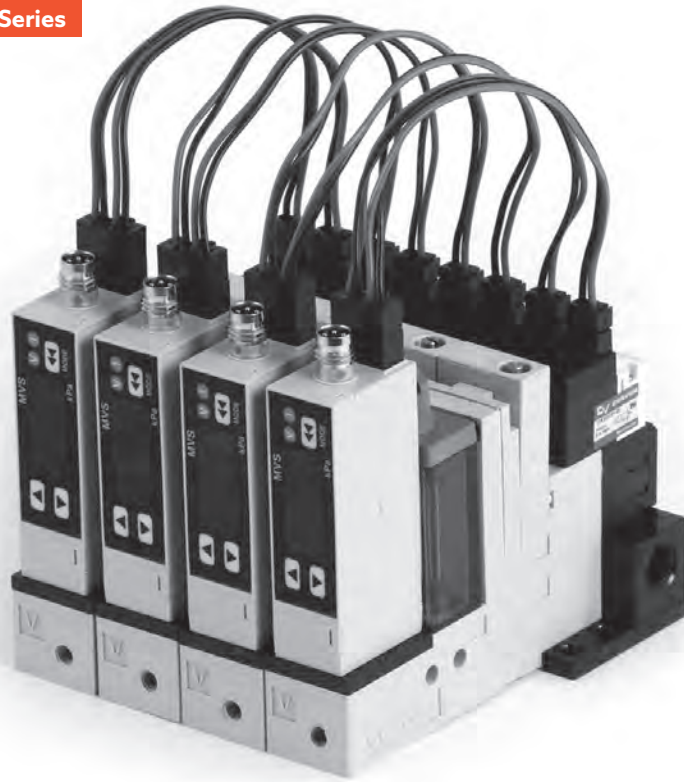
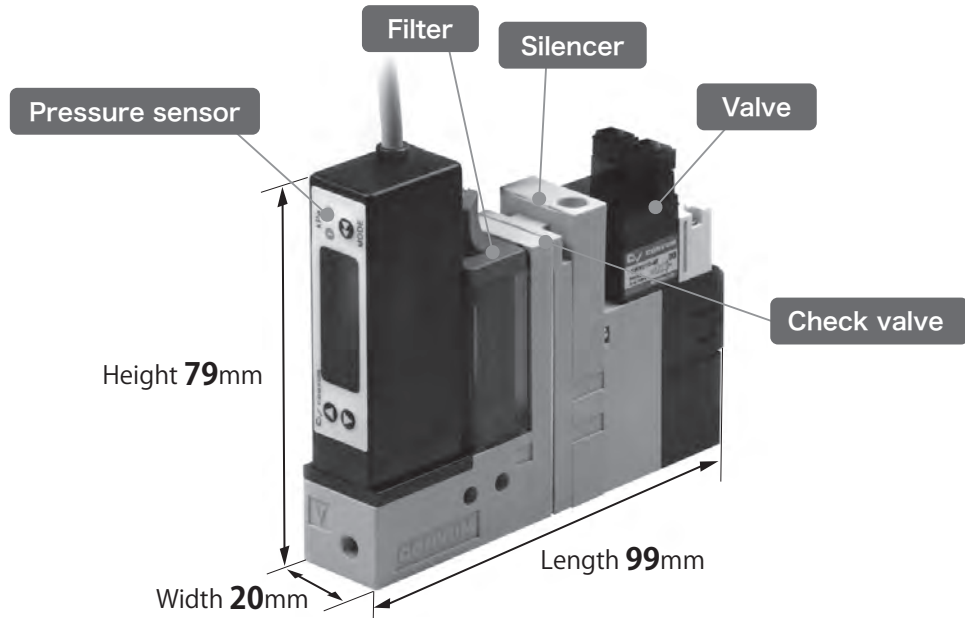


# MC22 Series

## 20mm Width CONVUM



### All-in-One Unit



※ MPS-V23 sensor/ check valve mounted

### Flexible combinations are selectable

○ Can select with sensor, digital display, filter or not.

CONVUM 20mm Width CONVUM

01 CONVUM

SC1

SC2

SC3

MC22

MC72

CCV

MCV

CV

CVA2

EC1

MCA

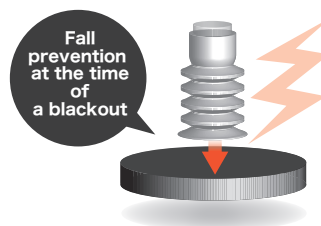
HDV

HFV

CVZ

## Holding workpiece at an emergency stop

- By mounting self-holding valve, it is possible to keep vacuum. It prevents the workpiece from falling.



## Air consumption will be reduced

- When using the energy-saving sensor (with solenoid valve control function)

**98%** of air consumption **reduced!**

※According to our measurement condition

Detail of the sensor → P.573

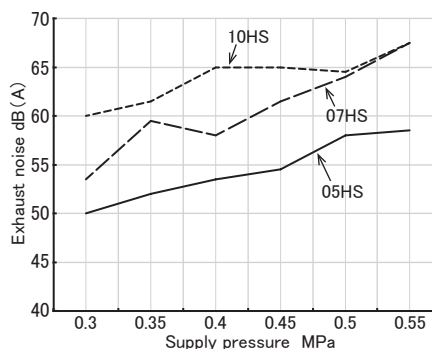
Energy-saving function: Before	Energy-saving function: After
Air consumption of MC22S10HS 48L/min	
Vacuum generation from 0 kPa to -87kPa	
Vacuum ejector staying ON during work pieces adsorption.	Upon reaching -87kPa, the check valve keeps vacuum pressure retained and ejector will be turned off.
Vacuum generation time: 5 sec/1 tact	Vacuum generation time: 0.1 sec/1 tact (Setting vacuum pressure arrival time)
Air consumption in 1 tact time 4L/min $48L \times (5/60\text{sec}) = 4L/\text{min}$	Air consumption in 1 tact time 0.08L/min $48L \times (0.1/60\text{sec}) = 0.08L/\text{min}$
Air consumption 98% reduced: from 4L/min to 0.08L/min	

[Condition] CONVUM:MC22S10HS type Supply pressure:0.5MPa  
Air consumption:48L/min Tube:φ4×2.5 length 800mm

## Low noise

- 58dB(A)** with the special structure of silencer

※ With nozzle type 05HS, according to our measurement condition



## Can be mounted on manifold, up to 8 units

- Manifold make it possible to supply air intensively
- Differ specifications MC22 can be putted together according to various purposes



# MC22 20mm Width CONVUM



## How to Order

MC22 **M** **05** **H** **S** **ABS** **LC** **4** **B** **L** **R** **3** **1** **2** **L**

In case of manifold

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭

### ① Body Type

<b>S</b> Single unit	<b>M</b> Manifold unit
	

### ② Nozzle Type

Symbol	Nozzle size [mm]
<b>05</b>	0.5
<b>07</b>	0.7
<b>10</b>	1.0

### ③ Maximum Vacuum Pressure [kPa]

Symbol	Type	Vacuum pressure
<b>H</b>	High vacuum type	-87
<b>L</b>	High flow type	-53

### ⑤ Pressure Sensor

Symbol	Sensor type	Pressure range [kPa]	Display	Switch output	Analog output	Input specifications
<b>ABS</b>	MVS-030AB	-101~0	LED	NPN 1output	N/A	N/A
<b>VG</b>	MPS-V23	-101~0	Digital	NPN 2 outputs	DC1~5V	N/A
<b>21</b>	MVS-201 <sup>Note1,2</sup>	-101~500	Digital	NPN 1 output	N/A	Sink
<b>Z</b>	Without sensor					

### ⑥ Check Valve

Symbol	Check valve
<b>L</b>	N/A
<b>LC</b>	With

### ⑩ Port Size

<b>R</b>	Rc1/8
<b>N</b>	NPT1/8★
<b>G</b>	G1/8★

### ⑪ Manifold Base

Symbol	No. of stations	Symbol	No. of stations
<b>1</b>	1 station ★	<b>5</b>	5 stations
<b>2</b>	2 stations	<b>6</b>	6 stations ★
<b>3</b>	3 stations	<b>7</b>	7 stations ★
<b>4</b>	4 stations	<b>8</b>	8 stations ★

### ⑫ No. of Block Plates

Symbol	No. of block plates	Symbol	No. of block plates
<b>0</b>	N/A	<b>4</b>	4 pieces
<b>1</b>	1 piece	<b>5</b>	5 pieces ★
<b>2</b>	2 pieces	<b>6</b>	6 pieces ★
<b>3</b>	3 pieces	<b>7</b>	7 pieces ★

★are made to order



**Recommend!**

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

Product code	Model number	Specifications			
		Nozzle size (mm)	Pressure sensor	Check valve	Vacuum generation valve type
202800047	MC22S07HSZL4BLR	0.7	N/A	N/A	Normally closed
202800355	MC22S07HSABSLC4BLR	0.7	Electronic pressure sensor	With	Normally closed
202800209	MC22S07HSVGLC4BLR	0.7	Digital	With	Normally closed
202800004	MC22S07HS21LC4BLR	0.7	Digital, energy-saving	With	Normally closed
202800032	MC22S10HSZL4BLR	1.0	N/A	N/A	Normally closed
202800261	MC22S10HSABSLC4BLR	1.0	Electronic pressure sensor	With	Normally closed
202800029	MC22S10HSVGLC4BLR	1.0	Digital	With	Normally closed
202800006	MC22S10HS21LC4BLR	1.0	Digital, energy-saving	With	Normally closed

④ Rated Pressure [MPa]

S	0.5
R	0.35

※ ②③④ Applicable Models

②	③	④	
		S	R
05	H	○	○
	L	○	×
07	H	○	○
	L	○	×
10	H	○	○
	L	×	×

※ Specifications by Nozzle

Nozzle type	Rated pressure [MPa]	Maximum vacuum pressure [kPa]	Suction flow [L/min(ANR)]	Air consumption [L/min(ANR)]
05HS	0.5	-87	6	10
05LS		-53	11	
05HR	0.35	-87	4	22.5
07HS	0.5		11	
07LS	0.35	-53	21	48
07HR		0.5	9	
10HS	0.5	-87	20	48
10HR	0.35		15	

⑦ Valve Voltage

Symbol	Voltage
4	DC24V

⑧ Vacuum Generation Valve Type

A	Normally opened
B	Normally closed
W	Self-holding <sup>Note1</sup>

Note1) The energy-saving function for the sensor doesn't work if the self-holding valve is selected.

⑨ Valve Connection

L	Lead wire with connector
---	--------------------------

⑬ No. of CONVUM

Symbol	No. of CONVUM	Symbol	No. of CONVUM
1	1 unit ★	5	5 units
2	2 units	6	6 units ★
3	3 units	7	7 units ★
4	4 units	8	8 units ★

⑭ Position of CONVUM

Blank	Figure of ⑪ and ⑬ are same
R	Placed to the right
L	Placed to the left

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

Imagine of manifold selection

Number of ⑪ = number of ⑫ + number of ⑬

MC22M##4BLR505

Manifold base: 5 stations, CONVUM: 5 units

⑬ CONVUM 5 units



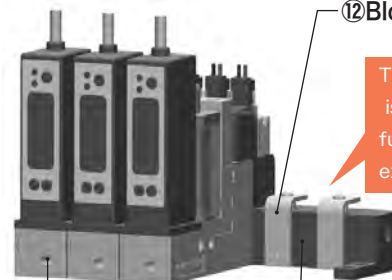
Vacuum port

⑪ Manifold base (for 5 stations)

MC22M##4BLR523L

Manifold base: 5 stations, CONVUM: 3 units, block plate: 2 pieces

⑬ CONVUM 3 units



Vacuum port

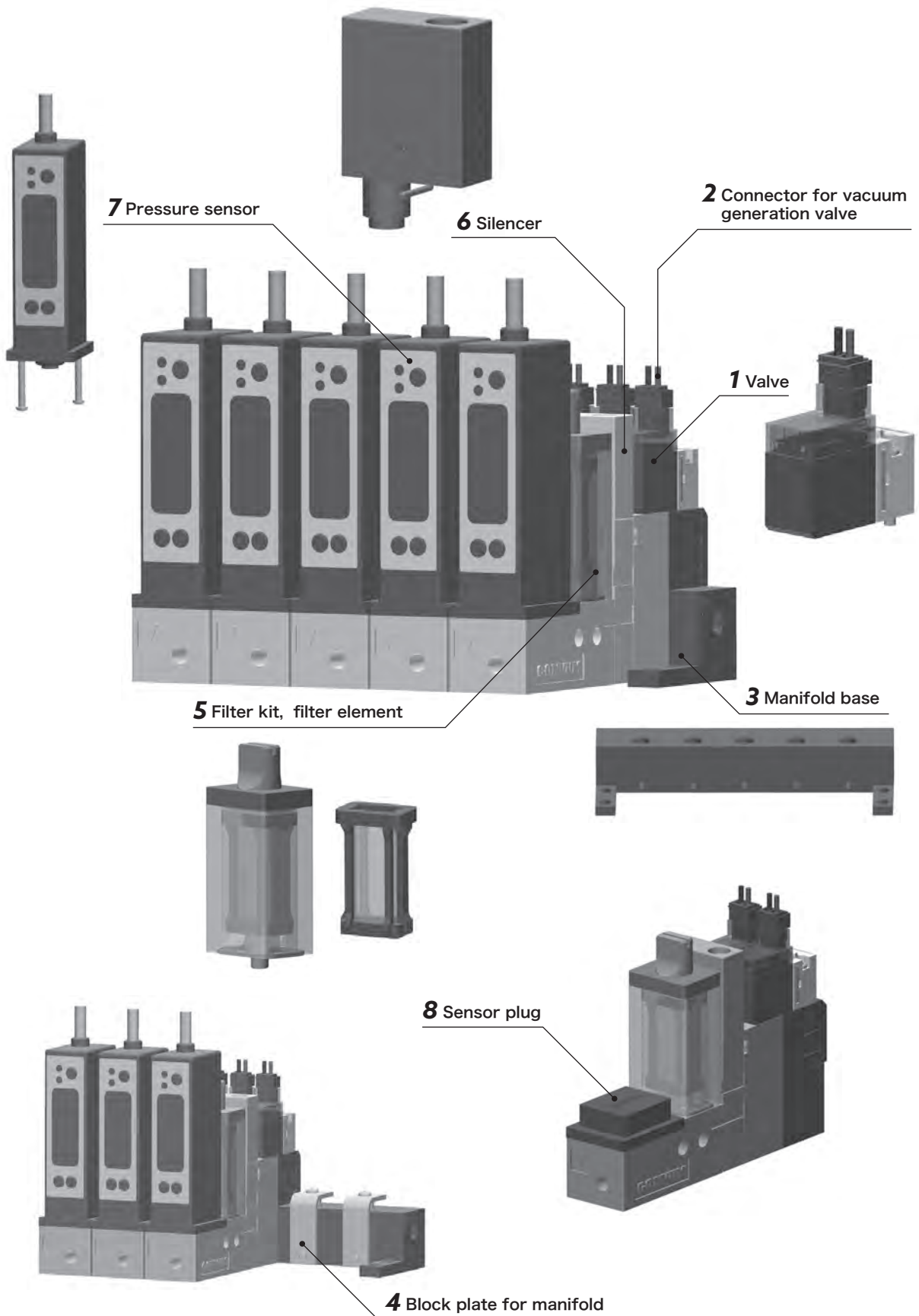
⑪ Manifold base (for 5 stations)

⑫ Block plate (2 pieces)

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

Turn the vacuum port towards your side, placed the CONVUM to the left(L type for ⑭)




### Maintenance Parts



### 01 CONVUM


- SC1
- SC2
- SC3
- MC22**
- MC72
- CCV
- MCV
- CV
- CVA2
- EC1
- MCA
- HDV
- HFV
- CVZ

**1 Valve**

<p><b>CKV010-4E</b> Common for vacuum generation and blow-off ※ Lead wire length 300mm ※ Gasket and mounting screw are included</p>	
<p><b>LV290-4E</b> Self-holding type ※ Lead wire length 300mm ※ Gasket and mounting screw are included</p>	
<p><b>UV280-4E</b> For vacuum generation of normally opened ※ Lead wire length 300mm ※ Gasket and mounting screw are included</p>	

**2 Connector for Vacuum Generation Valve**  
※With lead wire

CA **2** - V4 - **6**



Applicable valve

<b>2</b>	CKV010-4E, UV280-4E
<b>3</b>	LV290-4E

Lead wire length (mm)

<b>Blank</b>	300
<b>6</b>	600
<b>10</b>	1000
<b>20</b>	2000 <sup>Note1</sup>
<b>30</b>	3000 <sup>Note2</sup>

Note1, 2) CKV010-4E, UV280-4E only.

**3 Manifold Base**

MC2 - M **1** **R**

No. of stations

<b>1</b>	1 station	<b>5</b>	5 stations
<b>2</b>	2 stations	<b>6</b>	6 stations
<b>3</b>	3 stations	<b>7</b>	7 stations
<b>4</b>	4 stations	<b>8</b>	8 stations

Air supply port

<b>R</b>	Rc1/8
<b>N</b>	1/8-27NPT
<b>G</b>	G1/8

**4 Block Plate for Manifold**  
※Mounting screws are included


MC2 - MM

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


**5 Filter kit, Filter Element**

MC2 - **F**

Symbol	Specifications
<b>F</b>	Filter kit (with element and gasket)
<b>E</b>	Only element




MC2 - F



MC2 - E

**6 Silencer** ※Mounting bracket is included

MC2 - S



**7 Pressure Sensor**  
※O-ring and mounting screw are included

Model number	Specifications
MVS-030AB-MC22	Electronic, LED display
MPS-V23C-NGA-MC22	Digital display
MVS-201-MC22-A	Energy-saving, digital display (normally opened)
MVS-201-MC22-B	Energy-saving, digital display (normally closed)
MVS-201-MC22-W	Wire-saving, digital display (self-holding)

**8 Sensor Plug**

MC2 - Z

※For preventing the air leak when the sensor is removed from the body.

**9 Connector Cable for MVS-201 Sensor and Valve**

MC22 - C201 - **W**

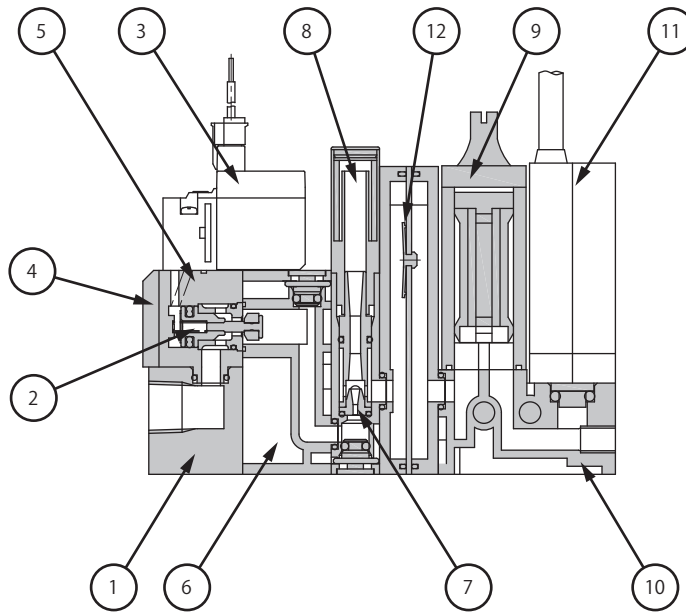
<b>Blank</b>	Normally opened, normally closed
<b>W</b>	Self-holding

**10 Mounting Bracket for Single Unit**  
※Mounting screws are included

MC2 - B



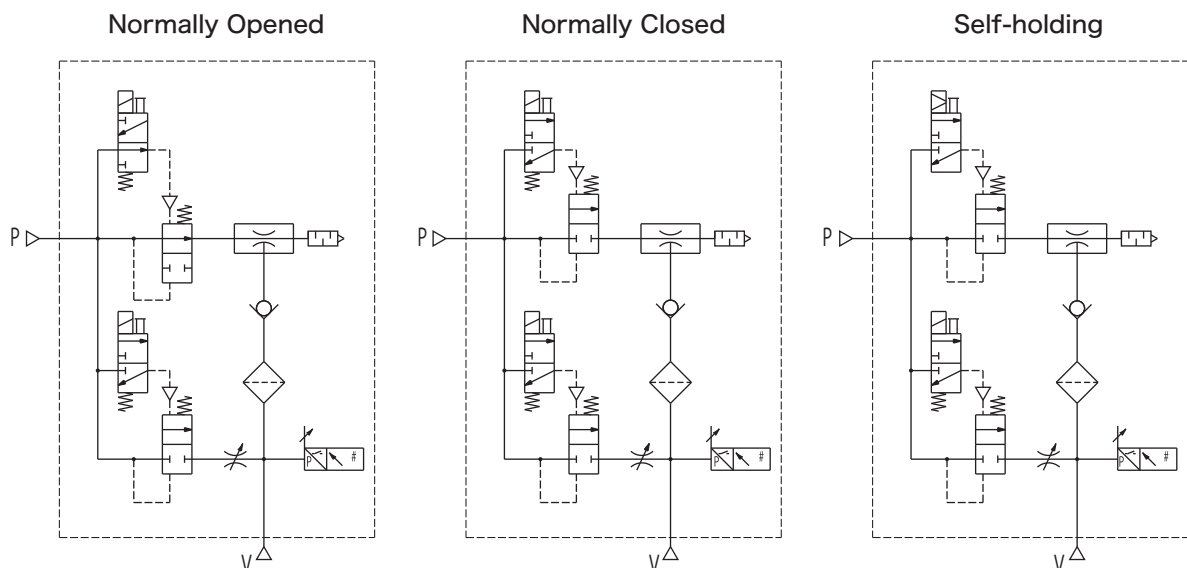
## Construction



### Component Parts

No.	Parts name	Material
1	Air supply base	Aluminum
2	Poppet valve	Aluminum, SUS, FKM, NBR
3	Pilot valve	-
4	Cover	Aluminum
5	Valve block	PA, NBR
6	Spacer block	PA, NBR
7	Nozzle kit	Aluminum, NBR
8	Silencer	SUS, PA, PVF
9	Filter Ass'y	-
10	Vacuum port base	PA, Aluminum, NBR
11	Pressure sensor	-
12	Check valve	PA, Aluminum, NBR

## Symbol



## CONVUM Specifications

Description \ Model number	Unit	MC22 □ 05			MC22 □ 07			MC22 □ 10	
		HS	LS	HR	HS	LS	HR	HS	HR
Nozzle size	mm	0.5			0.7			1.0	
Fluid		Non-lubricated compressed air							
Ambient temperature	°C	0~50 (No Freezing)							
Operating pressure range	MPa	0.2~0.5							
Vacuum generation valve type		Normally opened (A)/normally closed (B)/self-holding (W)							
Filter element filtration	μm	37							
Filter filtration area	mm <sup>2</sup>	484							
Rated pressure	MPa	0.5	0.35	0.5	0.35	0.5	0.35	0.5	0.35
Maximum vacuum pressure	kPa	-87	-53	-87	-53	-87	-53	-87	-53
Suction flow	L/min(ANR)	6	11	4	11	21	9	20	15
Blow-off flow	L/min(ANR)	50							
Air consumption	L/min(ANR)	10			22.5			48	

## Valve Specifications

Description \ Model number	Unit	CKV010-4E	LV290-4E	UV280-4E
Valve structures		3 port, direct operated poppet valve		
Rated voltage	V	DC24		
Allowable voltage fluctuation	%	±10		
Power consumption (current value)	Vacuum generation	W(mA)	1 (42)	1.3(54)
	Vacuum suspension			1.5(63)
Minimum energization time	ms	-	30	-
Insulation type		Class B		
Manual override operation		Non-lock	N/A	Non-lock
Display/surge killer		LED/diode		
Lead wire		Lead wire with connector(300mm)		
Weight (with lead wire)	g	15.3	19.5	14.1

## Pressure Sensor Specifications

Description \ Model number	Unit	MVS-030AB-MC22	MPS-V23C-NGA-MC22	MVS-201-MC22-A/B/W
Fluid		Air (vacuum), non-corrosive gas, non-flammable gas		
Diaphragm		Silicon diaphragm		
Rated pressure range	kPa	-101~0	-101~0	-101~500
Setting pressure range	kPa	-101.2~-2.7	-101.3~10	-101~500
Withstand pressure	MPa	0.5	0.3	0.8
Ambient temperature range	°C	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	DC12~24±10%, ripple(Vp-p)10% or less	DC24±10%, ripple(Vp-p) 5% or less <sup>Note1</sup>
Current consumption	mA	20	55 or less	45(not include the driven current for valve)
Switch output	Type	NPN open collector 1 output	NPN open collector 2 outputs	NPN open collector 1 output
	Maximum load current	80	80	125
Analog output		-	DC1~5V(±0.1) linearity 0.5% F.S. output impedance1kΩ	-
Digital input (suction/blow off command)		-	-	Non-contact 1 input (more than 1msec)
Repeatability	%	±3F.S.	±0.2F.S. 1digit or less	±0.3F.S. 1digit or less
Temperature characteristic	%	Less than ±2F.S. (At standard temperature 25°C, range 0~50°C)		
Response time	ms	2 or less	2.5 or less	
Hysteresis		0.1~0.5kPa	Variable	
Display	Digital	-	3 1/2 digital, 7-segment, red color LED	3-digital, 7-segment, red color LED
	Operation	Red color LED (ON lighting)	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
Protection	Reverse-current protection	With		
	Overvoltage protection	With		
	Output short circuit protection	With		
	IP class	IP40		
Vibration resistance		10~150Hz, total amplitude 1.5mm, 50m/s <sup>2</sup> 2 hours each direction of XYZ	10~55Hz, total amplitude 1.5mm, 50m/s <sup>2</sup> 2 hours each direction of XYZ	10~150Hz, total amplitude 1.5mm, 50m/s <sup>2</sup> 2 hours each direction of XYZ
Shock resistance	m/s <sup>2</sup>	980, 3 times each direction of XYZ		100, 3 times each direction of XYZ
Electrical connection		Grommet		
Cable		φ4 3 lead wires X 0.15mm <sup>2</sup> 2m	φ4 0.15mm <sup>2</sup> 5 lead wires 2m	φ4 0.3mm <sup>2</sup> 4 lead wires 2m

Note 1) It must be consistent with the solenoid valve drive voltage.

## Weight (g)

Specifications				
Single unit	Vacuum generation valve type	Sensor	Check valve	
			With	Without
Single	Normally opened/ Normally closed	N/A	96	80
		With MVS-AB	110	94
		With MPS-V23	119	103
	Self-holding	With MVS-201	119	103
		N/A	99	83
		With MVS-AB	113	97
Single for manifold	Normally opened/ Normally closed	With MPS-V23	122	106
		With MVS-201	122	106
		N/A	81	65
	Self-holding	With MVS-AB	94	78
		With MPS-V23	103	87
		With MVS-201	103	87
Self-holding	N/A	84	68	
	With MVS-AB	97	81	
	With MPS-V23	106	90	
Self-holding	With MVS-201	106	90	

## •Manifold Base

No. of station	1	2	3	4	5	6	7	8
Weight	26	43	60	78	95	112	129	147

## Calculation of Weight for Manifold Type

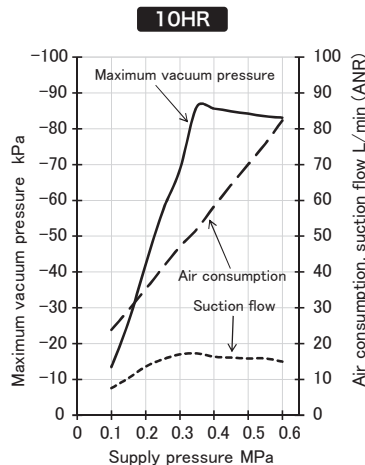
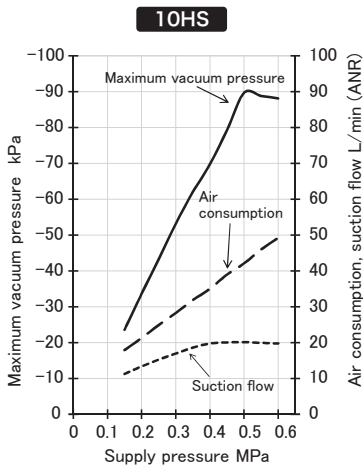
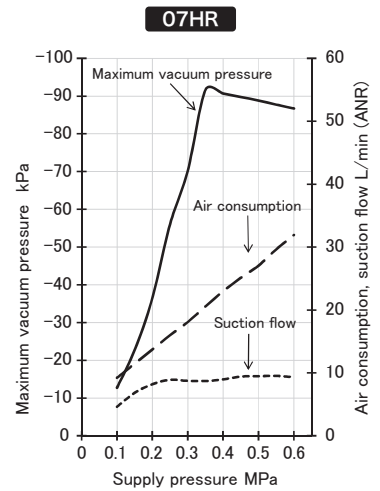
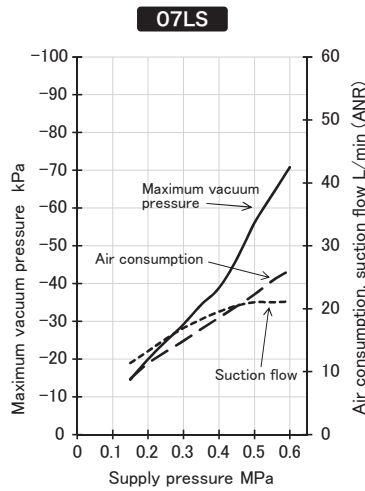
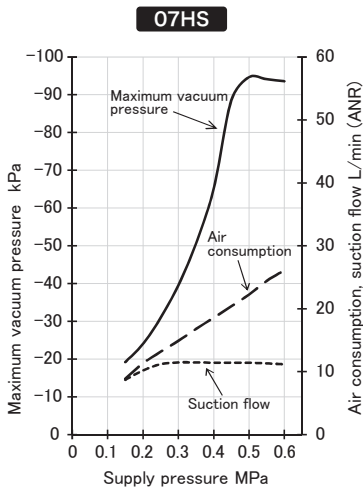
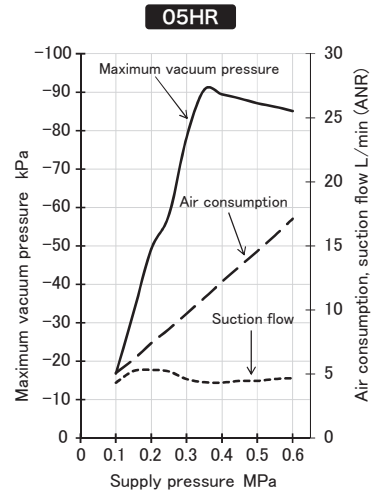
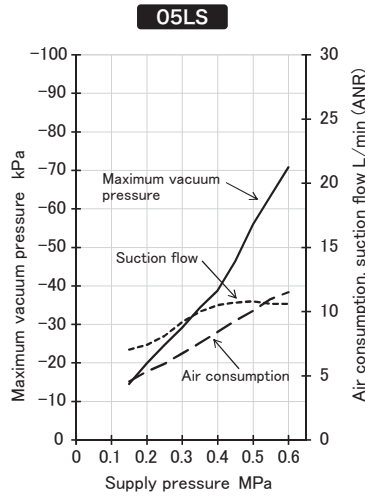
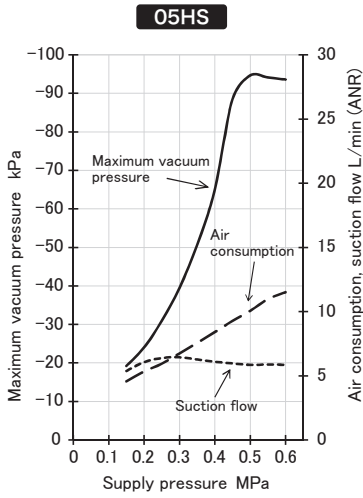
Single unit for manifold weight×No. of stations+manifold base

Example 1) 5 stations manifold with self-holding valve, MPS-23 sensor and check valve  
 $106 \times 5 + 95 = 625\text{g}$

Example 2) 4 stations manifold with normally closed valve, without sensor and check valve  
 $65 \times 4 + 78 = 338\text{g}$

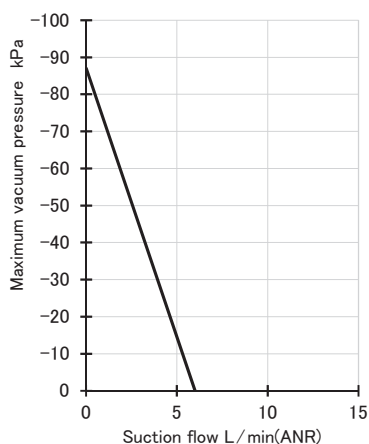


## Performance Charts

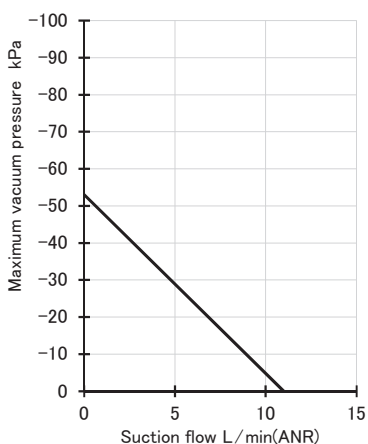


### Suction Flow / Vacuum Pressure Characteristics

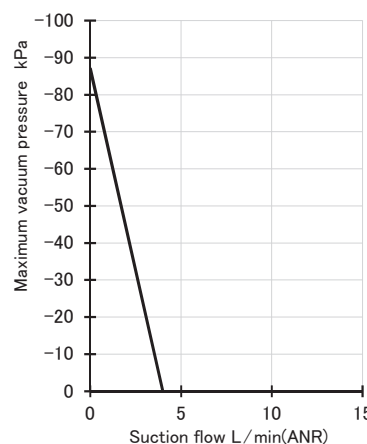
**05HS**



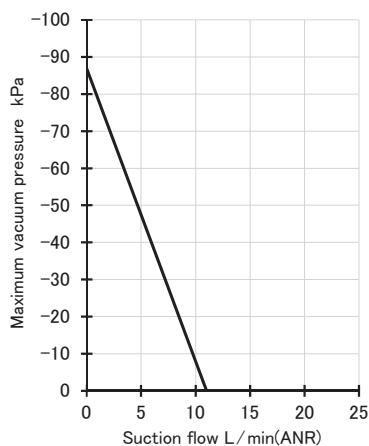
**05LS**



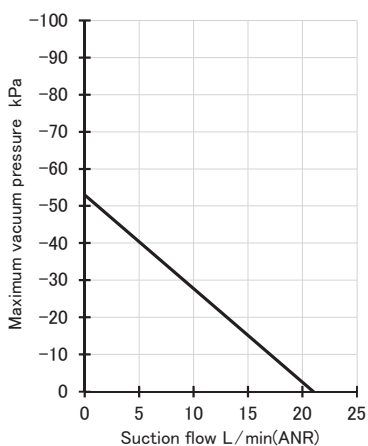
**05HR**



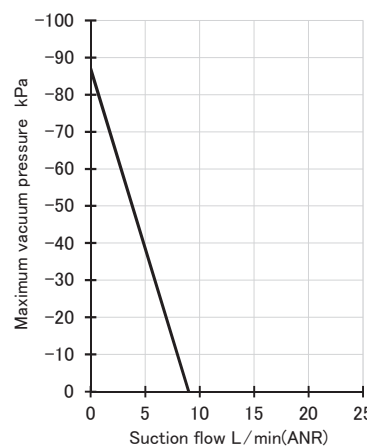
**07HS**



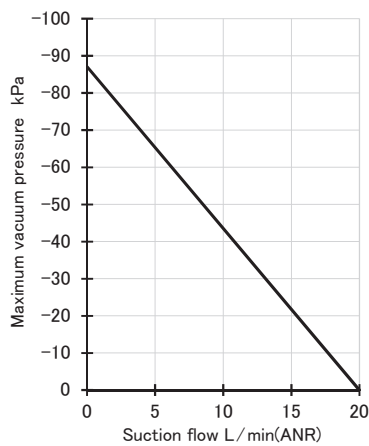
**07LS**



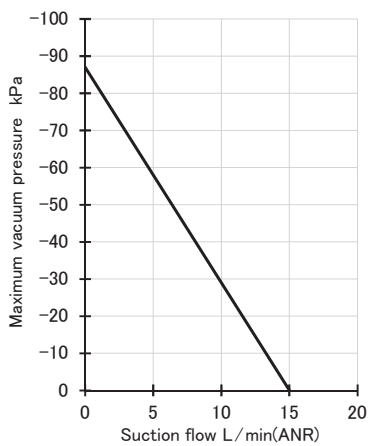
**07HR**



**10HS**



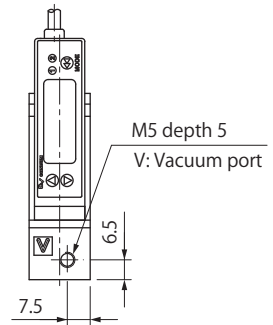
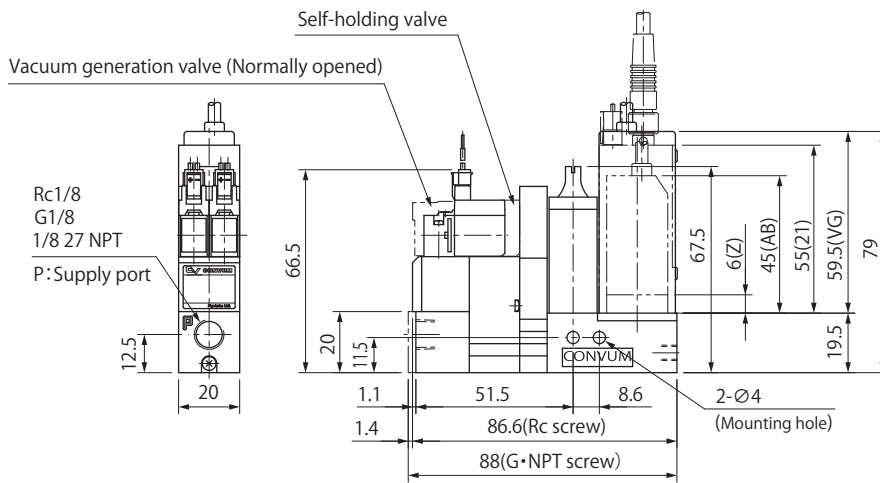
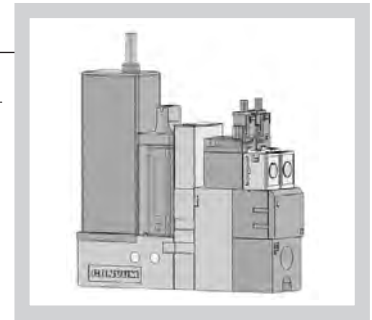
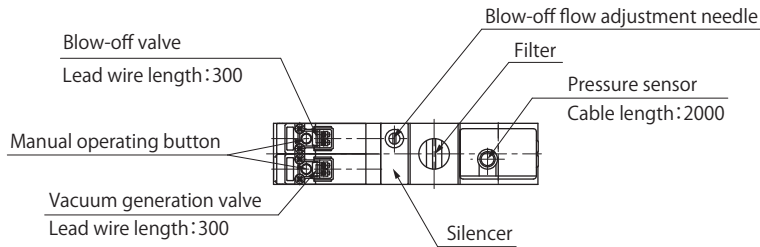
**10HR**



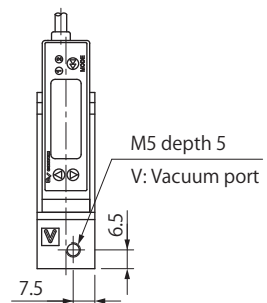
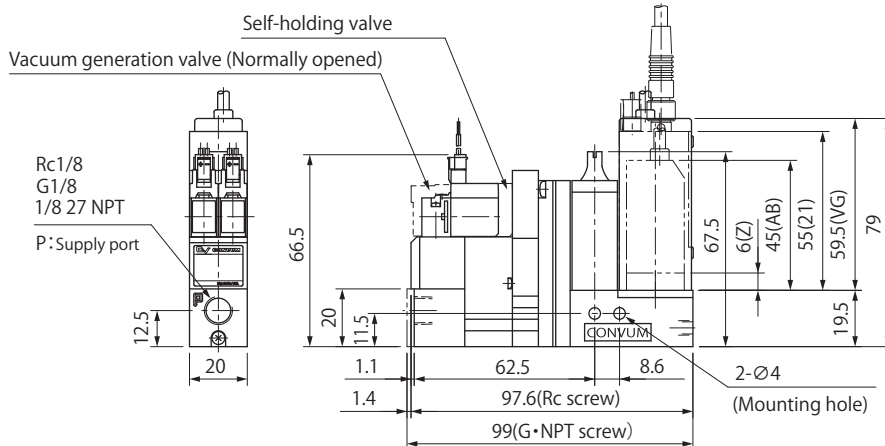
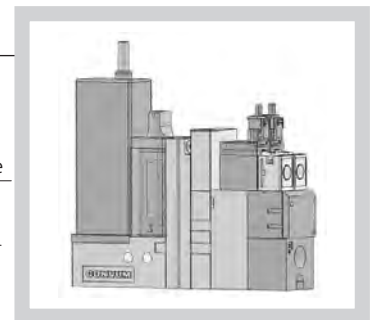
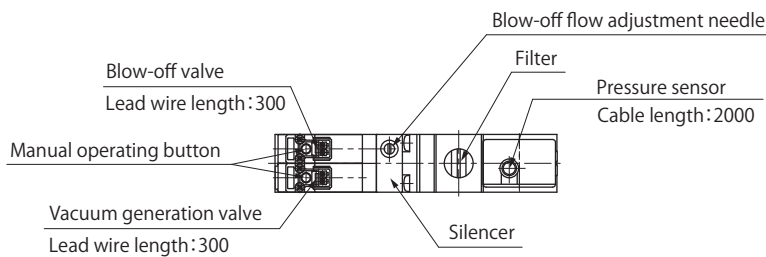
## Dimensions

(mm)

### Single Unit (without check valve)

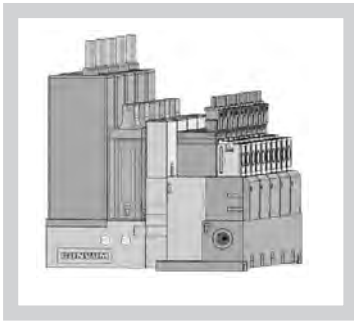


### Single Unit (with check valve)



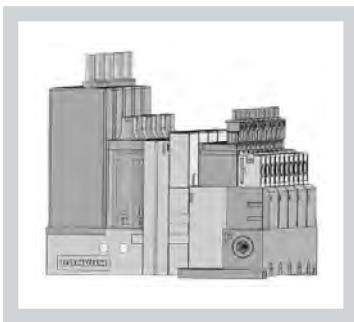
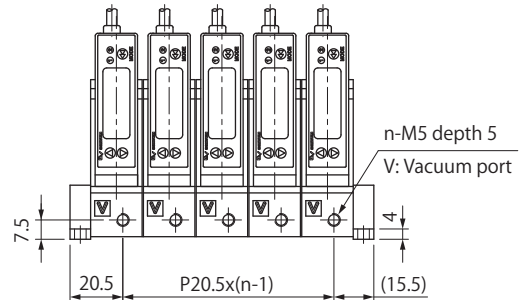
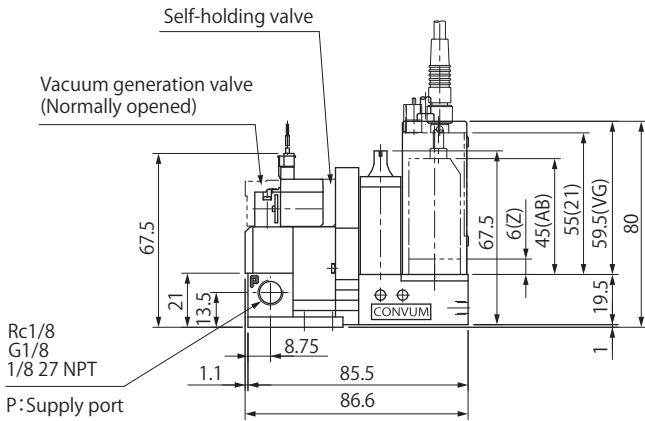
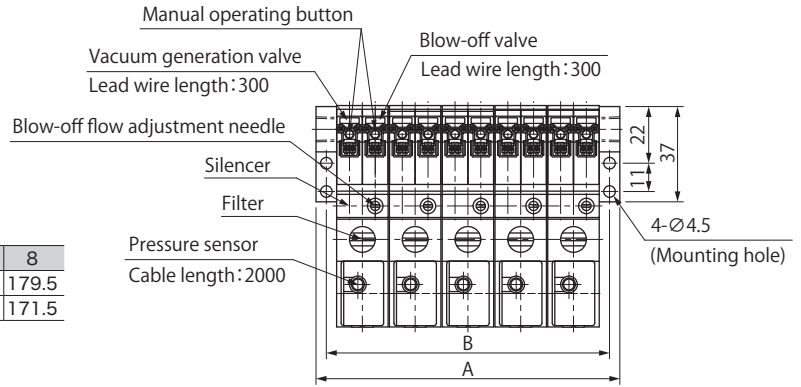
Dimensions

(mm)



Manifold Unit  
(without check valve)

n (No. of units)	1	2	3	4	5	6	7	8
A	36	56.5	77	97.5	118	138.5	159	179.5
B	28	48.5	69	89.5	110	130.5	151	171.5



Manifold Unit  
(with check valve)

n (No. of units)	1	2	3	4	5	6	7	8
A	36	56.5	77	97.5	118	138.5	159	179.5
B	28	48.5	69	89.5	110	130.5	151	171.5

