



Belimo AFB Series Electric Actuators for

1/2" to 2" B Series and SPIRA-TROL L & K Series Control Valves

Description

The Belimo AF Series actuators are suitable for either two position or modulating control. These actuators can be used with B Series or SPIRA-TROL L and K Series control valves.

Multi-Function Technology (MFT)

An integrated microprocessor allows for a variety of parameters, including control signal type, to be configured in the factory or the field with a PC and Belimo software.

Manual Operation

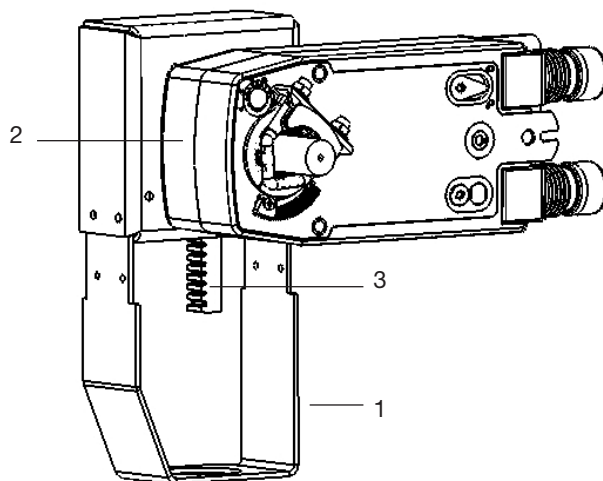
A 5mm Allen wrench can be used to manually operate the actuator. Turning the wrench clockwise will extend the spindle. Spindle position will be retained until power is applied to the actuator.

Overload Protection

The actuator is protected against short circuiting and reverse polarity. The spindle stroke is adapted automatically and is overload protected.

Operational Display

The stroke is physically shown by a travel indicator on the actuator yoke.



Available Types

Actuator Model	Valve action in event of power failure	
	B Series	SPIRA-TROL
AFB24-MFT-US	Optional*	Optional*
2 x AFB24-MFT-US	Optional*	Optional*

*Power failure action should be specified at the time of order and will determine the actuator to yoke mounting orientation.

Materials of Construction

No.	Component	Material
1	Yoke	Steel
2	Base	Aluminum die casting
3	Cover	Steel

Ambient Limits

Storage temperature	-40°F to 176°F (-40°C to 80°C) at 5 to 95% RH
Ambient temperature	-22°F to 122°F (-30°C to 50°C) at 5 to 95% RH
Maximum valve media temperature	338°F (170°C)*

* Equivalent to a saturated steam pressure of 100psig (6.9barg)

Agency Listings

General	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC & 2006/95/EC
Housing	NEMA 2, IP54, Enclosure Type 2

Spares

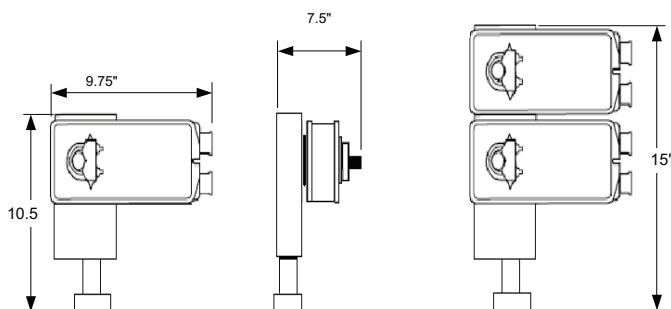
No spare parts are available for this actuator range

Dimensions and Weights

Weight	AFB24-MFT-US	12.8 lb
	2x AFB24-MFT-US	20.6 lb
Dimensions	See below	

Specifications

Supply Voltage	24 VAC 50/60 Hz or 24 VDC
Transformer Sizing	10 VA (Class 2 power supply)
Power Consumption	7.5W running, 3W holding
Electrical Connection	3 ft., 18 GA appliance cable, 1/2" conduit fitting
Running Time Motor	70 - 220 sec
Running Time Spring	<20 sec
Overload Protection	Electronic throughout stroke
Control Signal	2 to 10 VDC, 0.5mA max
(to be specified at time of order)	4 to 20 mA w/ 500Ω resistor
	Pulse Width Modulation (pulse width to be specified by customer)
	Floating Point
	On/Off
	100KΩ for 2 to 10VDC,
Input Impedance	500Ω for 4 to 20 mA,
	1500Ω for Pulse Width Modulation (PWM)
Feedback	2 to 10 VDC, 0.5mA max
Maximum Stroke	3/4" (20mm)
Spindle Force	AFB24-MFT US 230lbf (1023N)
	2 x AFB24-MFT US 343lbf (1525N)
Position Indication	Visual indicator
Manual Override	3/16 Allen (supplied) 5mm hex

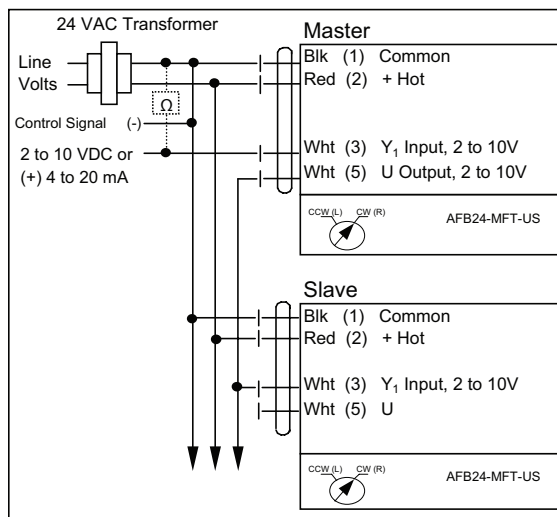


Local regulation may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only. In the interests of development and improvement of the product, we reserve the right to change the specification.

TI-1-519-US 8.13

Installation and Wiring

The valves should be installed in the horizontal line. Allow 6" for the cover removal and 12" for complete actuator removal. These actuators should never be mounted underneath the valve as condensation can build up and result in a failure of the actuator. Full instructions are supplied with the product. The diagram below shows the wiring schematic. For AFB-MFT-US actuators, connect as shown in the 'Master' schematic. For 2 x AFB-MFT-US actuators, one actuator motor should be connected as a 'Master' and the other as a 'Slave' unit, as shown in the schematic.



Note: Please contact Belimo for other wiring information.

Differential Pressures (psi)

Note: Due to temperature capability limitations, maximum saturated steam inlet pressure is 100 psig. For reduced capacity valves, use the differential pressures for the next valve size down.

B Series 2-Way and 3-Way Control Valves

ANSI/FCI 70-2 Class IV Shut-off (metal seated trim) for 2-way valves and Class III for 3-way (mixing) valves

Model	Thrust (lbf)	1/2"		3/4"		1"		1-1/4"		1-1/2"		2"	
		FB	RB	FB	RB	FB	RB	FB	RB	FB	RB	FB	RB
Class IV													
AFB24-MFT	311	150	150	150	150	150	150	150	150	118	150	73	115
2xAFB24-MFT	464	150	150	150	150	150	150	150	150	150	150	119	150
Class VI													
AFB24-MFT	311	150	150	150	150	150	150	150	150	150	150	122	150
2xAFB24-MFT	464	150	150	150	150	150	150	150	150	150	150	150	150

SPIRA-TROL Series Control Valves

Class IV Shut-Off

Model	Thrust (N)	Theoretical Maximum Differential Pressure (psi)											
		1/2"		3/4"		1"		1 - 1/4"		1 - 1/2"		2"	
		PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph
AFB24-MFT	1383	708	491	538	367	331	217	263	174	88	49	53	25
2xAFB24-MFT	2063	725	725	725	725	591	476	464	375	175	136	115	87

AFB24	Cv	1/2"		3/4"		1"		1 - 1/4"		1 - 1/2"		2"	
		PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph
	Full	708	491	538	367	331	217	263	174	88	49	53	25
	Red 1	725	725	681	464	495	324	340	225	203	114	74	35
	Red 2	725	725	725	725	626	410	507	336	262	147	170	82
	Red 3	725	725	725	725	725	725	642	426	391	220	220	105

2X AFB24	Cv	1/2"		3/4"		1"		1 - 1/4"		1 - 1/2"		2"	
		PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph
	Full	725	725	725	725	591	476	464	375	175	136	115	87
	Red 1	725	725	725	725	725	711	599	485	404	315	161	122
	Red 2	725	725	725	725	725	725	725	725	521	407	371	282
	Red 3	725	725	725	725	725	725	725	725	725	607	479	365

Class VI Shut-Off

Model	Thrust (N)	Theoretical Maximum Differential Pressure (psi)											
		1/2"		3/4"		1"		1 - 1/4"		1 - 1/2"		2"	
		PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph
AFB24-MFT	1383	725	703	725	555	485	371	376	287	162	123	115	88
2xAFB24-MFT	2063	725	725	725	725	725	630	576	488	249	210	177	150

AFB24	Cv	1/2"		3/4"		1"		1 - 1/4"		1 - 1/2"		2"	
		PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph
	Full	725	703	725	555	485	371	376	287	162	123	115	88
	Red 1	725	725	725	703	725	554	485	370	374	285	161	123
	Red 2	725	725	725	725	725	701	724	553	483	368	373	284
	Red 3	725	725	725	725	725	725	725	700	721	550	481	367

2X AFB24	Cv	1/2"		3/4"		1"		1 - 1/4"		1 - 1/2"		2"	
		PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph	PTFE	Graph
	Full	725	725	725	725	725	630	576	488	249	210	177	150
	Red 1	725	725	725	725	725	725	725	630	575	486	248	210
	Red 2	725	725	725	725	725	725	725	726	725	628	574	485
	Red 3	725	725	725	725	725	725	725	725	725	725	725	626