

Characterised control valve, 3-way,  
Internal thread

- For closed cold and warm water systems
- For modulating control of air-handling and heating systems on the water side
- Air bubble-tight (control path A - AB)


**Type overview**

Type	DN [ ]	Rp ["]	kvs [ m <sup>3</sup> /h]	PN [ ]	Sv min. [ ]
R3015-P25-S1	15	1/2	0.25	16	50
R3015-P4-S1	15	1/2	0.4	16	50
R3015-P63-S1	15	1/2	0.63	16	50
R3015-1-S1	15	1/2	1	16	50
R3015-1P6-S1	15	1/2	1.6	16	50
R3015-2P5-S1	15	1/2	2.5	16	50
R3015-4-S1	15	1/2	4	16	100
R3020-4-S2	20	3/4	4	16	100
R3020-6P3-S2	20	3/4	6.3	16	100
R3025-6P3-S2	25	1	6.3	16	100
R3025-10-S2	25	1	10	16	100
R3032-16-S3	32	1 1/4	16	16	100
R3040-16-S3	40	1 1/2	16	16	100
R3040-25-S4	40	1 1/2	25	16	100
R3050-25-S4	50	2	25	16	100
R3050-40-S4	50	2	40	16	100
R3050-58-S4	50	2	58	16	100

**Technical data**

Functional data	Media	Cold and warm water, water with glycol up to max. 50% vol.
Medium temperature		-10...120°C
Medium temperature note		At a medium temperature of -10...2°C, a spindle heating or a valve neck extension is recommended. 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.
Permissible pressure ps		1600 kPa
Closing pressure Δps		1400 kPa
Differential pressure Δpmax		350 kPa
Differential pressure note		200 kPa for low-noise operation
Flow		Bypass B – AB: 70% of kvs value
Flow characteristic		Control path A - AB: equal percentage (VDI/VDE 2178), optimised in the opening range; Bypass B - AB: Linear (VDI/VDE 2178)
Leakage rate		Control path A - AB: Leakage rate A, air-bubble-tight (EN 12266-1); Bypass B - AB: Leakage class I (EN 1349 and EN 60534-4) 1...2% of the kvs value with respect to the largest value within the DN
Pipe connector		Internal thread according to ISO 7-1
Angle of rotation		90°
Angle of rotation note		Operating range control path A - AB 15...90°, Bypass B – AB 15...70°
Installation position		Upright to horizontal (in relation to the stem)

## Technical data

<b>Functional data</b>	Maintenance	Maintenance-free
<b>Materials</b>	Housing	Brass body nickel-plated
	Closing element	Stainless steel
	Stem	Stainless steel
	Stem seal	O-ring EPDM
	Ball seat	PTFE, O-ring EPDM
	Characterizing disk	TEFZEL

## 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

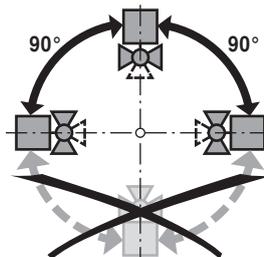
<b>Mode of operation</b>	The characterised control valve is adjusted by a rotary actuator. The actuator is controlled by a commercially available modulating or 3-point control system and moves the ball of the valve – the throttling device – to the position dictated by the positioning signal. Open the 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>	Spindle heating DN 15-50 (20W)	ZR24-2
<b>Mechanical accessories</b>	Pipe connector to ball valve DN 15 Rp 1/2"	ZR2315
	Pipe connector to ball valve DN 20 Rp 3/4"	ZR2320
	Pipe connector to ball valve DN 25 Rp 1"	ZR2325
	Pipe connector to ball valve DN 32 Rp 1 1/4"	ZR2332
	Pipe connector to ball valve DN 40 Rp 1 1/2"	ZR2340
	Extension Kit	ZR-EXT-01
	Pipe connector to ball valve DN 50 Rp 2"	ZR2350

## Installation notes

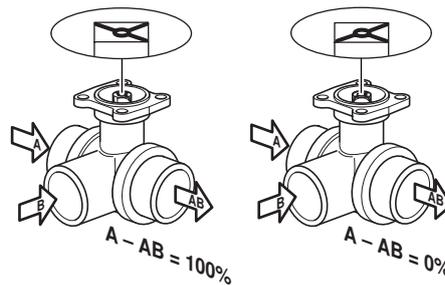
**Recommended installation positions** The ball valve can be installed upright to horizontal. The ball valve may not be installed in a hanging position, i.e. with the stem pointing downwards.



**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 suitable strainer is recommended.

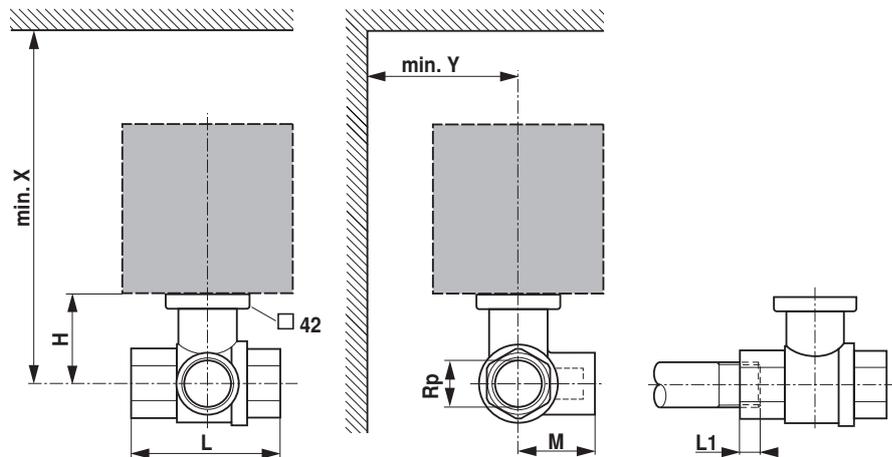
## Installation notes

- Maintenance** 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 ]	M [ mm ]	H [ mm ]	X [ mm ]	Y [ mm ]	Weight [ kg ]
R3015-P25-S1	15	1/2	67	13	36	35	230	90	0.38
R3015-P4-S1	15	1/2	67	13	36	35	230	90	0.38
R3015-P63-S1	15	1/2	67	13	36	35	230	90	0.38
R3015-1-S1	15	1/2	67	13	36	35	230	90	0.38
R3015-1P6-S1	15	1/2	67	13	36	44	230	90	0.38
R3015-2P5-S1	15	1/2	67	13	36	44	230	90	0.38
R3015-4-S1	15	1/2	67	13	36	44	230	90	0.38
R3020-4-S2	20	3/4	78	14	41.5	46	235	90	0.52
R3020-6P3-S2	20	3/4	78	14	41.5	46	235	90	0.52
R3025-6P3-S2	25	1	87	16	45	46	235	90	0.64
R3025-10-S2	25	1	87	16	45	46	235	90	0.64
R3032-16-S3	32	1 1/4	105	19	55.5	50.5	240	90	0.99
R3040-16-S3	40	1 1/2	111	19	56	50.5	240	90	1.3
R3040-25-S4	40	1 1/2	122	19	66.5	62	250	90	1.9

**Dimensions / Weight**

Type	DN [ ]	Rp ["]	L [ mm]	L1 [ mm]	M [ mm]	H [ mm]	X [ mm]	Y [ mm]	Weight [ kg]
R3050-25-S4	50	2	125	22	68	56	245	90	1.9
R3050-40-S4	50	2	142	22	79	68	262	90	2.9
R3050-58-S4	50	2	142	22	79	68	262	90	2.9

**Further documentation**

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