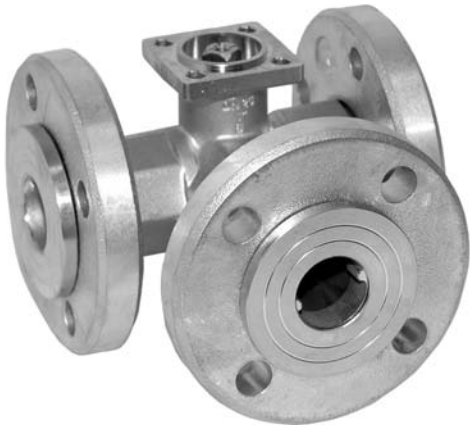
Characterized control valves, 3-way, with flange PN 6

- **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]	DN [Inches]	p_s [kPa]	n(gl) [1]	S_v
R709R	0.63	15	3/8"	600	3.2	>50
R711R	1.6	15	1/2"	600	3.2	>50
R713R	4	15	1/2"	600	3.9	>100
R718R	6.3	20	3/4"	600	3.9	>100
R723R	10	25	1"	600	3.9	>100
R731R	16	32	1 1/4"	600	3.9	>100
R738R	16	40	1 1/2"	600	3.9	>100
R748R	25	50	2"	600	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. R713)
	Pipe connector	Flange PN 6 to EN 1092/1
	Differential pressure Δp_{max} Closing pressure Δp_s	100 kPa 600 kPa
	Angle of rotation	90°∢ (Operating range 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	Chrome-plated brass
	Stem seal	O-Ring, EPDM
	Ball seat	PTFE, O-Ring Viton
	Characterizing disk	TEFZEL
	Flange ring	DN 15 / 20: Zinc-plated steel DN 25 ... 50: Aluminum
	Flange joint surface	Nickel-plated brass
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.

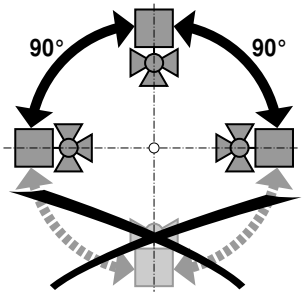
Flow characteristic

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

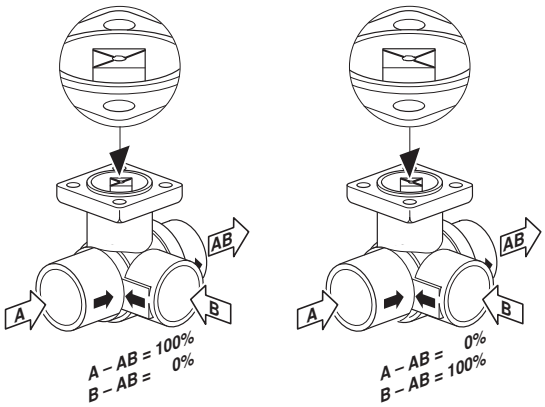
- The water quality requirements specified in VDI 2035 must be adhered to.
- Characterized control valves are relatively sensitive control devices. In order to ensure a long service life, it is advisable to fit **strainers**.

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.

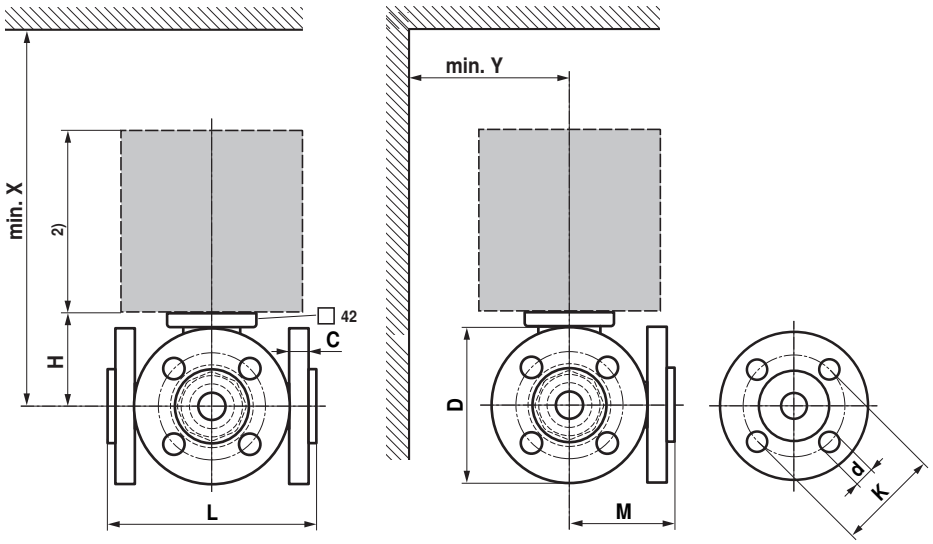


Accessories

	Description
Mechanical accessories	Stem heating ZR24-1

Dimensions and weights

Dimensional drawings



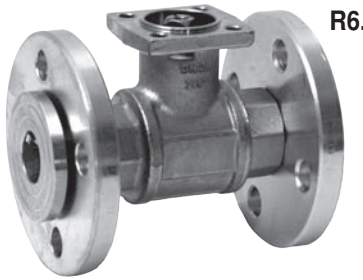
DN [mm]	L [mm]	H [mm]	M [mm]	D [mm]	C [mm]	K [mm]	d [mm]	X 1) [mm]	Y 1) [mm]	Weight [kg]
15	101.5	45	73	80	15	55	4 x 11	230	90	1.8
20	112	47.5	79	90	15	65	4 x 11	230	90	2.4
25	132	47.5	92	100	20	75	4 x 11,5	230	90	2.5
32	143.5	52	102.5	120	17	90	4 x 14	240	100	3.4
40	149.5	52	105	130	18	100	4 x 14	240	105	4
50	165	58	121	140	18	110	4 x 14	240	110	5.6

1) Minimum distance with respect to the valve centre.
2) 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 and/or actuators
- Notes for project planning (hydraulic characteristic curves and circuits, installation regulations, commissioning, maintenance etc.)

BELIMO



R6..R

R7..R

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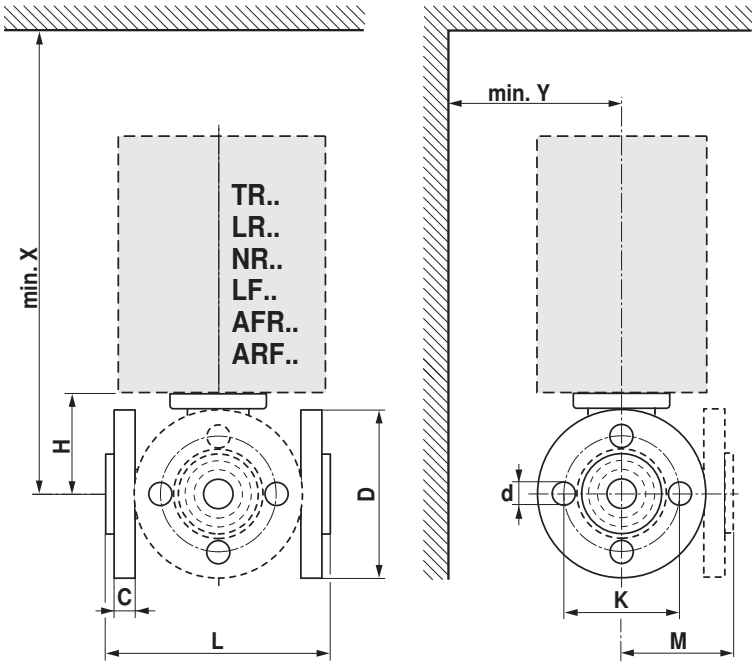
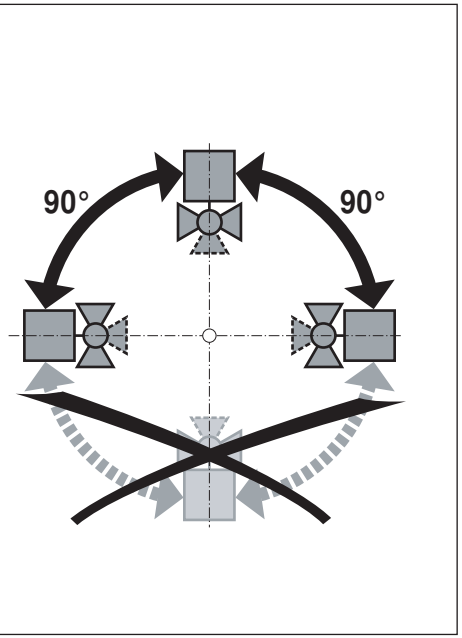
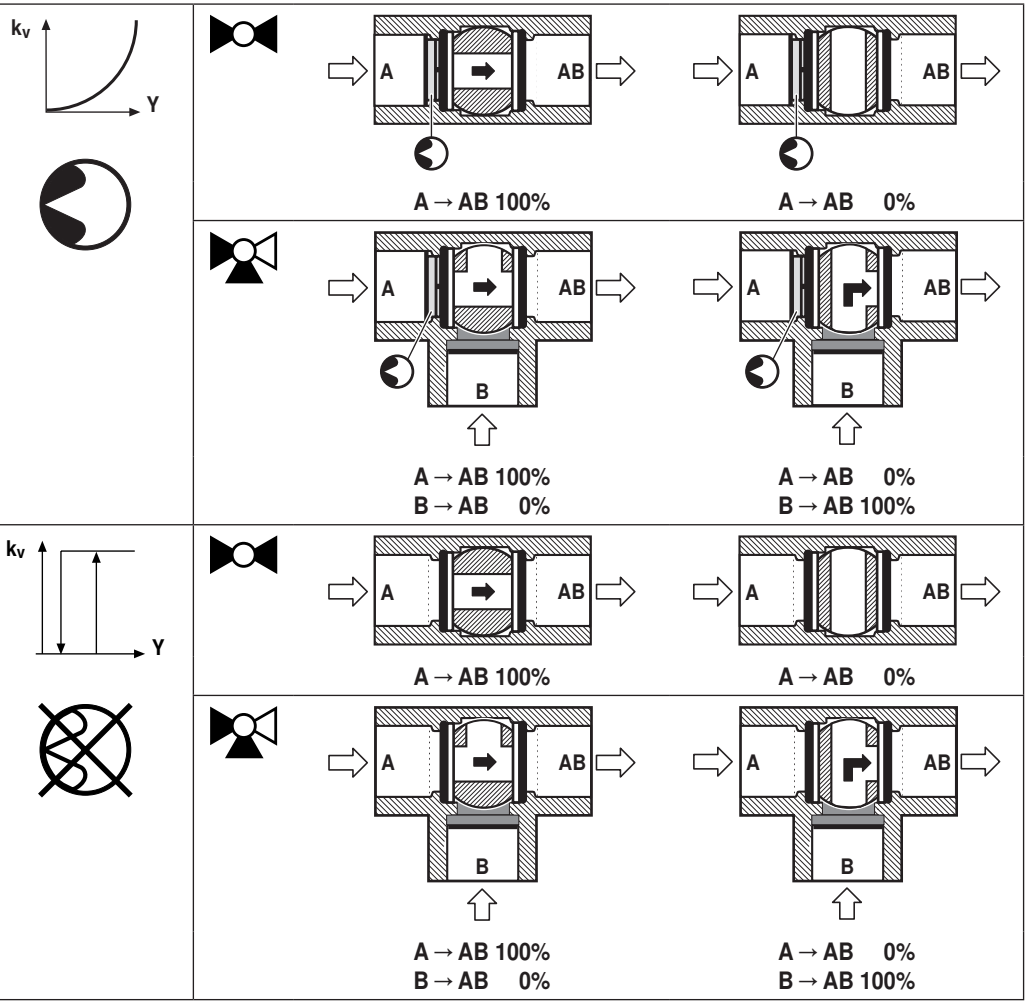




		DN		mm							TR..		LR..		NR..		LF..		AFR.. / ARF..	
		mm	”	L	H	M	D	C	K	d	X	Y	X	Y	X	Y	X	Y	X	Y
R609R...R615R	R709R...R715R	15	1/2”	101.5	45	73	80	15	55	4 x 11	184	80	198	80	230	80	203	90	203	90
R618R...R620R	R718R...R720R	20	3/4”	112	47.5	79	90	15	65	4 x 11			201	85	232	85	205	90	205	90
R623R...R625R	R723R...R725R	25	1“	132	47.5	92	100	20	75	4 x 11			201	90	232	90	205	90	205	90
R631R...R632R	R731R...R732R	32	1 1/4“	143.5	52	102.5	120	17	90	4 x 14					237	100			210	100
R639R...R640R	R738R...R740R	40	1 1/2“	149.5	52	105	130	18	100	4 x 14					237	105			210	105
R649R...R650R	R748R...R750R	50	2“	165	58	121	140	18	110	4 x 14					243	110			216	110
R664R...R665R		65	2 1/2“	180.5	69		160	18	130	4 x 14					254	120			227	120
R679R...R680R		80	3“	191.5	69		190	20.5	150	4 x 18					254	135			227	135



t	(–10°) +5° ... +110° (+120°) C				
Δp_{max}	100 kPa				
p_s	600 kPa (PN 6)				
→	R609R	R618R	R639R	R615R	R632R
	R610R	R623R	R649R	R620R	R640R
	R611R	R631R	R664R	R625R	R650R
	R612R		R679R		R665R
	R613R				R680R
↱	R709R	R718R	R738R	R715R	R732R
	R711R	R723R	R748R	R720R	R740R
	R713R	R731R		R725R	R750R