

Characterized control valves, 3-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
- air bubble-tight (control path A – AB)



Type overview

Type	k_{vs} [m ³ /h]	DN [mm]	Rp [Inches]	p_s [kPa]	n(gl) ¹⁾	S_v
R305K	0.25	10	3/8"	4140	3.2	>50
R306K	0.4	10	3/8"	4140	3.2	>50
R307K	0.63	10	3/8"	4140	3.2	>50
R308K	1	10	3/8"	4140	3.2	>50
R309	0.63	15	1/2"	4140	3.2	>50
R310	1	15	1/2"	4140	3.2	>50
R311	1.6	15	1/2"	4140	3.2	>50
R312	2.5	15	1/2"	4140	3.2	>50
R313	4	15	1/2"	4140	3.9	>100
R317	4	20	3/4"	4140	3.9	>100
R318	6.3	20	3/4"	4140	3.9	>100
R322	6.3	25	1"	4140	3.9	>100
R323	10	25	1"	4140	3.9	>100
R329	10	32	1 1/4"	4140	3.9	>100
R331	16	32	1 1/4"	2760	3.9	>100
R338	16	40	1 1/2"	2760	3.9	>100
R339G	25	40	1 1/2"	2760	3.9	>100
R348	25	50	2"	2760	3.9	>100
R349G	40	50	2"	2760	3.9	>100
R350G-A	58	50	2"	2760	3.9	>100

¹⁾ optimized in the opening range

Technical data

Functional data	Flow media	Cold and hot water, water with max. 50% volume of glycol	
	Temperature of medium	+5°C ... +110°C ¹⁾ (lower or higher temperatures on request)	
	Rated pressure p_s	see «Type overview»	
	Flow characteristic	Control path A – AB: equal percentage (to VDI/VDE 2173) n(gl): see «Type overview» Bypass B – AB: linear, flow rate is 70% of k_{vs} value	
	Rangeability S_v	See «Type overview»	
	Leakage rate	Control path A – AB: Air bubble-tight (BO 1, DIN3230 T3) Bypass B – AB: Approx. 1...2% of k_{vs} value (in relation to the highest value within the DN (e.g. R313))	
	Pipe connector	Internal thread to ISO 7/1	
	Differential pressure Δp_{max}	350 kPa (200 kPa for low-noise operation)	
	Closing pressure Δp_s	1400 kPa	
	Angle of rotation	90° ↺ (Operating range of control path A – AB 15 ... 90° ↺, bypass B – AB 15 ... 70° ↺)	
	Installation position	Upright to horizontal (in relation to the stem)	
	Maintenance	Maintenance-free	
	Materials	Fitting	Forged, nickel-plated brass body
		Valve cone and stem	Stainless steel
Stem seal		O-Ring, EPDM	
Ball seat		PTFE, O-Ring Viton	
Characterizing disk		TEFZEL	

Technical data
(Continued)
Dimensions / Weights

see «Dimensions and weights», page 3

Motorizing

see the complete overview of water solutions

1) The allowed media temperature can be limited, depending on the type of actuator. The correct values can be found in the corresponding actuator data sheets.

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.

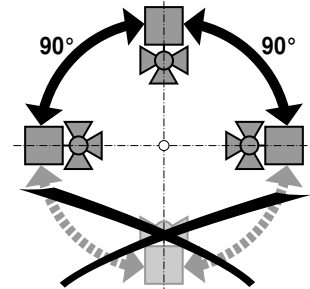
Product features
Mode of operation

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.

Installation notes
Recommended mounting positions

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

Water quality requirements

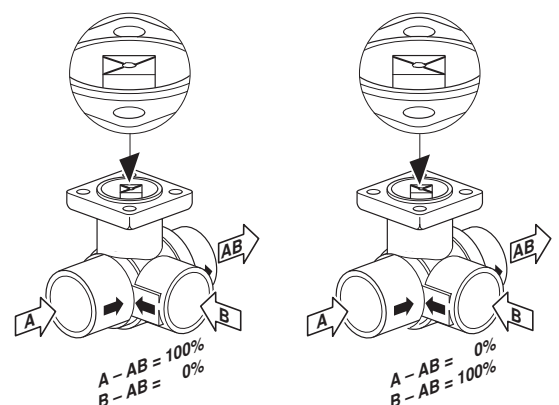
- The water quality requirements specified in VDI 2035 must be adhered to.
- Characterized control valves are relatively sensitive control devices. In order to ensure a long service life, it is advisable to fit **strainers**.

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, since otherwise the ball valve can be damaged. Please ensure that the ball is in the correct position.



Accessories

Mechanical accessories

Description

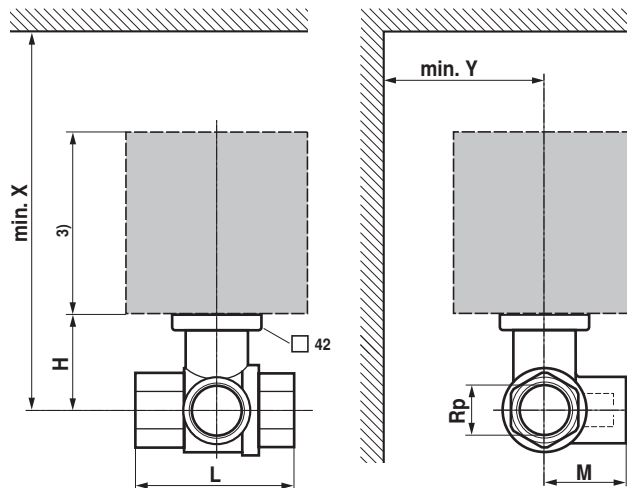
Stem heating ZR24-1 ¹⁾

Pipe connector ZR23..

¹⁾ No stem heating is available for R3..K

Dimensions and weights

Dimensional drawings



DN [mm]	L [mm]	H [mm]	M [mm]	Rp [Inches]	L1 ¹⁾ [mm]	X ²⁾ [mm]	Y ²⁾ [mm]	Weight [kg]
10	52	35	28	3/8"	10	220	90	0.35
15	67	45	39	1/2"	13	220	90	0.45
20	78	47.5	41.5	3/4"	13	220	90	0.6
25	87	47.5	45	1"	17	220	90	0.9
32 R329	105	47.5	55.5	1 1/4"	19	220	90	1.2
32 R331	105	52	55.5	1 1/4"	19	230	90	1.3
40 R338	111	52	56	1 1/2"	19	230	90	1.5
40 R339G	122	64	67	1 1/2"	19	245	90	2.0
50 R348	125	58	68	2"	22	240	90	2.4
50 R3..G(-A)	142	70	79	2"	22	255	90	2.0

¹⁾ Maximum installation depth.

²⁾ Minimum distance with respect to the valve centre.

³⁾ The actuator dimensions can be found on the respective actuator data sheet.

Further documentations

- Complete overview «The complete range of water solutions»
- Data sheets for actuators
- Installation instructions for ball valves resp. actuators
- Notes for project planning (hydraulic characteristic curves and circuits, installation regulations, commissioning, maintenance etc.)