

MVSC-220 series

SOLENOID VALVE



mindman



Features



Selection table



Blocking plate



Technical data



Caution for safety
(Read before installing)

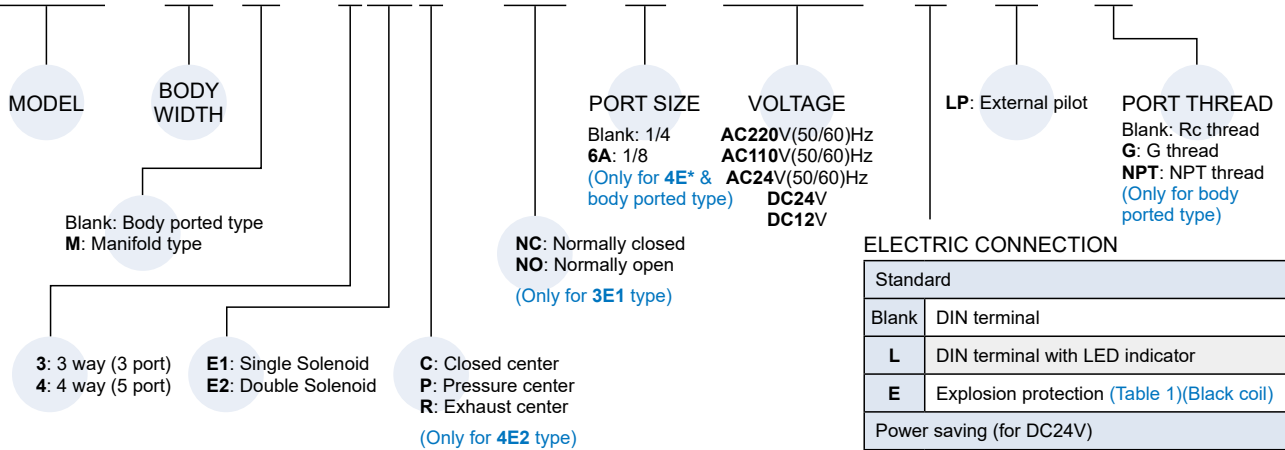


Specification

Model	3E1	3E2	4E1	4E2	4E2 C.P.R	
Bore No.	8A		6A, 8A			
Port size	1/4		1/8, 1/4			
No. of port	3		5			
No. of position	2		2		3	
Medium	Air					
Operating pressure range	0.2~0.8 MPa			0.3~0.8 MPa		
Operating pressure (LP)	0~0.8 MPa					
Pilot pressure range (LP)	(0.34×P(*1)+0.1)~0.5 MPa					
Proof pressure	1 MPa					
Effective orifice	18 mm ²			16 mm ²		
Response time	30 ms			40 ms		
Ambient temperature	-5~+50°C (No freezing)					
Voltage	AC110V, 220V, 24V (50/60)Hz, DC24V, 12V					
Power consumption	Standard	AC=4.8/4.4VA, 6/4.9VA, 6.7/5.4VA, DC=2W, 2.5W				
	Power saving	DC24V=Start: 2W(*2) Power saving: 0.5W				
Available voltage range	±10%					
Insulation class	F class					
Weight (g)	Valve	181	294	198	313	352
	Manifold	3B : 56n+77 (*3) 3M : 71n+114		5B : 61n+61 5M : 137n+157 (*3)		

Order example of valve

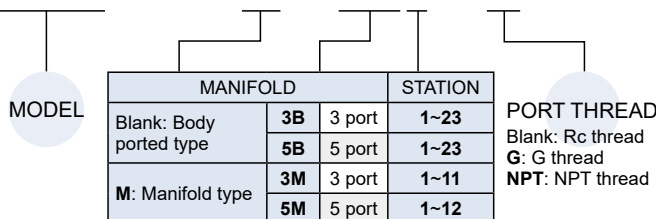
MVSC – 220M – 4E2C – NC – □ – AC110 – L – LP – G



*1. P: Operating pressure *2. Power saving covert time 100ms. *3. n: Stations

Order example of manifold

MVSC – 220M – 5M3 – G



* Starting from 11 stations, manifolds are made to order.

Table 1

Property for explosion-proof type

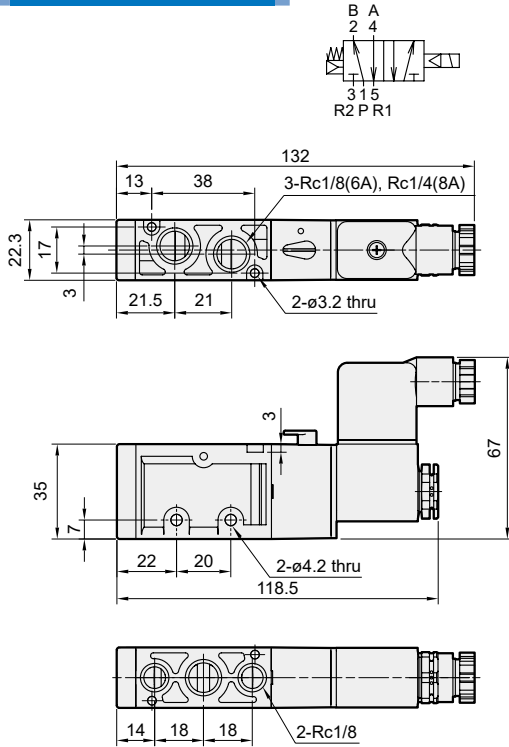
Anti-explosion class	Ex mb IIC T4 Gb
Voltage	AC110V / 220V(50/60)Hz, DC24V
Power consumption	AC110V=4.5VA, AC220V=4.8VA, DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

MVSC-220 Dimensions

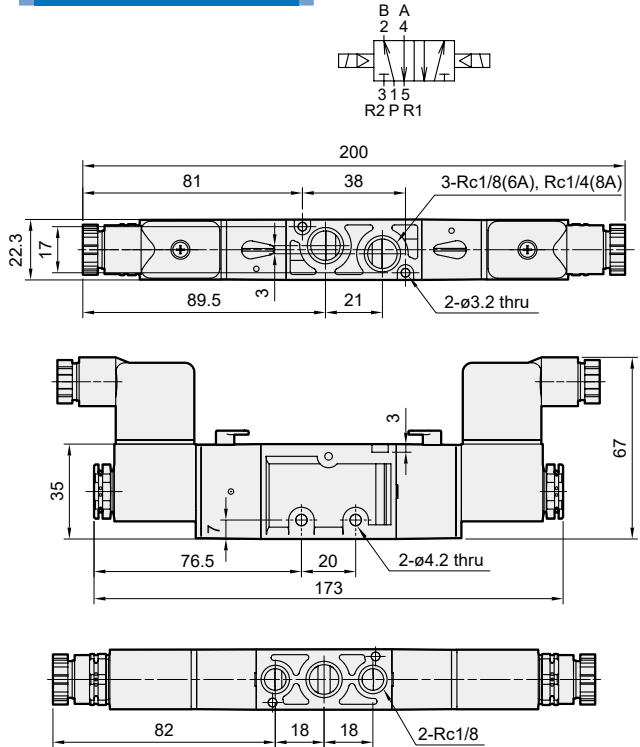
SOLENOID VALVE



MVSC-220-4E1

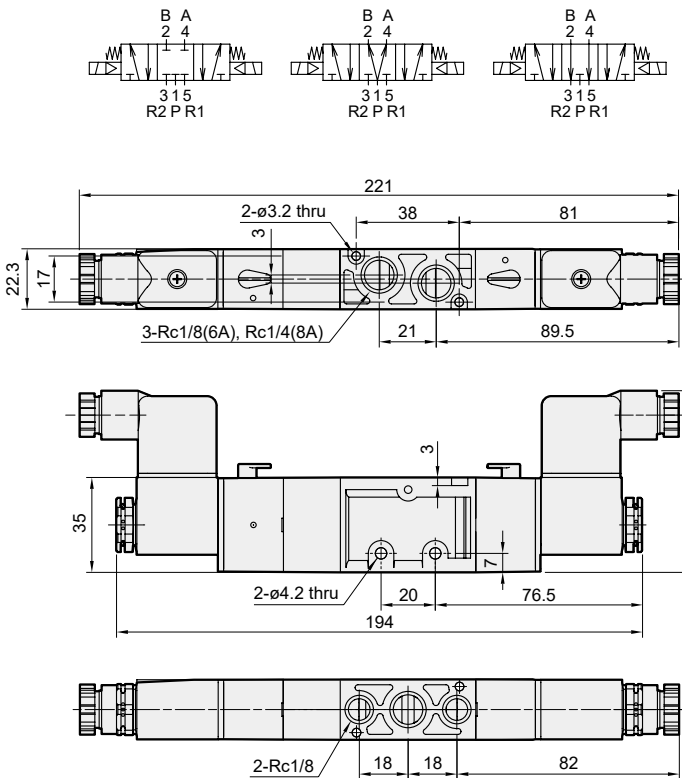


MVSC-220-4E2

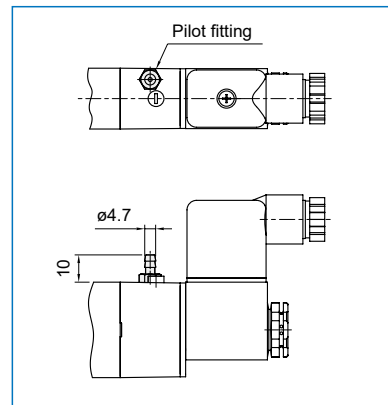


MVSC-220-4E2C.PR

MVSC-220-4E2C MVSC-220-4E2P MVSC-220-4E2R

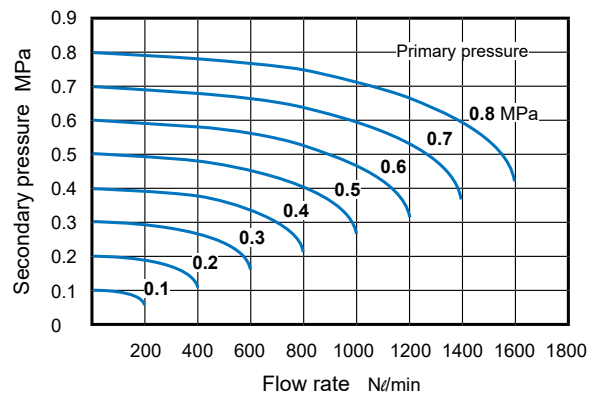


LP



Flow features

MVSC-220-3E1/3E2/4E1/4E2

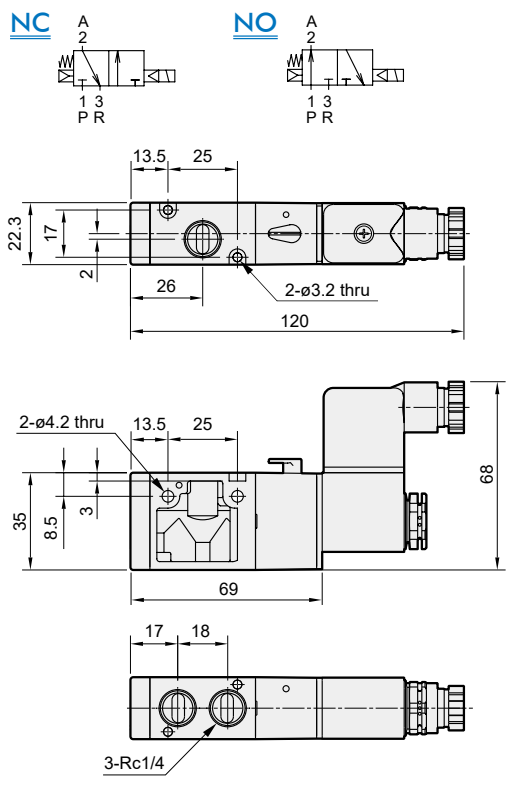


MVSC-220 Dimensions

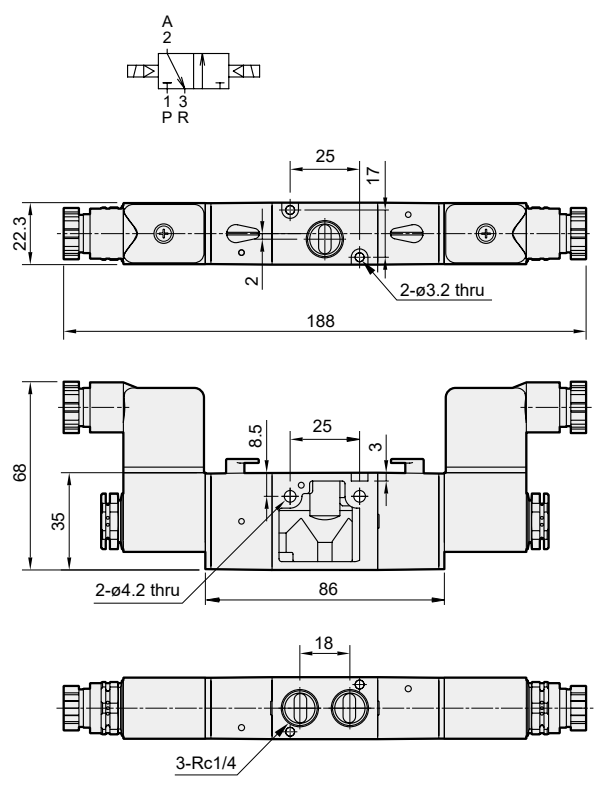
SOLENOID VALVE



MVSC-220-3E1-NC/NO



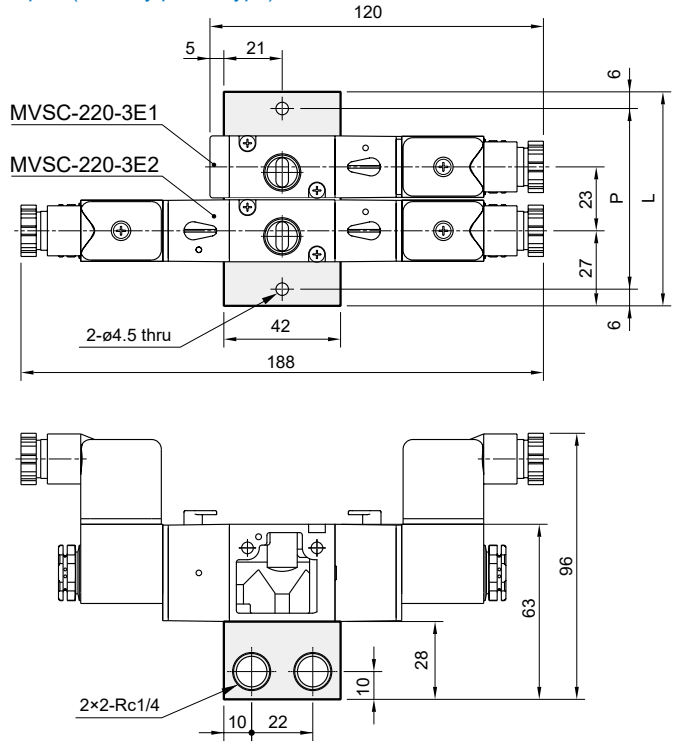
MVSC-220-3E2



Manifold of solenoid valve

MVSC-220-3B*

3 port (for body ported type)



No. of stations	P	L
1	42	54
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261

P: (No. of stations-1)×23+42
L: (No. of stations-1)×23+54

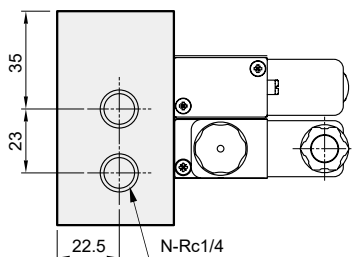
MVSC-220 Manifold

SOLENOID VALVE



MVSC-220M-3M*

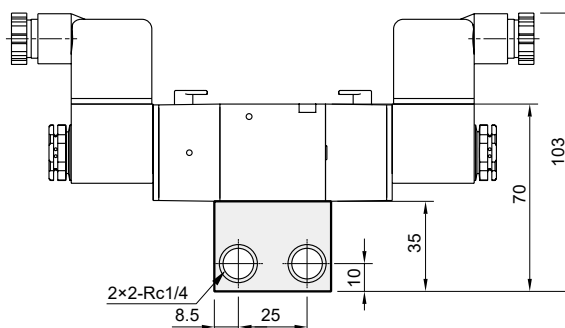
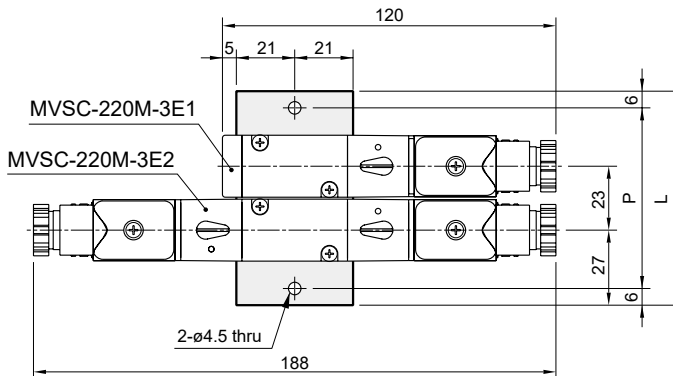
3 port (for manifold type)



No. of stations (N)	P	L
1	42	54
2	65	77
3	88	100
4	111	123
5	134	146
6	157	169
7	180	192
8	203	215
9	226	238
10	249	261

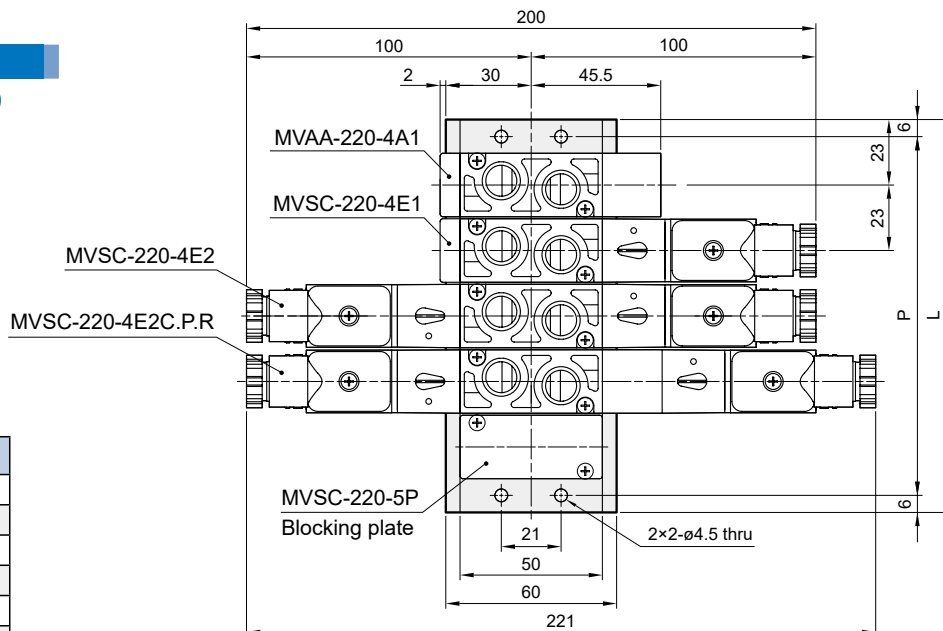
P: (No. of stations-1)×23+42

L: (No. of stations-1)×23+54



MVSC-220-5B*

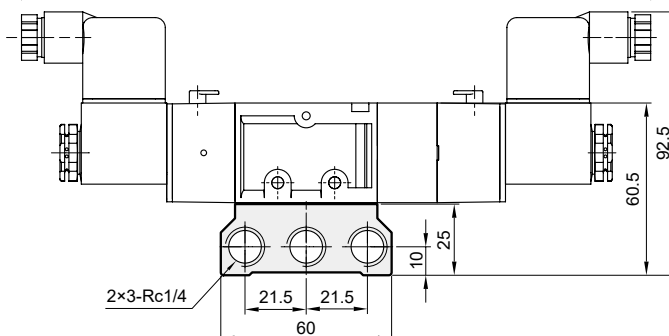
5 port (for body ported type)



No. of stations	P	L
1	34	46
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253

P: (No. of stations-1)×23+34

L: (No. of stations-1)×23+46



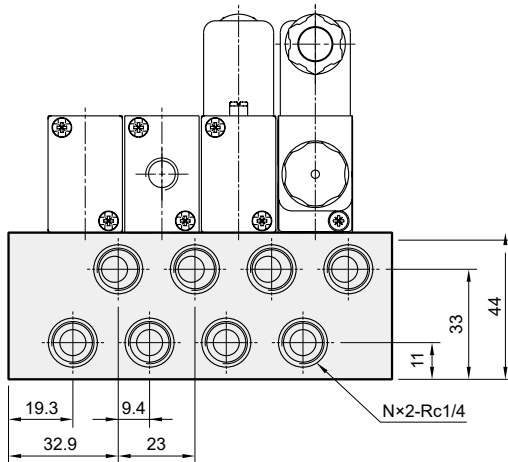
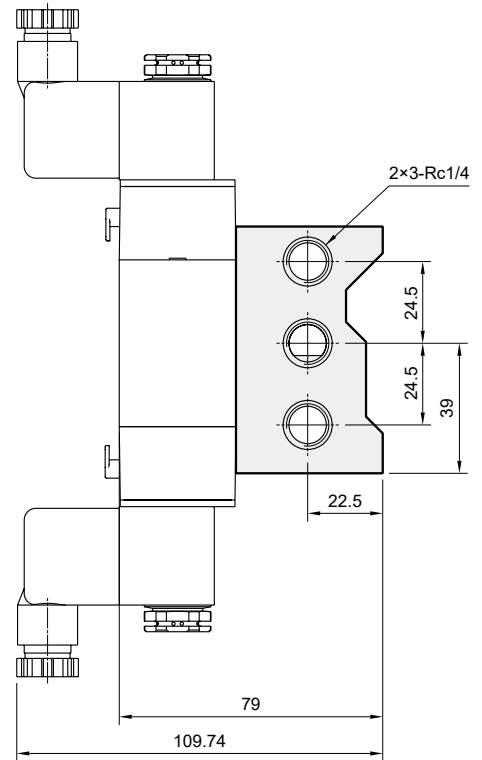
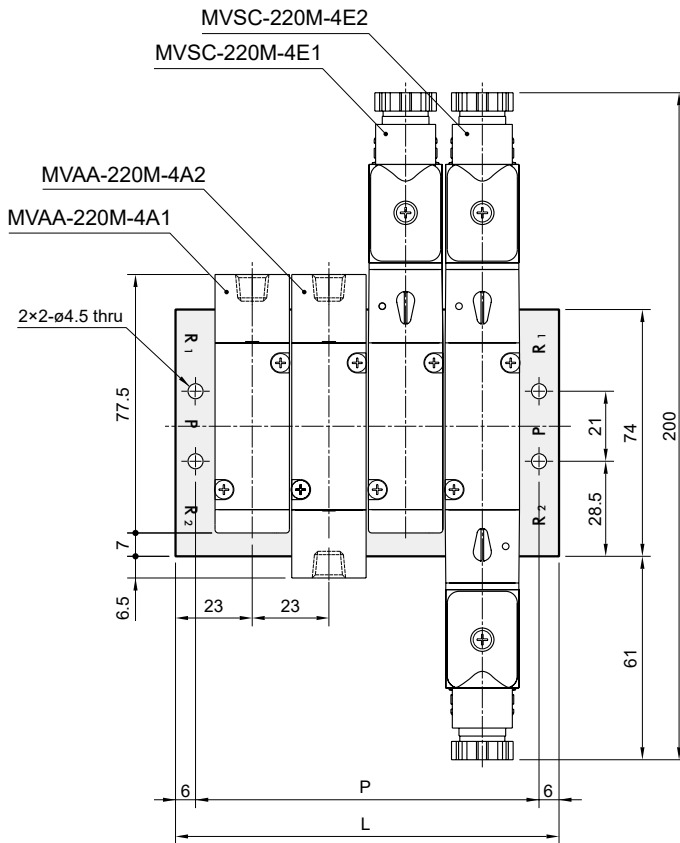
MVSC-220 Manifold

SOLENOID VALVE



MVSC-220M-5M*

5 port (for manifold type)



No. of stations (N)	P	L
1	34	46
2	57	69
3	80	92
4	103	115
5	126	138
6	149	161
7	172	184
8	195	207
9	218	230
10	241	253

P: (No. of stations-1)×23+34
L: (No. of stations-1)×23+46

Product feature

Electric Connection

DIN terminal

DIN terminal with LED indicator

Explosion protection (ATEX Zone 2, 22)

- **Contact spring**
Contact spring makes wiring quick and easy. Also, it prevents wire damage.
- **Terminal material**
Material of terminal housing is PA6 which has good chemical resistance and weather resistance.
- **Manual override**
Drop-shaped manual override is easy for testing with one push or spin.
- **No leakage**
All products go through leakage test according to JIS regulation.
- **DISK seal and U-packing (NBR)**
High wear resistance, wide working temperature - 30 ~ +100°C , excellent sealability.
- **Coil**
Low power consumption, DC24V power 2W
- **Plunger material**
Resulfurized stainless steel with 17% chromium and 1.5% silicon. Provide a very low coercive magnetic field and a very high permeability.

Insulation class	Coil	F class/ 155°C
	Copper wire	H class/ 180°C

Product specification

Effective orifice	18 mm ²
Max. operating pressure	0.8 MPa (8 kgf/cm ²)
Ambient temperature	-5 ~ +50°C (No freezing)
Lifetime	50 million cycles under normal service condition

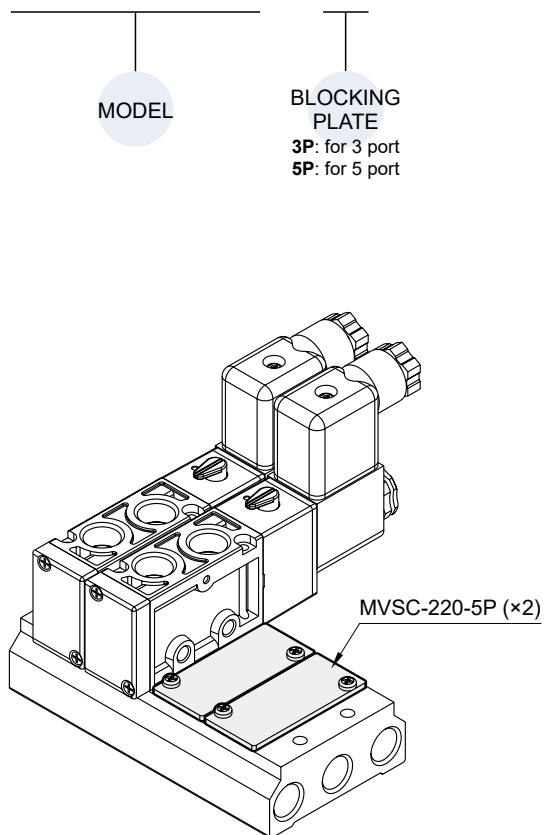
Model	Valve type							Body type		*A, B port size & effective oriufice mm ² (Cv factor)								Body width (mm)	Power consumption W (DC)	Working pressure range MPa (*)	Page
	3/2		5/2		5/3			Body ported type	Manifold type	M3	M5	1/8"	1/4"	3/8"	1/2"	3/4"	1"				
	Normally closed (NC)	Normally open (NO)	Single acting	Double acting	Closed center	Pressure center	Exhaust center														
MVSC-220	●	●	●		●	●	●	●	●			18 (1.00)	18 (1.00)					22	2	0.2~0.8	1-5
MVSC-260			●		●	●	●	●				18 (1.00)						26	2	0.2~0.8	1-10
MVSC-300	●	●	●		●	●	●	●						35 (1.94)				30	2	0.2~0.8	1-13
MVSC-460	●	●	●		●	●	●	●						50 (2.78)				30	2	0.2~0.8	1-17
MVSC1-150			●					●	●		3.8 (0.21)							15	0.95	0.15~0.8	1-22
MVSC1-180	●	●	●		●	●	●	●				12 (0.67)						18	0.95	0.15~0.8	1-24
MVSC1-220	●	●	●		●	●	●	●	●			18 (1.00)	18 (1.00)					22	0.95	0.2~0.8	1-28
MVSD2-180			●		●	●	●	●				12 (0.67)						18	0.95	0.15~0.8	1-33
MVSE-260			●		●	●	●	●				18 (1.00)						26	2	0.2~1.2	1-37
MVSE-300			●		●	●	●	●						35 (1.94)				30	2	0.2~1.2	1-40
MVSE-500			●		●	●	●	●						41 (2.28)				30	2	0.2~1.2	1-43
MVSE-510			●		●	●	●	●						65 (3.61)				68	10	0.2~0.7	1-45
MVSE-600			●		●	●	●	●							115 (6.39)	135 (7.5)		68	10	0.2~0.7	1-47
MVSE2-300	●	●	●		●	●	●	●				19.8 (1.1)						30	3	0.12~1	1-49
MVSG-180			●		●	●	●	●				10 (0.56)						18	1.6	0.15~0.7	1-52
MVSI-260			●		●	●	●		●			22 (1.22)						35	2	0.2~0.7	1-55
MVSI-450			●		●	●	●		●			27 (1.5)						45	2	0.2~0.7	1-57
MVSI-510			●		●	●	●		●					65 (3.61)				68	10	0.2~0.7	1-62
MVSN-220			●		●	●	●	●				18 (1.00)	18 (1.00)					22	2	0.2~0.7	1-64
MVSN-300			●		●	●	●	●				35 (1.94)						30	2	0.2~0.8	1-66
MVSN2-300			●		●	●	●	●				19.8 (1.1)						30	3	0.15~1	1-69
MVSP-156			●		●	●	●	●	●			11 (0.61)						15	0.95	0.15~0.7	1-71
MVSP-188			●		●	●	●	●	●			15 (0.83)						18	0.95	0.15~0.7	1-76
MVSY-100			●		●	●	●	●	●		4.5 (0.25)							10	0.55	0.2~0.8	1-80
MVSY-156			●		●	●	●	●	●			11 (0.61)						15	0.55	0.15~0.7	1-84
MVSY-188			●		●	●	●	●	●			15 (0.83)						18	0.55	0.15~0.7	1-90
MVSV-220	●	●						●				6.2 (0.34)						22	7→3	-1.01~0.7	1-95
MVDA-80	●								●		0.612 (0.034)							8	0.5	0~0.8	1-97
MVDA-120	●							●			2.184 (0.121)							12	0.8	0~0.8	1-99
MVDC-220	●							●				0.8 (0.044)						22	2	0~0.7	1-101
MVDC-300	●							●				4.4 (0.244)	4.6 (0.25)					29.6	7→3	-1.01~1	1-103
MVDY-100	●								●		0.28 (0.016)							10	0.55	0~0.9	1-105

● 2/2, 3/2 way N.C.

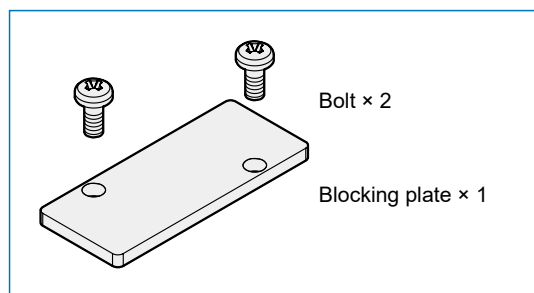
* The data is based on 5/2.

Order example

MVSC – 220 – 5P



Blocking plate parts



Blocking plate table

Applicable model	Symbol for order	
	3P: for 3 port	5P: for 5 port
MVSC-220	MVSC-220-3P	MVSC-220-5P
MVSC-260	–	MVSC-260-5P
MVSC-300	MVSC-300-3P	MVSC-300-5P
MVSC-460	MVSC-460-3P	MVSC-460-5P
MVSC1-150	–	MVSC1-150-5P
MVSC1-180	MVSC1-180-3P	MVSC1-180-5P
MVSC1-220	MVSC-220-3P (*1)	MVSC-220-5P (*1)
MVSD2-180	–	MVSD1-180-5P (*4)
MVSE-260	–	MVSC-260-5P (*1)
MVSE-300	–	MVSE-300-5P
MVSE-500	–	MVSC-460-5P (*1)
MVSG-180	–	MVSG-180-5P
MVSP-156	–	MVSY-156-5P (*2)
MVSP-188	–	MVSY-188-5P (*2)
MVSY-100	–	MVSY-100-5P
MVSY-156	–	MVSY-156-5P
MVSY-188	–	MVSY-188-5P
MVDY-100	MVDY-100-3P	–
MVB-100	–	MVSY-100-5P (*2)
MVB1-100	–	MVSY-100-5P (*2)
MVB-156	–	MVSY-156-5P (*2)
MVB-220	MVSC-220-3P (*1)	MVSC-200-5P (*1)
MVE-100	–	MVSY-100-5P (*2)
MVE-156	–	MVSY-156-5P (*2)
MVE2-100	–	MVSY-100-5P (*1)
MVE2-156	–	MVSY-156-5P (*2)
MVE2-188	–	MVSY-188-5P (*2)
MVE2-220	–	MVSC-220-5P (*1)
MVJA-156	–	MVJA-156-P
Pilot valve	3P: for 3 port	5P: for 5 port
MVAA-150	–	MVSC1-150-5P (*3)
MVAA-180	MVSC1-180-3P (*3)	MVSC1-180-5P (*3)
MVAA-220	MVSC-220-3P (*1)	MVSC-220-5P (*1)
MVAA-260	–	MVSC-260-5P (*1)
MVAA-300	MVSC-300-3P (*1)	MVSC-300-5P (*1)
MVAA-460	MVSC-460-3P (*1)	MVSC-460-5P (*1)

*1. Use the same blocking plate with **MVSC**.

*2. Use the same blocking plate with **MVSY**.

*3. Use the same blocking plate with **MVSC1**.

*4. Use the same blocking plate with **MVSD1**.

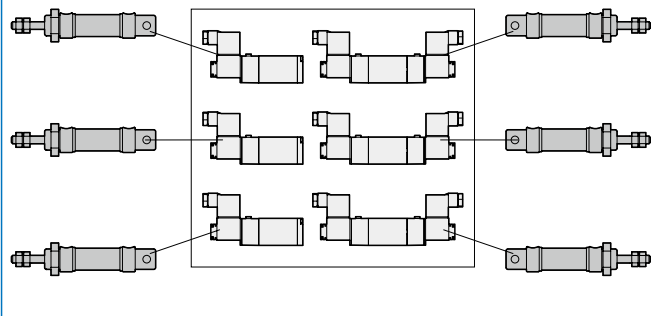
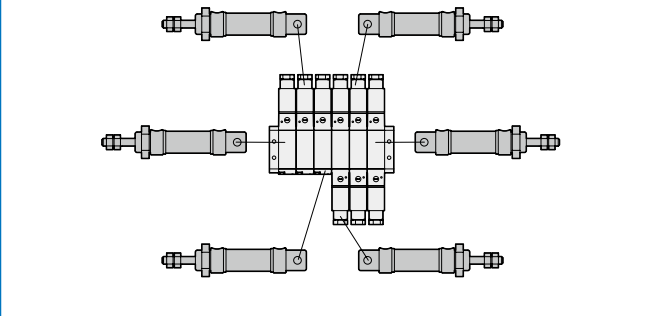
Pressure conversion chart

Pa	kPa	MPa	bar	mbar	kgf/cm ²	cmH ₂ O	mmH ₂ O	mmHg	p.s.i.
1	0.001	0.000001	0.00001	0.01	0.0000102	0.0102	0.10197	0.0075	0.000145
1000	1	0.001	0.01	10	0.0102	10.2	101.97	7.5	0.145
1000000	1000	1	10	10000	10.2	10200	101970	7500	145
100000	100	0.1	1	1000	1.02	1020	10200	750.06	14.5
100	0.1	0.0001	0.001	1	0.00102	1.02	10.2	0.75	0.0145
98066.5	98.07	0.09807	0.98	980.67	1	1000	10000	735.56	14.22
98.0665	0.9807	0.0009807	0.00098	0.98	0.001	1	10	0.74	0.01422
9.80665	0.09807	0.00009807	0.00009807	0.09807	0.0001	0.1	1	0.07356	0.00142
133.32	0.13332	0.00013332	0.00133	1.33	0.00136	1.36	13.6	1	0.01934
6895	6.895	0.006895	0.06895	68.95	0.07031	70.31	703.07	51.71	1

Flow rate conversion chart

m ³ /s	l/s	cm ³ /s	m ³ /h	m ³ /min	l/h	l/min	ft ³ /min (scfm)	gallon min UK	gallon min USA
1	1000	1000000	3600000	60	3600000	60000	2120	13200	15850
0.001	1	1000	3.6	0.06	3600	60	2.12	13.2	15.85
0.000001	0.001	1	0.0036	0.00006	3.6	0.06	0.0212	0.0132	0.01585
0.00028	0.28	280	1	0.1667	1000	16.67	0.59	3.67	4.4
0.01667	16.67	16670	60	1	60000	1000	35.31	219.97	264.17
0.00000028	0.00028	0.28	0.001	0.00001667	1	0.01667	0.00059	0.00367	0.0044
0.00001667	0.01667	16.67	0.06	0.001	60	1	0.03531	0.21997	0.264
0.00047	0.47	470	1.699	0.02832	1699	28.32	1	6.23	7.48
0.00007579	0.07577	75.77	0.273	0.00455	273	4.55	0.16	1	1.2
0.00006309	0.06309	63.09	0.227	0.00379	227	3.79	0.13	0.83	1

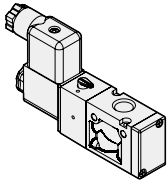
Intergrated connection system offers improvements on facilities

Facilities with traditional connection system	Facilities applied with intergrated connection system
<ul style="list-style-type: none"> • Longer distance from the controlling valve to the operating unit. • Slower response time. • More air consumption. • Complicated connection arrangements. • Mass electric wiring and connections to controlling valves task. • Higher cost to run the facilities. • Higher pressure drop. 	<ul style="list-style-type: none"> • Shorter distance from the controlling valve to the operating unit. • Quicker response time. • Less air consumption. • Simple connection arrangements. • Moderate electric wiring connections task. • Lower cost to run the facilities. • Lower pressure drop.
	

SOLENOID VALVE

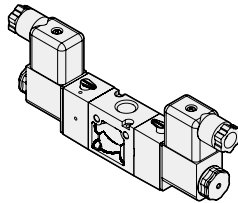
3E1

3 way / Single solenoid



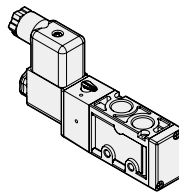
3E2

3 way / Double solenoid



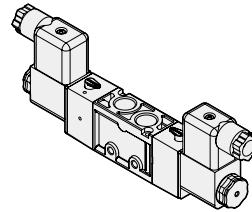
4E1

4 way / Single solenoid



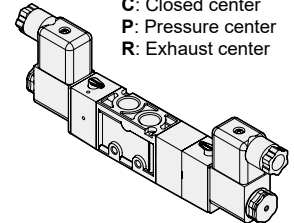
4E2

4 way / Double solenoid



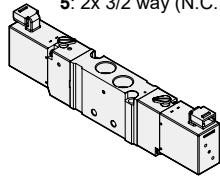
4E2C.P.R

4 way / Double solenoid
C: Closed center
P: Pressure center
R: Exhaust center

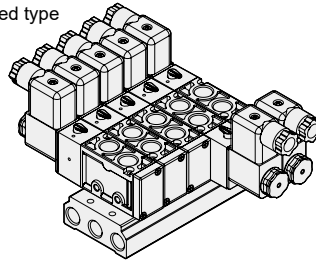


4E23.4.5

4 way / Double solenoid
3: 2x 3/2 way (N.C. / N.C.)
4: 2x 3/2 way (N.O. / N.O.)
5: 2x 3/2 way (N.C. / N.O.)

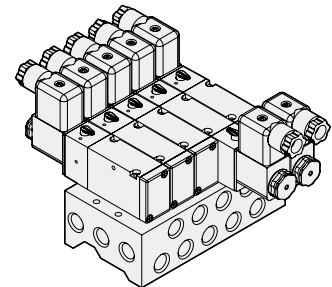


Body ported type

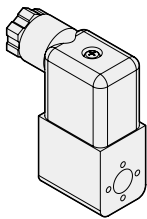


M

Manifold type

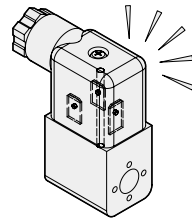


DIN connector



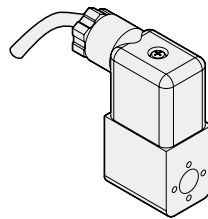
L LED indicator

KL Power saving LED indicator



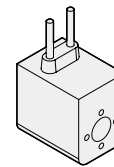
E

Explosion protection



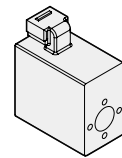
W

Lead wire



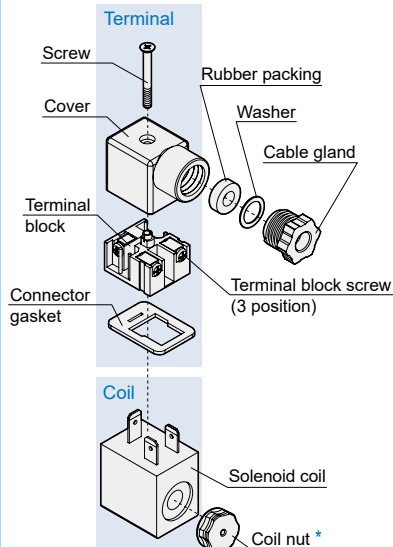
H

Horizontal connector
With LED indicator



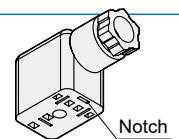
DIN connector

Recommended tightening torque
Screw: 0.5 Nm
Screw of terminal block: 0.5 Nm
Cable gland: 1.65 ~ 2.5 Nm



Wiring steps

1. Loosen the screw and remove the terminal from the coil.
2. Insert a flathead screwdriver into the notch below the terminal block and gently pry it to separate from the cover.
3. Loosen the terminal block screw, insert the wire, then tighten the screw to secure the wire.
4. After wiring is completed, press the cover back onto the terminal block.
5. Reinstall the terminal onto the solenoid coil and tighten the screw.



Procedure for changing wire outlet direction

Separate the terminal block from the cover. The cover can be rotated 180° for installation to adjust the wire outlet direction. (If the device is equipped with an indicator light, take care to avoid damage)

* Coil nut tightening torque

Model	Spec.	Max. tightening torque (Nm)	Cable diameter (mm)	Model	Spec.	Max. tightening torque (Nm)	Cable diameter (mm)
MVSC-220	M8	0.5	ø5~ø7	MVSE-600	G1/4	0.6	ø5~ø7
MVSC-260	M8	0.5		MVSI-260	M8	0.5	
MVSC-300	M8	0.5		MVSI-450	M8	0.5	
MVSC-460	M8	0.5		MVSI-510	G1/4	0.6	
MVSD2-180	M7	0.5	ø4~ø6	MVSN-220	M8	0.5	
MVSE-260	M8	0.5	ø5~ø7	MVSN(2)-300	M8	0.5	
MVSE(2)-300	M8	0.5		MVSV-220	M8	0.5	
MVSE-500	M8	0.5		MVDC-220	M8	0.5	
MVSE-510	G1/4	0.6		MVDC-300	M8	0.5	

Technical data



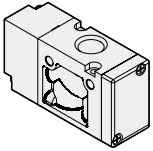
PILOT / MECHANICAL VALVE

mindman

PILOT VALVE

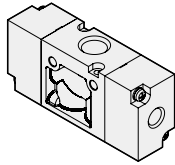
3A1

3/2 Single pilot



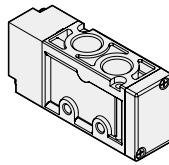
3A2

3/2 Double pilot



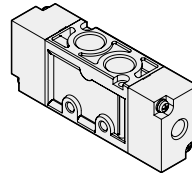
4A1

5/2 Single pilot



4A2

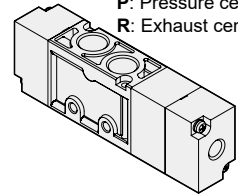
5/2 Double pilot



4A2(C.P.R)

5/3 Double pilot

C: Closed center
P: Pressure center
R: Exhaust center



MECHANICAL VALVE

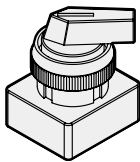
EB

Latching palm button



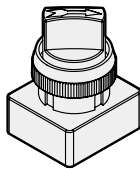
LB

Extended twist button



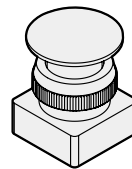
TB

Twist button



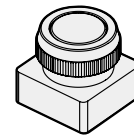
PB

Mushroom palm button



PP

Push button



R1

Roller lever

