BELIMO

# Technical data sheet B308

3-way Mixing/Diverting, Characterized Control Valve, Stainless Steel Ball and Stem



Picture may differ from product

5-year warranty

## Type overview

| Type | DN |
|---|---|
| B308 | 1/2" [15] |

## Technical data

| | | |
|---|---|---|
| **Functional data** | Valve size [mm] | 0.5" [15] |
| | Fluid | chilled or hot water, up to 60% glycol |
| | Fluid Temp Range (water) | 0...250°F [-18...120°C] |
| | Body Pressure Rating | 600 psi |
| | Close-off pressure Δps | 200 psi |
| | Flow | A-port: as stated in chart B-port: 70% of A – AB Cv |
| | Flow characteristic | A-port equal percentage, B-port modified for constant common port flow |
| | Leakage rate | 0% for A – AB, <2.0% for B – AB |
| | Pipe connection | Internal thread<br>NPT (female) |
| | Servicing | maintenance-free |
| | Flow Pattern | 3-way Mixing/Diverting |
| | Controllable flow range | 75° |
| | Cv | 0.46 |
| **Materials** | Valve body | Nickel-plated brass body |
| | Stem | stainless steel |
| | Stem seal | EPDM (lubricated) |
| | Seat | PTFE |
| | Characterized disc | TEFZEL® |
| | O-ring | EPDM (lubricated) |
| | Ball | stainless steel |
| **Suitable actuators** | Non Fail-Safe | TR<br>LRB(X)<br>LRQB(X)<br>NRB(X) N4 |
| | Spring | TFRB(X)<br>LF |

## Safety notes

- WARNING: This product can expose you to lead which is known to the State of California to cause cancer and reproductive harm. For more information go to www.p65warnings.ca.gov

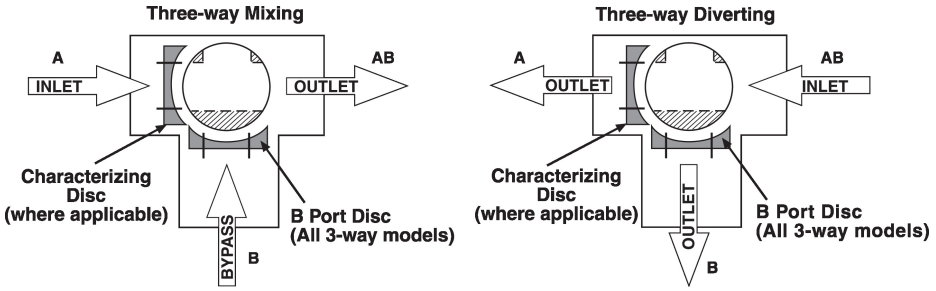
## Product features

**Application**

This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV box re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable or constant flow.

**Flow/Mounting details**

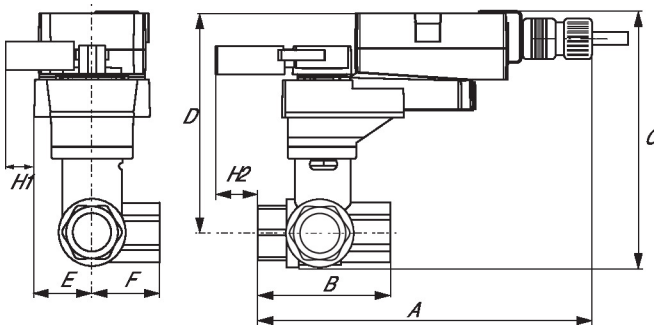
This valve is not suitable for use as a change over valve.




## Dimensions

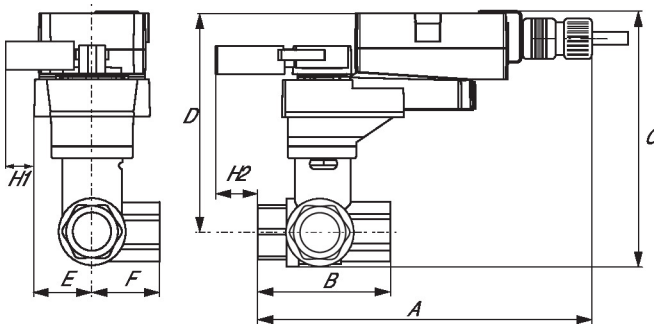
| Type | DN | Weight |
|---|---|---|
| B308 | 1/2" [15] | 0.60 lb [0.27 kg] |

LRB, LRX



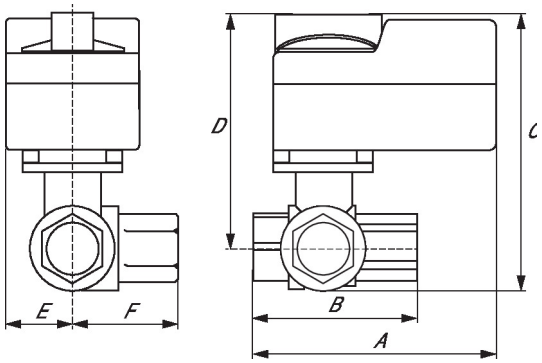

| A | B | C | D | E | F | H1 | H2 |
|---|---|---|---|---|---|---|---|
| 8.5" [216] | 2.4" [60] | 5.2" [132] | 4.6" [117] | 1.3" [33] | 1.3" [33] | 1.2" [30] | 1.1" [28] |

LRQB, LRQX



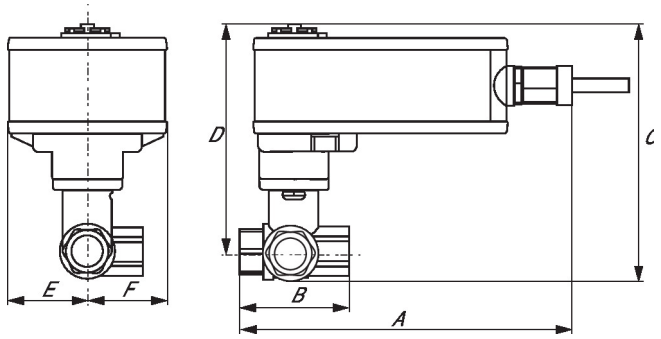

| A | B | C | D | E | F | H1 | H2 |
|---|---|---|---|---|---|---|---|
| 8.9" [226] | 2.4" [60] | 5.7" [146] | 5.2" [131] | 1.6" [40] | 1.6" [40] | 1.2" [30] | 1.3" [33] |

TR



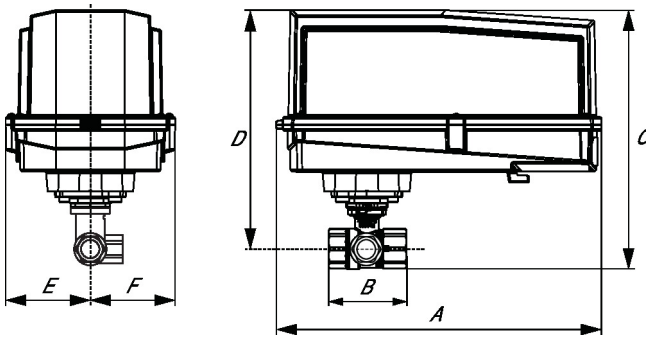
## Dimensions

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 3.7" [95] | 2.4" [60] | 4.8" [122] | 4.2" [107] | 1.3" [33] | 1.2" [31] |



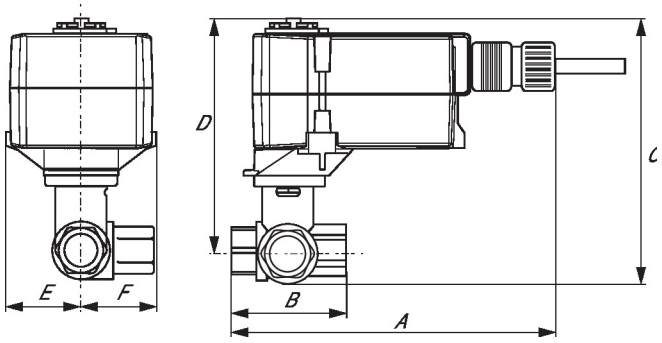

LF

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 7.91" [200] | 2.4" [60] | 5.7" [146] | 5.1" [129] | 1.8" [46] | 1.9" [48] |




ARB N4, ARX N4

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 11.4" [289] | 2.4" [60] | 7.2" [184] | 6.7" [169] | 3.1" [80] | 3.1" [80] |




TFRB, TFRX

| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 6.6" [167] | 2.4" [60] | 4.9" [124] | 4.3" [110] | 1.5" [39] | 1.5" [39] |

Modulating, Non fail-safe, 24 V



5-year warranty

## Technical data

| | | |
|---|---|---|
| **Electrical data** | 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 | 0.5 W |
| | Transformer sizing | 1 VA |
| | Electrical Connection | Screw terminal (for 26...14 AWG wire) |
| | Overload Protection | electronic throughout full rotation |
| **Functional data** | Operating range Y | 2...10 V |
| | Operating range Y note | 4...20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor) |
| | Input impedance | 100 kΩ for 2...10 V (0.1 mA), 500 Ω for 4...20 mA |
| | Direction of motion motor | selectable with switch |
| | Manual override | push down handle |
| | Angle of rotation | 90° |
| | Running Time (Motor) | 90 s / 90° |
| | Noise level, motor | 35 dB(A) |
| | Position indication | integrated into handle |
| **Safety data** | Power source UL | Class 2 Supply |
| | Degree of protection IEC/EN | IP40 |
| | Degree of protection NEMA/UL | NEMA 1 |
| | Housing | UL Enclosure Type 1 |
| | 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 | -22...122°F [-30...50°C] |
| | Storage temperature | -40...176°F [-40...80°C] |
| | Servicing | maintenance-free |

## Technical data

| | | |
|---|---|---|
| **Weight** | Weight | 0.85 lb [0.39 kg] |

## Electrical installation

**INSTALLATION NOTES**

1 Provide overload protection and disconnect as required.

3 Actuators may also be powered by DC 24 V.

5 Only connect common to negative (-) leg of control circuits.

7 A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.

16 Actuators are provided with a numbered screw terminal strip instead of a cable.

Meets cULus requirements without the need of an electrical ground connection.

**Warning! Live electrical components!**

During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

### Wiring diagrams

2...10 V / 4...20 mA Control

