



Acvatix PICV – Do it right

The simple and flexible way to energy-efficient
HVAC plants – with PICVs

Why PICVs (pressure-independent combi valves)?

It's simple



PICVs make your daily work easier

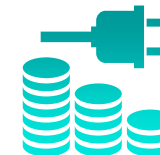
whether simplified planning



faster installation or commissioning



while also ensuring enhanced comfort
and low energy costs



What is a PICV?

The PICV combines ...

- ... a **control valve** for controlling the volumetric flow ...
- ... a **differential pressure controller** for shielding against pressure fluctuations in the hydronic network ...
- ... a **presetting scale** for setting the required maximum volumetric flow, and features ...
- ... **pressure measuring points** for volumetric flow and differential pressure measuring ...
- ... **in one valve body**



Acvatix PICVs in a nutshell



1 Control valve actuator



2 Infinite presetting of required maximum volumetric flow



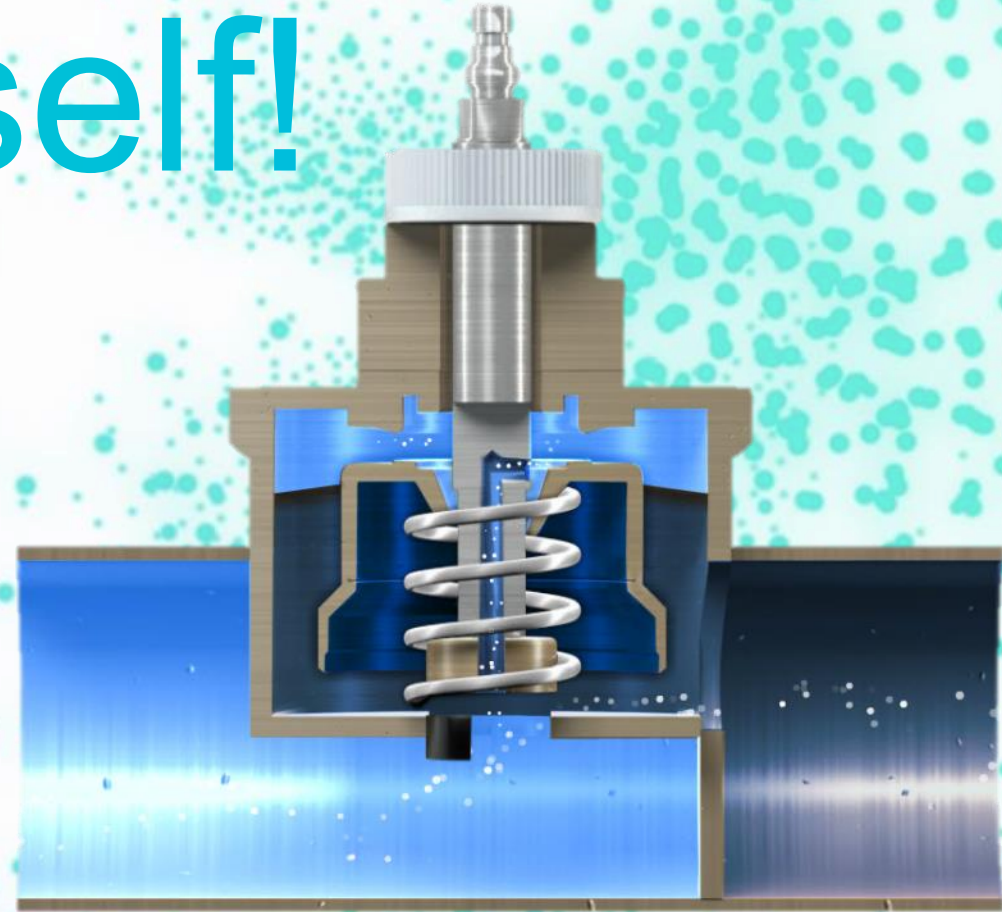
3 Integrated differential pressure controller



4 Pressure test points



Try for yourself!



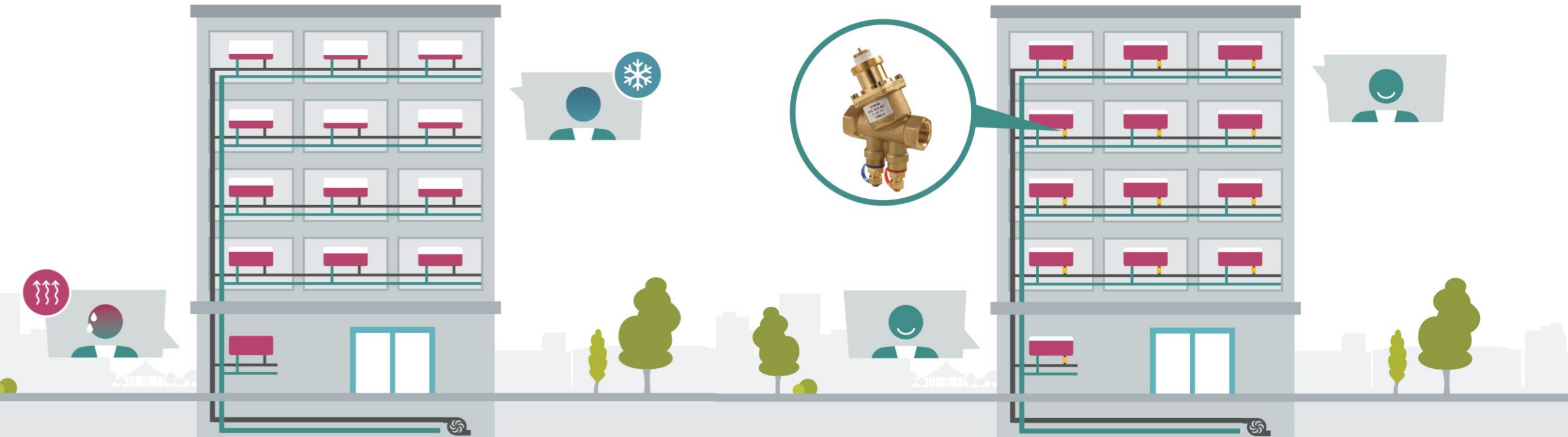
k_{vs} valve vs. PICV

Static hydronic balancing with k_{vs} valves:

Uneven energy distribution under part load conditions resulting in unfair temperature distribution.

Dynamic hydronic balancing with PICVs:

The hydronic system is always balanced, independent of load conditions and pressure fluctuations.



[Movie](#)



Where are PICVs used?

Acvatix PICVs are suited for all room and zone applications plus energy generation and distribution in heating, ventilation and air conditioning plants operating with closed circuits. Also ideal for retro-fit projects and plant extensions.

Ideal for a host of applications

Application examples



Air handling units

- Up to 280 m³/h
- PN 16/25
- Up to 120 °C
- Δp_{max} up to 600 kPa



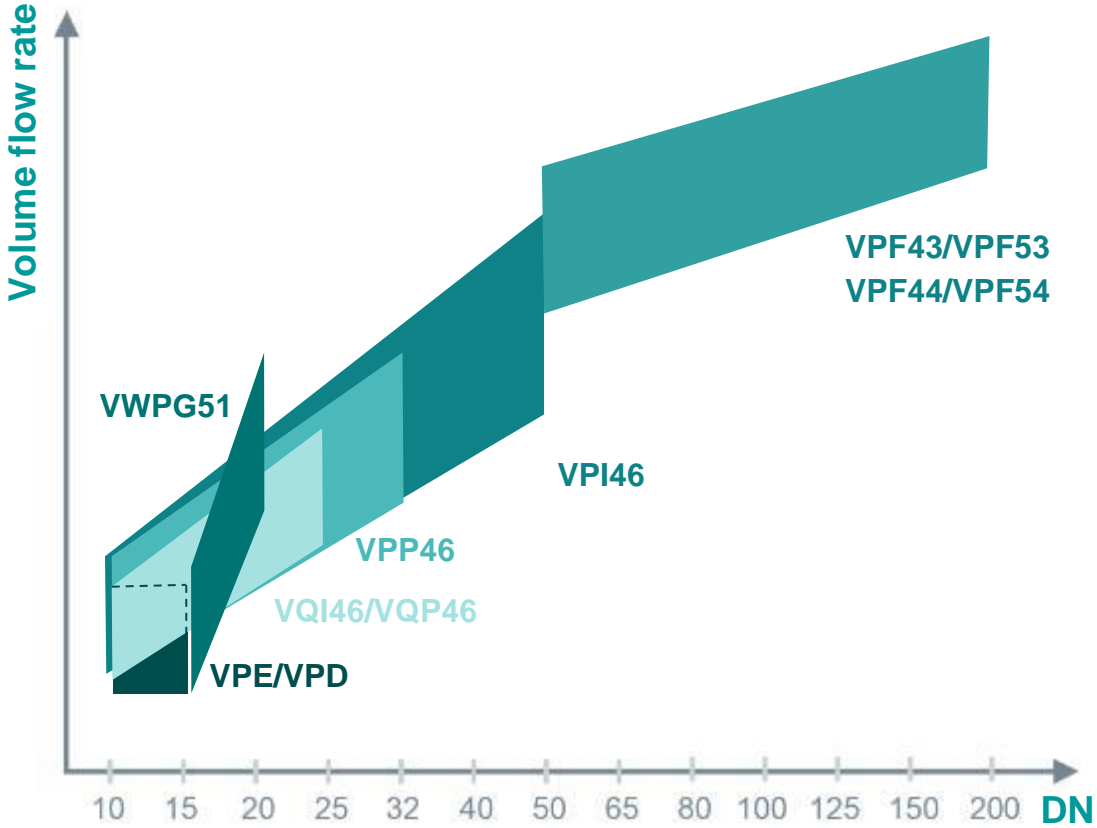
Fan coils, chilled ceilings, rooms and zones

- Up to 11'500 l/h
- PN 10/25, threaded
- Up to 110°C
- Δp_{max} up to 400 kPa



Chilled and heated ceilings

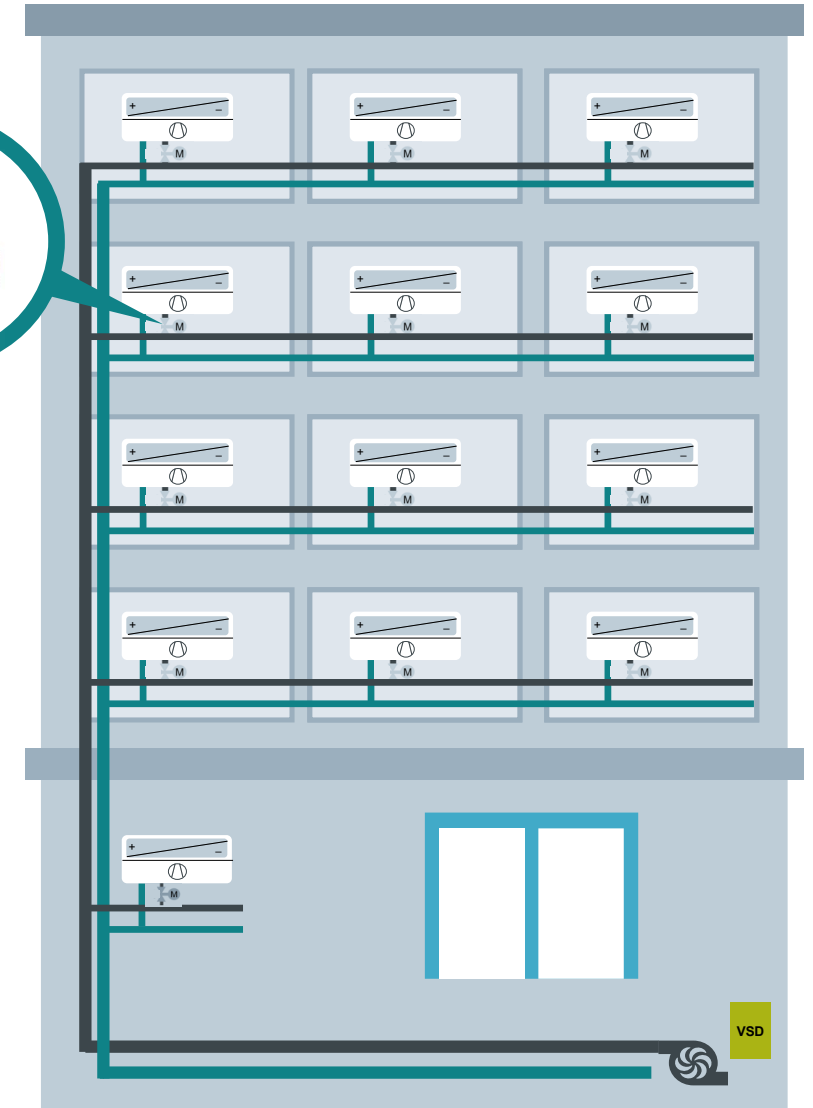
- Up to 4'250 l/h
- PN 25, threaded
- Up to 90°C
- Δp_{max} up to 400 kPa



Ideal for a host of applications

Application examples

- For energy-efficient HVAC plants with variable flow and demand- or speed-controlled pumps
- Measuring of differential pressure at the most significant consumer from the hydronic point of view – therefore no undersupply
- No oversupply to consumers thanks to presetting
- No mutual hydronic interaction between consumers
- Optimum return temperatures under all operating conditions and therefore in the generation of heating and cooling energy



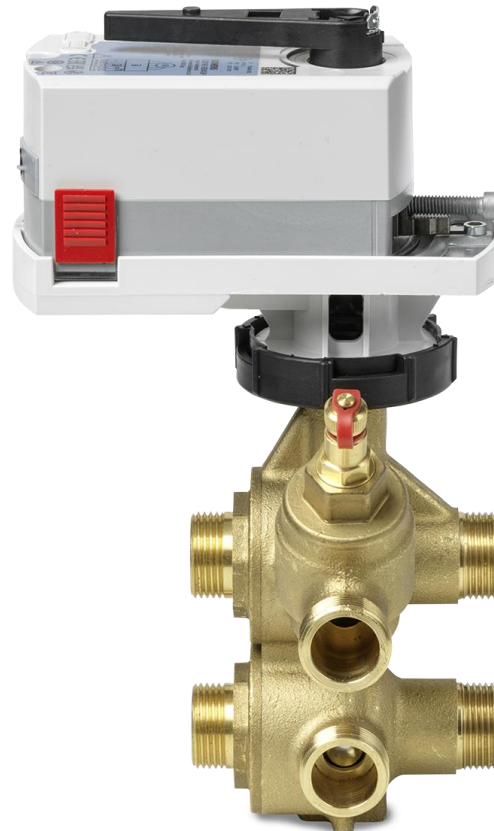
6-port PICV – Key features

Do it right: dynamic hydronic balancing

- Outstanding pressure independent control performance
- Field serviceability – clean or replace the regulator

Features

- Best in class 6-port performance
- Unmatchable flow with minimal required differential pressure
- Proven contaminated water resilience
- True close-off pressure to separate both heating and cooling loops



GDB Series Actuator

- Specific firmware designed for 6-port valve control
- Improved step resolution for increased control accuracy
- DC 0(2)-10 V, Modbus RTU
- Max. flow pre-setting through either actuator or manual operation (screws)

VWPG51 Series 6-port PICV

- Unmatchable flow rate
- DN15 Low Flow: 925 l/h
- DN15: 1200 l/h
- DN20: 4250 l/h
- PN25
- Male threaded G3/4" and G1" connections
- Accessories: fittings, P/T, insulation box

Range of Acvatix PICVs

Threaded connections



- Series VPD, VPE, VQI46, VQP46, VPI46, VPP46
- PN 10 and PN 25
- DN 10 ... 50 with male and female threads
- 25 ... 11'500 l/h
- Wide differential pressure range: Δp_{\max} up to 400 kPa
- With or without pressure measuring points for differential pressure measurement, e.g. for commissioning

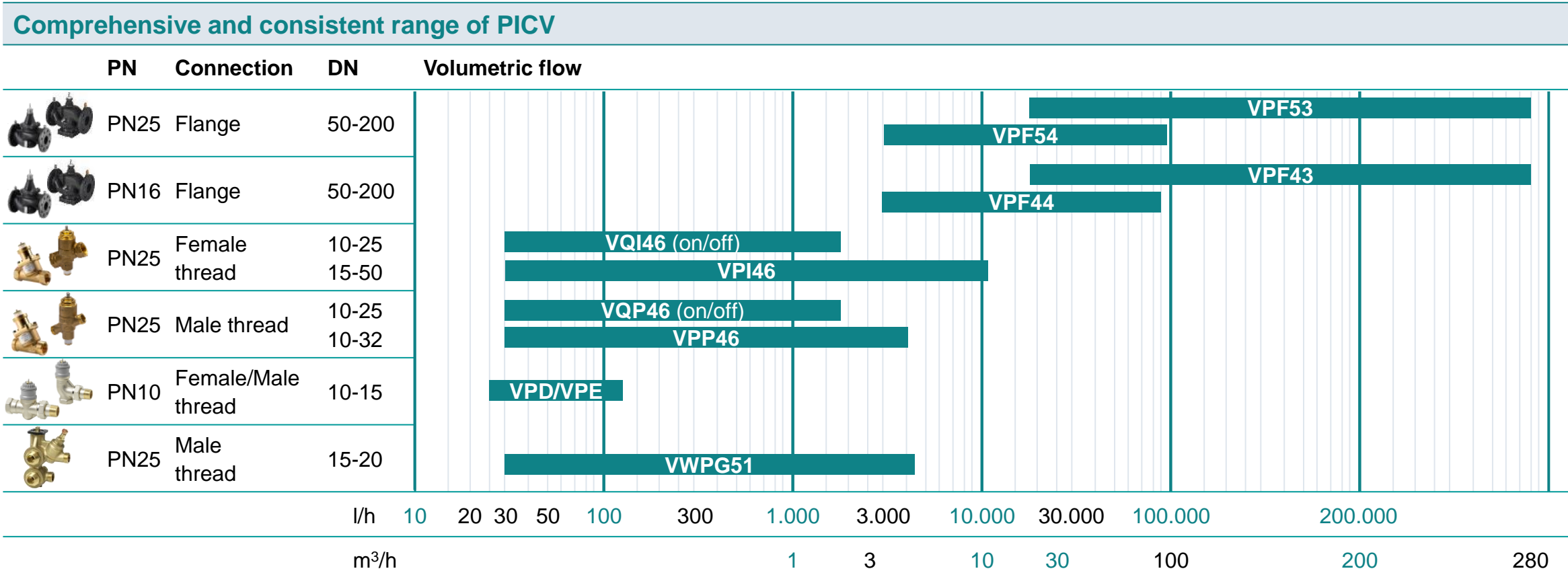
Flanged connections



- Series VPF43, VPF44, VPF53, VPF54
- PN 16 and PN 25
- DN 50 ... 200
- 2.3 ... 280 m³/h
- Wide differential pressure range: Δp_{\max} up to 600 kPa
- With measuring points for differential pressure and volumetric flow measurement, e.g. for commissioning

- Full stroke with every presetting
- Actuators for all control needs and all standard operating voltages and positioning signals
- CE and UL certificate

Range of Acvatix PICV



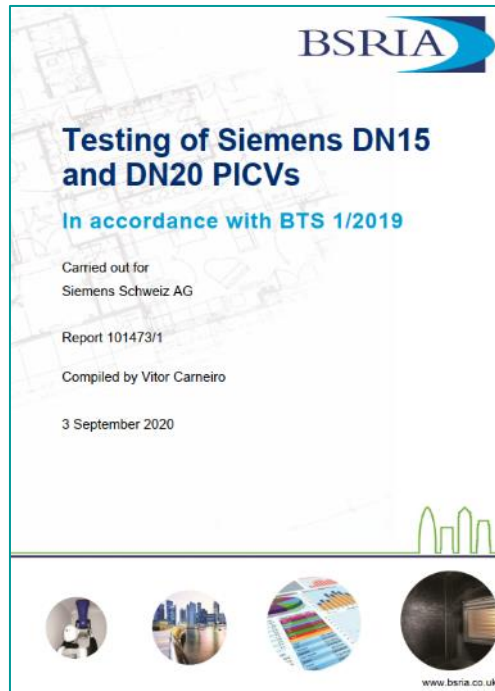
- Consistent range of volumetric flow
- High differential pressure: Δp_{\max} up to 600 kPa

Tested performance with Siemens Acvatix PICV

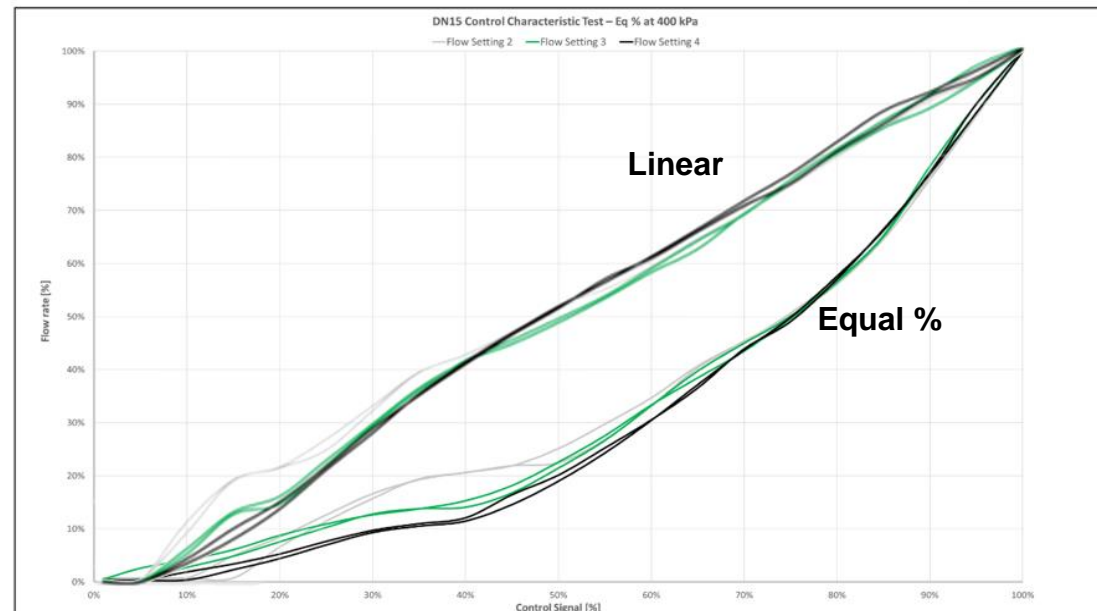
BSRIA Test report

One test example: VPI46 + SSA...







- More energy savings, because of smallest hysteresis in all pre-setting positions
- Better control because of constant authority for every presetting



Control Characteristics Tests at fixed Differential Pressure of 400kPa on the DN15 PICV



Acvatix actuators for PICV with threaded connections





	RTN ...	SUE21P ...	STA ...	STP ...	SSA ...	SAY ... P03 ...
						
Operating voltage	–	AC 230 V	AC 230 V AC 24 V AC/DC 24 V	AC 230 V AC 24 V AC/DC 24 V	AC 230 V AC/DC 24 V	AC 230 V AC 24 V AC/DC 24 V
Positioning signal	–	2-Position	2-Position PDM ¹ DC 0 ... 10 V	2-Position PDM ¹ DC 0 ... 10 V	3-Position DC 0...10 V 4...20 A KNX	2-Position DC 0 ... 10 V
Positioning time	–	12 s	210/270 s	210/270 s	135 s	30 s
Spring return function	–		✓	✓	–	–
Type of actuator	Thermostatic	Electromotoric	Electrothermal	Electrothermal	Electromotoric	Electromotoric
VQP46 .../VQI46...		✓	✓	✓		
VPP46 ...	–		✓	✓ (DN10..DN20)	✓	–
VPI46 ...	–		✓ (DN10..DN32)	✓ (DN10..DN20)	✓ (DN10..DN32)	✓ (DN40..DN50)
VPD ...	✓		✓	✓	✓	–
VPE ...	✓		✓	✓	✓	–

1 PDM = Pulse duration modulation

Accessories

Potentiometers, auxiliary switches and function modules, depending on product line. For details, refer to data sheets or product catalog

Acvatix actuators for PICV with flanged connections

	SAX ... P ...	SQV ... P ...	SAV ... P ...	GDB161.9../.6..
				
Operating voltage	AC 230 V AC/DC 24 V	AC 230 V AC/DC 24 V	AC 230 V AC/DC 24 V	AC/DC 24 V
Positioning signal	3-Position 0 ... 10 V/4 ... 20 mA	3-Position 0 ... 10 V/4 ... 20 mA	3-Position 0 ... 10 V/4 ... 20 mA	DC 0(2) ... 10 V Modbus RTU
Positioning time	30 s	40/80 s	120 s	150 s
Spring return function¹	–	NC/NO	–	–
Type of actuator	Electromotoric	Electromotoric	Electromotoric	Electromotoric
VPF43 ... VPF44...	✓ (DN50 ... DN80)	✓	✓ (DN100 ... DN200)	
VPF53 ... VPF54..	✓ (DN50 ... DN80)	✓	✓ (DN100 ... DN200)	
VWPG51				✓

¹ Combination of valve and actuator when deenergized: NO = normally open/NC = normally closed

Accessories

Potentiometers, auxiliary switches and function modules, depending on product line. For details, refer to data sheets or product catalog

Your benefits with Acvatix PICV



- **Cost efficiency**
Straightforward valve sizing (only V),
stepless presetting (no oversupply)
and easier hydronic balancing
(shorter commissioning times)
- **Convenient and simple**
Wide and consistent volumetric flow
and differential pressure ranges
- **More energy efficiency**
Optimum return temperatures under
all operating conditions and therefore
ensuring high efficiency in the
generation of heating and cooling
energy (temperature difference)

Your benefits with Acvatix PICV



- **Flexibility**
Straightforward plant extensions, suited for retrofit projects and Performance Contracting
- **Secure operation**
No oversupply and no mutual hydronic interaction between consumers
- **Consistent product range**
Consistent volumetric flow and wide differential pressure ranges
- **Pressure measuring points on PICV and accessories for measuring differential pressure**

Your benefits with Acvatix PICV



Tested quality and full support when it comes to planning, engineering and service

Support for planning and product selection with ...

- Combi Valve Sizer app
- HIT Portal www.siemens.com/hit
- BIM
- Valve slide ruler
- Product overview for exchange
- Consistent documentation covering all products (data sheets, manuals, CAD data)
- Product training courses
- Global service network for fast support in the event of plant malfunctions – quick supply of spare parts

Your building in Perfect Flow

Feel the perfect flow in your building. When your building is in Perfect Flow you may not see it, but whether it is a healthy indoor environment, a comfortable space or the most cost-efficient operation, the Perfect Flow makes your building smarter.

Perfect Flow with field devices from Siemens

Valves & actuators

Room thermostats

Sensors

KNX room systems

Damper actuators

Variable speed drives

Meters

