

Characterised control valve, 2-way,  
Internal thread

- For open and closed cold and warm water systems
- For modulating control of air-handling and heating systems on the water side
- Air-bubble tight


**Type overview**

Type	DN [ ]	DN ["]	Rp ["]	kvs [ m <sup>3</sup> /h]	PN [ ]	Sv min. [ ]
R2020-4-S1	20	3/4	3/4	4	40	100
R2020-6P3-S1	20	3/4	3/4	6.3	40	100
R2025-25-S2	25	1	1	25	40	100
R2032-10-S2	32	1 1/4	1 1/4	10	25	100
R2032-20-S2	32	1 1/4	1 1/4	20	25	100
R2032-25-S3	32	1 1/4	1 1/4	25	25	100
R2040-16-S2	40	1 1/2	1 1/2	16	25	100
R2040-25-S2	40	1 1/2	1 1/2	25	25	100
R2040-40-S4	40	1 1/2	1 1/2	40	25	100
R2050-25-S3	50	2	2	25	25	100
R2050-40-S3	50	2	2	40	25	100
R2050-58-S4	50	2	2	58	25	100
R2050-70-S4	50	2	2	70	25	100
R2065-150-S4	65	2 1/2	2 1/2	150	25	100
R2080-150-S4	80	3	3	150	25	100

**Technical data**

Functional data	Fluid	Cold and warm water, water with glycol up to max. 50% vol.
Fluid temperature		-10...120°C (DN 20...50) -18...100°C (DN 65...80)
Fluid temperature note		At a fluid temperature of -10...2°C, a spindle heating or a valve neck extension is recommended. The allowed fluid temperature can be limited, depending on the type of actuator. Limitations can be found in the respective data sheets of the actuators.
Close-off pressure $\Delta p_s$		1400 kPa (DN 20...50) 700 kPa (DN 65...80)
Differential pressure $\Delta p_{max}$		350 kPa (DN 20...50) 200 kPa (DN 65...80)
Differential pressure note		200 kPa for low-noise operation
Flow characteristic		equal percentage (VDI/VDE 2178), optimised in the opening range
Leakage rate		air-bubble tight, leakage rate A (EN 12266-1)
Angle of rotation		90°
Angle of rotation note		Operating range 15...90°
Pipe connectors		Internal thread according to ISO 7-1
Installation position		upright to horizontal (in relation to the stem)
Servicing		maintenance-free
<b>Materials</b>	Housing	Nickel-plated brass body
	Closing element	Stainless steel
	Stem	Stainless steel
	Stem seal	EPDM O-ring

## Technical data

<b>Materials</b>	Ball seat	PTFE, O-ring EPDM
	Characterizing disk	ETFE (DN 20...80) No Disc (full flow) (R2025-25-S2, R2032-20-S2, R2065-150-S4, R2080-150-S4) Stainless Steel (R2040-40-S4, R2050-58-S4, R2050-70-S4)

## Safety notes



- The valve has been designed for use in stationary heating, ventilation and air-conditioning systems and must not 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.
- 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.

## Product features

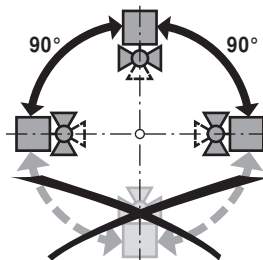
<b>Mode of operation</b>	The characterised control valve is adjusted by a rotary actuator. The actuator is controlled by a commercially available modulating or 3-point control system and moves the ball of the valve – the throttling device – to the position dictated by the positioning signal. Open the characterised control valve counterclockwise and close it clockwise.
<b>Flow characteristic</b>	Equal percentage flow control is ensured by the integrated characterising disc.

## Accessories

	Description	Type
<b>Electrical accessories</b>	Stem heating DN 15...50 (20 W)	ZR24-2
	Description	Type
<b>Mechanical accessories</b>	Pipe connector for ball valve DN 25 Rp 1"	ZR2325
	Pipe connector for ball valve DN 20 Rp 3/4"	ZR2320
	Pipe connector for ball valve DN 32 Rp 1 1/4"	ZR2332
	Pipe connector for ball valve DN 40 Rp 1 1/2"	ZR2340
	Valve neck extension for ball valve DN15...50	ZR-EXT-01
	Pipe connector for ball valve DN 50 Rp 2"	ZR2350

## 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.



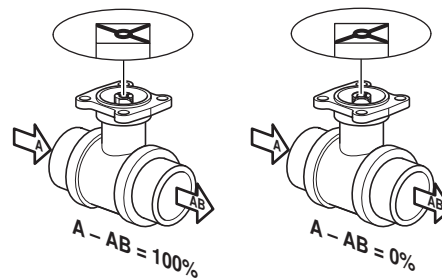
**Water quality requirements** The water quality requirements specified in VDI 2035 must be adhered to. Belimo valves are regulating devices. For the valves to function correctly in the long term, they must be kept free from particle debris (e.g. welding beads during installation work). The installation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

**Installation notes**

**Servicing** Ball valves and rotary actuators are maintenance-free.  
Before any service work on the final controlling device is carried out, it is essential to isolate the rotary actuator from the power supply (by unplugging the electrical cable if necessary). Any pumps in the part of the piping system concerned must also be switched off and the appropriate slide valves closed (allow all components to cool down first if necessary and always reduce the system pressure to ambient pressure level).

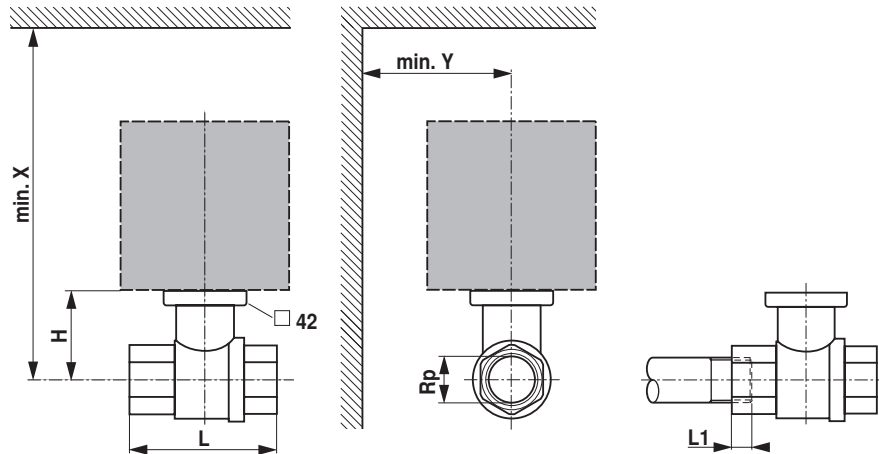
The system must not be returned to service until the ball valve and the rotary actuator have been correctly reassembled in accordance with the instructions and the pipeline has been refilled by professionally trained personnel.

**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



L1: Maximum screwing depth.

X/Y: Minimum distance with respect to the valve centre.

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

Type	DN [ ]	Rp ["]	L [ mm]	L1 [ mm]	H [ mm]	X [ mm]	Y [ mm]	Weight
R2020-4-S1	20	3/4	79	14	44	235	90	0.37 kg
R2020-6P3-S1	20	3/4	79	14	44	235	90	0.37 kg
R2025-25-S2	25	1	87	16	46	235	90	0.54 kg
R2032-10-S2	32	1 1/4	105	19	46	240	90	0.70 kg
R2032-20-S2	32	1 1/4	105	19	50.5	240	90	0.80 kg
R2032-25-S3	32	1 1/4	105	19	50.5	240	90	0.77 kg
R2040-16-S2	40	1 1/2	111	19	50.5	240	90	0.95 kg
R2040-25-S2	40	1 1/2	111	19	50.5	240	90	0.95 kg
R2040-40-S4	40	1 1/2	122	22	62	256	90	1.7 kg
R2050-25-S3	50	2	125	22	56	245	90	1.5 kg
R2050-40-S3	50	2	125	22	56	245	90	1.5 kg
R2050-58-S4	50	2	142	22	56	245	90	2.5 kg
R2050-70-S4	50	2	142	22	56	245	90	2.5 kg
R2065-150-S4	65	2 1/2	153	27	68	262	90	3.7 kg
R2080-150-S4	80	3	160	30	68	262	90	4.1 kg

### Further documentation

- The complete product range for water applications
- Data sheets for actuators
- Installation instructions for actuators and/or ball valves
- General notes for project planning