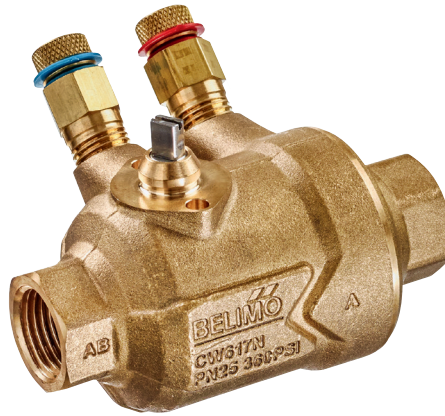


Pressure independent zone valve,  
2-way, Internal thread

- For closed cold and warm water systems
- For modulating control of air-handling and heating systems on the water side
- Snap-assembly of the actuator
- Version with measuring ports (P/T ports)


**Type overview**

| Type             | DN  | Rp  | Vnom   | PN  | Sv min. |
|------------------|-----|-----|--------|-----|---------|
|                  | [ ] | ["] | [ l/h] | [ ] | [ ]     |
| <b>C215QPT-B</b> | 15  | 1/2 | 210    | 25  | 100     |
| <b>C215QPT-D</b> | 15  | 1/2 | 420    | 25  | 100     |
| <b>C220QPT-F</b> | 20  | 3/4 | 980    | 25  | 100     |

**Technical data**

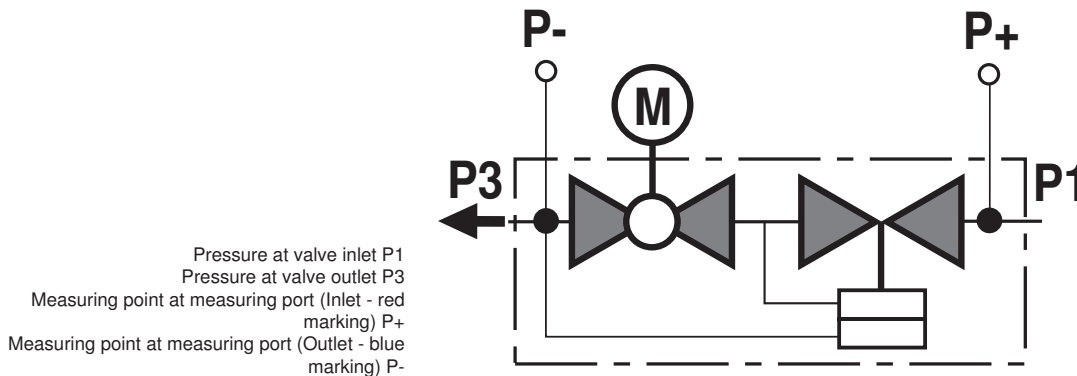
|                        |                         |   |
|------------------------|-------------------------|---|
| <b>Functional data</b> | Media                   | Cold and warm water, water with glycol up to max. 50% vol.                  |
|                        | Medium temperature      | 2...90°C  |
|                        | Pressure value          | 16...350 kPa  |
|                        | Permissible pressure ps | 1600 kPa  |
|                        | Closing pressure Δps    | 700 kPa   |
|                        | Flow characteristic     | equal percentage (VDI/VDE 2178), optimised in the opening range             |
|                        | Pressure stability      | With a pressure value of 16...350 kPa: ±10%                                 |
|                        | Leakage rate            | Leakage rate A, tight (EN 12266-1)  |
|                        | Flow setting            | see Installation instructions   |
|                        | Pipe connectors         | Internal thread according to ISO 7-1  |
|                        | Angle of rotation       | 90° (Operating range 15...90°)  |
|                        | Installation position   | Upright to horizontal (in relation to the stem)                             |
|                        | Maintenance             | Maintenance-free  |
|                        | <b>Materials</b>        | Housing   |
| Closing element        |                         | Stainless steel   |
| Stem                   |                         | Stainless steel   |
| Stem seal              |                         | O-ring EPDM   |
| Valve seat             |                         | PTFE, O-ring EPDM   |
| Diaphragm              |                         | EPDM  |
| <b>Terms</b>           | Abbreviations           | Vnom = nominal flow with valve completely opened                            |
|                        |                         | Vmax = maximum flow set by the angle of rotation limitation on the actuator |

**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

- Principle of operation** The ball 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 special design of the ball.
- Constant flow volume** With a differential pressure of 16...350 kPa, a constant flow volume is achieved thanks to the integrated pressure regulating valve. Independent of the differential pressure through the valve, a valve authority of 1 is achieved. Even with pressure variations and in the partial load range, the flow rate remains constant with each respective opening position (angle of rotation) and ensures a steady control.



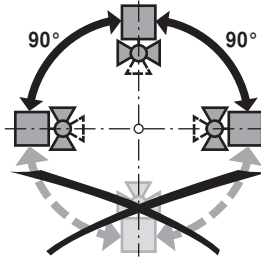
- Flow limitation** Instead of the electric actuator, the PIQCV-valve can also be operated with a flow limiter (see accessories). The flow limiter ensures that the heat exchanger is continuously supplied with a manually fixed amount of water.
- Measurement ports (P/T ports)** The C2..QPT-.. type valves have two measurement ports. The total drop in pressure across the valve can be determined using the measurement points at the valve inlet (P1) and outlet (P3). The measurement ports can be used to easily establish whether the effective differential pressure across the valve is within the effective pressure range of 16...350 kPa. If it is, the valve operates independently of pressure and the correct flow rate is automatically ensured by the valve according to the setting table.
- The differential pressure measurement can also be used to optimise the pump setting. This involves reducing the delivery height of the pump until only the minimum differential pressure required (16 kPa) is still present across the valve at the point of lowest pressure (the furthest away from the pump in hydraulic terms).

## Accessories

|                        | Description          | Type   |
|------------------------|----------------------|--------|
| Mechanical accessories | Spindle extension CQ | ZCQ-E  |
|                        | Flow limiter PIQCV   | ZCQ-FL |

## 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.

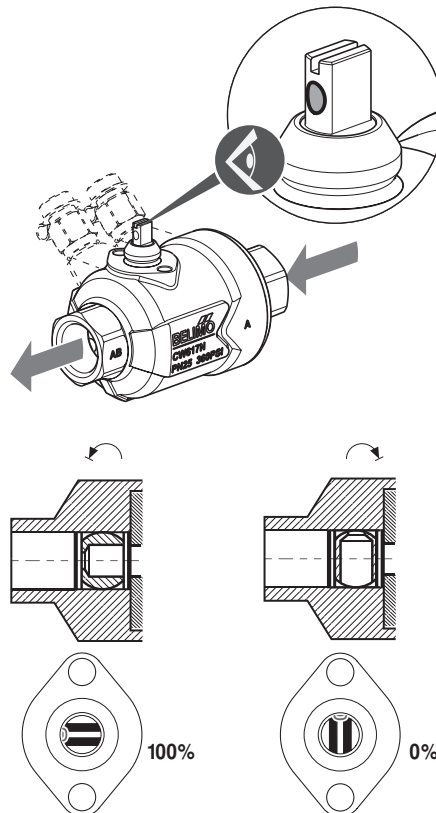


**Mounting position in the return** Installation in the return is recommended.

**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 suitable strainer is recommended.

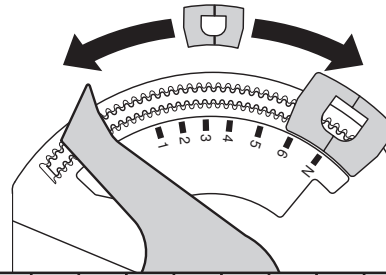
**Maintenance** Ball valves and rotary actuators are maintenance-free. In the event of any service work on the final controlling device, it is essential to isolate the rotary actuator from the power supply (by unplugging the electrical cable). Any pumps in the part of the piping system concerned must 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.

**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).



Installation notes

**kv setting** The angle of rotation of the actuator can be changed by clip in 2.5° increments. This is used to set the V<sub>max</sub>-value (maximum flow rate of the valve). Remove end stop clip and place at desired position.



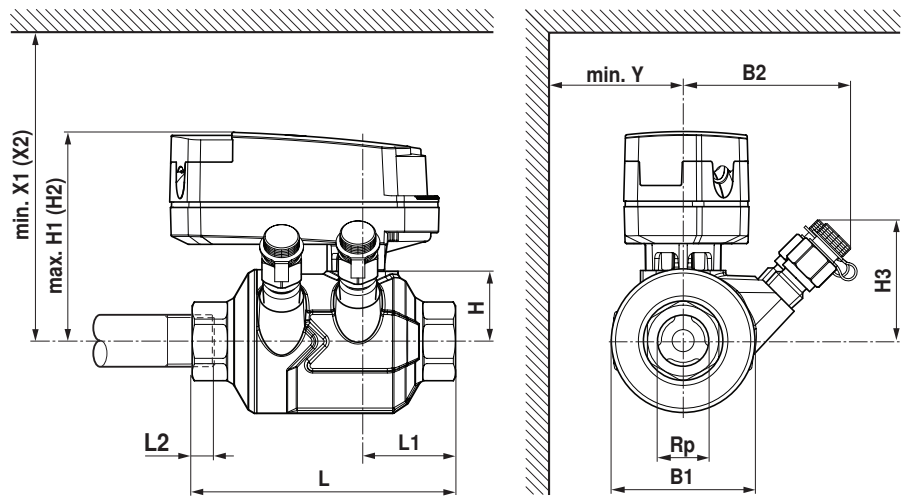
|             | Pos       | 1     | 2     | 3     | 3+    | 4-    | 4     | 4+    | 5-    | 5     | 5+    | 6-    | 6     | 6+    | N-    | N     |
|-------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C215QP(T)-B | max (l/h) | 20    | 25    | 35    | 40    | 45    | 50    | 60    | 70    | 85    | 95    | 110   | 125   | 140   | 160   | 170   |
|             | max (l/s) | 0.005 | 0.007 | 0.009 | 0.011 | 0.012 | 0.014 | 0.017 | 0.020 | 0.023 | 0.027 | 0.031 | 0.035 | 0.039 | 0.044 | 0.048 |
| C215QP(T)-D | max (l/h) | 45    | 60    | 80    | 90    | 100   | 115   | 130   | 150   | 170   | 190   | 210   | 240   | 260   | 290   | 310   |
|             | max (l/s) | 0.012 | 0.016 | 0.022 | 0.025 | 0.028 | 0.032 | 0.037 | 0.042 | 0.047 | 0.053 | 0.059 | 0.066 | 0.073 | 0.080 | 0.086 |
| C220QP(T)-F | max (l/h) | 100   | 145   | 210   | 240   | 270   | 320   | 370   | 410   | 470   | 530   | 590   | 650   | 710   | 790   | 840   |
|             | max (l/s) | 0.028 | 0.040 | 0.060 | 0.067 | 0.076 | 0.09  | 0.10  | 0.11  | 0.13  | 0.15  | 0.16  | 0.18  | 0.20  | 0.22  | 0.23  |



without end stop clip, V<sub>nom</sub> see type overview

Dimensions / Weight

Dimensional drawings



H1/X1: without spindle extension CQ  
 H2/X2: with spindle extension CQ (ZCQ-E)  
 L2: Maximum screwing depth.

| Type      | DN  | Rp  | L     | L1    | L2    | B1    | B2    | H     | H1    | H2    |
|-----------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|
|           | [ ] | ["] | [ mm] | [ mm] | [ mm] | [ mm] | [ mm] | [ mm] | [ mm] | [ mm] |
| C215QPT-B | 15  | 1/2 | 96    | 34    | 13    | 52    | 61    | 26    | 80    | 112   |
| C215QPT-D | 15  | 1/2 | 96    | 34    | 13    | 52    | 61    | 26    | 80    | 112   |
| C220QPT-F | 20  | 3/4 | 106   | 39    | 14    | 63    | 72    | 31    | 85    | 117   |

| Type      | H3    | Y     | X1    | X2    | Weight approx. |
|-----------|-------|-------|-------|-------|----------------|
|           | [ mm] | [ mm] | [ mm] | [ mm] | [ kg]          |
| C215QPT-B | 44    | 40    | 125   | 155   | 0.8            |
| C215QPT-D | 44    | 40    | 125   | 155   | 0.8            |
| C220QPT-F | 49    | 45    | 130   | 165   | 1.2            |

**Further documentation**

- Overview Valve-actuator combinations
- Data sheets for actuators CQ..
- Installation instruction for zone valves and actuators
- General notes for project planning