

Pressure Independent Flow limiting valve, 2-way, Internal thread NPT (female)

- For closed water systems
- For water-side On/Off control of the fan coil and of chilled ceilings



Picture may differ from product

### Type overview

| Type        | DN        | V'nom<br>[l/s] | V'nom<br>[l/h] | V'nom<br>[m³/h] | PN |
|-------------|-----------|----------------|----------------|-----------------|----|
| Z2050QFL-C  | 1/2" [15] | 0.81           | 290            | 0.29            | 25 |
| Z2050QFL-D  | 1/2" [15] | 0.13           | 470            | 0.47            | 25 |
| Z2050QFL-E  | 1/2" [15] | 0.18           | 650            | 0.65            | 25 |
| Z2050QFL-F0 | 1/2" [15] | 0.26           | 940            | 0.94            | 25 |
| Z2050QFL-F  | 1/2" [15] | 0.36           | 1300           | 1.3             | 25 |
| Z2075QFL-F6 | 3/4" [20] | 0.33           | 1200           | 1.2             | 25 |
| Z2075QFL-G0 | 3/4" [20] | 0.42           | 1500           | 1.5             | 25 |
| Z2075QFL-G  | 3/4" [20] | 0.52           | 1900           | 1.9             | 25 |
| Z2075QFL-H0 | 3/4" [20] | 0.65           | 2350           | 2.35            | 25 |
| Z2100QFL-H  | 1" [25]   | 0.81           | 2900           | 2.9             | 25 |
| Z2100QFL-J  | 1" [25]   | 1.00           | 3600           | 3.6             | 25 |

### Technical data

|                 |                                        |                                                    |
|-----------------|----------------------------------------|----------------------------------------------------|
| Functional data | Fluid                                  | Water                                              |
|                 | Fluid temperature                      | 36...176°F [2...80°C]                              |
|                 | Differential pressure                  | 20...280 kPa                                       |
|                 | Close-off pressure $\Delta p_s$        | 520 kPa                                            |
|                 | Differential pressure $\Delta p_{max}$ | 280 kPa                                            |
|                 | Differential pressure note             | 50 kPa for low-noise operation                     |
|                 | Pressure stability                     | ±5% (with a pressure value of 100...280 kPa)       |
|                 | Leakage rate                           | 0% leakage, leakage rate A (EN 12266-1)            |
|                 | Flow setting                           | See installation instruction                       |
|                 | Angle of rotation                      | 90°                                                |
|                 | Pipe connection                        | Internal thread<br>NPT (female)                    |
|                 | Installation orientation               | upright to horizontal (in relation to the spindle) |
|                 | Servicing                              | maintenance-free                                   |
| Materials       | Valve body                             | forged brass                                       |
|                 | Valve plug                             | chrome-plated brass                                |
|                 | Stem                                   | brass                                              |
|                 | Stem seal                              | EPDM O-ring                                        |
|                 | Seat                                   | PTFE, O-Ring EPDM                                  |
|                 | Pipe connection                        | NPT female ends                                    |
| Terms           | Abbreviations                          | V'nom = nominal flow with valve completely opened  |

## 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 authorized specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with during installation.
- The valve does not contain any parts that can be replaced or repaired by the user.
- When back flushing the valve, the differential pressure should not exceed 150 kPa.
- 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

**Operating mode** The on/off ball valve is adjusted by a rotary actuator. The actuator is controlled by an on/off signal. The ball valve opens counterclockwise and closes clockwise.

**Constant flow volume** With a differential pressure of 20...280 kPa, a constant flow volume is achieved thanks to the integrated flow limiter. Even with pressure variations, the flow rate remains constant when open to an angle of 90° and ensures a steady control.

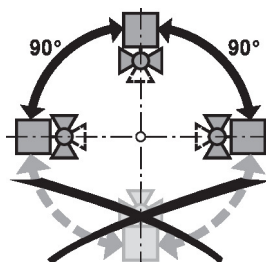


## Accessories

| Mechanical accessories | Description       | Type  |
|------------------------|-------------------|-------|
|                        | Stem extension CQ | ZCQ-E |

## Installation notes

**Permissible installation orientation** 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.



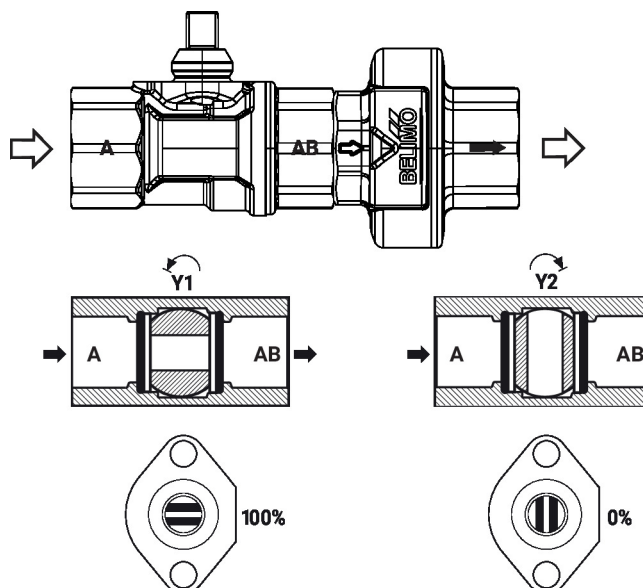
**Installation in return** Installation in the return is recommended.

**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.

**Servicing** Ball valves and rotary actuators are maintenance-free. Before any service work on the control element 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.

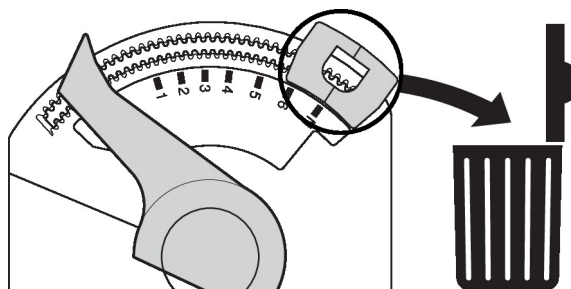
**Installation notes**

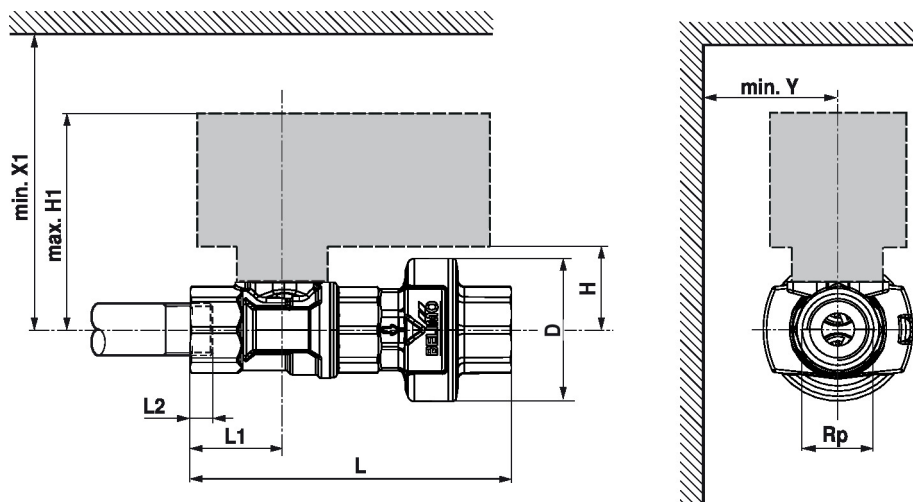
**Flow direction** The direction of flow, specified by an arrow on the housing, is to be complied with, since otherwise the ball valve could become damaged. Please ensure that the ball is in the correct position (marking on the stem).



**Flow setting** At the CQ-actuator the end stop clip has to be removed. This in order to get the angle of rotation of 90°, which is needed for the on/off functionality.

Remove end stop clip



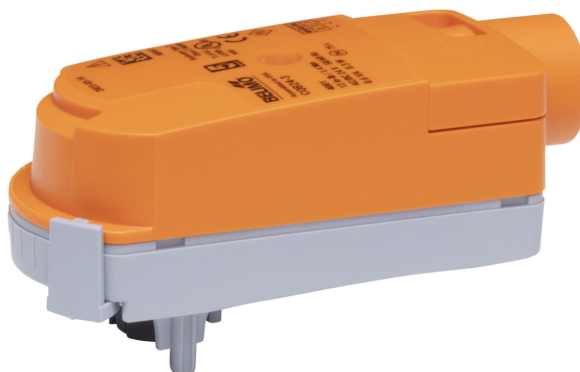
**Dimensions**
**Dimensional drawings**


L2: Maximum screwing depth.

| Type        | DN        | L<br>[mm] | L1<br>[mm] | L2<br>[mm] | H<br>[mm] | H1<br>[mm] | D<br>[mm] | X1<br>[mm] | Y<br>[mm] | Weight            |
|-------------|-----------|-----------|------------|------------|-----------|------------|-----------|------------|-----------|-------------------|
| Z2050QFL-C  | 1/2" [15] | 95        | 29         | 13         | 26        | 69         | 44        | 110        | 35        | 0.77 lb [0.35 kg] |
| Z2050QFL-D  | 1/2" [15] | 95        | 29         | 13         | 26        | 69         | 44        | 110        | 35        | 0.77 lb [0.35 kg] |
| Z2050QFL-E  | 1/2" [15] | 95        | 29         | 13         | 26        | 69         | 44        | 110        | 35        | 0.77 lb [0.35 kg] |
| Z2050QFL-F0 | 1/2" [15] | 95        | 29         | 13         | 26        | 69         | 44        | 110        | 35        | 0.77 lb [0.35 kg] |
| Z2050QFL-F  | 1/2" [15] | 95        | 29         | 13         | 26        | 69         | 44        | 110        | 35        | 0.77 lb [0.35 kg] |
| Z2075QFL-F6 | 3/4" [20] | 106       | 35         | 14         | 27        | 71         | 46        | 110        | 35        | 0.99 lb [0.45 kg] |
| Z2075QFL-G0 | 3/4" [20] | 106       | 35         | 14         | 27        | 71         | 46        | 110        | 35        | 0.99 lb [0.45 kg] |
| Z2075QFL-G  | 3/4" [20] | 106       | 35         | 14         | 27        | 71         | 46        | 110        | 35        | 0.99 lb [0.45 kg] |
| Z2075QFL-H0 | 3/4" [20] | 106       | 35         | 14         | 27        | 71         | 46        | 110        | 35        | 0.99 lb [0.45 kg] |
| Z2100QFL-H  | 1" [25]   | 119       | 44         | 16         | 28        | 130        | 49        | 200        | 75        | 1.15 lb [0.52 kg] |
| Z2100QFL-J  | 1" [25]   | 119       | 44         | 16         | 28        | 130        | 49        | 200        | 75        | 1.15 lb [0.52 kg] |

On/Off, Floating point, Non fail-safe, 24 V

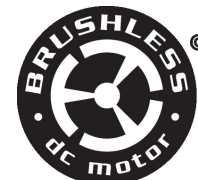
- Nominal voltage AC/DC 24 V
- Control On/Off, Floating point



Picture may differ from product



5-year warranty



## Technical data

|                        |                                    |                                                                                             |
|------------------------|------------------------------------|---------------------------------------------------------------------------------------------|
| <b>Electrical data</b> | Nominal voltage                    | AC/DC 24 V                                                                                  |
|                        | Nominal voltage frequency          | 50/60 Hz                                                                                    |
|                        | Nominal voltage range              | AC 19.2...28.8 V / DC 21.6...28.8 V                                                         |
|                        | Power consumption in operation     | 0.3 W                                                                                       |
|                        | Power consumption in rest position | 0.2 W                                                                                       |
|                        | Transformer sizing                 | 0.6 VA                                                                                      |
|                        | Electrical Connection              | 18 AWG plenum cable, 1 m, with 1/2" NPT conduit connector                                   |
|                        | Overload Protection                | electronic throughout 0...90° rotation                                                      |
|                        | Electrical Protection              | actuators are double insulated                                                              |
| <b>Functional data</b> | Angle of rotation                  | 90°                                                                                         |
|                        | Angle of rotation note             | adjustable with mechanical stop                                                             |
|                        | Running Time (Motor)               | 75 s / 90°                                                                                  |
|                        | Sound power level, motor           | 35 dB(A)                                                                                    |
|                        | Position indication                | pointer                                                                                     |
| <b>Safety data</b>     | Power source UL                    | Class 2 Supply                                                                              |
|                        | Degree of protection IEC/EN        | IP40                                                                                        |
|                        | Degree of protection NEMA/UL       | NEMA 2                                                                                      |
|                        | Housing                            | UL Enclosure Type 2                                                                         |
|                        | Agency Listing                     | cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02<br>CE acc. to 2014/30/EU and 2014/35/EU |
|                        | Quality Standard                   | ISO 9001                                                                                    |
|                        | UL 2043 Compliant                  | Suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC |
|                        | Ambient humidity                   | Max. 95% RH, non-condensing                                                                 |
|                        | Ambient temperature                | 35...104°F [2...40°C]                                                                       |
|                        | Storage temperature                | -40...176°F [-40...80°C]                                                                    |
|                        | Servicing                          | maintenance-free                                                                            |
| <b>Weight</b>          | Weight                             | 0.57 lb [0.26 kg]                                                                           |
| <b>Materials</b>       | Housing material                   | UL94-5VA                                                                                    |

## Product features

**Application** Non-Fail Safe On/Off/Floating Point ZoneTight actuator.

Valve selection should be done in accordance with the flow parameters and system specifications.

The actuator is mounted directly to the valve without the need for tools or additional linkage.

The actuator operates in response to AC/DC 24 V. Angle of rotation is adjustable with the integrated mechanical stop.

## Accessories

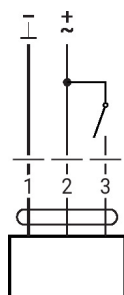
| Mechanical accessories | Description                                                     | Type   |
|------------------------|-----------------------------------------------------------------|--------|
|                        | Housing cover CQ for Belimo ZoneTight™, Color: white (RAL 9010) | ZCQB-W |

## Electrical installation

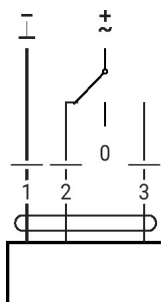
### Wire colors:

- 1 = black
- 2 = red
- 3 = white

AC/DC 24 V, on/off



AC/DC 24 V, 3-point



| 1                                                                                   | 2                                                                                   | 3                                                                                    |                                                                                      |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |  |  |
|  |  |  | A - AB = 0%                                                                          |
|  |  |  | A - AB = 100%                                                                        |
|  |  |  | stop                                                                                 |
|  |  |  | A - AB = 100%                                                                        |