

# B224, 2-Way, Characterized Control Valve

## Stainless Steel Ball and Stem



| Technical Data                    |                                      |
|-----------------------------------|--------------------------------------|
| Service                           | chilled, hot water, up to 60% glycol |
| Flow Characteristic               | equal percentage                     |
| Controllable Flow Range           | 75°                                  |
| Size [mm]                         | 1" [25]                              |
| End Fitting                       | NPT female ends                      |
| Body                              | forged brass, nickel plated          |
| Ball                              | stainless steel                      |
| Stem                              | stainless steel                      |
| Stem Packing                      | EPDM (lubricated)                    |
| Seat                              | Teflon® PTFE                         |
| Seat O-ring                       | EPDM (lubricated)                    |
| Characterized Disc                | TEFZEL®                              |
| Body Pressure Rating [psi]        | 600                                  |
| Media Temperature Range (Water)   | 0°F to 250°F [-18°C to 120°C]        |
| Max Differential Pressure (Water) | 50 psi (345 kPa)                     |
| Close-Off Pressure                | 200 psi                              |
| Cv                                | 19                                   |
| Weight                            | 1.1 lb [0.5 kg]                      |
| Leakage                           | 0% for A to AB                       |
| Servicing                         | maintenance free                     |



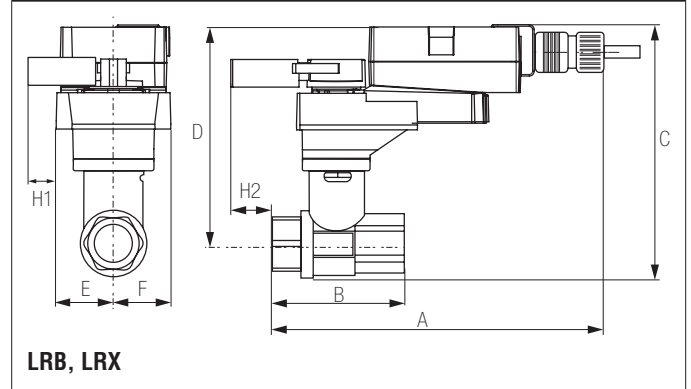
### Application

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 flow.

### Suitable Actuators

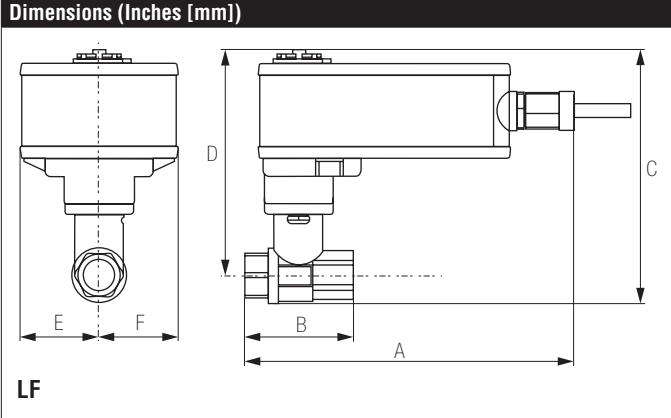
|      | Non-Spring | Spring |
|------|------------|--------|
| B224 | LR, NR     | LF     |

### Dimensions (Inches [mm])



| A          | B          | C           | D           | E         | F | H1         | H2        |
|------------|------------|-------------|-------------|-----------|---|------------|-----------|
| 9.4" [239] | 3.07" [78] | 7.25" [184] | 6.31" [160] | 1.3" [33] |   | 1.18" [30] | 0.9" [23] |

Date created, 10/27/2017 - Subject to change. © Belimo Aircontrols (USA), Inc.



| A           | B          | C          | D           | E          | F |
|-------------|------------|------------|-------------|------------|---|
| 8.12" [206] | 3.07" [78] | 6.5" [165] | 5.57" [141] | 1.82" [46] |   |



| A            | B          | C           | D           | E          | F |
|--------------|------------|-------------|-------------|------------|---|
| 11.36" [289] | 3.07" [78] | 7.85" [199] | 7.15" [181] | 3.15" [80] |   |

# LF24-3 US, Valve Actuator

## Floating Point, Spring Return, 24 V



| Technical Data                    |   |
|-----------------------------------|---|
| Power Supply                      | 24 VAC, ±20%, 50/60 Hz, 24 VDC, ±10%                                |
| Power Consumption Running         | 2.5 W   |
| Power Consumption Holding         | 1 W   |
| Transformer Sizing                | 5 VA (class 2 power source)   |
| Electrical Connection             | 3ft [1m], 18 GA appliance cable with 1/2" conduit connector         |
| Overload Protection               | electronic throughout 0° to 95° rotation                            |
| Operating Range Y                 | floating point  |
| Input Impedance                   | 1000 Ω (0.6 W)  |
| Feedback Output U                 | No Feedback   |
| Angle of Rotation                 | 90°   |
| Direction of Rotation (Motor)     | reversible with built-in switch                                     |
| Direction of Rotation (Fail-Safe) | reversible with CW/CCW mounting                                     |
| Position Indication               | visual indicator, 0° to 95° (0° is full spring return position)     |
| Running Time (Motor)              | 150 sec   |
| Running Time (Fail-Safe)          | <25 sec @ -4°F to 122°F [-20°C to 50°C],<br><60 sec @ -22°F [-30°C] |
| Ambient Temperature Range         | -22°F to 122°F [-30°C to 50°C]                                      |
| Storage Temperature Range         | -40°F to 176°F [-40°C to 80°C]                                      |
| Housing                           | NEMA 2, IP54  |
| Agency Listings†                  | cULus acc. To UL 873 and CAN/CSA C22.2 No. 24-93                    |
| Noise Level (Motor)               | <50 dB (A)  |
| Noise Level (Fail-Safe)           | <62 dB (A)  |
| Servicing                         | maintenance free  |
| Quality Standard                  | ISO 9001  |

†Rated Impulse Voltage 800V, Type of action 1.AA, Control Pollution Degree 3

Date created, 11/29/2017 - Subject to change. © Belimo Aircontrols (USA), Inc.

**Wiring Diagrams**

**✂ INSTALLATION NOTES**

- A Actuators with appliance cables are numbered.
- 1 Provide overload protection and disconnect as required.
- 3 Actuators may also be powered by 24 VDC.
- 6 Actuators Hot wire must be connected to the control board common. Only connect common to neg. (-) leg of control circuits. Terminal models (-T) have no-feedback.
- 11 Actuators may be connected in parallel if not mechanically linked. Power consumption 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.

