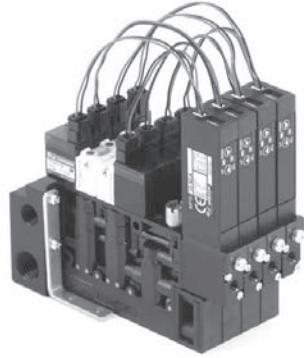


Compact energy-savings ejector SC1 CONVUM



Applications

- Suction and handling of electronic components
- Handler, mounting machine (high speed handling)
- Suction of small workpieces
- Suitable for clean room

● Energy-saving

Air consumptions: 50% reduced (compared to MC52)

*in the case of X/B nozzle

● Space-saving

10mm width body

● Very low supply pressure:

0.18MPa, achievement: ~83kPa

● Filter mounted

Prevent from dust getting into the parts

● Sensor mounted

Confirm the suction and control the solenoid valve

● Self-holding solenoid valve choice available

Keep vacuum while power failure

● Concentrated exhaust choice available

Use in the clean room

CONVUM

How to order

SC1 ① S ② X ③ V9 ④ C ⑤ S ⑥ S ⑦ 3 ⑧ 1 ⑨ 2 ⑩ L

① Body type

S	Single unit
M	Manifold unit

② Nozzle type

B	0.18MPa
X	0.5MPa
5S	
7S	
1S	
5R	0.35MPa
7R	
1R	

③ Pressure sensor

	Sensor type	Pressure	Display	Switch output	Analog output	Input specification
V8	MPS-V8	Vacuum	Without	Without	DC1 ~ 5V	Without
V9	MPS-9	Vacuum	Digital	PNP1 point	DC1 ~ 5V	Without
V9P	MPS-9	Vacuum	Digital	PNP1 point	DC1 ~ 5V	Without
10	MPS-10	Compound	Digital	PNP1 point	DC1 ~ 5V	Sink
10P	MPS-10	Compound	Digital	PNP1 point	DC1 ~ 5V	Sink
10PS	MPS-10	Compound	Digital	PNP1 point	DC1 ~ 5V	Source
ZZ	-	-	-	-	-	-

④ Check valve

C	With check valve
N	Without check valve

⑤ Solenoid valve air passage

S	Normally closed(N.C)
W	Self-holding solenoid valve ^(note1)

Note1) The energy-saving function of a sensor cannot work if the self-holding valve is selected.

⑩ Position of body

R	Placed to the right
L	Placed to the left
Blank	When 7 & 9 are same

⑨ Number of bodies

1	1 unit	4	4 units
2	2 units	5	5 units
3	3 units	6	6 units

⑧ Number of block plates

0	none	3	3 units
1	1 unit	4	4 units
2	2 units	5	5 units

⑦ Number of manifold units

1	1 unit	4	4 units
2	2 units	5	5 units
3	3 units	6	6 units

⑥ Exhaust system

S	Individual port exhaust
C	Concentrated exhaust ^(note1,2)

Note1) When "C"(Concentrated exhaust) is selected for manifold option, select "C" (with check valve) at ④.
Note2) When S or R nozzle is selected for single type, the "C"(Concentrated exhaust) cannot be selected.

Maintenance parts

- Single solenoid valve (with gasket and mounting screws)

CKV010-4E

Note) Please check P24 for details.

- Self-holding solenoid valve (with gasket and mounting screws)

LV290-4E

Note) Please check P24 for details.

- Filter element
SC1-E (5 per set)

- Manifold base

SC1 - MB 1

Exhaust type	Number of manifold units			
MB Individual port exhaust	1	1 unit	4	4 units
ME Common exhaust	2	2 units	5	5 units
	3	3 units	6	6 units

- Pressure sensor (with O-ring, setting screws)

MPS-V8-SC1
MPS-V9-SC1
MPS-V9P-SC1
MPS-10-SC1-B(Normally closed, sink input)
MPS-10-SC1-W(Self-holding, sink input)
MPS-10P-SC1-B(Normally closed, sink input)
MPS-10P-SC1-B-S(Normally closed, source input)
MPS-10P-SC1-W(Self-holding, sink input)
MPS-10P-SC1-W-S(Self-holding, source input)

Note) Please check P349 for details.

- Manifold block
SC1-BPE (For concentrated exhaust)
SC1-BPB (For individual exhaust)

Specifications

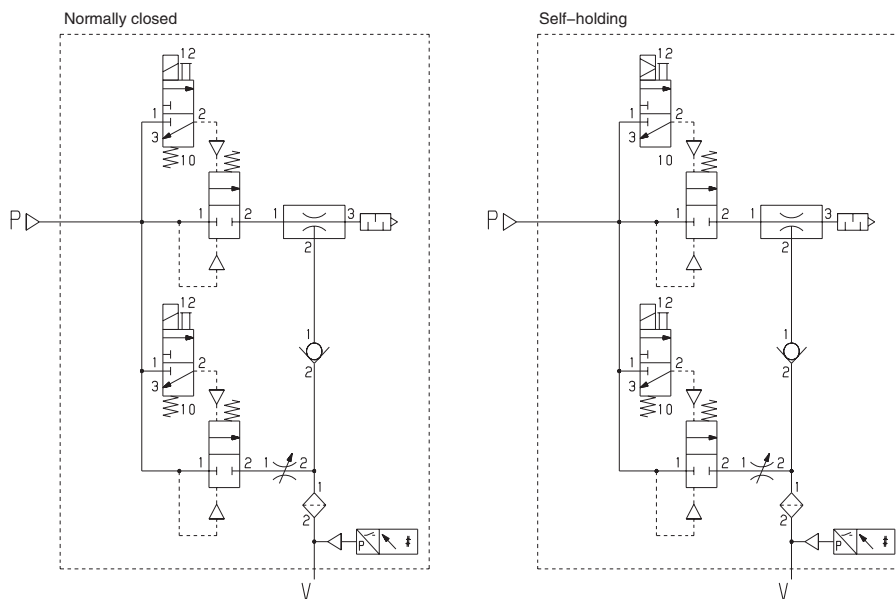
Description	Unit	X	B	5S	7S	1S	5R	7R	1R
Fluid		Non-lubricated air / non-corrosive gas							
Ambient temperature	°C	0 ~ 55 (without freezing)							
Operating pressure range	MPa	0.1 ~ 0.55							
Solenoid valve air passage		normally closed (N.C) • self-holding solenoid valve							
Nominal pressure	MPa	0.5	0.18	0.5			0.35		
Max. vacuum pressure	kPa	-90	-83	-87			-87		
Vacuum (air) flow	ℓ /min (ANR)	8.5	10	5.5	11	20	4	9	15
Blow-off flow	ℓ /min (ANR)	40 (at : 0.5)	20 (at : 0.2)	40 (at : 0.5)			30 (at : 0.35)		
Air consumption	ℓ /min (ANR)	10	10	10	22.5	50	10	22.5	55

Solenoid valve specifications

Description	Unit	CKV010-4E	LV290-4E <small>Note</small>
Solenoid valve air passage		normally closed (N.C)	self-holding
Operating voltage	V	DC24	
Allowable voltage tolerance	%	± 10	
Power consumption	W	1	1.3/1.5
Grade of insulation		B class	
Manual override operation		Non-lock push button	
Display - Surge killer		LED • diode	
Cable		Lead wire with connector (300mm) <11.81 inch>	

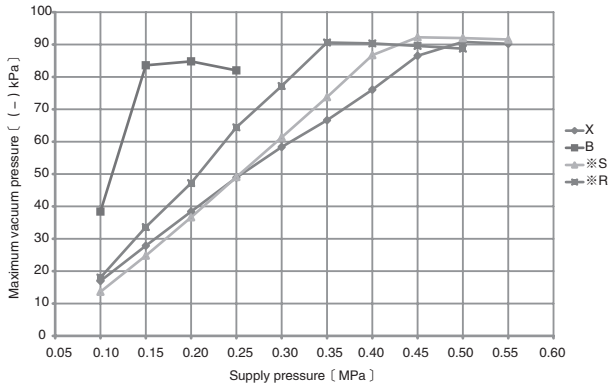
Note) Please check common cautions in regard to CONVUM vacuum ejector "self-holding valve"(P22).

Symbol

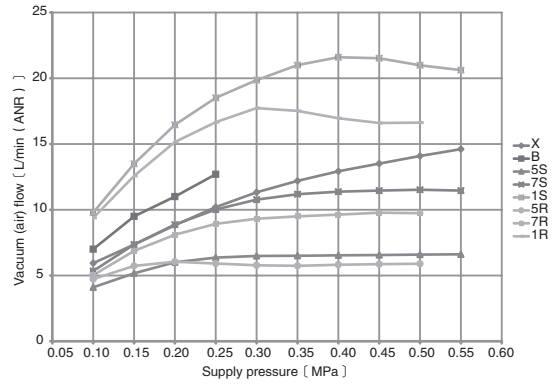


Performance charts

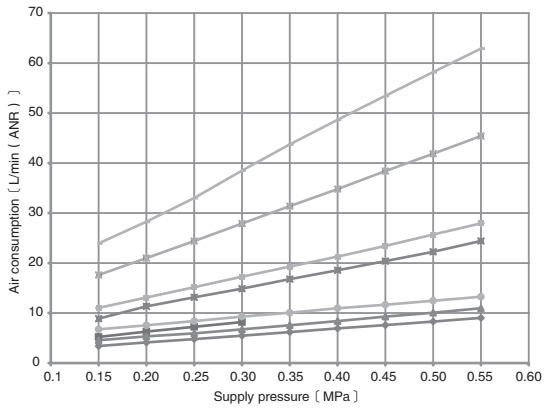
Maximum vacuum pressure characteristic



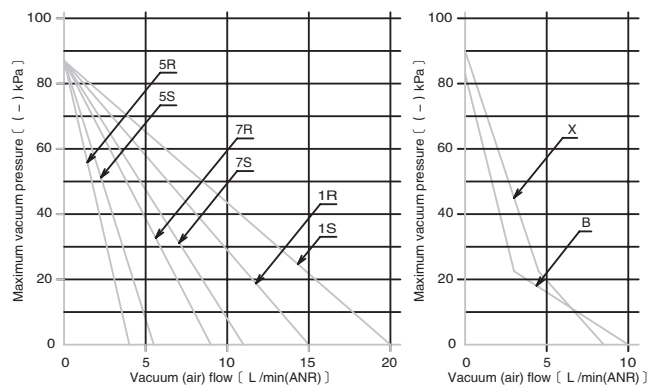
Vacuum (air) flow characteristic



Air consumption characteristics



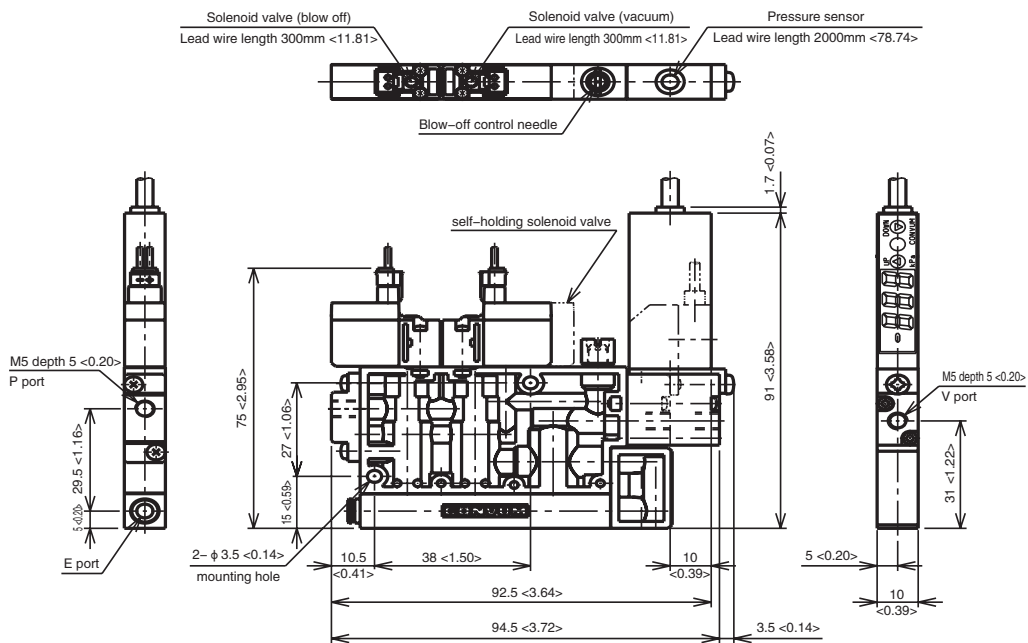
Vacuum (air) flow · vacuum pressure characteristic



Dimensions

Unit:mm <inch>

Single unit type with sensor

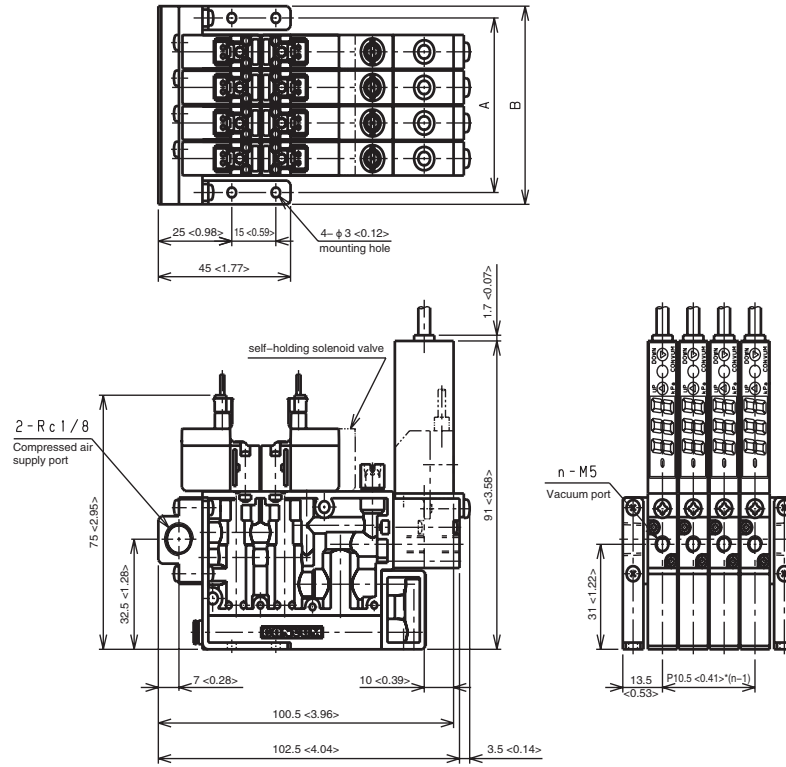


Dimensions

Unit:mm <inch>

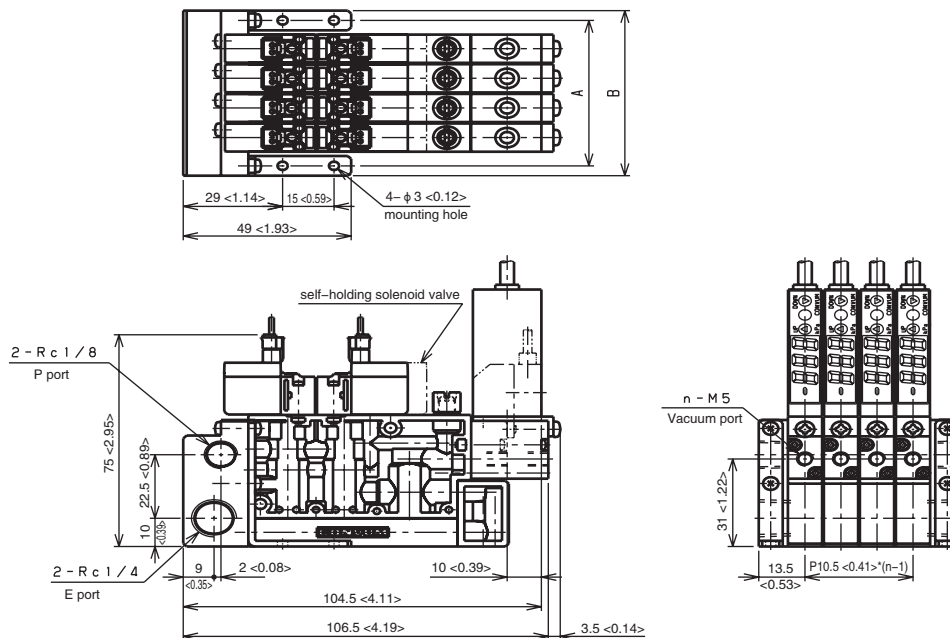
Manifold type(individual port exhaust) with sensor

n (number of units)	1	2	3	4	5	6
A	20 <0.79>	30.5 <1.20>	41 <1.61>	51.5 <2.03>	62 <2.44>	72.5 <2.85>
B	27 <1.06>	37.5 <1.48>	48 <1.89>	58.5 <2.30>	69 <2.72>	79.5 <3.13>



Manifold type(common exhaust) with sensor

n (number of units)	1	2	3	4	5	6
A	20 <0.79>	30.5 <1.20>	41 <1.61>	51.5 <2.03>	62 <2.44>	72.5 <2.85>
B	27 <1.06>	37.5 <1.48>	48 <1.89>	58.5 <2.30>	69 <2.72>	79.5 <3.13>



Comparison of calculation example of annual electricity rate (mounted with energy-saving sensor MPS-10)

<Condition>

The number of ejectors: 20 pcs

Running time: 20 days/months 8 hours/day

50% of the running time is vacuum adsorption time

$20 \times 8 \times 0.5 = 80$ hours = 4,800 minutes

Electricity rate was calculated by the compressor $1 \text{ m}^3 = 1.4 \text{ yen}$ $1 \text{ kWh} = 16 \text{ yen}$

MC52-07HS type

Electric power consumption: $4,800 \text{ min} \times 22.5 \text{ L} \times 20 \text{ pcs} = 2,160,000 \text{ L} = 2,160 \text{ m}^3$

Electricity rate: $2,160 \text{ m}^3 \times 1.4 \text{ yen} \times 12 \text{ months} = 36,288 \text{ yen}$

SC1B type

Electric power consumption: $4,800 \text{ min} \times 9 \text{ L} \times 20 \text{ pcs} = 864,000 \text{ L} = 864 \text{ m}^3$

Electricity rate: $864 \text{ m}^3 \times 1.4 \text{ yen} \times 12 \text{ months} = 14,515 \text{ yen}$

The consumption reduction rate is 50% when using the MPS-10 pressure sensor.

Electricity rate: $14,515 \text{ yen} \times 0.5 = 7,258 \text{ yen}$

Merit of using "MPS-10" pressure sensor

① Effect of energy-saving

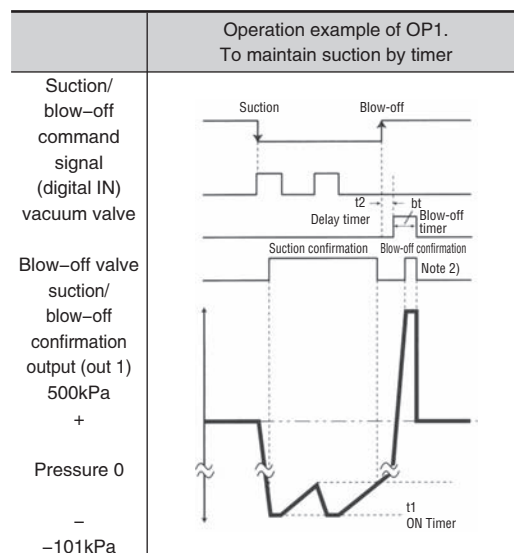
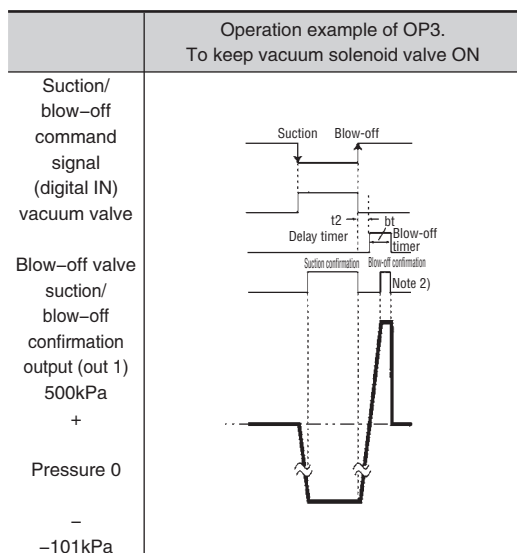
The vacuum solenoid valve start to generate vacuum when the digital input (suction command signal) turns on. Upon reaching the assigned vacuum volume, vacuum solenoid valve turns off. Vacuum remains by the check valve inside the CONVUM.

Once vacuum decreased below the assigned vacuum volume, vacuum solenoid valve turns on again until vacuum increased to the assigned volume.

Vacuum solenoid valve subsequently turn on/off repeatedly to remain vacuum pressure until the digital input (blow-off command) was turned off. Blow-off solenoid valve turns on as soon as the digital input was turned off. By monitoring vacuum pressure as described above, air consumption will be dramatically reduced because air supply is no longer required during the time when pressure was holding at the assigned pressure volume.

*Pressure holding function is not effective if the work pieces is ventilated.

*Energy-saving function is not effective in the case the self-holding solenoid valve is used.



② Reduction of wiring

Normally, solenoid valve mounted on the CONVUM are "for vacuum generation" / "for the vacuum break" two types, and each of them should be connected with ON&OFF signal. By mounting the MPS-10 pressure sensor, solenoid valve can be commanded by the sensor which reduces the wiring from 8 I/O points to 1 cable (4 points).

