

Pressure-independent characterized control valve, 2-way, with internal thread

- for closed cold and warm water systems
- for modulating control on the water side of air-handling and heating systems



## Type overview

Type	$\dot{V}_{nom}^{1)}$ [l/s]	DN [mm]	Rp [Inches]	Sv
R215P-009	0.09	15	1/2"	>50
R215P-036	0.36	15	1/2"	>50
R220P-036	0.36	20	3/4"	>100
R220P-066	0.66	20	3/4"	>100
R225P-057	0.57	25	1"	>100
R225P-098	0.98	25	1"	>100
R232P-098	0.98	32	1 1/4"	>100
R232P-151	1.51	32	1 1/4"	>100
R240P-164	1.64	40	1 1/2"	>100
R240P-208	2.08	40	1 1/2"	>100
R250P-252	2.52	50	2"	>100
R250P-505	5.05	50	2"	>100

<sup>1)</sup>  $\dot{V}_{nom}$  = nominal flow rate when the valve is fully open

## Technical data

Functional data	Flow media	Cold and hot water, water with max. 50% volume of glycol
Temperature of medium	DN 15 ... DN 20: +5°C ... +100°C DN 25 ... DN 50: +5°C ... +80°C (lower temperatures on request)	
Rated pressure $p_s$	1600 kPa	
Effective pressure	30 ... 350 kPa	
Closing pressure $\Delta p_s$	700 kPa	
Allowed range $\dot{V}_{max}^{2)}$	45 ... 100% of $\dot{V}_{nom}^{1)}$	
Flow characteristic	Equal percentage characteristics (to VDI/VDE 2178)	
Pressure stability	At a differential pressure of 35 ... 350 kPa: $\pm 10\%$ , in the lower effective pressure range: $\pm 15\%$	
Rangeability $S_v$	See «Type overview»	
Leakage rate	Tight, leakage class IV at 350 kPa (IEC 60534-4)	
Pipe connector	Internal thread acc. to ISO 7/1	
Angle of rotation	90° $\nabla$ (Operating range 15 ... 90° $\nabla$ )	
Installation position	Upright to horizontal (in relation to the stem)	
Maintenance	Maintenance-free	
<b>Materials</b>	Fitting	DN 15 ... DN 25: Forged fitting, nickel-plated brass body DN 32 ... DN 50: Cast, nickel-plated brass body
	Valve cone and stem	Chrome-plated brass
	Stem seal	EPDM O-ring
	Ball seat	PTFE, O-ring Viton
	Characterizing disk	DN 15 ... DN 20: Brass DN 25 ... DN 50: TEFZEL
	Cage	Brass
	Diaphragm	Polyester-reinforced silicone
	Spring for valve cone	Stainless steel
<b>Dimensions / Weights</b>	see «Dimensions and weights», page 3	
<b>Motorizing</b>	see Overview Valve-actuator combinations	

<sup>1)</sup>  $\dot{V}_{nom}$  = nominal flow rate when the valve is fully open

<sup>2)</sup>  $\dot{V}_{max}$  = maximum flow rate which has been set by angle of rotation limiting at the actuator

### Safety notes



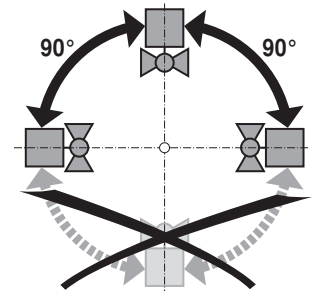
- The valve has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- It may only be installed by suitably trained personnel.  
All applicable legal or institutional installation regulations must be complied with.
- The valve does not contain any parts that can be replaced or repaired by the user.
- The valve is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.
- The recognized rules should be applied when determining the flow characteristic of final controlling elements.

### Product features

<b>Mode of operation</b>	The characterized control valve is operated by a rotary actuator. The actuator is controlled by a standard modulating or 3-point control system and move the ball of the valve – the throttling device – to the opening position dictated by the control signal. Open the ball valve counterclockwise and close it clockwise.
<b>Flow characteristic</b>	Equal-percentage characteristic of the flow rate ensured by the integral characterizing disc.
<b>Constant flow volume <math>\dot{V}</math></b>	With an effective pressure of 30 ... 350 kPa, the result is a constant flow rate volume thanks to the integrated pressure reduction valve. Regardless of the differential pressure over the valve, a valve authority of 1 is attained. Even in the part-load range, the flow rate remains constant with each opening position (angle of rotation) and ensures a steady control.

### Installation notes

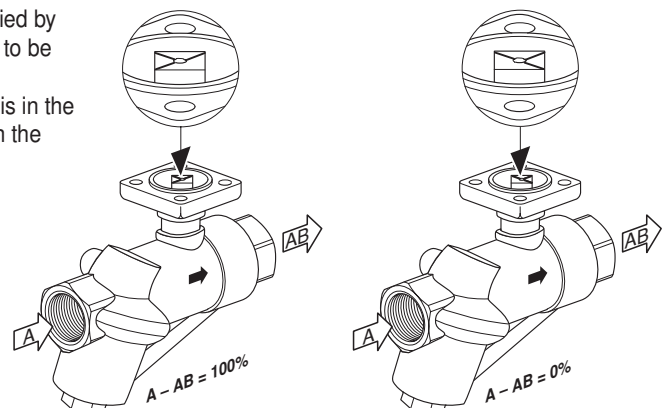
- Recommended mounting positions** The valve may be mounted either **vertically** or **horizontally**. It is not permissible, mounting the characterized control valve with the stem pointing downwards.



- Water quality requirements**
- The water quality requirements specified in VDI 2035 must be adhered to.
  - Characterized control valves are relatively sensitive control devices. In order to ensure a long service life, it is advisable to fit **strainers**.

- Maintenance**
- The characterized control valves and rotary actuators are maintenance-free.
  - Before any kind of service work is carried out on actuator sets of this type, it is essential to isolate the rotary actuator from the power supply (by unplugging the power lead). Any pumps in the part of the piping system concerned must also be switched off and the appropriate isolating fittings closed (allow everything to cool down first if necessary and reduce the pressure in the system to atmospheric).
  - The system must not be returned to service until the ball valve and the rotary actuator have been properly reassembled in accordance with the instructions and the pipework has been refilled in the proper manner.

- Direction of flow** The direction of flow, specified by an arrow on the housing, is to be complied with. Please ensure that the ball is in the correct position (Marking on the stem).



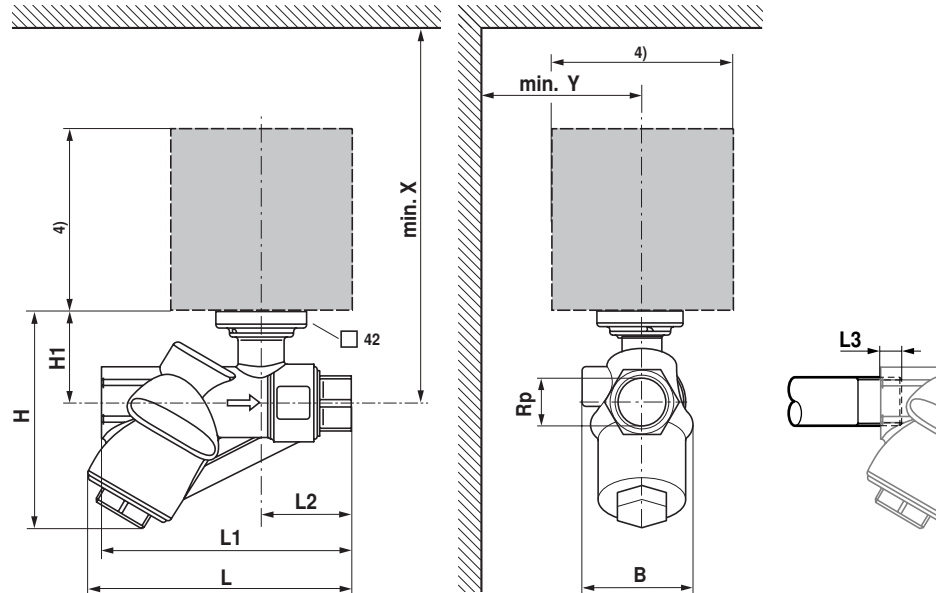
## Accessories

## Description

Mechanical accessories Pipe connector, Type ZR23..

## Dimensions [mm] / Weights

## Dimensional diagrams



DN	Rp	L	L1	L2	L3 <sup>1)</sup>	H	H1	B	X <sup>2)</sup>	X <sup>3)</sup>	Y <sup>2) 3)</sup>	Weight
[mm]	[Inches]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
15	1/2"	119	114	38	13	94	36	51	200	250	70	0.9
20	3/4"	126	126	43	14	94	36	51	200	250	70	0.9
25	1"	179	179	63	16	121	46	82	200	250	70	2.8
32	1 1/4"	221	221	62	19	140	51	87	200	250	70	3.8
40	1 1/2"	204	204	65	19	140	51	87	200	250	70	3.6
50	2"	225	225	74	23	146	57	87	200	250	70	4.4
50 <sup>5)</sup>	2"	426	397	83	22	224	76	132	200	250	70	12.3

1) Maximum installation depth

2) Minimum distance with respect to the valve centre LR..A

3) Minimum distance with respect to the valve centre NR..

4) The actuator dimensions can be found on the respective actuator data sheet

5) R250P-505

## Further documentations

- Overview Valve-actuator combinations
- Data sheets for actuators
- Installation instructions for pressure-independent characterized control valves and/or actuators
- Notes for project planning (hydraulic characteristic curves and circuits, installation regulations, commissioning, maintenance etc.)