## **AFBUP, AFBUP-S, AFXUP, AFXUP-S**

On/Off, Spring Return, 24 to 240 VAC











Technical Data	AFBUP, AFBUP-S, AFXUP, AFXUP-S
Power supply	24240 VAC -20% / +10%, 50/60 Hz
	24125 VDC ±10%
Power consumption running	g 7 W
holdir	
Transformer sizing	7 VA @ 24 VAC (class 2 power source)
	8.5 VA @ 120 VAC
	18 VA @ 240 VAC
Electrical connection	
AFBUP	3 ft, 18 GA appliance cable, 1/2" conduit
	connector
	-S models: Two 3 ft, 18 gauge appliance cables
	with 1/2" conduit connectors
AFXUP	3 ft [1m], 10 ft [3m] or 16 ft [5m] 18 GA
	appliance cable, with or without 1/2" conduit
	connector
	-S models: Two 3 ft [1m], 10 ft [3m] or
	16 ft [5m] appliance cables with or without 1/2"
Overland protection	conduit connectors
Overload protection	Electronic throughout 0 to 95° rotation
Control	On/Off
Torque	180 in-lb [20 Nm] minimum
Direction of rotation sprir	· ·
Mechanical angle of rotation	95° (adjustable with mechanical end stop, 35° to 95°)
Running time mot	or < 75 sec
sprir	
	< 60 sec @ -22°F [-30°C]
Position indication	visual indicator, 0° to 95°
	(0° is full spring return position)
Manual override	5 mm hex crank (3/16" Allen), supplied
Humidity	max. 95% RH non-condensing
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, Enclosure Type2
Housing material	Zinc coated metal and plastic casing
Agency listings +	cULus acc. to UL60730-1A/-2-14,
	CAN/CSA E60730-1:02, CE acc. to
	2004/108/EC & 2006/95/EC
Noise level	<50dB(A) motor @ 75 seconds
	≤62dB(A) spring return
Servicing	maintenance free
Quality standard	ISO 9001
Weight	4.6 lbs (2.1 kg), 4.9 lbs (2.25 kg) with switches
	n 1.AA (1.AA.B for -S version), Control Pollution Degree 3.
AFBUP-S, AFXUP-S	
Auxiliary switches	2 x SPDT 3A (0.5A) @ 250 VAC, UL Approved

#### Torque min. 180 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.

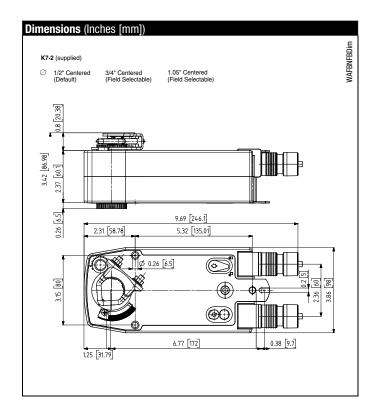
#### **Operation**

The AFB and AFX series actuators provide true spring return operation for reliable failsafe 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 AFB and AFX 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 AFBUP-S and AFXUP-S versions are provided with two built-in auxiliary switches. These SPDT switches provide safety interfacing or signaling, for example, for fan start-up. The switching function at the fail-safe position is fixed at  $+10^\circ$ , the other switch function is adjustable between  $+10^\circ$  to  $+90^\circ$ . The AFBUP, AFBUP-S, AFXUP and AFXUP-S actuator is shipped at  $+5^\circ$  (5° from full fail-safe) to provide automatic compression against damper gaskets for tight shut-off.



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one set at +10°, one adjustable 10° to 90°



Accessories	
AV 8-25	Shaft extension
IND-AFB	Damper position indicator
K7-2	Universal clamp for up to 1.05" dia jackshafts
KH-AFB	Crank arm
TF-CC US	Conduit fitting
Tool-06	8mm and 10 mm wrench
ZG-100	Universal mounting bracket
ZG-101	Universal mounting bracket
ZG-118	Mounting bracket for Barber Colman® MA 3./4, Honeywell® Mod III or IV or Johnson® Series 100 replacement or new crank arm type installations
ZG-AFB	Crank arm adaptor kit
ZG-AFB118	Crank arm adaptor kit
ZS-100	Weather shield (metal)
ZS-150	Weather shield (polycarbonate)
ZS-260	Explosion-proof housing
ZS-300	NEMA 4X housing

Note: When using AFBUP, AFBUP-S, AFXUP, AFXUP-S actuators, only use accessories listed on

For actuator wiring information and diagrams, refer to Belimo Wiring Guide.

## **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 counterclockwise 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 approved and have a 5 year warranty, and be manufactured under ISO 9001 International Quality Control Standards. Actuators shall be as manufactured by Belimo.

## **Wiring Diagrams**



## INSTALLATION NOTES



Provide overload protection and disconnect as required.



#### **CAUTION** Equipment Damage!

Actuators may be connected in parallel.

Power consumption and input impedance must be observed.



No ground connection is required.



For end position indication, interlock control, fan startup, etc., AFBUP-S and AFXUP-S incorporates two built-in auxiliary switches: 2 x SPDT, 3A (0.5A) @250 VAC, UL Approved, one switch is fixed at +10°, one is adjustable 10° to 90°.



#### **APPLICATION NOTES**



Meets cULus requirements without the need of an electrical ground con-

# 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.

