

B209, 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] | 0.5" [15] |
| 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 | 0.8 |
| Weight | 0.4 lb [0.2 kg] |
| Leakage | 0% for A to AB |
| Servicing | maintenance free |

Flow Pattern



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 |
|------|------------|---------|
| B209 | TR, LR, NR | TFR, LF |

Dimensions (Inches [mm])



| A | B | C | D | E | F | H1 | H2 |
|------------|------------|-------------|-------------|-----------|---|------------|-----------|
| 9.4" [239] | 2.38" [60] | 5.19" [132] | 4.61" [117] | 1.3" [33] | | 1.18" [30] | 1.1" [28] |

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

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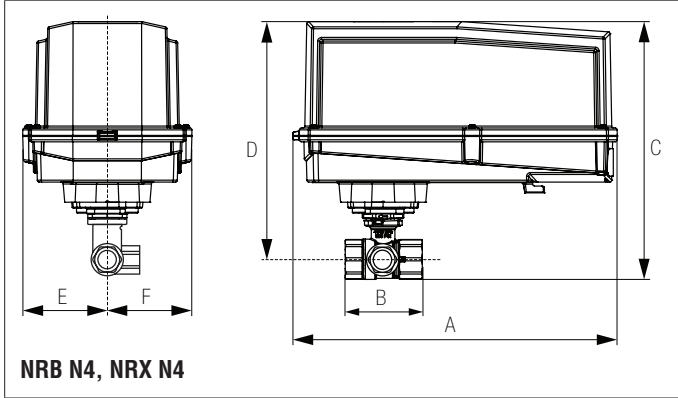
Dimensions (Inches [mm])



TR

| A | B | C | D | E | F |
|------------|------------|-------------|-------------|------------|---|
| 3.72" [95] | 2.38" [60] | 4.79" [122] | 4.21" [107] | 1.25" [32] | |

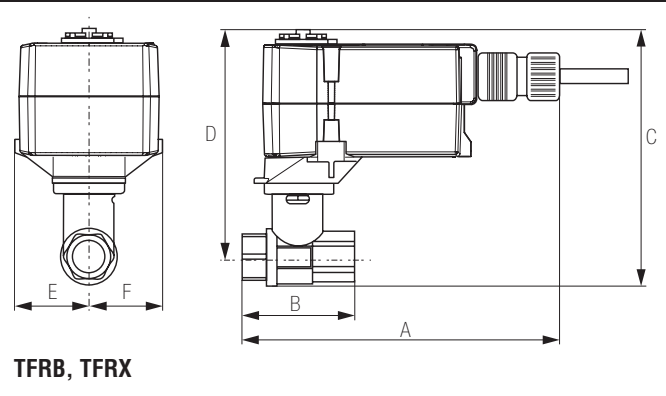
Dimensions (Inches [mm])



NRB N4, NRX N4

| A | B | C | D | E | F |
|--------------|------------|-------------|-------------|------------|---|
| 11.36" [289] | 2.38" [60] | 7.68" [195] | 7.06" [179] | 3.15" [80] | |

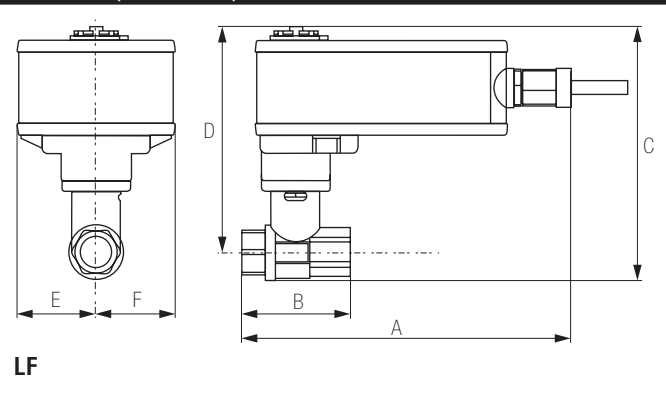
Dimensions (Inches [mm])



TFRB, TFRX

| A | B | C | D | E | F |
|-------------|------------|------------|-------------|------------|---|
| 6.59" [167] | 2.38" [60] | 4.9" [124] | 4.32" [110] | 1.53" [38] | |

Dimensions (Inches [mm])

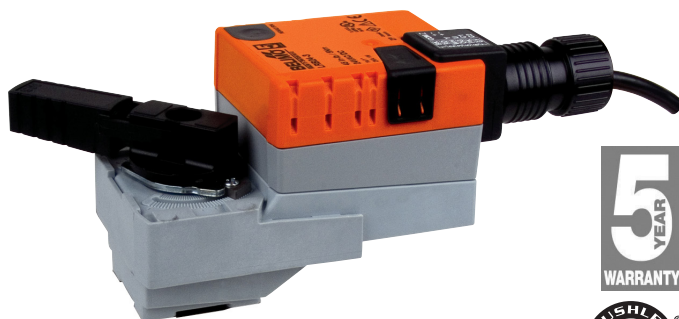


LF

| A | B | C | D | E | F |
|------------|------------|-------------|-------------|------------|---|
| 7.9" [201] | 2.38" [60] | 5.67" [144] | 5.09" [129] | 1.82" [46] | |

LRX24-PC





Modulating, Non-Spring Return, 24 V, 0 to 20 V Phasecut



| Technical Data | |
|-------------------------------|---|
| Power Supply | 24 VAC \pm 20%, 50/60 Hz, 24 VDC \pm 10% |
| Power Consumption Running | 2.5 W |
| Power Consumption Holding | 1.2 W |
| Transformer Sizing | 5 VA (class 2 power source) |
| Electrical Connection | 18 GA plenum rated cable with 1/2" conduit connector protected NEMA 2 (IP54) 3ft [1m] 10ft [3m] and 16ft [5m] |
| Overload Protection | electronic throughout 0° to 90° rotation |
| Operating Range Y | 0 TO 20 V phasecut control is only for the positive part of the sine wave (max. of 10 volts) |
| Input Impedance | 8000 Ω (50mW) |
| Feedback Output U | 2 to 10 VDC, 0.5 mA max |
| Angle of Rotation | 90° |
| Direction of Rotation (Motor) | reversible with built-in switch |
| Position Indication | integrated into handle |
| Manual Override | external push button |
| Running Time (Motor) | 90 sec (default), Optional (90 or 150 sec) |
| 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, UL enclosure type 2 |
| Agency Listings† | cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC |
| Noise Level (Motor) | <35 dB (A) |
| Servicing | maintenance free |
| Quality Standard | ISO 9001 |

†Rated Impulse Voltage 800V, Type of Action 1, Control Pollution Degree 2.

Wiring Diagrams

-  Provide overload protection and disconnect as required.
-  Actuators may be connected in parallel. Power consumption and input impedance must be observed.
-  Actuators may also be powered by 24 VDC.
-  Only connect common to negative (-) leg of control circuits.

