Power Supply
24...240 VAC, -20% / +10%, 50/60 Hz,
24...125 VDC, ±10%

Power consumption in operation
6 W

Power consumption in rest position
2.5 W

Transformer sizing
6 VA @ 24 VAC (class 2 power source), 6.5
VA @ 120 VAC, 9.5 VA @ 240 VAC

Shaft Diameter
1/2...1.05" round, centers on 1/2" and 3/4" with insert, 1.05" without insert

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

Overload Protection
Electronic throughout 0...95° rotation

Electrical Protection
Actuators are double insulated

Angle of rotation
95°, adjustable with mechanical end stop, 35...95°

Torque motor
90 in-lb [10 Nm]

Direction of rotation motor
Reversible with CW/CCW mounting

Direction of motion fail-safe
Reversible with CW/CCW mounting

Position indication
Mechanical

Manual override
5 mm hex crank (3/16" Allen), supplied

Running Time (Motor)
<75 s

Running time fail-safe
<20 s @ -4...122°F [-20...50°C], <60 s @
-22°F [-30°C]

Ambient humidity
Max. 95% r.H., non-condensing

Ambient temperature
-22...122°F [-30...50°C]

Storage temperature
-40...176°F [-40...80°C]

Degree of Protection
IP54, NEMA 2, UL Enclosure Type 2

Housing material
Galvanized steel and plastic housing

Agency Listing
cULus acc. to UL60730-1A/-2-14, CAN/CSA
E60730-1:02, CE acc. to 2004/108/EC and
2006/95/EC

Noise level, motor
50 dB(A)

Noise level, fail-safe
62 dB(A)

Maintenance
Maintenance-free

Quality Standard
ISO 9001

Weight
4.9 lb [2.2 kg]

Torque min. 90 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 up to 1.05" in diameter by means of its
universal clamp. A crank arm and several mounting brackets are available for
applications where the actuator cannot be direct coupled to the damper shaft.

Operation
The NF..UP 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 constant torque to the damper with, and without,
power applied to the actuator. The NF..UP 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. The NF..UP actuator is shipped at 5° (5° from full fail-safe) to
provide automatic compression against damper gaskets for tight shut-off.

Safety Notes
WARNING: For Belimo products sold in California: these products do or may
contain chemicals which are known to the State of California to cause cancer
and or birth defects or other reproductive harms. For more information see
www.p65warnings.ca.gov.

Dimensions (Inches[mm])

Noise level, motor
50 dB(A)

Noise level, fail-safe
62 dB(A)

Maintenance
Maintenance-free

Quality Standard
ISO 9001

Weight
4.9 lb [2.2 kg]

†Rated Impulse Voltage 4kV, Type of action 1.AA, Control Pollution Degree 3.
**Accessories**

- **AF-P**  Anti-rotation bracket AF/NF.
- **AV8-25**  Shaft extension
- **IND-AFB**  End stop indicator
- **K7-2**  Shaft clamp reversible
- **KG10A**  Ball joint
- **KG8**  Ball joint
- **KH10**  Damper crank arm
- **KH8**  Damper crank arm
- **KH-AFB**  Actuator arm
- **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.
- **ZG-100**  Univ. right angle bracket 17”x11-1/8”x6” (HxWxbase).
- **ZG-101**  Univ. right angle bracket 13x11x7-7/16” (HxWxbase).
- **ZG-109**  Right angle bracket for ZS-260.
- **ZG-110**  Stand-off bracket for ZS-260.
- **ZG-118**  AFB(X)/NFB(X) U bracket 5-7/8x5-1/2x2-19/32” (HxWxD).
- **ZG-120**  Jackshaft mounting bracket.
- **ZG-AFB**  Mounting and linkage kit
- **ZG-AFB118**  AFB(X)/NFB(X) crankarm adaptor kit.
- **ZG-DC1**  Damper clip for damper blade, 3.5” width.
- **ZG-DC2**  Damper clip for damper blade, 6” width.
- **ZG-JSA-1**  1” diameter jackshaft adaptor (11” L).
- **ZG-JSA-2**  1-5/16” diameter jackshaft adaptor (12” L).
- **ZG-JSA-3**  1.05” diameter jackshaft adaptor (12” L).
- **ZS-100**  Weather shield - galvanal 13x8x6” (LxWxD).
- **ZS-101**  Base plate for ZS-100.
- **ZS-150**  Weather shield - PC w/ foam seal 16x8-3/8x4” (LxWxD).
- **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).
- **Z-SF**  Base plate extension
- **P475**  Shaft mount, non-Mercury aux. switch for 1/2” dia. shafts.
- **P475-1**  Shaft mount, non-Mercury aux. switch for 1” dia. shafts.
- **PS-100**  Actuator power supply and control simulator.
- **TF-CC US**  Cable conduit connector, 1/2”.

**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 jackshaft up to a 1.05” diameter. The actuators must be designed so that they may be used for either clockwise or counter clockwise fail-safe operation. Actuators shall be protected from overload at all angles of rotation. If required, two SPDT auxiliary switch shall be provided having the capability of one being adjustable. Actuators with auxiliary switches must be constructed to meet the requirements for Double Insulation so an electrical ground is not required to meet agency listings. Actuators shall be cULus listed and 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.

Universal Power Supply (UP) models can be supplied with 24 VAC up to 240 VAC, or 24 VDC up to 125 VDC.

Provide overload protection and disconnect as required.