

DIRECT NEWS

SPECIAL EDITION

Product News and Technical Information for HVAC Professionals

> New Generation AF, NF Product Highlights:

Introduction Phase:

AFB, AFX / NFB, NFX

Product Comparison:

Original vs New Generation AF

Product Pricing:

AFB, AFX / NFB, NFX

New and Existing Accessories



New Generation AF and NF Series Raises the Bar for Actuator Quality, Reliability and Technical Superiority

- New AF outputs 180 in-lb min. torque (35% more than original); driving dampers up to 45 square feet!
- New NF outputs 90 in-lb min torque (50% more than original); driving dampers up to 22 square feet!
- More torque with the lowest transformer size and power consumption ratings in the industry, saves energy
- Reduced edge to shaft center distance for fit in tight spaces
- Manual override is now standard on all models with tool-less locking! One-handed operation for ease of use in field
- Universal power supply (On/Off models only) can accept between 24 and 240 VAC; one actuator for all voltages. No transformer available? No problem!



Belimo is ready to help you!

Welcome to the Belimo family!
We value you as a customer. Belimo stands behind its products and has plenty of resources ready to help you should you need it.

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Growth, Progress, Evolution



New Generation AF and NF offers a lot more in much less.

- Smaller housing for tight spaces and easier handling compared to comparable high torque actuators.
- Faster motor run times with MFT technology; 70 seconds with AFB, AFX and 40 seconds with NFB, NFX.
- Universal power supply (On/Off models only) can accept 24 VAC up to 240 VAC; one actuator for all voltages. No transformer available? No problem!

New AF and NF spring return actuators provide more features in a smaller housing, about 25% smaller! Low power consumption, increased torque to 90 in-lb (50% more compared to original NF series) and 180 in-lb (35% more compared to the original AF series), and faster running times (with MFT technology) offer new solutions for control dampers, control valves and retrofit applications.

The New Generation can be integrated with new and some existing Belimo accessories allowing for more options in both mounting and commissioning. A wide selection of clamping options, electrical connections and running times are now available providing you a cost effective solution with the same reliability you have come to experience with Belimo. The New Generation spring return actuators are suitable for use in control dampers up to 45 square feet* (with new AF) and up to 22 square feet* (with the new NF), air handling units, control valve, retrofit and replacement solutions and tandem mounted applications where higher torque is required.

Features and Benefits

- AFB, AFX: 180 in-lb (20 Nm) min. torque. 35% more than original AF. 266 in-lb (30 Nm) combined minimum torque for two UP actuators mounted in tandem. 360 in-lb (40 Nm) combined minimum torque for two MFT actuators mounted in tandem. 432 in-lb (48 Nm) for three MFT actuators.
- NFB, NFX: 90 in-lbs (10 Nm) min. torque. 50% more than original NF.
- AFB24-MFT95, AFX24-MFT95 for Honeywell 0-135 ohm control, replaces today's AF24-MFT95 US.
- New smaller housing for tight spaces, plus reduced shaft-center to edge distance: 1.25" compared to 1.97" with original AF and NF.

*Parallel blade without edge seals and 1000 FPM face velocity.

Introduction and Phase Out Plan

New Generation NF Introduction & Original NF Phase Out

In December 2009, Belimo started the phase in of the new generation NF series actuators (NFB, NFX models). A steady production ramp up will continue through April 2010, but stock levels are ready to meet market demand at this time.

The phase out of original NF will begin on April 1st, 2010. A noticeable reduction in stock levels will start in April and continue through July 2010. During this phase out period, orders for original NF product will be filled unless the products are unavailable.

If original NF products are not available, then new generation NFB or NFX products will be substituted at the original NF price level or at the price level of a valid quotation from Belimo. Belimo will continue this policy through July 2010. After July 2010, we will continue to sell original products while supplies last.

New Generation AF MFT Introduction & Original AF MFT Phase Out

In January 2010, Belimo started the phase in of the new generation of AFB-MFT(-S, 95), AFX24-MFT(-S, 95) actuators. A steady production ramp up will continue through April 2010, but stock levels are ready to meet market demand at this time.

A partial phase out of original AF24-MFT(-S,95) US will begin April 1, 2010. The original AF24-MFT models will be maintained on some valves in 2010 and also Belimo will maintain a lower stock level of these actuators to meet needs for replacement, retrofit and OEM's and/or customer's who need more time to transition over to new generation AF.

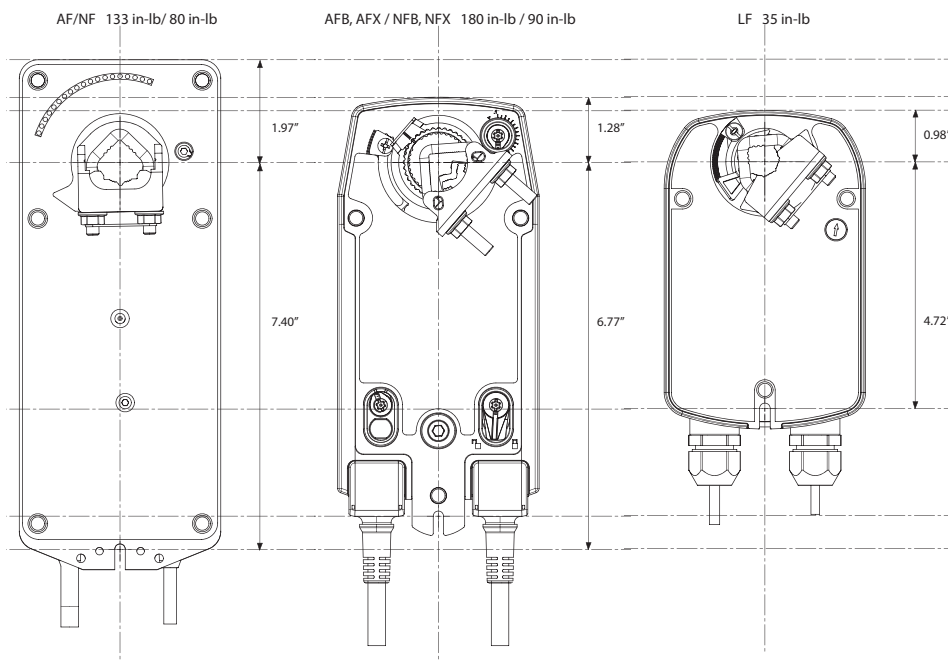
Original AF24...(-S), AF120(-S) US, AF230(-S) US and AF24-SR(-S) US will still be available throughout 2010.

Product Guide and Pricing

The 2010 PGPL will not advertise any of the original NF or original AF24-MFT(-S) US. These can still be ordered while supplies last through Belimo. Between April and July 2010 it is likely that for some orders Belimo will need to substitute New Generation NF and AF products for original models. During this period, Belimo will honor the quoted price for the original NF and AF products based on a valid quotation number.

Product Comparison

Original AF/NF, New Generation AF/NF, LF



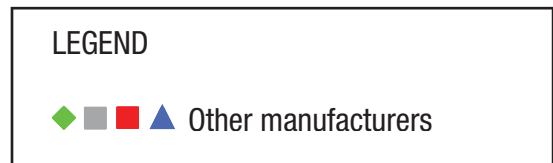
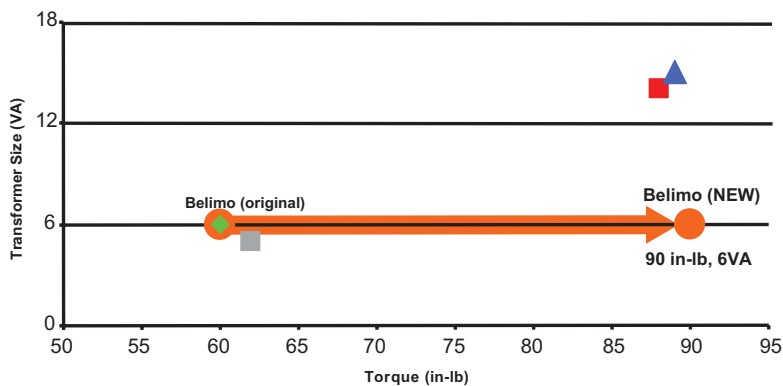
Original NF, AF24-MFT US, AF24-MFT-S US and AF24-MFT95 US will be phased out starting April 1, 2010.



New Generation 90 in-lb NFB vs. Original 60 in-lb NF

	NFB24 On/Off	NF24 US On/Off	NFBUP On/Off	NF120 US On/Off
Power Supply	24VAC ±20% 50/60 Hz, 24 VDC +20% -10%	24VAC ±20% 50/60 Hz, 24 VDC ±10%	24...240 VAC -20 %/+10% 50/60 Hz, 24...125 VDC ±10%	24VAC ±20% 50/60 Hz, 24 VDC ±10%
Transformer Size	7 VA @ 24 VAC 8.5 VA @ 120 VAC 18VA @ 240 VAC	11 VA	6 VA @ 24 VAC 6.5 VA @ 120 VAC 9.5 VA @ 240 VAC	8 VA
Power Consumption	6 W (Running)	5 W (Running)	6 W (Running)	5 W (Running)
Manual Override	Yes	No	Yes	No
	NFB24-MFT Programmable	NF24-MFT US Programmable	NFB24-SR 2-10 VDC	NF24-SR US 2-10 VDC
Power Supply	24VAC ±20% 50/60 Hz, 24 VDC +20% -10%	24VAC ±20% 50/60 Hz, 24 VDC ±10%	24VAC ±20% 50/60 Hz, 24 VDC +20% -10%	24VAC ±20% 50/60 Hz, 24 VDC ±10%
Transformer Size	6.5 VA (@ 150 sec)	6 VA	6 VA	6 VA
Power Consumption	4.5 W (Running)	3 W (Running)	3.5 W (Running)	3 W (Running)
Control Input	2-10 VDC default VDC variable (0.5 to 32V range), On/Off, Floating (no external diode needed), PWM	2-10 VDC default VDC variable (0.5 to 32V range), On/Off, Floating (external diode needed), PWM	2-10 VDC, 4-20 mA via 500 ohm resistor	2-10 VDC, 4-20 mA via 500 ohm resistor
Feedback	2 to 10 VDC default, 0.5 to 10 VDC range via software	2 to 10 VDC default, 0.5 to 10 VDC range via software	2 to 10 VDC	2 to 10 VDC
Manual Override	Yes	No	Yes	No
Running Time (Drive / Spring)	150 sec (40 to 220 sec via software) / <20 sec	150 sec (75 to 300 sec via software) / <60 sec	95 sec/<20 sec	<75 sec/<60 sec

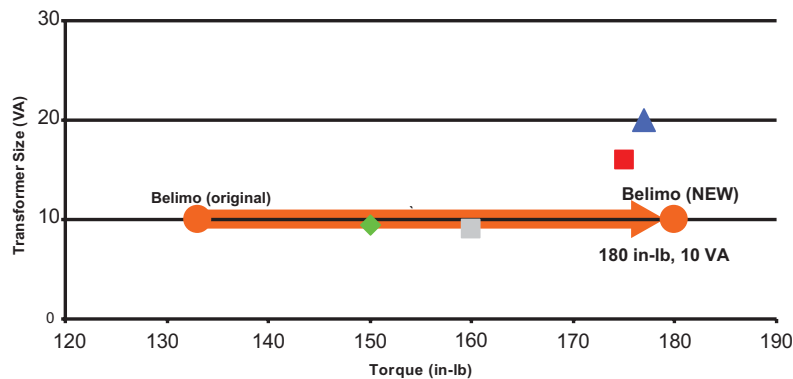
NF Series Comparison Transformer Size vs. Torque



New Generation 180 in-lb AF vs. Original 133 in-lb AF

	AFBUP On/Off	AF120 US On/Off	AFB24-MFT Programmable	AF24-MFT US Programmable
Power Supply	24...240 VAC -20 % +10% 50/60 Hz, 24...125 VDC ±10%	120 VAC ± 10% 50/60 Hz	24VAC ±20% 50/60 Hz, 24 VDC +20% -10%	24VAC ±20% 50/60 Hz, 24 VDC ±10%
Transformer Size	7 VA @ 24 VAC 8.5 VA @ 120 VAC 18VA @ 240 VAC	11 A	8.5 VA (@ 150 sec)	10 VA
Power Consumption	7 W (Running)	8 W (Running)	7.5 W (Running)	6 W (Running)
Manual Override	Yes	Yes		
Control Input	-	-	2-10 VDC default VDC variable (0.5 to 32V range), On/Off, Floating (no external diode needed), PWM	2-10 VDC default VDC variable (0.5 to 32V range), On/Off, Floating (external diode needed), PWM
Feedback	-	-	2 to 10 VDC default, 0.5 to 10 VDC range via software	2 to 10 VDC default, 0.5 to 10 VDC range via software
Running Time (Drive/Spring)	<75 sec/<20 sec	150 sec/<20 sec	150 sec (40 to 220 sec via software) / <20 sec	150 sec (75 to 300 sec via software) / <20 sec

AF Series Comparison Transformer Size vs. Torque



LEGEND

◆ ■ ■ ▲ Other manufacturers

Actuator Specifications

Torque	180 in-lb [20 Nm] minimum -22°F to 122°F [-30°C to +50°C]
Angle of Rotation	95°, adjustable 35° to 95° (mechanically with limit stops), MFT (electronically variable 0-100%)
Fits Shaft Diameter	1/2" to 1.05" (clamp centers on 1/2", 3/4", and 1.05")
Position Indication	Visual indicator
Manual Override	5mm hex crank (3/16" allen), supplied
Direction of Rotation	external switch electronically selectable with MFT
Spring Return Reversible	CW/CCW mounting
Dimensions	9.69" x 3.86" x 3.42" [246.1 x 98 x 86.9 mm]
Electrical Connection	3 ft, 18 GA appliance cable, 1/2" conduit fitting (default)
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	(-S) Models: 2 SPDT, 3A (0.5A inductive) @ 250V, one switch fixed at 10°, one adjustable 10° to 90°
Housing	NEMA 2/IP54, Enclosure Type2
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC



AFB24-MFT

ATTENTION: New generation AFB24-MFT(-S, 95) or AFX24-MFT(-S, 95) **CANNOT** be tandem mounted with any original AF24-MFT(-S) US or AF24-MFT95 US in any configuration. Same generation actuators must be used for multiple actuator applications. Contact the factory for original AF24-MFT(-S) US and AF24-MFT95 US availability.

MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

- Control (PWM, VDC range, Floating Point)
- Feedback (0.5-10 VDC, 2-10 VDC, Variable)
- Motion (run time)



All actuators have BDCM



Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switch	Cable Length	List Price	
				(M)	(@) ♦♦					
BASIC PRODUCTS⁺⁺										
AFBUP	On/Off	-	24-240 VAC ^u	<75	20	9.5	-	3 ft.	\$490.00	
AFBUP-S	On/Off	-	24-240 VAC ^u	<75	20	9.5	Built-In	3 ft.	\$576.00	
AFB24-MFT	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	10	-	3 ft.	\$602.00	
AFB24-MFT-S	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	10	Built-In	3 ft.	\$688.00	
AFB24-MFT95	0 to 135 Ω*	2-10 VDC	24 VAC/DC	150	<20	10	-	3 ft.	\$624.00	
CUSTOMIZE PRODUCTS⁺⁺ REORDER #										
AFXUP	AF000 1A1 003	On/Off	24-240 VAC ^u	<75	20	9.5	-	3 ft.	\$490.00	
AFXUP	AF000 1A3 003	On/Off	24-240 VAC ^u	<75	20	9.5	-	10 ft.	\$518.00	
AFXUP-S	AF020 1A1 003	On/Off	24-240 VAC ^u	<75	20	9.5	Built-In	3 ft.	\$576.00	
AFXUP-S	AF020 1A3 003	On/Off	24-240 VAC ^u	<75	20	9.5	Built-In	10 ft.	\$626.00	
MFT PRODUCTS⁺⁺ REORDER #										
AFX24-MFT	AF600 1A1 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	-	3 ft.	\$602.00‡
AFX24-MFT	AF600 1A3 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	-	10 ft.	\$630.00‡
AFX24-MFT-S	AF620 1A1 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	Built-In	3 ft.	\$688.00‡
AFX24-MFT-S	AF620 1A3 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	Built-In	10 ft.	\$738.00‡
AFX24-MFT95	AFE10 1C1 R01**	0 to 135 Ω*	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	-	3 ft.	\$624.00‡

♦ Variable with MFT

‡ Prices do not reflect additional programming code surcharge. Price shown is for default running times and control input.

‡‡ For applications that require more torque, the AFB, AFX Series can be tandem mounted. A maximum of two AFBUP/AFXUP... for loads of up to 266 in-lb OR three AFB24-MFT/AFX24-MFT... for loads of up to 432 in-lb can be mechanically connected to one damper or valve shaft.

* Fixed input.

^u 24 to 125 VDC

♦♦ <60 seconds @ -22°F [-30°C].

Note: 16 ft. cables available on all AFX products except for MFT95; list price adder to 3 ft. cable versions: \$48 for single and \$90 for dual (AFX...-S).

** Refer to page 1-10 to 1-13 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.

Available July 2010

Actuator Specifications

Torque	160 in-lb [18 Nm] minimum
Angle of Rotation♦	95° (adjustable with mechanical stops)
Fits Shaft Diameter	1/2" to 1.05"
Dimensions	12.5" x 6.25" x 7.25" [318 x 159 x 184 mm]
Electrical Connection	3 ft, 18 GA appliance cable, 1/2" conduit fitting (default)
Overload Protection	Electronic throughout rotation
Auxiliary Switch(es)	(-S) Models: 2 SPDT, 3A (0.5A inductive) @ 250V, one switch fixed at 10°, one adjustable 10° to 90°
Housing Specification	NEMA 4, IP66
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC
Control Shaft Length	Minimum 1" Maximum 2-1/4"



NEMA 4 Housing Available July 2010

MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

- Control (PWM, VDC range, Floating Point)
- Feedback (0.5-10 VDC, 2-10 VDC, Variable)
- Motion (run time)



All actuators have BDCM



Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switch	Cable Length	List Price
				(M)	◆◆				
BASIC PRODUCTS^{‡‡}									
AFBUP N4	On/Off	-	24-240 VAC ^u	<75	20	9.5	-	3 ft.	\$1,026.00
AFBUP-S N4	On/Off	-	24-240 VAC ^u	<75	20	9.5	Built-In	3 ft.	\$1,112.00
AFB24-MFT N4	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	10	-	3 ft.	\$1,138.00
AFB24-MFT-S N4	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	10	Built-In	3 ft.	\$1,224.00
AFB24-MFT95 N4	0 to 135 Ω*	2-10 VDC	24 VAC/DC	150	<20	10	-	3 ft.	\$1,160.00
MFT PRODUCTS^{‡‡}									
AFX24-MFT N4	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	-	3 ft.	\$1,138.00 ‡
AFX24-MFT-S N4	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	Built-In	3 ft.	\$1,224.00 ‡
AFX24-MFT95 N4	0 to 135 Ω*	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	-	3 ft.	\$1,160.00 ‡

♦ Variable with MFT

‡ Prices do not reflect additional programming code surcharge. Price shown is for default running times and control input.

‡‡ For applications that require more torque, the AFB, AFX Series can be tandem mounted. A maximum of two AFBUP/AFXUP...N4 for loads of up to 238 in-lb OR three AFB24-MFT/AFX24-MFT...N4 for loads of up to 388 in-lb can be mechanically connected to one damper or valve shaft.

* Fixed input.

^u 24 to 125 VDC

◆◆ <60 seconds @ -22°F [-30°C].

** Refer to page 1-10 to 1-13 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.

All NEMA 4 spring return assemblies are configured for a CCW spring return rotation. For CW spring return rotation, field reconfiguration is needed.

Direct Coupled, Spring Return Actuator, 90 in-lb Minimum Torque

Actuator Specifications

Torque	90 in-lb [10 Nm] minimum -22°F to 122°F [-30°C to +50°C]
Angle of Rotation	95°, adjustable 35° to 95° (mechanically with limit stops), MFT (electronically variable 0-100%)
Fits Shaft Diameter	1/2" to 1.05" (clamp centers on 1/2", 3/4", and 1.05")
Position Indication	Visual indicator
Manual Override	5mm hex crank (3/16" allen, supplied)
Direction of Rotation	external switch (proportional models) electronically selectable with MFT
Spring Return Reversible	CW/CCW mounting
Dimensions	9.69" x 3.86" x 3.42" [246.1 x 98 x 86.9 mm]
Electrical Connection	3 ft, 18 GA appliance cable, 1/2" conduit fitting
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	(-S) Models: 2 SPDT, 3A (0.5A inductive) @ 250V, one switch fixed at 10°, one adjustable 10° to 90°
Housing	NEMA 2/IP54, Enclosure Type2
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC



NFB24-MFT

MFT

- MFT= 2-10 VDC Default, or Set, Modify, Read:**
- Control – (PWM, VDC range, Floating Point)
 - Feedback (0.5-10 VDC, 2-10 VDC, Variable)
 - Motion (run time)



Actuators in bold have BDCM



Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switch	Cable Length	List Price	
				M	Ⓢ ♦♦					
BASIC PRODUCTS										
NFB24	On/Off	-	24 VAC/DC	<75	20	8.5	-	3 ft.	\$366.00	
NFB24-S	On/Off	-	24 VAC/DC	<75	20	8.5	Built-In	3 ft.	\$454.00	
NFBUP	On/Off	-	24-240 VAC ^u	<75	20	9.5	-	3 ft.	\$414.00	
NFBUP-S	On/Off	-	24-240 VAC ^u	<75	20	9.5	Built-In	3 ft.	\$502.00	
NFB24-SR	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	-	3 ft.	\$488.00	
NFB24-SR-S	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	Built-In	3 ft.	\$576.00	
NFB24-MFT	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	150	<20	9	-	3 ft.	\$544.00	
NFB24-MFT-S	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	150	<20	9	Built-In	3 ft.	\$632.00	
CUSTOMIZE PRODUCTS REORDER #										
NFX24	NF200 1A1 003	On/Off	24 VAC/DC	<75	20	8.5	-	3 ft.	\$366.00	
NFX24	NF200 1A3 003	On/Off	24 VAC/DC	<75	20	8.5	-	10 ft.	\$394.00	
NFX24-S	NF220 1A1 003	On/Off	24 VAC/DC	<75	20	8.5	Built-In	3 ft.	\$454.00	
NFX24-S	NF220 1A3 003	On/Off	24 VAC/DC	<75	20	8.5	Built-In	10 ft.	\$504.00	
NFXUP	NF000 1A1 003	On/Off	24-240 VAC ^u	<75	20	9.5	-	3 ft.	\$414.00	
NFXUP	NF000 1A3 003	On/Off	24-240 VAC ^u	<75	20	9.5	-	10 ft.	\$442.00	
NFXUP-S	NF000 1A1 003	On/Off	24-240 VAC ^u	<75	20	9.5	Built-In	3 ft.	\$502.00	
NFXUP-S	NF000 1A3 003	On/Off	24-240 VAC ^u	<75	20	9.5	Built-In	10 ft.	\$552.00	
NFX24-SR	NF400 1A1 H01	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	-	3 ft.	\$488.00
NFX24-SR	NF400 1A3 H01	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	-	10 ft.	\$516.00
NFX24-SR-S	NF420 1A1 H01	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	Built-In	3 ft.	\$576.00
NFX24-SR-S	NF420 1A3 H01	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	Built-In	10 ft.	\$626.00
MFT PRODUCTS REORDER #										
NFX24-MFT	NF600 1A1 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	40 to 220 (150 default)	<20	9	-	3 ft.	\$544.00‡
NFX24-MFT	NF600 1A3 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	40 to 220 (150 default)	<20	9	-	10 ft.	\$572.00‡
NFX24-MFT-S	NF620 1A1 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	40 to 220 (150 default)	<20	9	Built-In	3 ft.	\$632.00‡
NFX24-MFT-S	NF620 1A3 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	40 to 220 (150 default)	<20	9	Built-In	10 ft.	\$682.00‡

♦ Variable with MFT ‡ Prices do not reflect additional programming code surcharge. Price shown is for default running times and control input.
 * With 500 Ω resistor, ZG-R01 ** Refer to page 1-10 to 1-13 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.
 ° 24 to 125 VDC. ♦♦ <60 seconds @ -22°F [-30°C].
 Note: 16 ft. cables available on all NFX products; list price adder to 3 ft. cable versions: \$48 for single and \$90 for dual (NFX...S).

M40029 - 03/10 - Subject to change. © Belimo Aircontrols (USA), Inc.

Actuator Specifications

Torque	80 in-lb [9 Nm] minimum
Angle of Rotation♦	95° (adjustable with mechanical stops)
Fits Shaft Diameter	1/2" to 1.05"
Dimensions	12.5" x 6.25" x 7.25" [318 x 159 x 184 mm]
Electrical Connection	3 ft, 18 GA appliance cable, 1/2" conduit fitting (default)
Overload Protection	Electronic throughout rotation
Auxiliary Switch(es)	(-S) Models: 2 SPDT, 3A (0.5A inductive) @ 250V, one switch fixed at 10°, one adjustable 10° to 90°
Housing Specification	NEMA 4, IP66
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC
Control Shaft Length	Minimum 1" Maximum 2-1/4"



NEMA 4 Housing Available July 2010

MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

- Control (PWM, VDC range, Floating Point)
- Feedback (0.5-10 VDC, 2-10 VDC, Variable)
- Motion (run time)



Actuators in bold have BDCM



Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switch	Cable Length	List Price
				(M)	⦿♦♦				
BASIC PRODUCTS									
NFB24 N4	On/Off	-	24 VAC/DC	<75	20	8.5	-	3 ft.	\$902.00
NFB24-S N4	On/Off	-	24 VAC/DC	<75	20	8.5	Built-In	3 ft.	\$990.00
NFBUP N4	On/Off	-	24-240 VAC ^u	<75	20	9.5	-	3 ft.	\$950.00
NFBUP-S N4	On/Off	-	24-240 VAC ^u	<75	20	9.5	Built-In	3 ft.	\$1,038.00
NFB24-SR N4	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	-	3 ft.	\$1,024.00
NFB24-SR-S N4	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	Built-In	3 ft.	\$1,112.00
NFB24-MFT N4	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	150	<20	9	-	3 ft.	\$1,080.00
NFB24-MFT-S N4	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	150	<20	9	Built-In	3 ft.	\$1,168.00
MFT PRODUCTS									
NFX24-MFT N4	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	40 to 220 (150 default)	<20	9	-	3 ft.	\$1,080.00 ‡
NFX24-MFT-S N4	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	40 to 220 (150 default)	<20	9	Built-In	3 ft.	\$1,168.00 ‡

♦ Variable with MFT

‡ Prices do not reflect additional programming code surcharge. Price shown is for default running times and control input.

* With 500Ω resistor, ZG-R01

^u 24 to 125 VDC



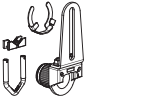

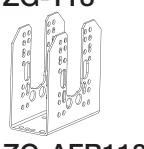
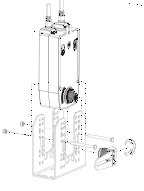
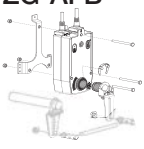
♦♦ <60 seconds @ -22°F [-30°C].

** Refer to page 1-10 to 1-13 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.


All NEMA 4 spring return assemblies are configured for a CCW spring return rotation. For CW spring return rotation, field reconfiguration is needed.

New Generation Compatibility

with Existing Mechanical Accessories

Part Number	Similar To	Function	Description
IND-AFB 	IND-AF2	Position indicator for AFB/NFB	For use when the clamp's position indicator is not visible (typically in short shaft mounting applications). IND-AFB comes with retaining clip.
K7-2 	K4-2 US	AFB/NFB standard clamp 1/2", 3/4", 1.05"	Use to direct couple actuators to a 1/2" to 1.05" diameter shafts. K7-2 comes with retaining clip and two inserts; 1/2" insert comes installed by default, 3/4" insert comes loose in bag.
KH-AFB 	KH-AF & KH-AF-1 US	AFB/NFB Crank Arm, 3/4" shafts	Used to modify the actuator from direct coupling to crank arm operation. The crank arm may also be used to couple simultaneously up to a 3/4" diameter shaft with supplied V-bolt and nuts. The crank arm is held in place on the hollow axle by a retaining clip.
Z-AF 	NEW	AFB/NFB Retrofit Mounting Bracket	Retrofit bracket to extend the length of the actuator to match foot print of old generation AF/NF for mounting. Z-AF is held in place by supplied bolt and nut.
ZG-118 	ZG-106, 107 & 108	AFB/NFB Mounting Bracket	"U" channel bracket replicating the same mounting positions as in original AF/NF when used with ZG-106, ZG-107 & ZG-108. Supplied with bolts and nuts.
ZG-AFB118 	ZG-AF108	AFB/NFB Crank Arm Adaptor Kit	Includes ZG-118 and KH-AFB together for indirect mounting applications. Supplied with bolts and nuts.
ZG-AFB 	ZG-AF US	AFB/NFB Crank Arm Adaptor Kit	One "T" shaped bracket (similar to bracket found in ZG-LF2) and four small "L" shaped feet to mount actuators face down or on its side. Includes KH-AFB, bolts and nuts.

	Current P/N	Compatible	New P/N	Comments
Clamps	K4-2 US	No	K7-2	New hollow axle design requires a new clamp. One clamp accessory to be offered for 1/2" up to 1.05" diameter shafts.
	K4-1 US	No		
	K4-H	No	TBD	For special square or hex shafts.
Position Indicators, Rotation Limiters	IND-AF2	No	IND-AFB	New hollow axle design required new part.
	ZDB-AF2 US	No	N/A	Built-in limit stop (metal stop and screw) same as today's LF and TF.
Mounting Brackets	ZG-100	Yes	N/A	New hole patterns will be added to line up with new adaptor kits. User can drill new holes if needed.
	ZG-101			
	ZG-102	Yes	N/A	Verification in progress.
	ZG-106	No	ZG-118	New actuators only have two hollow pillars. A new bracket was designed to replicate the mounting positions as offered when using the ZG-106, ZG-107 and ZG-108.
	ZG-107			
ZG-108				
			Z-AF	Retrofit bracket for replacing old generation AF/NF with new generation AFB(X)/NFB(X).
Crank Arms	KH-AF	No	KH-AFB	New hollow axle required a new part. Comes with short cylinder that is inserted into hollow axle.
	KH-AF-1 US	No	N/A	KH-AFB only option. Does not allow for a 1.05" shaft to pass through, only 3/4" diameter max.
	KH-AFV	No	N/A	Not needed.

	Current P/N	Compatible	New P/N	Comments
Crank arm Adaptor Kits	ZG-AF US	No	ZG-AFB	Current "L" shaped feet and KH-AF crank arm do not work with new generation. New "T" bracket, "L" shaped feet and crank arm in this kit.
	ZG-ZF108	No	ZG-AFB118	Current ZG-108 bracket and crank arm are not compatible (see ZG-118 comments).
Ball Joints, Damper Clips, Push Rods	KH6	Yes	N/A	All these accessories can continue to be used as today. They do not interface directly with the actuator's hollow axle; they are used mainly for indirect coupling onto damper shafts, blades and assemblies.
	KH8			
	KH10			
	KG6			
	KG8			
	KG10A			
	SH8			
	SH10			
	ZG-DC1			
	ZG-DC2			
		KH12	New universal crank arm for 1.05" shafts, smaller than KH10. Available Q4 2009.	
Housings	ZS-100	Yes	N/A	Works with New generation.
	ZS-101	Yes	N/A	Part for ZS-100, no issues.
	ZS-150	Yes	N/A	Works with New generation.
	ZS-260	Yes	N/A	Works with New generation. Can use either old generation GM or AF/NF mounting position plus Z-AF retrofit bracket.
	ZG-109	Yes	N/A	Parts for ZS-260, no issues.
	ZG-110	Yes	N/A	Works with New generation. Can use old generation GM mounting position or old generation AF/NF mounting position plus Z-AF retrofit bracket.
	ZS-300			
	ZS-300-1			
ZS-300-5	Yes	N/A	Parts for ZS-300, no issues.	
ZS-300-C1				
ZS-300-C2				
ZS-300-C3				
Shaft Adaptors	AV8-25	Yes	N/A	All these accessories can continue to be used as today.
	ZG-JSA-1			
	ZG-JSA-2			
	ZG-JSA-3			
Misc.	AF-CC	No	TF-CC	New generation cable conduit fitting (like TF, non spring return series).
	AF-P	Yes	N/A	Works with existing anti rotation bracket.
	Tool-06	Yes	N/A	Existing 10 mm wrench can be used.

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