

TFB120(-S), TFX120(-S)

On/Off, Spring Return, 100 to 240 VAC



Technical Data		TFB120(-S), TFX120(-S)
Power supply	nominal	100 to 240 VAC, 50/60 Hz
	tolerance	85 to 265 VAC, 50/60 Hz
Power consumption	running	2.5 W
	holding	1.3 W
Transformer sizing		5 VA (class 2 power source)
Electrical connection	TFB120...	3 ft, 18 GA appliance cable, 1/2" conduit connector -S models: two 3 ft, 18 gauge appliance cables with 1/2" conduit connectors
	TFX120...	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" conduit connectors
Overload protection		electronic throughout 0 to 95° rotation
Electrical protection		actuators are double insulated
Angle of rotation		max 95°, adjust. with mechanical stop
Torque		22 in-lbs [2.5 Nm] minimum
Direction of rotation		reversible with cw/ccw mounting
Position indication		visual indicator, 0° to 95° (0° spring return position)
Running time	motor	< 75 sec
	spring	< 25 sec @ -4°F to 122°F [-20°C to 50°C] < 60 sec @ -22°F [-30°C]
Humidity		5 to 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 type 2 / IP42, UL enclosure type 2
Housing material		UL94-5VA
Agency listings†		cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC (and 2006/95/EC for -S versions)
Noise level (max)	running	< 50 db (A)
	spring return	62 db (A)
Servicing		maintenance free
Quality standard		ISO 9001
Weight		1.4 lbs (0.6 kg), 1.5 lbs (0.7 kg) with switch

† Rated Impulse Voltage 4kV, Type of action 1AA (1AAB for -S version), Control Pollution Degree 3.

TFB120-S, TFX120-S

Auxiliary switch	1 x SPDT 3A (0.5A) @ 250 VAC, UL approved adjustable 0° to 95°
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Torque min. 22 in-lbs, 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 1/4" up to 1/2" in diameter by means of its universal clamp, 1/2" shaft centered at delivery. A crank arm and several mounting brackets are available for applications where the actuator cannot be direct coupled to the damper shaft.

Operation

The TF 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 TF series provides 95° of rotation and is provided with a graduated position indicator showing 0° to 90°.

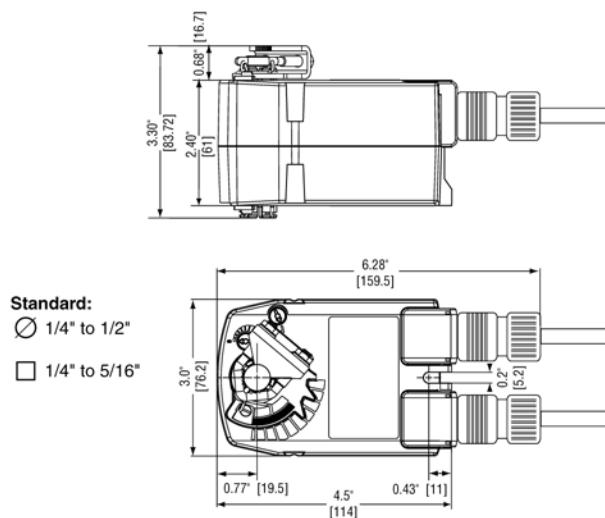
The actuator may be stalled anywhere in its normal rotation without the need of mechanical end switches. Power consumption is reduced in holding mode. The actuator is double insulated so an electrical ground connection is not necessary.

The TF-S versions 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°.

SAFETY NOTE

Screw a conduit fitting into the actuator's bushing. Jacket the actuator's input and output wiring with suitable flexible conduit. Properly terminate the conduit in a suitable junction box.

Dimensions (Inches [mm])



D096

Accessories

Tool-06	8mm and 10 mm wrench
KH-TF	Crank arm for up to 1/2" round shaft
ZG-TF2	Crank arm adaptor kit for TF
ZG-TF112	Mounting bracket, kit for TF
ZS-100	Weather shield (metal)
ZS-150	Weather shield (polycarbonate)

NOTE: When using TFB120(-S) and TFX120(-S) actuators, only use accessories listed on this page.
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 shaft up to a 1/2" diameter and center a 1/2" shaft. 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, one SPDT auxiliary switch shall be provided having the capability of being adjustable. Actuators 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.

Wiring Diagrams

✂ **INSTALLATION NOTES**

- 1 Provide overload protection and disconnect as required.
- 2 **CAUTION Equipment Damage!**
Actuators may be connected in parallel.
Power consumption must be observed.
- 4 For end position indication, interlock control, fan startup, etc., TFB120-S, TFX120-S incorporate one built-in auxiliary switch: 1 x SPDT, 3A (0.5A) @250 VAC, UL Approved, adjustable 0° to 95°.

📄 **APPLICATION NOTES**

- ◆ Meets cULus 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.

