

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

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



Type overview

Type	kvs [l/s]	DN [mm]	DN [Inches]	ps [kPa]	Sv
R215P-009	0.09	15	1/2"	4140	> 50
R215P-036	0.36	15	1/2"	4140	> 50
R220P-036	0.36	20	3/4"	4140	> 100
R220P-066	0.66	20	3/4"	4140	> 100
R225P-057	0.57	25	1"	4140	> 100
R225P-098	0.98	25	1"	4140	> 100
R232P-098	0.98	32	1 1/4"	2760	> 100
R232P-151	1.51	32	1 1/4"	2760	> 100
R240P-164	1.64	40	1 1/2"	2760	> 100
R240P-208	2.08	40	1 1/2"	2760	> 100
R250P-252	2.52	50	2"	2760	> 100
R250P-505	5.05	50	2"	2760	> 100

Technical data

Functional data	Flow media	Cold and hot water, water with max. 50% volume of glycol
Temperature of medium		+5 °C...+100 °C (lower temperatures on request)
Rated pressure p _s		See «Type overview»
Effective pressure		30 ... 350 kPa
Closing pressure Δp _s		1400 kPa
Flow characteristic		Equal percentage characteristics (to VDI/VDE 2173)
Flow rate tolerance		At a differential pressure of 35 ... 350 kPa: ±5%, in the lower effective pressure range: ±10%
Rangeability S _v		See «Type overview»
Leakage rate		Tight, leakage class IV at 350 kPa (DIN IEC 534-4)
Pipe connector		Internal thread acc. to ISO 7/1
Angle of rotation		90°↺ (Operating range 15 ... 90°↺)
Installation position		Upright to horizontal (in relation to the stem)
Maintenance		Maintenance-free
Materials	Fitting	Forged fitting, nickel-plated brass body
Valve cone and stem		Chrome-plated brass
Stem seal		EPDM O-ring
Ball seat		PTFE, O-ring Viton
Characterizing disk		TEFZEL
Cage		Brass (R225P-.. Delrin 500 AF)
Diaphragm		Polyester-reinforced silicone
Spring for valve cone		Stainless steel
Dimensions / Weightss		see «Dimensions and weights», page 3
Motorizing		see the complete overview of water solutions

Safety notes



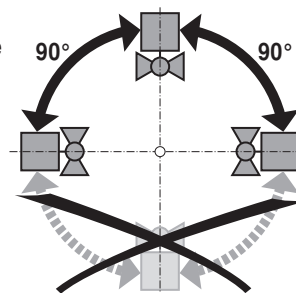
- The valve has been designed for use in stationary heating, ventilation and air conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- It may only be installed by suitably trained personnel.
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

Mode of operation	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.
Flow characteristic	Equal-percentage characteristic of the flow rate ensured by the integral characterizing disc.
Constant flow volume \dot{V}	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

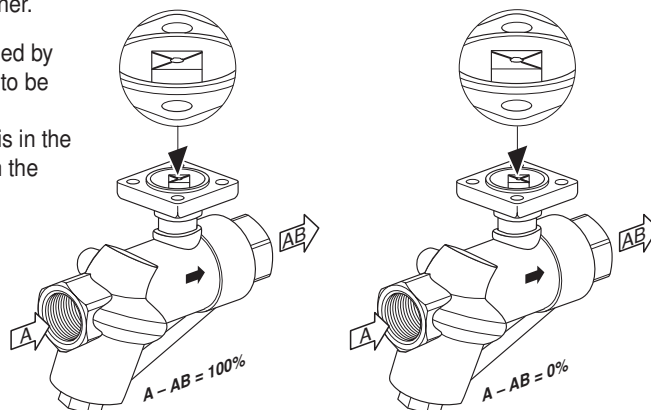
- Recommended mounting positions** The valve may be mounted either **vertically** or **horizontally**. It is not permissible, mounting the characterized control valve with the stem pointing downwards.



- 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).



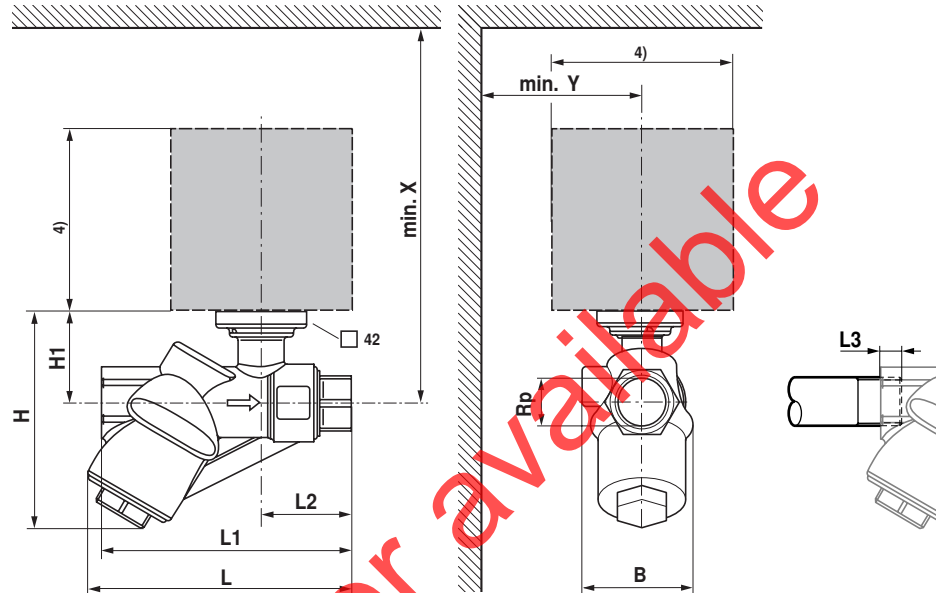
Accessories

Description

Mechanical accessories Pipe connector, Type ZR23..

Dimensions [mm]

Dimensional diagrams



DN	Rp	L	L1	L2	L3 ¹⁾	H	H1	B	X ²⁾	X ³⁾	Y ^{2) 3)}	Weight
[mm]	[Inches]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
15	1/2"	122	116	41	13	101	45	57	200	250	70	1,1
20	3/4"	134	128	48	14	106	48	57	200	250	70	1,5
25	1"	179	179	63	16	122	48	82	200	250	70	2,5
32	1 1/4"	208	226	65	19	144	51	86	200	250	70	4,1
40	1 1/2"	204	204	65	19	144	51	86	200	250	70	3,8
50	2"	216	216	69	23	150	57	86	200	250	70	4,6
50 ⁵⁾	2"	417	397	83	22	239	78	145	200	250	70	14

¹⁾ Maximum installation depth²⁾ Minimum distance with respect to the valve centre LR..A³⁾ Minimum distance with respect to the valve centre NR..⁴⁾ The actuator dimensions can be found on the respective actuator data sheet⁵⁾ R250P-505

Further documentations

- Complete overview of water solutions
- 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.)