Technical Data

**Power Supply**
24 VAC ± 20%, 50/60 Hz, 24 VDC ± 10%

**Power Consumption Running**
5 W

**Power Consumption Holding**
2.5 W

**Transformer Sizing**
7 VA (class 2 power source)

**Shaft Diameter**
3/8" to 1/2" round, centers on 1/2" round

**Electrical Connection**
3 ft [1 m], 18 GA appliance cable with 1/2" conduit connector

**Overload Protection**
electronic throughout 0° to 95° rotation

**Electrical Protection**
actuators are double insulated

**Angle of Rotation**
max. 95°, adjustable with mechanical stop

**Torque**
35 in-lbs [4 Nm] minimum

**Direction of Rotation (Motor)**
reversible with CW/CCW mounting

**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]

**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

**Sound power level**
<50 9B (A)

**Noise Level (Fail-Safe)**
<62 9B (A)

**Servicing**
maintenance free

**Quality Standard**
ISO 9001

**Weight**
3.1 lb [1.4 kg]

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

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**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.

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**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.

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**Dimensions (Inches [mm])**

- 2.74" [69.6]
- 2.25" [57.1]
- 0.73" [18.54]
- 3.23" [82]
- 0.25" [6.25]
- 1.15" [29.3]
- 2.3" [58.42]
- 3.15" [80]
- 7.66" [194.501]
- 0.2" [5.08]
- 0.98" [25]
- 4.72" [120]
- 0.39" [10]
- 0.97" [24.6]
- 3.86" [98]
- 1.69" [43]
- 3.66" [93]
- 6.1" [155]
- 3.66" [93]
- 6.1" [155]
- 0.26" [6.5]

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

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV6-20</td>
<td>6.7” shaft extension for 1/4” to 3/4” diameter shafts.</td>
</tr>
<tr>
<td>IND-LF</td>
<td>LF position indicator.</td>
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<tr>
<td>K6 US</td>
<td>Standard LF clamp (3/8” to 1/2”).</td>
</tr>
<tr>
<td>K6-1</td>
<td>LF clamp (1/2” to 3/4”).</td>
</tr>
<tr>
<td>KG10A</td>
<td>Ball joint for 3/8” diameter rod, zinc plated.</td>
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<tr>
<td>KG6</td>
<td>Ball joint for 5/16” diameter rod, zinc plated.</td>
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<tr>
<td>KG8</td>
<td>Ball joint for 5/16” diameter rod, 90°, galvanized steel.</td>
</tr>
<tr>
<td>KH12</td>
<td>Univ. crankarm, slot 21/64” w, for 3/4” to 1” dia. shafts.</td>
</tr>
<tr>
<td>KH6</td>
<td>Univ. crankarm, slot 1/4” w, for 3/8” to 11/16” dia. shafts.</td>
</tr>
<tr>
<td>KH8</td>
<td>Univ. crankarm,slot 21/64” w,for 3/8” to 11/16” dia. shafts.</td>
</tr>
<tr>
<td>KH-LF</td>
<td>LF crankarm (with 1/2” diameter shaft pass through).</td>
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<tr>
<td>KH-LFV</td>
<td>V-bolt Kit for KH-LF.</td>
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<tr>
<td>LF-P</td>
<td>Anti-rotation bracket LF.</td>
</tr>
<tr>
<td>SH10</td>
<td>Push rod for KG10A ball joint (36” L, 3/8” diameter).</td>
</tr>
<tr>
<td>SH8</td>
<td>Push rod for KG6 &amp; KG8 ball joints (36” L, 5/16” diameter).</td>
</tr>
<tr>
<td>TOOL-06</td>
<td>8 mm and 10 mm wrench.</td>
</tr>
<tr>
<td>ZDB-LF</td>
<td>Angle of rotation Limiter for LF.</td>
</tr>
<tr>
<td>ZFS-LF</td>
<td>8x8 mm form fit adaptor for LF.</td>
</tr>
<tr>
<td>ZG-109</td>
<td>Right angle bracket for ZS-260.</td>
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<tr>
<td>ZG-110</td>
<td>Stand-off bracket for ZS-260.</td>
</tr>
<tr>
<td>ZG-112</td>
<td>LF right angle bracket (4-1/2” H x 5-1/2” W x 2-1/2” D).</td>
</tr>
<tr>
<td>ZG-DC1</td>
<td>Damper clip for damper blade, 3.5” width.</td>
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<tr>
<td>ZG-DC2</td>
<td>Damper clip for damper blade, 8” width.</td>
</tr>
<tr>
<td>ZG-LF112</td>
<td>LF crankarm adaptor kit (includes ZG-112).</td>
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<tr>
<td>ZG-LF2</td>
<td>LF crankarm adaptor kit (1 bracket included).</td>
</tr>
<tr>
<td>ZG-LMSA-1</td>
<td>Shaft extension for 3/8” diameter shafts (4” L).</td>
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<tr>
<td>ZG-LMSA-1/2-5</td>
<td>Shaft extension for 1/2” diameter shafts (5” L).</td>
</tr>
<tr>
<td>ZS-100</td>
<td>Weather shield - galvanal (13” L x 8” W x 6” D).</td>
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<tr>
<td>ZS-150</td>
<td>Weather shield - PC w/ foam seal (16” L x 8-3/8” W x 4” D).</td>
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<tr>
<td>ZS-260</td>
<td>Explosion proof housing.</td>
</tr>
<tr>
<td>ZS-300</td>
<td>NEMA 4X, 304 stainless steel enclosure.</td>
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<tr>
<td>ZS-300-5</td>
<td>NEMA 4X, 316L stainless steel enclosure.</td>
</tr>
<tr>
<td>ZS-300-C1</td>
<td>1/2” shaft adaptor, standard with ZS-300(-5).</td>
</tr>
<tr>
<td>ZS-300-C2</td>
<td>3/4” shaft adaptor for ZS-300(-5).</td>
</tr>
<tr>
<td>ZS-300-C3</td>
<td>1” shaft adaptor for ZS-300(-5).</td>
</tr>
<tr>
<td>PS-100</td>
<td>Actuator power supply and control simulator.</td>
</tr>
<tr>
<td>ZG-X40</td>
<td>120 to 24 VAC, 40 VA transformer.</td>
</tr>
</tbody>
</table>

**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.
**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.

- Actuators with appliance cables are numbered.
- Provide overload protection and disconnect as required.
- Actuators may also be powered by 24 VDC.
- Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.