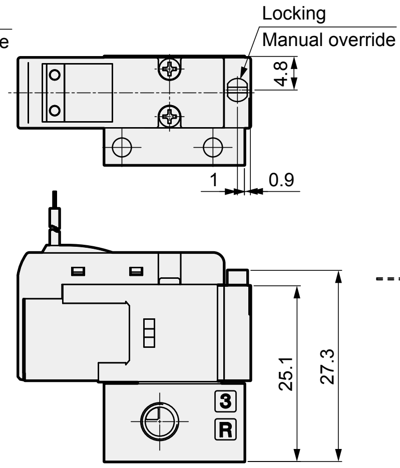
· E-connector (E)



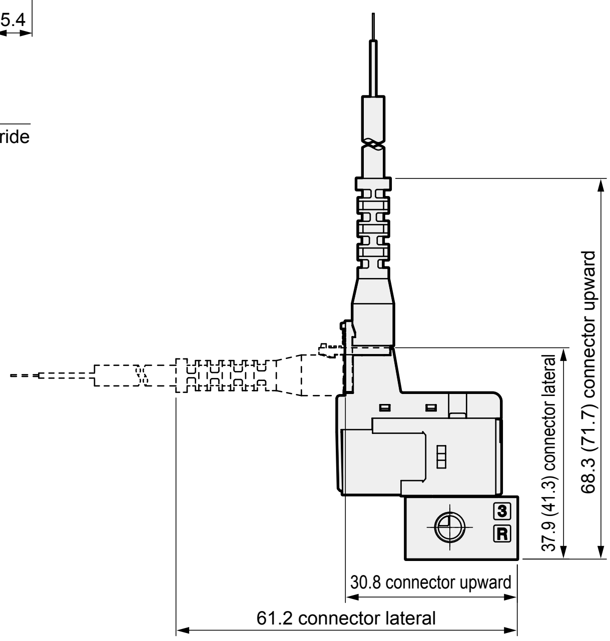
· Non-locking manual override (M)



· Locking manual override (M1)

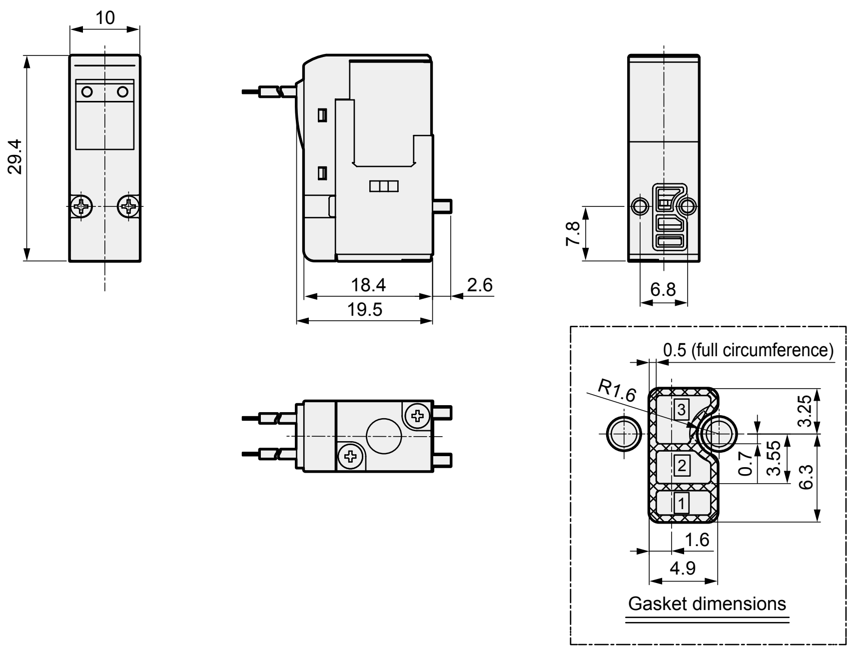


· EJ-connector (E*J)

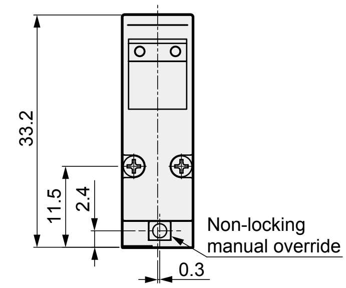


3QE119-00

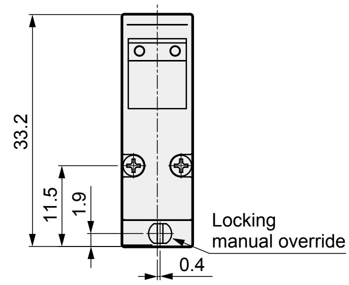
· 2-position single: grommet lead wire



· Non-locking manual override (M)



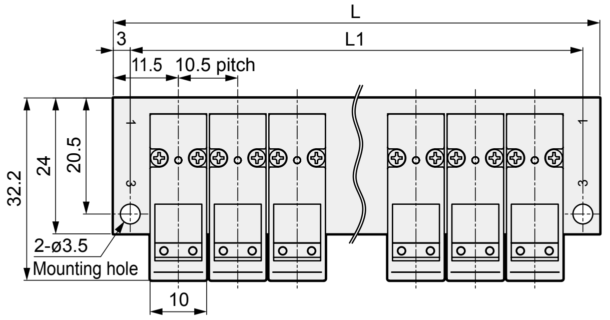
· Locking manual override (M1)

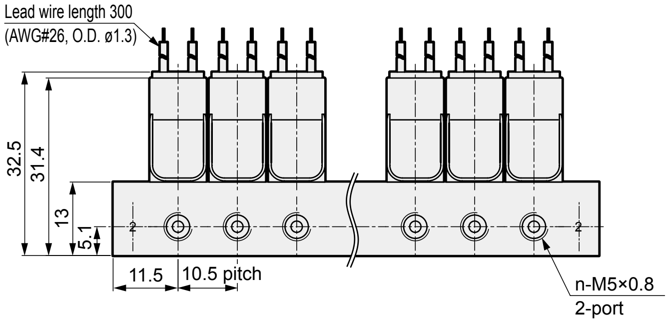


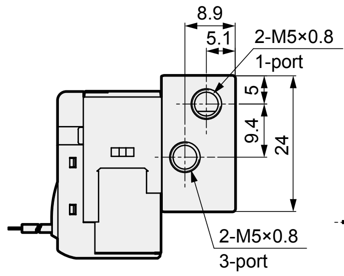
Dimensions (M3QE/M3QZ)

M3QE110-M5

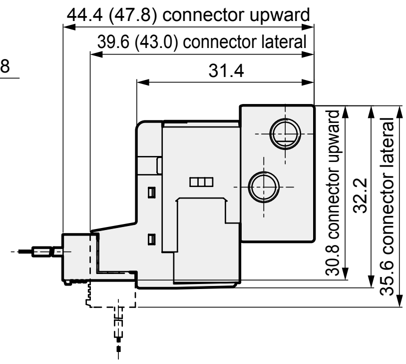
· 2-position single: grommet lead wire



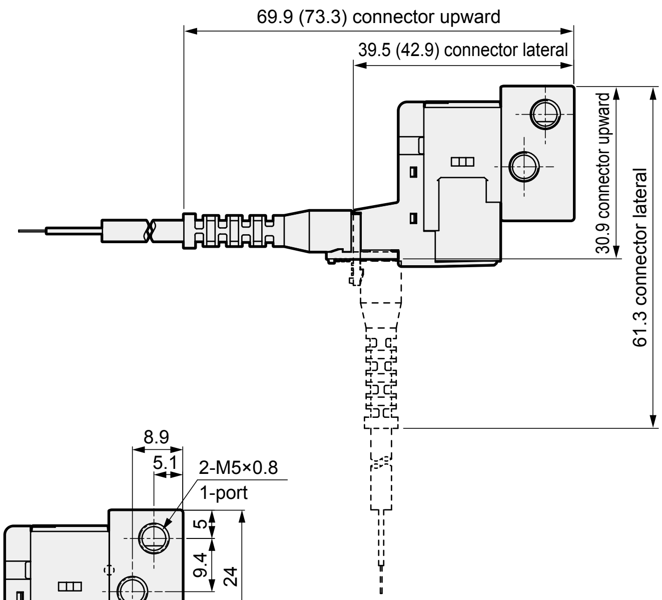




· E-connector (E)

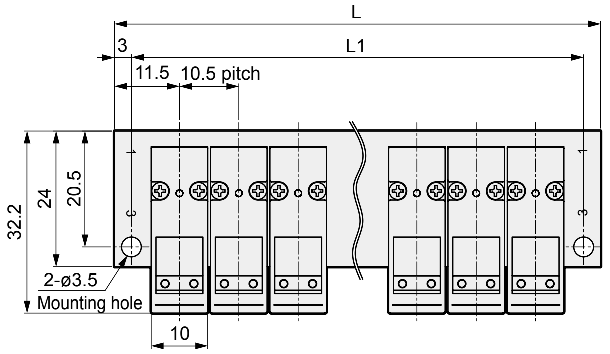


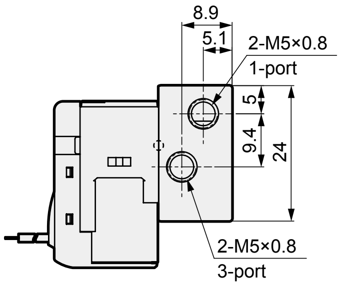
· EJ-connector (E*J)

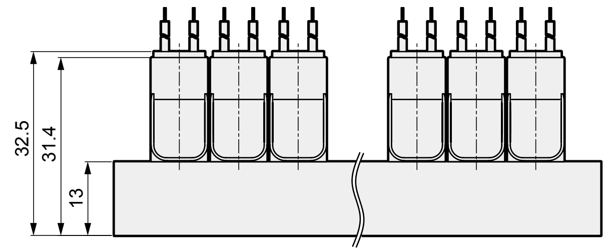


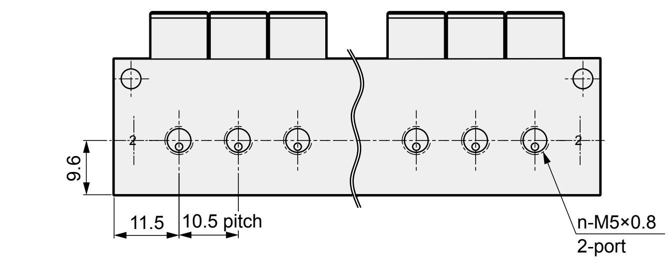
M3QZ110-M5

· 2-position single: grommet lead wire

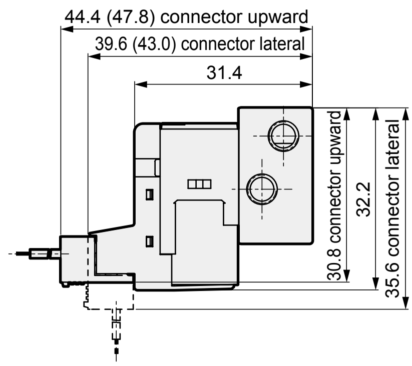








· E-connector (E)



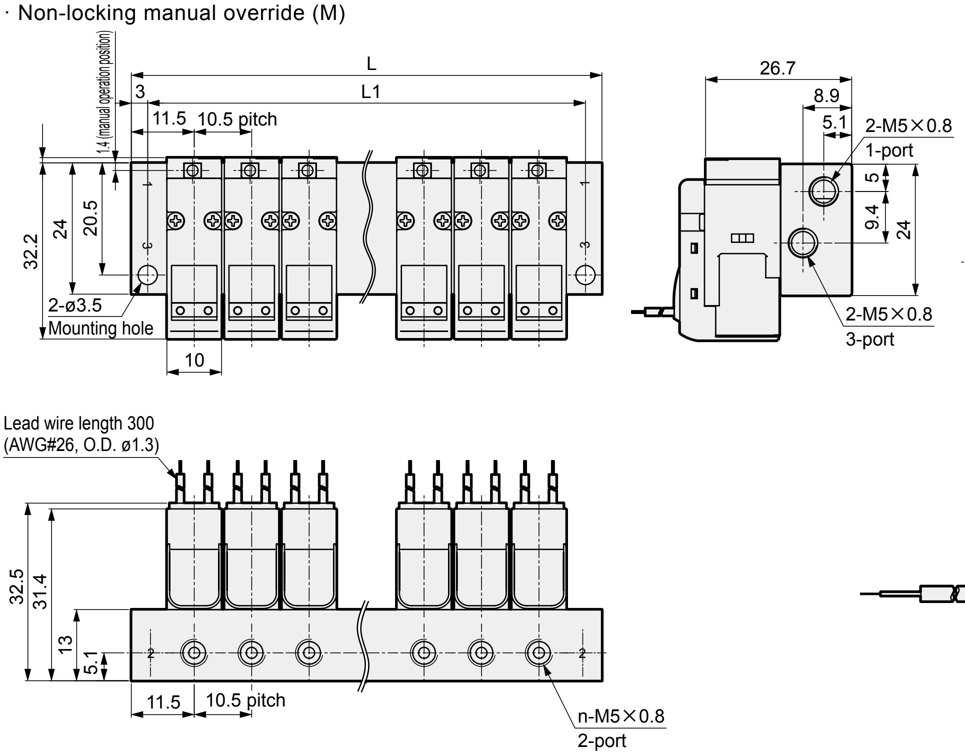
Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	33.5	44.0	54.5	65.0	75.5	86.0	96.5	107.0	117.5	128.0	138.5	149.0	159.5	170.0	180.5	191.0	201.5	212.0	222.5
L1	27.5	38.0	48.5	59.0	69.5	80.0	90.5	101.0	111.5	122.0	132.5	143.0	153.5	164.0	174.5	185.0	195.5	206.0	216.5

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
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

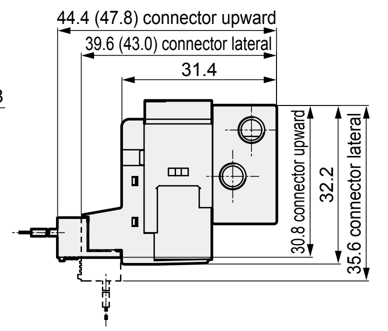
Dimensions (M3QE)

M3QE110-M5

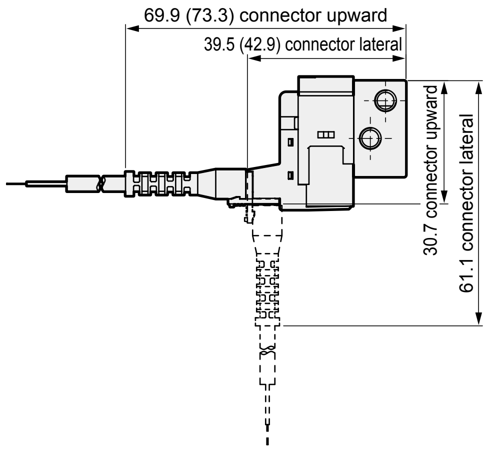
· Non-locking manual override (M)



· E-connector (E)

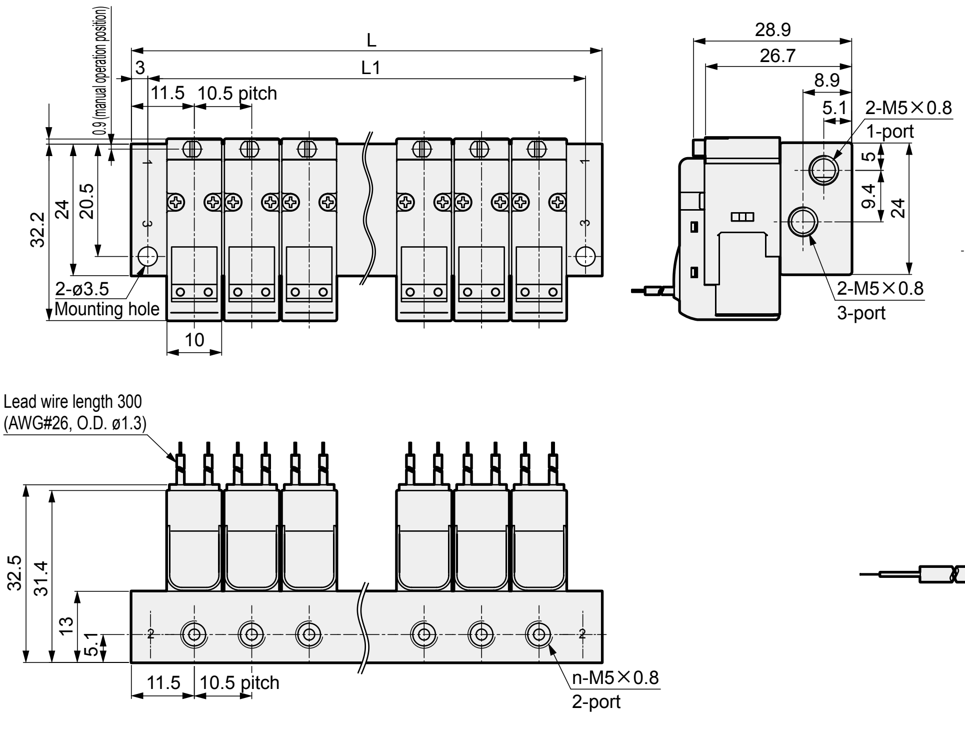


· EJ-connector (E*J)

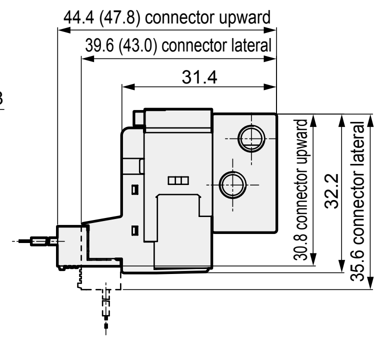


M3QE110-M5

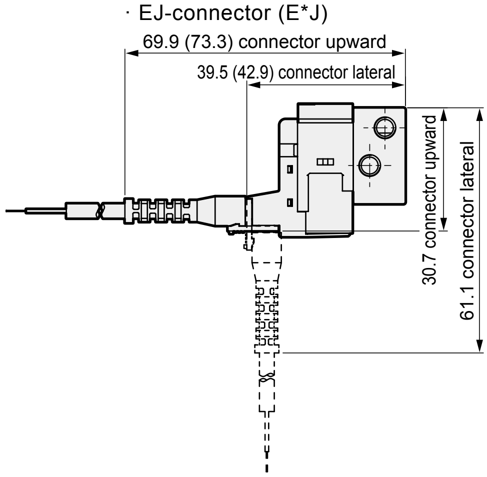
· Locking manual override (M1)



· E-connector (E)

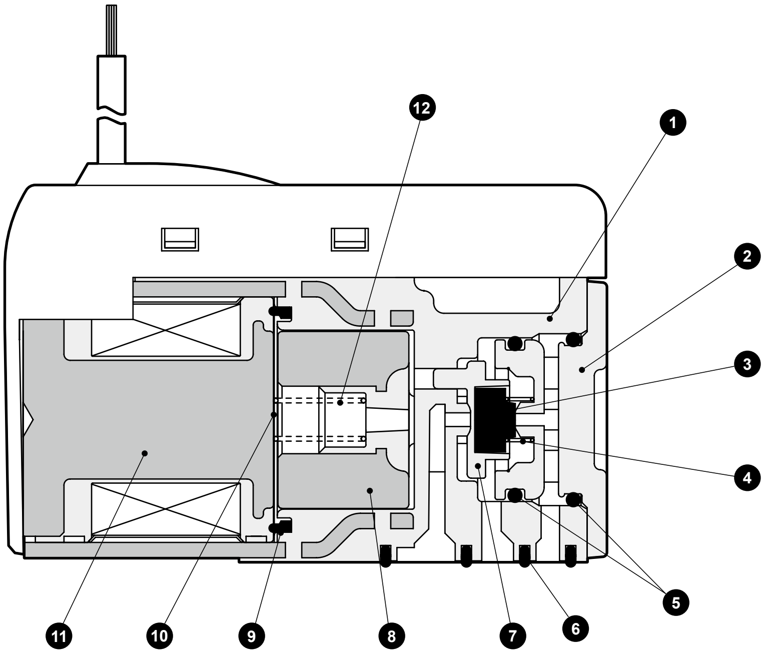


· EJ-connector (E*J)



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

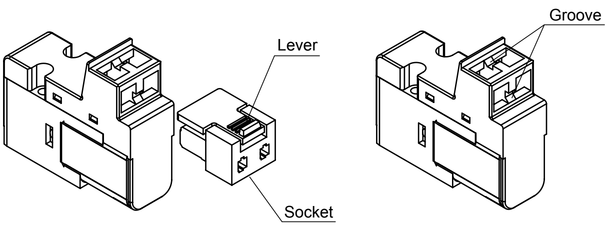
How to use E and EJ models

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.

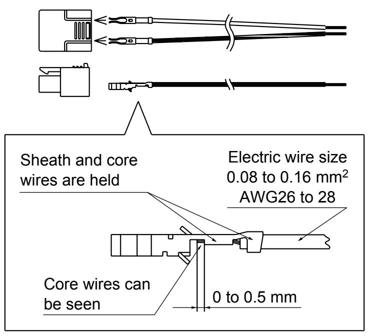
■ How to mount and remove socket

- 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.



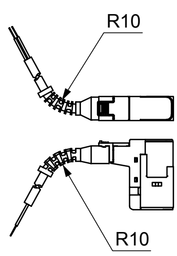
■ How to connect lead wire

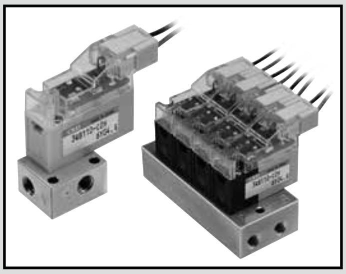
- Strip the end of the lead wire by about 3 mm. Align the ends of the core wires, insert them into the contact terminal, and crimp with a crimping tool. When crimping, check that both the sheath and core wires are held, and that 0 to 0.5 mm of the core wire ends is visible.
- After crimping, position 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.





Direct acting 3-port valve

Discrete valve/sub-plate piping

3QB Series

Individual wiring manifold/sub-plate piping

M3QB Series

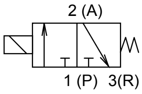
● Cylinder bore size: ø6 to ø20

JIS symbol

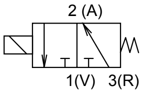
● 2-position

Single (NC)

3QB1-H(P)



3QB1-HV



Common specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

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 (≈152 psi, 10 bar)
Ambient temperature °C	0 (32°F) to 50 (122°F)
Fluid temperature °C	5 (41°F) to 50 (122°F)
Lubrication	Not available
Degree of protection	Dust-proof
Vibration resistance m/s^2	50 or less
Impact 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		±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: 2.2 W for 20 ms after start.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	3QB110-H	3QB110-HP	3QB110-HV
Max. working pressure MPa	0.3 (≈43 psi, 3 bar) *3	0.65 (≈94 psi, 6 bar)	0 (≈0 psi, 0 bar)
Min. working pressure MPa	-0.1 (≈-14 psi, -1 bar) *3	0.1 (≈15 psi, 1 bar)	-0.1 (≈-14 psi, -1 bar)

Performance/Characteristics

Item	3QB110-H	3QB110-HP	3QB110-HV
Response time *2 ms	5 or less		
Flow characteristic C [$dm^3/(s\cdot bar)$]	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.

Specifications for rechargeable battery

Conforms to CKD P4 Series equivalent specifications as standard.

CE marking specifications

** - Voltage - ST

UL standards specifications

** - Voltage - UL (Made to order)

How to order

· Sub-plate piping

3QB1 1 0 - M5 - C2 H ( ) —— 3

· Single solenoid valve

3QB1 1 9 - 00 - D2 H P —— 3

· Manifold

M3QB1 1 0 - M5 - C2 H V - 10 - 3

Ⓐ Model No.
Solenoid valve operation classification
Ⓑ Solenoid position
Ⓒ Port size
Ⓓ Connection
Ⓔ Pressure specification
Ⓕ Station No.
Ⓖ Voltage

Code	Description	Ⓐ Model No. 3QB1	Ⓐ Model No. M3QB1
Ⓑ Solenoid position			
1	2-position single normally closed	●	●
8	Mix manifold *1		●
Ⓒ Port size			
M5	M5	●	●
Ⓓ Electrical connections			
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)	●	●
Ⓔ Pressure specification			
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)	●	●
Ⓕ Station No.			
2 to 20	2 stations to 20 stations		●
Ⓖ Voltage			
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

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

How to order masking plate kit

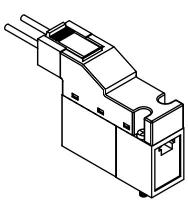
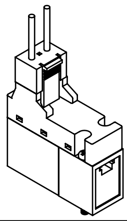
3QB1 - MP - KIT

3QB1 - MP - KIT - V *3

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

Electrical connections

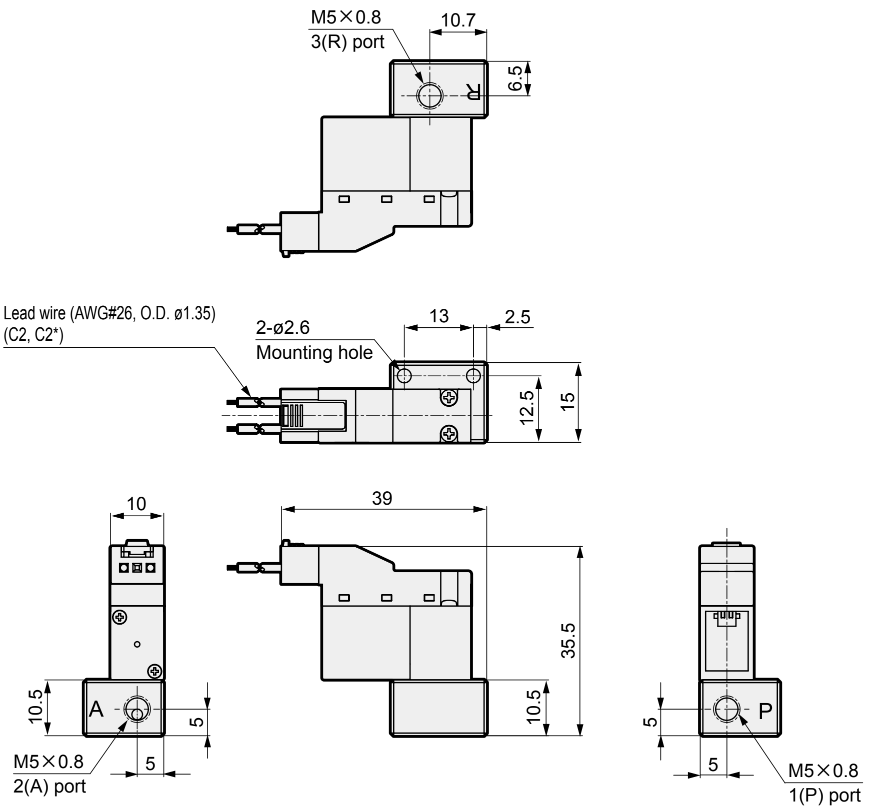
● 3QB

C2	C-connector with lead wire with surge suppressor and indicator lamp	D2	D-connector with lead wire with surge suppressor and indicator lamp
· 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	

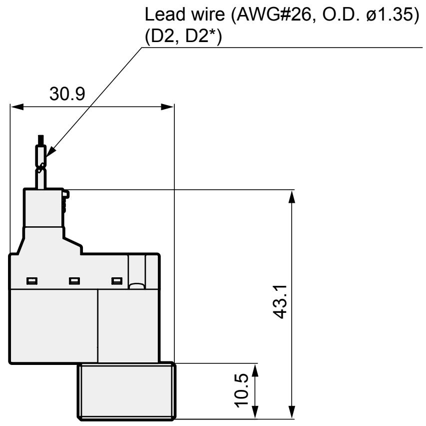
Dimensions (3QB110)

3QB110-M5 Options Blank, P

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

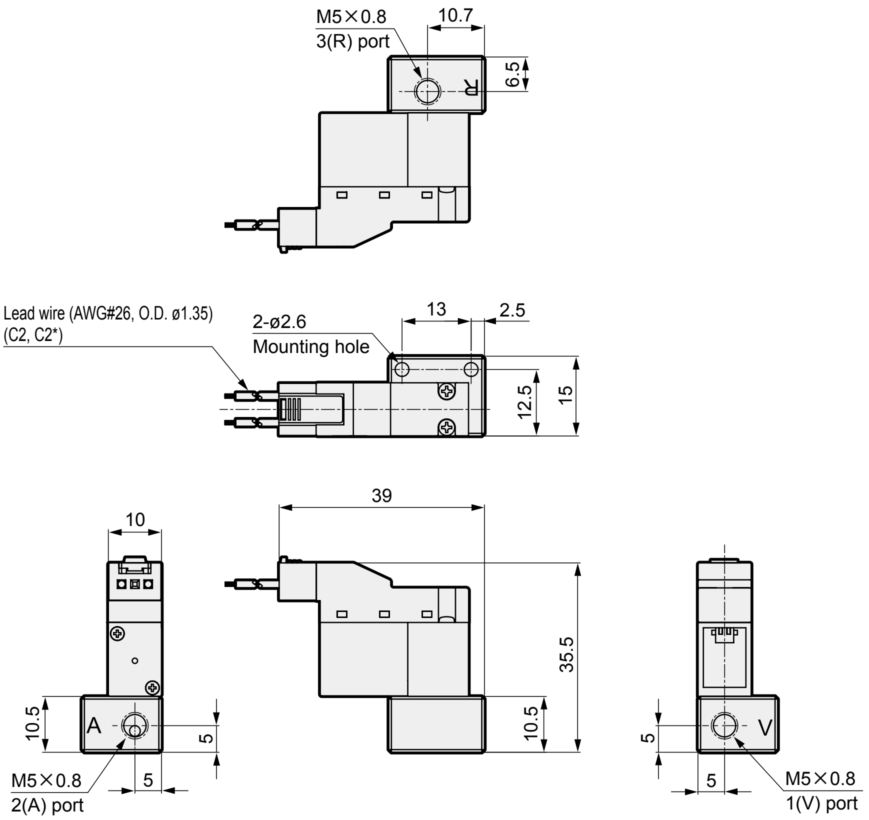


· D-connector (D2/D3)

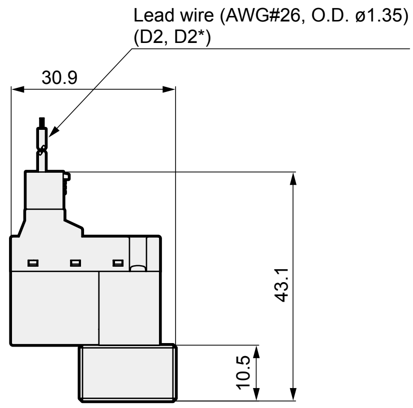


3QB110-M5 Option V

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



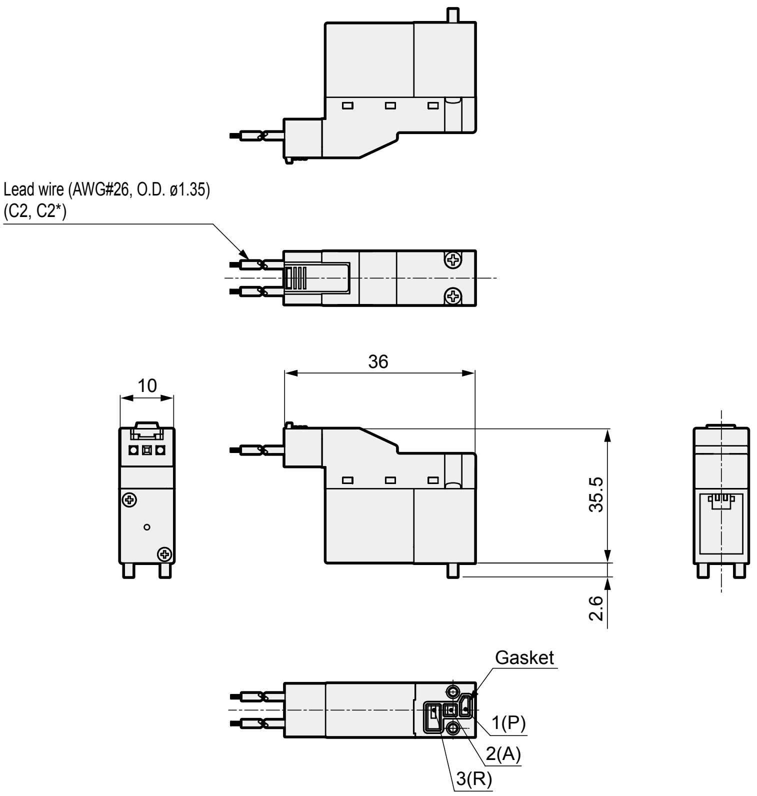
· D-connector (D2/D3)



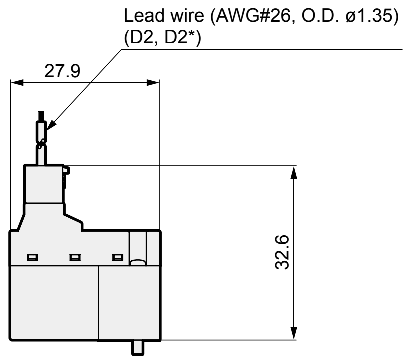
Dimensions (3QB119)

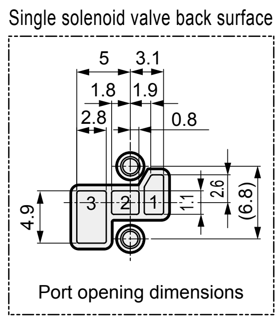
3QB119-00 Options Blank, P

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



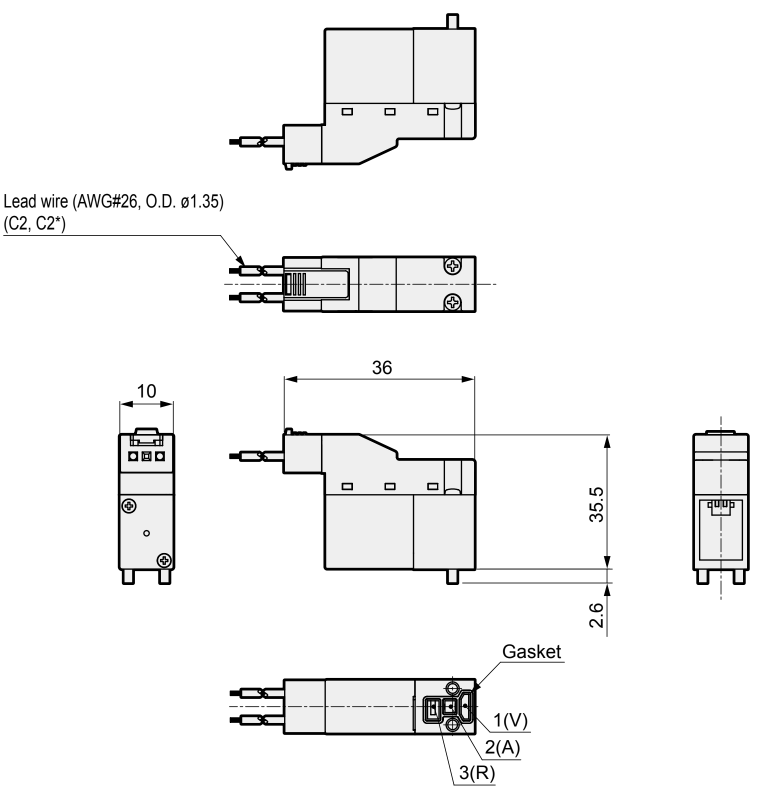
· D-connector (D2/D3)



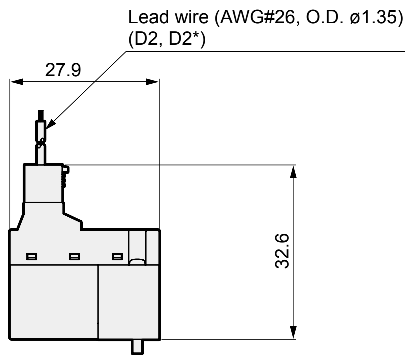


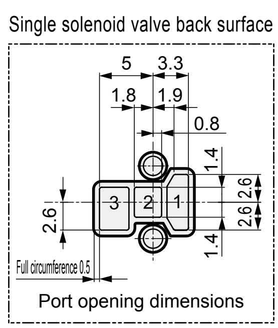
3QB119-00 Option V

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



· D-connector (D2/D3)



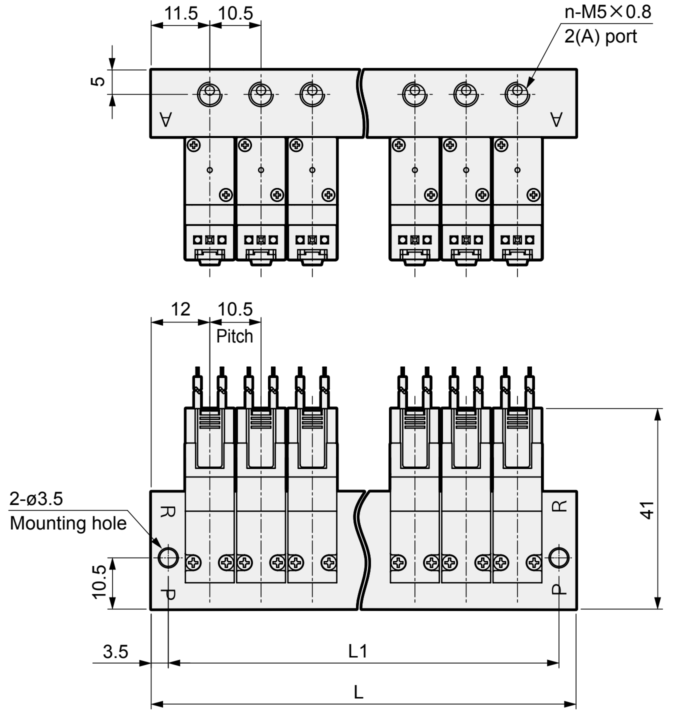


4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G GMF
PV5 GMF
PV5S-0
3Q
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP NVP
4G*0EJ
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys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

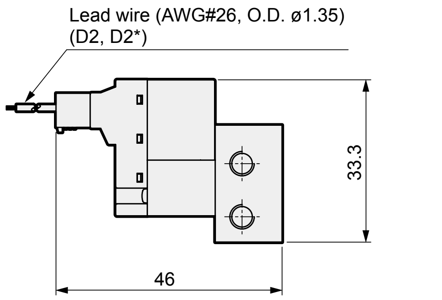
Dimensions (M3QB110)

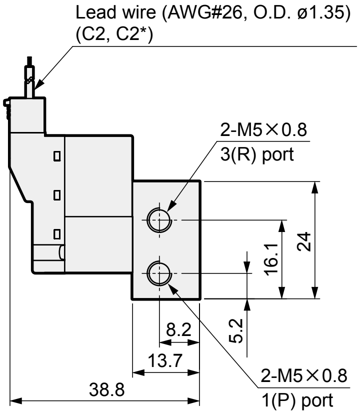
M3QB110-M5 Options Blank, P

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



· D-connector (D2/D3)

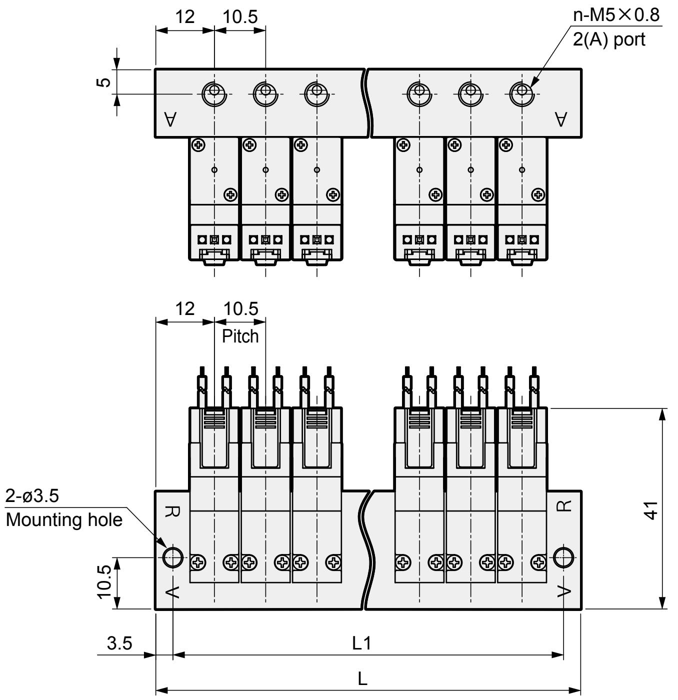




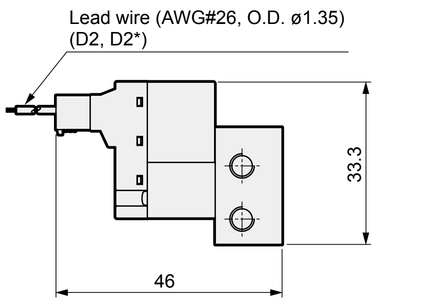
Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	34.5	45	55.5	66	76.5	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5
L1	27.5	38	48.5	59	69.5	80	90.5	101	111.5	122	132.5	143	153.5	164	174.5	185	195.5	206	216.5

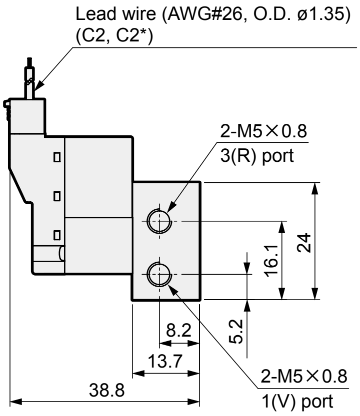
M3QB110-M5 Option V

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



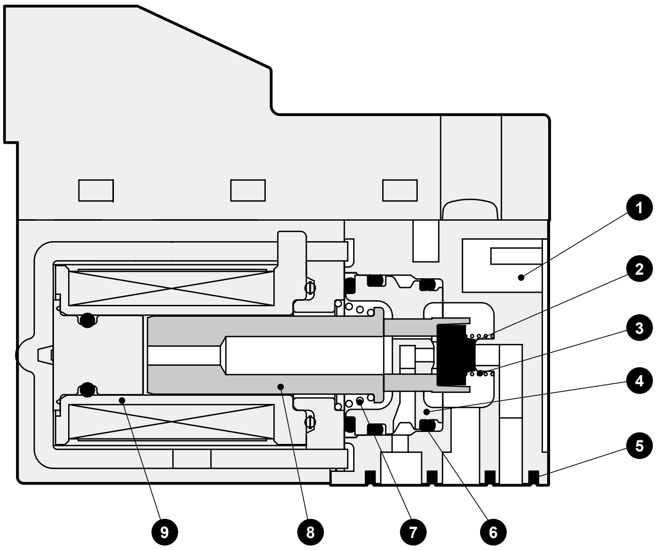
· D-connector (D2/D3)





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



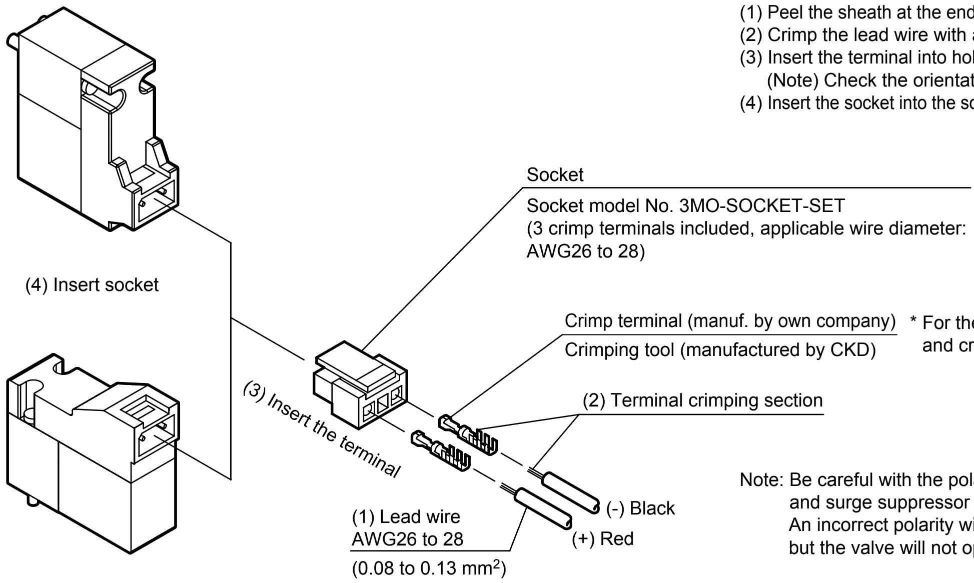
No.	Part name	Material
1	Body	Resin
2	Valve seat	Nitrile rubber
3	Valve spring	Stainless steel
4	Plug	Resin
5	Body gasket	Fluoro rubber
6	O-ring	Fluoro rubber
7	Plunger spring	Stainless steel
8	Plunger	Stainless steel
9	Coil assembly	-

C-/D-connector wiring method

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

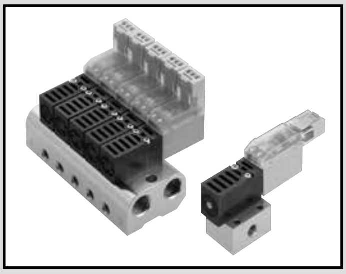
[Procedure]

(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.



* For the details of crimp terminals and crimping tools, contact CKD.

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.



Direct acting 3-port valve

Discrete valve body piping/sub-plate piping

3QRA/3QRB Series

Individual wiring manifold body piping/sub-plate piping

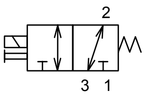
M3QRA/M3QRB Series

● Cylinder bore size: ø6 to ø25

JIS symbol

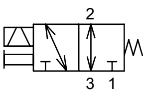
● 2-position universal

(Self-reset)



Port numbers 1, 2, and 3 are
Port 1: P, NC
Port 2: A, COM
Port 3: R, NO.

(Self-hold)



Port numbers 1, 2, and 3 are
Port 1: P, NC
Port 2: A, COM
Port 3: R, NO.

Common specifications 1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	Description
Valve and operation	Direct acting poppet valve
Working fluid	Compressed air, low vacuum
Max. working pressure MPa	0.70 (≈101 psi, 7 bar)
Min. working pressure MPa	Low vacuum: -100 (≈-14 psi, -1 bar) kPa
Proof pressure MPa	1.05 (≈152 psi, 10 bar) (low vacuum: -101 (≈-15 psi, -1 bar) kPa)
Max. working pressure differential MPa	0.70 (≈101 psi, 7 bar)
Ambient temperature °C	-5 (23°F) to 50 (122°F) (no freezing)
Fluid temperature °C	5 (41°F) to 50 (122°F)
Lubrication	Unavailable *1
Degree of protection	Dust-proof
Vibration resistance m/s²	50 or less
Impact resistance m/s²	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
	12 VDC	-	0.27
Holding current A	24 VDC	0.08	0.10
	12 VDC	0.17	0.20
Power consumption W		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: 3.2 W for 20 ms after start.

Individual specifications

Item		3QRA11	3QRB11	3QRA12	3QRB12	M3QRA11	M3QRB11	M3QRA12	M3QRB12
Port size	Port 1	M5				Rc1/8			
	Port 2					M5			
	Port 3					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: 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)

Flow characteristics

Model No.	Option	Port 1→2 C [dm³/(s·bar)]	Port 1→2 S (ref val) [mm²]	Port 2→1 C [dm³/(s·bar)]	Port 2→1 S (ref val) [mm²]	Port 2→3 C [dm³/(s·bar)]	Port 2→3 S (ref val) [mm²]	Port 3→2 C [dm³/(s·bar)]	Port 3→2 S (ref val) [mm²]
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

** - Voltage - **ST**

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

Ⓐ Model No.
Solenoid valve operation classification
Ⓑ Solenoid position
Ⓒ Port size
Ⓓ Electrical connections
Ⓔ Flow rate
Ⓕ Station No.
Ⓖ Voltage

		Ⓐ Model No.			
		Single unit		Manifold	
		Body piping	Sub-plate piping	Body piping	Sub-plate piping
Code	Description	3QRA1	3QRB1	M3QRA1	M3QRB1
Ⓑ Solenoid position					
1	2-position single (self-reset)	●	●	●	●
2	2-position single (self-hold) *2	●	●	●	●
8	Mix manifold *3			●	●
Ⓒ Port size					
M5	M5	●	●	●	●
Ⓓ Electrical connections					
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	●	●	●	●
Ⓔ Flow rate					
Blank	Standard 2 W	●	●	●	●
H	Large flow rate 3.2 W→2.4 W	●	●	●	●
Ⓕ Station No.					
2 to 20	2 stations to 20 stations			●	●
Ⓖ Voltage					
3	24 VDC	●	●	●	●
4	12 VDC	●	●	●	●

⚠ Precautions for model No. selection

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

*2 : For "2", 2-position single solenoid (self-hold) for Ⓑ Solenoid position, "H" for Ⓔ Flow rate and "4" for Ⓖ 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

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

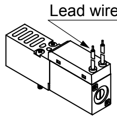
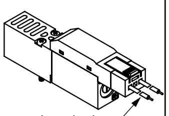
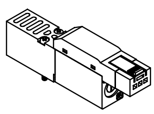
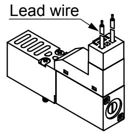
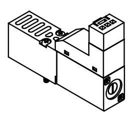
How to order masking plate kit

3QR1 - MP - KIT

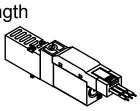
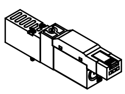
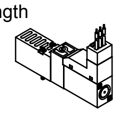
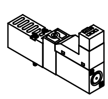
* Gasket/mounting screw included

Electrical connections

● 3QRA11/3QRB11

Blank	Grommet lead wire	C2	C-connector/with lead wire, with surge suppressor/lamp	C3	C-connector/without lead wire, with surge suppressor/lamp	D2	D-connector/with lead wire, with surge suppressor/lamp	D3	D-connector/without lead wire, with surge suppressor/lamp
Lead wire 300 mm 		· Lead wire length C2 : 300 mm C20: 500 mm C21: 1000 mm C22: 2000 mm Lead wire 				· Lead wire length D2 : 300 mm D20: 500 mm D21: 1000 mm D22: 2000 mm Lead wire 			

● 3QRA12/3QRB12

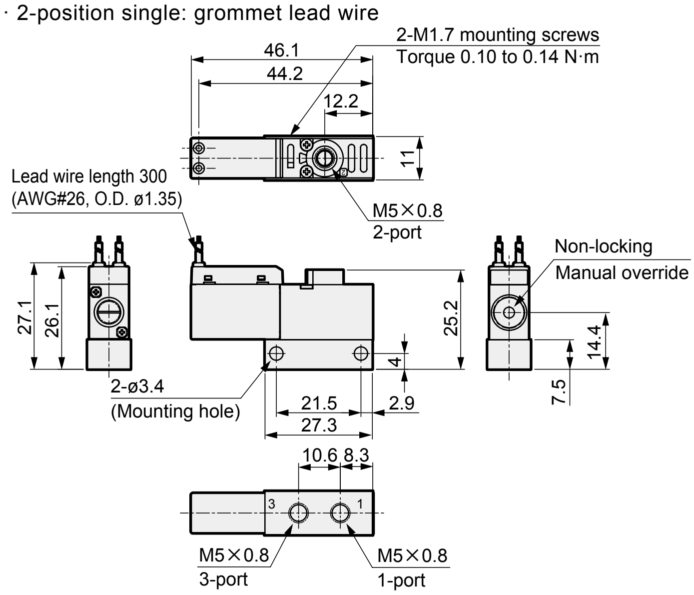
C2	C-connector/with lead wire, with surge suppressor/lamp	C3	C-connector/without lead wire, with surge suppressor/lamp	D2	D-connector/with lead wire, with surge suppressor/lamp	D3	D-connector/without lead wire, with surge suppressor/lamp
· Lead wire length C2 : 300 mm C20: 500 mm C21: 1000 mm C22: 2000 mm 				· Lead wire length D2 : 300 mm D20: 500 mm D21: 1000 mm D22: 2000 mm 			

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

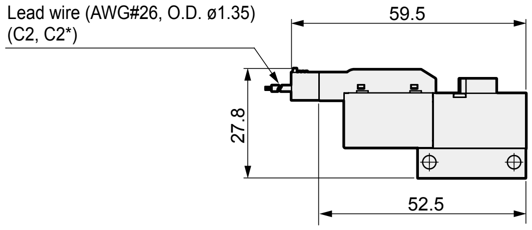
Dimensions (3QRA11/3QRB11)

3QRA110-M5

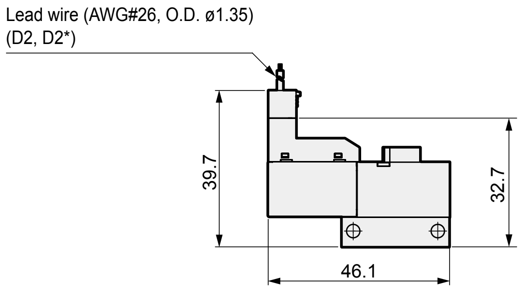
· 2-position single: grommet lead wire



· C-connector (C2/C3)

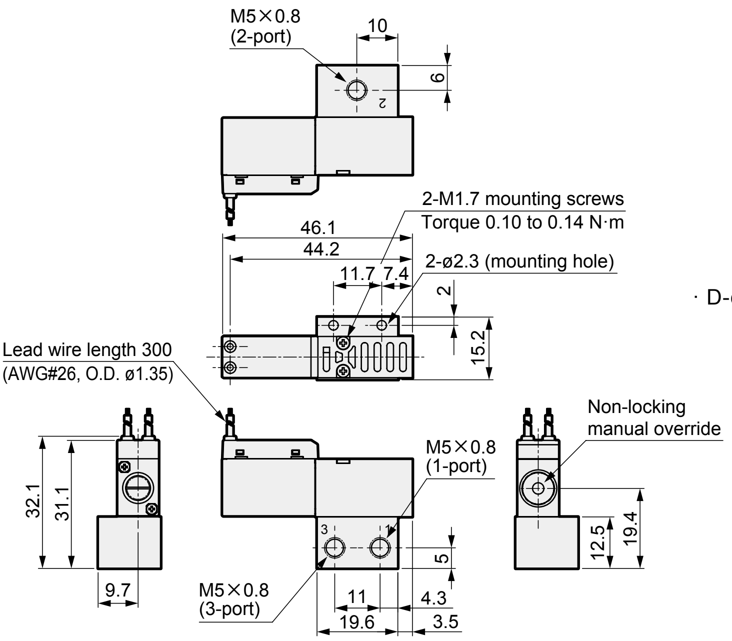


· D-connector (D2/D3)

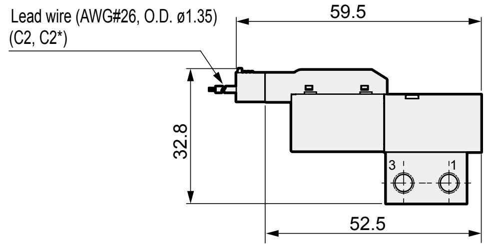


3QRB110-M5

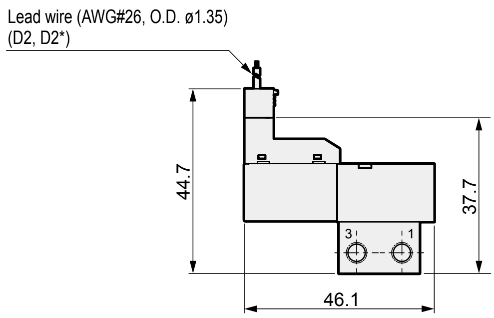
· 2-position single: grommet lead wire



· C-connector (C2/C3)

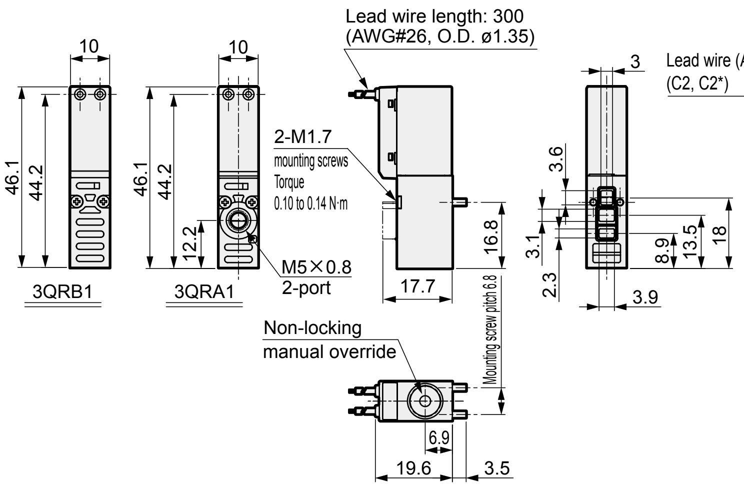


· D-connector (D2/D3)

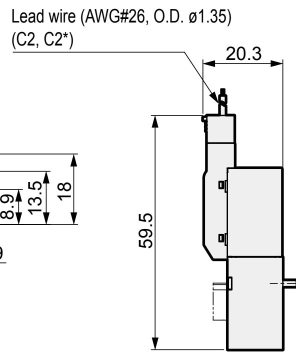


3QRA/B119-00 (single solenoid valve)

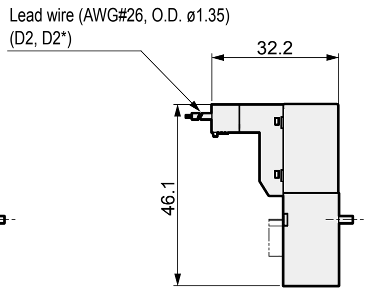
· 2-position single: grommet lead wire



· C-connector (C2/C3)



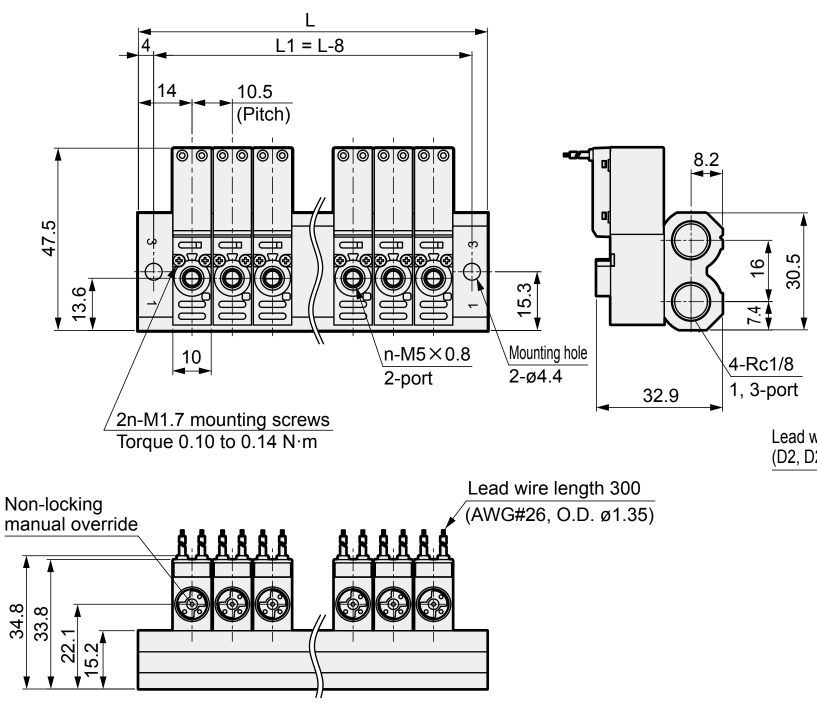
· D-connector (D2/D3)



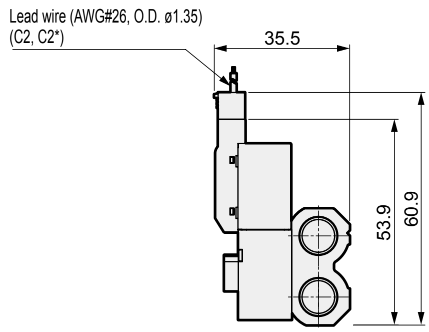
Dimensions (M3QRA11/M3QRB11)

M3QRA110-M5

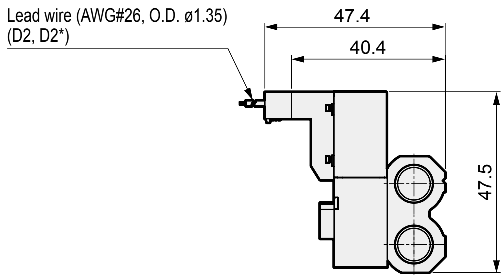
· 2-position single: grommet lead wire



· C-connector (C2/C3)

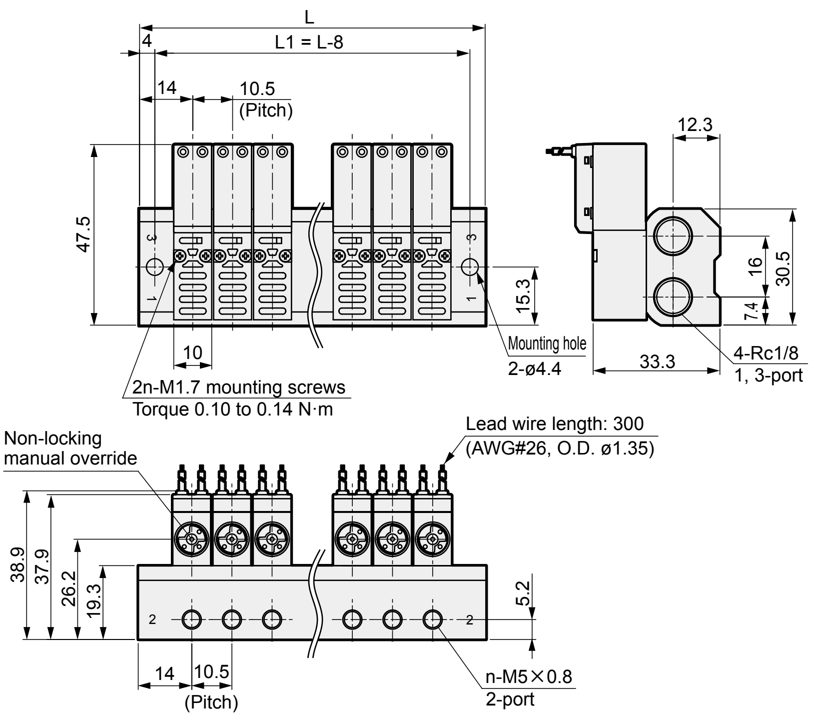


· D-connector (D2/D3)

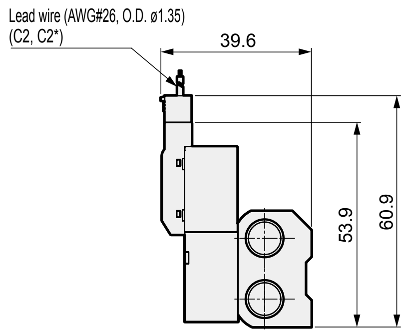


M3QRB110-M5

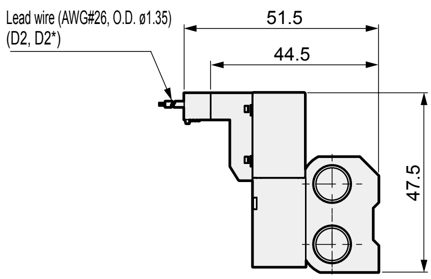
· 2-position single: grommet lead wire



· C-connector (C2/C3)



· D-connector (D2/D3)



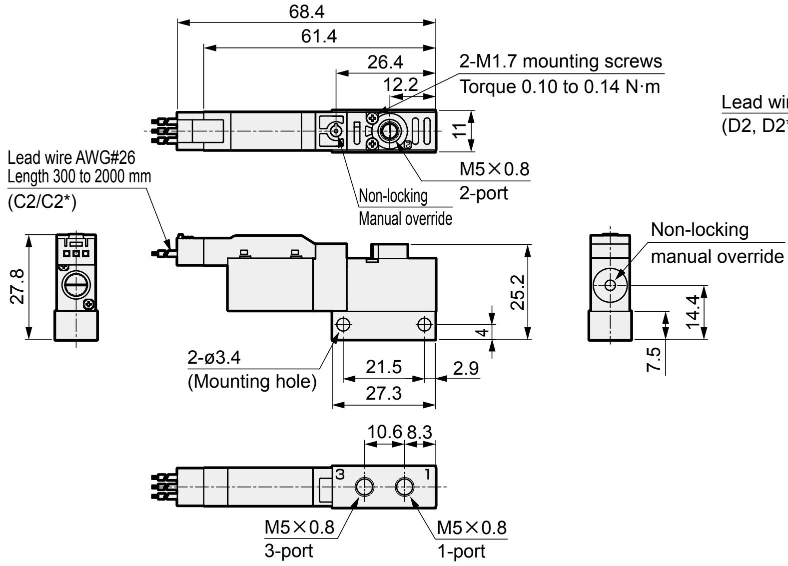
Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	38.5	49.0	59.5	70.0	80.5	91.0	101.5	112.0	122.5	133.0	143.5	154.0	164.5	175.0	185.5	196.0	206.5	217.0	227.5
L1	30.5	41.0	51.5	62.0	72.5	83.0	93.5	104.0	114.5	125.0	135.5	146.0	156.5	167.0	177.5	188.0	198.5	209.0	219.5

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
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

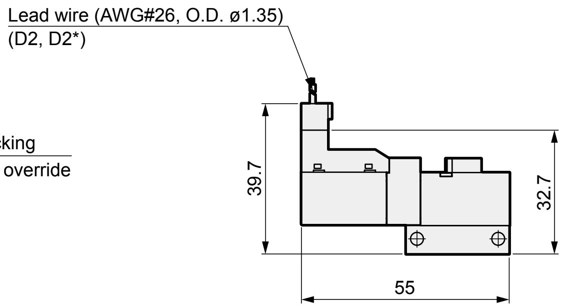
Dimensions (3QRA12/3QRB12)

3QRA120-M5

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

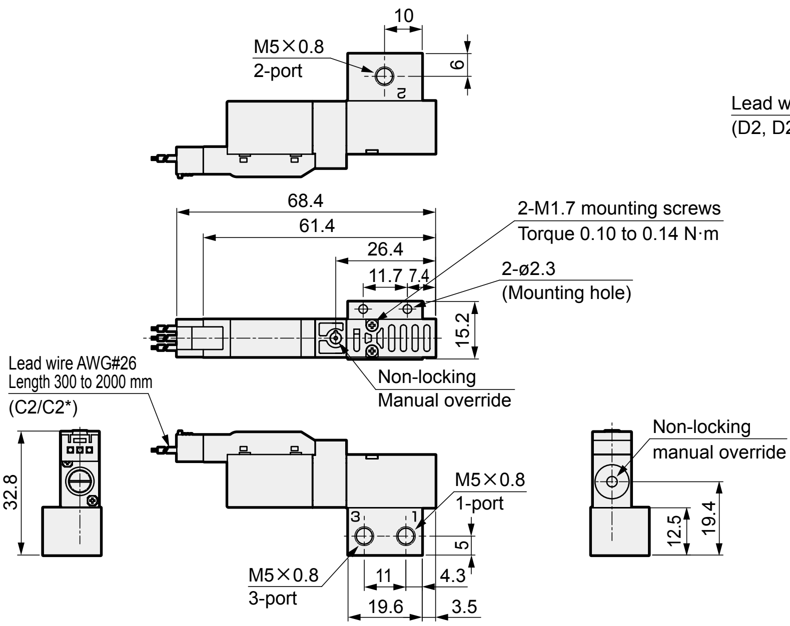


· D-connector (D2/D3)

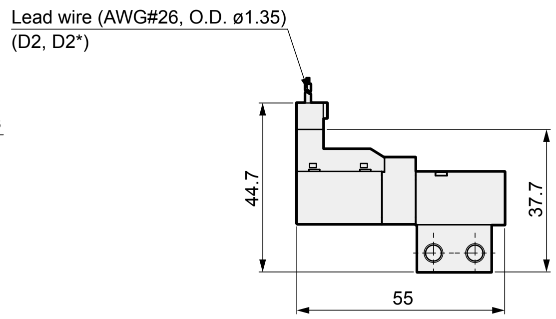


3QRB120-M5

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

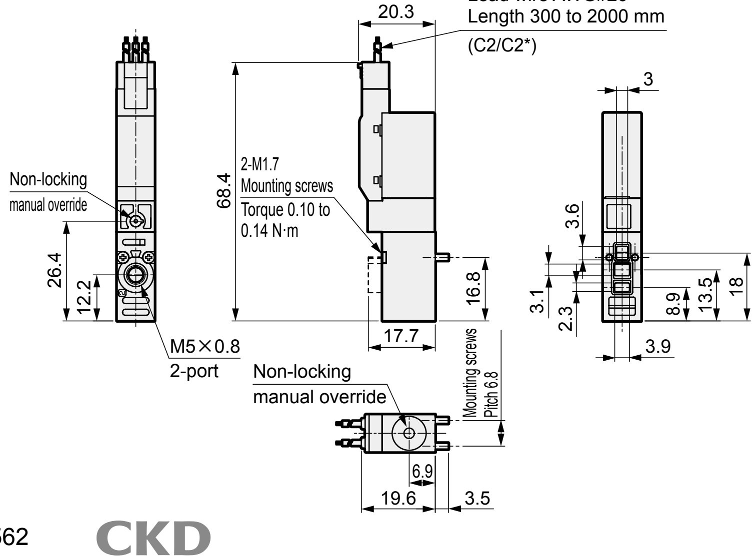


· D-connector (D2/D3)

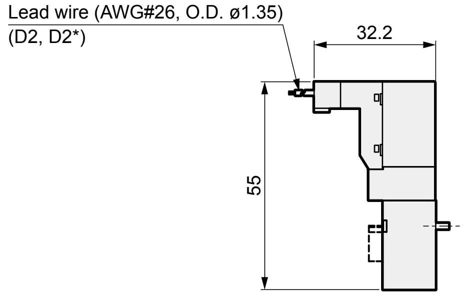


3QRA/3QRB129-00 (single solenoid valve)

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



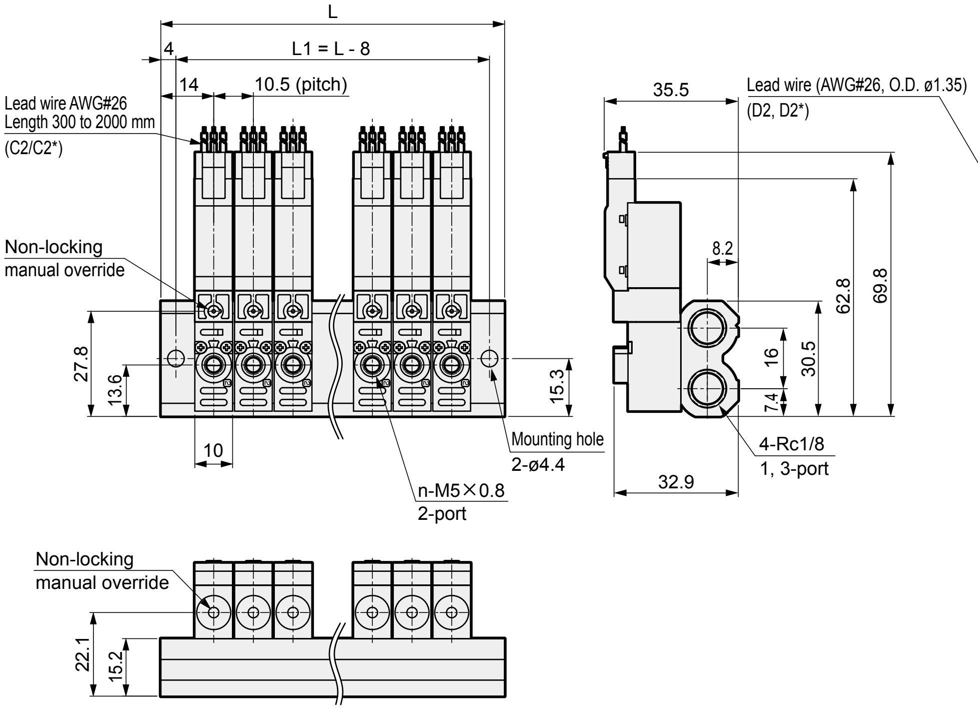
· D-connector (D2/D3)



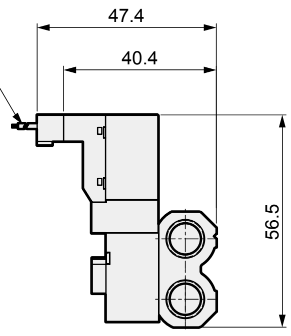
Dimensions (M3QRA12/M3QRB12)

M3QRA120-M5

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

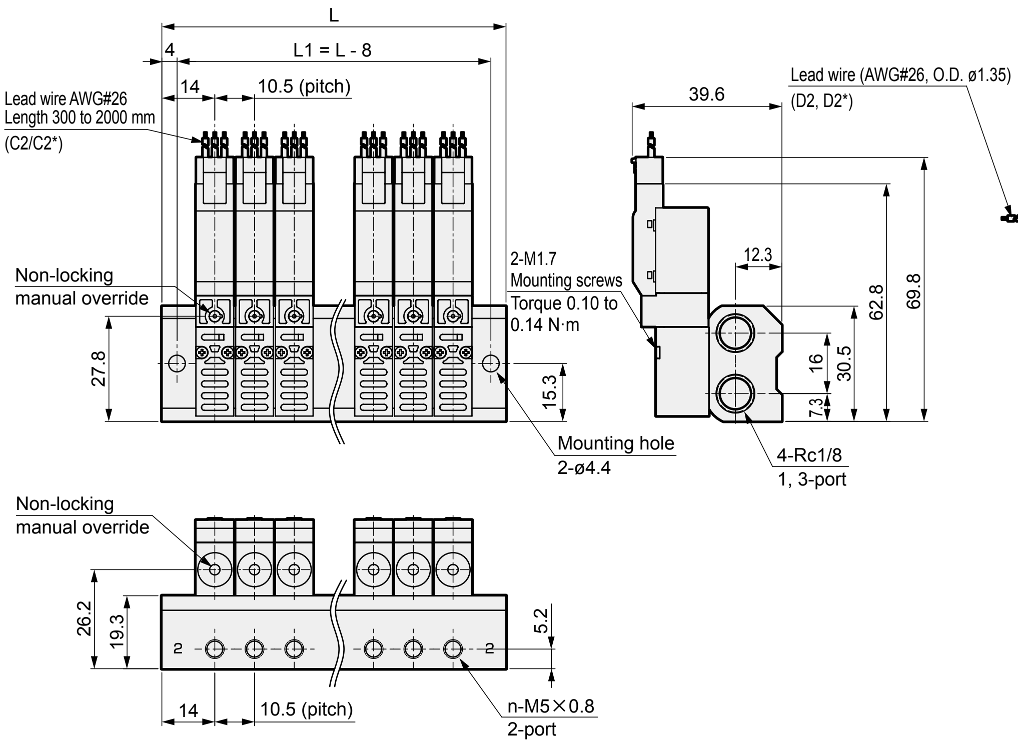


· D-connector (D2/D3)

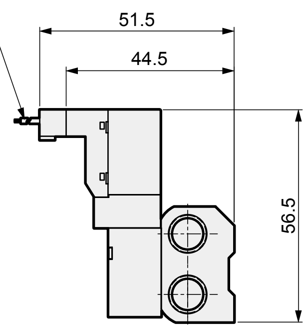


M3QRB120-M5

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



· D-connector (D2/D3)

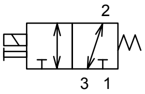


Station No.	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	38.5	49.0	59.5	70.0	80.5	91.0	101.5	112.0	122.5	133.0	143.5	154.0	164.5	175.0	185.5	196.0	206.5	217.0	227.5
L1	30.5	41.0	51.5	62.0	72.5	83.0	93.5	104.0	114.5	125.0	135.5	146.0	156.5	167.0	177.5	188.0	198.5	209.0	219.5

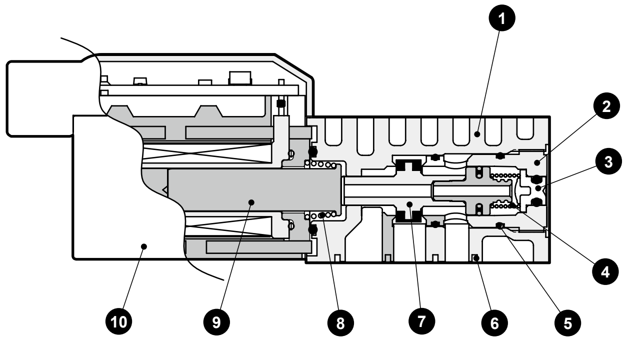
4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G GMF
PV5 GMF
PV5S-0
3Q
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP NVP
4G*0EJ
4F*0EX
4F*0E
HMV HSV
2QV 3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys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

Internal structure and parts list

● 2-position single (self-reset)



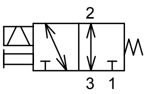
Port numbers 1, 2, and 3 are
Port 1: P, NC
Port 2: A, COM
Port 3: R, NO.



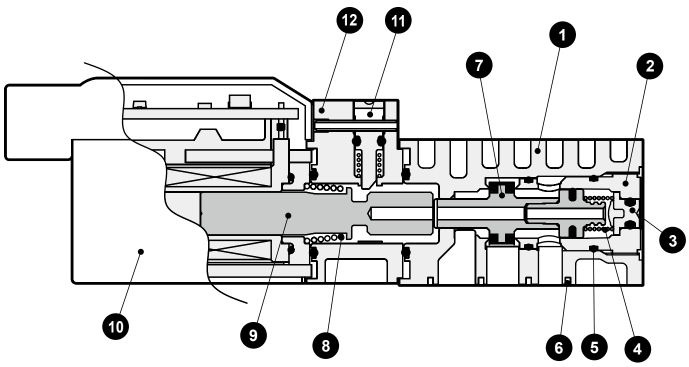
Main parts list

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)



Port numbers 1, 2, and 3 are
Port 1: P, NC
Port 2: A, COM
Port 3: R, NO.



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

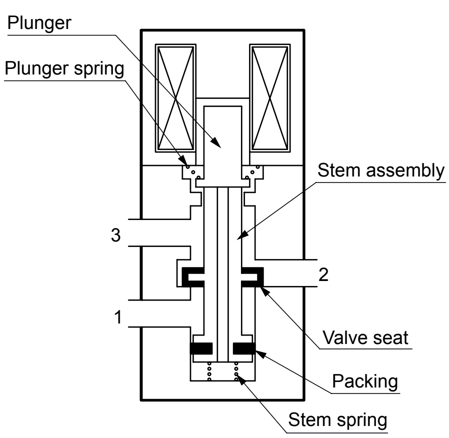
Operational principle

● 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.