SIEMENS

Ingenuity for life

Acvatix PICV – hydronics made easy

The simple and flexible way to energy-efficient HVAC plants

Information on hydronic balancing

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Less effort, high efficiency

Why PICVs (pressure-independent combi valves)?

Simple: PICVs make your daily work easier – whether planning, installation or commissioning – while also ensuring enhanced comfort and low energy costs.

New: 5-year warranty on valves and actuators, damper actuators, and sensors.

PICVs – the right way

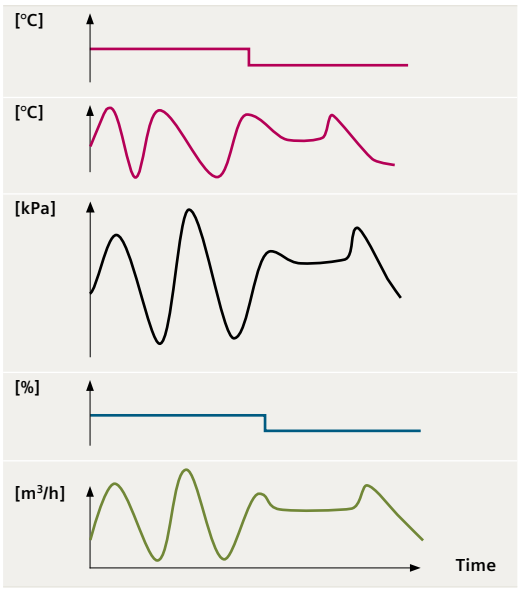
The advantages that PICVs offer are obvious, as this comparison shows

Static hydronic balancing with standard control valves

Uneven energy distribution under part load conditions results in less comfort and higher energy consumption.

1. Determine volumetric flow (V_{100}) and calculate pressure losses across the whole hydronic network
2. Determine nominal flow rate (k_{VS}) of the valve, valve type, and nominal size
3. Ensure the valve has the necessary control authority (P_V)
4. Calculate manual balancing valve and flow regulating valves
5. Repeat this process for all consumers
6. Commission the whole system by manually adjusting the position of all balancing valves

Now the system is balanced. But it is only statically balanced, which means that as soon as your hydronic distribution network operates at part load, which it usually does, the system is no longer balanced and runs inefficiently.



Room controlled with standard control valve

Dynamic hydronic balancing with PICVs

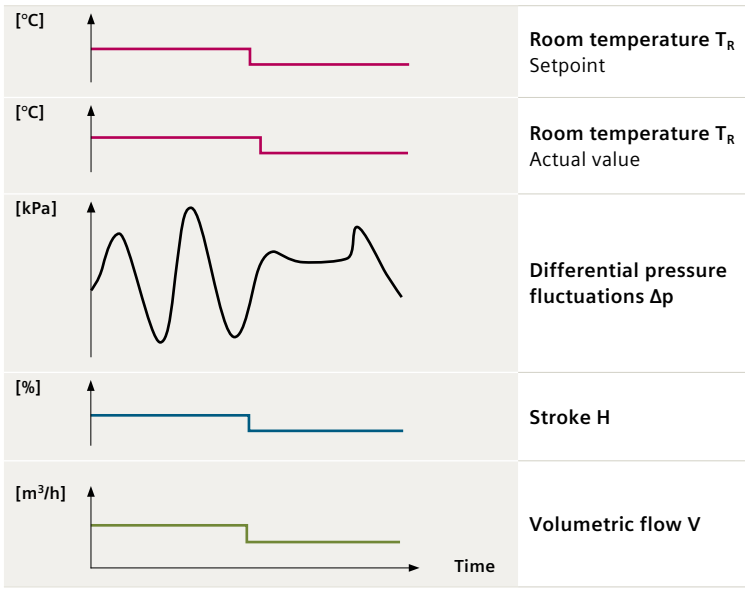
The hydronic system is always balanced, independent of load conditions and pressure fluctuations. A high level of comfort throughout the building and lower energy consumption.

1. Determine volumetric flow (V_{100})
2. Determine the right PICV
3. Determine maximum volumetric flow preset and set on the PICV
4. Repeat this process for all consumers

Now the system is dynamically balanced, which means it stays balanced independently of load conditions.

Why is it important to have the system balanced at all times? Comfort and energy efficiency: A balanced system eliminates any impact of fluctuations on the room temperature. This way, dynamic valves allow for energy savings of up to 30 percent with no sacrifice of comfort.

More on hydronic balancing



Room controlled with PICV

Want more specifics?

Let's have a closer look

A PICV ...

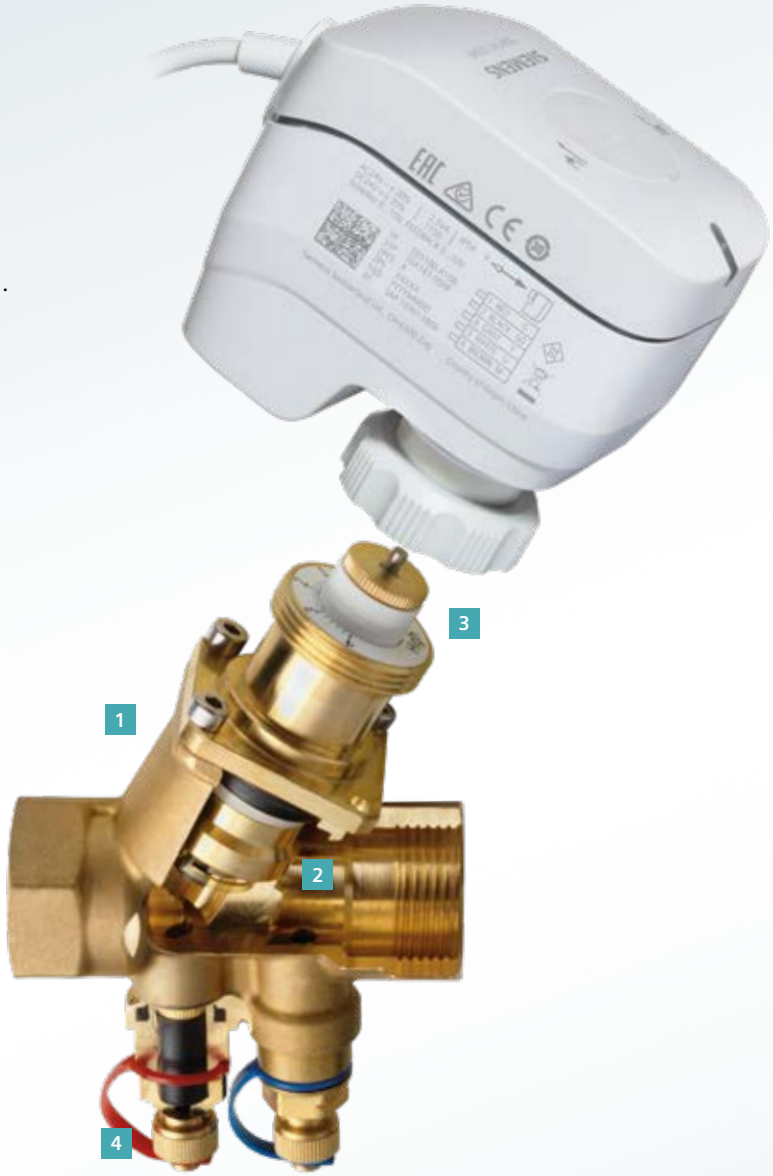
1 ... is a **control valve** to control volumetric flow ...

2 ... with a **differential pressure regulator** to protect against pressure fluctuations, ...

3 ... a **presetting scale** for maximum volumetric flow, and ...

4 ... **measuring points** for measuring differential pressure and volumetric flow ...

... **all combined in a single valve body.**



Planning is so easy

When you plan a system using PICVs, your choice of PICV depends solely on volumetric flow. There's no need for flow regulating valves, balancing valves, or complicated hydraulic calculations. That's why PICVs are ideal for refurbishment and renovation jobs, where you don't have precise knowledge of the pipe network.

Siemens makes it even easier to utilize PICVs. The "Combi Valve Sizer" app calculates maximum volumetric flow and the presetting you need. It will guide you through the choice of valve and actuator, and can directly check your commissioning settings.

Installation and commissioning are so easy

You'll complete the installation process faster since you need fewer components. Adjustable volumetric flow and automatic dynamic hydronic balancing make commissioning quick and effortless. PICVs also allow for commissioning in stages, e.g. one story at a time, which gives you lots of flexibility.

Enjoy comfort and save energy

PICVs are dynamic valves that ensure the right system pressure for all load conditions and prevent pressure fluctuations from impacting on room temperature. With PICVs from Siemens you have full stroke for each presetting, which helps ensure maximum control accuracy. Ideal return temperatures for all operating conditions guarantee a high level of efficiency in heating and cooling. That means you can achieve energy savings of up to 30 percent with no loss of comfort.

Load the "Combi Valve Sizer" app

More on saving energy with PICVs

Highlights

Why you should choose PICVs from Siemens

Easy to plan:

- No complex pressure loss and valve authority calculations
- Fast, easy product selection
- Efficient system, even with an unfamiliar pipe network

Effortless commissioning:

- No manual balancing
- Automatic dynamic hydronic balancing
- Commissioning in stages gives you flexibility

Less installation effort:

- No additional flow regulating valves or balancing valves

Optimized operation:

- High room comfort
- Up to 30 percent energy savings

Extensive PICV portfolio:

- Threaded or flange connections
- Volumetric flows of 0.025 to 280 m³/h
- Ideal for room and zone applications, heating groups, air handling units and district heating
- BIM data for all products
- Short delivery times
- Five-year warranty
- Practical aids like the “Combi Valve Sizer” app or HIT Portal
- Global sales and service network is your guarantee of professional support

Valve	PN	Connection	DN	Volumetric flow
VPF53	PN 25	Flange	50–200	VPF53
VPF44 VPF43	PN 16	Flange	50–200	VPF43, VPF44
VQI46 VPI46	PN 25	Internally threaded	10–25 15–50	VQI46 (on/off), VPI46
VQP46 VPP46	PN 25	Externally threaded	10–25 10–32	VQP46 (on/off), VPP46
VPD VPE	PN 10	Externally/ internally threaded	10/15	VPD/VPE

l/h	10	20	30	50	100	300	1,000	3,000	10,000	30,000	100,000	200,000
m³/h							1	3	10	30	100	200	280

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We work together with customers and partners to create an ecosystem that intuitively responds to the needs of people and helps customers to better use resources.

It helps our customers to thrive, communities to progress and supports sustainable development.

Creating environments that care.
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Published by
Siemens Switzerland Ltd

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Global Headquarters
Theilerstrasse 1a
6300 Zug
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For the U.S. published by
Siemens Industry Inc.

100 Technology Drive
Alpharetta, GA 30005
United States

(Status 10/2020)

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