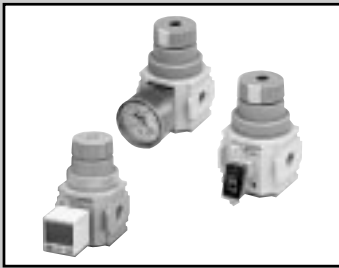
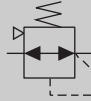


# Vacuum regulator

# VRA2000 Series

● Port size: Rc1/4, Rc3/8, G1/4, G3/8, 1/4NPT, 3/8NPT

JIS symbol



## Specifications

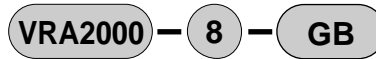
Model no.	VRA2000-8	VRA2000-10
Set pressure range kPa	-100 to -1	
Ambient temperature range °C	5 to 50	
Balance leak flow ℓ/min (ANR)	1 Note 3	
Maximum flow rate ℓ/min (ANR)	200 Note 1	
Port size	IN/OUT	1/4 3/8
	Gauge	1/8
Weight kg	0.29	

Note 1: Maximum flow rate applies where the secondary side is completely closed, and the primary pressure is adjusted to -101.3kPa while the secondary pressure to -100kPa, then secondary side is fully opened.

Note 2: Available only for port size Rc.

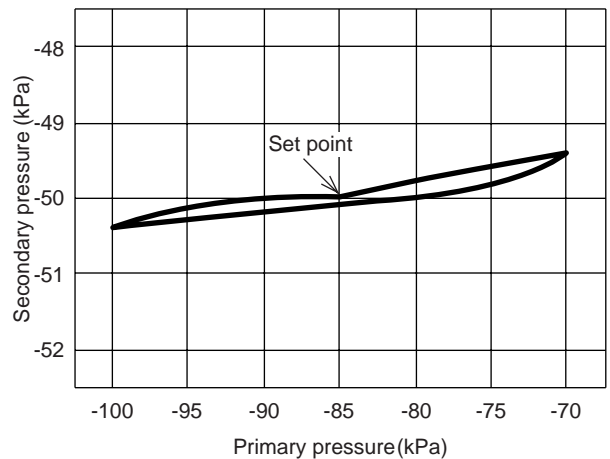
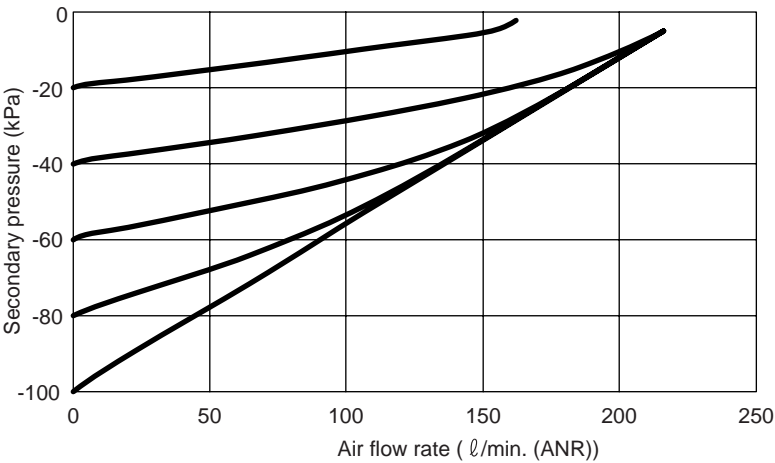
Note 3: Flow rate when primary pressure is set to -95 kPa or less and secondary pressure to -45 kPa while closed.

## How to order



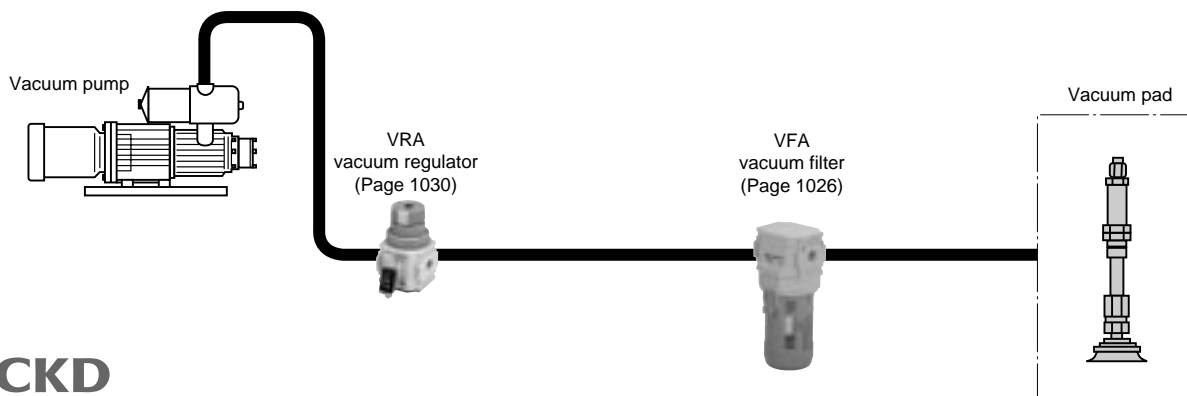
Symbol	Descriptions
<b>A Port size</b>	
8	Rc1/4
10	Rc3/8
8G	G 1/4
10G	G 3/8
8N	1/4NPT
10N	3/8NPT
<b>B Option</b>	
Blank	None
G	Pressure gauge Note 2
P	Pressure switch Note 2
B	C type bracket
B3	L type bracket
B4	B type bracket
R2	Digital pressure sensor Note 2

## Characteristics curve



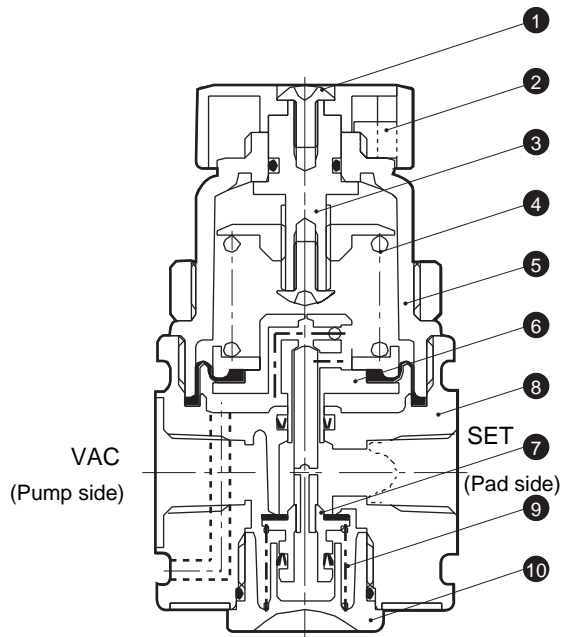
Note 1: The primary side vacuum pump is measured with using discharge rate 500 ℓ/min.

## Applications



Refrigerating type dryer  
Desiccant type dryer  
High polymer membrane dryer  
Air filter  
Auto. drain / others  
F.R.L. (Module unit)  
F.R.L. (Separate)  
Compact F.R.  
Precise regulator  
F.R.L. (Related products)  
Clean F.R.  
Electro pneumatic regulator  
Air booster  
Speed control valve  
Silencer  
Check valve / others  
Joint / tube  
Vacuum filter  
Vacuum regulator  
Suction plate  
Magnetic spring buffer  
Mechanical pressure SW  
Electronic pressure SW  
Contact / close contact conf. SW  
Air sensor  
Pressure SW for coolant  
Small flow sensor  
Small flow controller  
Flow sensor for air  
Flow sensor for water  
Total air system  
Total air system (Gamma)  
Ending

### Internal structure and parts list



### Parts list

No.	Parts name	Material
1	Cross headed truss machine screw	Steel
2	Knob assembly	PBT
3	Adjusting screw assembly	Copper alloy, steel, nitrile rubber
4	Adjusting spring	Stainless steel
5	Guard assembly	Aluminum alloy, PBT
6	Diaphragm assembly	Aluminum alloy, steel, nitrile rubber
7	Valve assembly	Aluminum alloy, copper alloy, hydrogen nitrile rubber
8	Body assembly	Aluminum alloy, stainless steel, nitrile rubber
9	Bottom spring	Stainless steel
10	Bottom plug assembly	PBT, nitrile rubber

### Repair parts list

Part name	Model no.
Diaphragm assembly	VRA2000-D
Valve assembly	VRA2000-V

Refrigerating type dryer
Desiccant type dryer
High polymer membrane dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
F.R.L. (Separate)
Compact F.R.
Precise regulator
F.R.L. (Related products)
Clean F.R.
Electro pneumatic regulator
Air booster
Speed control valve
Silencer
Check valve / others
Joint / tube
<b>Vacuum filter</b>
<b>Vacuum regulator</b>
<b>Suction plate</b>
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
Contact / close contact cont. SW
Air sensor
Pressure SW for coolant
Small flow sensor
Small flow controller
Flow sensor for air
Flow sensor for water
Total air system
Total air system (Gamma)

Ending

Vacuum regulator  
Vacuum component

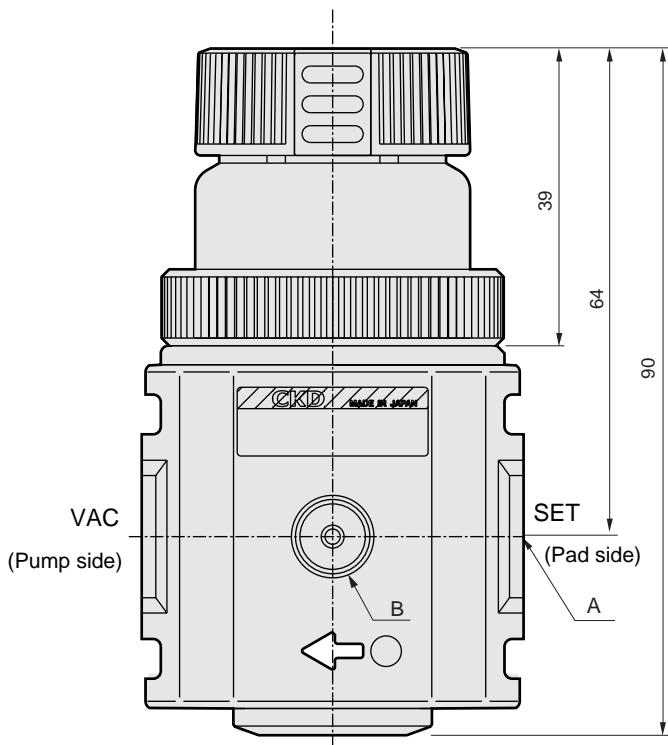
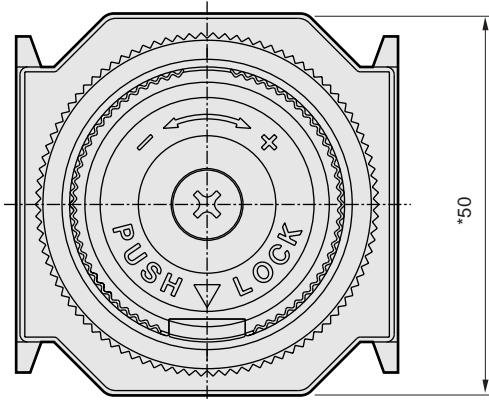
# VRA2000 Series

## Dimensions



- Refrigerating type dryer
- Desiccant type dryer
- High polymer membrane dryer
- Air filter
- Auto. drain / others
- F.R.L. (Module unit)
- F.R.L. (Separate)
- Compact F.R.
- Precise regulator
- F.R.L. (Related products)
- Clean F.R.
- Electro pneumatic regulator
- Air booster
- Speed control valve
- Silencer
- Check valve / others
- Joint / tube
- Vacuum filter**
- Vacuum regulator**
- Suction plate**
- Magnetic spring buffer
- Mechanical pressure SW
- Electronic pressure SW
- Contact / close contact conf. SW
- Air sensor
- Pressure SW for coolant
- Small flow sensor
- Small flow controller
- Flow sensor for air
- Flow sensor for water
- Total air system
- Total air system (Gamma)
- Ending

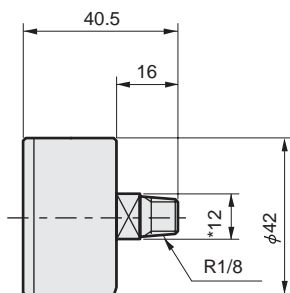
### ● VRA2000-8/VRA2000-10



Hole dimension for panel mount:  $\phi 38.5$

Model no.	A	B
VRA2000-8	Rc1/4	Rc1/8
VRA2000-10	Rc3/8	Rc1/8

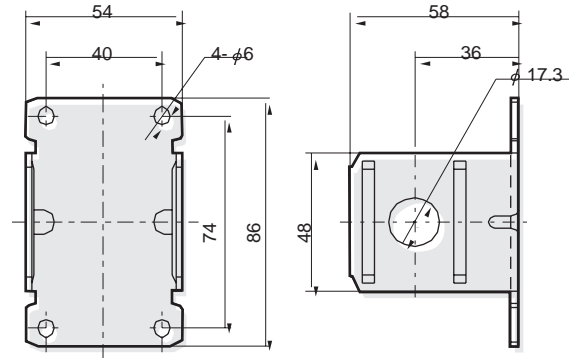
### ● Pressure gauge (G) VG41D-6-P01



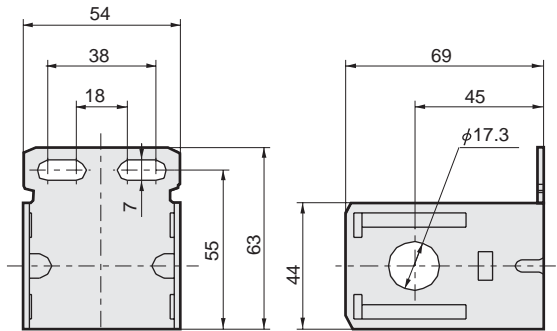
With limit mark  
-100 to 0kPa

**CKD**

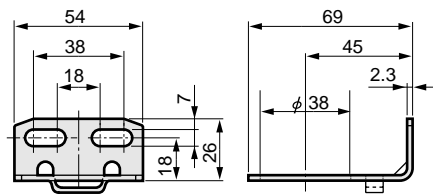
### ● B type bracket (B4) B240



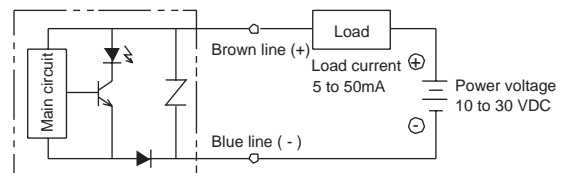
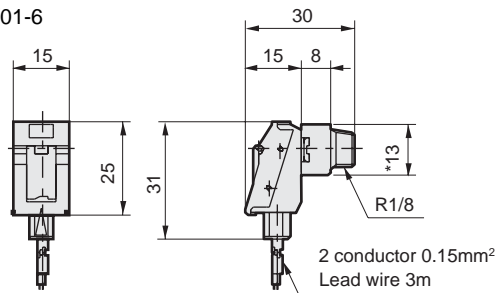
### ● C type bracket (B) B220



### ● L type bracket (B3) B230

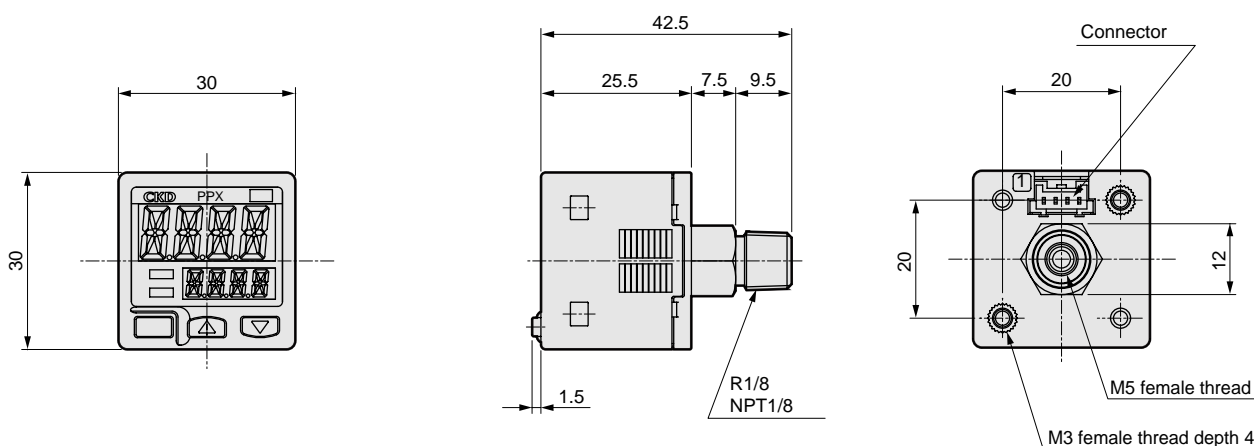


### ● Pressure switch (P) PPE-V01-6



### Dimensions

- Digital pressure sensor  
PPX-R01N-6M



Note: Refer to page 1104 for details of digital pressure gauge PPX Series.

### ! Safety precautions

### ! WARNING

- 1 Use the product within specifications.
- 2 The product is a regulator for vacuum. Do not use in a pressurized state.
- 3 Install the product avoiding direct sun lay.
- 4 Do not use this product in an atmosphere containing corrosive gas, chemicals, or sea water, or where these could come in contact with it, and do not use as a vacuum circuit for these substances.
- 5 Avoid installation where vibration or impact is applied.
- 6 Tighten pipes with the appropriate torque.
- 7 Limit bending moment arising from the weight of pipelines to 50 N·m or less when installing.

Port thread	Tightening torque N·m
Rc1/4	6 to 8
Rc3/8	13 to 15

### ! CAUTION

- 1 Install this product vertically with the knob facing upward or downward.
- 2 Before connecting to devices, flush piping with air to remove foreign matter.
- 3 Check that pipe thread swarf or sealant does not enter when piping or screwing in joints.
- 4 Check IN and OUT orientations of piping before connecting.
- 5 Note that this product is adjusted with constant air leakage, so vacuum pressure may not rise if the vacuum pump capacity is too small.

Refrigerating type dryer
Desiccant type dryer
High polymer membrane dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
F.R.L. (Separate)
Compact F.R.
Precise regulator
F.R.L. (Related products)
Clean F.R.
Electro pneumatic regulator
Air booster
Speed control valve
Silencer
Check valve / others
Joint / tube
Vacuum filter
Vacuum regulator
Suction plate
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
Contact / close contact cont. SW
Air sensor
Pressure SW for coolant
Small flow sensor
Small flow controller
Flow sensor for air
Flow sensor for water
Total air system
Total air system (Gamma)

Ending

Vacuum regulator  
Vacuum component

## Pilot regulator



- ▶ Pilot-operated pressure regulator with secondary pressure relief and flow compensation.
- ▶ Suitable for remote control.

### Technical data

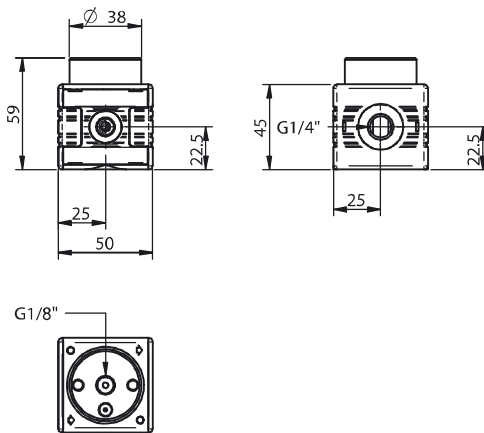
Description	Unit	Value
Feed pressure, max	MPa	1.6
Air consumption, internal	NI/s	$0.8 \times P_2/60$
Temperature range	°C	0–60
Pressure, outlet $P_2$	MPa	0.05–0.8

### Technical data, specific

Description	Unit	Value
		<b>0114283</b>
Weight	g	400
Connection, $P_1/P_2$		G1/4"
Connection, pilot		G1/8"
Connection, gauge		G1/8"
Flow, @ $P_1=0.7$ & $P_2=0.6$ MPa	NI/s	9

### Ordering information

Description	Art. No.
Pressure regulator, pilot operated, G1/4"	0114283



A

## piSAVE optimize



- ▶ Vacuum controlled proportional pressure regulator, a fully pneumatic device suitable for air-driven ejectors/pumps.
- ▶ The feed pressure to the vacuum pump/ejector is automatically regulated and controlled to maintain the set vacuum level. Air/energy usage is kept to a minimum for the application (optimized).
- ▶ Recommended for leaking and sealed applications to save energy and secure the right vacuum level.
- ▶ Extra port for Vacuum gauge
- ▶ Air ventilation port with filter
- ▶ Swivel compressed air connections
- ▶ piSAVE optimize gives maximum feed pressure/ flow to vacuum pump/ejector until vacuum level starts to build up .
- ▶ Separate mounting bracket kit
- ▶ Upgrade kit - available as an integrated module for piCLASSIC and Classic vacuum pumps

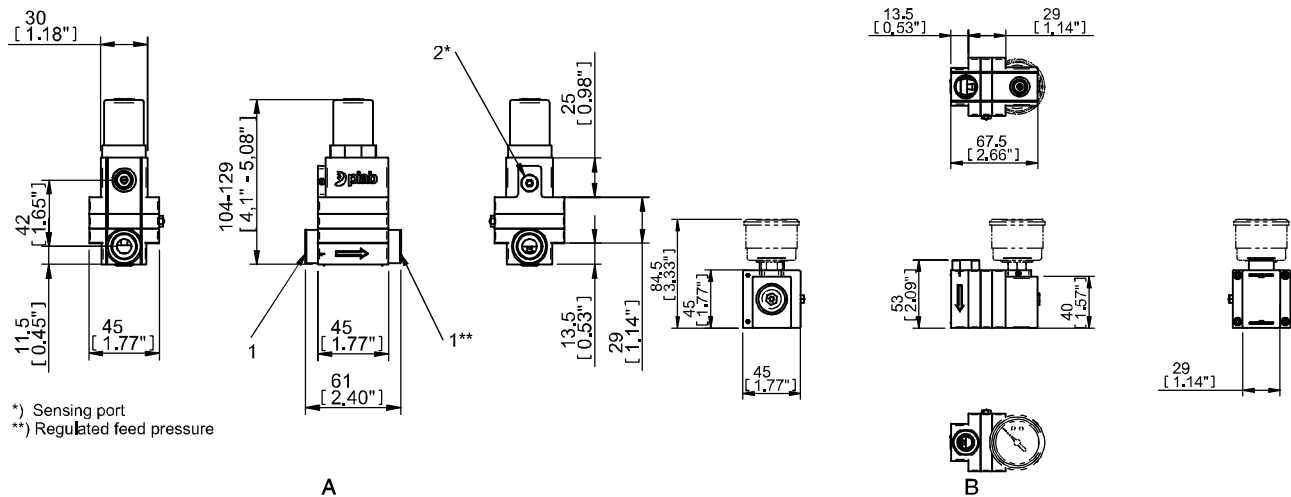
### Technical data

Description	Unit	Value
Feed pressure max.	MPa	0,7
Feed pressure min.	MPa	0,4
Feed pressure	Pressure drop	0,05 MPa @ 0,7 MPa and 15 NI/s
Material		Al, CuZn, HNBR, NBR, SS, PA66
Temperature range	°C	-10-60
Weight	g	324 (268)*
Operation range	-kPa	25-70 (30-60)*
Accuracy	kPa	±3
Min. Flow	NI/s	1.67 @ recommended ejector/pump feed pressure
Max. Flow	NI/s	15
Life span	years	5 or 5 million cycles
Min particle size	µm	5
Max distance to vacuum system**	m	3

\*) piCLASSIC/Classic integrated version. \*\*) Vacuum sensing hose.

## Ordering information

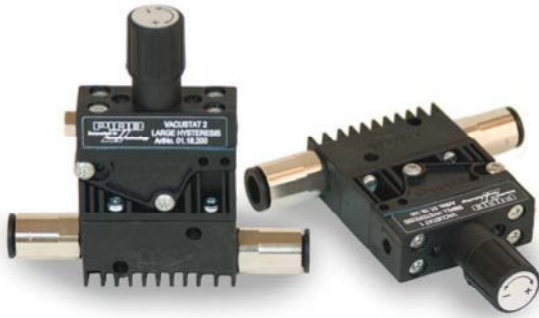
	Description	Art. No.
A	piSAVE optimize stand-alone 25-70 -kPa G3/8"	0128999
A	piSAVE optimize standalone 25-70 -kPa 3/8" NPT	0129000
B	piSAVE optimize upgrade kit piCLASSIC/Classic	0129002



## Ordering information accessories

Description	Art. No
Mounting kit piSAVE optimize	0129003
Vacuum gauge 100 -kPa, with nut / -30 inHg	3101602

## piSAVE onoff



- ▶ Independent pneumatic air-saving device for vacuum pumps.
- ▶ Adjustable vacuum controlled 2/2 NO valve.
- ▶ Available with large hysteresis for object handling and small hysteresis for process applications.
- ▶ The Vacustat is recommended for vacuum pumps in non-leaking systems.
- ▶ The vacuum pump must be fitted with a non-return valve.

### Technical data

Description	Unit	Value
Feed pressure, range	MPa	0.17–0.7
Feed pressure, max @ vacuum connection	MPa	0.6
Material		Al, NBR, PA, SS, CuZn
Temperature range	°C	0–60
Weight	g	89
Connection, compressed air		2x Ø8 mm / 2x 1/8"NPSF
Connection, vacuum		2 x M5
Signal range	-kPa	15–99
Function		2/2 NO
Flow @ P <sub>1</sub> =6 bar and Δp=0.5 bar	NI/s	7.3
Life span	cycles	>10,000,000
Dimension, WxDxH	mm	44x16,5x89

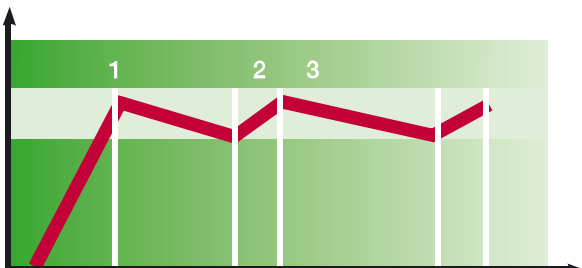
For dimensions, please go to data sheet for vacuum pumps P3010 and P5010.

### Technical data, specific

Description	Unit	Value	
		0118100	0118200
Hysteresis	kPa	1–6	5–10

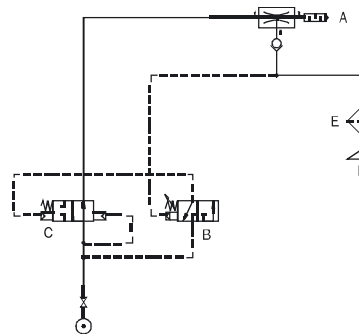
#### Function

A vacuum-controlled valve shuts off the flow of compressed air to the pump when the pre-set vacuum level is reached (1). The vacuum level is set by a knob. Because of minor leakage in a vacuum system the vacuum level drops, and after a while the start-up level of the valve is reached (2). Then the pump will start and work until the shut-off level is reached again (3), etc.



#### Connection

- A = Vacuum pump with non-return valve
- B = Vacuum switch
- C = Feed valve
- D = Suction cup
- E = Vacuum filter





## Ordering information

Description	Art. No.
piSAVE onoff with small hysteresis	0118100
piSAVE onoff with large hysteresis	0118200

