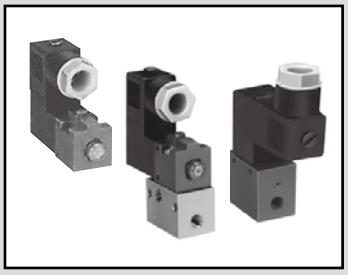


Single unit
Pilot operated 2, 3, 5-port miniature pneumatic valve

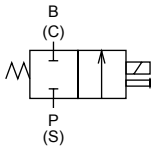
P/M/B Series

● Cylinder bore size: φ6 to φ16

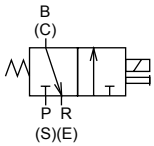
CE Refer to the Ending for details. RoHS CAD

JIS symbol

● 2-port valve

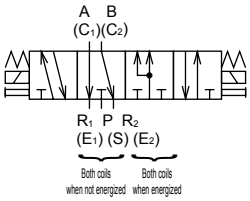


● 3-port valve

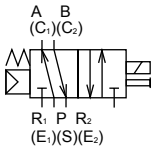


● 5-port valve

4-position double



2-position single



Common specifications

Descriptions	Content
Valve and operation	Pilot operated 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	Refer to Individual specifications listed below
Ambient temperature °C	-10 (14°F) to 50 (122°F) (no freezing)
Fluid temperature °C	5 (41°F) to 50 (122°F)
Lubrication	Not required
Degree of protection	Dust-proof
Vibration resistance m/s²	50 or less
Shock resistance m/s²	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

Electrical specifications

Descriptions			Content
Rated voltage V	AC		100, 200 (50/60 Hz)
	DC		12, 24
Voltage fluctuation range			±10%
Starting current A	AC	100 V	0.056 / 0.044
		200 V	0.034 / 0.026
	DC	12 V	0.150
		24 V	0.075
Holding current A	AC	100 V	0.028 / 0.022
		200 V	0.017 / 0.013
	DC	12 V	0.150
		24 V	0.075
Power consumption W ( ):With indicator lamp	AC	100 V	1.8 / 1.4 (2.0/1.6)
		200 V	2.1 / 1.6 (2.3/1.8)
	DC	12 V	1.8(2.0)
		24 V	1.8(2.0)
Thermal class			B (molded coil)
Temperature rise °C			45 (113°F)

Reference: 100 VAC 50/60 Hz can be used with a rated voltage of 110 VAC 60 Hz and 200 VAC 50/60 Hz can be used with 220 VAC 60 Hz.

Individual specifications (2-port valve)

Descriptions	2-port valve					
	P5122	M5122	B5122	P5126	M5126	B5126
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)			0.6 (≈87 psi, 6 bar) *2		
Min. working pressure MPa	0.1 (≈15 psi, 1 bar)			0.1 (≈15 psi, 1 bar) *2		
Proof pressure MPa	1.5 (≈220 psi, 15 bar)			1.5 (≈220 psi, 15 bar)		
Port size	-	M5		-	M5	
Response time *1 ms	30 or less			30 or less		
Weight g	47		93	47		93

Individual specifications (3, 5-port valve)

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Descriptions	3-port valve						5-port valve			
	P5132	M5132	B5132	P5136	M5136	B5136	W2P5132	W2P5136	P5142	B5142
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)			0.6 (≈87 psi, 6 bar)			1.0	0.6	0.70 (≈100 psi, 7 bar)	
Min. working pressure MPa	0.1 (≈15 psi, 1 bar)			0.1 (≈15 psi, 1 bar) *2			0.1 (≈15 psi, 1 bar)		0.15 (≈22 psi, 1.5 bar)	
Proof pressure MPa	1.5 (≈220 psi, 15 bar)			1.5 (≈220 psi, 15 bar)			1.5 (≈220 psi, 15 bar)		1.05 (≈150 psi, 10.5 bar)	
Port size	-	M5		-	M5		M5		-	M5
Response time *1 ms	30 or less						60 or less			
Weight g	47		93	47		93	186		68	118

*1: The response time is the value at 0.5 MPa supply pressure, with no lubrication, and with the power ON. It depends on the pressure and the lubricant quality.

*2: When specifying the pressure classification V (for low pressure, for low vacuum pressure), the units can be used with low pressure (0 to 0.29 MPa) or low vacuum (3.3 to 101.00 kPa (abs) {25 to 760 Torr}).

Copper and PTFE free specifications

● Copper- and PTFE-based materials are not used in the flow path.

** - Voltage - **P6**

Flow characteristics

Model No.	Solenoid position	Port size	C[dm³/(s·bar)]	b
P5122	2-port	-	0.10	0.13
M5122		M5		
B5122				
P5126		-	0.15	0.14
M5126		M5		
B5126				

Model No.	Solenoid position	Port size	P→B		B→R	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
P5132	3-port	-	0.10	0.13	0.15	0.17
M5132		M5				
B5132						
P5136		-	0.15	0.14	0.15	0.20
M5136		M5				
B5136						

Model No.	Solenoid position	Port size	P→A/B		A/B→R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
W2P5132	5-port	M5	0.12	0.13	0.15	0.20
W2P5136			0.15	0.07	0.15	0.24
P5142		-	0.09	0.21	0.11	0.24
B5142		M5				

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order

● 2, 3-port valve

B 513 2 - M6 B R - M5 U - DC24V

● Double 5-port valve

W2P513 2 - M6 B — M5 — DC24V

● 5-port valve

B 514 2 - M6 B — M5 U - DC24V

Ⓐ Model No.

Ⓑ Orifice

Ⓒ Manual override

Ⓓ Electrical connections

Note Refer to page 1587 for the circuit diagram with a surge suppressor/lamp.

Ⓔ Pressure classification

Ⓕ Coil direction

Ⓖ Port size

Ⓗ Other options

Ⓘ Bracket

Ⓙ Voltage

Number of ports

Code	Content	Ⓐ Model No. Pilot 2 P512	Pilot 3 P513	Pilot 5 P514	Direct mounting 2 M512	Direct mounting 3 M513	*1 Sub-base 2 B512	*1 Sub-base 3 B513	*1 Sub-base 5 B514	Double 5-port valve 5 W2P513
Ⓑ Orifice										
2	φ1.2	●	●	●	●	●	●	●	●	●
6	φ1.6	●	●		●	●	●	●		●
Ⓒ Manual override										
M0	Lateral non-locking (std) *2	●	●				●	●		●
M1	Lateral lock (option) *2	●	●				●	●		●
M4	Dust cover, non-locking (comes standard)	●	●				●	●		●
M6	Upward non-locking (standard)	●	●	●	●	●	●	●	●	●
N	No manual override (option)	●	●	●	●	●	●	●	●	●
Ⓓ Electrical connections										
	Refer to the next page for electrical connections.									
Ⓔ Pressure classification										
Blank	Standard	●	●	●	●	●	●	●	●	●
V	For low pressure and low vacuum *4	●	●		●	●	●	●		
Ⓕ Coil direction										
Blank	Standard direction	●	●		●	●	●	●		
R	180° rotation direction	●	●	●	●	●				
Ⓖ Port size										
Blank	No piping	●	●	●						
M5	M5 (standard)				●	●	●	●	●	●
06	Rc1/8 (optional)						●	●	●	
Ⓗ Other options										
Blank	None	●	●	●	●	●	●	●	●	●
S	Surge suppressor attached *5, *7	●	●	●	●	●	●	●	●	●
X	Continuous energization (custom order) *6			●					●	
Ⓘ Bracket										
U	U bracket attached						●	●	●	
L	L bracket attached				●	●				
Ⓙ Voltage										
AC100V	Standard: 100 VAC 50/60 Hz	●	●	●	●	●	●	●	●	●
AC200V	Standard: 200 VAC 50/60 Hz	●	●	●	●	●	●	●	●	●
DC24V	Standard: 24 VDC	●	●	●	●	●	●	●	●	●
DC12V	Standard: 12 VDC	●	●	●	●	●	●	●	●	●
AC110V	Option: 110 VAC 50/60 Hz	●	●	●	●	●	●	●	●	●
AC220V	Option: 220 VAC 50/60 Hz	●	●	●	●	●	●	●	●	●
*** Other custom order products**										
AC24V		●	●	●	●	●	●	●	●	●
AC48V		●	●	●	●	●	●	●	●	●
DC6V		●	●	●	●	●	●	●	●	●
DC48V		●	●	●	●	●	●	●	●	●

⚠ Precautions for model No. selection

*1 : The single unit sub-base (B) is the pilot (P).

*2 : M0 and M1 are not available as the M (direct mounting) or for low vacuum pressure (V).

*4 : When pressure classification V (for low pressure/for low vacuum) has been specified, the orifice will be "6". Draw in the vacuum as vacuum from port P (S) or R (E). When using at low pressure, supply from the P(S).

*5 : The unit is a suppression connector for 24 VDC or less.

6 : Other option code X is applicable to the 514 type.

*7 : The surge suppressor can only be selected when the grommet lead wire or compact terminal box "B" has been selected for the electrical connections.

[Example of model No.]

B5142-M6B-M5-U-AC100V

Ⓐ Model No. : Sub-base 5-port valve B514
Ⓑ Orifice : φ1.2
Ⓒ Manual override : Upward non-locking
Ⓓ Electrical connections : Compact terminal box
Ⓔ Pressure classification : Standard
Ⓕ Coil direction : Standard direction
Ⓖ Port size : M5
Ⓗ Other options : None
Ⓘ Bracket : U bracket attached
Ⓙ Voltage : 100 VAC

(Electrical connection list)

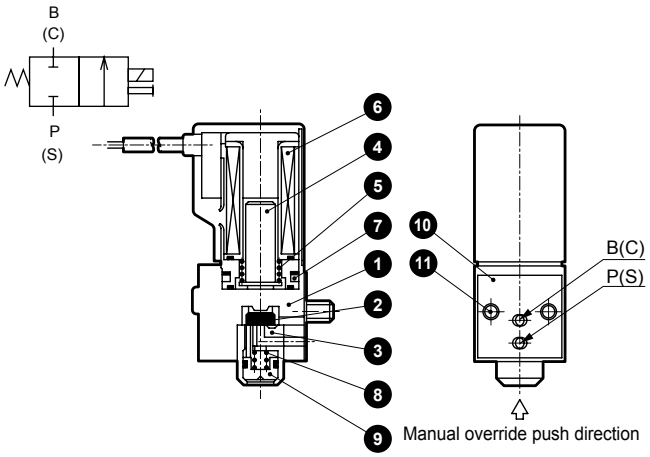
Code		Content	Ⓐ Model No. Pilot 2 P512	Pilot 3 P513	Pilot 5 P514	Direct mounting 2 M512	Direct mounting 3 M513	Sub-base *1 2 B512	Sub-base *1 3 B513	Sub-base *1 5 B514	Double 5-port valve 5 W2P513
Ⓓ Electrical connections											
E	Standard	Grommet lead wire (300 mm)	●	●	●	●	●	●	●	●	●
B	Standard	Compact terminal box	●	●	●	●	●	●	●	●	●
Q	Option	Grommet lead wire (300 mm) With surge suppressor	●	●	●	●	●	●	●	●	●
C type connector (lead wire lateral direction)											
C	Std.	Lead wire length (300 mm)	●	●	●	●	●	●	●	●	●
C00	Option	Lead wire length (500 mm)	●	●	●	●	●	●	●	●	●
C01	Option	Lead wire length (1000 mm)	●	●	●	●	●	●	●	●	●
C02	Option	Lead wire length (2000 mm)	●	●	●	●	●	●	●	●	●
C03	Option	Lead wire length (3000 mm)	●	●	●	●	●	●	●	●	●
C1	Option	Without lead wire	●	●	●	●	●	●	●	●	●
C2	Option	Lead wire (300 mm), surge suppressor/indicator lamp	●	●	●	●	●	●	●	●	●
C20	Option	Lead wire (500 mm), surge suppressor/indicator lamp	●	●	●	●	●	●	●	●	●
C21	Option	Lead wire (1000 mm), surge suppressor/indicator lamp	●	●	●	●	●	●	●	●	●
C22	Option	Lead wire (2000 mm), surge suppressor/indicator lamp	●	●	●	●	●	●	●	●	●
C23	Option	Lead wire (3000 mm), surge suppressor/indicator lamp	●	●	●	●	●	●	●	●	●
C3	Option	No lead wire, with surge suppressor/indicator lamp	●	●	●	●	●	●	●	●	●
D type connector (lead wire upward direction)											
D	Option	Lead wire length (300 mm)	●	●	●	●	●	●	●	●	●
D00	Option	Lead wire length (500 mm)	●	●	●	●	●	●	●	●	●
D01	Option	Lead wire length (1000 mm)	●	●	●	●	●	●	●	●	●
D02	Option	Lead wire length (2000 mm)	●	●	●	●	●	●	●	●	●
D03	Option	Lead wire length (3000 mm)	●	●	●	●	●	●	●	●	●
D1	Option	Without lead wire	●	●	●	●	●	●	●	●	●
D2	Option	Lead wire (300 mm), surge suppressor/indicator lamp	●	●	●	●	●	●	●	●	●
D20	Option	Lead wire (500 mm), surge suppressor/indicator lamp	●	●	●	●	●	●	●	●	●
D21	Option	Lead wire (1000 mm), surge suppressor/indicator lamp	●	●	●	●	●	●	●	●	●
D22	Option	Lead wire (2000 mm), surge suppressor/indicator lamp	●	●	●	●	●	●	●	●	●
D23	Option	Lead wire (3000 mm), surge suppressor/indicator lamp	●	●	●	●	●	●	●	●	●
D3	Option	No lead wire, with surge suppressor/indicator lamp	●	●	●	●	●	●	●	●	●
Compact terminal box											
L	Option	Without lead wire With indicator lamp	●	●	●	●	●	●	●	●	●
LS	Option	Without lead wire With surge suppressor and indicator lamp	●	●	●	●	●	●	●	●	●
P	Option	Without lead wire With surge suppressor	●	●	●	●	●	●	●	●	●

*3: With DC voltage, L is equipped with a surge suppressor.

Internal structure and parts list

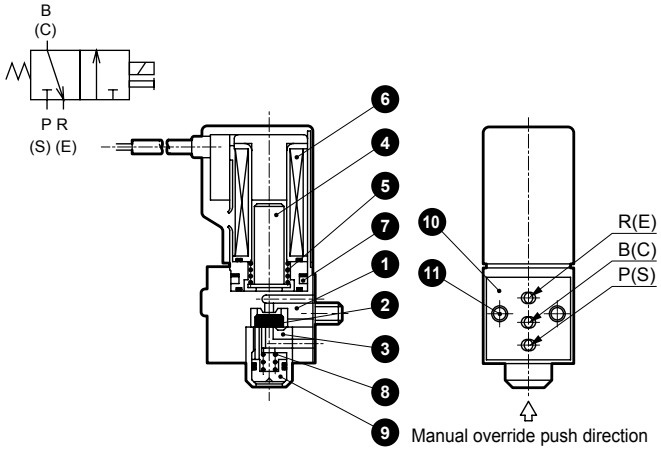
P/B 512

● Manual override lateral direction (M0) 2-port valve



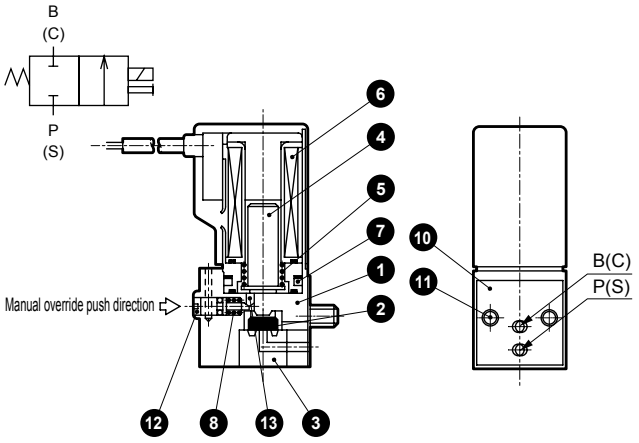
P/B 513

● Manual override lateral direction (M0) 3-port valve



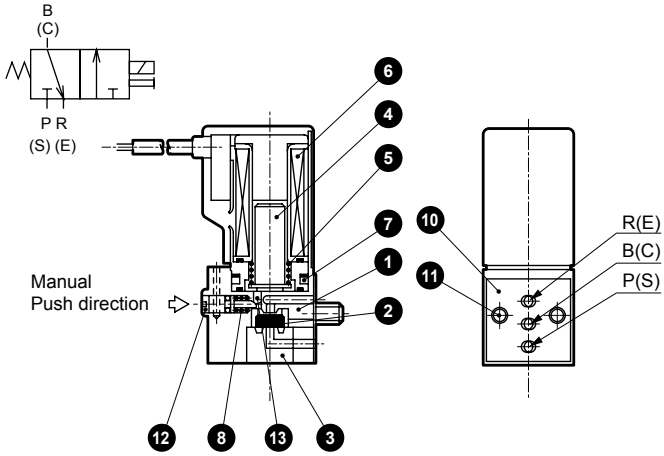
P/M/B 512

● Manual override upward direction (M6) 2-port valve



P/M/B 513

● Manual override upward direction (M6) 3-port valve



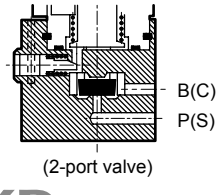
Main parts list

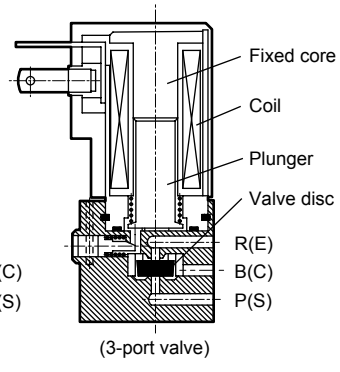
No.	Part name	Material	No.	Part name	Material
1	Body	Zinc die-casting	10	Body gasket	Cork
2	Valve disc	Nitrile rubber	11	Cross-recessed pan head machine screw with spring washer	Steel
3	Bottom seat	Copper alloy	12	Manual shaft	Resin
4	Plunger	Stainless steel	13	Manual pin	Resin
5	Plunger spring	Stainless steel			
6	Coil assembly	-			
7	Wave pin	Piano wire			
8	Manual spring	Stainless steel			
9	Push button	Copper alloy			

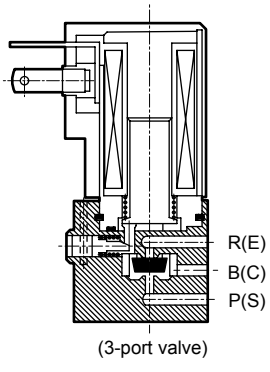
Operational principle

● When not energized

When energization of the coil is suspended, the plunger will move away from the fixed core. The valve disc will close due to the spring and the weight of the plunger.

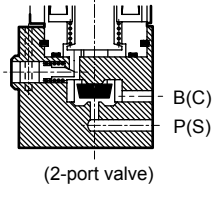






● When energized

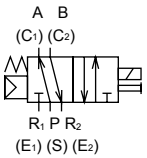
When energizing the coil, the plunger is adsorbed onto the fixed core and the valve disc will be pushed up to open due to the pressure applied from P (S).

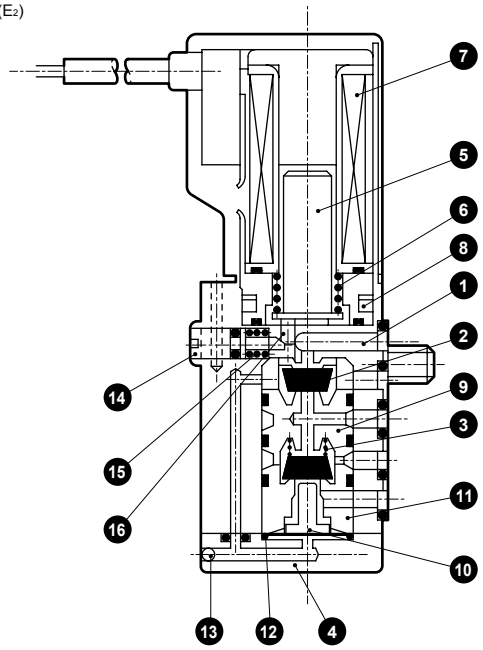


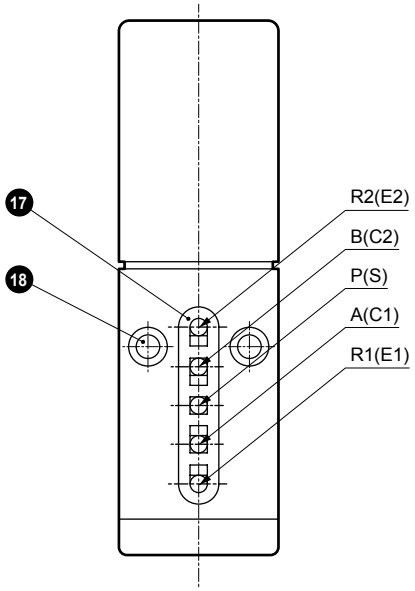
Internal structure and parts list

P/B 5142

● Manual override upward direction (M6) 5-port valve
2-position single





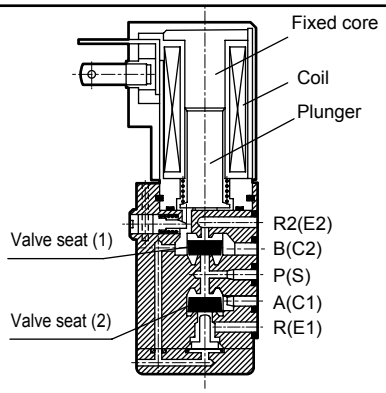


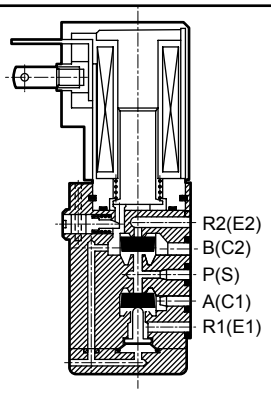
Main parts list

No.	Part name	Material	No.	Part name	Material
1	Body	Zinc die-casting	10	Piston	Copper alloy
2	Valve disc	Nitrile rubber	11	Bottom seat B	Copper alloy
3	Spring	Stainless steel	12	Diaphragm	Nitrile rubber
4	Cap	Zinc die-casting	13	Steel ball	Steel
5	Plunger	Stainless steel	14	Manual shaft	Resin
6	Plunger spring	Stainless steel	15	Manual spring	Stainless steel
7	Coil assembly	-	16	Manual pin	Resin
8	Wave pin	Piano wire	17	Body gasket	Nitrile rubber
9	Bottom seat A	Copper alloy	18	Cross-recessed pan head machine screw with spring washer	Steel

Operational principle

● When not energized
When energization of the coil is suspended, the plunger will lower and the pressure on the B (C2) side will be exhausted to the R2 (E2) side. At the same time, the valve seat (2) will lower due to the spring force and the pressure on the P (S) side will be guided to the A (C1) side.



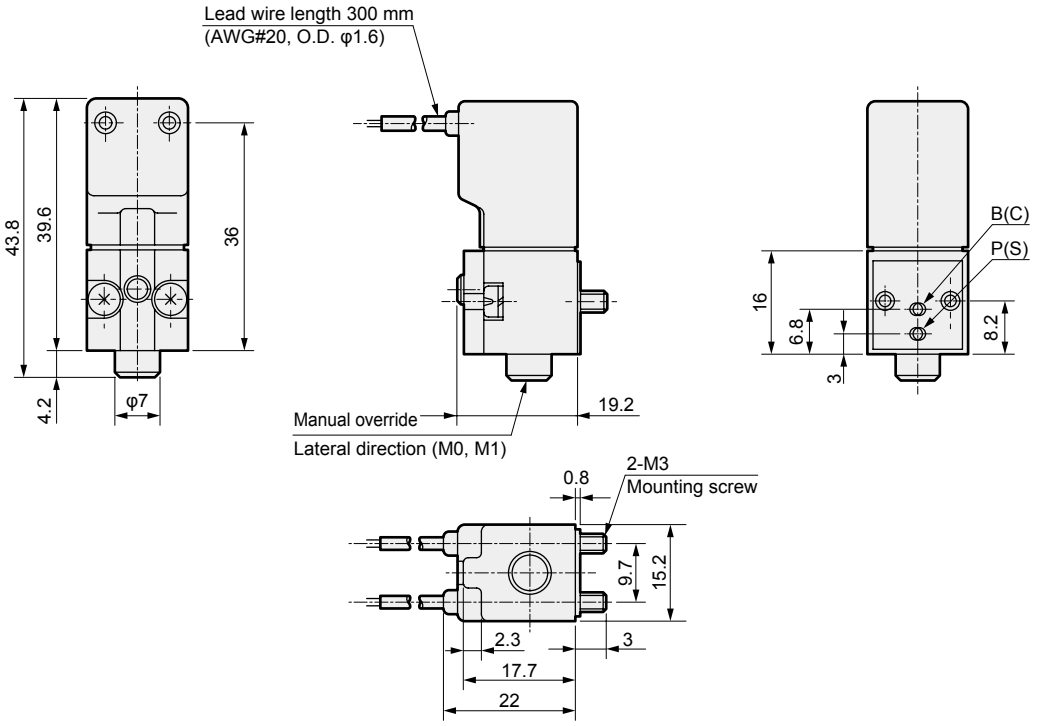


● When energized
When the coil is energized, the plunger will rise and the pressure on the P (S) side will be guided to the B (C2) side. At the same time, the valve seat (2) will rise due to this pressure and the pressure on the A (C1) side will be exhausted to the R1 (E1) side.

Dimensions CAD

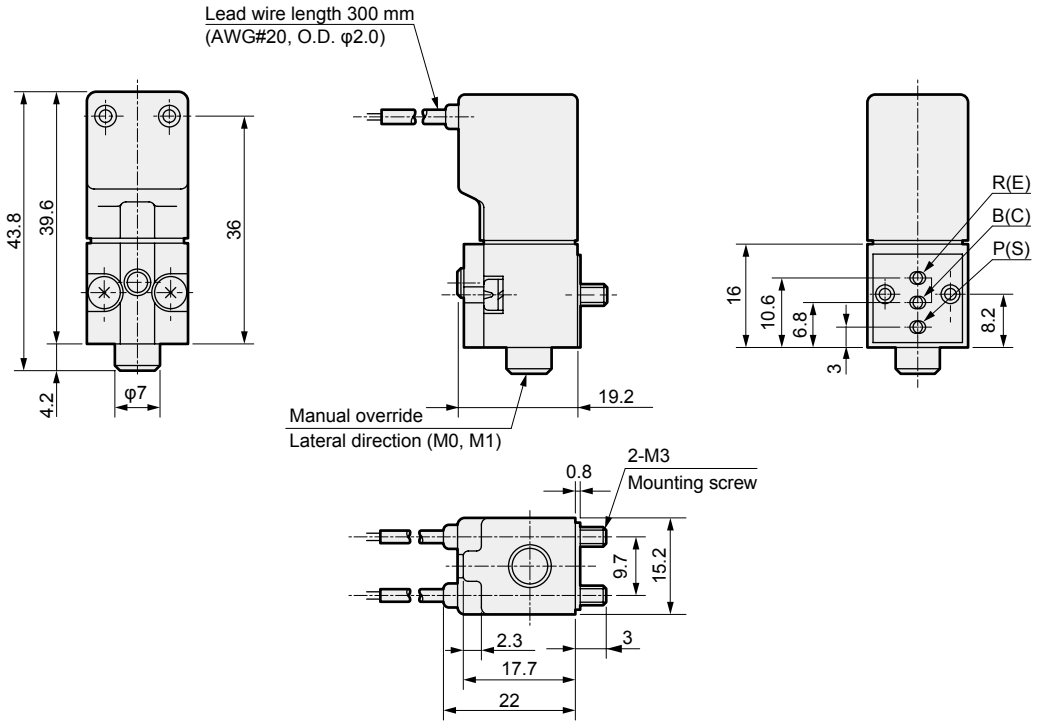
P512 2/6

● 2-port: grommet lead wire



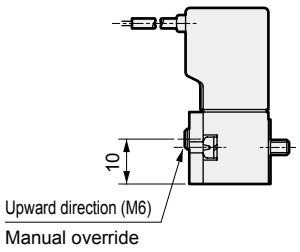
P513 2/6

● 3-port: grommet lead wire

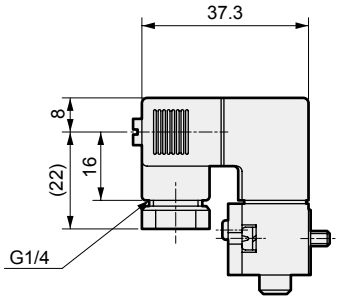


Dimensions CAD

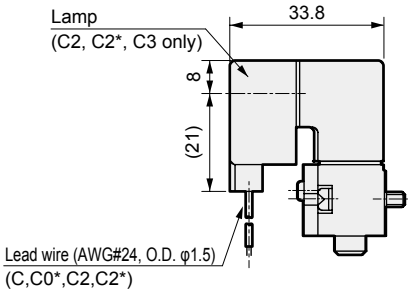
● Non-locking manual override upward direction: (M6)



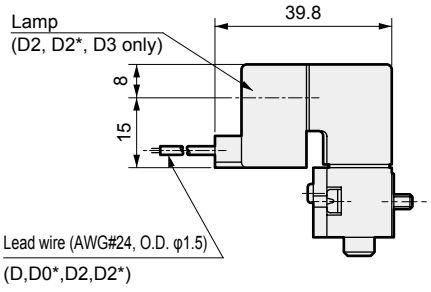
● Compact terminal box: (B)



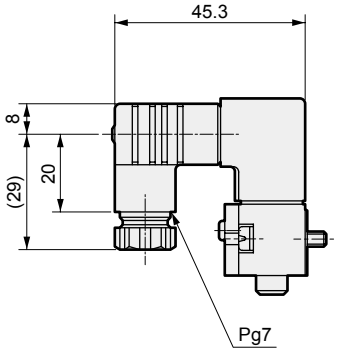
● C type connector:
(C/C0*/C1/C2/C2*/C3)



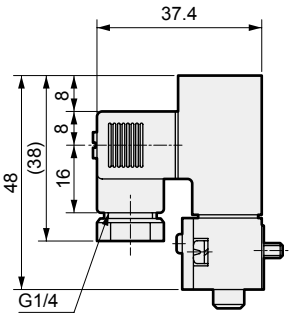
● D type connector:
(D/D0*/D1/D2/D2*/D3)



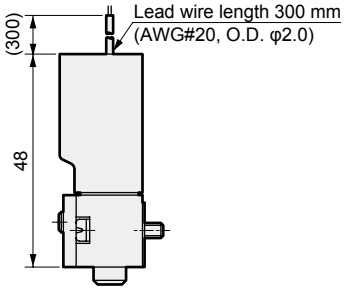
● Compact terminal box with lamp: (L)
With surge suppressor and indicator lamp: (LS)



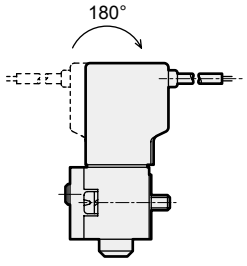
● Compact terminal box, with surge suppressor: (P)



● Grommet lead wire with surge suppressor: (Q)



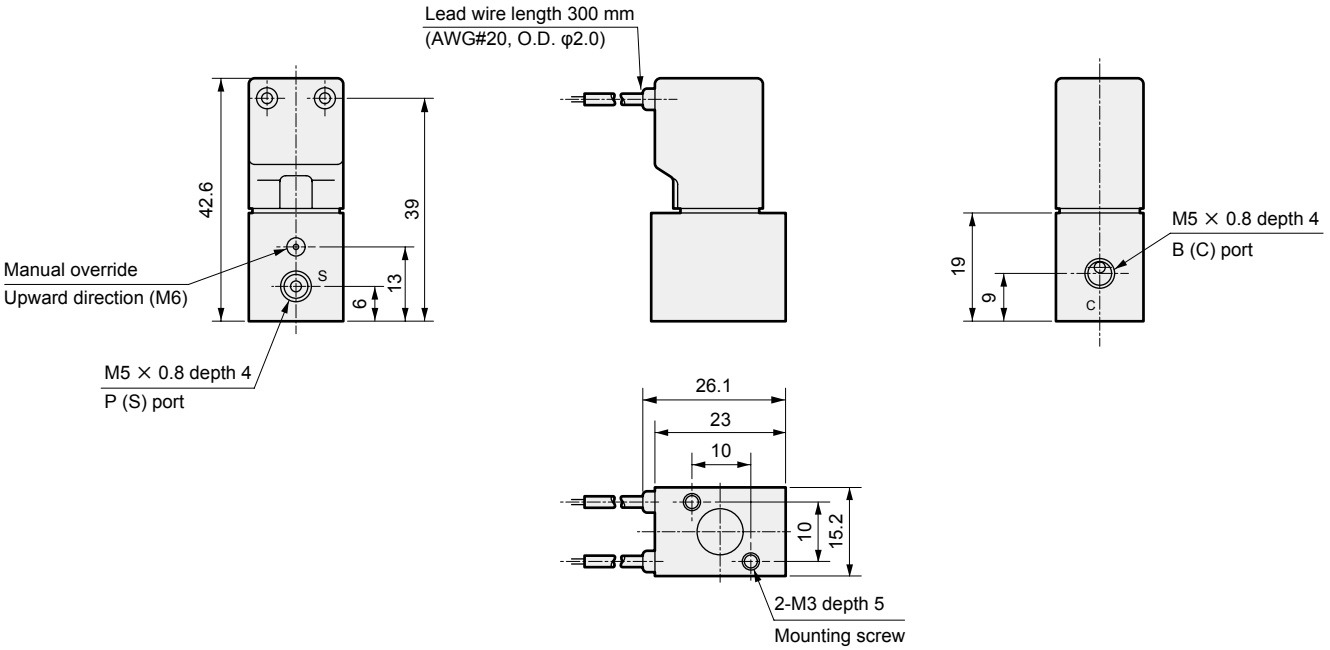
● Coil direction 180° rotation: (R)



Dimensions CAD

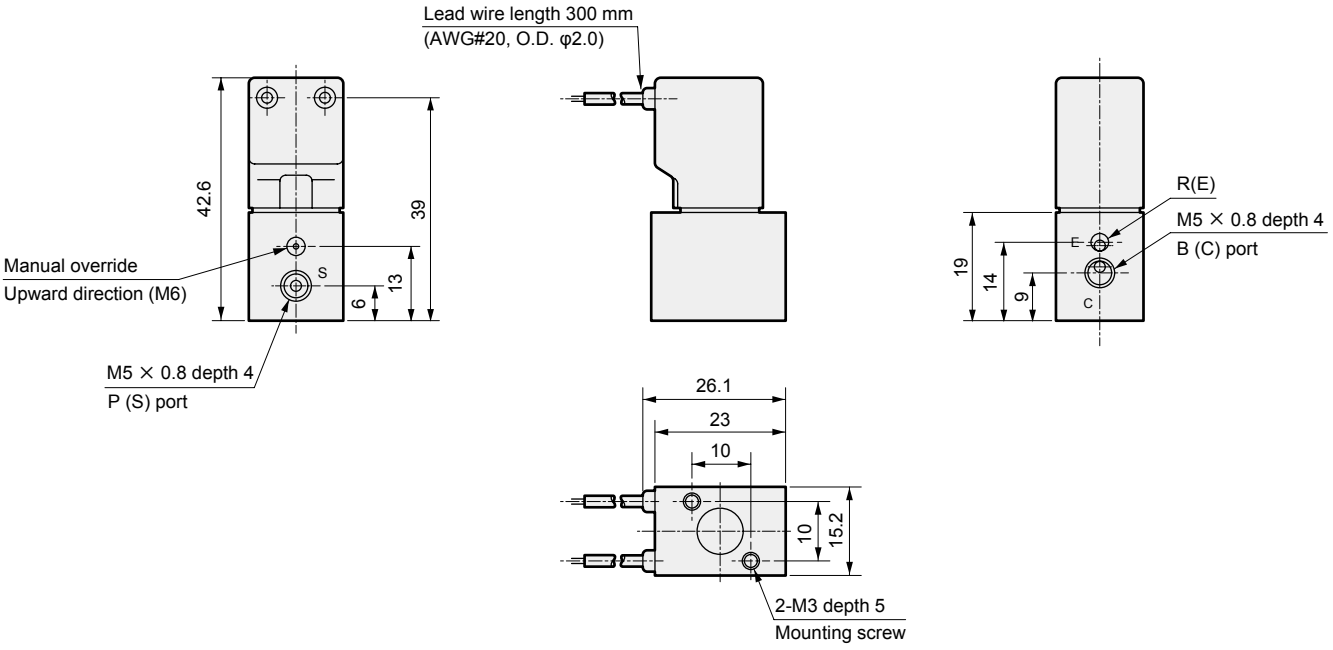
M512 2/6

● 2-port: grommet lead wire



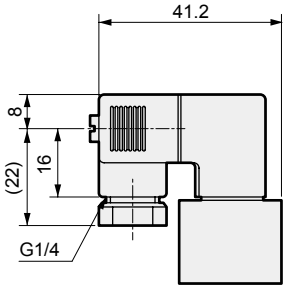
M513 2/6

● 3-port valve: grommet lead wire

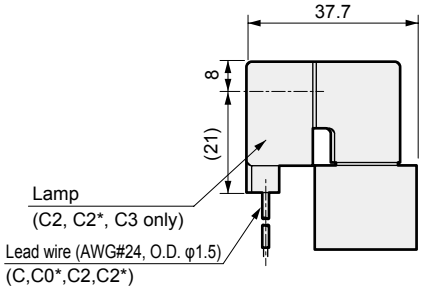


Dimensions CAD

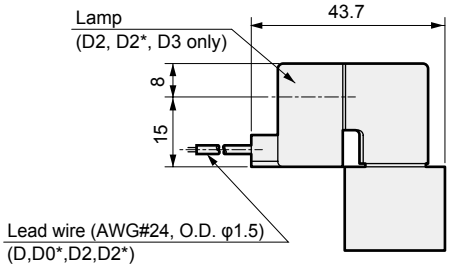
● Compact terminal box: (B)



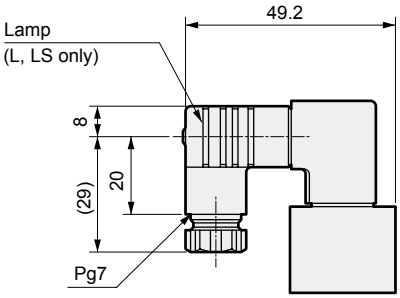
● C type connector:
(C/C0*/C1/C2/C2*/C3)



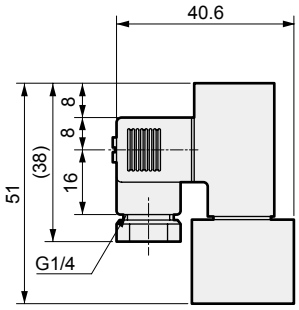
● D type connector:
(D/D0*/D1/D2/D2*/D3)



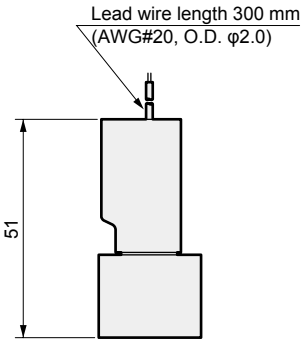
● Compact terminal box with lamp: (L)
With lamp and surge suppressor: (LS)



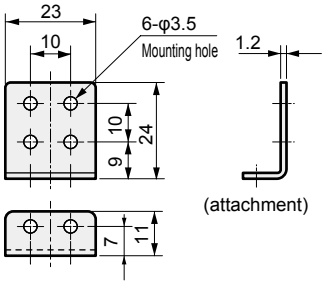
● Compact terminal box, with surge suppressor: (P)



● Grommet lead wire
With surge suppressor: (Q)



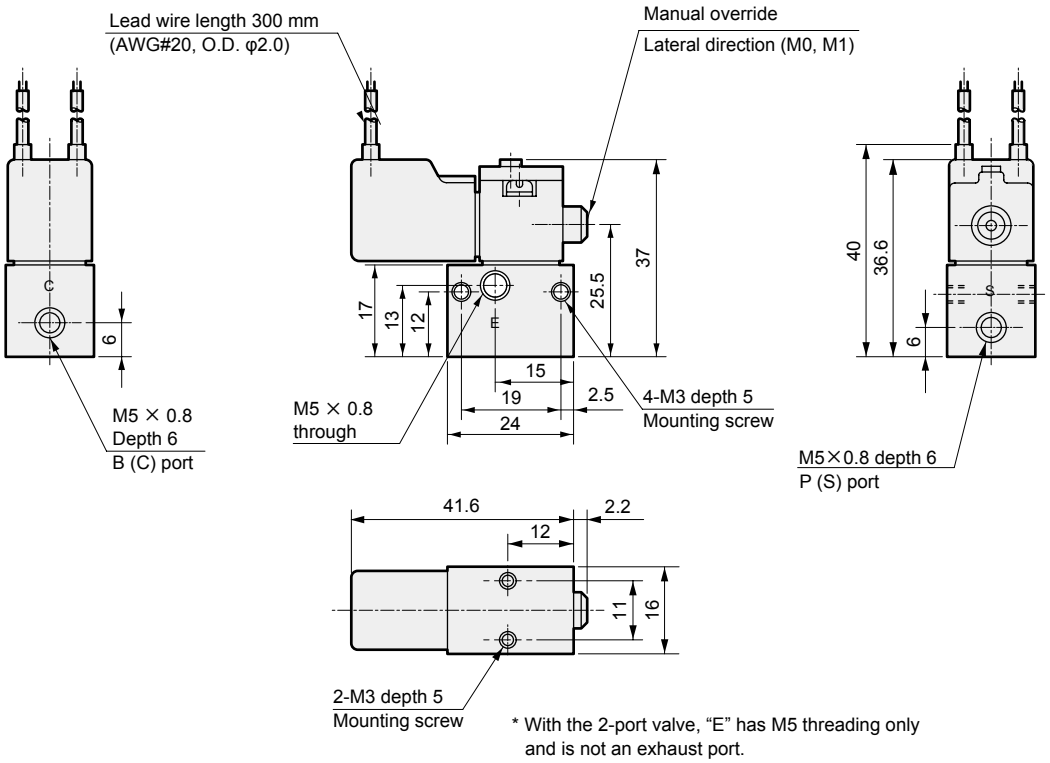
● L type bracket: (L) Material: Stainless steel
(Trivalent) chrome plating



Dimensions CAD

B512$^{2}_{6}$

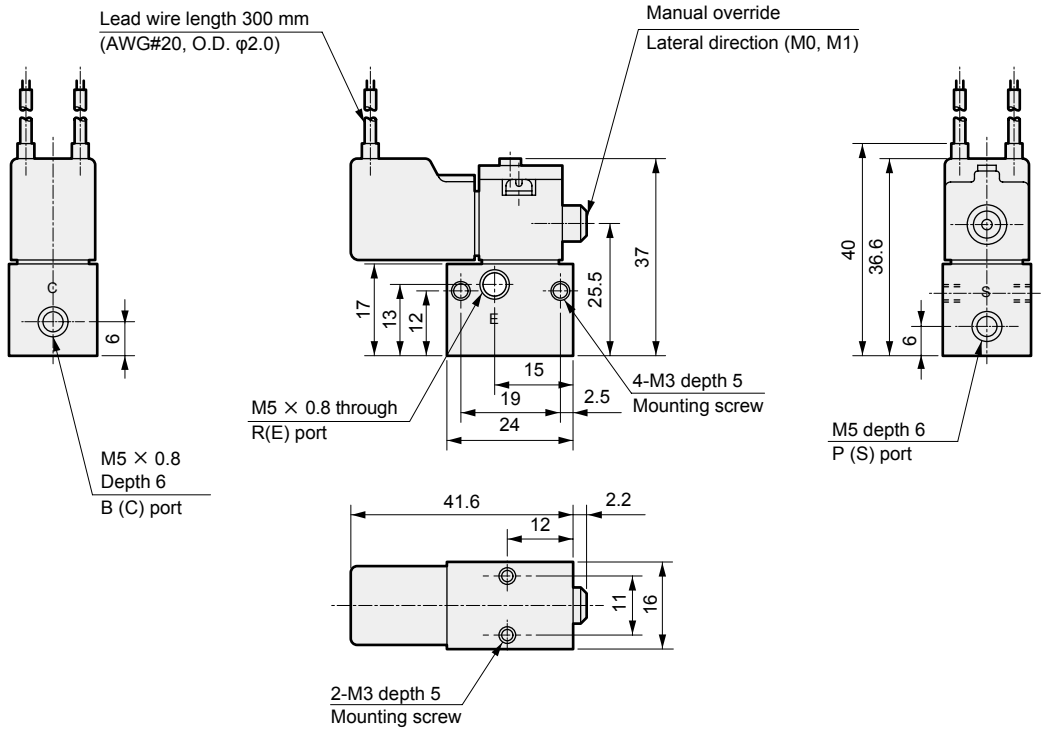
● 2-port: grommet lead wire



* With the 2-port valve, "E" has M5 threading only and is not an exhaust port.

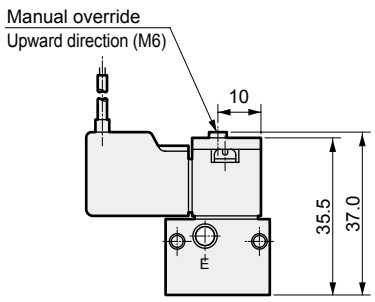
B513$^{2}_{6}$

● 3-port valve: grommet lead wire

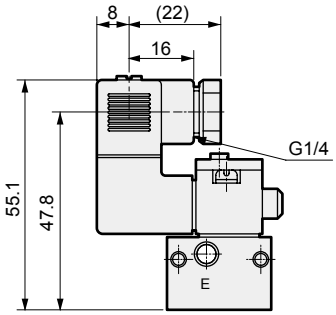


Dimensions CAD

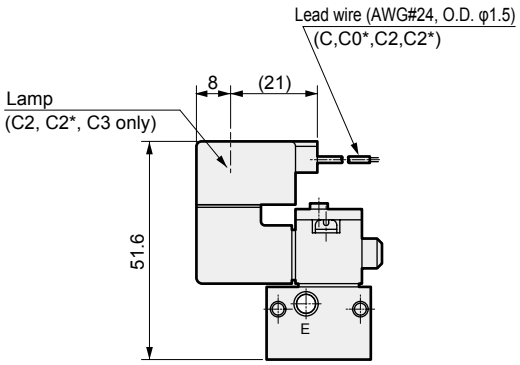
● Non-locking manual override upward direction: (M6)



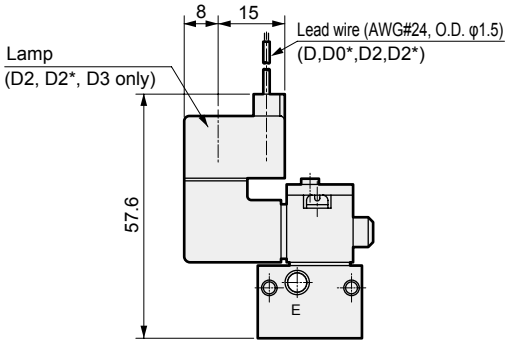
● Compact terminal box: (B)



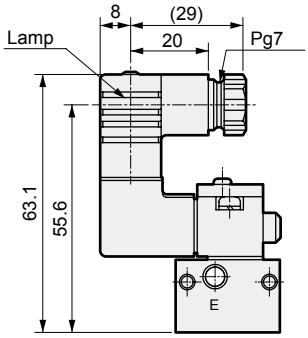
● C type connector:
(C/C0*/C1/C2/C2*/C3)



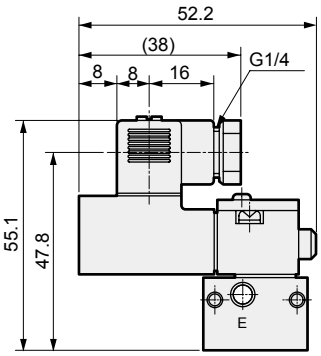
● D type connector:
(D/D0*/D1/D2/D2*/D3)



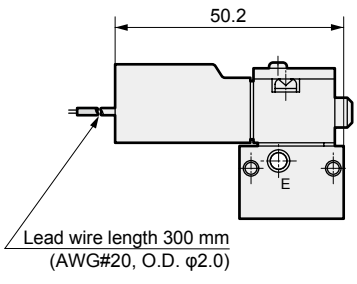
● Compact terminal box with lamp: (L)
With surge suppressor and indicator lamp: (LS)



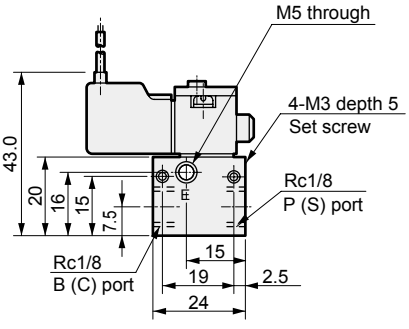
● Compact terminal box, with surge suppressor: (P)



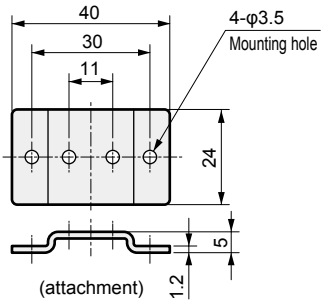
● Grommet lead wire with surge suppressor: (Q)



● Port size Rc 1/8: (06)



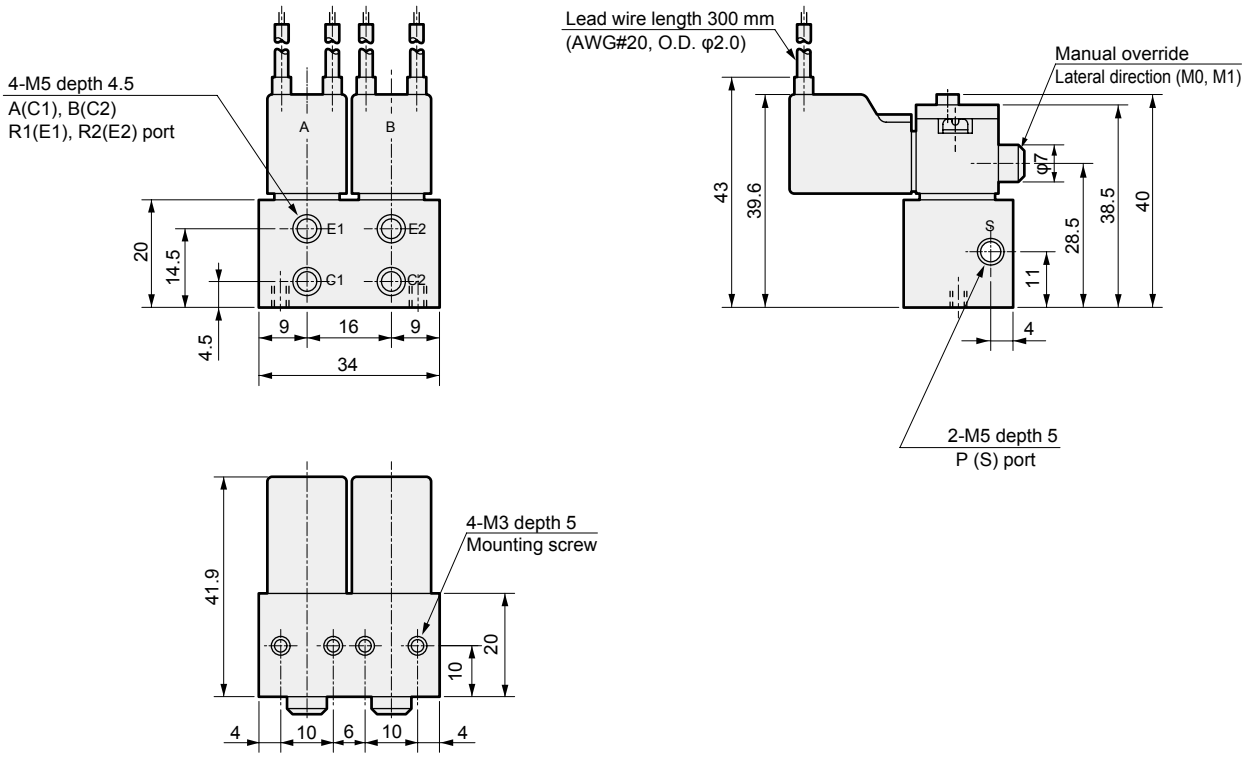
● U type bracket: (U) Material: Stainless steel (Trivalent) chrome plating



Dimensions CAD

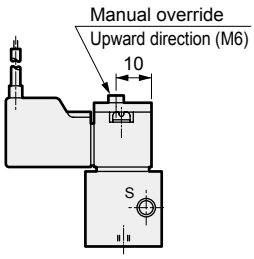
W2P513

● Grommet lead wire

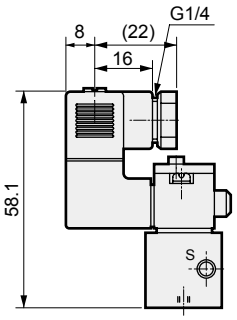


Dimensions CAD

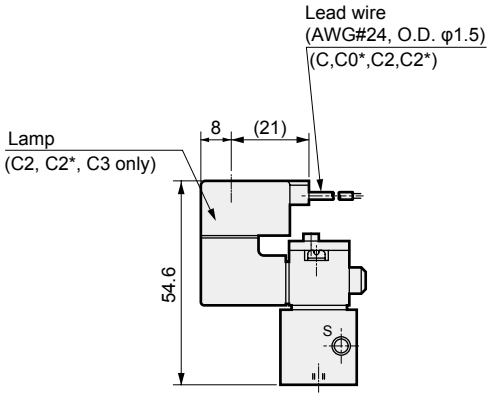
● Non-locking manual override upward direction: (M6)



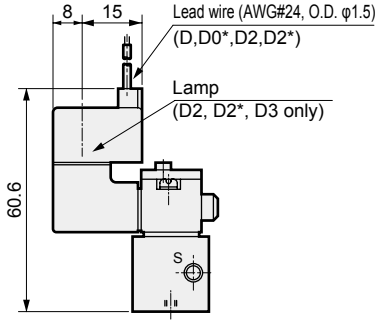
● Compact terminal box: (B)



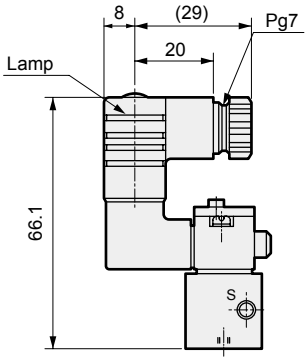
● C type connector:
(C/C0*/C1/C2/C2*/C3)



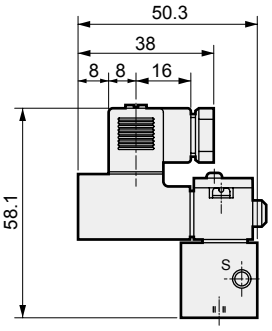
● D type connector:
(D/D0*/D1/D2/D2*/D3)



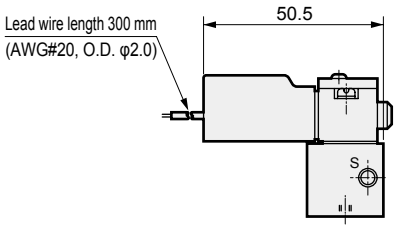
● Compact terminal box with lamp: (L)
With surge suppressor and indicator lamp: (LS)



● Compact terminal box, with surge suppressor: (P)



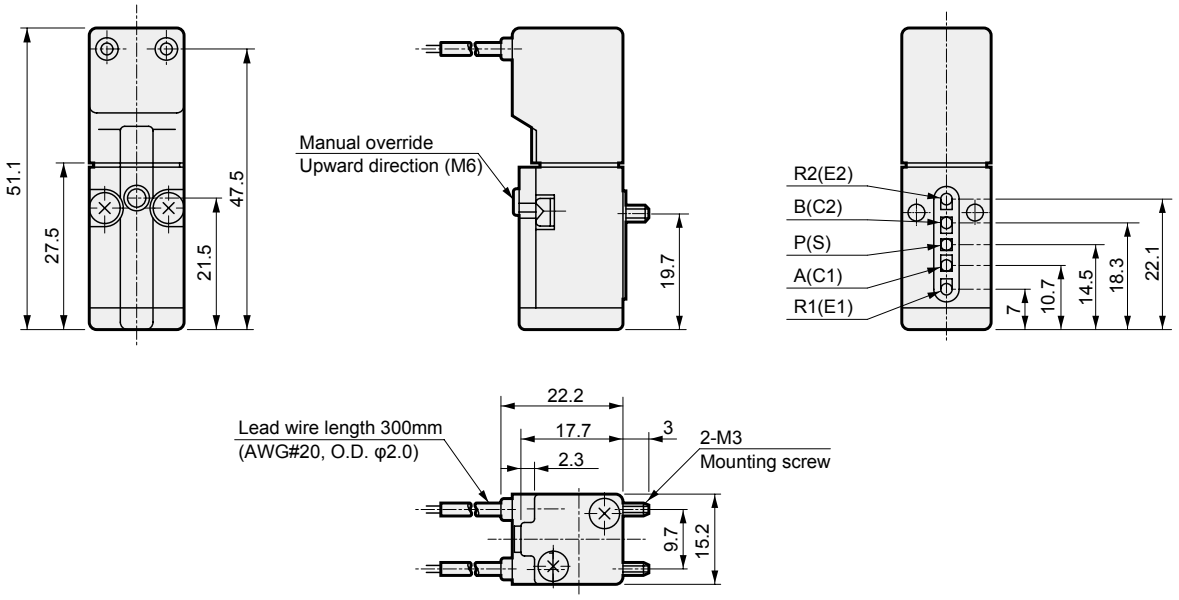
● Grommet lead wire with surge suppressor: (Q)



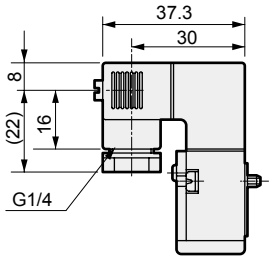
Dimensions CAD

P5142

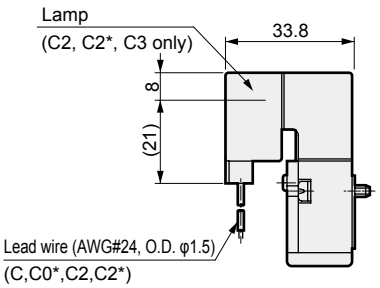
● Pilot: grommet lead wire



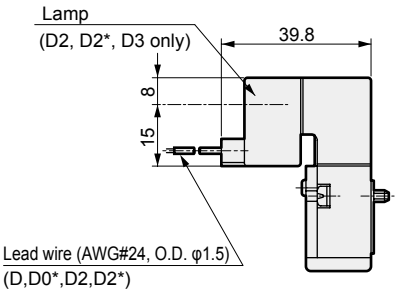
● Compact terminal box: (B)



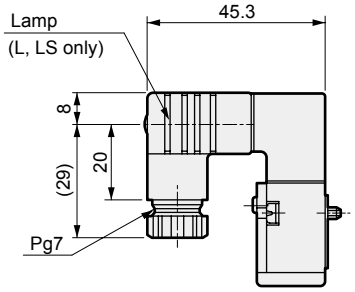
● C type connector:
(C/C0*/C1/C2/C2*/C3)



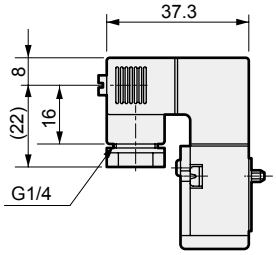
● D type connector:
(D/D0*/D1/D2/D2*/D3)



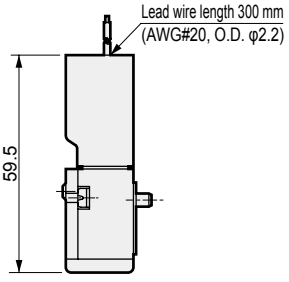
● Compact terminal box with lamp: (L)
With surge suppressor and indicator lamp: (LS)



● Compact terminal box, with surge suppressor: (P)



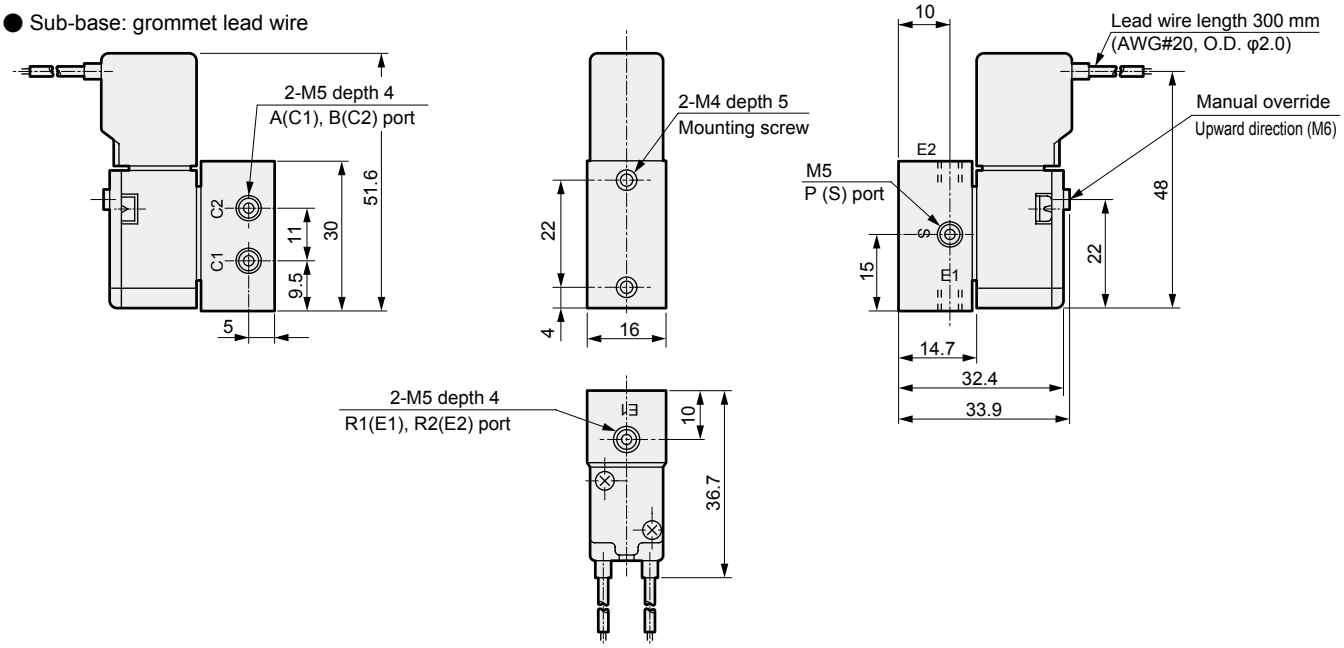
● Grommet lead wire with surge suppressor: (Q)



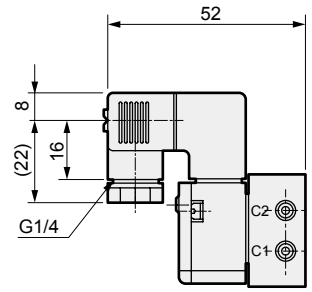
Dimensions CAD

B5142

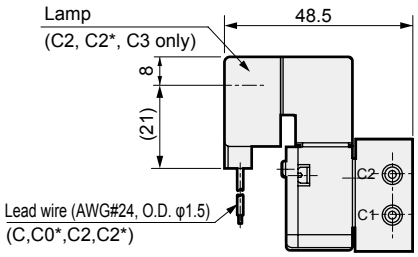
● Sub-base: grommet lead wire



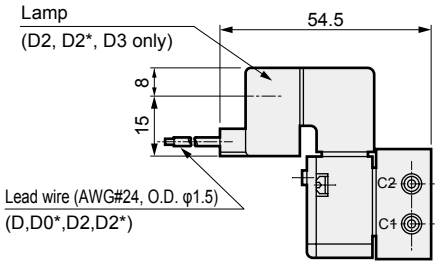
● Compact terminal box: (B)



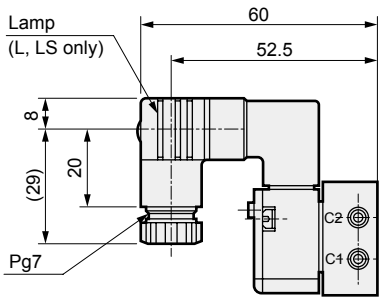
● C type connector:
(C/C0*/C1/C2/C2*/C3)



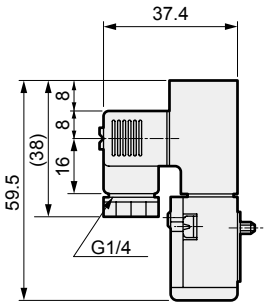
● D type connector:
(D/D0*/D1/D2/D2*/D3)



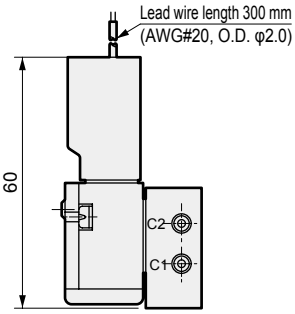
● Compact terminal box with lamp: (L)
With surge suppressor and indicator lamp: (LS)



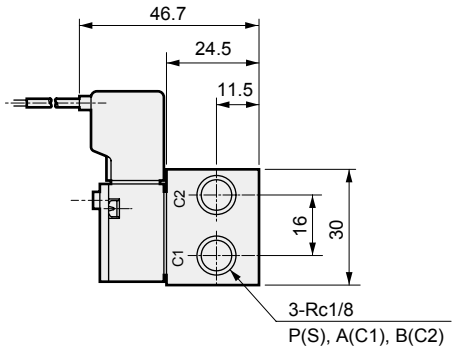
● Compact terminal box, with surge suppressor: (P)



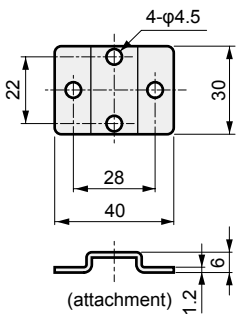
● Grommet lead wire with surge suppressor: (Q)



● Port size Rc1/8: (06)



● U type bracket: (U) Material: Stainless steel
(Trivalent) chrome plating



* The width of the sub-plate is 19.

Individual wiring manifold
Pilot operated 2, 3, 5-port miniature pneumatic valve

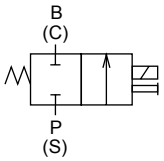
B*P51* Series

● Cylinder bore size: φ6 to φ16

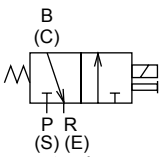
CE Refer to the Ending for details. RoHS CAD

JIS symbol

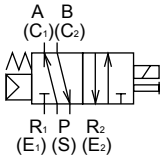
● 2-port valve



● 3-port valve



● 5-port valve
2-position single



Common specifications

Descriptions	Content
Manifold method	Manifold integrated
Manifold	Common supply, common exhaust
Station No.	2 to 10 stations
Valve and operation	Pilot operated 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	Refer to Individual specifications listed below
Ambient temperature °C	-10 (14°F) to 50 (122°F) (no freezing)
Fluid temperature °C	5 (41°F) to 50 (122°F)
Lubrication	Not required
Degree of protection	Dust-proof
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

Electrical specifications

Descriptions			Content
Rated voltage V	AC		100, 200 (50/60 Hz)
	DC		12, 24
Voltage fluctuation range			±10%
Starting current A	AC	100 V	0.056 / 0.044
		200 V	0.034 / 0.026
	DC	12 V	0.150
		24 V	0.075
Holding current A	AC	100 V	0.028 / 0.022
		200 V	0.017 / 0.013
	DC	12 V	0.150
		24 V	0.075
Power consumption W ( ):With indicator lamp	AC	100 V	1.8 / 1.4 (2.0/1.6)
		200 V	2.1 / 1.6 (2.0/1.8)
	DC	12 V	1.8(2.0)
		24 V	1.8(2.0)
Thermal class			B (molded coil)
Temperature rise °C			45 (113°F)

Reference: 100 VAC 50/60 Hz can be used with a rated voltage of 110 VAC 60 Hz and 200 VAC 50/60 Hz can be used with 220 VAC 60 Hz.

Individual specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Descriptions	2-port valve		3-port valve		5-port valve
	P5122	P5126	P5132	P5136	P5142
Max. working pressure MPa	1.0	0.6	1.0	0.6	0.7 (≈100 psi, 7 bar)
Min. working pressure MPa	0.1	0.1 *2	0.1	0.1 *2	0.15 (≈20 psi, 1.5 bar)
Proof pressure MPa	1.5	1.5	1.5	1.5	1.05 (≈150 psi, 10.5 bar)
Orifice mm	φ1.2	φ1.6	φ1.2	φ1.6	φ1.2
Response time *1 ms	30 or less		30 or less		60 or less
Weight (n: station No.) g	57×n+1				83×n+5

*1: The response time is the value at 0.5 MPa supply pressure, with no lubrication, and with the power ON. It depends on the pressure and the lubricant quality.

*2: When specifying the pressure classification V (for low pressure, for low vacuum pressure), the units can be used with low pressure (0 to 0.29 MPa) or low vacuum (3.3 to 101.0 O kPa (abs) {25 to 760 Torr}).

[Mix manifold]

● How to list combination content

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

Code	Function
M2	2-port valve
M3	3-port valve
M4	5-port valve
MP	Masking plate

1	2	3	4	5
3-port valve	3-port valve	3-port valve	5-port valve	5-port valve
(M3)	(M3)	(M3)	(M4)	(M4)

Example

The model No. when using a combination manifold of 5 stations with an arrangement such as that in the figure at left with an orifice of φ1.2 and a voltage of 200 VAC is

B5P5182-M6E-M5-AC200V

-	M2	M3	M4	MP
	0	3	2	0

(M3 = 1 to 3, M4 = 4/5)

Enter the quantity to be used after the model No. Even when none are to be used, enter 0.

Flow characteristics

Model No.	Solenoid position	C[dm³/(s·bar)]	b
P5122	2-port	0.11	0.15
P5126		0.15	0.18

Model No.	Solenoid position	P→B		B→R	
		C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
P5132	3-port	0.11	0.15	0.15	0.34
P5136		0.15	0.18	0.15	0.29

Model No.	Solenoid position	P→A/B		A/B→R1/R2	
		C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
P5142	5-port	0.09	0.23	0.13	0.18

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

Copper and PTFE free specifications

● Copper- and PTFE-based materials are not used in the flow path.

** – Voltage – **P6**

How to order manifold

B 7 P51 8 2 - M6 B ◯ - M5 - ◯ ◯ - DC24V - 0 5 1 1

Indicate the valve function based quantity display position for when using a mix manifold. Refer to page 1604.

Ⓐ Model No.

Ⓑ Station No.

Ⓒ Solenoid valve *1

Ⓓ Orifice *2

Ⓔ Manual override

Ⓕ Electrical connections

Note: Refer to page 1587 for the circuit diagram with a surge suppressor/lamp.

Ⓖ Pressure classification

Ⓗ Port size

Ⓘ Other options

Ⓙ Bracket

Ⓚ Voltage

Code	Content	Ⓐ Model No. B*P 512	B*P 513	B*P 514
Ⓑ Station No.				
2	2 stations	●	●	●
to	to			
10	10 stations			
Ⓒ Solenoid valve				
2	2-port valve	●		
3	3-port valve		●	
4	5-port valve			●
8	Mix manifold (when there are multiple solenoid positions)	●	●	●
Ⓓ Orifice				
2	φ1.2	●	●	●
6	φ1.6	●	●	
Ⓔ Manual override				
M0	Lateral non-locking (std) *3	●	●	
M1	Lateral lock (option) *3	●	●	
M4	Dust cover equipped non-locking	●	●	
M6	Upward non-locking (standard)	●	●	●
N	No manual override (option)	●	●	●
Ⓕ Electrical connections				
Refer to the next page for electrical connections.				
Ⓖ Pressure classification				
Blank	Standard	●	●	●
V	For low pressure and low vacuum *5	●	●	
Ⓗ Port size				
M5	M5 (standard)	●	●	●
06	Rc1/8 (optional)	●	●	●
Ⓘ Other options				
Blank	None	●	●	●
S	Surge suppressor attached *6, 7	●	●	●
X	Continuous energization (custom order)			●
Ⓙ Bracket				
Blank	None	●	●	●
L	L bracket attached	●	●	●
Ⓚ Voltage				
AC100V	Standard 100 VAC 50/60 Hz	●	●	●
AC200V	Standard 200 VAC 50/60 Hz	●	●	●
DC24V	Standard 24 VDC	●	●	●
DC12V	Standard 12 VDC	●	●	●
AC110V	Option 110 VAC 50/60 Hz	●	●	●
AC220V	Option 220 VAC 50/60 Hz	●	●	●
*** Other custom order products**				
AC24V		●	●	●
AC48V		●	●	●
DC6V		●	●	●
DC48V		●	●	●

⚠ Precautions for model No. selection

*1 : Contact CKD when using the units with a common air supply and individual exhaust. Orifice mixtures are available as a custom order product.

*2 : Use orifice 2 when only using 5-port valves. Use the orifice selected with the 3-port valve when using a mixture of 2, 3-port valves.

*3 : M0 (lateral direction non-locking) and M1 (lateral direction locking) are not available with pressure classification V (for low pressure, for low vacuum pressure).

*5 : When pressure classification V (for low pressure/for low vacuum pressure) has been specified, the orifice will be "6". Draw in the vacuum from P(S) port. When using at low pressure, supply from the P(S) port.

*6 : The unit is a suppression connector for 24 VDC or less.

*7 : The surge suppressor can only be selected when the grommet lead wire or compact terminal box "B" has been selected for the electrical connections.

[Example of model No.]

B5P5142-M6E-M5-AC200V

5-port valve manifold
Common air supply/common exhaust

Ⓑ Station No. : 5 stations
Ⓒ Solenoid valve : 5-port valve
Ⓓ Orifice : φ1.2
Ⓔ Manual override : Upward non-locking
Ⓕ Electrical connections : Grommet lead wire
Ⓗ Port size : M5
Ⓘ Other options : None
Ⓙ Bracket : None
Ⓚ Voltage : 200 VAC

(Electrical connection list)

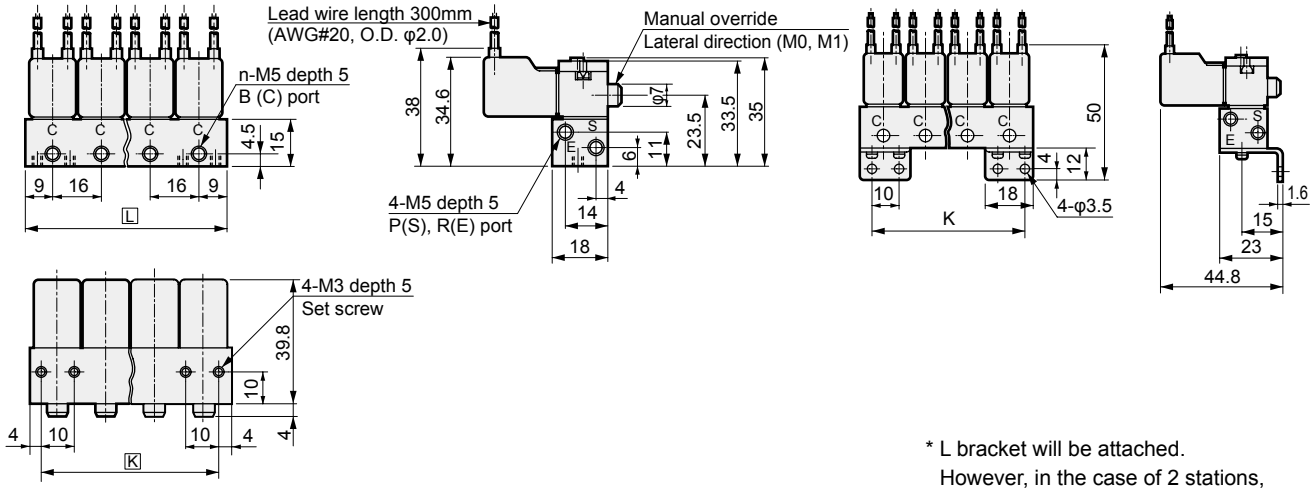
Code		Content	Ⓐ Model No. B*P 512	B*P 513	B*P 514
Ⓕ Electrical connections					
E	Standard	Grommet lead wire (300 mm)	●	●	●
B	Standard	Compact terminal box	●	●	●
Q	Option	Grommet lead wire (300 mm) with surge suppressor	●	●	
C type connector (lead wire lateral direction)					
C	Std.	Lead wire length (300 mm)	●	●	●
C00	Option	Lead wire length (500 mm)	●	●	●
C01	Option	Lead wire length (1000 mm)	●	●	●
C02	Option	Lead wire length (2000 mm)	●	●	●
C03	Option	Lead wire length (3000 mm)	●	●	●
C1	Option	Without lead wire	●	●	●
C2	Option	Lead wire length (300 mm) with surge suppressor and indicator lamp	●	●	●
C20	Option	Lead wire length (500 mm) with surge suppressor and indicator lamp	●	●	●
C21	Option	Lead wire length (1000 mm) with surge suppressor and indicator lamp	●	●	●
C22	Option	Lead wire length (2000 mm) with surge suppressor and indicator lamp	●	●	●
C23	Option	Lead wire length (3000 mm) with surge suppressor and indicator lamp	●	●	●
C3	Option	Without lead wire with surge suppressor and indicator lamp	●	●	●
D type connector (lead wire upward direction)					
D	Option	Lead wire length (300 mm)	●	●	●
D00	Option	Lead wire length (500 mm)	●	●	●
D01	Option	Lead wire length (1000 mm)	●	●	●
D02	Option	Lead wire length (2000 mm)	●	●	●
D03	Option	Lead wire length (3000 mm)	●	●	●
D1	Option	Without lead wire	●	●	●
D2	Option	Lead wire length (300 mm) with surge suppressor and indicator lamp	●	●	●
D20	Option	Lead wire length (500 mm) with surge suppressor and indicator lamp	●	●	●
D21	Option	Lead wire length (1000 mm) with surge suppressor and indicator lamp	●	●	●
D22	Option	Lead wire length (2000 mm) with surge suppressor and indicator lamp	●	●	●
D23	Option	Lead wire length (3000 mm) with surge suppressor and indicator lamp	●	●	●
D3	Option	Without lead wire with surge suppressor and indicator lamp	●	●	●
Compact terminal box					
L	Option	Without lead wire with indicator lamp	●	●	●
LS	Option	Without lead wire with surge suppressor and indicator lamp	●	●	●
P	Option	Without lead wire with surge suppressor	●	●	●

*4: With DC voltage, L is equipped with a surge suppressor

Dimensions CAD

B*P51$^{2}_{3}$

● Grommet lead wire

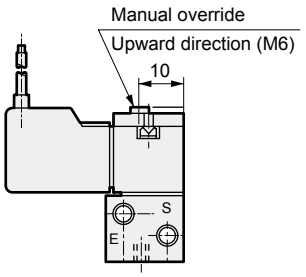


Station No.	2	3	4	5	6	7	8	9	10
K	26	42	58	74	90	106	122	138	154
L	34	50	66	82	98	114	130	146	162

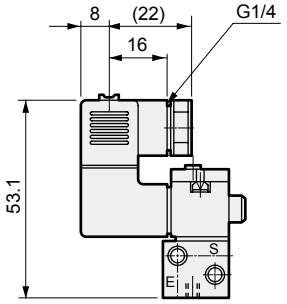
● L type bracket: (L) Material: Stainless steel (Trivalent) chrome plating

* L bracket will be attached. However, in the case of 2 stations, the installation of the bracket can only be on either the left or right.

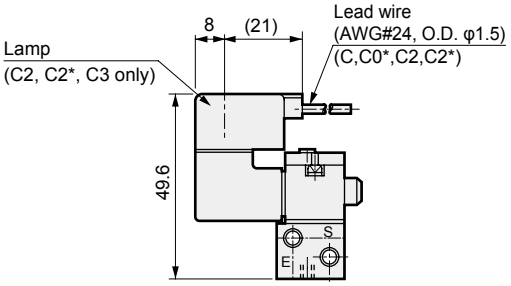
● Non-locking manual override upward direction



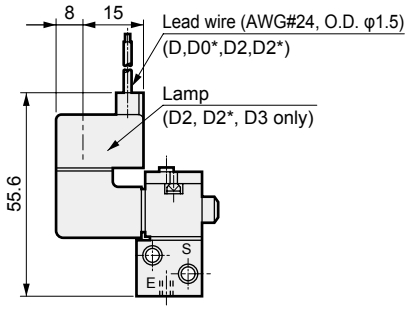
● Compact terminal box: (B)



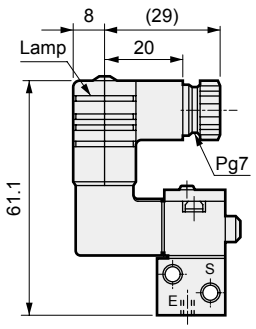
● C type connector: (C/C0*/C1/C2/C2*/C3)



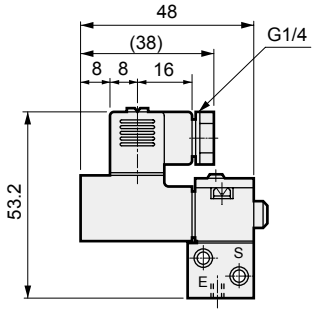
● D type connector: (D/D0*/D1/D2/D2*/D3)



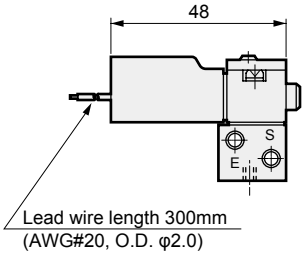
● Compact terminal box: (L)
With surge suppressor and indicator lamp: (LS)



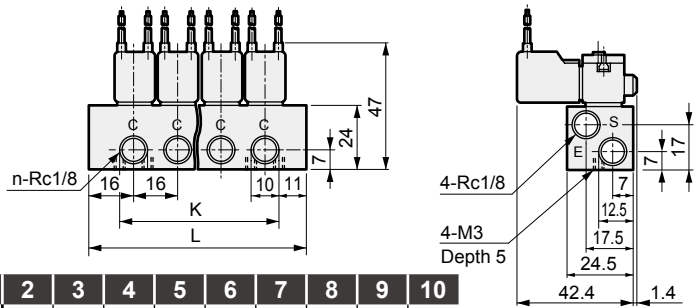
● Compact terminal box, with surge suppressor: (P)



● Grommet lead wire with surge suppressor: (Q)



● Port size Rc1/8: (06)



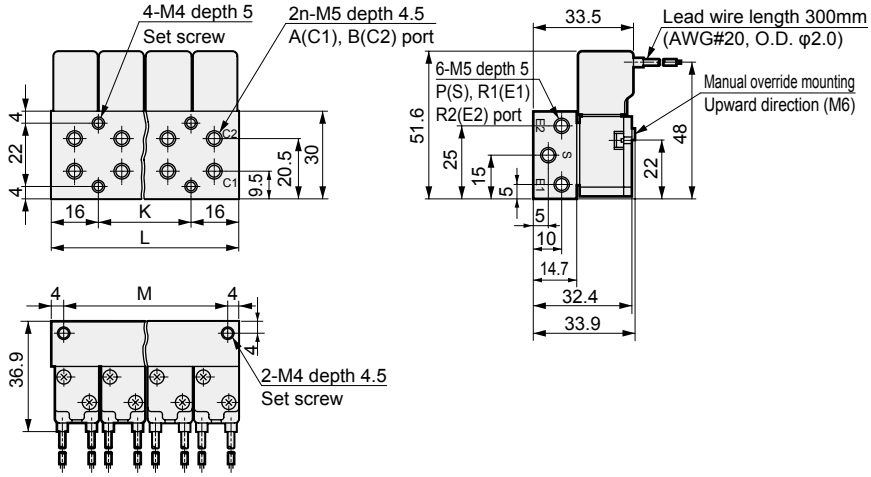
Station No.	2	3	4	5	6	7	8	9	10
K	26	42	58	74	90	106	122	138	154
L	48	64	80	96	112	128	144	160	176

Dimensions CAD

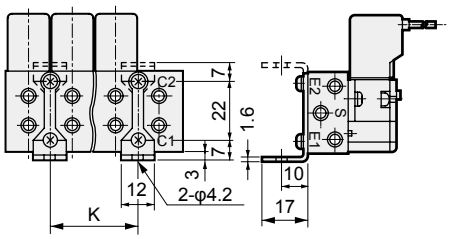
B*P514

● Grommet lead wire

* With B*P518 (mix manifold), 2-port valves and 3-port valves will be mounted on the manifold base of B*P514.



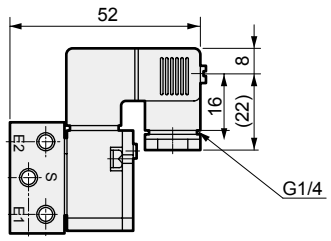
● L type bracket: (L) Material: Stainless steel (Trivalent) chrome plating



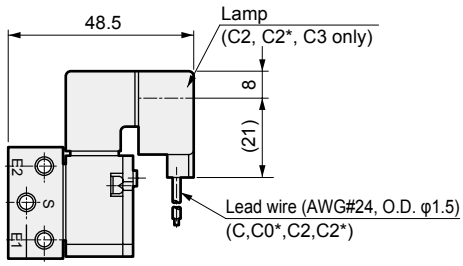
* L bracket will be attached.

Station No.	2	3	4	5	6	7	8	9	10
K	0	16	32	48	64	80	96	112	128
L	32	48	64	80	96	112	128	144	160
M	24	40	56	72	88	104	120	136	152

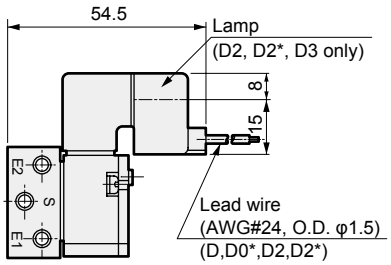
● Compact terminal box: (B)



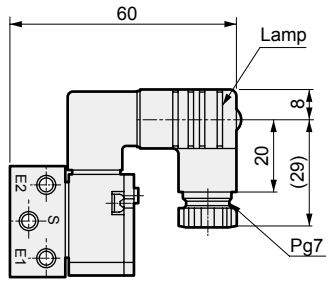
●C type connector: (C/C0*/C1/C2/C2*/C3)



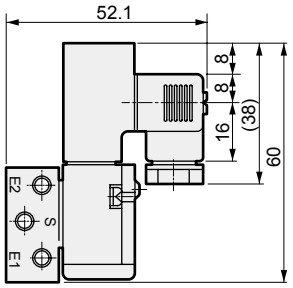
● D type connector: (D/D0*/D1/D2/D2*/D3)



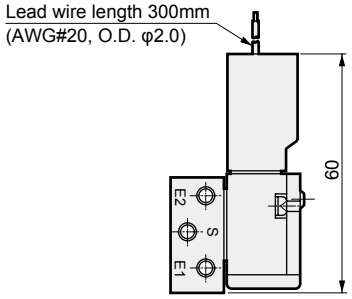
● Compact terminal box with lamp: (L)
With surge suppressor and indicator lamp: (LS)



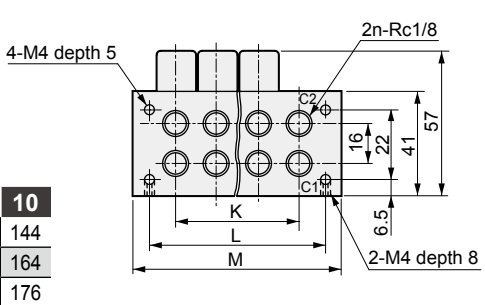
● Compact terminal box, with surge suppressor: (P)

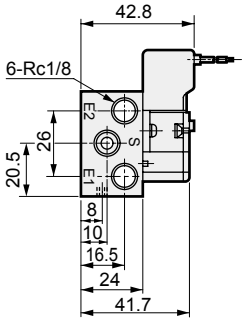


● Grommet lead wire with surge suppressor: (Q)



● Port size Rc1/8: (06)





Station No.	2	3	4	5	6	7	8	9	10
K	16	32	48	68	80	96	112	128	144
L	36	52	68	84	100	116	132	148	164
M	48	64	80	96	112	128	144	160	176

Block manifold
Pilot operated 2, 3, 5-port valve miniature pneumatic valve

N*P51* Series

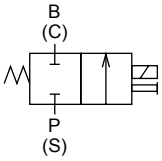
● Cylinder bore size: φ6 to φ16

CE Refer to the Ending for details.

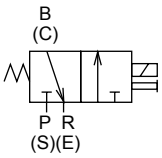
RoHS CAD

JIS symbol

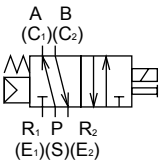
● 2-port valve



● 3-port valve



● 5-port valve
2-position single



Common specifications

Descriptions	Content
Manifold method	Manifold block system (DIN rail mount)
Manifold	Common supply/common exhaust
Station No.	2 to 25 stations
Valve and operation	Pilot operated 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	1.5 (≈220 psi, 15 bar) (*1)
Ambient temperature °C	-10 (14°F) to 40 (104°F) (no freezing)
Fluid temperature °C	5 (41°F) to 40 (104°F)
Lubrication	Not required
Degree of protection	Dust-proof
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

*1: P5142 will be 1.05 MPa.

Electrical specifications

Descriptions			Content
Rated voltage V	AC		100, 200 (50/60 Hz)
	DC		12, 24
Voltage fluctuation range			±10%
Starting current A	AC	100 V	0.056 / 0.044
		200 V	0.034 / 0.026
	DC	12 V	0.150
		24 V	0.075
Holding current A	AC	100 V	0.028 / 0.022
		200 V	0.017 / 0.013
	DC	12 V	0.150
		24 V	0.075
Power consumption W ( ): With indicator lamp	AC	100 V	1.8 / 1.4 (2.0/1.6)
		200 V	2.1 / 1.6 (2.3/1.8)
	DC	12 V	1.8(2.0)
		24 V	1.8(2.0)
Thermal class			B (molded coil)
Temperature rise °C			45 (113°F)

Reference: 100 VAC 50/60 Hz can be used with a rated voltage of 110 VAC 60 Hz and 200 VAC 50/60 Hz can be used with 220 VAC 60 Hz.

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Individual specifications

Descriptions	2-port valve		3-port valve		5-port valve
	P5122	P5126	P5132	P5136	P5142
Max. working pressure MPa	1.0	0.6	1.0	0.6	0.7 (≈100 psi, 7 bar)
Min. working pressure MPa	0.1	0.1 *2	0.1	0.1 *2	0.15 (≈22 psi, 1.5 bar)
Orifice mm	φ1.2	φ1.6	φ1.2	φ1.6	φ1.2
Response time *1 ms	30 or less		30 or less		60 or less

*1 : The response time is the value at 0.5 MPa supply pressure, with no lubrication, and with the power ON. It depends on the pressure and the lubricant quality.

*2 : When specifying the pressure classification V (for low pressure, for low vacuum pressure), the units can be used with low pressure (0 to 0.29 MPa) or low vacuum (3.3 to 101.00 kPa (abs) {25 to 760 Torr}).

Weight

Valve block (g)	N513*-UH4(SH4)	N5142-UH4(SH4)
	17	21
Supply block (g)	P□UH6	P□SH6
	25	34
Exhaust block (g)	R□UH6	R□SH6
	25	34
DIN rail (g) n: number of valve blocks, m: number of other blocks	13+3×(n+m)	

Flow characteristics

Model No.	Solenoid position	C[dm³/(s·bar)]	b
P5122	2-port	0.11	0.15
P5126		0.15	0.18

Model No.	Solenoid position	P→B		B→R	
		C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
P5132	3-port	0.11	0.15	0.15	0.34
P5136		0.15	0.18	0.15	0.29

Model No.	Solenoid position	P→A/B		A/B→R1/R2	
		C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
P5142	5-port	0.09	0.23	0.13	0.18

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

Copper and PTFE free specifications

● Copper- and PTFE-based materials are not used in the flow path.

** - Voltage - **P6**

How to order block manifold

N 7 P51 3 2 - M6 B ( ) ( ) - ( ) - AC100V

Note Be sure to fill in the "Manifold specifications sheet" (page 1620).

Ⓐ Model No.

Ⓑ Station No.

Ⓒ Solenoid valve *2

Ⓓ Orifice *3

Ⓔ Manual override

Ⓕ Electrical connections

Note Refer to page 1587 for the circuit diagram with a surge suppressor/lamp.

Ⓖ Pressure classification

Ⓗ Coil direction

Ⓘ Other options

Ⓙ Voltage

Code	Content	Ⓐ Model No. 2-port N*P 512	3-port N*P 513	5-port N*P 514
Ⓑ Station No.				
2	2 stations	●	●	●
to	to			
25	25 stations *1			
Ⓒ Solenoid valve				
2	2-port valve	●		
3	3-port valve		●	
4	5-port valve			●
8	Mix manifold (when there are multiple solenoid positions)	●	●	●
Ⓓ Orifice				
2	φ1.2	●	●	●
6	φ1.6	●	●	
Ⓔ Manual override				
M0	Lateral non-locking (standard) *4	●	●	
M1	Lateral locking (option) *4	●	●	
M4	Dust cover equipped non-locking	●	●	
M6	Upward non-locking (standard)	●	●	●
N	No manual override (option)	●	●	●
Ⓕ Electrical connections				
	Refer to the next page for electrical connections.			
Ⓖ Pressure classification				
Blank	Standard	●	●	●
V	For low pressure and low vacuum *6	●	●	
Ⓗ Coil direction				
Blank	Standard direction	●	●	●
R	180° rotation direction *7	●	●	●
Ⓘ Other options				
Blank	None	●	●	●
S	Surge suppressor attached *8	●	●	●
X	Continuous energization (custom order)			●
Ⓙ Voltage				
AC100V	Standard: 100 VAC 50/60 Hz	●	●	●
AC200V	Standard: 200 VAC 50/60 Hz	●	●	●
DC24V	Standard: 24 VDC	●	●	●
DC12V	Standard: 12 VDC	●	●	●
AC110V	Option: 110 VAC 50/60 Hz	●	●	●
AC220V	Option: 220 VAC 50/60 Hz	●	●	●
*** Other custom order products**				
AC24V		●	●	●
AC48V		●	●	●
DC6V		●	●	●
DC48V		●	●	●

⚠ Precautions for model No. selection

*1 : The max. station No. is 25.
*2 : Use orifice 2 when only using 5-port valves. Use the orifice selected with the 3-port valve when using a mixture of 2, 3-port valves.
*3 : Orifice mixtures of 2, 3-port valves are available as a custom order product.
*4 : M0 (lateral direction non-locking) and M1 (lateral direction locking) are not available with pressure classification V (for low pressure, for low vacuum).
*6 : When pressure classification V (for low pressure/for low vacuum pressure) has been specified, the orifice will be "6". Draw in the vacuum from P(S) port. Pressure classification V (for low pressure, low vacuum pressure) is not available with 5-port valves. When using at low pressure, supply from the P(S) port.
*7 : In cases when coil direction R (180° rotation direction) has been specified, electrical connections will be standardly supported with only E. Consult with CKD for other electrical connections.
*8 : The surge suppressor can only be selected when the grommet lead wire or compact terminal box "B" has been selected for the electrical connections.

[Example of model No.]

N7P5132-M0B-S-AC100V

Miniature pneumatic valve block manifold

Ⓑ Station No.	: 7 stations
Ⓒ Solenoid valve	: 3-port valve
Ⓓ Orifice	: φ1.2
Ⓔ Manual override	: Lateral non-locking
Ⓕ Electrical connections	: Compact terminal box
Ⓖ Pressure classification	: Standard
Ⓗ Coil direction	: Standard direction
Ⓘ Other options	: Surge suppressor attached
Ⓙ Voltage	: 100 VAC

[Electrical connection list]

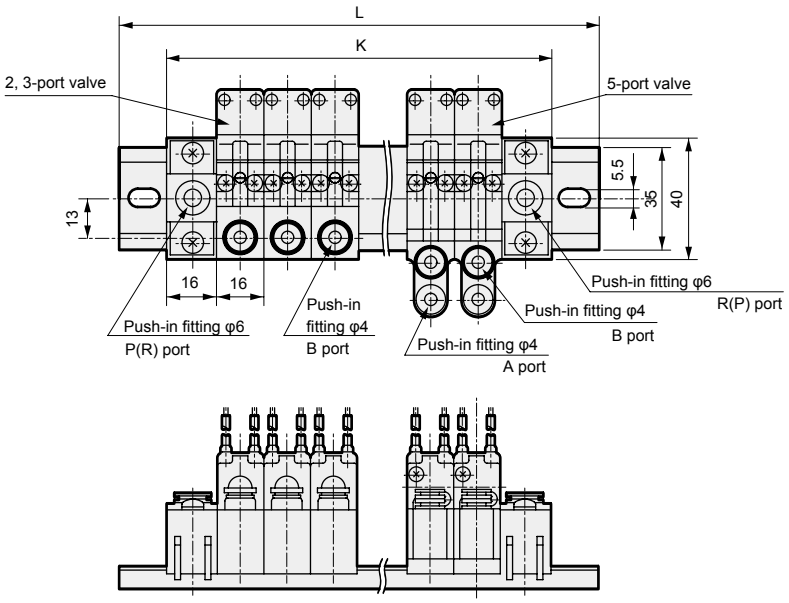
Code		Content		Ⓐ Model No. 2-port N*P 512	3-port N*P 513	5-port N*P 514
Ⓕ Electrical connections						
E	Standard	Grommet lead wire (300 mm)		●	●	●
B	Standard	Compact terminal box		●	●	●
Q	Option	Grommet lead wire (300 mm)	with surge suppressor	●	●	●
C type connector (lead wire lateral direction)						
C	Std.	Lead wire length (300 mm)		●	●	●
C00	Option	Lead wire length (500 mm)		●	●	●
C01	Option	Lead wire length (1000 mm)		●	●	●
C02	Option	Lead wire length (2000 mm)		●	●	●
C03	Option	Lead wire length (3000 mm)		●	●	●
C1	Option	Without lead wire		●	●	●
C2	Option	Lead wire length (300 mm)	with surge suppressor and indicator lamp	●	●	●
C20	Option	Lead wire length (500 mm)	with surge suppressor and indicator lamp	●	●	●
C21	Option	Lead wire length (1000 mm)	with surge suppressor and indicator lamp	●	●	●
C22	Option	Lead wire length (2000 mm)	with surge suppressor and indicator lamp	●	●	●
C23	Option	Lead wire length (3000 mm)	with surge suppressor and indicator lamp	●	●	●
C3	Option	Without lead wire	with surge suppressor and indicator lamp	●	●	●
D type connector (lead wire upward direction)						
D	Option	Lead wire length (300 mm)		●	●	●
D00	Option	Lead wire length (500 mm)		●	●	●
D01	Option	Lead wire length (1000 mm)		●	●	●
D02	Option	Lead wire length (2000 mm)		●	●	●
D03	Option	Lead wire length (3000 mm)		●	●	●
D1	Option	Without lead wire		●	●	●
D2	Option	Lead wire length (300 mm)	with surge suppressor and indicator lamp	●	●	●
D20	Option	Lead wire length (500 mm)	with surge suppressor and indicator lamp	●	●	●
D21	Option	Lead wire length (1000 mm)	with surge suppressor and indicator lamp	●	●	●
D22	Option	Lead wire length (2000 mm)	with surge suppressor and indicator lamp	●	●	●
D23	Option	Lead wire length (3000 mm)	with surge suppressor and indicator lamp	●	●	●
D3	Option	Without lead wire	with surge suppressor and indicator lamp	●	●	●
Compact terminal box						
L	Option	Without lead wire	with indicator lamp	●	●	●
LS	Option	Without lead wire	with surge suppressor and indicator lamp	●	●	●
P	Option	Without lead wire	with surge suppressor	●	●	●

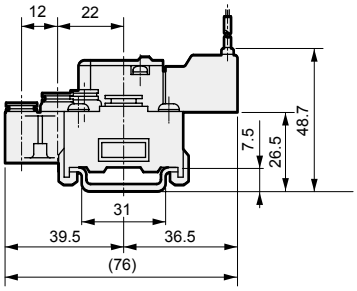
*5 : The DC voltage model of L is equipped with a surge suppressor.

Dimensions CAD

N*P51

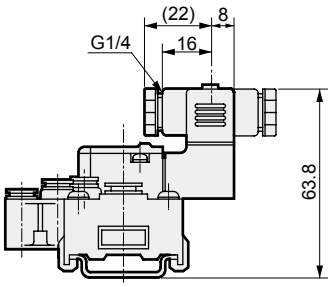
● Push-in fitting upward piping: grommet lead wire



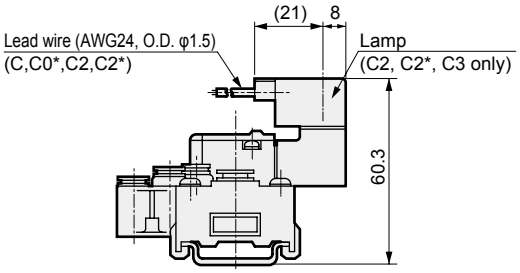


Station No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
K	48	64	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320	336	352	368	384	400	416	432
L	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320	336	352	368	384	400	416	432	448	464

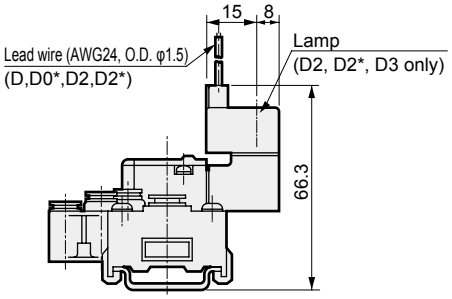
● Compact terminal box: (B)



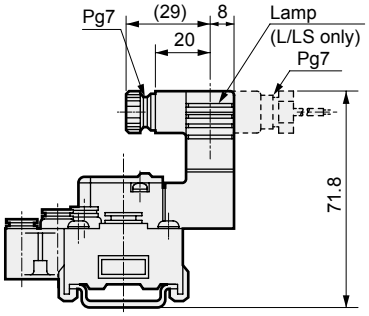
● C type connector: (C/C0*/C1/C2/C2*/C3)



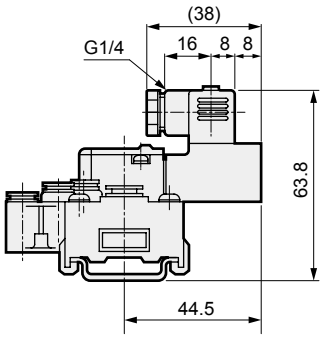
● D type connector: (D/D0*/D1/D2/D2*/D3)



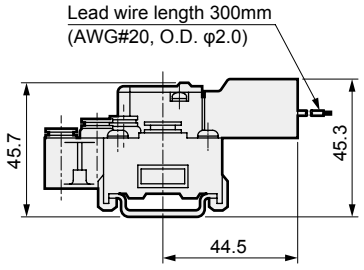
● Compact terminal box with lamp: (L)
With surge suppressor and indicator lamp: (LS)



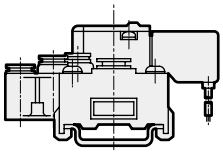
● Compact terminal box, with surge suppressor: (P)



● Grommet lead wire with surge suppressor: (Q)



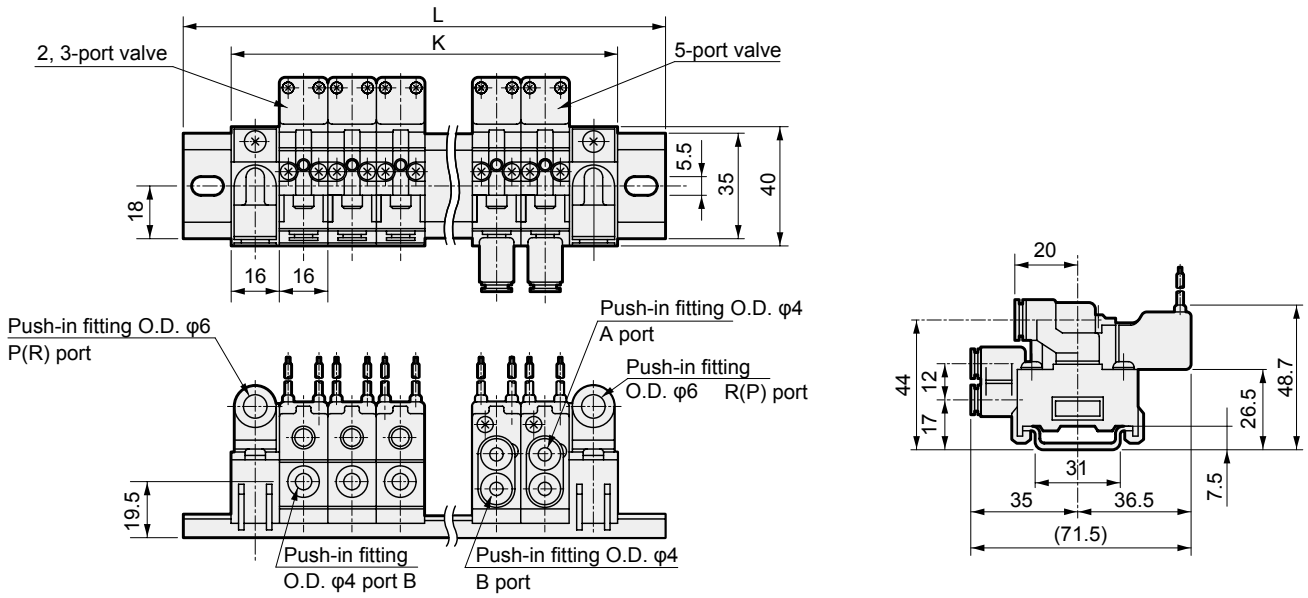
● Coil 180° rotation: (R)



Dimensions CAD

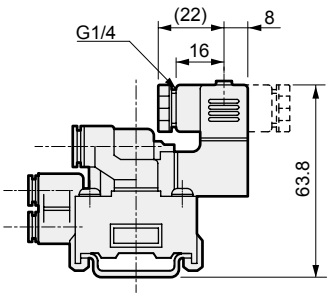
N*P51

● Push-in fitting lateral piping: grommet lead wire

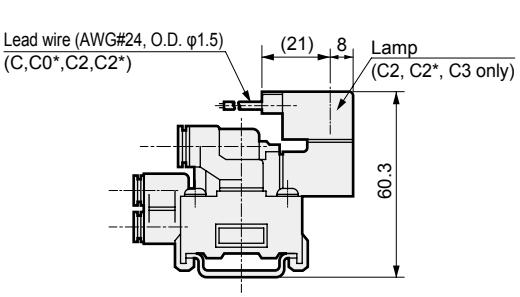


Station No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
K	48	64	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320	336	352	368	384	400	416	432
L	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320	336	352	368	384	400	416	432	448	464

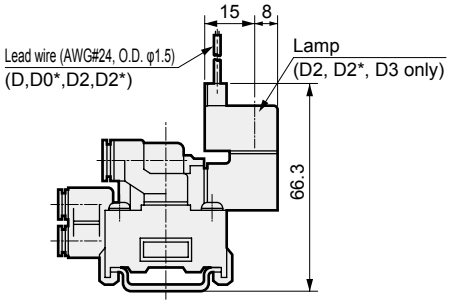
● Compact terminal box: (B)



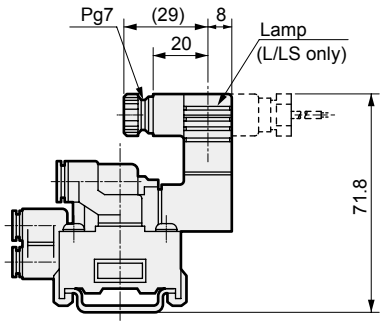
● C type connector: (C/C0*/C1/C2/C2*/C3)

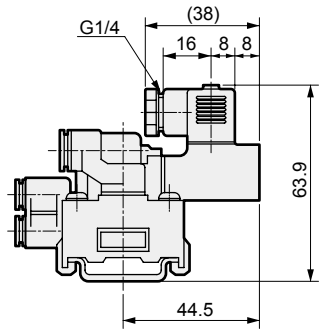


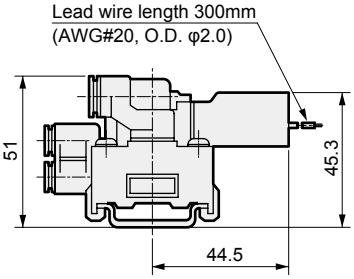
● D type connector: (D/D0*/D1/D2/D2*/D3)



● Compact terminal box with lamp: (L)
With surge suppressor and indicator lamp: (LS) ● Compact terminal box, with surge suppressor: (P) ● Grommet lead wire with surge suppressor: (Q)







● Coil 180° rotation: (R)