Technology That Saves Lives.

Fire and Smoke Damper Actuators

Discover the advantages
www.belimo.us
Belimo is the worldwide leader in fire and smoke actuation

Belimo is the global market leader in life safety actuators due to our industry expertise and continuous innovations that have increased safety levels in buildings over the past decades. Life safety actuators are UL tested and listed with all major damper manufacturers. They exceed required building codes resulting in reduced risk and ensuring proper protection.

- Lowest power consumption life safety actuators available in the market
- ISO 9001 certified quality control and a 5-year warranty assure reliable operation with exceptional customer support
- Complaint with life safety codes and standards
Fire and Smoke Damper Actuators

Effective fire protection saves lives in the case of emergency, helps minimize property damage, and secures continued operation. The best protection against the spread of fire and smoke through air ducts is provided by motorized fire and smoke dampers to create fire compartments. Belimo fire and smoke damper actuators automatically move into their safety positions to keep the dampers closed during a fire. Belimo fire and smoke damper actuators are designed for operation in smoke and combination fire and smoke dampers in ventilation and air conditioning systems with a torque range from 18 in-lbs to 180 in-lbs at 350°F. For maximum safety, fire and smoke actuators meet all codes for commercial buildings.

Proven Reliability
Built from the highest quality materials, Belimo fire and smoke actuators ensure reliable performance in extreme conditions.

Low Power Consumption
Belimo's microcontrollers allow motors to deliver high torque at low current draw while running cooler for a longer service life.

Optimized Functionality
Belimo actuators can be controlled from a central location and integrated into safety systems allowing for a relatively smoke free environment for occupants to efficiently exit and firefighters to enter.

“Belimo makes HVAC control devices that we can trust and provide a long lasting system for our clients.”
Matt Paonessa, Project Engineer
Andersen Construction, Seattle, WA

Protecting lives and assets

Actuated dampers provide extra protection against dangerous amounts of low temperature toxic smoke produced before a fire actually breaks out.

Re-openable dampers assist in smoke control by allowing smoke to be exhausted from the fire zone and for fresh air to pressurize adjacent zones.
Optimized functionality for maximum safety

**Steel spring assembly**
Pretensioned, heat-resistant steel spring assembly closes damper without loss of torque at elevated temperatures.

**Auxiliary switches**
Available in various configurations, switches signal damper position for testing in smoke control systems and where indicator lights are required.

**Linkage kit**
Linkage supports indirect mounting or pneumatic retrofit projects.

**Steel-toothed, cold-weld clamp**
Low thermal expansion coefficient steel clamp is the safest way to hold damper shafts without slipping.

**UL certified**
Actuators exceed all UL requirements and are tested and qualified according to UL 2043 for use in air plenums as per IMC 602.2 and NEC 300.22 (c).

**Gear boxes**
Reliable performance with no fretting, corrosion, or peeling in extreme conditions.

**Modulating models**
Allows three dampers to be replaced by one – fire, smoke, and control.

**Long service life**
Actuators are designed for 30,000 safety cycles at the rated load, exceeding the legal minimum requirements.

**Testing**
Life cycle tests with rated load, 250°F and 350°F cycle test, input voltage, and functional tests to ensure fail-safe operation.

**Maintenance free**
Actuator does not need to be periodically cycled.
Fire and smoke damper actuator specification

Smoke and combination fire and smoke actuators in section 233300, or equivalent

1. All smoke and combination fire and smoke dampers shall be provided with Belimo Aircontrols FS series actuators. Equivalents shall be approved before submission of bid. Acceptable actuators include FSTF, FSLF, FSNF, FSAF (A or B).
2. Actuators shall be UL 873 or UL 60730 listed.
3. Actuator and damper shall have UL 555 & UL 555S listing by the manufacturer for 250°F <350°F>.
4. Actuators shall be UL2043 listed for low smoke generation in environmental air spaces and air moving plenums as required by NFPA 70 Section 300.22 (C) and the International Mechanical Code Section 602. Housing shall be steel or plastic; aluminum is not permitted.
5. Actuators shall have a manufacturer's 5-year warranty and be manufactured under ISO 9001 quality control. For replacement of existing competitor motors, NYC OTCR or CSFM listing shall have been obtained.
6. Actuators shall have electronic or microcontroller-based motor control providing:
   a. Electronic cut off at full open so that no noise is generated while holding open. Holding noise level must be inaudible.
   b. Overload protection so that the actuators are incapable of burning out if stalled before reaching full rotation.
7. The actuators shall be directly coupled and employ a steel-toothed cold-weld V-bolt clamp for connecting to damper shafts. Aluminum clamps or set-screw attachment are not permitted.
8. Where direct coupling is impossible due to space constraints or geometry of damper installation, linkages designed specifically for the actuator shall be employed.
9. Dampers shall be installed straight and true, level in all planes, and square in all dimensions. Dampers shall move freely without undue stress due to twisting, racking, bowing, or other installation error. Do not install in areas where moisture can penetrate damper or actuator or where actuator temperature continuously exceeds 120°F.
10. Modulating or balancing damper actuators shall have FSAFB24-SR, 2-10V or 4-20mA control with an appropriate potentiometer or analog output from building automation system.
## Uncompromised safety

### Model Specifications

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#### FSAF*A Series
- 180 in-lbs [20 Nm]
- Approx. 18 sq. ft. @ 350°F
- Model #
  - FSAF24A
  - FSAF24A-S
  - FSAF120A
  - FSAF120A-S
  - FSAF230A
  - FSAF230A-S
- VA Rating:
  - Running Motor Drive
  - Fail-Safe
  - On/Off
  - 2 SPST
- 2 SPDT

#### FSAFB Series
- 180 in-lbs [20 Nm]
- Approx. 18 sq. ft. @ 250°F
- Model #
  - FSAFB24-SR
  - FSAFB24-SR-S
- VA Rating:
  - Running Motor Drive
  - Fail-Safe
  - On/Off
  - 2 SPST
  - 2 SPDT

#### FSNF Series
- 70 in-lbs [8 Nm]
- Approx. 12 sq. ft. @ 350°F
- Model #
  - FSNF24 US
  - FSNF24-S US
  - FSNF120 US
  - FSNF120-S US
  - FSNF230 US
  - FSNF230-S US
- VA Rating:
  - Running Motor Drive
  - Fail-Safe
  - On/Off
  - 2 SPST
  - 2 SPDT

#### FSLF Series
- 30 in-lbs [3.5 Nm]
- Approx. 4 sq. ft. @ 350°F
- Model #
  - FSLF24 US
  - FSLF24-S US
  - FSLF120 US
  - FSLF120-S US
  - FSLF230 US
  - FSLF230-S US
- VA Rating:
  - Running Motor Drive
  - Fail-Safe
  - On/Off
  - 2 SPST
  - 2 SPDT

#### FSTF Series
- 18 in-lbs [2 Nm]
- Approx. 1.5 sq. ft. @ 250°F
- Model #
  - FSTF24 US
  - FSTF24-S US
  - FSTF120 US
  - FSTF120-S US
  - FSTF230 US
  - FSTF230-S US
- VA Rating:
  - Running Motor Drive
  - Fail-Safe
  - On/Off
  - 2 SPST
  - 2 SPDT

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*See retrofit installation instructions for details.*

**Note:** Damper sizes given at 2000 fpm [10 m/s].

**FSTF actuators only for dampers less than 1.5 sq. ft. at 250°F.**

**FSLF for dampers 4 sq. ft. and less at 350°F. No linkages are currently available.**

**FSNF for dampers 4-12 sq. ft. at 350°F and use FSAF*A for larger dampers and multisection applications. Linkages are available for FSAF*A & FSAFB, FSNF, and FSTF.**

* VA Rating Note: The FSAF*A, FSNF, and FSLF series actuators draw more current when driving against any stops. Neither UL nor Belimo require any local fusing or breakers. If used, see individual data sheets for end stop current draws and current limit values.
Fire and smoke damper actuator replacement solutions

Building and fire codes are confusing. With over 40 years of technical experience with fire marshals and building officials, Belimo can provide the training, code guidance, and replacement solutions needed for you to maintain a reliable, safe, and efficient building.

Instructions and additional resources on retrofitting the following fire and smoke damper actuators can be found online.

- **Air Balance, Inc.**
  Honeywell, MultiProducts, Siebe

- **Greenheck Dampers**
  MultiProducts, Siebe/ Barber Coleman, Siemens, Honeywell

- **Honeywell**
  Actuator Replacements

- **Nai lor**
  Honeywell, Siebe, MultiProducts

- **Pneumatic Actuators**
  Competitor to Belimo

- **Pottorff**
  MultiProducts, Prefco

- **Ruskin**
  Honeywell, Siebe/Barber Coleman, MultiProducts, Negator, Phillips

- **Safe Air and Dowco**
  Honeywell, Imperial

- **Cross Reference**
  Competitor to Belimo

A comprehensive offering with extensive replacement instructions are located at www.belimo.us/firesmoke.

Sizing and selection made easy with SelectPro.
For over 40 years, Belimo has successfully focused on the heating, ventilation, and air conditioning markets providing quality solutions that will increase energy efficiency and reduce installation costs with the fastest delivery times in the industry. Our innovative products have always been designed to help achieve objectives better, faster, and more economically. Investing in new technology is key to our success, and Belimo will continue to offer products to help businesses succeed.