Acvatix PICV – hydronics made easy

The simple and flexible way to energy-efficient HVAC plants – with pressure-independent combi valves
Less effort, high efficiency

Why pressure-independent combi valves (PICVs)?
Simple: PICVs make your daily work easier – whether planning, installation or commissioning – while also ensuring enhanced comfort and low energy costs.

Highlights:
PICVs combine the following into one valve body:
• A control valve
• A differential pressure controller that shields against pressure fluctuations in the hydronic network
• A presetting scale to set the desired maximum volumetric flow
• Pressure measuring points for differential pressure measurement.
Acvatix hydronics. Everything under control.

Straightforward planning
When planning systems with pressure-independent combi valves, the specific PICV to be used is determined solely by the volumetric flow. Flow regulating valves and balancing valves are as unnecessary as complicated hydronic calculations.

The wide volumetric flow and differential pressure ranges of the Acvatix PICVs enable extremely straightforward, highly flexible planning. Tools such as the Combi Valve Sizer app and the HIT Portal help you with product selection and sizing.

Straightforward installation and commissioning
Fewer components also means less installation effort. Commissioning is fast and easy thanks to the volumetric flow preset ability and automatic hydronic balancing. PICVs also permit flexible commissioning in stages – for example, by individual floor.

Enjoy enhanced comfort while saving energy
Although designed and balanced for a full load, most systems actually operate under a partial load, meaning that they operate inefficiently. Thanks to its dynamics, a PICV ensures that the system pressure is correct for all loads and that pressure fluctuations have no effect. Full stroke is available for every setting, thus contributing to high control accuracy. Optimal return temperatures for all operating conditions guarantee a high level of efficiency in heating and cooling. All these factors significantly reduce heating and cooling costs and ensure enhanced comfort through steady room temperature control. You achieve energy savings of up to 25 percent – without sacrificing comfort.

Siemens – of course
When installing new or renovating existing HVAC plants, rely on efficient technologies from Siemens. The Acvatix PICVs are innovative products with state-of-the-art technology and ideal for variable-volume, energy-efficient HVAC applications. Available with threaded or flanged connections, they offer you volume flows ranging from 0.025 to 200 m³/h, qualifying them for all room and zone applications as well as heating, ventilation and air conditioning systems. They are especially suitable for refurbishments and renovations because Acvatix PICVs permit an efficient system even without precise knowledge of the pipeline network.

Practical tools make your daily work easier:
• Combi Valve Sizer app for easily selecting the right products and correct presettings
• HIT Portal for the step-by-step planning of HVAC plants and for ordering products directly
• BIM data for efficient planning

In addition to these tools, take advantage of the global service network from Siemens, with benefits that include short delivery times and expert support if you have any questions. And when it comes to quality, extreme reliability in the interaction between products and systems, and a long service life: The products are extensively tested by Siemens in the company’s in-house HVAC laboratory.

Using the Combi Valve Sizer app, you can select the ideal Acvatix combi valve and the right actuator with just a few clicks. This makes planning energy-efficient HVAC plants very straightforward.
Acvatix PICV in detail

1 | Maximum volumetric flow presetting
- Consistent, wide volumetric flow range for flexible planning
- Presetting to prevent oversupply to the heat exchanger
- High control accuracy thanks to full stroke range with any preset value
- Easy adjustment of maximum volumetric flow at any time when usage patterns change
- Mounting and presetting without special tools

2 | Integrated differential pressure controller
- Automatic shielding against pressure fluctuations in the network for a constant volumetric flow
- Wide differential pressure range for flexible planning
- Prevention of mutual hydronic interaction between consumers in different operational situations
- Deployment of inexpensive pumps thanks to extremely low $\Delta p_{\text{min}}$
- Automatic hydronic balancing for fast commissioning

3 | Pressure measuring points
- Straightforward testing and setting of minimum or optimum differential pressure during commissioning with the aid of pressure measuring points
- Simplified testing of the plant in operation thanks to easily accessible pressure measuring points
### Actuators for PICVs

- Actuators for every control requirement
- Straightforward planning due to broad actuator range
- Efficient plant control and quick troubleshooting thanks to additional functions

### Acvatix PICVs for every application

<table>
<thead>
<tr>
<th>PN class</th>
<th>Connection</th>
<th>DN</th>
<th>Volumetric flow</th>
</tr>
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<tbody>
<tr>
<td>PN 25</td>
<td>Flange</td>
<td>50...150</td>
<td>VPF53..</td>
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<tr>
<td>PN 16</td>
<td>Flange</td>
<td>50...150</td>
<td>VPF43..</td>
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<tr>
<td>PN 25</td>
<td>Internally threaded</td>
<td>15...50</td>
<td>VP46..</td>
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<tr>
<td>PN 25</td>
<td>Externally threaded</td>
<td>10...32</td>
<td>VPP46..</td>
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<tr>
<td>PN 10</td>
<td>Externally/Internally threaded</td>
<td>10/15</td>
<td>VPD.../VPE..</td>
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The key to high energy efficiency and convenience

Ideal for a variety of applications

Acvatix PICVs are suitable for use in:
• Fan coil units
• Chilled ceilings
• VAVs (variable air volume systems)
• Radiators
• Zone control
• Heating groups
• Air handling units
• District heating

1 | Demand-controlled pump

• Energy consumption in variable-volume HVAC plants reduced by means of demand- and speed-controlled pumps
• Volumetric flow optimally adjusted thanks to differential pressure measurement and continuous speed control
• No undersupply in part load operation thanks to correctly selected and sized pump

2 | PICV

• Straightforward implementation of energy-efficient, variable-volume HVAC plants
• High control accuracy, resulting in enhanced comfort, thanks to full stroke
• Prevention of mutual hydronic interaction in a branch through the integrated differential pressure controller
• No oversupply thanks to straightforward, stepless presetting of the desired maximum volumetric flow
• Desired volumetric flow always guaranteed
• Straightforward sizing and selection of PICVs via volumetric flow calculation
• Support tools such as the HIT Portal and Combi Valve Sizer app
<table>
<thead>
<tr>
<th>Room controlled by PICV</th>
<th>Room controlled by k_4 valve</th>
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<tbody>
<tr>
<td>Room temperature T_R</td>
<td>[°C]</td>
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<tr>
<td>Setpoint</td>
<td></td>
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<tr>
<td>Room temperature T_R</td>
<td>[°C]</td>
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<tr>
<td>Actual value</td>
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<tr>
<td>Differential pressure</td>
<td>[kPa]</td>
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<tr>
<td>fluctuations δp</td>
<td></td>
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<tr>
<td>Stroke H</td>
<td>[%]</td>
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<tr>
<td>Volumetric flow V</td>
<td>[m³/h]</td>
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**Differential pressure measurement**

No undersupply thanks to differential pressure measurement at a plant’s most hydronically significant consumer.
When building technology creates perfect places –
that's Ingenuity for life.

Never too cold. Never too warm.
Always safe. Always secure.

With our knowledge and technology, our products,
our solutions and our services, we turn places into
perfect places.

We create perfect places for their users’ needs –
for every stage of life.

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