Leading Energy Efficiency

Belimo Damper Actuators

Discover the advantages
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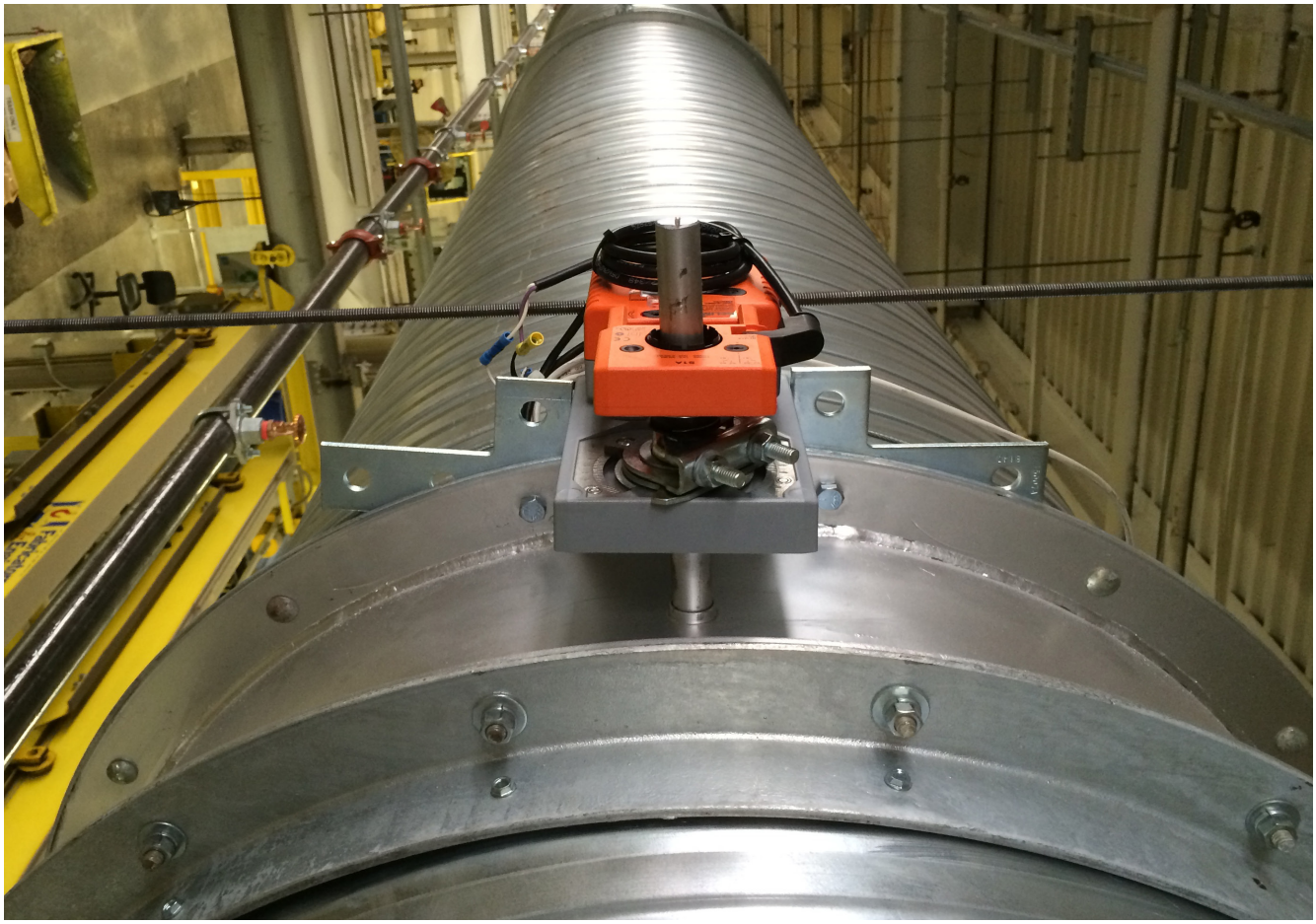
BELIMO

Versatile performance with low power consumption



Belimo damper actuators are designed for use in a wide variety of HVAC applications for ensuring performance, reliability, and lower power consumption. Our comprehensive torque range (18 to 1,400 in-lb) is suited for damper sizes as small as 4-inch round allowing the ability to mount on standard damper shafts or directly on jackshafts. Actuators are used for control dampers, air handlers, economizer units, VAV terminal units, fan coil units, fan shutters, and unit ventilators.

Reliable, safe performance

Belimo actuators utilize rugged components for added strength and reliability with NEMA housing options to meet harsh environmental conditions. The actuator series consists of fail-safe, non-fail safe, airflow measurement and control, and fire and smoke safety. Select models are available with NEMA 4 and 4X housing design to protect extreme environments. Weather-tight and corrosion-resistant housing for the harshest indoor and outdoor conditions with UV protection. For high humidity or low temperature (-40°F) applications, a heater option is available.

"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

Optimal System Performance

Belimo's actuator communicates directly with the Building Automation System (BAS) using BACnet, Modbus, or MP-Bus. Select models offer Near Field Communication (NFC) for quick programming, commissioning, and troubleshooting.

Energy Savings

Patented technology provides higher efficiency with lower power consumption and reduces carbon emissions over the product's life.

Accuracy and Controllability

Brushless DC motor technology controlled by an ASIC guarantees consistent torque over the entire operating range. No loss in performance due to temperature, supply voltage, or speed.

Non Fail-Safe Damper Actuators

Belimo non fail-safe damper actuators are designed for use in a wide variety of HVAC damper applications. With our comprehensive torque range from 9 in-lb to 1400 in-lb and the ability to direct mount on standard damper shafts or jackshafts, these solutions are ideal for controlling dampers found in built-up or packaged air handlers, VAV terminal units, fan coil units, and unit ventilators used in hospitals, schools/universities, and data centers.

FEATURES

- Patented brushless DC motor technology ensuring long reliable operation beyond our 5-year warranty.
- Various control types or Belimo's Multi-Function Technology provide a flexible signal solution ranging from individual parameter settings to cost-saving, complete system integration.
- Guarantees consistent torque over the entire operating range with no loss in performance due to temperature, supply voltage, or speed.
- Mechanical end stops to adjust the angle of rotation for added installation flexibility

Clear position indication

Manual override

Quick Running

– Speed of 2.5 seconds for 90° at 35 in-lb (4 Nm)
7 seconds for 90°at 140 in-lb (16 Nm)

Operation and servicing

– PC-Tool, and ZTH

Communication

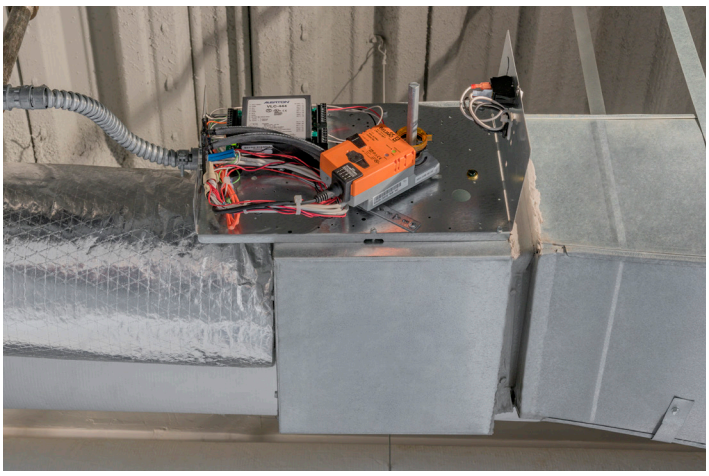
– BACnet, Modbus, or MP Bus

LM	Q	B	24	-1		
Torque Rating	**Speed**	**Version**	**Power Required**	**Control**	**Options**	
Non Fail-Safe Rotary	Q = Quick Running	B = Basic	24 = AC/DC 24 V, 50/60 Hz	-1 = On/Off	-T = Terminal Block	.1 = Bulk Pack
PM = 1400 in-lb	C = Fast Running	X = Customized		-3 = On/Off, Floating Point	Blank = Cable Version	N4 = NEMA 4/4X
GM = 360 in-lb	No Designation = Normal Speed (LMB24-3)		120 = AC 100...240 V 50/60 Hz	-3-P5 = On/Off, Floating Point w/5k Ω Feedback	-S = Switch	X...N4 Types
AM = 180 in-lb						Y = Heater Option
NM = 90 in-lb			UP = AC 24...240 V*	-3-P10 = On/Off, Floating Point w/10k Ω Feedback		
LM = 45 in-lb				-SR = 2...10 V		
CM = 18 in-lb				-PC = Phasecut (0.5...20 V)		
UM = 9 in-lb				-MFT = Multi-Function Technology		
Non Fail-Safe Linear				-MFT95 = 0...135 Ω		
AH = 100 lbf				-IP = BACnet/IP, Modbus TCP		
LH = 34 lbf				-MOD = BACnet MS/TP, Modbus RTU		

Note: Q versions have a slightly lower torque rating.
*DC 24...125 V

Airflow Measurement and Control Damper Actuators

Standalone airflow measurement and control actuators with digital communications are used for rotary, linear, and in-duct applications. The actuator communicates directly with the Building Automation System (BAS) using BACnet, Modbus, or MP-Bus. Select models offer Near Field Communication (NFC) for quick programming, commissioning, and troubleshooting for optimal system performance. Some actuators have pressure independent control characteristics combined with an integrated airflow sensor to calculate and deliver designed flow regardless of pressure fluctuations in the system. Actuators with industry-standard digital communications are the perfect solution for integration in constant or variable air volume systems.



FEATURES

- Integrated pressure sensor for standalone airflow control for rotary, linear, and in-duct applications.
- Linear models with integrated airflow sensor D3 flow sensors for challenging push-pull applications.
- Fast commissioning and adjustment on select devices via NFC.
- Maintains pressure independent operation eliminating the need for manual balancing, reducing installation and commissioning
- Available control types are compatible with industry standards such as analog, BACnet MS/TP and Modbus RTU.

NM	V	-D3	-MOD
Torque Rating	**Pressure Dependency**	**Pressure Sensor**	**Control**
Non Fail-Safe Rotary	V = Pressure Independent	-D3 = D3 Differential Pressure Sensor	-MOD = BACnet MS/TP, Modbus RTU
NM = 90 in-lb			-MP = Multi Point
LM = 45 in-lb			-MFT = Multi-Function Technology
Non Fail-Safe Linear			
LH = 34 lbf			

CMB		24	-L	100	D
Torque Rating	**Pressure Dependency**	**Power Required**	**Direction of Rotation**	**Damper Size**	**Control**
Non Fail-Safe in Duct	Blank = Pressure Dependent	Blank = AC/DC 24 V, 50/60 Hz	Blank = Selectable	100 = 4"	D = On/Off, Floating Point
CMB = 18 in-lb	V = Pressure Independent	24 = AC/DC 24 V, 50/60 Hz	-L = Left	125 = 5"	-MFT = Multi-Function Technology
				150 = 6"	

Fail-Safe Damper Actuators

Belimo fail-safe damper actuators provide a comprehensive torque offering from 22 to 1400 in-lb torque with direct-coupled, rotary or linear travel that can handle many HVAC applications. Fail-safe actuators use brushless DC motor technology controlled by an Application Specific Integrated Circuit (ASIC) to provide stall protection, lower power consumption, higher efficiency, with smaller transformer sizing. A variety of accessories are available to increase application flexibility with more options in mounting and commissioning.

FEATURES

- Rotary, linear, and quick running product offerings are available for challenging applications.
- Patented motor technology with Application Specific Integrated Circuit reduces energy consumption and ensure longevity.
- Multi-Function Technology models offer many proportional control functions and DC voltage feedback signals that come programmed from the factory or adjusted in the field.
- Electronic Fail-safe series offer fail position options (0-100%) delays unnecessary actuator movements during short brownout conditions avoiding changes in the HVAC and BAS.
- Electronically protected against overload increases actuator longevity and reducers maintenance cost.

MECHANICAL FAIL-SAFE

EF		X	24	-MFT	-S	N4
Torque Rating	**Speed†**	**Options**	**Power Supply**	**Control**	**Options**	
EF = 270 in-lb	C = Fast Running	B = Basic	24 = AC/DC 24 V	Blank = On/Off	-S = Built-in Auxiliary Switch	US
AF = 180 in-lb	L = Low Noise	X = Customized	120 = AC 120 V*	-3 = Floating Point		EF...Series
NF = 90 in-lb	Blank = Normal Speed	Blank = None	230 = AC 230 V	-SR = 2...10 V		N4♦ = NEMA 4/4X
LF = 35 in-lb			UP = AC 24...240 V**	-PC = Phasecut (0.5...20 V)		X...N4 Types
TF = 22 in-lb				-ECON-RO3 = 3k Ω NTC Type 10 Thermistor		H = Heater Option
				-MFT = Multi-Function Technology		
				-MFT95 = 0...135 Ω		
				-MFT-20 = 6...9 V, 20 V Power Supply		
				-IP = BACnet/IP, Modbus TCP		
				-MOD = BACnet MS/TP, Modbus RTU		

♦NEMA 4 option on select models.
†Only available on certain LF and TF models.
*EF and TF series have AC 100...240 V nominal power supply.
**DC 24...125 V.

ELECTRONIC FAIL-SAFE

NK	Q	X	24	-MFT	
Torque Rating	**Speed**	**Version**	**Power Supply**	**Control**	
PK = 1400 in-lb	Q = Quick Running	B = Basic	24 = AC/DC 24 V*,	-1 = On/Off	-T = Terminal Block
GK = 360 in-lb	Blank = Normal Speed	X = Customized	UP = AC 24...240 V**	-3 = On/Off, Floating Point	N4♦ = NEMA 4/4X
NK = 54 in-lb				-SR = 2...10 V	X...N4 Types
AHK = 100 lbf				-MFT = Multi-Function Technology	Y = Heater Option
				-IP = BACnet/IP, Modbus TCP	
				-MOD = BACnet MS/TP, Modbus RTU	

♦NEMA 4 option on select models.
*GK..24-3 is AC 24 V only.
**DC 24...125 V

Fire and Smoke Damper Actuators

Belimo fire and smoke damper actuators are designed for operation in fire, smoke and combination fire and smoke dampers in ventilation and air-conditioning systems with a torque range from 18 in-lb to 180 in-lb @ 350°F. For maximum safety in all situations, the fire and smoke actuators meet all codes for commercial buildings in the U.S., passes UL 555 & UL 555S at 350°F and tested for 30,000 open-closed cycles with approved dampers. Belimo fire and smoke damper actuators exceed UL's requirement of 20,000 cycles at damper static load.

FEATURES

- Belimo's microcontrollers allow motors to deliver high torque at low current draw while running cooler for longer service life.
- ISO 9001 certified quality control and a 5-year warranty ensure reliable operation with exceptional customer support.
- 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.
- Compliant with Life Safety Codes and Standards.

Linkage kits available
(supporting indirect mounting or pneumatic retrofit projects)

Life cycle testing

Auxiliary switches

Modulating models available

Long service life

5-year warranty

FS	N	F	24			-S	US
Fire and Smoke	**Torque Rating**	**Actuator Type**	**Power Supply**	**Generation**	**Control**	**Options**	
	A = 180 in-lb	F = Fail-Safe	24 = AC/DC 24 V	Blank = Original	Blank = On/Off	-S = Built-in Auxiliary Switches	
	N = 70 in-lb	FB = Fail-Safe, Modulating (180 in-lb only)	120 = AC 120 V*	A = New Generation On/Off	-SR = 2...10 V*		
	L = 30 in-lb		230 = AC 230 V				
	T = 18 in-lb						

* Available with FSAFB24-SR & FSAFB24-SR-S only.

Exceptional service

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.

- 5-year warranty
- Global support
- Tested quality
- On-time delivery
- Extensive service
- Complete product range

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