BELIMO

# Technical data sheet B307

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

Picture may differ from product

5-year warranty

## Type overview

| Type | DN |
|---|---|
| B307 | 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 | 0.3 |
| **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

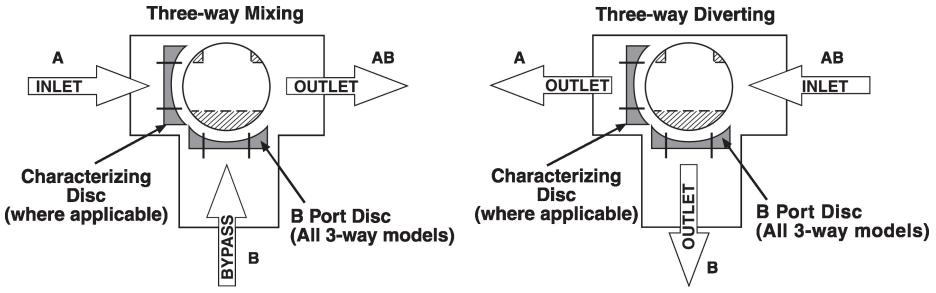
## Product features

**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**

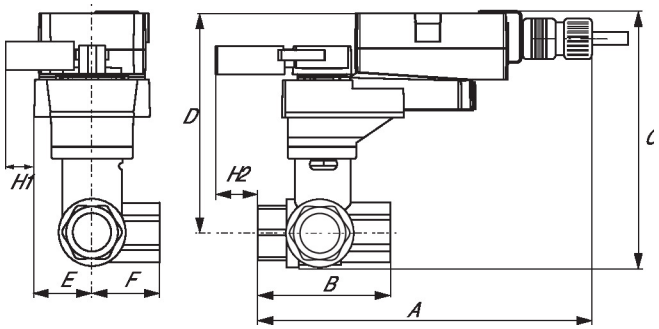
This valve is not suitable for use as a change over valve.




## Dimensions

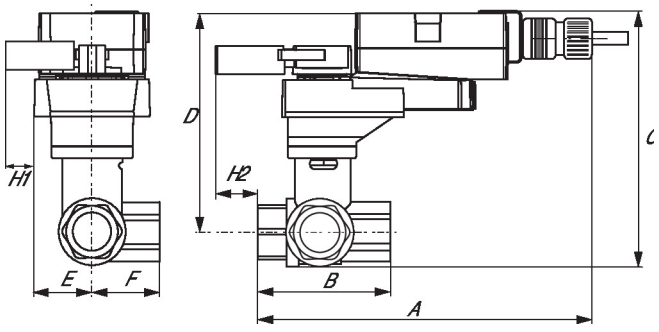
| Type | DN | Weight |
|---|---|---|
| B307 | 1/2" [15] | 0.59 lb [0.27 kg] |

LRB, LRX



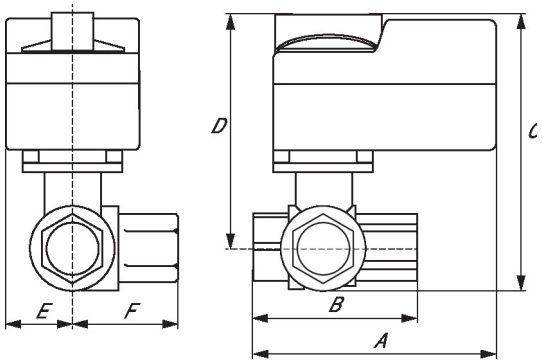

| A | B | C | D | E | F | H1 | H2 |
|---|---|---|---|---|---|---|---|
| 8.5" [216] | 2.4" [60] | 5.2" [132] | 4.6" [117] | 1.3" [33] | 1.3" [33] | 1.2" [30] | 1.1" [28] |

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] |

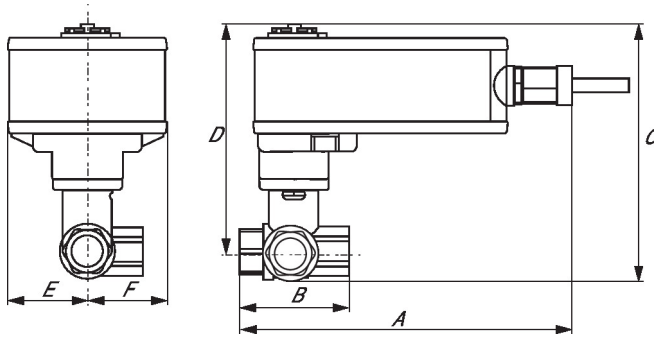
TR



## Dimensions

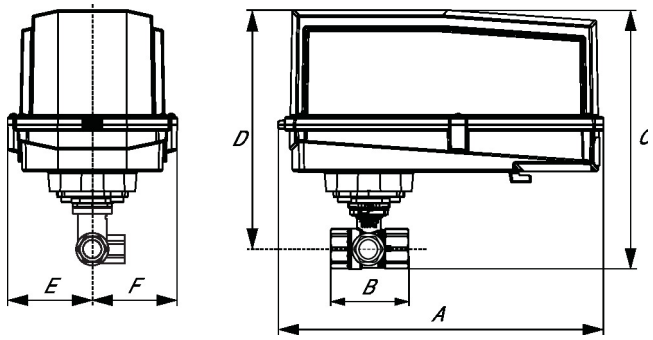
| A | B | C | D | E | F |
|---|---|---|---|---|---|
| 3.7" [95] | 2.4" [60] | 4.8" [122] | 4.2" [107] | 1.3" [33] | 1.2" [31] |

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] |

MFT/programmable, 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 | 2.5 W |
| | Power consumption in rest position | 1.2 W |
| | Transformer sizing | 5 VA |
| | Electrical Connection | 18 AWG plenum cable with 1/2" NPT conduit connector, degree of protection NEMA 2 / IP54, 1 m, 3 m, and 5 m |
| | Overload Protection | electronic thoughout 0...90° rotation |
| | Electrical Protection | actuators are double insulated |
| **Functional data** | Operating range Y | 0...135 Ω |
| | Operating range Y note | Honeywell Electronic Series 90, input 0...135 Ω |
| | Input impedance | 100 kΩ |
| | Position feedback U | 2...10 V |
| | Position feedback U note | Max. 0.5 mA |
| | Position feedback U variable | VDC variable |
| | Direction of motion motor | selectable with switch 0/1 |
| | Manual override | external push button |
| | Angle of rotation | 90° |
| | Angle of rotation note | adjustable with mechanical stop |
| | Running Time (Motor) | 150 s / 90° |
| | Running time motor variable | 35...150 s |
| | Noise level, motor | 35 dB(A) |
| | Position indication | Mechanical, pluggable |
| **Safety data** | Power source UL | Class 2 Supply |
| | Degree of protection IEC/EN | IP54 |
| | 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, CE acc. to 2014/30/EU |
| | Quality Standard | ISO 9001 |

## Technical data

| | | |
|---|---|---|
| **Safety data** | 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 |
| **Weight** | Weight | 1.2 lb [0.53 kg] |
| **Materials** | Housing material | Galvanized steel and plastic housing |

**Footnotes** †Rated Impulse Voltage 800V, Type action 1.B, Control Pollution Degree 3.

## Accessories

| | Description | Type |
|---|---|---|
| **Gateways** | Gateway MP to BACnet MS/TP | UK24BAC |
| | Gateway MP to Modbus RTU | UK24MOD |
| | Gateway MP to LonWorks | UK24LON |
| **Electrical accessories** | **Description** | **Type** |
| | Auxiliary switch 1x SPDT add-on | S1A |
| | Auxiliary switch 2x SPDT add-on | S2A |
| | Feedback potentiometer 140 Ω add-on, grey | P140A GR |
| | Feedback potentiometer 1 kΩ add-on, grey | P1000A GR |
| | Feedback potentiometer 10 kΩ add-on, grey | P10000A GR |
| | Feedback potentiometer 2.8 kΩ add-on, grey | P2800A GR |
| | Feedback potentiometer 500 Ω add-on, grey | P500A GR |
| | Feedback potentiometer 5 kΩ add-on, grey | P5000A GR |
| **Tools** | **Description** | **Type** |
| | Connecting cable 10 ft [3 m], A: RJ11 6/4 LINK.10, B: 3-pin Weidmüller and supply connection | ZK4-GEN |
| | Service tool, with ZIP-USB function, for configurable and communicative Belimo actuators, VAV controller and HVAC performance devices | ZTH US |

## Electrical installation

**INSTALLATION NOTES**

1 Provide overload protection and disconnect as required.

2 Actuators may be connected in parallel. Power consumption and input impedance must be observed.

3 Actuators may also be powered by DC 24 V.

18 Actuators with plenum cable do not have numbers; use color codes instead.

22 Actuators and controller must have separate transformers.

23 Consult controller instruction data for more detailed information.

24 Resistor value depends on the type of controller and the number of actuators. No resistor is used for one actuator. Honeywell® resistor kits may also be used.

25 To reverse control rotation, use the reversing switch.

46 Actuators may be controlled in parallel. Current draw and input impedance must be observed.

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

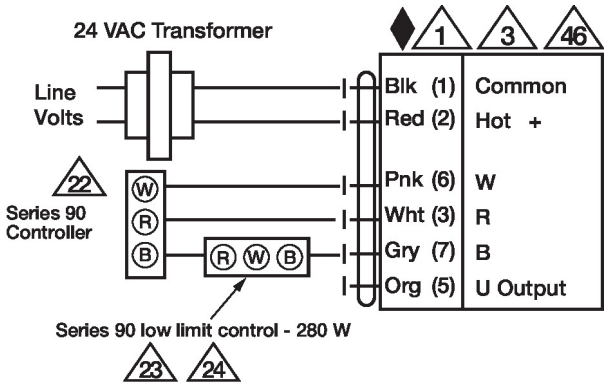
**Warning! Live electrical components!**

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.

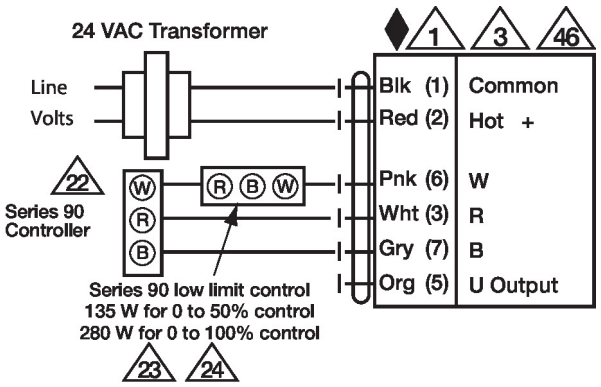
Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

## Wiring diagrams

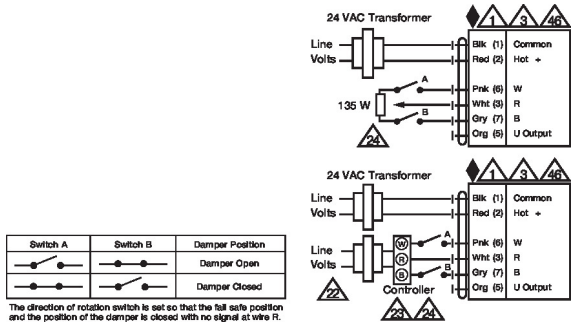
High Limit Control




Low Limit Control



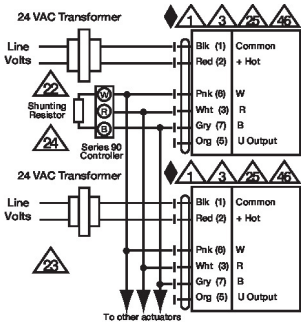

Typical and Override Control




| Switch A | Switch B | Damper Position |
|---|---|---|
| | | Damper Open |
| | | Damper Closed |

The direction of rotation switch is set so that the fail safe position and the position of the damper is closed with no signal at wire R.

Multiple Actuators



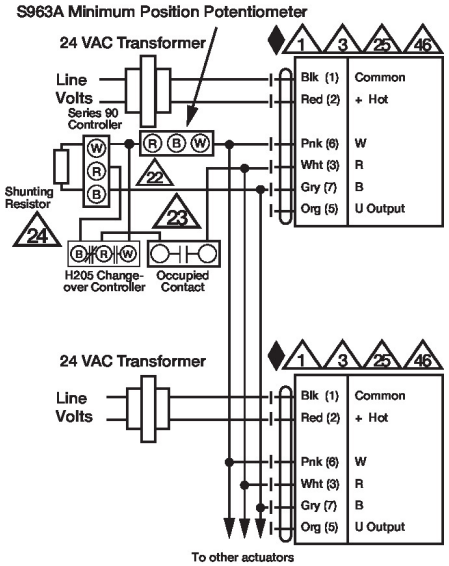

| No. of actuators | Resistance |
|---|---|
| 2 | 140 W |
| 3 | 71.5 W |
| 4 | 47.5 W |
| 5 | 37.5 W |
| 6 | 28 W |

Resistor Kit No. ZG-R03

## Electrical installation

### Wiring diagrams

Multiple Actuators with Minimum Position Potentiometer




Multiple Actuators Used with W973, W7100 and T775