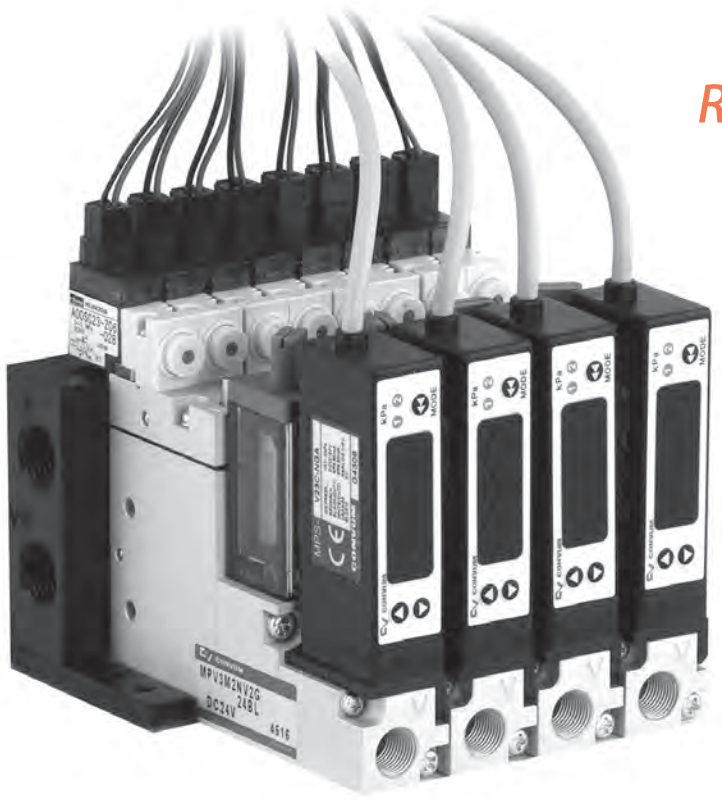
MPV3 Series

Vacuum Switching Valve Unit



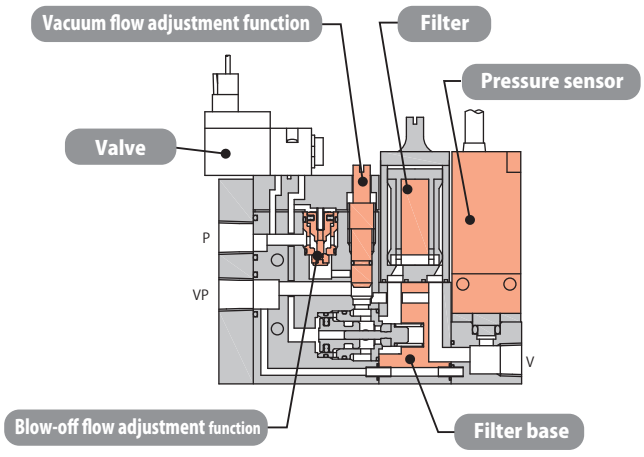
RoHS

High flexibility and easy handling.

Vacuum path controlled by internal valves switching with positive pressure

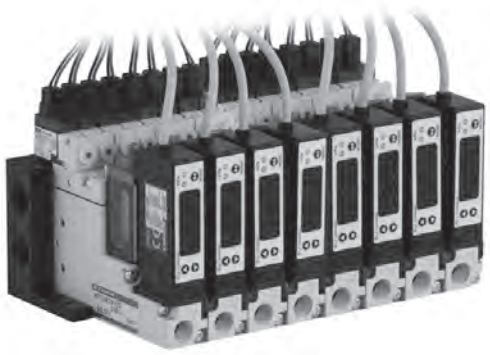
All in One Unit

Sensor, filter, vacuum flow adjustment function
Blow-off flow adjustment function



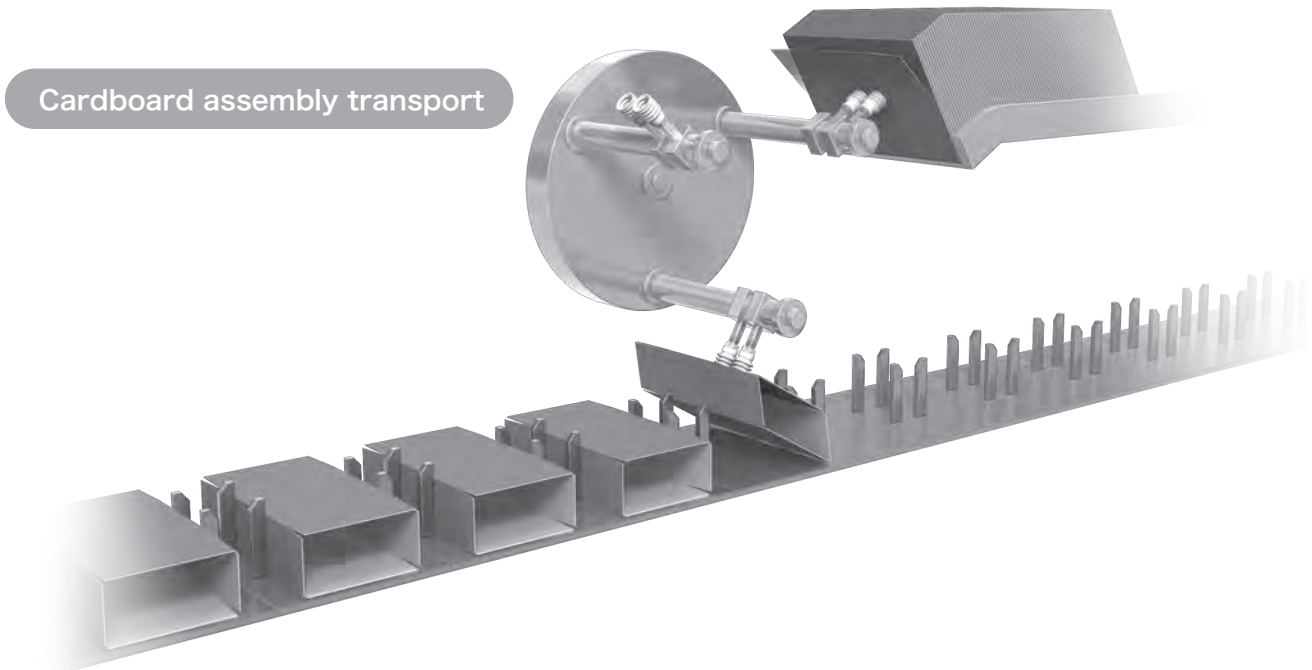
Can be mounted on manifold, up to 8 units

- Optimal for integrated management of vacuum source
- Differ specifications MPV3 can be putted together according to various purposes




Fit the automobile windshield·rear glass


Cardboard assembly robot


Cardboard assembly transport

MPV3 Vacuum Switching Valve Unit

How to Order

In case of manifold

MPV3	M	2	N	AB	24	B	L	3	1	2	L
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪

① Body Type

S	Single unit

M	Manifold unit

② Vaccum port

2	Rc1/8

③ Vacuum Flow Adjustment

N	Adjustable type

④ Pressure Sensor

Symbol	Sensor type	Pressure range [kPa]	Display	Switch output	Analog output	Input specifications
AB	MVS-030AB	-101～0	LED	NPN 1output	N/A	N/A
VG	MPS-V23G	-101～0	Digital	NPN 2 outputs	DC1～5V	N/A
RG	MPS-R23G	-101～500	Digital	NPN 2 outputs	DC1～5V	N/A
201	MVS-201 Note1	-101～500	Digital	NPN 1output	DC1～5V	Sink
Z	Without					

Note1)Energy-saving pressure sensor (solenoid valve control function mode).
※ Please consult with us for PNP output type.

⑤ Valve Voltage(V)

Symbol	Voltage
12	DC12 ★
24	DC24
100	AC100
200	AC200 Note1 ★

Note1) AC200V is AC100V connected with a converter.

⑥ Valve Function

A	Normally opened
B	Normally closed

⑦ Valve connection

L	Lead wire with connector

⑧ Manifold base

Symbol	No. of stations
1	1station ★
2	2 stations
3	3 stations
4	4 stations

Symbol	No. of stations
5	5 stations
6	6 stations ★
7	7 stations ★
8	8 stations ★

★are made to order

⑨ No. of Block Plates

Symbol	No. of block plates
0	N/A
1	1 piece
2	2 pieces
3	3 pieces

Symbol	No. of block plates
4	4 pieces
5	5 pieces ★
6	6 pieces ★
7	7 pieces ★

★are made to order

⑩ No. of Unit

Symbol	No. of unit
1	1unit ★
2	2 units
3	3 units
4	4 units

Symbol	No. of unit
5	5 units
6	6 units ★
7	7 units ★
8	8 units ★

⑪ Position of Unit

Nil	Figure of ⑧ and ⑩ are same
R	Placed to the right
L	Placed to the left

※Please turn the vacuum port towards your side, the unit you faced cloud be either left or right upon chosen.

Recommend! These model number below satisfy general needs and functions with product advantages. ※Please feel free to contact us.

Product code	Model number	Specifications	
		Pressure sensor	Vacuum Generation Valve Type
501800007	MPV3S2NZ24BL	N/A	Normally closed
501800004	MPV3S2NAB24BL	Electronic pressure sensor	Normally closed
501800262	MPV3S2NRG24BL	Digital	Normally closed

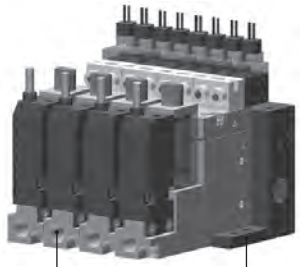
Imagine of manifold selection

Figure of⑧=figure of⑨+figure of⑩

MPV3M##24BL404

Manifold base：4stations,MPV3 4units

⑩MPV3 4units



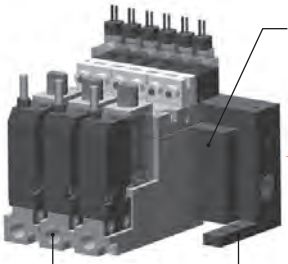
Vacuum port

⑧Manifold base (for 4 stations)

MPV3M##24BL413L

Manifold base：4stations, MPV3 3units

⑩MPV3 3units



⑨Block Plate

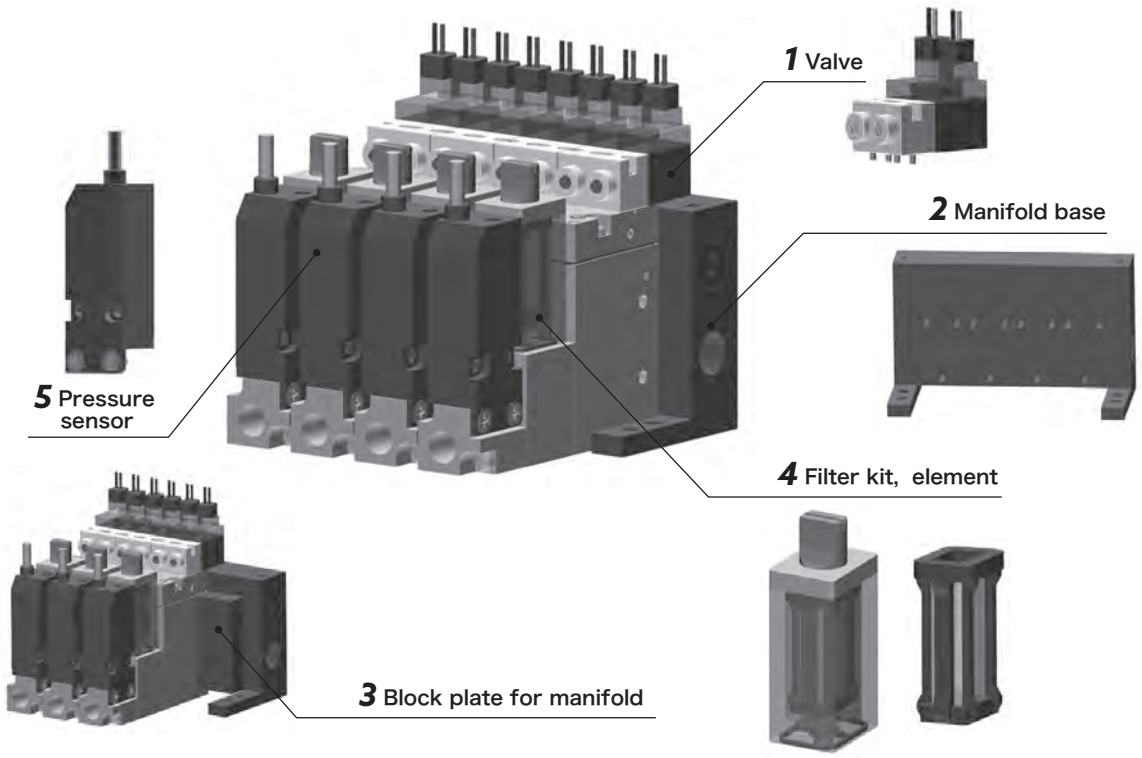
This kind of selection is also available for future system expansion.

Vacuum port

⑧Manifold base (for 4 stations)

Turn the vacuum port towards your side, placed the unit to the left (L type for⑪)

Maintenance Parts



1 Valve ※Gasket and mounting screws are included

MC2 — 24 B 5 — V
① ② ③ ④

① Valve Voltage(V)

Symbol	Voltage
12	DC12 ★
24	DC24
100	AC100
200	AC200[Note 1] ★

★are made to order

③ Lead Wire Length (mm)

5	500
15	1500

④ valve Position

V	for vacuum
D	for blow-off

※AC200V is AC100V connected with a converter.

② Valve Function

A	Normally opened
B	Normally closed

3 Block plate for manifold ※mounting screws are included

MPV3 — MM

※For preventing air leak when reduce the body number of the manifold.

5 Pressure sensor

Model number	Specifications
MVS-030AB-MPV3	Electronic, LED display
MPS-V23C-NGA-MPV3	Digital display
MPS-R23C-NGA-MPV3	
MVS-201-MPV3-A	Energy-saving, digital display

2 Manifold base ※Plug and mounting screws are included

MPV3 — M 1

Manifold base

Symbol	No. of stations	Symbol	No. of stations
1	1 station ★	5	5 stations
2	2 stations	6	6 stations ★
3	3 stations	7	7 stations ★
4	4 stations	8	8 stations ★

★are made to order

4 Filter

MC2 — E

F	Filter kit (with element)
E	Only element


MC2 - F


MC2 - E

6 Connector cable for MVS-201 sensor and valve

MC2 — C201
(Normally opened, normally closed)

Vacuum Switching Valve Specifications

Description \ Model number	Unit	MPV3	
		Vacuum valve	Blow-off valve
Fluid		Air(vacuum)	Non-lubricated compressed air
Ambient temperature	℃	0~50 (No Freezing)	
Operating pressure range (VP, DP)		-90~0kPa	0.3~0.5MPa
Valve function		Normally closed(B)・normally opened(A)	
Filter element filtration	μm	37	
Filter filtration area	mm^2	484	
Vacuum Switching Valve structures		Pilot poppet valve	
Effective area	mm^2	5.1	2.6
Control flow	L/min(ANR)	About 50(at -80kPa)	About 60(at 0.5MkPa)

※Supply more than compressed air 0.3MPa is necessary to operate.

Valve Specifications

Description \ Model number		Unit	AC100, AC200	DC12, DC24
Valve structures			3 port, direct operated poppet valve	
Allowable voltage fluctuation		%	±10	
Power consumption		W	-	0.6
Apparent power		VA	1.2/2.4	-
Thermal class			Class E	
Insulation type			Class B	
Manual override operation			Driver operating locking manual override	
Display/surge killer			LED/diode	
Lead wire			Lead wire with connector(500mm)	
Weight (with lead wire)	500mm	g	18	
	1500mm		31	

Weight (g)

Specifications			Weight
Single Unit	Valve function	Sensor	
Single Unit	Normally opened	N/A	245
		With MVS-030AB	258
		With MPS-V/R23	276
		With MVS-201	271
	Normally closed	N/A	242
		With MVS-030AB	255
		With MPS-V/R23	273
		With MVS-201	268
Single unit for manifold	Normally opened	N/A	216
		With MVS-030AB	229
		With MPS-V/R23	247
		With MVS-201	242
	Normally closed	N/A	213
		With MVS-030AB	226
		With MPS-V/R23	244
		With MVS-201	239

・Manifold Base

No. of station	1 station	2 stations	3 stations	4 stations	5 stations	6 stations	7 stations	8 stations
Weight	109	155	201	247	293	339	385	431

Calculation of weight for the manifold type

Single unit for manifold weight×No. of stations+manifold base

Example 1) 5 stations manifold normally closed valve and V23 sensor

244 × 5 + 293= 1,513g

Example 2) 4 stations manifold with normally closed valve,without sensor

216 × 4 + 247= 1,111g

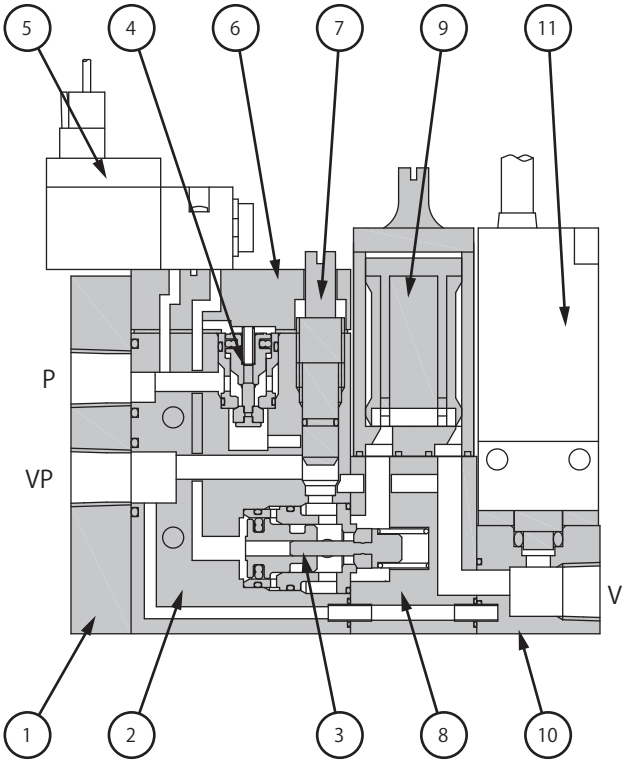
Pressure Sensor Specifications

Description\Model number		Unit	MPS-V23C-NGA-MPV3	MPS-R23C-NGA-MPV3	MVS-201-MPV3-A/W	MVS-030AB-MPV3
Fluid			Air (vacuum), Non-corrosive gas, Non-flammable gas			
Diaphragm			Silicon diaphragm			
Rated pressure range		kPa	-101～0	-101～500	-101～500	-101～0
Setting pressure range		kPa	-101.3～10	-101～500	-101～500	-101.2～-2.7
Withstand pressure		MPa	0.3	0.8	0.8	0.5
Ambient temperature range		℃	0～50 (No freezing)			
Ambient humidity range		%RH	35～85 (No condensation)			
Power supply voltage		V	DC12～24±10%, ripple(Vp-p)10% or less		DC24±10%, ripple (Vp-p)5% or less Note1	DC12～24±10%, ripple(Vp-p)10% or less
Current consumption		mA	55 or less		45 (not include the driven current for valve)	20
Switch output	Type		NPN open collector 2 outputs		NPN open collector 1 output	
	Maximum load current	mA	80		125	80
Analog output			DC1～5V(±0.1) linearity 0.5% F.S. output impedance1kΩ		-	-
Digital input(suction/ blow off command)		V	-		Non-contact 1 input (more than 1msec)	-
Repeatability		%	±0.2F.S 1digit or less		±0.3F.S 1digit or less	±0.3F.S
Temperature characteristic		%	Less than ±2F.S. (At standard temperature 25℃, range 0～50℃)			
Response time		ms	2.5 or less			2 or less
Hysteresis			Variable			
Display	Digital		3 1/2digital, 7-segment, red color LED		3digital, 7-segment, red color LED	
	Operation		OUT1:green color LED(ON lighting), OUT2:red color LED(ON lighting)		Output ON/OFF: red color LED Vacuum generation valve ON/OFF: green color LED	Red color LED (ON lighting)
Protection	Reversecurrent protection		With			
	Overvoltage protection		With			
	Output short circuit protection		With			
	IP class		IP40			
Vibration resistance			10～55Hz, total amplitude 1.5mm, 50m/s^2 2 hours each direction of XYZ		10～150Hz, total amplitude 1.5mm, 50m/s^2 2 hours each direction of XYZ	
Shock resistance		m/s^2	980, 3 times each direction of XYZ		100, 3 times each direction of XYZ	980, 3 times each direction of XYZ
Electrical connection			Grommet		M8 connector	Grommet
Cable			ϕ4 0.15mm^2 5 lead wires 2m		ϕ4 0.3mm^2 4 lead wires 2m	ϕ4 3 lead wiresX0.15mm 2m

Note 1) It must be consistent with the solenoid valve drive voltage.
Note 2) Suction/Blow-off command of MVS-201 sensor is normally opened. To set up to normally closed, please refer the manual No.6 to change logic from Lo to Hi.

MPV3 Vacuum Switching Valve Unit

Construction

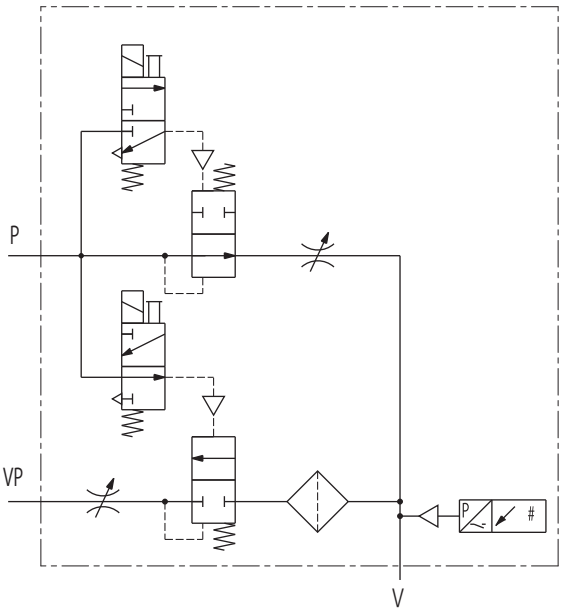


Component Parts

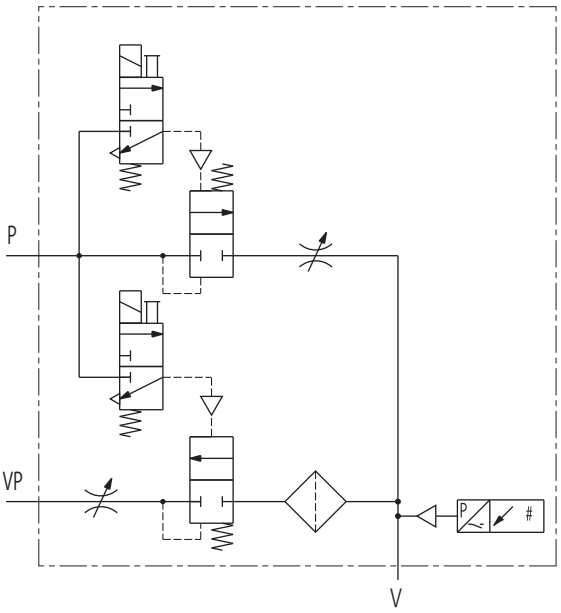
No.	Parts name	Material
1	Supply base	Aluminum
2	Body	Aluminum
3	Poppet valve for vacuum	Aluminum,NBR,SUS
4	Poppet valve for blow-off	Aluminum,NBR,SUS
5	Pilot poppet valve	-
6	Up plate	Aluminum
7	Vacuum flow control needle	Aluminum
8	Filter base	Aluminum
9	Filter Ass'y	-
10	Sensor base	Aluminum
11	Pressure sensor	-

Symbol

MPV3 normally opened (A) with sensor



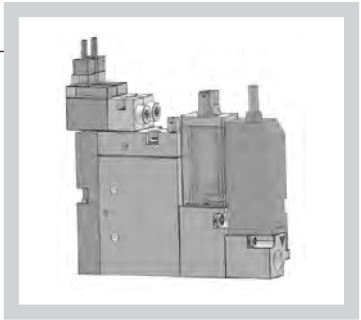
MPV3 normally closed(B) with sensor

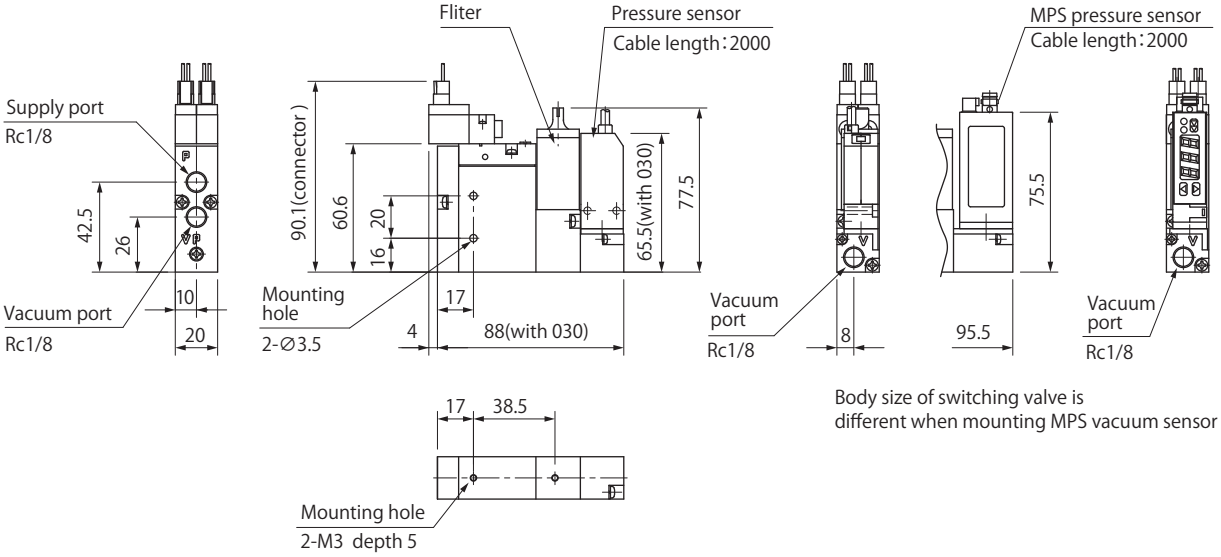


Dimensions

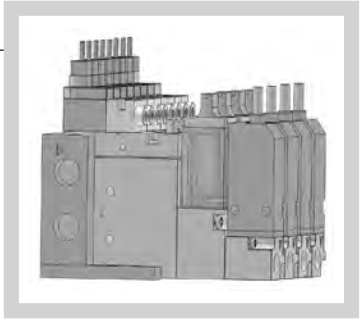
(mm)

Single Unit





Manifold Unit



n (No. of units)	1	2	3	4
A	41	61.5	82	102.5
B	31	51.5	72	92.5

n (No. of units)	5	6	7	8
A	123	143.5	164	184.5
B	113	133.5	154	174.5