VP series Vacuum Saving Valve

Product features/ Code of order

CHELIC

Feature

- Installation easily: Small size, applicable with pad and easy to assembly.
- Prevent vacuum vanish: Applicable with multiple vacuum pads to keep the vacuum pressure from vanish.
- Variety specifications: Applicable with multiple connecting options.

Specification

Item \ Model		A10, A20, A30, A40, B20, B30	A11, A21, A31, A41, B21, B31	B10
Connection size for pad	mm	M8x1.25P	PT 1/8	Ø6
Fixed orifice size	mm	Ø1.0		
Fluid		Air		
Pressure range	MPa(kPa)	0.1 ~ 0.7(100 ~ 700)		
Operating vacuum pressure range	kPa(-mmHg)	0 ~ -92(0 ~ -690)		
Ambient and fluid temperature	℃	5~60		
Element nominal filtration rating	um	40		
Min. operating flow rate		7		
Available pad size	L/min	25 ~ 50		

Code of order **VP 10 – A10**

(1) (2)

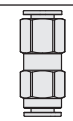
(1)

Mark	Model
10	Ø1.0

(2)

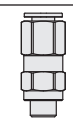
Type	Vacuum Pad	Vacuum generator
Mark	Male Thread	Female thread
A10	M8x1.25P	
A11	PT 1/8	

Type	Vacuum pad	Vacuum generator
Mark	Connection port(mm)	Connection port(mm)
B10	Ø6	



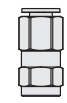
Type	Vacuum Pad	Vacuum generator
Mark	Male Thread	Female thread
A20	M8x1.25P	
A21	PT 1/8	

Type	Vacuum pad	Vacuum generator
Mark	Male Thread	Connection port(mm)
B20	M8x1.25P	Ø6
B21	PT 1/8	Ø6



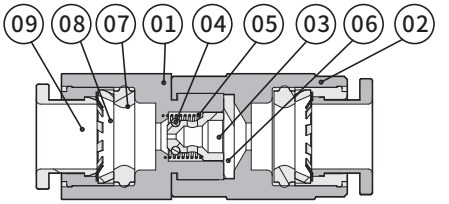
Type	Vacuum Pad	Vacuum generator
Mark	Male Thread	Female thread
A30	M8x1.25P	
A31	PT 1/8	

Type	Vacuum pad	Vacuum generator
Mark	Female thread	Connection port(mm)
B30	M8x1.25P	Ø6
B31	PT 1/8	Ø6



Type	Vacuum pad	Vacuum generator
Mark	Male Thread	Female thread
A40	M8x1.25P	
A41	PT 1/8	

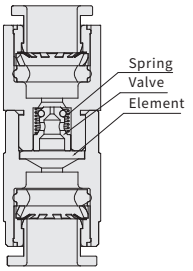
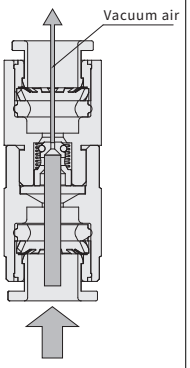
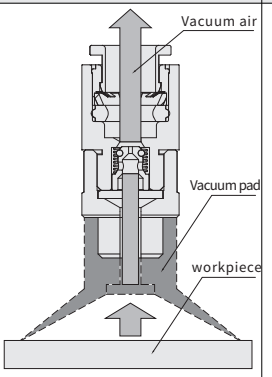
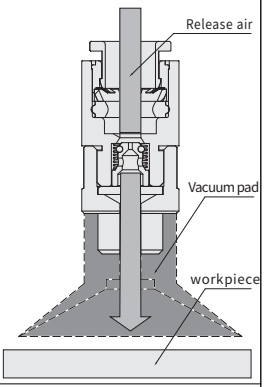
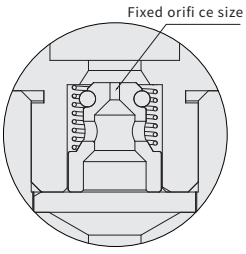
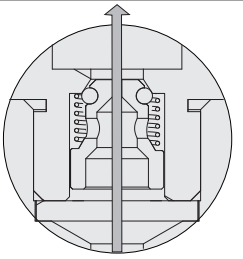
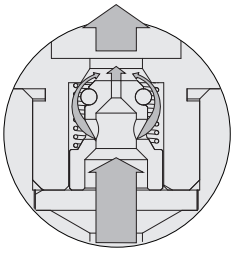
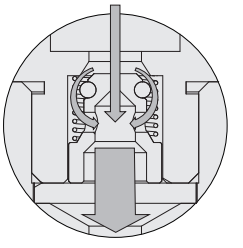
Internal structure



Components and material list

No.	Item	Material	No.	Item	Material
01	VP upper part	Copper Alloy	06	VP element	Sintered copper
02	VP lower part	Copper Alloy	07	SQC0606 fitting gasket	NBR
03	VP-10-valve	Copper Alloy	08	SQC 06 the 3-fitting part	-
04	O-Ring 1.2*1	NBR	09	SQC 06 release ring	-
05	VP spring	Stainless			

Working principle

	Initial condition	Without workpiece	With workpiece	When a workpiece is released
Air flow				
Valve operating condition				
	Since there is no air flow, the valve remains open by the spring force.	**Valve closed** When the workpiece is separated from the vacuum pad, the valve is closed by the air flow, and the suction air can only flow through the fixed orifice. At this time, an amount of air corresponding to the fixed orifi ce size is sucked.	**Valve open** When the workpiece is sucked by the vacuum pad, the suction flow reduces, and the valve is open by the spring force, which opens the path between the valve and the body for suction.	**Valve open** When the workpiece is released, the valve is open by the vacuum release air, and the path between the valve and the body will open.

Product weight

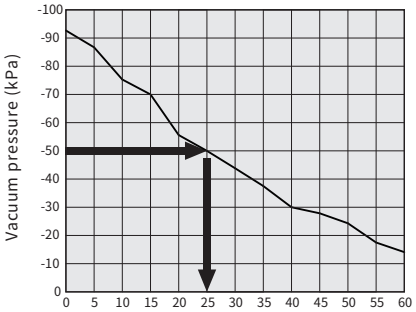
Model	Weight(g)	Model	Weight(g)
A10	19.74	A41	20.22
A11		B10	18.85
A20		B20	20.76
A21		B21	
A30	17.51	B30	18.48
A31		B31	
A40	20.22		

Selection conditions

- –50 kPa or more of vacuum pressure per vacuum pad.
- Part number of vacuum saving valve used: VP-10-B1.
- Connection thread size for pad side: Ø6 fixed orifice size: Ø1

Check the flow-rate characteristics of the vacuum generator used

- From the flow-rate characteristics of the vacuum generator (Chart 1).
- Calculate the suction flowrate of the vacuum generator from the required vacuum pressure.
- Vacuum pressure -50 kPa.
- Suction flow rate 25 L/min.

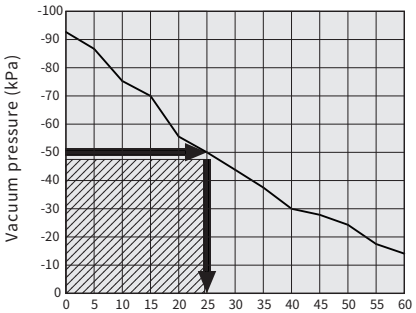


(Chart 1) Flow Rate Characteristics

Calculate the number of vacuum saving valves

- Find the minimum operating flow rate and the suction flow rate of the vacuum generator in the specific cations on page 2, and calculate the number of vacuum saving valves (N) that can be used with one vacuum generator.
- Number of vacuum saving valves $= \frac{\text{Suction flow rate of the vacuum generator}}{\text{Minimum operating flow rate}}$
- From (Chart 2) to calculate vacuum saving valve quantity

  Vacuum saving valve quantity: about 3 pcs, $\frac{25}{7}$



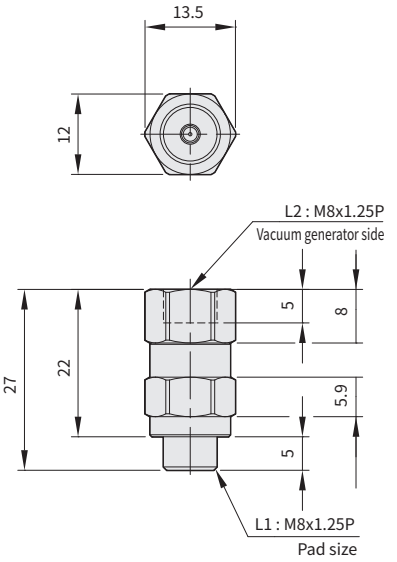
(Chart 2) The Number of Vacuum Saving Valves Chart

Specific Product Precautions

⚠ CAUTION

- The product is not equipped with a vacuum holding function, and cannot be used for the purpose of holding vacuum.
- Do not disassemble the product. Once the product is disassembled and reassembled, it will not be able to satisfy the original performance.
- When piping, do not get the pad side and vacuum generator side of the product the wrong way round.
- When the built-in element of the product gets clogged, replace the whole product.

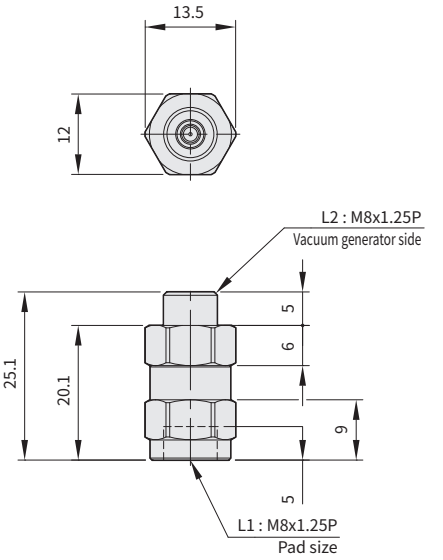
VP - 10 - A □



Unit: mm

Model	Thread size L1	Thread size L2
VP-10-A 10	M8x1.25P	M8x1.25P
VP-10-A 11	PT 1/8	PT 1/8

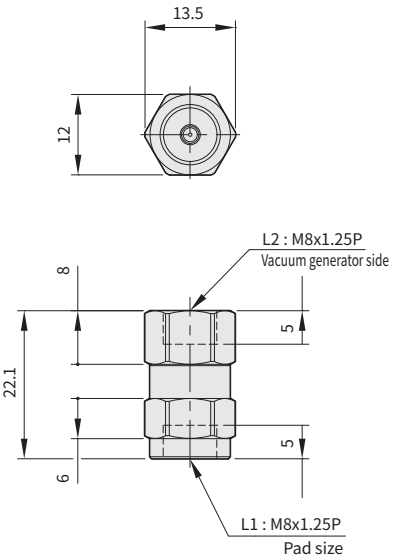
VP - 10 - A □



Unit: mm

Model	Thread size L1	Thread size L2
VP-10-A 20	M8x1.25P	M8x1.25P
VP-10-A 21	PT 1/8	PT 1/8

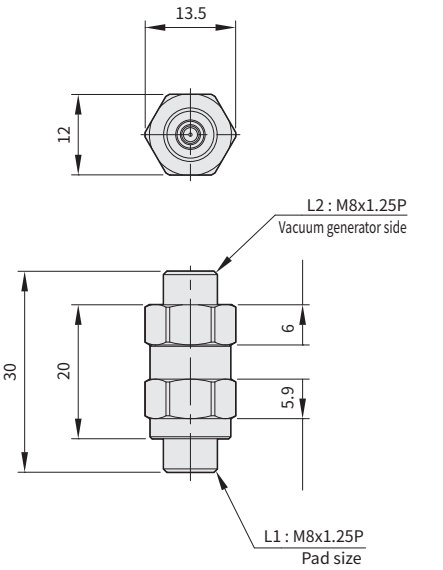
VP - 10 - A □



Unit: mm

Model	Thread size L1	Thread size L2
VP-10-A 30	M8x1.25P	M8x1.25P
VP-10-A 31	PT 1/8	PT 1/8

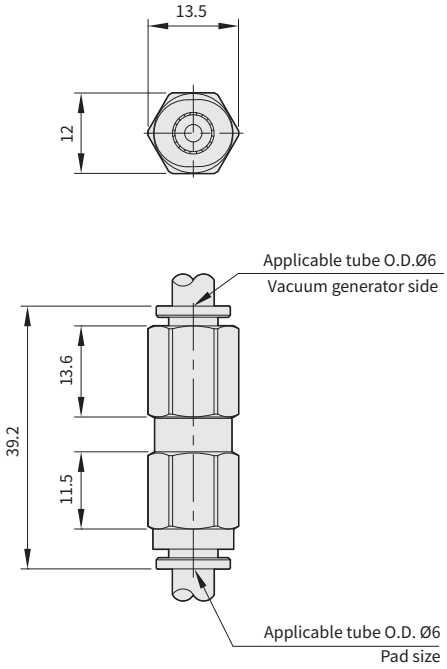
VP - 10 - A □



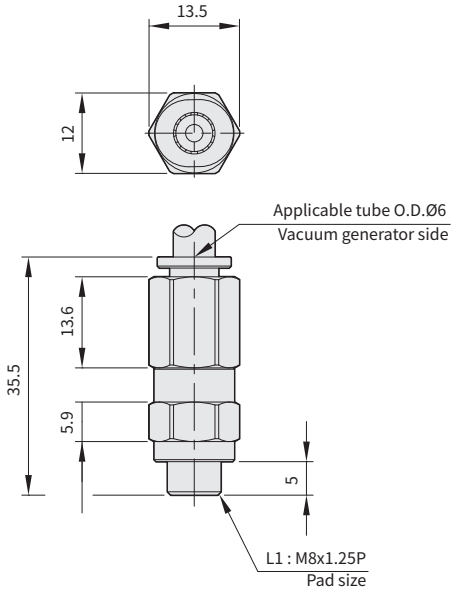
Unit: mm

Model	Thread size L1	Thread size L2
VP-10-A 40	M8x1.25P	M8x1.25P
VP-10-A 41	PT 1/8	PT 1/8

VP - 10 - B10



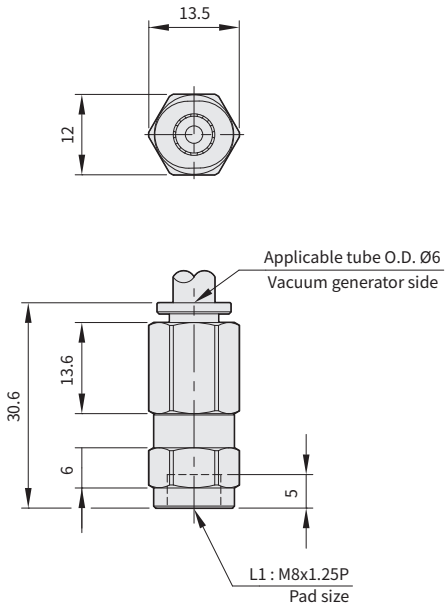
VP - 10 - B □



Unit: mm

Model	Thread size L1
VP-10-B 20	M8x1.25P
VP-10-B 21	PT 1/8

VP - 10 -B □



Unit: mm

Model	Thread size L1
VP-10-B 30	M8x1.25P
VP-10-B 31	PT 1/8

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