

Pressure Independent Flow limiting valve, 2-way, Internal thread

- For closed cold water systems
- For water-side on/off control of fan coil and cooling ceilings



### Type overview

| Type       | DN | Rp<br>["] | V'nom<br>[l/s] | V'nom<br>[l/h] | V'nom<br>[m³/h] | PN |
|------------|----|-----------|----------------|----------------|-----------------|----|
| C215QFL-C  | 15 | 1/2       | 0.08           | 290            | 0.29            | 25 |
| C215QFL-D  | 15 | 1/2       | 0.13           | 470            | 0.47            | 25 |
| C215QFL-E  | 15 | 1/2       | 0.18           | 650            | 0.65            | 25 |
| C215QFL-F0 | 15 | 1/2       | 0.26           | 940            | 0.94            | 25 |
| C215QFL-F  | 15 | 1/2       | 0.36           | 1300           | 1.3             | 25 |
| C220QFL-F6 | 20 | 3/4       | 0.33           | 1200           | 1.2             | 25 |
| C220QFL-G0 | 20 | 3/4       | 0.42           | 1500           | 1.5             | 25 |
| C220QFL-G  | 20 | 3/4       | 0.52           | 1900           | 1.9             | 25 |
| C220QFL-H0 | 20 | 3/4       | 0.65           | 2350           | 2.35            | 25 |
| C220QFL-H  | 20 | 3/4       | 0.81           | 2900           | 2.9             | 25 |
| R225FL-J   | 25 | 1         | 1.00           | 3600           | 3.6             | 25 |

### Technical data

|                        |                                 |                                                       |
|------------------------|---------------------------------|-------------------------------------------------------|
| <b>Functional data</b> | Fluid                           | Cold water                                            |
|                        | Fluid temperature               | 36...140°F [2...60°C]                                 |
|                        | Differential pressure           | 20...280 kPa                                          |
|                        | Close-off pressure $\Delta p_s$ | 520 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 according to ISO 7-1                  |
|                        | Installation position           | upright to horizontal (in relation to the stem)       |
|                        | Servicing                       | maintenance-free                                      |
| <b>Materials</b>       | Valve body                      | Brass (DN 15, 20)<br>Nickel-plated brass body (DN 25) |
|                        | Valve plug                      | Chrome-plated brass                                   |
|                        | Stem                            | brass (DN 15, 20)<br>nickel-plated brass (DN 25)      |
|                        | Stem seal                       | EPDM O-ring                                           |
|                        | Seat                            | PTFE, O-Ring EPDM                                     |
| <b>Terms</b>           | 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 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

- Mode of operation** The open/close ball valve is adjusted by a rotary actuator. The actuator is connected by an open/close 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.

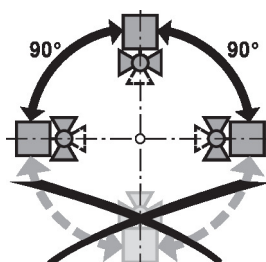


## Accessories

| Mechanical accessories | Description                         | Type   |
|------------------------|-------------------------------------|--------|
|                        | Stem extension CQ                   | ZCQ-E  |
|                        | Pipe connector for ball valve DN 15 | ZR2315 |
|                        | Pipe connector for ball valve DN 20 | ZR2320 |
|                        | Pipe connector for ball valve DN 25 | ZR2325 |

## 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.



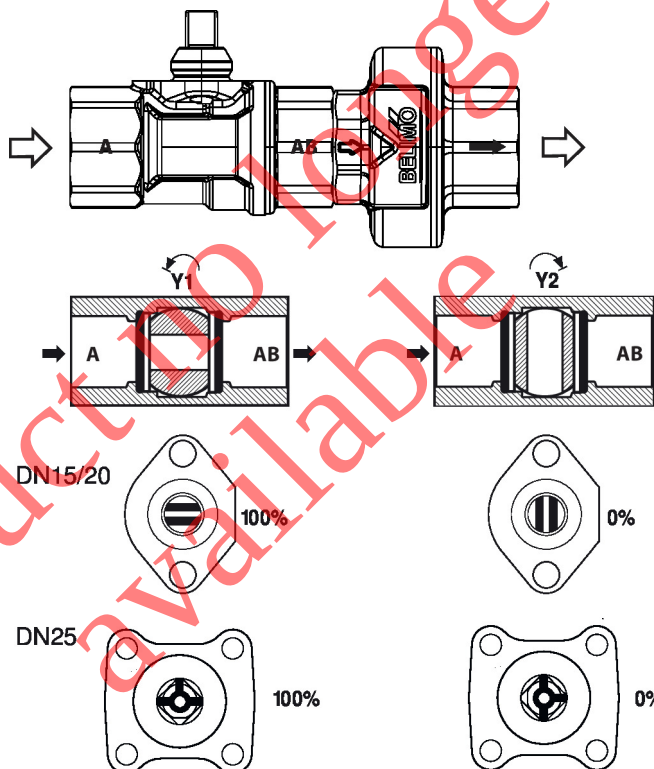
- Installation in return** Installation in the return is recommended.
- Water quality requirements** The water quality requirements specified in VDI 2035 must be adhered to. Belimo valves are regulating devices. For the valves to function correctly in the long term, they must be kept free from particle 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.

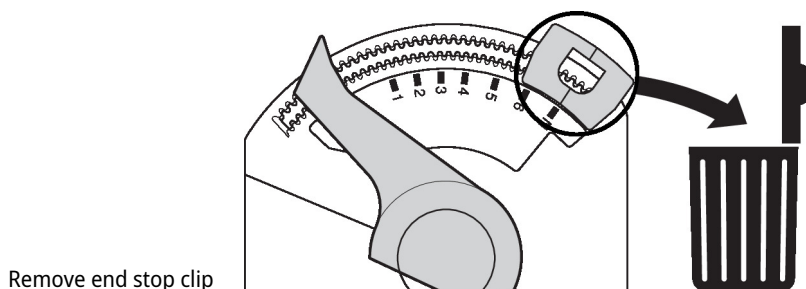
Before any service work on the control element is carried out, it is essential to isolate the rotary actuator from the power supply (by unplugging the electrical cable if necessary). Any pumps in the part of the piping system concerned must also be switched off and the appropriate slide valves closed (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.

**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).



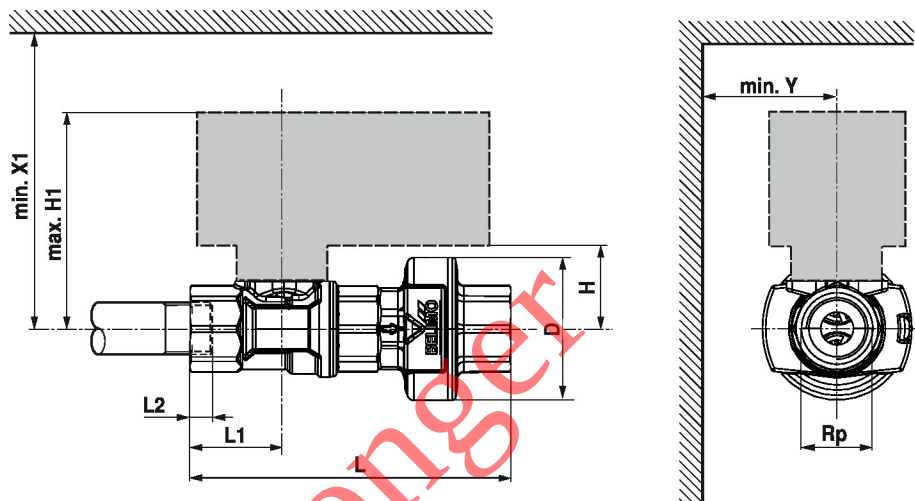
**Flow setting** At the CQ-actuator the end stop clip has to be removed. This in order to get the angle of rotation of 90°, which is needed for the open/close functionality.



Remove end stop clip

## Dimensions

Dimensional drawings

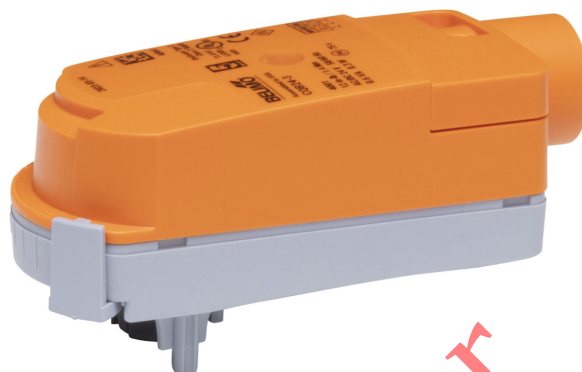


L2: Maximum screwing depth.

| Type       | DN | Rp<br>["] | L<br>[mm] | L1<br>[mm] | L2<br>[mm] | H<br>[mm] | H1<br>[mm] | D<br>[mm] | X1<br>[mm] | Y<br>[mm] | kg   |
|------------|----|-----------|-----------|------------|------------|-----------|------------|-----------|------------|-----------|------|
| C215QFL-C  | 15 | 1/2       | 100       | 29         | 13         | 24.5      | 69         | 44        | 110        | 35        | 0.34 |
| C215QFL-D  | 15 | 1/2       | 100       | 29         | 13         | 24.5      | 69         | 44        | 110        | 35        | 0.34 |
| C215QFL-E  | 15 | 1/2       | 100       | 29         | 13         | 24.5      | 69         | 44        | 110        | 35        | 0.34 |
| C215QFL-F0 | 15 | 1/2       | 100       | 29         | 13         | 24.5      | 69         | 44        | 110        | 35        | 0.34 |
| C215QFL-F  | 15 | 1/2       | 100       | 29         | 13         | 24.5      | 69         | 44        | 110        | 35        | 0.34 |
| C220QFL-F6 | 20 | 3/4       | 111       | 35         | 14         | 26.5      | 71         | 46        | 110        | 35        | 0.45 |
| C220QFL-G0 | 20 | 3/4       | 111       | 35         | 14         | 26.5      | 71         | 46        | 110        | 35        | 0.45 |
| C220QFL-G  | 20 | 3/4       | 111       | 35         | 14         | 26.5      | 71         | 46        | 110        | 35        | 0.45 |
| C220QFL-H0 | 20 | 3/4       | 111       | 35         | 14         | 26.5      | 71         | 46        | 110        | 35        | 0.45 |
| C220QFL-H  | 20 | 3/4       | 111       | 35         | 14         | 26.5      | 71         | 46        | 110        | 35        | 0.45 |
| R225FL-J   | 25 | 1         | 128       | 44         | 16         | 46        | 130        | 49        | 200        | 75        | 0.76 |

On/Off, Electronic fail-safe, 24 V

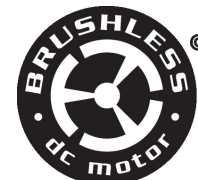
- Nominal voltage AC/DC 24 V
- Control On/Off



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      | 2.5 W                                                                                       |
|                        | Power consumption in rest position  | 0.5 W                                                                                       |
|                        | Transformer sizing                  | 5 VA                                                                                        |
|                        | Auxiliary switch                    | 1x SPST, 1 A resistive @ DC 30 V                                                            |
|                        | Switching capacity auxiliary switch | 1 A resistive @ DC 30 V                                                                     |
|                        | Electrical Connection               | 22 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> | Bridging time (PF)                  | 2 s                                                                                         |
|                        | Pre-charging time                   | 5...20 s                                                                                    |
|                        | Angle of rotation                   | 90°                                                                                         |
|                        | Angle of rotation note              | adjustable with mechanical stop                                                             |
|                        | Running Time (Motor)                | 75 s / 90°                                                                                  |
|                        | Running time fail-safe              | <60 s                                                                                       |
|                        | Sound power level, motor            | 35 dB(A)                                                                                    |
|                        | Sound power level, fail-safe        | 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                                                                            |

## Technical data

|                  |                  |                   |
|------------------|------------------|-------------------|
| <b>Weight</b>    | Weight           | 0.57 lb [0.26 kg] |
| <b>Materials</b> | Housing material | UL94-5VA          |

## Product features

**Application** Electrical fail-safe On/Off 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.

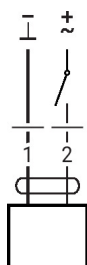
## Electrical installation

### Wire colors:

1 = black

2 = red

AC/DC 24 V, on/off



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