

Vacuum Saving Valve

CHELIC

VP series



Vacuum Cup Connection Dimensions: M8x1.25P·PT 1/8·Ø6

Applicable



Easy to install / Prevents vacuum leakage / Available in various sizes

- ✓ Small size, easy to install with vacuum pads
- ✓ Used with multiple vacuum pads which can maintain the pressure and prevent leakage.
- ✓ Various connection types are available.

Vacuum level **50KPa**
 Vacuum capacity **25L/min**
 Filter accuracy **40um**

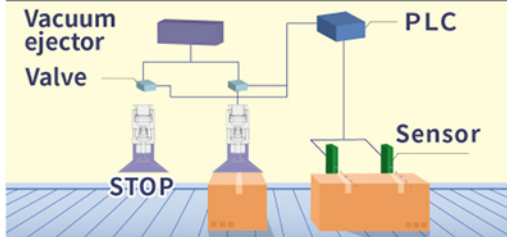


Simplified operation

When condition change, the VP body switched automatically.

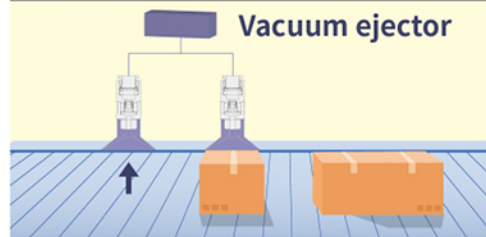
Before

The size of the object must be confirmed by a sensor, and the vacuum switching using the vacuum pad is controlled by a solenoid valve.



After

The VP series of vacuum saving valves can simplify the installation of equipment.



Operation Principle

	Operation Principle	Without object	With object	Object Release
Air flow	 Spring, Valve seat, Filter	 Vacuum	 Vacuum, Vacuum Pad, Object Release	 Vacuum relief, Vacuum Pad, Object Release
Valve actuation	 Flow throttling path	 Valve closed	 Valve open	 Valve open
	Spring force is used to open the valve seat when there is no air flow.	The object is separated from the vacuum pad, and the valve closes due to airflow. Only a fixed nozzle path remains in the suction flow path.	The object is suctioned by the vacuum pad, and the flow rate is going down. The spring force push the valve seat and open the flow path.	When the object is released, the vacuum is relief and opens the valve seat.

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Product features/ Code of order

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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	°C	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		Type	Vacuum pad	Vacuum generator	
	Mark	Male Thread	Female thread		Mark	Connection port (mm)	Connection port (mm)	
	A10	M8x1.25P			B10	Ø6		
	A11	PT 1/8						
	Type	Vacuum Pad	Vacuum generator		Type	Vacuum pad	Vacuum generator	
	Mark	Female thread	Male Thread		Mark	Male Thread	Connection port (mm)	
	A20	M8x1.25P			B20	M8x1.25P	Ø6	
	A21	PT 1/8			B21	PT 1/8	Ø6	
	Type	Vacuum Pad	Vacuum generator		Type	Vacuum pad	Vacuum generator	
	Mark	Female thread	Female thread		Mark	Female thread	Connection port (mm)	
	A30	M8x1.25P			B30	M8x1.25P	Ø6	
	A31	PT 1/8			B31	PT 1/8	Ø6	
	Type	Vacuum pad	Vacuum generator		Type	Vacuum pad	Vacuum generator	
	Mark	Male Thread	Male Thread		Mark	Male Thread	Male Thread	
	A40	M8x1.25P			A41	PT 1/8		
	A41	PT 1/8						

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PAR

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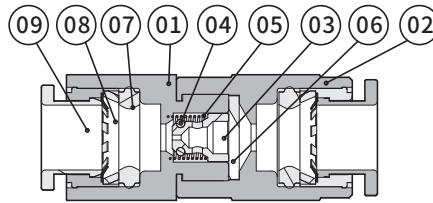
VP

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Product features

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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	<p>Spring Valve Element</p>	<p>Vacuum air</p>	<p>Vacuum air Vacuum pad workpiece</p>	<p>Release air Vacuum pad workpiece</p>
Valve operating condition	<p>Fixed orifice size</p> <p>Since there is no air flow, the valve remains open by the spring force.</p>	<p>Valve closed</p> <p>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.</p> <p>At this time, an amount of air corresponding to the fixed orifice size is sucked.</p>	<p>Valve open</p> <p>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.</p>	<p>Valve open</p> <p>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.</p>

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Product features

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Product weight

Model	Weight(g)
A10	19.74
A11	
A20	
A21	
A30	
A31	17.51
A40	20.22

Model	Weight(g)
A41	20.22
B10	18.85
B20	20.76
B21	
B30	18.48
B31	

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

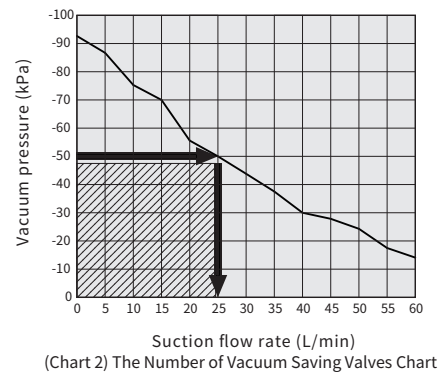
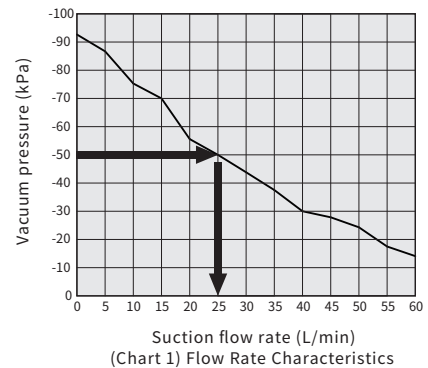
Check the flow-rate characteristics of the vacuum generator used

- 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.

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, $\frac{25}{7}$



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.

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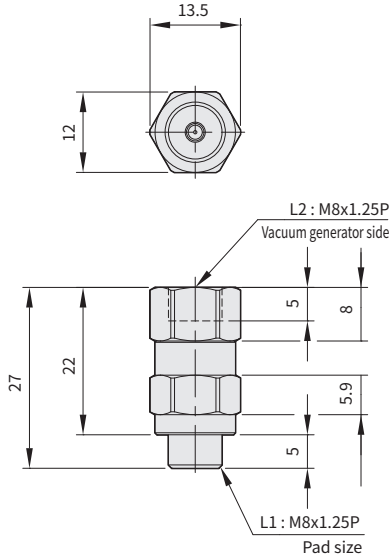
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Dimensions

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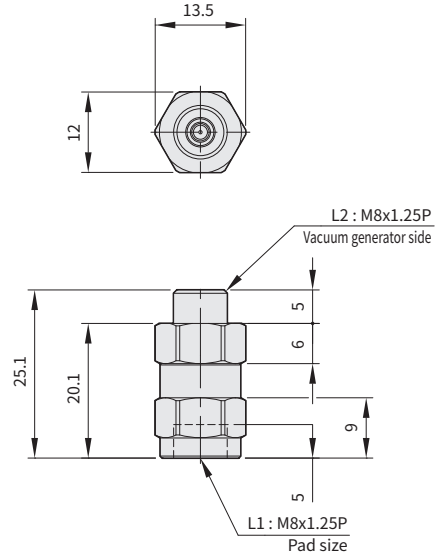
VP - 10 - A □



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

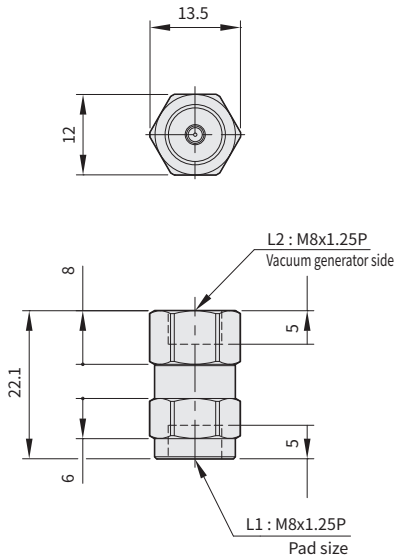
VP - 10 - A □



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

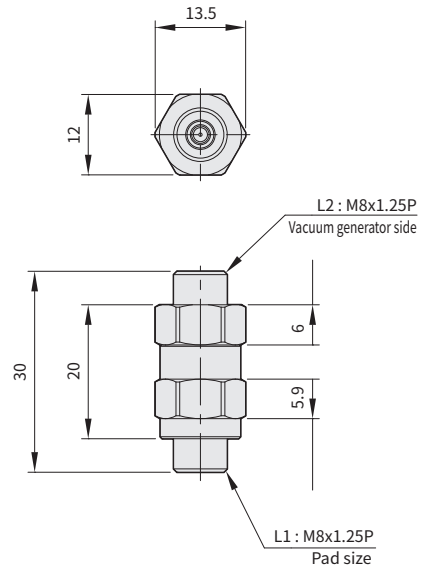
VP - 10 - A □



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

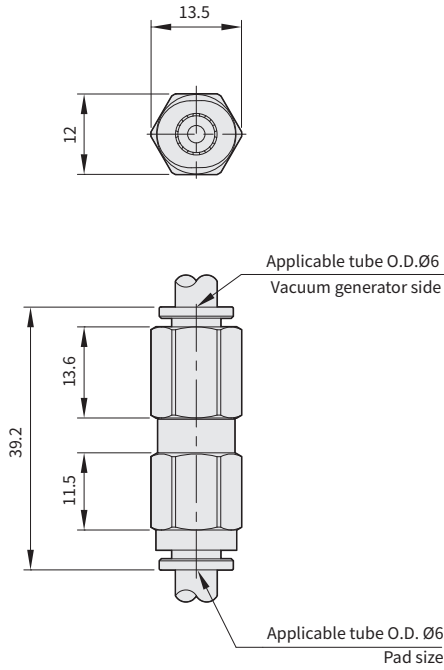
Model	Thread size L1	Thread size L2
VP-10-A 40	M8x1.25P	M8x1.25P
VP-10-A 41	PT 1/8	PT 1/8

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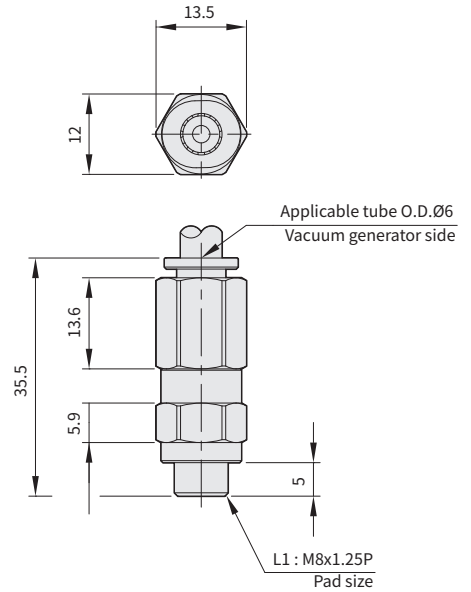
Dimensions

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VP - 10 - B10



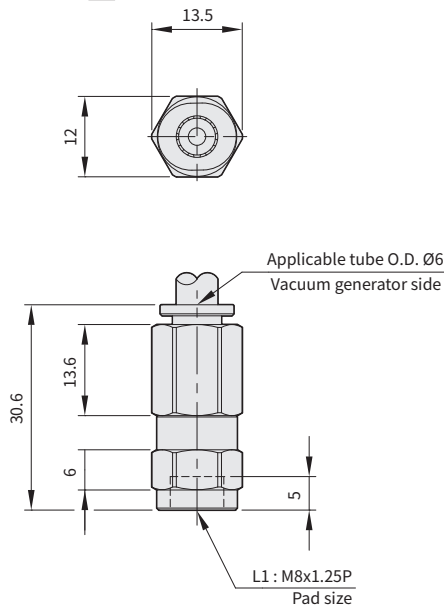
VP - 10 - B □



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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