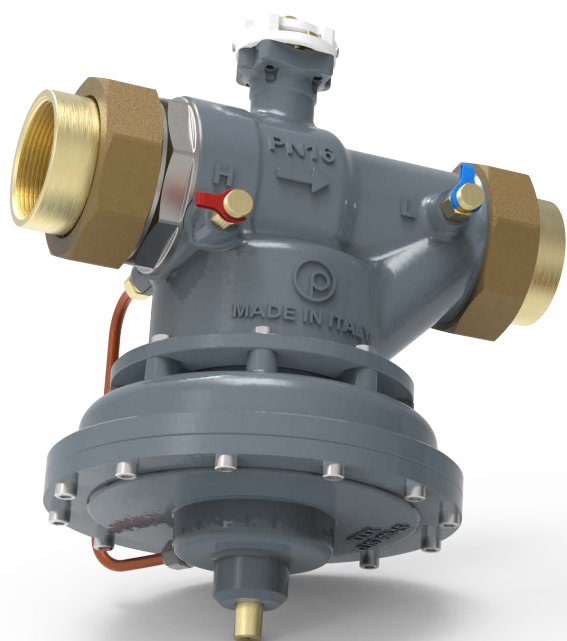




EVOPICV



Pressure Independent Control Valves



Pressure Independent Control Valve

The **EvoPICV** Pressure Independent Control Valve “PICV” is a combined constant flow limiter and full stroke, full authority equal percentage temperature control valve.

The **EvoPICV** is suitable for use in variable and constant temperature systems and may be used as a constant flow limiter in constant volume systems (without an actuator head) or as a true PICV in variable volume systems.

OPERATING PRINCIPLES

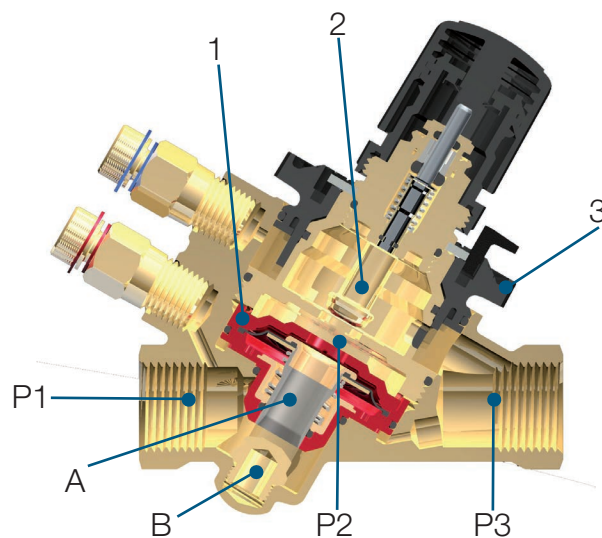
EvoPICV valve is made up of three main parts:

1. differential pressure regulator
2. regulating valve for flow adjustment
3. flow pre-setting knob

DIFFERENTIAL PRESSURE REGULATOR

The differential pressure regulator is the heart of the pressure independent control valve. By keeping a constant differential pressure across the valve seats constant flow and full authority temperature control can be achieved.

Incoming pressure P1 is transmitted to the top face of the diaphragm, outgoing pressure P3 is transmitted to the underside of this same diaphragm. A constant effective differential pressure is maintained between P2 and P3. As P1 increases relative to P3 it acts on the diaphragm closing the shutter (A) against a seat (B) thereby lowering the effective differential pressure. As P1 decreases relative to P3 the diaphragm acts to open the shutter (A) from the seat (B) thus increasing the effective differential pressure. The diaphragm acts against a spring in order to balance the pressure control and stop the diaphragm oscillating.



REGULATION VALVE

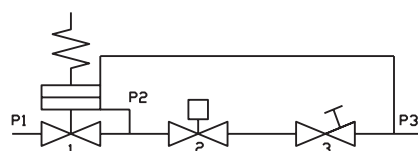
Water flow through a valve varies as a function of the area of passage and the pressure differential across that valve. Due to the incorporation of the differential pressure regulator the differential across the valve seats P2 – P3 is constant meaning that flow is now only a function of area of passage.

Setting any flow rate value and maintaining it is also possible. The regulation valve presents an equal percentage characteristic.

ADJUSTMENT KNOB

The maximum value of the flow can be preset, choking the outlet section of the control valve, using the graduated adjustment knob.

The percentage value, indicated on the scale, matches the maximum flow rate percentage. This value can be changed turning the adjustment knob until it reaches the selected position (matching the percentage indicated on the scale). A locking mechanism stops the valve set values from being changed inadvertently.



Functional schematic

PEB91 series 1/2" - 1"



EVOPIC PICV - Externally Adjustable 1/2" - 1" PICV with Equal Percentage Characteristic and test points. DZR body with Female BSP Connections. Maximum Flow rate of 1500 l/h. Available without pressure ports.

PATENT IT27181 - EP 2488994 - US8989140

General technical specifications

| | |
|-----------------------|-------------------|
| Accuracy 0 ÷ 1 bar | ± 5% |
| ΔP max. | 600 kPa / 6 bar |
| Temperature | -10 ÷ 120 °C |
| Working pressure max. | 2500 kPa / 25 bar |
| Stroke | 3 mm |

| | PEB91VL.04 | PEB91L.04 | PEB91H.04 | PEB91L.06 | PEB91H.06 | PEB91H.08 |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-----------------------|
| Flow rate max. | 150 l/h 0,042 l/s | 600 l/h 0,167 l/s | 780 l/h 0,217 l/s | 1000 l/h 0,278 l/s | 1500 l/h 0,417 l/s | 1500 l/h 0,417 l/s |
| Start-up max. | 20 kPa 0,20 bar | 25 kPa 0,25 bar | 35 kPa 0,35 bar | 30 kPa 0,30 bar | 35 kPa 0,35 bar | 35 kPa 0,35 bar |
| Connections | Rp 1/2" F EN 10226-1 | Rp 1/2" F EN 10226-1 | Rp 1/2" F EN 10226-1 | Rp 3/4" F EN 10226-1 | Rp 3/4" F EN 10226-1 | Rp 1" F EN 10226-1 |

MANUAL FLOW SETTING DEVICE



Flow rate can be adjusted without taking actuator off the valve.



PEB93 series 1" - 1 1/4"



EVOPIC PICV - Externally Adjustable 1" - 1 1/4" PICV with Equal Percentage Characteristic and test points. DZR body with Female Union BSP Connections. Maximum Flow rate of 3000 l/h.

PATENT IT271811 - EP 2488994 - US8989140

General technical specifications

| | |
|-----------------------|-------------------|
| Accuracy 0 ÷ 1 bar | ± 5% |
| ΔP max. | 600 kPa / 6 bar |
| Temperature | -10 ÷ 120 °C |
| Working pressure max. | 2500 kPa / 25 bar |
| Stroke | 6 mm |

| | PEB93L.08 | PEB93H.08 | PEB93L.10 | PEB93H.10 |
|----------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|
| Flow rate max. | 2200 l/h 0,611 l/s | 2700 l/h 0,750 l/s | 2700 l/h 0,750 l/s | 3000 l/h 0,833 l/s |
| Start-up max. | 25 kPa 0,25 bar | 30 kPa 0,30 bar | 30 kPa 0,30 bar | 35 kPa 0,35 bar |
| Connections | Rc 1" union F EN 10226-1 | Rc 1" union F EN 10226-1 | Rc 1 1/4" union F EN 10226-1 | Rc 1 1/4" union F EN 10226-1 |

REMOVABLE DIAPHRAGM



Removable diaphragm for flushing, maintenance and trouble shooting

PE83 series 1 1/4" - 2"



EvoPICVR - Rotary Pressure independent Control Valve with Test Points. Ductile Iron Body 1 1/4" - 2" with Female BSP Union Connections. Supplied with manual flow setting device. Maximum Flow 18,000 l/h

PATENT EP 2.841.853.B1 - US9383033B2 - IT277258

General technical specifications

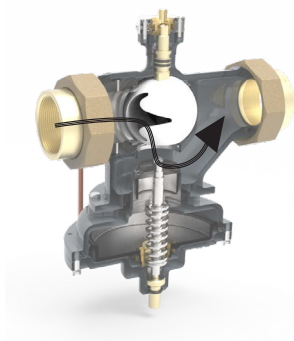
| | |
|-----------------------|-------------------|
| Accuracy 0 ÷ 1 bar | ± 5% |
| ΔP max. | 600 kPa / 6 bar |
| Temperature | -10 ÷ 120 °C |
| Working pressure max. | 1600 kPa / 16 bar |
| Stroke | 90° |

| | PE83SH.10 DN40 | PE83SLN.12 DN40 | PE83SH.12 DN40 | PE83SLN.16 DN40 | PE83SHN.16 DN50 |
|-----------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------------|-----------------------------|
| Flow rate max. | 6000 l/h 1,67 l/s | 6000 l/h 1,67 l/s | 9000 l/h 2,50 l/s | 11000 l/h 3,06 l/s | 18000 l/h 5,00 l/s |
| Start-up max. | 30 kPa 0,30 bar | 30 kPa 0,30 bar | 35 kPa 0,35 bar | 40 kPa 0,40 bar | 35 kPa 0,35 bar |
| Connections | Rc 1 1/4" union F EN 10226-1 | Rc 1 1/2" union F EN 10226-1 | Rc 1 1/2" union F EN 10226-1 | Rc 2" union F EN 10226-1 | Rc 2" union F EN 10226-1 |

INTEGRATED FLUSHING MODE

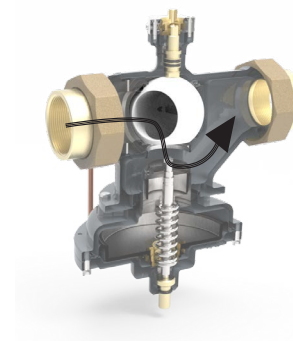
OPERATION MODE

Control valve fully open, controlling the flow through profiled ball and a 90° rotating actuator.

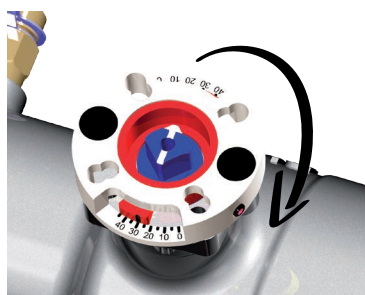


FLUSHING MODE

Control valve rotated by 180°, profiled opening outside flow path. The valve has now full port passage, allowing twice maximum flow, for proper flushing and cleaning.

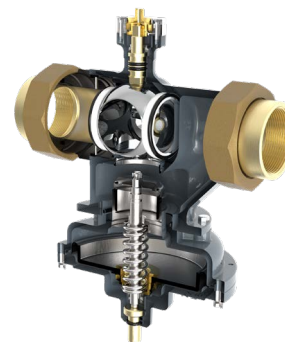


MANUAL FLOW SETTING DEVICE



CHARACTERIZED PROFILE

Solid and reliable characterized control ball valve. Full port profile.



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