Technical data sheet R4xxD(K)

Characterised control valve, 2-way, External thread

- **For open and closed cold and hot water systems**
- **For modulating control on the water side of domestic water in district heating applications and for heated drinking water**
- **Air bubble tight**

Type overview

Type	kvs [m³/h]	DN [ ]	G ["]	PN [ ]	Sv min. [ ]
R404DK	0.3	10	3/4	16	50
R405DK	0.4	10	3/4	16	50
R406DK	0.63	10	3/4	16	50
R408DK	1.6	10	3/4	16	50
R407DK	1	10	3/4	16	50
R409DK	2.5	10	3/4	16	50
R412D	2.5	15	1	16	100
R413D	4	15	1	16	100
R414D	6.3	15	1	16	100
R417D	6.3	20	1 1/4	16	100
R418D	10	20	1 1/4	16	200
R419D	16	20	1 1/4	16	200

Technical data

Functional data	Media	Cold, warm and hot water, drinking water, water with glycol up to max. 50% vol.
	Medium temperature for water	2°C...130°C
	Medium temperature note	The allowed media temperature can be limited, depending on the type of actuator. Limitations can be found in the respective data sheets of the actuators.
	Rated pressure ps	2700 kPa
	Closing pressure Δps	1400 kPa
	Differential pressure Δpv100	400 kPa
	Differential pressure Δpv0	800 kPa
	Flow characteristic	Equal percentage (VDI/VDE 2178), optimised in the opening range
	Leakage rate	Leakage rate A, air-bubble-tight (EN 12266-1)
	Pipe connectors	External thread according to ISO 228-1
	Z value min.	0.3 (EN 12266), Cavitation factor with a fully open valve
	Angle of rotation	90° (Operating range 15...90°)
	Maintenance	Maintenance-free
Materials	Housing	Low-lead red casting brass (CuSn4Zn6P6)
	Closing element	Stainless steel
	Stem	Stainless steel
	Stem seal	Viton
	Spindle bearing	TEFLON (PTFE GF15%)
	Spindle end	DN 10/15: Brass CW 614 N DN 20: Plastic (PA66 GF30%)
	Valve seat	TEFZEL
	Grease	Unisilikon (drinking water grade)
Materials	Actuator seat	Plastic (PA66 GF30%)
	Diffuser	TEFZEL

Technical data

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.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- Installation in existing pipe flanges as a substitute for globe valves with only three screws is not permitted.
- The valve does not contain any parts that can be replaced or repaired by the user.
- The valve may not be disposed of as household refuse. All locally valid regulations and requirements must be observed.
- When determining the flow rate characteristic of controlled devices, the recognised directives must be observed.
- National regulations must be observed when using the ball valve in drinking water applications.

Product features

Mode of operation

The characterised control valve is adjusted by a rotary actuator. The actuator is controlled by a commercially available modulating or 3-point control system and moves the ball of the valve – the throttling device – to the position dictated by the positioning signal. Open the characterised control valve counterclockwise and close it clockwise.

Flow characteristic

Equal percentage flow control is ensured by the integrated characterising disc.

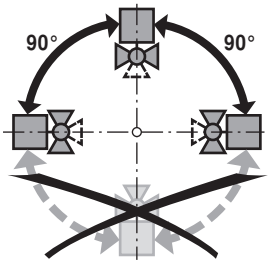
Accessories

	Description	Type
Mechanical accessories	Pipe connector to ballvalves DN 10 Rp 3/8“	ZR4510
	Pipe connector to ballvalves DN 15 Rp 1/2“	ZR4515
	Pipe connector to ballvalves DN 20 Rp 3/4“	ZR4520

Installation notes

Recommended installation positions

The ball valve can be installed upright to horizontal. The ball valve may not be installed in a hanging position, i.e. with the stem pointing downwards.



Water quality requirements

The water quality requirements specified in VDI 2035 must be adhered to.
Belimo valves are regulating devices. For the valves to function correctly in the long term, they must be kept free from particle debris (e.g. welding beads during installation work).
The installation of suitable strainer is recommended.

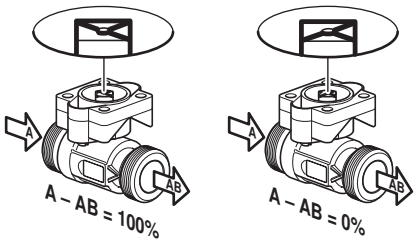
Maintenance

Ball valves and rotary actuators are maintenance-free.
Before any kind of service work is carried out on the actuator, it is essential to isolate the rotary actuator from the power supply (by unplugging the electrical cable). Any pumps in the part of the piping system concerned must also be switched off and the appropriate slide valves closed (allow everything to cool down first if necessary and reduce the system pressure to ambient pressure level).
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 pipeline has been refilled in the proper manner.

Installation notes

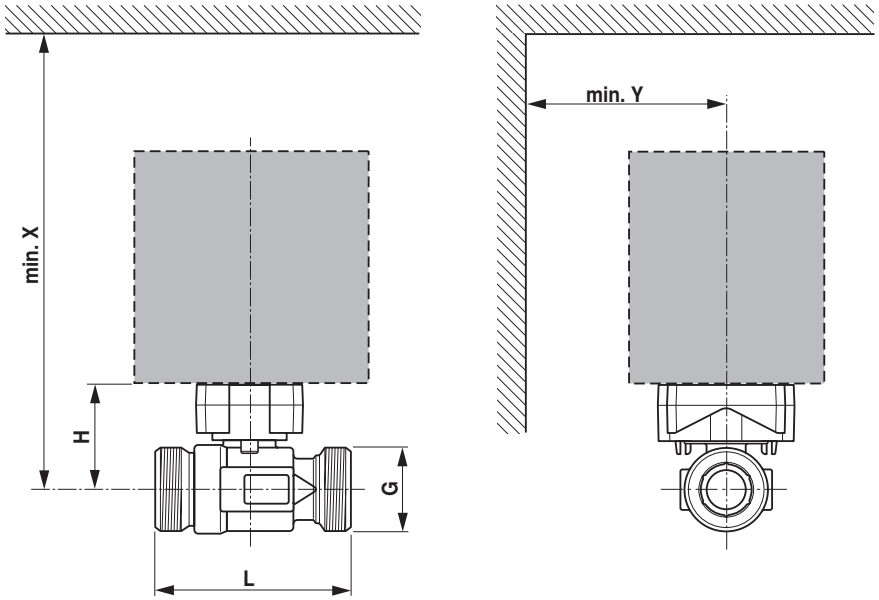
Flow direction

The direction of flow, specified by an arrow on the housing, is to be complied with, since otherwise the ball valve could become damaged. Please ensure that the ball is in the correct position (marking on the spindle).



Dimensions / Weight

Dimensional drawings



X/Y: Minimum distance with respect to the valve centre.
The actuator dimensions can be found on the respective actuator data sheet.

Type	DN [ ]	G [”]	L [mm]	H [mm]	X [mm]	Y [mm]	Weight approx. [kg]
R404DK	10	3/4	65	38	190	70	0.25
R405DK	10	3/4	65	38	190	70	0.25
R406DK	10	3/4	65	38	190	70	0.25
R408DK	10	3/4	65	38	190	70	0.25
R407DK	10	3/4	65	38	190	70	0.25
R409DK	10	3/4	65	38	190	70	0.25
R412D	15	1	75	42	195	70	0.35
R413D	15	1	75	42	195	70	0.35
R414D	15	1	75	42	195	70	0.35
R417D	20	1 1/4	107	55	200	70	0.55
R418D	20	1 1/4	107	55	200	70	0.55
R419D	20	1 1/4	107	55	200	70	0.55

Further documentation

- Overview Valve-actuator combinations
- Data sheets for actuators
- Installation instructions for actuators and/or ball valves
- General notes for project planning