

# B2 Series, 2-Way, Characterized Control Valve

## Chrome Plated Brass Ball and Brass Stem



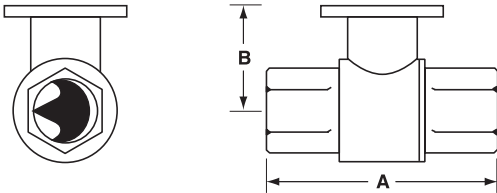
### Application

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.

| Technical Data                     |                                      |
|------------------------------------|--------------------------------------|
| Service                            | chilled or hot water, 60% glycol     |
| Flow characteristic                | A-port equal percentage              |
| Action                             | 90° rotation                         |
| Sizes                              | ½", ¾"                               |
| Type of end fitting                | NPT female ends                      |
| Materials:                         |                                      |
| Body                               | forged brass, nickel plated          |
| Ball                               | chrome plated brass                  |
| Stem                               | nickel plated brass                  |
| Seats                              | PTFE                                 |
| Characterizing disc                | Tefzel®                              |
| Packing                            | 2 EPDM O-rings, lubricated           |
| Pressure rating                    | 600 psi                              |
| Media temp. range                  | 0°F to 212°F [-18°C to 100°C]        |
| Close off pressure                 | 200 psi                              |
| Maximum differential pressure (ΔP) | 30 psi for typical applications      |
| Leakage                            | 0% for A to AB                       |
| C <sub>v</sub> rating              | A-port: see product chart for values |

Tefzel® is a registered trademark of DuPont

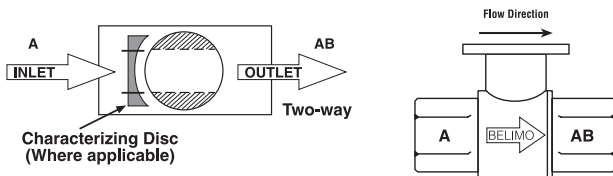
### Dimensions



2Way Valve-B207-B220

| Valve Body  | Valve Nominal Size |         | Dimensions (Inches [mm]) |              |
|-------------|--------------------|---------|--------------------------|--------------|
|             | Inches             | DN [mm] | A                        | B            |
| B207B-B211B | ½"                 | 15      | 2.41" [61.1]             | 1.39" [35.2] |
| B212B-B215B | ½"                 | 15      | 2.38" [60.4]             | 1.72" [43.7] |
| B217B-B220B | ¾"                 | 20      | 2.73" [69.3]             | 1.81" [45.9] |

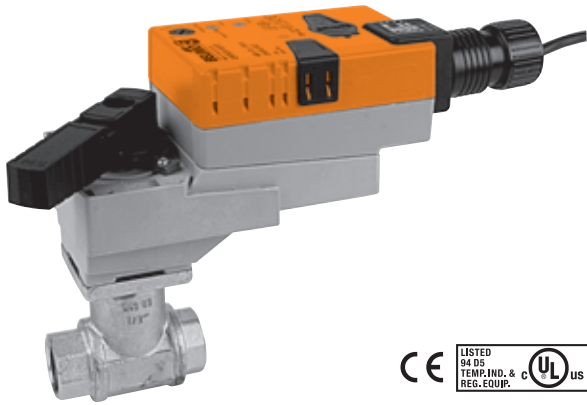
### Flow Patterns



| C <sub>v</sub> | Valve Nominal Size |         | Type      | Suitable Return Actuators |           |           |           |
|----------------|--------------------|---------|-----------|---------------------------|-----------|-----------|-----------|
|                | Inches             | DN [mm] | 2-way NPT | Non-Spring                |           | Spring    |           |
| 0.3            | ½"                 | 15      | B207B     | TR Series                 | LR Series | TF Series | LF Series |
| 0.46           | ½"                 | 15      | B208B     |                           |           |           |           |
| 0.8            | ½"                 | 15      | B209B     |                           |           |           |           |
| 1.2            | ½"                 | 15      | B210B     |                           |           |           |           |
| 1.9            | ½"                 | 15      | B211B     |                           |           |           |           |
| 3              | ½"                 | 15      | B212B     |                           |           |           |           |
| 4.7            | ½"                 | 15      | B213B     |                           |           |           |           |
| 7.4            | ½"                 | 15      | B214B     |                           |           |           |           |
| 10             | ½"                 | 15      | B215B*    |                           |           |           |           |
| 4.7            | ¾"                 | 20      | B217B     |                           |           |           |           |
| 7.4            | ¾"                 | 20      | B218B     |                           |           |           |           |
| 10             | ¾"                 | 20      | B219B     |                           |           |           |           |
| 24             | ¾"                 | 20      | B220B*    |                           |           |           |           |

\*Models without characterizing disc

K20903 - 04/08 - Subject to change. © Belimo Aircontrols (USA), Inc.



## Models

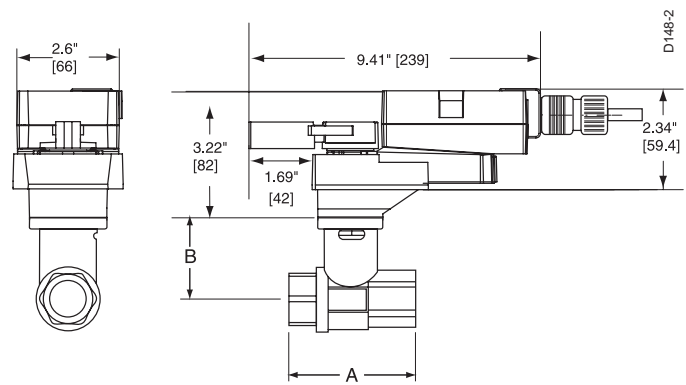
LRB120-SR  
LRX120-SR

## Technical Data

|                       |   |
|-----------------------|---|
| Power supply          | 100 to 240 VAC, 50/60 Hz (nominal)<br>85 to 265 VAC, 50/60 Hz (tolerance)   |
| Power consumption     | running 2.5 W<br>holding 1 W  |
| Transformer sizing    | 4 VA (class 2 power source)   |
| Electrical connection | 1/2" conduit connector<br>18 GA, plenum rated cable<br>3 ft [1m]<br>LRB120-SR<br>LRX120-SR<br>□ 3 ft [1m] □ 10 ft [3m] □ 16 ft [5m]                         |
| Overload protection   | electronic throughout 0° to 95° rotation  |
| Operating range Y     | 2 to 10 VDC, 4 to 20 mA   |
| Feedback output U     | 1 to 10 VDC, max 0.5 mA   |
| Input impedance       | 100 kΩ (0.1 mA), 500 Ω  |
| Angle of rotation     | 90°, adjustable with mechanical stop  |
| Direction of rotation | reversible with protected  switch   |
| Position indication   | handle  |
| Manual override       | external push button  |
| Running time          | constant independent of load  |
| LRB120-SR             | 95 seconds  |
| LRX120-SR             | □ 150 □ 95 □ 60 □ 45 □ 35 seconds   |
| Humidity              | 5 to 95% RH non-condensing<br>(EN 60730-1)  |
| Ambient temperature   | -22°F to 122°F [-30°C to 50°C]  |
| Storage temperature   | -40°F to 176°F [-40°C to 80°C]  |
| Housing               | NEMA 2/IP54   |
| Housing material      | UL94-5VA  |
| Agency listings†      | cULus acc. to UL 60730-1A/-2-14,<br>CAN/CSA E60730-1, CSA C22.2 No. 24-93,<br>CE acc. to 89/336/EEC (and 2006/95/EC for<br>line voltage and/or -S versions) |
| Noise level           | <35 dB(A)   |
| Quality standard      | ISO 9001  |

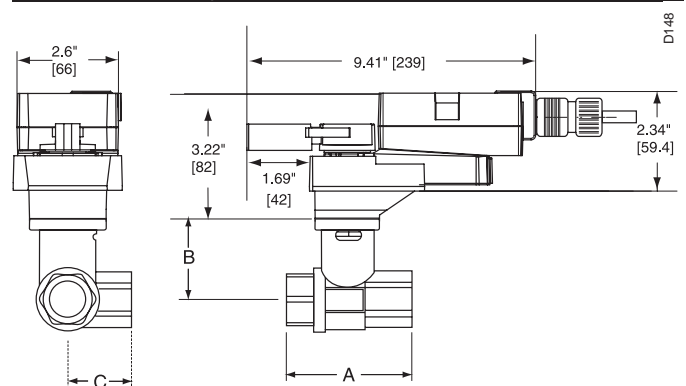
† Rated impulse voltage 4kV, Control pollution degree 3, Type of action 1

## Dimensions with 2-Way Valve



| Valve Body      | Valve Nominal Size |         | Dimensions (Inches [mm]) |              |
|-----------------|--------------------|---------|--------------------------|--------------|
|                 | Inches             | DN [mm] | A                        | B            |
| B207(B)-B211(B) | 1/2"               | 15      | 2.41" [61.1]             | 1.39" [35.2] |
| B212(B)-B215(B) | 1/2"               | 15      | 2.38" [60.4]             | 1.72" [43.7] |
| B217(B)-B220(B) | 3/4"               | 20      | 2.73" [69.3]             | 1.81" [45.9] |
| B222-B225       | 1"                 | 25      | 3.09" [78.4]             | 1.81" [45.9] |
| B229-B230       | 1 1/4"             | 32      | 3.72" [94.6]             | 1.81" [45.9] |

## Dimensions with 3-Way Valve



| Valve Body | Valve Nominal Size |         | Dimensions (Inches [mm]) |              |              |
|------------|--------------------|---------|--------------------------|--------------|--------------|
|            | Inches             | DN [mm] | A                        | B            | C            |
| B307-B311  | 1/2"               | 15      | 2.41" [61.1]             | 1.39" [35.2] | 1.20" [30.6] |
| B312-B315  | 1/2"               | 15      | 2.38" [60.4]             | 1.72" [43.7] | 1.26" [32.1] |
| B317-B320  | 3/4"               | 20      | 2.73" [69.3]             | 1.81" [45.9] | 1.45" [36.8] |
| B322-B325  | 1"                 | 25      | 3.09" [78.4]             | 1.81" [45.9] | 1.56" [39.8] |

### Wiring Diagrams

#### ✂️ INSTALLATION NOTES



#### **CAUTION** Equipment damage!

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



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



#### APPLICATION NOTES



The ZG-R01 500 Ω resistor converts the 4 to 20 mA control signal to 2 to 10 VDC, up to 2 actuators may be connected in parallel.



Meets cULus or UL and CSA 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.

