

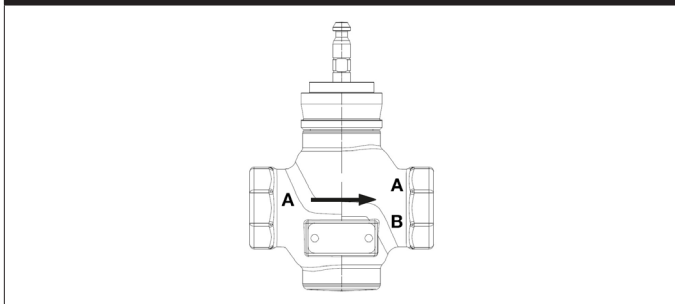
# G215B-J, 2-Way, Globe Valve, Bronze Trim



### Technical Data

|                                       |   |
|---------------------------------------|---|
| Service                               | chilled or hot water, up to 60% glycol, steam |
| Flow Characteristic                   | modified equal percentage                     |
| Controllable Flow Range               | stem up - open A to AB                        |
| Size [mm]                             | 0.5" [15]                                     |
| End Fitting                           | NPT female ends                               |
| Body                                  | bronze  |
| Stem                                  | stainless steel                               |
| Stem Packing                          | EPDM O-ring                                   |
| Seat                                  | bronze  |
| Plug                                  | brass   |
| Body Pressure Rating [psi]            | ANSI 250                                      |
| ANSI Class                            | ANSI 250 (up to 400 psi below 150°F)          |
| Max Inlet Pressure (Steam)            | 35 psi (241 kPa)                              |
| Media Temperature Range (Water)       | 20°F to 280°F [-7°C to 138°C]                 |
| Media Temperature Range (Steam)       | 32°F to 280°F [0°C to 138°C]                  |
| Maximum Differential Pressure (Steam) | 20 psi (103 kPa)                              |
| Max Differential Pressure (Water)     | 35 psi (241 kPa)                              |
| Rangeability                          | 100:1   |
| Cv                                    | 4.4   |
| Leakage                               | ANSI Class VI                                 |
| Servicing                             | repack kits available                         |

### Flow Pattern



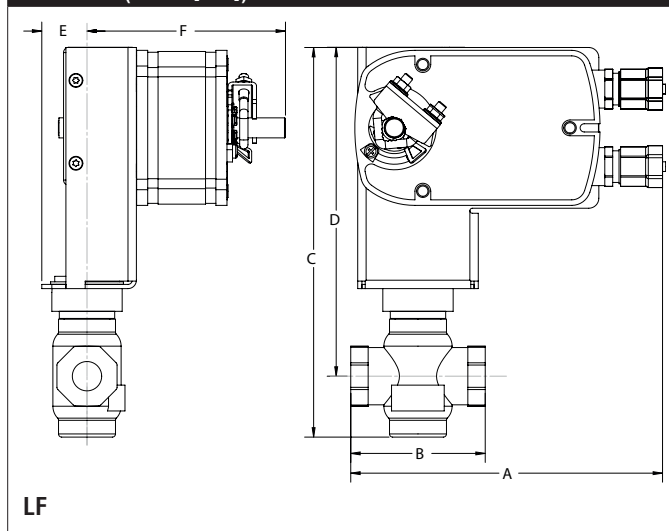
### Application

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 hydronic systems with variable flow. Bronze and stainless steel trim valves can be used for steam applications, depending on actuator and close-off combinations.

### Suitable Actuators

|         | Non-Spring | Spring | Electronic Fail-Safe |
|---------|------------|--------|----------------------|
| G215B-J | LVB(X)     | LF     | LVKB(X)              |

### Dimensions (Inches [mm])



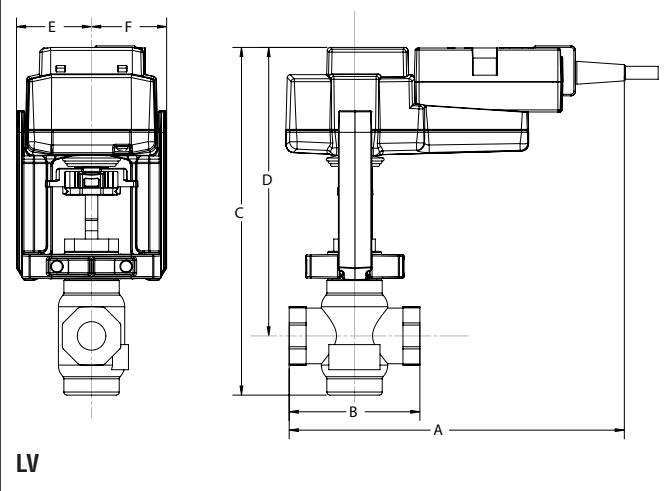
| A          | B         | C           | D           | E          | F           |
|------------|-----------|-------------|-------------|------------|-------------|
| 7.8" [200] | 3.4" [86] | 9.69" [246] | 8.18" [208] | 1.18" [30] | 4.94" [125] |

### Piping

The valves should be mounted in a weather-protected area in a location that is within the ambient limits of the actuator. Allow sufficient room for valve with actuator and for service. The G2 and G3 preferred mounting position of the valve is with the valve stem vertical above the valve body, for maximum life. However, the assemblies can be mounted with the valve stem vertical or horizontal in relation to the pipe. The actuators should never be mounted underneath the valve, as condensation can build up and result in a failure of the actuators.

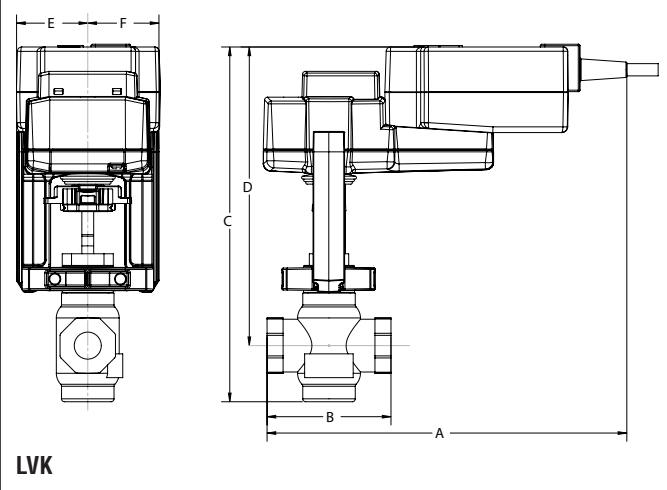
## G215B-J, 2-Way, Globe Valve, Bronze Trim

### Dimensions (Inches [mm])



| A          | B         | C            | D           | E          | F |
|------------|-----------|--------------|-------------|------------|---|
| 8.6" [218] | 3.4" [86] | 8.9" [226.1] | 7.39" [188] | 1.93" [49] |   |

### Dimensions (Inches [mm])



| A          | B         | C          | D           | E          | F |
|------------|-----------|------------|-------------|------------|---|
| 9.7" [247] | 3.4" [86] | 9.6" [244] | 8.06" [205] | 1.93" [49] |   |

# LF120-S US - Damper Actuator

On/Off, Spring Return, 120 VAC, Auxiliary Switch



| Technical Data                    |  |
|-----------------------------------|--|
| Power Supply                      | 120 VAC, ±10%, 50/60 Hz  |
| Power Consumption Running         | 5.5 W  |
| Power Consumption Holding         | 3.5 W  |
| Transformer Sizing                | 7.5 VA   |
| Shaft Diameter                    | 3/8" to 1/2" round, centers on 1/2"  |
| Electrical Connection             | (2) 3ft [1m], 18 GA appliance cables with 1/2" conduit connectors                            |
| Overload Protection               | electronic throughout 0° to 95° rotation   |
| Electrical Protection             | actuators are double insulated   |
| Angle of Rotation                 | Max. 95°   |
| Torque motor                      | Min. 35 in-lbs [4 Nm]  |
| 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)              | <40 to 75 sec  |
| Running Time (Fail-Safe)          | <25 sec @ -4°F to 122°F [-20°C to 50°C], <60 sec @ -22°F [-30°C]                             |
| Ambient Humidity                  | max. 95% RH non-condensing   |
| 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   |
| Housing Material                  | zinc coated steel  |
| 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   |
| Weight                            | 3.3 lb [1.5 kg]  |
| Auxiliary switch                  | 2 x SPDT, 3A resistive (0.5A inductive) @ 250 VAC, one set at 10°, one adjustable 10° to 90° |

†Rated Impulse Voltage 4kV, Type of Action 1.AA.B, Control Pollution Degree 3.

**Torque min. 35 in-lb, for control of air dampers.**

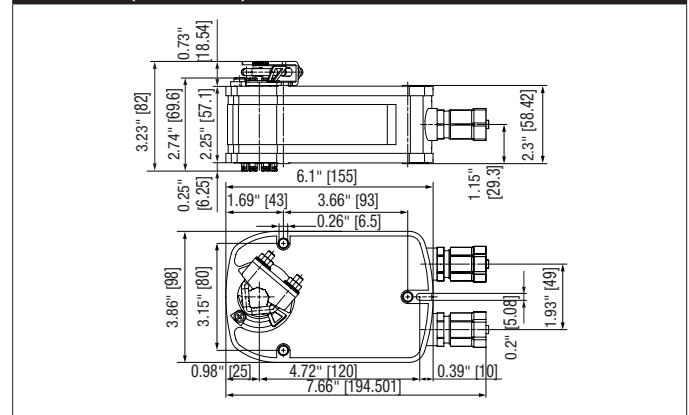
## Application

For On/Off, fail-safe control of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specifications. Control is On/Off from an auxiliary contact or a manual switch. The actuator is mounted directly to a damper shaft from 3/8" up to 1/2" in diameter by means of its universal clamp, 1/2" shaft centered at delivery. For shafts up to 3/4" use K6-1 accessory. A crank arm and several mounting brackets are available for applications where the actuator cannot be direct coupled to the damper shaft.

## Operation

The LF series actuators provide true spring return operation for reliable fail-safe application and positive close off on air tight dampers. The spring return system provides consistent torque to the damper with, and without, power applied to the actuator. The LF series provides 95° of rotation and is provided with a graduated position indicator showing 0° to 95°. The actuator may be stalled anywhere in its normal rotation without the need of mechanical end switches. Power consumption is reduced in holding mode. The actuator is double insulated so an electrical ground connection is not necessary. The LF120-S US version are provided with one built-in auxiliary switch. This SPDT switch is provided for safety interfacing or signaling, for example, for fan start-up. The switching function is adjustable between 0° and 95°.

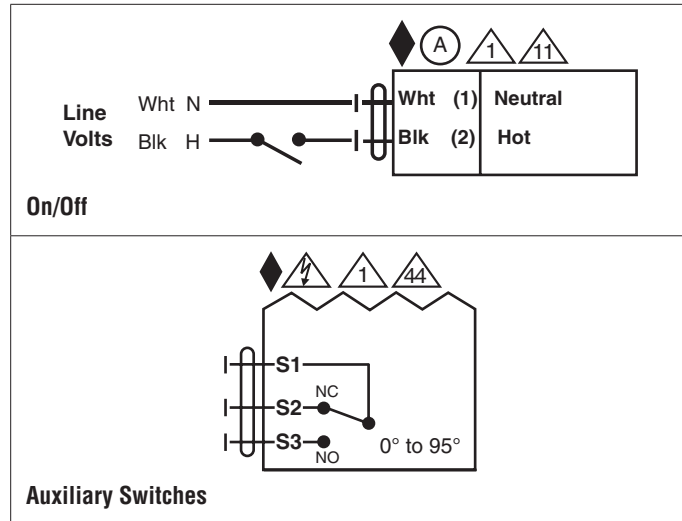
## Dimensions (Inches[mm])



| Accessories   |  |
|---------------|--|
| AV6-20        | 6.7" shaft extension for 1/4" to 3/4" diameter shafts.         |
| IND-LF        | LF position indicator.   |
| K6 US         | Standard LF clamp (3/8" to 1/2").                              |
| K6-1          | LF clamp (1/2" to 3/4").                                       |
| KG10A         | Ball joint for 3/8" diameter rod, zinc plated.                 |
| KG6           | Ball joint for 5/16" diameter rod, zinc plated.                |
| KG8           | Ball joint for 5/16" diameter rod, 90°, galvanized steel.      |
| KH12          | Univ. crankarm, slot 21/64" w, for 3/4" to 1" dia. shafts.     |
| KH6           | Univ. crankarm, slot 1/4" w, for 3/8" to 11/16" dia. shafts.   |
| KH8           | Univ. crankarm, slot 21/64" w, for 3/8" to 11/16" dia. shafts. |
| KH-LF         | LF crankarm (with 1/2" diameter shaft pass through).           |
| KH-LFV        | V-bolt Kit for KH-LF.  |
| LF-P          | Anti-rotation bracket LF.                                      |
| SH10          | Push rod for KG10A ball joint (36" L, 3/8" diameter).          |
| SH8           | Push rod for KG6 & KG8 ball joints (36" L, 5/16" diameter).    |
| TOOL-06       | 8 mm and 10 mm wrench.   |
| ZDB-LF        | Angle of rotation Limiter for LF.                              |
| ZF8-LF        | 8x8 mm form fit adaptor for LF.                                |
| ZG-109        | Right angle bracket for ZS-260.                                |
| ZG-110        | Stand-off bracket for ZS-260.                                  |
| ZG-112        | LF right angle bracket (4-1/2" H x 5-1/2" W x 2-1/2" D).       |
| ZG-DC1        | Damper clip for damper blade, 3.5" width.                      |
| ZG-DC2        | Damper clip for damper blade, 6" width.                        |
| ZG-LF112      | LF crankarm adaptor kit (includes ZG-112).                     |
| ZG-LF2        | LF crankarm adaptor kit (T bracket included).                  |
| ZG-LMSA-1     | Shaft extension for 3/8" diameter shafts (4" L).               |
| ZG-LMSA-1/2-5 | Shaft extension for 1/2" diameter shafts (5" L).               |
| ZS-100        | Weather shield - galvaneal (13" L x 8" W x 6" D).              |
| ZS-101        | Base plate for ZS-100.   |
| ZS-150        | Weather shield - PC w/ foam seal (16" L x 8-3/8" W x 4" D).    |
| ZS-260        | Explosion proof housing.                                       |
| ZS-300        | NEMA 4X, 304 stainless steel enclosure.                        |
| ZS-300-5      | NEMA 4X, 316L stainless steel enclosure.                       |
| ZS-300-C1     | 1/2" shaft adaptor, standard with ZS-300(-5).                  |
| ZS-300-C2     | 3/4" shaft adaptor for ZS-300(-5).                             |
| ZS-300-C3     | 1" shaft adaptor for ZS-300(-5).                               |
| PS-100        | Actuator power supply and control simulator.                   |
| ZG-CBLS       | Electrical junction box for LF.                                |

### Typical Specification

On/Off spring return damper actuators shall be direct coupled type which require no crank arm and linkage and be capable of direct mounting to a shaft up to a 3/4" diameter and center on a 1/2" shaft (default). Actuator shall deliver a minimum output torque of 35 in-lbs. The actuator must be designed so that they may be used for either clockwise or counter clockwise failsafe operation. Actuators shall be protected from overload at all angles of rotation. If required, one SPDT auxiliary switch shall be provided with one switch having the capability of being adjustable. Actuators with auxiliary switch must be constructed to meet the requirement for Double Insulation so an electrical ground connection is not required to meet agency listings. Actuators shall be cULus listed, have a 5 year warranty, and be manufactured under ISO 9001 International Quality Control Standards. Actuators shall be as manufactured by Belimo.



# LF120-S US - Damper Actuator

## On/Off, Spring Return, 120 VAC, Auxiliary Switch

### Wiring Diagrams



#### **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.



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



Apply only AC line voltage or only UL-Class 2 voltage to the terminals of auxiliary switches. Mixed or combined operation of line voltage/safety extra low voltage is not allowed.



Actuators with appliance cables are numbered.



Provide overload protection and disconnect as required.



Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.



One built-in auxiliary switch (1x SPDT), for end position indication, interlock control, fan startup, etc.