

Innovations in Comfort, Energy Efficiency, and Safety Solutions for Buildings

Providence College, Rhode Island

2023

Product Guide and Price List Americas (USD)

Effective April 1, 2023

BELIMO

Importance of Retrofit Solutions



It surprises many that buildings generate almost half the world's CO_2 emissions. In 2040, approximately two-thirds of the global building stock will be buildings that exist today. The need to focus on the built environment to generate meaningful CO_2 reductions goes without saying. Pressure to reduce CO_2 emissions, combined with higher energy costs and occupant demands for healthier indoor environments, is compelling building owners to invest in HVAC system retrofits at a pace our industry has never experienced.

At Belimo, our broad portfolio of state-of-the-art field devices provides solutions for new and existing buildings. Our products are specifically designed to enable simple replacement of current, less efficient, and unreliable devices on a component basis, regardless of the original device manufacturer. In addition, we strive to remain the industry's most dependable supplier of actuators, valves, sensors, and meters by maintaining a keen focus on robust supply chain management and operational excellence in our manufacturing facilities. Our 2023 Product Guide and Price List has several new products which you will want to become familiar with, including:

- AHR Innovation Award winner **Room Sensors** accurately measure temperature, humidity, dew point, and CO_2 in a sleek, surface-mounted design with or without an ePaper touch display.
- Next-generation inline **Flow Meters** use ultrasonic transit-time technology to provide accurate, repeatable measurements featuring a patented glycol compensation logic to automatically detect and monitor the glycol concentration in the system.
- **VAV Compacts** are standalone network capable damper actuators with an integrated differential pressure sensor to provide proper ventilation with low energy consumption offering easy installation and commissioning.
- Next-generation **Electronic Pressure Independent Valves** with an integrated ultrasonic flow meter and a robust control algorithm maintain flow setpoint regardless of system pressure variations and modulate the valve based on its measured true flow.
- **Combustible and Toxic Gas Monitors** can measure up to two different gases simultaneously, activate audible alarms, LEDs, and fans via HVAC controls or the onboard relay. BACnet MS/TP is available for integration into any BAS network. CAN bus communication allows for standalone operation or daisy chain of up to 32 devices.

Please contact us to learn more about these and other solutions to improve system performance. We thank you for your business and look forward to doing whatever we can to support successful outcomes for you in 2023.

Sincerely,



James Furlong
President, BELIMO Americas

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All prices are in US Dollars (USD)

Belimo
Room Sensors



Healthy and Comfortable Room Environment

Belimo room sensors accurately measure temperature, humidity, dew point, and CO_2. They are available with or without an ePaper touch display to meet your application needs. Integrated Near Field Communication (NFC) provides easy field adjustability, commissioning, remote display capabilities, and troubleshooting even without power. These sensors are maintenance-free and provide long-term reliability for a comfortable room environment.

Discover the advantages
www.belimo.us

5

5-year warranty

BELIMO

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inside back cover Platinum Distributors

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DAMPER ACTUATORS

Leading Energy Efficiency

- Extensive actuator offering provides high performance with up to 80% less power consumption than others.
- Minimum torque guaranteed over the entire operating range and design life, no loss in performance due to temperature or supply voltage.
- Multi-Function Technology (MFT) allows you to adapt an actuator for replacement or changes in your system.

Gloria Carvajal, Assembler 1

DAMPER ACTUATORS



IoT Actuators

Making Systems Transparent

Belimo offers Internet of Things (IoT) damper and valve actuators. These IoT products include two universal inputs with BACnet or Modbus and Belimo Cloud connectivity for fast and easy commissioning, remote monitoring, and the ability to log in and share system data with your Building Management System. They can seamlessly integrate with Belimo sensors to measure temperature, pressure, humidity, dew point, CO_2, VOCs, or flow to create a more efficient and comfortable environment.

Discover the advantages
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5
5-year warranty

c UL us

BELIMO



1 NON FAIL-SAFE DAMPER ACTUATORS

Versatile Performance with Low Power Consumption

- Comprehensive torque offering 9...1,400 in-lb with direct coupled rotary and linear actuators.
- Patented brushless DC motor technology ensuring long reliable operation beyond our 5-year warranty.
- Minimum torque guaranteed over entire specified operation range.

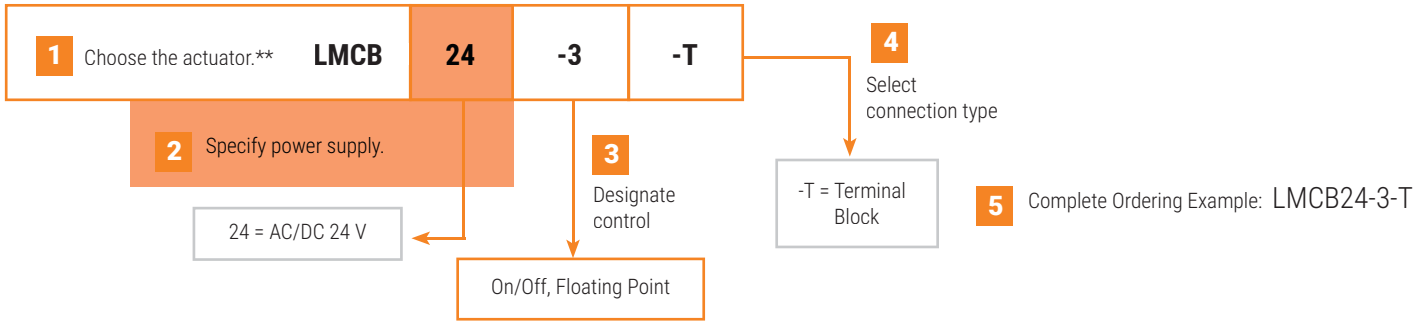
Danielle Bracero, Product Specialist, Sales Tools

Non Fail-Safe Damper Actuator Nomenclature

LM	C	B	24	-3	-T	
Torque Rating **Non Fail-Safe Rotary** PM = 1400 in-lb GM = 360 in-lb AM = 180 in-lb NM = 90 in-lb LM = 45 in-lb CM = 18 in-lb UM = 9 in-lb **Non Fail-Safe Linear** AH = 100 lbf LH = 34 lbf UH = 11 lbf	**Speed** Q‡ = Quick Running C = Fast Running No Designation = Normal Speed (LMB24-3)	**Version** B = Basic X = Customized	**Power Required** 24 = AC/DC 24 V, 50/60 Hz 120 = AC 100...240 V 50/60 Hz UP = AC 24...240 V, DC 24...125 V	**Control** -1 = On/Off -3 = On/Off, Floating Point -3-P5 = On/Off, Floating Point w/5k Ω Feedback -3-P10 = On/Off, Floating Point w/10k Ω Feedback -SR = 2...10 V -PC = Phasecut (0.5...20 V) -MFT = Multi-Function Technology -MFT95 = 0...135 Ω -IP = BACnet/IP, Modbus TCP -MOD = BACnet MS/TP, Modbus RTU	**Options** -T = Terminal Block Blank = Cable Version -S = Switch	.1 = Bulk Pack N4 = NEMA 4/4X **X..N4 Types** Y = Heater Option

‡Note: Q versions have a slightly lower torque rating.

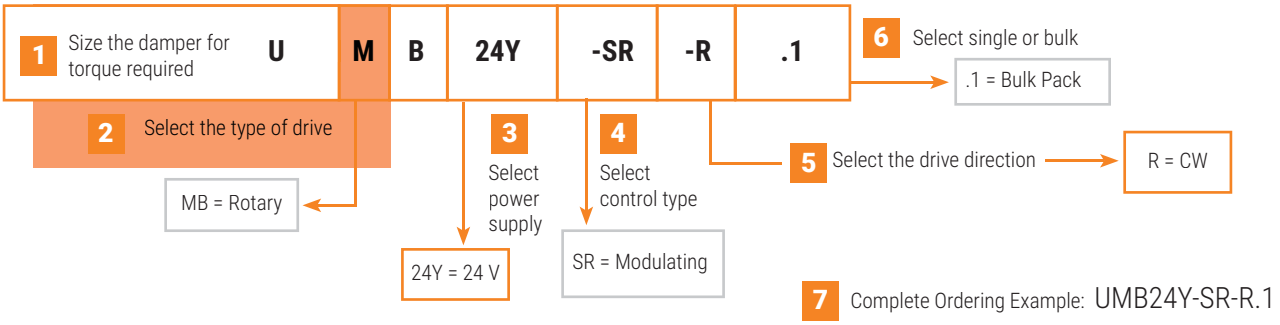
Ordering Example



**All functions and packaging are not available with all versions.

U	M	B	24Y	-SR	-R	.1
Torque Rating U = 9 in-lb	**Drive Type** M = Rotary H = Linear	**Version** B = Basic	**Power Supply** 24Y = 24 V 230Y = 120...230 V	**Control** Blank = On/Off, Floating Point -SR = Modulating	**Drive Direction** -R = Clockwise (CW) -L = Counter Clockwise (CCW)	**Bulk Pack** Blank = single unit .1 = Bulk Pack

Ordering Example**



**All functions and packaging are not available with all versions.

PMB, GMB(X), and AMB(X) Non Fail-Safe Damper Actuator Product Range

5-year warranty

			Power Supply			Power Consumption		Running Time	Housing Type		Drive Type	Custom Options		Control Input						Control Input MFT				Position Feedback				Bulk Pack	List Price
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 100...240 V ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing Y or H = $600 OPTIONAL Heater**	Rotary "M", Linear "L", Integrated Damper "Mx"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V Span 2.5...32 V	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250 V	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P.A GR)	Quantity of Actuators in Bulk Pack	
PMB Series 1400 in-lb [160 Nm]		PMBUP-3-T		●		52	20 (6)	35	4X	●	M			●	●											2			$3,106
		PMBUP-MFT-T		●		52	20 (6)	35	4X	●	M			●	●	●		1		●	●	●		●		2			$5,950
GMB Series 360 in-lb [40 Nm] Approx. 90 sq.ft.		GMB24-3	●			6	4.0 (2.0)	150	2		M			●	●												●		$709
		GMB24-SR	●			6.5	4.5 (2.0)	150	2		M					●								●			●		$942
		GMB24-IP	●			8	5.5 (3)	150	1		M							2						●	1		●		$1,198
		GM24A-MOD	●			7	3.5 (1.6)	150	2		M							1							1		●		$1,108
		GMB24-MFT	●			7	4.5 (1.5)	150	2		M									●	●	●	●	●			●		$1,047
GMX Series 360 in-lb [40 Nm] Approx. 90 sq.ft.	Customizable*	GMX24-3	●			6	4.0 (2.0)	150	2		M	●	●	●	●												●		$709
		GMX24-3-T N4	●			6	4.0 (2.0)	150	4X	Y	M	●	●	●	●												●		$1,607
		GMX24-SR	●			6.5	4.5 (2.0)	150	2		M	●	●			●								●			●		$942
		GMX24-SR-T N4	●			6.5	4.5 (2.0)	150	4X	Y	M	●	●			●								●			●		$1,844
		GMX24-PC	●			7	4.5 (1.5)	150	2		M	●	●						●					●			●		$1,137
		GMX120-3			●	7	4.0 (2.0)	150	2		M	●	●	●	●												●		$773
		GMX24-MFT	●			7	4.5 (1.5)	75...300 (150)	2		M	●	●							●	●	●	●	●			●		$1,047
		GMX24-MFT N4	●			7	4.5 (1.5)	75...300 (150)	4X	Y	M	●	●							●	●	●	●	●			●		$1,985
		GMX24-MFT-T	●			7	4.5 (1.5)	75...300 (150)	1		M	●	●							●	●	●	●	●			●		$1,013
		GMX24-MFT-T N4	●			7	4.5 (1.5)	75...300 (150)	4X	Y	M	●	●							●	●	●	●	●			●		$1,985
AMB Series 180 in-lb [20 Nm] Approx. 45 sq.ft.		AMB24-3	●			5.5	2.5 (0.5)	95	2		M			●	●												●		$501
		AMB24-3-S	●			5.5	2.5 (0.5)	95	2		M			●	●											1	●		$658
		AMB24-SR	●			5	2.5 (0.4)	95	2		M					●								●			●		$731
		AMB24-SR-T	●			5	2.5 (0.4)	95	1		M					●								●			●		$695
		AMB24-IP	●			8	6 (3)	150	1		M							2						●	1		●		$942
		SM24A-MOD	●			6	3.5 (1.4)	150	2		M							1							1		●		$855
		AMB24-MFT	●			6	3.5 (1.4)	150	2		M									●	●	●	●	●			●		$792
		AMCB24-MFT	●			26	4 (1.5)	35	2		M									●	●	●	●	●			●		$849
		AMB120-3			●	7	3.0 (0.6)	95	2		M			●	●												●		$626
AMX Series 180 in-lb [20 Nm] Approx. 45 sq.ft.	Customizable*	AMX24-3	●			5.5	2.5 (0.5)	95	2		M	●	●	●	●												●		$501
		AMX24-3-T	●			5.5	2.5 (0.5)	95	1		M	●	●	●	●												●		$467
		AMX24-3-T N4	●			5.5	2.5 (0.5)	95	4X	Y	M	●	●	●	●												●		$914
		AMX24-SR	●			5	2.5 (0.4)	95	2		M	●	●			●								●			●		$731
		AMX24-SR-T	●			5	2.5 (0.4)	95	1		M	●	●			●								●			●		$695
		AMX24-SR-T N4	●			5	2.5 (0.4)	95	4X	Y	M	●	●			●								●			●		$1,142
		AMX24-PC	●			5.5	3.5 (1.3)	90	2		M	●	●						●					●			●		$828
		AMX120-3			●	7	3.0 (0.6)	95	2		M	●	●	●	●												●		$626
		AMX120-SR			●	7.5	4.0 (1.0)	95	2		M	●	●			●								●			●		$859
		AMX24-MFT	●			6	3.5 (1.4)	90...300 (150)	2		M	●	●							●	●	●	●	●			●		$792
		AMX24-MFT N4	●			6	3.5 (1.4)	90...300 (150)	4X	Y	M	●	●							●	●	●	●	●			●		$1,239
		AMX24-MFT-T N4	●			6	3.5 (1.4)	90...300 (150)	4X	Y	M	●	●							●	●	●	●	●			●		$1,239
		AMCX24-MFT	●			26	4 (1.5)	35...120 (35)	2		M	●	●							●	●	●	●	●			●		$849
		AMCX24-MFT-T N4	●			26	3.5 (1.4)	35...120 (35)	4X	Y	M	●	●							●	●	●	●	●			●		$1,295
		AMX24-MFT95	●			6	3.5 (1.3)	75...150 (150)	2		M	●	●				●							●			●		$828

See pages 1-7 through 1-10 for additional generic product series specifications. Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 5-13 to 5-16 for customization options.
** List price does NOT include price for optional heater.

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AMQB(X), AHB(X), and AHQB(X) Non Fail-Safe Damper Actuator Product Range

5-year warranty

			Power Supply			Power Consumption		Running Time	Housing Type		Drive Type	Custom Options		Control Input							Control Input MFT				Position Feedback				Bulk Pack	List Price
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 100...240 V ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing Y or H = $600 OPTIONAL Heater**	Rotary "M", Linear "L", Integrated Damper "Mx"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V Span 2.5...32 V	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250 V	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	Quantity of Actuators in Bulk Pack	
AMQB(X) 140 in-lb [16 Nm]		AMQB24-1	●			26	15 (1.5)	7	2		M			●													●			$839
		AMQB24-MFT	●			26	15 (1.5)	7	2		M										●		●		●			●			$973
	C*	AMQX24-MFT	●			26	15 (1.5)	7...15 (7)	2		M	●	●								●		●		●			●			$973
AHB Series 100 lbf [450 N Force] 4" or 8" stroke		AHB24-3-100	●			4.5	2.0 (0.5)	150	2		L, 4"			●	●															$645
		AHB24-3-200	●			4.5	2.0 (0.5)	150	2		L, 8"			●	●															$689
		AHB24-SR-100	●			4.5	2.5 (0.5)	150	2		L, 4"					●									●					$893
		AHB24-SR-200	●			4.5	2.5 (0.5)	150	2		L, 8"					●									●					$934
AHX Series 100 lbf [450 N Force] 4", 8", 12" stroke	Customizable*	AHX24-3-100	●			4.5	2.0 (0.5)	150...450 (150)	2		L, 4"		●	●	●															$645
		AHX24-3-200	●			4.5	2.0 (0.5)	150...450 (150)	2		L, 8"		●	●	●															$689
		AHX24-3-300	●			4.5	2.0 (0.5)	150...450 (150)	2		L, 12"		●	●	●															$716
		AHX120-3-100			●	4.5	2.5 (0.5)	150...450 (150)	2		L, 4"		●	●	●															$696
		AHX120-3-200			●	4.5	2.5 (0.5)	150...450 (150)	2		L, 8"		●	●	●															$734
		AHX120-3-300			●	4.5	2.5 (0.5)	150...450 (150)	2		L, 12"		●	●	●															$828
		AHX24-SR-100	●			4.5	2.5 (0.5)	150...450 (150)	2		L, 4"		●			●									●					$893
		AHX24-SR-200	●			4.5	2.5 (0.5)	150...450 (150)	2		L, 8"		●			●									●					$934
		AHX24-MFT-100	●			6	3.5 (1.3)	150...450 (150)	2		L, 4"		●								●	●	●	●	●					$921
		AHX24-MFT-200	●			6	3.5 (1.3)	150...450 (150)	2		L, 8"		●								●	●	●	●	●					$981
		AHX24-MFT-300	●			6	3.5 (1.3)	150...450 (150)	2		L, 12"		●								●	●	●	●	●					$1,005
AHQB(X) 44 lbf [200 N Force]		AHQB24-1-100	●			23	13 (1.5)	7	2		L, 4"			●															$1,062
		AHQB24-MFT-100	●			23	13 (1.5)	7	2		L, 4"										●		●		●					$1,135
	C*	AHQX24-MFT-100	●			23	13 (1.5)	7...20 (7)	2		L, 4"		●								●		●		●					$1,135

See pages 1-7 through 1-10 for additional generic product series specifications. Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 5-13 to 5-16 for customization options.
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NMB(X) and NMQB(X) Non Fail-Safe Damper Actuator Product Range

5-year warranty

			Power Supply			Power Consumption		Running Time	Housing Type		Drive Type	Custom Options		Control Input							Control Input MFT				Position Feedback				Bulk Pack	List Price
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 100...240 V ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing Y or H = $600 OPTIONAL Heater**	Rotary "M", Linear "L", Integrated Damper "Mx"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V Span 2.5...32 V	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250 V	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	Quantity of Actuators in Bulk Pack	
NMB Series 90 in-lb [10 Nm] Approx. 22 sq. ft.		NMB24-3	●			4	2.0 (0.2)	95	2		M			●	●														$355
		NMCB24-3	●			4	2.0 (0.2)	45	2		M			●	●														$425
		NMB24-SR	●			5	1.5 (0.4)	95	2		M					●									●				$500
		NMB24-SR-T	●			5	1.5 (0.4)	95	1		M					●									●				$458
		NMCB24-SR	●			5	2.5 (0.4)	45	2		M					●									●				$573
		NMB24-IP	●			6	4.5 (3)	150	1		M							2							●	1			$785
		NM24A-MOD	●			6	3.5 (1.4)	150	2		M							1								1			$695
		NMB24-MFT	●			6	3.5 (1.3)	150	2		M	●	●							●	●	●	●	●					$634
NMX Series 90 in-lb [10 Nm] Approx. 22 sq. ft.	Customizable*	NMX24-3	●			4	2.0 (0.2)	95	2		M	●	●	●	●														$355
		NMX24-3-T	●			4	2.0 (0.2)	95	1		M	●	●	●	●														$320
		NMX24-3-T N4	●			4	2.0 (0.2)	95	4X	Y	M	●	●	●	●														$768
		NMX24-SR	●			5	1.5 (0.4)	95	2		M	●	●			●									●				$500
		NMX24-SR-T	●			5	1.5 (0.4)	95	1		M	●	●			●									●				$458
		NMX24-SR-T N4	●			5	1.5 (0.4)	95	4X	Y	M	●	●			●									●				$912
		NMX120-3			●	5.5	3.5 (0.6)	150	2		M	●	●	●	●														$413
		NMX120-SR			●	6.5	3.5 (1.0)	150	2		M	●	●			●									●				$587
		NMX24-MFT	●			6	3.5 (1.3)	45...150 (150)	2		M	●	●							●	●	●	●	●					$634
		NMX24-MFT N4	●			6	3.5 (1.3)	45...150 (150)	4X	Y	M	●	●							●	●	●	●	●					$1,083
		NMX24-MFT-T N4	●			6	3.5 (1.3)	45...150 (150)	4X	Y	M	●	●							●	●	●	●	●					$1,045
		NMX24-MFT95	●			6	3.5 (1.3)	45...150 (150)	2		M	●	●				●							●					$735
		NMCX24-MFT	●			5	3.5 (1.25)	20...75 (45)	2		M	●	●							●	●	●	●	●					$743
NMQB(X) 70 in-lb [8 Nm]		NMQB24-1	●			23	13 (1.5)	4	2		M			●															$749
		NMQB24-MFT	●			23	13 (1.5)	4	2		M									●		●		●					$816
	C*	NMQX24-MFT	●			23	13 (1.5)	4...20 (4)	2		M	●	●							●		●		●					$816

See pages 1-7 through 1-10 for additional generic product series specifications. Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 5-13 to 5-16 for customization options.
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LMB(X) and LMQB(X) Non Fail-Safe Damper Actuator Product Range

5-year warranty

			Power Supply			Power Consumption		Running Time	Housing Type		Drive Type	Custom Options		Control Input							Control Input MFT				Position Feedback				Bulk Pack	List Price
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 100...240 V ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing Y or H = $600 OPTIONAL Heater**	Rotary "M", Linear "L", Integrated Damper "Mx"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V Span 2.5...32 V	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250 V	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	Quantity of Actuators in Bulk Pack	
LMB Series 45 in-lb [5 Nm] Approx. 11 sq. ft.		LMB24-3	●			2.5	1.5 (0.2)	95	2		M			●	●												●		$247
		LMCB24-3	●			3	1.5 (0.2)	35	2		M			●	●												●		$306
		LMB24-3.1	●			2.5	1.5 (0.2)	95	2		M			●	●												●	24	$218
		LMB24-3-S	●			2.5	1.5 (0.2)	95	2		M			●	●											1	●		$369
		LMB24-3-T	●			2.5	1.5 (0.2)	95	1		M			●	●												●		$212
		LMCB24-3-T	●			3	1.5 (0.2)	35	1		M			●	●												●		$279
		LMB24-3-T.1	●			2.5	1.5 (0.2)	95	1		M			●	●												●	36	$163
		LMB24-3-P5-T	●			2.5	1.5 (0.2)	95	1		M			●	●											5k Ω	●		$369
		LMB24-3-P5-T.1	●			2.5	1.5 (0.2)	95	1		M			●	●											5k Ω	●	36	$352
		LMB24-3-P10-T	●			2.5	1.5 (0.2)	95	1		M			●	●											10k Ω	●		$369
		LMB120-3			●	2.5	1.5 (0.2)	95	2		M			●	●												●		$314
		LMB24-SR	●			3	1.5 (0.4)	95	2		M					●									●		●		$395
		LMCB24-SR	●			3	1.5 (0.4)	35	2		M					●									●		●		$467
		LMB24-SR.1	●			3	1.5 (0.4)	95	2		M					●									●		●	24	$377
		LMB24-SR-T	●			3	1.5 (0.4)	95	1		M					●									●		●		$354
		LMCB24-SR-T	●			3	1.5 (0.4)	35	1		M					●									●		●		$435
		LMB24-SR-T.1	●			3	1.5 (0.4)	95	1		M					●									●		●	36	$329
		LMB24-IP	●			4.5	3 (3)	150	1		M							2							●	1	●		$670
		LM24A-MOD	●			5	2.5 (1.3)	150	2		M							1								1	●		$581
		LMB24-MFT	●			5	2.5 (1.2)	150	2		M										●	●	●	●	●		●		$521
		LMB24-HM	●			2	1.5 (0.2)	95	1		M																●		$333
		LMB24-10P-HM	●			2	1.5 (0.2)	95	1		M															10k Ω	●		$361
LMX Series 45 in-lb [5 Nm] Approx. 11 sq. ft.	Customizable*	LMX24-3	●			2.5	1.5 (0.2)	95	2		M	●	●	●	●												●		$247
		LMX24-3-T	●			2.5	1.5 (0.2)	95	1		M	●	●	●	●												●		$220
		LMX24-SR	●			3	1.5 (0.4)	95	2		M	●	●			●									●		●		$395
		LMX24-SR-T	●			3	1.5 (0.4)	95	1		M	●	●			●									●		●		$357
		LMX120-3			●	2.5	1.5 (0.2)	150	2		M	●	●	●	●												●		$314
		LMX120-SR			●	4.5	2.5 (1.0)	150	2		M	●	●			●									●		●		$483
		LMX24-MFT	●			5	2.5 (1.2)	35...200 (150)	2		M	●	●								●	●	●	●	●		●		$521
		LMX24-MFT95	●			5	2.5 (1.2)	35...150 (150)	2		M	●	●				●								●		●		$601
LMQB(X) Series 35 in-lb [4 Nm]		LMQB24-1	●			23	13 (1.5)	2.5	2		M			●													●		$626
		LMQB24-MFT	●			23	13 (1.5)	2.5	2		M										●		●		●		●		$701
	C*	LMQX24-MFT	●			23	13 (1.5)	2.5...10 (2.5)	2		M	●	●								●		●		●		●		$700

See pages 1-7 through 1-10 for additional generic product series specifications. Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 5-13 to 5-16 for customization options.
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LHB(X), LHQB(X), and CMB, CHB Non Fail-Safe Damper Actuator Product Range

5-year warranty

			Power Supply			Power Consumption		Running Time	Housing Type		Drive Type		Custom Options		Control Input						Control Input MFT				Position Feedback				Bulk Pack	List Price
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 100...240 V ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing Y or H = $600 OPTIONAL Heater**	Rotary "M", Linear "L", Integrated Damper "Mx"	Integrated Damper Blade	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V Span 2.5...32 V	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250 V	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	Quantity of Actuators in Bulk Pack	
LHB Series 34 lbf [150 N Force] 4" or 8" stroke		LHB24-3-100	●			3	1.5 (0.5)	150	2		L, 4"				●	●									●					$400
		LHB24-3-T-100	●			3	1.5 (0.5)	150	1		L, 4"				●	●									●					$383
		LHB24-3-200	●			3	1.5 (0.5)	300	2		L, 8"				●	●									●					$440
		LHB24-SR-100	●			3	1.5 (0.5)	150	2		L, 4"						●								●					$578
		LHB24-SR-200	●			3	1.5 (0.5)	300	2		L, 8"						●								●					$620
LHX Series 34 lbf [150 N Force] 4", 8", 12" stroke	Customizable*	LHX24-3-100	●			3	1.5 (0.5)	70...270 (150)	2		L, 4"			●	●	●														$400
		LHX24-3-200	●			3	1.5 (0.5)	140...540 (300)	2		L, 8"			●	●	●														$440
		LHX24-3-300	●			3	1.5 (0.5)	200...810 (450)	2		L, 12"			●	●	●														$462
		LHX120-3-100			●	4	1.5 (0.5)	70...270 (150)	2		L, 4"			●	●	●														$448
		LHX120-3-200			●	4	1.5 (0.5)	140...540 (300)	2		L, 8"			●	●	●														$485
		LHX120-3-300			●	4	1.5 (0.5)	200...810 (450)	2		L, 12"			●	●	●														$523
		LHX24-SR-100	●			3	1.5 (0.5)	70...270 (150)	2		L, 4"			●			●								●					$578
		LHX24-SR-200	●			3	1.5 (0.5)	140...540 (300)	2		L, 8"			●			●								●					$620
		LHX24-MFT-100	●			5	2.5 (1.2)	70...270 (150)	2		L, 4"			●							●	●	●	●	●					$643
		LHX24-MFT-200	●			5	2.5 (1.2)	140...540 (300)	2		L, 8"			●							●	●	●	●	●					$685
		LHX24-MFT-300	●			5	2.5 (1.2)	200...810 (450)	2		L, 12"			●							●	●	●	●	●					$725
LHQB(X) 22 lbf [100 N Force]		LHQB24-1-100	●			18	13 (1.5)	3.5	2		L, 4"				●															$830
		LHQB24-MFT-100	●			23	13 (1.5)	3.5	2		L, 4"										●		●		●					$937
	C*	LHQX24-MFT-100	●			23	13 (1.5)	3.5...15 (3.5)	2		L, 4"			●							●		●		●					$937
CMB, CHB Series 18 in-lb [2 Nm] Approx. 4.5 sq. ft.		CMB24-3	●			1.5	1.0 (0.2)	35	2		M				●	●														$247
		CMB24-3.1	●			1.5	1.0 (0.2)	35	2		M				●	●													20	$237
		CMB120-3			●	3.5	1.5 (1.0)	35	2		M				●	●														$354
		CMB24-3-T	●			1.5	1.0 (0.2)	35	1		M				●	●														$214
		CMB24-3-T.1	●			1.5	1.0 (0.2)	35	1		M				●	●													20	$176
		CMB24-SR-R	●			1.5	1.5 (0.5)	35	2		M						●								●					$396
		CMB24-SR-L	●			1.5	1.5 (0.5)	35	2		M						●								●					$396
		CHB24-3-T-100.1	●			1	0.5 (0.2)	380	1		L, 4"				●	●													20	$361
CMB Series Integrated Damper Blade 18 in-lb [2 Nm]		CMB24-L-100D	●			1	0.5 (0.2)	58	2		M, 4"	4"			●	●														$270
		CMB24-L-125D	●			1	0.5 (0.2)	58	2		M, 5"	5"			●	●														$276
		CMB24-L-150D	●			1	0.5 (0.2)	58	2		M, 6"	6"			●	●														$281

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UMB and UHB Non Fail-Safe Damper Actuator Product Range

5-year warranty

			Power Supply		Power Consumption		Running Time	Housing Type	Drive Type	Drive Directions		Shaft Coupling		Custom Options			Connection Plug		Control Input			Position Feedback		Bulk Pack	List Price
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 100...240 V ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1, 2, or 4X	Rotary "M", Linear "L", Integrated Damper "Mx"	Counter-Clockwise Rotation	Clockwise Rotation	Universal Clamp 1.4"" to 1/2"" [6...12.7 mm]	Form fit (8x8mm)	Select Mouting Clip	Select Electrical Connection	Select Electrical Cover	Molex Mini-Fit Jr. 39303035	Molex Mini-Fit Jr. 39303045	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	None	2...10 VDC	Quantity of Actuators in Bulk Pack * Blank = Single actuator or Optional pack of 20 100 = Pallet of 100 (.1)	
UMB Series Universal Clamp 9 in-lb [1 Nm] Approx. 2.25 sq. ft.		UMB24Y-L	●		2	1 (0.5)	22 / 90°	1	M	●		●		●	●	●	●		●	●		●			$175
		UMB24Y-L.1	●		2	1 (0.5)	22 / 90°	1	M	●		●		●	●	●	●		●	●		●		100	$17,522
		UMB24Y-R	●		2	1 (0.5)	22 / 90°	1	M		●	●		●	●	●	●		●	●		●			$175
		UMB24Y-R.1	●		2	1 (0.5)	22 / 90°	1	M		●	●		●	●	●	●		●	●		●		100	$17,522
		UMB230Y-L		●	4.5	2 (1.5)	22 / 90°	1	M	●		●		●	●	●	●		●	●		●			$236
		UMB230Y-L.1		●	4.5	2 (1.5)	22 / 90°	1	M	●		●		●	●	●	●		●	●		●		100	$23,655
		UMB230Y-R		●	4.5	2 (1.5)	22 / 90°	1	M		●	●		●	●	●	●		●	●		●			$236
		UMB230Y-R.1		●	4.5	2 (1.5)	22 / 90°	1	M		●	●		●	●	●	●		●	●		●		100	$23,655
		UMB24Y-SR-L	●		2.5	1.5 (0.5)	22 / 90°	1	M	●		●		●	●	●		●			●		●		$302
		UMB24Y-SR-L.1	●		2.5	1.5 (0.5)	22 / 90°	1	M	●		●		●	●	●		●			●		●	100	$30,116
		UMB24Y-SR-R	●		2.5	1.5 (0.5)	22 / 90°	1	M		●	●		●	●	●		●			●		●		$302
		UMB24Y-SR-R.1	●		2.5	1.5 (0.5)	22 / 90°	1	M		●	●		●	●	●		●			●		●	100	$30,116
UMB Series Form Fit 9 in-lb [1 Nm] Approx. 2.25 sq. ft.		UMB24Y-F-L	●		2	1 (0.5)	22 / 90°	1	M	●			●	●	●	●	●			●		●			$163
		UMB24Y-F-R	●		2	1 (0.5)	22 / 90°	1	M		●		●	●	●	●	●			●		●			$163
		UMB230Y-F-L		●	4.5	2 (1.5)	22 / 90°	1	M	●			●	●	●	●	●			●		●			$225
		UMB230Y-F-R		●	4.5	2 (1.5)	22 / 90°	1	M		●		●	●	●	●	●			●		●			$225
		UMB24Y-SR-F-L	●		2.5	1.5 (0.5)	22 / 90°	1	M	●			●	●	●	●		●			●		●		$289
		UMB24Y-SR-F-R	●		2.5	1.5 (0.5)	22 / 90°	1	M		●		●	●	●	●		●			●		●		$289
UHB Series 11 lbf [50 N Force] 2.4" [60 mm] stroke		UHB24Y-L	●		2	1.5 (0.5)	73 / 60 mm	1	L	●					●	●	●			●			●			$303
		UHB230Y-L		●	4.5	2 (1.5)	73 / 60 mm	1	L	●					●	●	●			●			●			$364
		UHB24Y-SR-L	●		2.5	1.5 (0.5)	73 / 60 mm	1	L	●					●	●		●			●		●			$428

See page 1-10 for additional generic product series specifications. Visit www.belimo.us for detailed product specifications and downloadable data sheets.
* Ordering note: 20 piece purchase option available via web customization or Belimo direct order entry "UMX".

UMB Series Accessories

	Description	List Price
	**Z-ARCM** Anti-rotation clip. Multipack 20 pcs	$148
	**Z-PICM** Position indicator. Multipack 20 pcs	$12
	**Z-ESCM** End stop clip, for CM.. / CH.. / CQ.. / CQK.. / KR.. / UM.. / UH.. Multipack 20 pcs. Only for actuators with shaft clamp.	$28

	Description	List Price
	**Z-PCUM** Protection cover UM.. Multipack 20 pcs.	$232
	**Z-C24UM** Cable for 24 V actuator (1m FRNC). Multipack 20 pcs.	$491
	**Z-C24UM-SR** Cable for 24V-SR actuator (1m FRNC) Multipack 20 pcs.	$595
	Z-C230UM Cable for 120/230V actuator (1m FRNC) Multipack 20 pcs.	$491

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ACTUATOR SPECIFICATIONS

PMB Series 1400 in-lb [160 Nm]	
Angle of rotation♦ Max Min Mid	95°, with built-in end stops; MFT electronically variable 33...100% MFT electronically variable 0...67% MFT electronically variable based on min/max
Fits shaft diameter	17 mm square interface
Position indication	integral pointer in cover
Manual override	7 mm hex crank, supplied
Direction of rotation♦	reversible with App
Power Consumption AC 24 V AC 120 V AC 230 V	 19 VA 23 VA 49 VA
Wattage running/holding AC 24 V AC 120 V AC 230 V	 19/3.5 W 18/4 W 19/6 W
Electrical connection	terminal block
Overload protection	electronic throughout rotation
Auxiliary switch(es)	2x SPDT 3A resistive (0.5 inductive) @ AC 24...250 V, one set at 10° and one field adjustable 0...95° (85° default)
Housing	NEMA 4X (IP66/67), UL enclosure Type 4
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

GMB / GMX Series 360 in-lb [40 Nm] Approx. 90 sq.ft.	
Angle of rotation♦	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits shaft diameter	½...1.05" (centers on ¾" shaft with insert and on 1" without insert)
Position indication	reflective visual indicator (snap-on)
Manual override	external push-button
Direction of rotation♦	external switch
Electrical connection	3 ft., 18 GA plenum cable, ½" conduit fitting; terminal strip (-T) models
Overload protection	electronic throughout rotation
Auxiliary switch(es)	add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5...85°
Housing X..N4 Type Accessory	NEMA 2/IP54, (NEMA 1/IP20 for -T models) enclosure Type 2 NEMA 4X low temperature heater
Agency listings	cULus according to UL 60730-1A/-2-14, UL2043 compliant, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

AMB / AMX Series 180 in-lb [20 Nm] Approx. 45 sq.ft.	
Angle of rotation♦	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits shaft diameter	½...1.05" (centers on ½" and ¾" shafts with insert and 1.05" without insert)
Position indication	reflective visual indicator (snap-on)
Manual override	external push-button
Direction of rotation♦	external switch
Electrical connection	3 ft., 18 GA plenum rated cable, ½" conduit fitting; terminal strip (-T) models
Overload protection	electronic throughout rotation
Auxiliary switch(es)	(-S) models: 1 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5...85° add-on: 1 or 2 SPDT, 3A (0.5 A inductive) @ 250 V adjustable 5...85°
Housing X..N4 Type Accessory	NEMA 2/IP54 (NEMA 1/IP20 for -T models), enclosure Type 2 NEMA 4X low temperature heater
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043 compliant, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

♦ Variable with MFT.

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AMQB, AMQX, AHB, AHX, AHQB, AHQX Series

Direct Coupled, Non Fail-Safe Damper Actuators

ACTUATOR SPECIFICATIONS

AMQB / AMQX Series 140 in-lb [16 Nm] Approx. 35 sq.ft.	
Power supply	AC/DC 24 V
Angle of rotation♦	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits shaft diameter	½...1.05" (centers on ¾" shafts with insert and 1.05" without insert)
Position indication	reflective visual indicator (snap-on)
Manual override	external push-button
Direction of rotation♦	external switch
Runtime	7 seconds
Electrical connection	3 ft., 18 GA plenum cable, ½" conduit fitting
Overload protection	electronic throughout rotation
Auxiliary switch(es)	add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5...85°
Housing	NEMA 2/IP54, enclosure Type 2
Agency listings	cULus according to UL 60730-1A/-2-14, UL2043 compliant, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

AHB / AHX Series 100 lbf [450 N Force] 4", 8", or 12" stroke	
Power supply	AC/DC 24 V AC 100...240 V
Manual override	external push-button
Direction of stroke♦	external switch
Runtime	150 seconds / 100 mm
Electrical connection	3 ft., 18 GA plenum cable, ½" conduit fitting
Overload protection	electronic throughout full stroke
Auxiliary switch(es)	not available
Housing	NEMA 2/IP54, enclosure Type 2
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043 compliant, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

AHQB / AHQX Series 44 lbf [200 N Force] 4" stroke	
Power supply	AC/DC 24 V
Manual override	external push-button
Direction of rotation♦	external switch
Runtime	7 seconds
Electrical connection	3 ft., 18 GA plenum cable, ½" conduit fitting
Overload protection	electronic throughout rotation
Auxiliary switch(es)	not available
Housing	NEMA 2/IP54, enclosure Type 2
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043 compliant, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

♦ Variable with MFT.

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ACTUATOR SPECIFICATIONS

NMB / NMX Series 90 in-lb [10 Nm] Approx. 22 sq.ft.	
Angle of rotation♦	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits shaft diameter	½...1.05" (centers on ½" and ¾" shafts with insert and 1.05" without inserts)
Position indication	reflective visual indicator (snap-on)
Manual override	external push-button
Direction of rotation♦	external switch
Electrical connection	3 ft., 18 GA plenum rated cable, ½" conduit fitting; terminal strip (-T) models
Overload protection	electronic throughout rotation
Auxiliary switch(es)	add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5...85°
Housing X..N4 Type Accessory	NEMA 2/IP54 (NEMA 1/IP20 for -T models), enclosure Type 2 NEMA 4X low temperature heater
Agency listings	cULus according to UL 60730-1A/-2-14, UL2043 compliant, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

NMQB / NMQX Series 70 in-lb [8 Nm] Approx. 17 sq.ft.	
Power supply	AC/DC 24 V
Angle of rotation♦	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits shaft diameter	½...1.05" (centers on ½" and ¾" shafts with insert and 1.05" without insert)
Position indication	reflective visual indicator (snap-on)
Manual override	external push-button
Direction of rotation♦	external switch
Runtime	4 seconds
Electrical connection	3 ft., 18 GA plenum cable, ½" conduit fitting
Overload protection	electronic throughout rotation
Auxiliary switch(es)	add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5...85°
Housing	NEMA 2/IP54, enclosure Type 2
Agency listings	cULus according to UL 60730-1A/-2-14, UL2043 compliant, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

LMB / LMX Series 45 in-lb [5 Nm] Approx. 11 sq.ft.	
Angle of rotation♦	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits shaft diameter	¼ ...⅝" (self-centers on ⅝" shaft)
Position indication	reflective visual indicator (snap-on)
Manual override	external push-button
Direction of rotation♦	external switch
Electrical connection	3 ft., 18 GA plenum rated cable, ½" conduit fitting; terminal strip (-T) models
Overload protection	electronic throughout rotation
Auxiliary switch(es)	(-S) Models: 1 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5...85° add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5...85°
Housing	NEMA 2/IP54 (NEMA 1/IP20 for -T models), enclosure Type 2
Agency listings	cULus according to UL 60730-1A/-2-14, UL2043 compliant, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

♦ Variable with MFT.

LMQB / LMQX Series 35 in-lb [4 Nm] Approx. 9 sq.ft.	
Power supply	AC/DC 24 V
Angle of rotation♦	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits shaft diameter	½...1.05" (centers on ½" and ¾" shafts with insert and 1.05" without insert)
Position indication	reflective visual indicator (snap-on)
Manual override	external push-button
Direction of rotation♦	external switch
Runtime	2.5 seconds
Electrical connection	3 ft., 18 GA plenum cable, ½" conduit fitting
Overload protection	electronic throughout rotation
Auxiliary switch(es)	add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5...85°
Housing	NEMA 2/IP54, enclosure Type 2
Agency listings	cULus according to UL 60730-1A/-2-14, UL2043 compliant, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

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LHB, LHX, LHQB, LHQX, CMB, UMB, UHB Series

Direct Coupled, Non Fail-Safe Damper Actuators

ACTUATOR SPECIFICATIONS

LHB / LHX Series

34 lbf
[150 N Force]
4", 8", or 12"
stroke



Power supply	AC/DC 24 V AC 100...240 V
Manual override	external push-button
Direction of stroke♦	external switch
Runtime	150 seconds
Electrical connection	3 ft., 18 GA plenum cable, ½" conduit fitting; terminal strip (-T) models
Overload protection	electronic throughout full stroke
Auxiliary switch(es)	not available
Housing	NEMA 2/IP54 (NEMA 1/IP20 for -T models), enclosure Type 2
Agency listings	cULus according to UL 60730-1A/-2-14, UL2043 compliant, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

LHQB / LHQX Series

22 lbf
[100 N Force]
4" stroke



Power supply	AC/DC 24 V
Manual override	external push-button
Direction of stroke♦	external switch
Runtime	3.5 seconds
Electrical connection	3 ft., 18 GA plenum cable, ½" conduit fitting
Overload protection	electronic throughout rotation
Auxiliary switch(es)	not available
Housing	NEMA 2/IP54, enclosure Type 2
Agency listings	cULus according to UL 60730-1A/-2-14, UL2043 compliant, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

CMB Series

18 in-lb [2 Nm]
Approx. 4.5 sq.ft.

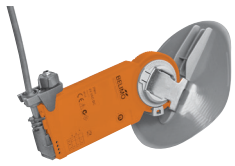


Angle of rotation	limitless without end stops, 315° with one end stop, 287.5° with two stops L = counter clockwise rotation, R = clockwise rotation
Fits shaft diameter	¼...½" (self-centers on 3/8" shaft)
Position indication	reflective visual indicator (snap-on) with magnet
Manual override	engages with magnet magnet built-in to position indicator
Electrical connection	3 ft., 18 GA plenum rated cable terminal strip (-T) models
Overload protection	electronic throughout rotation
Auxiliary switch	N/A
Housing	NEMA 2/IP54 (NEMA 1/IP20 for -T models), enclosure Type 2
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043 compliant, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

♦ Variable with MFT.

CMB Series Integrated Damper Blade

18 in-lb
[2 Nm]



Angle of rotation	70° (electronically limited)
Manual override	engages with magnet
Integrated damper blade	easily bends for insertion into rigid duct integrated mounting and cable exit provides a tight seal for damper close-off
Damper blade sizes	4", 5", 6"
Housing	NEMA 2/IP 54
Agency listings	cULus according to UL 60730-1A, UL2043 compliant

UMB Series

9 in-lb
[1 Nm]
Approx. 2.25 sq.ft.



Torque	9 in-lb [1 Nm]
Control	
AC/DC 24 V	open/close, 3-point, modulating (2...10 V)
AC 120...230 V	open/close, 3-point
Electrical connection	Molex Mini-Fit Jr. connector plug
Running time	22 seconds / 90°
Degree of protection	NEMA 1 [IP20]
Sound power level	35 dB(A)
Axis connection	
Universal clamp	¼...½" [6...12.7 mm] (self-centers on 3/8" shaft)
Form fit	8x8 mm (optional 6x6 mm, 10x10 mm)
Agency listings	cRUus according to UL 60730-1 & UL 60730-2-14, CAN/CSA-E60730-1, and CAN/CSA-E60730-2-14, UL2043 compliant
Dimensions	
Shaft clamp	4.2"x2.2"x1.1" [107x56x28 mm]
Form fit	4.2"x2.2"x0.98" [107x56x25 mm]
Weight	
Shaft clamp	0.26 lb [120 g]
Form fit	0.20 lb [90 g]

UHB Series

11 lbf
[50 N Force]
2.4" stroke



Torque	11 lbf [50 N]
Control	
AC/DC 24 V	open/close, 3-point, modulating (2...10 V)
AC 120...230 V	open/close, 3-point
Electrical connection	Molex Mini-Fit Jr. connector plug
Running time	73 seconds / 60 mm
Degree of protection	NEMA 1 [IP20]
Sound power level	35 dB(A)
Rotation / stroke	60 mm, adjustable in 1 mm steps
Agency listings	cRUus according to UL 60730-1 & UL 60730-2-14, CAN/CSA-E60730-1, and CAN/CSA-E60730-2-14, UL2043 compliant
Dimensions	
Linear	7.8"x2.4"x1.6" [199x60x40 mm]
Weight	
w/linear	0.33 lb [150 g]

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AIRFLOW MEASUREMENT & CONTROL DAMPER ACTUATORS

Actuators Designed for Zone Comfort

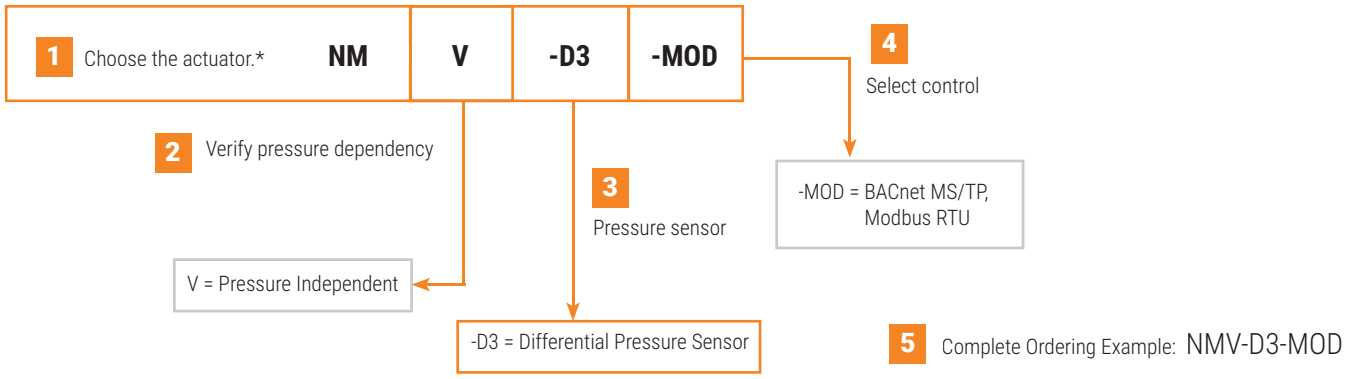
- Integrated pressure sensor enables pressure independent airflow control for rotary, linear, and in-duct applications.
- Available control types are compatible with industry standards such as analog, BACnet MS/TP, and Modbus RTU.
- Products available for CAV/VAV, duct pressure, and room pressure applications.

Howard Smith, Product Manager

Airflow Measurement & Control (AFMC) Damper Actuator Nomenclature

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

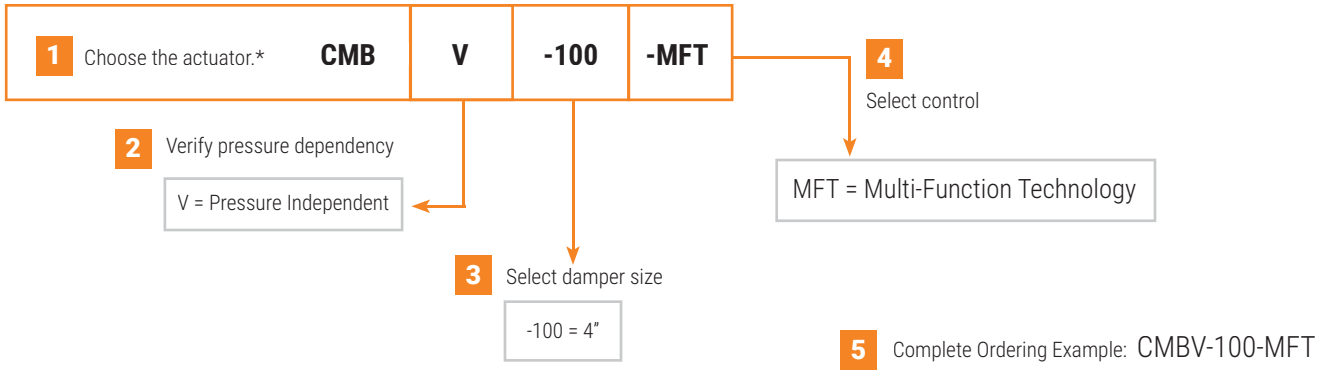
Ordering Example



*All functions and packaging are not available with all versions.

CMB	V	-100	-MFT
Torque Rating **Non Fail-Safe In-Duct** CMB = 18 in-lb	**Pressure Dependency** V = Pressure Independent	**Damper Size** -100 = 4" dia. -125 = 5" dia. -150 = 6"dia.	**Control** -MFT = Multi-Function Technology

Ordering Example



*All functions and packaging are not available with all versions.

NMV, LMV, LHV, CMBV AFMC Damper Actuator Product Range

5-year warranty

		Power Supply	Power Consumption		Running Time	Application			Operation and Servicing				Housing Type	Cabling	Drive Type		Control Input			Feedback		Sensor Integration (Select 1 of 3)			List Price
		AC 24 V ± 20%, 50/60 Hz VDC ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Seconds)	CAV (0...3000 fpm)	VAV (0...3000 fpm)	Open Loop (0...3000 fpm)	NFC Interface for Android	NFC for iPhone via Zip-BT-NFC*	PC-Tool	ZTH	NEMA 1 or 2	Conduit Connector Available**	Rotary "M", Linear "L"	Integrated Damper Blade	2...10 V or 4...20 mA (w/500 Ω Resistor)	BACnet: MS/TP or Modbus RTU	MP Bus	2...10 V (Default) Adjustable with MFT	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	Passive (Pt1000, 10K-2, etc.)	Active (0...10 V) e.g. Temperature, Humidity, etc.	Contact Closure (Switching Capacity 16 mA @ 24 V), e.g. Switches, Occupancy Switches	
NMV Series 90 in-lb [10 Nm]	NMV-D3-MP	●	5	3 (1.5)	150	●	●	●	●	●	●	●	2	●	M		●		●	●	●	●	●	●	$701
	NMV-D3-MOD	●	5	3 (1.5)	150	●	●	●			●	●	2	●	M		●	●	●	●	●		●	●	$760
	NMV-D3-MFT	●	5	3 (1.5)	150	●	●	●			●	●	2	●	M		●		●	●	●		●	●	$701
LMV Series 45 in-lb [5 Nm]	LMV-D3-MP	●	3.5	2 (1)	150	●	●	●	●	●	●	●	2	●	M		●		●	●	●	●	●	●	$601
	LMV-D3-MOD	●	4	2 (1)	150	●	●	●			●	●	2	●	M		●	●	●	●	●		●	●	$659
	LMV-D3-MFT	●	3.5	2 (1)	150	●	●	●			●	●	2	●	M		●		●	●	●		●	●	$601
LHV Series 34 lbf [150 N]	LHV-D3-MP-100	●	4.5	2.5 (1.5)	150	●	●	●	●	●	●	●	2	●	L (4")		●		●	●	●	●	●	●	$761
	LHV-D3-MP-200	●	4.5	2.5 (1.5)	150	●	●	●	●	●	●	●	2	●	L (8")		●		●	●	●	●	●	●	$800
	LHV-D3-MP-300	●	4.5	2.5 (1.5)	150	●	●	●	●	●	●	●	2	●	L (12")		●		●	●	●	●	●	●	$835
CMBV Series 18 in-lb [2 Nm]	CMBV-100-MFT	●	2.5	1.5 (1)	70	●	●	●			●	●	1		M	4"	●		●	●					$657
	CMBV-125-MFT	●	2.5	1.5 (1)	70	●	●	●			●	●	1		M	5"	●		●	●					$662
	CMBV-150-MFT	●	2.5	1.5 (1)	70	●	●	●			●	●	1		M	6"	●		●	●					$667

See page 1-14 for additional generic product series specifications. Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*Zip-BT-NFC is not included in the purchase of this actuator. Please refer to page 5-1 for more information.
**Conduit connector (TF-CC US) not included in the purchase of this actuator. Please refer to page 5-11 for more information.

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NMV, LMV, LHV, CMBV Series

Direct Coupled, Airflow Measurement & Control Damper Actuators

ACTUATOR SPECIFICATIONS

NMV Series

90 in-lb
[10 Nm]



Angle of rotation	95° adjustable/variable with -MP & -MOD types
Fits shaft diameter	5/16...1.05"
Position indication	reflective visual indicator (snap-on)
Operation and service devices	NFC for Android, NFC for iPhone via Zip-BT-NFC, PC Tool, ZTH
VAV- Variable volumetric flow	V'min ... V'max 2...10 V/ 0...10 V / adjustable division / bus operation
CAV - Constant volumetric flow	CLOSED / V'min / (V'mid) / V'max / OPEN controlled by switch
Manual override	external push-button
Direction of rotation	adjustable via operation and service devices
Runtime	150 seconds
Overload protection	electronic throughout rotation
Housing	NEMA 2/IP 54
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043

LMV Series

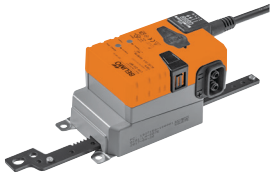
45 in-lb
[5 Nm]



Angle of rotation	95° adjustable/variable with -MP & -MOD types
Fits shaft diameter	¼...¾"
Position indication	reflective visual indicator (snap-on)
Operation and service devices	NFC for Android, NFC for iPhone via Zip-BT-NFC, PC Tool, ZTH
VAV- Variable volumetric flow	V'min ... V'max 2...10 V/ 0...10 V / adjustable division / bus operation
CAV - Constant volumetric flow	CLOSED / V'min / (V'mid) / V'max / OPEN controlled by switch
Manual override	external push-button
Direction of rotation	adjustable via operation and service devices
Runtime	150 seconds
Overload protection	electronic throughout rotation
Housing	NEMA 2/IP 54
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043

LHV Series

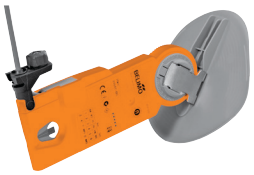
34 lbf
[150 N]



Stroke	4", 8", or 12" (adjustable mechanical or electronically limited)
Position indication	reflective visual indicator (snap-on)
Operation and service devices	NFC for Android, NFC for iPhone via Zip-BT-NFC, PC Tool, ZTH
VAV- Variable volumetric flow	V'min ... V'max 2...10 V/ 0...10 V / adjustable division / bus operation
CAV - Constant volumetric flow	CLOSED / V'min / (V'mid) / V'max / OPEN controlled by switch
Manual override	external push-button
Overload protection	electronic throughout rotation
Housing	NEMA 2/IP 54
Agency Listings	cULus according to UL 60730-1A/-2-14, UL 2043

CMBV Series

18 in-lb
[2 Nm]



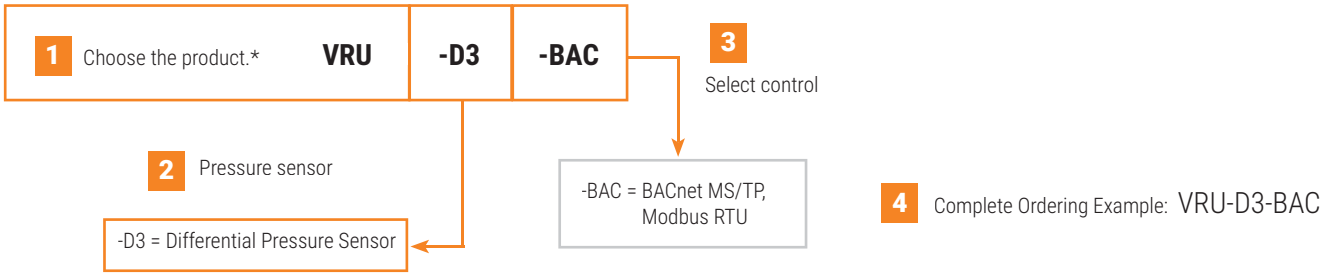
Angle of rotation	70° (electronically limited)
Manual override	engages with magnet
Operation and service devices	PC Tool, ZTH
VAV- Variable volumetric flow	V'min ... V'max 2...10 V/ 0...10 V / adjustable division / bus operation
CAV - Constant volumetric flow	CLOSED / V'min / (V'mid) / V'max / OPEN controlled by switch
Damper blade sizes	4", 5", 6" diameter
Housing	NEMA 1/IP 00
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043

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VAV Universal Sensor/Communication Module Nomenclature

VRU	-D3	-BAC
VAV Universal VRU = VAV Universal	**Pressure Sensor** -D3 = Differential Pressure Sensor -M1 = Membrane Differential Pressure -M1R = Membrane (Room) Differential Pressure	**Communications Protocol** -BAC = BACnet MS/TP, Modbus RTU

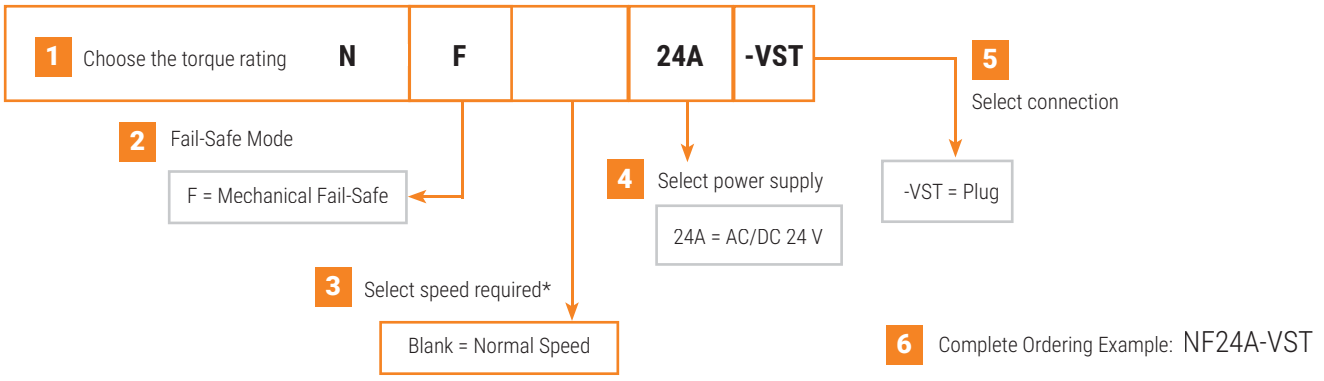
Ordering Example



VAV Universal Actuator Nomenclature

N	F		24A	-VST
Torque Rating S = 180 in-lb N = 90 in-lb L = 45 in-lb	**Fail-Safe** M = Non Fail-Safe F = Mechanical Fail-Safe K = Electronic Fail-Safe	**Speed** Blank = Normal Speed Q = Quick Running*	**Power Supply** 24 or 24A = AC/DC 24 V	**Connection** VST = Plug

Ordering Example



*Q versions have a slightly lower torque rating.

VAV Universal Sensor / Communication Module Product Range

5-year warranty

		Power Supply	Power Consumption		Application								Operation and Servicing				Housing Type	Cabling	Control Input			Feedback		Sensor Integration (Select 1 of 3)			List Price
		AC 24 V ± 20%, 50/60 Hz VDC ±10%	VA Rating*	Wattage Running (Holding)	CAV (0...3000 fpm)	VAV (0...3000 fpm)	Volumetric Flow Measurement	Open Loop (0...3000 fpm)	Duct Pressure Control	Room Pressure Control	Room Pressure Control with Bypass	Volumetric Flow and Room Pressure Cascade Control	NFC Interface for Android	NFC for iPhone via Zip-BT-NFC***	PC-Tool	ZTH	NEMA 1	Conduit Connector Available	2...10 V or 4...20 mA (w/500 Ω Resistor)	BACnet: MS/TP or Modbus RTU	MP Bus	2...10 V (Default) Adjustable with MFT	BACnet: MS/TP or Modbus RTU	Passive (Pt1000, 10K-2, etc.)	Active (0...10 V) e.g. Temperature, Humidity, etc.	Contact Closure (Switching Capacity 16 mA @ 24 V), e.g. Switches, Occupancy Switches	
VRU Series 90 in-lb [10 Nm]	VRU-D3-BAC	●	2	1.5	●	●	●	●	●			●**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	$683
	VRU-M1-BAC	●	2	1.5	●	●	●	●	●			●**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	$800
	VRU-M1R-BAC	●	2	1.5						●	●	●**	●	●	●	●	●	●	●	●	●	●	●	●	●	●	$800

VAV Universal Actuator Product Range

5-year warranty

		Torque Rating	Power Supply	Power Consumption		Running Time		Application								Operation and Servicing	Housing Type	Cabling	Drive Type	Control Input			Position Feedback	List Price
		in-lbs (Nm)	AC 24 V ± 20%, 50/60 Hz VDC ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Seconds)	Fail-Safe (Seconds)	CAV (0...3000 fpm)	VAV (0...3000 fpm)	Volumetric Flow Measurement	Open Loop (0-3000 fpm)	Duct Pressure Control	Room Pressure Control	Room Pressure Control with Bypass	Volumetric Flow and Room Pressure Cascade Control	Operation and Servicing via Sensors/ Communication Module	NEMA 2	20" [0.5 m] Cable with VST Connector	Rotary "M", Linear "L"	2...10 V or 4...20 mA (w/500 Ω Resistor) (via Sensor/Communications Module)	BACnet: MS/TP or Modbus RTU (via Sensor/Communications Module)	MP Bus (via Sensor/Communications Module)	Feedback Through Sensor/Communication Module	
Non Fail-Safe	LM24A-VST	45 (5)	●	2	1 (.4)	120		●	●		●	●	●	●	●	●	●	●	M	●	●	●	●	$282
	NM24A-VST	90 (10)	●	4	2 (.4)	120		●	●		●	●	●	●	●	●	●	●	M	●	●	●	●	$386
Mechanical Fail-Safe	LF24-VST	35 (4)	●	5	2.5 (1)	120	20	●	●		●	●	●		●	●	●	●	M	●	●	●	●	$439
	NF24A-VST	90 (10)	●	8	5 (2.5)	120	20	●	●		●	●	●		●	●	●	●	M	●	●	●	●	$543
	SF24A-VST	180 (20)	●	11	8.5 (3.5)	120	20	●	●		●	●	●		●	●	●	●	M	●	●	●	●	$642
Very Fast Running Actuators	LMQ24A-VST	35 (4)	●	23	13 (2)	2.4		●	●		●		●	●	●	●	●	●	M	●	●	●	●	$466
	NMQ24A-VST	70 (8)	●	23	13 (2)	4		●	●		●		●	●	●	●	●	●	M	●	●	●	●	$571
Very Fast Running Actuators, Electronic Fail-Safe	NKQ24A-VST	54 (6)	●	22	11 (3)	4	4	●	●		●		●	●	●	●	●	●	M	●	●	●	●	$729

* Note, if used in conjunction with -VST actuator, VA rating of actuator should be added to this value for wire sizing.
** VRU-D3-BAC and VRU-M1-BAC should only be used in flow control portion. VRU-M1R-BAC should only be used for pressure control portion.
***Zip-BT-NFC is not included in the purchase of this actuator. Please refer to page 5-1 for more information.

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SPECIFICATIONS

VAV Universal Sensor/ Communications Module	
Operation and service devices	NFC for Android, NFC for iPhone via Zip-BT-NFC, PC Tool, ZTH
Control inputs	0/2…10V, BACnet MS/TP, Modbus RTU, MP Bus
Feedback types	position, flow, differential pressure
Pressure range	D3: 0… 2" WC (0…500 Pa) M1: 0… 2.4" WC (0…600 Pa) M1R: -0.3… 0.3" WC (-75… 75 Pa)
Applications	D3: CAV/VAV, position control, flow measurement, duct pressure control M1: CAV/VAV, position control, flow measurement, duct pressure control M1R: room pressure control
Field of application	D3: comfort M1: comfort, polluted air M1R: comfort, polluted air
Housing	NEMA 1 / IP 42
Agency listings	IEC/EN 60730-1 and IEC/EN 60730-2-14 UL 2043

VAV Universal Actuator Series	
Angle of rotation	95° (adjustable mechanical or electronically limited)
Fits shaft diameter	LM/LMQ/LF: ¼... ¾" LF: 3/8… ½" NM/NF/NMQ/NKQ: ½"… 1.05" SF: ½... 1"
Position indication	reflective visual indicator (snap-on)
Operation and service devices	operation and servicing via VRU-…-BAC
Electrical connection	20" [0.5 m] cable with -VST connector
Manual override	external push-button
Direction of rotation	adjustable via VRU-…-BAC
Runtime	non fail-safe, fail-safe: 120 s fail-safe spring: 20 s very fast running: 2.4 … 7 s
Overload protection	electronic throughout rotation
Housing	NEMA 2 / IP 54
Agency listings	IEC/EN 60730-1 and IEC/EN 60730-2-14 UL 2043

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VAV Compact



Efficient Airflow Control

Belimo's proven VAV Compact damper actuator with integrated differential pressure sensor provides accurate ventilation with low energy consumption regardless of pressure fluctuations in the system. BACnet MS/TP or Modbus RTU communication enables easy integration with your building management system. Parameterizing, commissioning, or monitoring the actuators has never been easier due to a diverse suite of tools, including the Belimo Assistant App, ZTH handheld, and PC Tool.

Discover the advantages
www.belimo.us

5-year warranty

BELIMO



2 FAIL-SAFE DAMPER ACTUATORS

Reliability and Safety Performance

- Rotary, linear, and quick running offerings for challenging applications.
- Patented motor technology with Application Specific Integrated Circuit reduces energy consumption and ensures longevity.
- MFT is available, providing the flexibility to customize and adapt a single actuator to various controllers and applications.

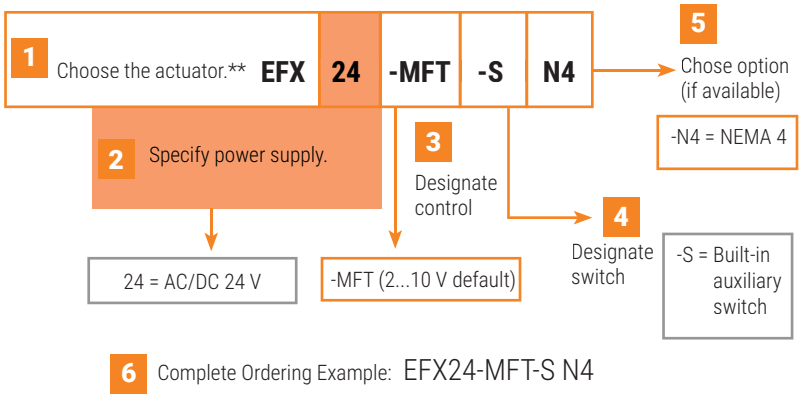
Elaine Fotinopoulos, Logistics Systems Analyst I

Mechanical Fail-Safe Damper Actuator Nomenclature

EF		X	24	-MFT	-S	N4
Torque Rating EF = 270 in-lb AF = 180 in-lb NF = 90 in-lb LF = 35 in-lb TF = 22 in-lb	**Speed** C = Fast Running L = Low Noise Blank = Normal Speed	**Options** B = Basic X = Customized Blank = None	**Power Supply** 24 = AC/DC 24 V 120 = AC 120 V* 230 = AC 230 V UP = AC 24...240 V, DC 24...125 V	**Control** Blank = On/Off -3 = Floating Point -SR = 2...10 V -PC = 0.5...20 V (Phasecut) -ECON-RO3 = 3k Ω NTC Type 10 Thermistor -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	-S = Built-in Auxiliary Switch	US (LF..) **EF.. Series** N4 = NEMA 4/4X **X..N4 Types** H = Heater Option

*EF and TF series have AC 100...240 V nominal power supply.
**All functions and options are not available with all versions

Ordering Example



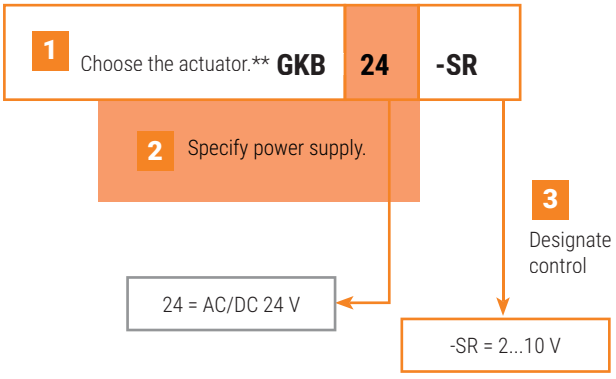
6 Complete Ordering Example: EFX24-MFT-S N4

Electronic Fail-Safe Damper Actuator Nomenclature

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

**All functions and options are not available with all versions

Ordering Example



4 Complete Ordering Example: GKB24-SR

PKB, GKB(X), EFB Fail-Safe Damper Actuator Product Range

5-year warranty

			Power Supply				Power Consumption		Running Time		Housing Type		Drive Type	Custom Options		Control Input								Control Input MFT				Position Feedback				List Price
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 120 V ±10%	AC 230 V ±10%	VA Rating (Actuator/Heater)	Wattage Running/Heater (Holding)	Motor Drive (Default)	Fail-Safe	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing H = $600 OPTIONAL Heater**	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	3k Ω (1), 10k Ω (2) NTC Thermistor	6...9 V, 20 V Output Voltage	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V (2.0) Span 2.5...32 V (8.0)	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250 V, (1 or 2)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	
PKB Series 1400 in-lb [160 Nm]		PKBUP-MFT-T		●			68	52 (9)	35	30	4X	●	M									1		●	●	●		●				$7,261
GKB Series 360 in-lb [40 Nm] Approx. 90 sq. ft.		GKB24-3	●				21	11 (3)	150	35	2		M			●	●														●	$1,645
		GKB24-SR	●				21	11 (3)	150	35	2		M					●										●			●	$2,050
		GKB24-IP	●				21	11 (3)	150	35	1		M									2						●	1		●	$2,269
		GKB24-MFT	●				21	11 (3)	150	35	2		M											●	●	●		●			●	$2,261
GKX Series 360 in-lb [40 Nm] Approx. 90 sq. ft.	Customizable*	GKX24-3	●				21	11 (3)	150	35	2		M	●	●	●	●														●	$1,642
		GKX24-3-T N4	●				21/21	11/21 (3)	150	35	4X	H	M	●	●	●	●														●	$2,436
		GKX24-SR	●				21	11 (3)	150	35	2		M	●	●			●										●			●	$2,049
		GKX24-SR-T N4	●				21/21	11/21 (3)	150	35		H	M	●	●			●										●			●	$2,841
		GKX24-MFT	●				21	11 (3)	150	35	2		M	●	●									●	●	●		●			●	$2,261
		GKX24-MFT-T N4	●				21/21	11/21 (3)	150	35	4X	H	M	●	●									●	●	●		●			●	$3,054
EFB Series 270 in-lb [30 Nm] Approx. 68 sq. ft.		EFB24	●				16	9.5 (4.5)	75	<20	2		M			●																$1,317
		EFB24 N4	●				16	9.5 (4.5)	75	<20	4		M			●																$1,529
		EFB24-S	●				16	9.5 (4.5)	75	<20	2		M			●														2		$1,578
		EFB120			●	●	21	9.5 (4.5)	75	<20	2		M			●																$1,465
		EFB120-S			●	●	21	9.5 (4.5)	75	<20	2		M			●														2		$1,733
		EFB120-S N4			●	●	21	9.5 (4.5)	75	<20	4		M			●														2		$1,969
		EFCB120-S			●	●	21	9.5 (4.5)	75	<10	2		M			●														2		$1,820
		EFB24-SR	●				14	8.0 (4.5)	95	<20	2		M					●										●				$1,641
		EFB24-SR N4	●				14	8.0 (4.5)	95	<20	4		M					●										●				$1,879
		EFB24-SR-S	●				14	8.0 (4.5)	95	<20	2		M					●										●		2		$1,901
		EFB24-MFT	●				16	9.5 (4.5)	60-150 (150)	<20	2		M											●	●	●	●	●				$1,810
		EFB24-MFT-S	●				16	9.5 (4.5)	60-150 (150)	<20	2		M											●	●	●	●	●		2		$2,070

See pages 2-7 and 2-8 for additional generic product series specifications. Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 5-13 to 5-16 for customization options.
** List price does NOT include price for optional heater.

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EFX and AFB Fail-Safe Damper Actuator Product Range

5-year warranty

			Power Supply				Power Consumption		Running Time		Housing Type		Drive Type	Custom Options		Control Input								Control Input MFT					Position Feedback				List Price
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 120 V ±10%	AC 230 V ±10%	VA Rating (Actuator/Heater)	Wattage Running/Heater (Holding)	Motor Drive (Default)	Fail-Safe	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing H = $600 OPTIONAL Heater**	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	3k Ω (1), 10k Ω (2) NTC Thermistor	6...9 V,20 V Output Voltage	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V (2.0) Span 2.5...32 V (8.0)	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250 V, (1 or 2)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	
EFX Series 270 in-lb [30 Nm] Approx. 68 sq. ft.	Customizable*	EFX24	●				16	9.5 (4.5)	75	<20	2		M	●	●	●																	$1,317
		EFX24-S	●				16	9.5 (4.5)	75	<20	2		M	●	●	●																2		$1,578
		EFX24-S N4	●				16	9.5 (4.5)	75	<20	4		M	●	●	●																2		$1,817
		EFX24-S N4H	●				16 (21)	9.5/21 (4.5)	75	<20	4	●	M	●	●	●																2		$2,000
		EFCX24-S N4	●				16	9.5 (4.5)	75	<10	4		M	●	●	●																2		$1,937
		EFX120			●	●	21	9.5 (4.5)	75	<20	2		M	●	●	●																		$1,473
		EFX120-S			●	●	21	9.5 (4.5)	75	<20	2		M	●	●	●																2		$1,733
		EFX120-S N4			●	●	21	9.5 (4.5)	75	<20	4		M	●	●	●																2		$1,971
		EFX120-S N4H			●	●	21/22	9.5/22 (4.5)	75	<20	4	●	M	●	●	●																2		$2,156
		EFCX120-S N4			●	●	21	9.5 (4.5)	75	<10	4		M	●	●	●																2		$2,093
		EFX24-SR	●				14	8.0 (4.5)	95	<20	2		M	●	●			●												●				$1,641
		EFX24-SR-S	●				14	8.0 (4.5)	95	<20	2		M	●	●			●												●		2		$1,901
		EFX24-SR-S N4	●				14	8.0 (4.5)	95	<20	4		M	●	●			●												●		2		$2,142
		EFX24-SR-S N4H	●				14/21	8.0/21 (4.5)	95	<20	4	●	M	●	●			●												●		2		$2,328
		EFX120-SR N4			●	●	21	9.5 (4.5)	95	<20	4		M	●	●			●												●				$2,039
		EFX120-SR-S N4			●	●	21	9.5 (4.5)	95	<20	4		M	●	●			●												●		2		$2,297
		EFX24-MFT	●				16	9.5 (4.5)	60...150 (150)	<20	2		M	●	●											●	●	●	●	●					$1,810
		EFX24-MFT-S	●				16	9.5 (4.5)	60...150 (150)	<20	2		M	●	●											●	●	●	●	●			2		$2,070
		EFX24-MFT-S N4	●				16	9.5 (4.5)	60...150 (150)	<20	4		M	●	●											●	●	●	●	●			2		$2,309
		EFX24-MFT-S N4H	●				16/21	9.5/21 (4.5)	60...150 (150)	<20	4	●	M	●	●											●	●	●	●	●			2		$2,493
AFB Series 180 in-lb [20 Nm] Approx. 45 sq. ft.		AFB24	●				7.5	5 (2.5)	75	<20	2		M			●																		$735
		AFB24-S	●				7.5	5 (2.5)	75	<20	2		M			●																2		$875
		AFBUP		●			18	7 (3.5)	75	<20	2		M			●																		$819
		AFBUP-S		●			18	7 (3.5)	75	<20	2		M			●																2		$959
		AFB24-SR	●				8.5	5.5 (3)	95	<20	2		M					●												●				$914
		AFB24-SR-S	●				8.5	5.5 (3)	95	<20	2		M					●												●		2		$1,055
		AFB24-PC	●				10	7.5 (3)	150	<20	2		M											●						●				$1,145
		AFB24-IP	●				11	8.5 (5)	150	<20	1		M									2								●	1			$1,160
		AKB24-IP	●				21	13 (9)	150	35	1		M									2								●	1			$1,160
		SF24A-MOD	●				11	8.5 (3.5)	150	<20			M									1									1			$1,061
		AFB24-MFT	●				10	7.5 (3)	70...220 (150)	<20	2		M													●	●	●	●	●					$1,007
		AFB24-MFT-S	●				10	7.5 (3)	70...220 (150)	<20	2		M													●	●	●	●	●			2		$1,146
		AFB24-MFT95	●				10	7.5 (3)	70...220 (150)	<20	2		M						●											●					$1,044

See pages 2-7 and 2-8 for additional generic product series specifications. Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 5-13 to 5-16 for customization options.
** List price does NOT include price for optional heater.

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All prices are in US Dollars (USD)

AFX, AHKX, and NFB Fail-Safe Damper Actuator Product Range

5-year warranty

			Power Supply				Power Consumption		Running Time		Housing Type		Drive Type	Custom Options		Control Input								Control Input MFT					Position Feedback				List Price
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 120 V ±10%	AC 230 V ±10%	VA Rating (Actuator/Heater)	Wattage Running/Heater (Holding)	Motor Drive (Default)	Fail-Safe	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing H = $600 OPTIONAL Heater**	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	3k Ω (1), 10k Ω (2) NTC Thermistor	6...9 V, 20 V Output Voltage	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V (2.0) Span 2.5...32 V (8.0)	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250 V, (1 or 2)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	
AFX Series 180 in-lb [20 Nm] Approx. 45 sq.ft.	Customizable*	AFX24	●				7.5	5 (2.5)	75	<20	2		M	●	●	●																	$735
		AFX24 N4	●				7.5	5 (2.5)	75	<20	4X	H	M	●	●	●																	$1,685
		AFX24-S	●				7.5	5 (2.5)	75	<20	2		M	●	●	●															2		$875
		AFX24-S N4	●				7.5	5 (2.5)	75	<20	4X	H	M	●	●	●															2		$1,827
		AFXUP		●			18	7 (3.5)	75	<20	2		M	●	●	●																	$819
		AFXUP N4		●			18	7 (3.5)	75	<20	4X	H	M	●	●	●																	$1,774
		AFXUP-S		●			18	7 (3.5)	75	<20	2		M	●	●	●															2		$959
		AFXUP-S N4		●			18	7 (3.5)	75	<20	4X	H	M	●	●	●															2		$1,916
		AFX24-SR	●				8.5	5.5 (3)	95	<20	2		M	●	●			●											●				$914
		AFX24-SR N4	●				8.5	5.5 (3)	95	<20	4X	H	M	●	●			●											●				$1,867
		AFX24-SR-S	●				8.5	5.5 (3)	95	<20	2		M	●	●			●											●		2		$1,055
		AFX24-SR-S N4	●				8.5	5.5 (3)	95	<20	4X	H	M	●	●			●											●		2		$2,012
		AFX24-MFT	●				10	7.5 (3)	70...220 (150)	<20	2		M	●	●										●	●	●	●	●				$1,007
		AFX24-MFT N4	●				10	7.5 (3)	70...220 (150)	<20	4X	H	M	●	●										●	●	●	●	●				$1,964
		AFX24-MFT-S	●				10	7.5 (3)	70...220 (150)	<20	2		M	●	●										●	●	●	●	●		2		$1,146
		AFX24-MFT-S N4	●				10	7.5 (3)	70...220 (150)	<20	4X	H	M	●	●										●	●	●	●	●		2		$2,107
		AFX24-MFT95	●				10	7.5 (3)	70...220 (150)	<20	2		M	●	●				●										●				$1,044
		AFX24-MFT95 N4	●				10	7.5 (3)	70...220 (150)	<20	4X	H	M	●	●				●										●				$2,001
AHKX Series 100 lbf [450 N]	C*	AHKX24-MFT-100	●				22	11 (3)	90...150 (150)	35	2		L, 4"		●										●	●	●	●	●				$2,323
NFB Series 90 in-lb [10 Nm] Approx. 22 sq.ft.		NFB24	●				8.5	6 (2.5)	75	<20	2		M			●																$588
		NFB24-S	●				8.5	6 (2.5)	75	<20	2		M			●															2		$727
		NFBUP		●			9.5	6 (2.5)	75	<20	2		M			●																	$666
		NFBUP-S		●			9.5	6 (2.5)	75	<20	2		M			●															2		$804
		NFB24-SR	●				6	3.5 (2.5)	95	<20	2		M					●											●				$786
		NFB24-SR-S	●				6	3.5 (2.5)	95	<20	2		M					●											●		2		$924
		NF24A-MOD	●				9.5	7.0 (3.5)	150	<20	2		M										1							1				$942
		NFB24-MFT	●				9	6.5 (3)	40-150 (150)	<20	2		M											●	●	●	●	●				$873
		NFB24-MFT-S	●				9	6.5 (3)	40-150 (150)	<20	2		M											●	●	●	●	●		2		$1,011

See pages 2-7 and 2-8 for additional generic product series specifications. Visit www.belimo.us for detailed product specifications and downloadable data sheets.
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NFX and NKQB(X) Fail-Safe Damper Actuator Product Range

5-year warranty

			Power Supply				Power Consumption		Running Time		Housing Type		Drive Type	Custom Options		Control Input										Control Input MFT				Position Feedback				List Price
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 120 V ±10%	AC 230 V ±10%	VA Rating (Actuator/Heater)	Wattage Running/Heater (Holding)	Motor Drive (Default)	Fail-Safe	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing H = $600 OPTIONAL Heater**	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2..10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	3k Ω (1), 10k Ω (2) NTC Thermistor	6...9 V, 20 V Output Voltage	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V (2.0) Span 2.5...32 V (8.0)	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250 V, (1 or 2)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	
NFX Series 90 in-lb [10 Nm] Approx. 22 sq.ft.	Customizable*	NFX24	●				8.5	6 (2.5)	75	<20	2		M	●	●	●																	$588
		NFX24 N4	●				8.5	6 (2.5)	75	<20	4X	H	M	●	●	●																	$1,465
		NFX24-S	●				8.5	6 (2.5)	75	<20	2		M	●	●	●															2		$727
		NFX24-S N4	●				8.5	6 (2.5)	75	<20	4X	H	M	●	●	●															2		$1,604
		NFXUP		●			9.5	6 (2.5)	75	<20	2		M	●	●	●																	$666
		NFXUP N4		●			9.5	6 (2.5)	75	<20	4X	H	M	●	●	●																	$1,541
		NFXUP-S		●			9.5	6 (2.5)	75	<20	2		M	●	●	●															2		$804
		NFXUP-S N4		●			9.5	6 (2.5)	75	<20	4X	H	M	●	●	●															2		$1,680
		NFX24-SR	●				6	3.5 (2.5)	95	<20	2		M	●	●			●											●				$786
		NFX24-SR N4	●				6	3.5 (2.5)	95	<20	4X	H	M	●	●			●											●				$1,664
		NFX24-SR-S	●				6	3.5 (2.5)	95	<20	2		M	●	●			●											●		2		$924
		NFX24-SR-S N4	●				6	3.5 (2.5)	95	<20	4X	H	M	●	●			●											●		2		$1,801
		NFX24-MFT	●				9	6.5 (3)	40...150 (150)	<20	2		M	●	●											●	●	●	●	●				$873
		NFX24-MFT N4	●				9	6.5 (3)	40...150 (150)	<20	4X	H	M	●	●											●	●	●	●	●				$1,751
		NFX24-MFT-S	●				9	6.5 (3)	40...150 (150)	<20	2		M	●	●											●	●	●	●	●		2		$1,011
		NFX24-MFT-S N4	●				9	6.5 (3)	40...150 (150)	<20	4X	H	M	●	●											●	●	●	●	●		2		$1,890
NKQB Series 54 in-lb [6 Nm] Approx. 12 sq.ft.		NKQB24-1	●				22	11 (3)	4	4	2		M			●																●	$1,136
		NKQB24-SR	●				22	11 (3)	4	4	2		M					●											●			●	$1,203
NKQX Series 54 in-lb [6 Nm]	Customizable*	NKQX24-1	●				22	11 (3)	4,7,10 (4)	4	2		M	●	●	●																●	$1,135
		NKQX24-SR	●				22	11 (3)	4,7,10 (4)	4	2		M	●	●			●											●			●	$1,202
		NKQX24-MFT	●				22	11 (3)	4,7,10 (4)	4	2		M	●	●											●	●	●	●	●			●	$1,301

See pages 2-7 and 2-8 for additional generic product series specifications. Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 5-13 to 5-16 for customization options.
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LF Fail-Safe Damper Actuator Product Range

5-year warranty

		Power Supply				Power Consumption		Running Time		Housing Type		Drive Type	Custom Options		Control Input								Control Input MFT				Position Feedback				List Price
		AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 120 V ±10%	AC 230 V ±10%	VA Rating (Actuator/Heater)	Wattage Running/Heater (Holding)	Motor Drive (Default)	Fail-Safe	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing H = $600 OPTIONAL Heater**	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	3k Ω (1), 10k Ω (2) NTC Thermistor	6...9 V, 20 V Output Voltage	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V (2.0) Span 2.5...32 V (8.0)	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250 V, (1 or 2)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	
LF Series 35 in-lb [4 Nm] Approx. 8.5 sq.ft.	LF24 US	●				7	5 (2.5)	40...75	<25	2		M			●																$480
	LF24-S US	●				7	5 (2.5)	40...75	<25	2		M			●															1		$563
	LF120 US			●		7.5	5.5 (3.5)	40...75	<25	2		M			●																	$532
	LF120-S US			●		7.5	5.5 (3.5)	40...75	<25	2		M			●															1		$616
	LF230 US				●	7	5 (3)	40...75	<25	2		M			●																	$655
	LF230-S US				●	7	5 (3)	40...75	<25	2		M			●															1		$740
	LF24-SR US	●				5	2.5 (1)	150	<25	2		M					●															$655
	LF24-SR-S US	●				5	2.5 (1)	150	<25	2		M					●													1		$740
	LF24-SR-E US	●				5	2.5 (1)	150	<25	2		M					●															$708
	LF24-3 US	●				5	2.5 (1)	150	<25	2		M			●	●																$583
	LF24-3-S US	●				5	2.5 (1)	150	<25	2		M			●	●														1		$668
	LF24-ECON-R03 US	●				5	2.5 (1)	95	<25	2		M							1										●				$745
	LF24-ECON-R10 US	●				5	2.5 (1)	95	<25	2		M							2										●				$745
	LF24-MFT US	●				5	2.5 (1)	75...300 (150)	<25	2		M											●	●	●	●	●					$745
	LF24-MFT-S US	●				5	2.5 (1)	75...300 (150)	<25	2		M											●	●	●	●	●			1		$829
	LF24-MFT-20 US	●				6	3.0 (1.5)	150	<25	2		M									●		●	●	●	●	●					$826
	LF24-MFT-S-20 US	●				6	3.0 (1.5)	150	<25	2		M									●		●	●	●	●	●			1		$909
	LFC24-3-R US	●				5	2.5 (1)	90	<25	2		M				●																$663
	LFC24-3-S US	●				5	2.5 (1)	90	<25	2		M				●														1		$745

See pages 2-7 and 2-8 for additional generic product series specifications. Visit www.belimo.us for detailed product specifications and downloadable data sheets.
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TFB(X) Fail-Safe Damper Actuator Product Range

5-year warranty

			Power Supply				Power Consumption		Running Time		Housing Type		Drive Type	Custom Options		Control Input								Control Input MFT					Position Feedback				List Price
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 120 V ±10%	AC 230 V ±10%	VA Rating (Actuator/Heater)	Wattage Running/Heater (Holding)	Motor Drive (Default)	Fail-Safe	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing H = $600 OPTIONAL Heater**	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	3k Ω (1), 10k Ω (2) NTC Thermistor	6...9 V, 20 V Output Voltage	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V (2.0) Span 2.5...32 V (8.0)	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250 V, (1 or 2)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	
TFB Series 22 in-lb [2 Nm] Approx. 5.5 sq.ft.		TFB24	●				5	2.5 (1.3)	75	<25	2		M			●																$391
		TFB24-S	●				5	2.5 (1.3)	75	<25	2		M			●															1		$475
		TFLB24	●				5	2.5 (1.3)	75	<75	2		M			●																	$392
		TFB120			●	●	5	2.5 (1.3)	75	<25	2		M			●																	$457
		TFB120-S			●	●	5	2.5 (1.3)	75	<25	2		M			●															1		$538
		TFLB120			●	●	5	2.5 (1.3)	75	<75	2		M			●																	$458
		TFCB120-S			●	●	6	3 (1.5)	30	<25	2		M			●															1		$568
		TFB24-SR	●				4	2 (1)	95	<25	2		M					●											●				$557
		TFB24-SR-S	●				4	2 (1)	95	<25	2		M					●											●		1		$640
		TFB120-SR			●	●	5.5	2.5 (2)	95	<25	2		M					●											●				$621
		TFB24-3	●				4	2.5 (2)	95	<25	2		M			●	●																$510
		TFB24-3-S	●				4	2.5 (2)	95	<25	2		M			●	●														1		$591
		TFB24-MFT	●				4	2.5 (1)	75...300 (150)	<25	2		M												●	●	●	●	●				$645
		TFB24-MFT-S	●				4	2.5 (1)	75...300 (150)	<25	2		M												●	●	●	●	●		1		$728
TFX Series 22 in-lb [2 Nm] Approx. 5.5 sq.ft.	Customizable*	TFX24	●				5	2.5 (1.3)	75	<25	2		M	●	●	●																	$391
		TFX24-S	●				5	2.5 (1.3)	75	<25	2		M	●	●	●															1		$475
		TFX120			●	●	5	2.5 (1.3)	75	<25	2		M	●	●	●																	$457
		TFX120-S			●	●	5	2.5 (1.3)	75	<25	2		M	●	●	●															1		$538
		TFCX120-S			●	●	6	3 (1.5)	30	<25	2		M	●	●	●															1		$568
		TFX24-SR	●				4	2 (1)	95	<25	2		M	●	●			●											●				$557
		TFX24-SR-S	●				4	2 (1)	95	<25	2		M	●	●			●											●		1		$640
		TFX24-3	●				4	2.5 (2)	95	<25	2		M	●	●	●	●																$510
		TFX24-3-S	●				4	2.5 (2)	95	<25	2		M	●	●	●	●															1		$591
		TFX24-MFT	●				4	2.5 (1)	75...300 (150)	<25	2		M	●	●										●	●	●	●	●				$645
		TFX24-MFT-S	●				4	2.5 (1)	75...300 (150)	<25	2		M	●	●										●	●	●	●	●		1		$728

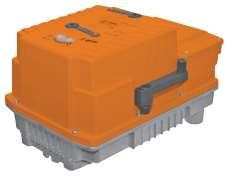
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ACTUATOR SPECIFICATIONS

PKB Series

1400 in-lb [160 Nm]



Angle of rotation♦ Max Min Mid	95°, with built-in end stops; MFT electronically variable 33...100% MFT electronically variable 0...67% MFT electronically variable based on min/max
Fits shaft diameter	17 mm square interface (custom coupler may be required)
Position indication	integral pointer in cover
Manual override	7 mm hex crank, supplied
Direction of rotation♦	reversible with App
Power Consumption AC 24 V AC 120 V AC 230 V	 49 VA 42 VA 66 VA
Wattage running/holding AC 24 V AC 120 V AC 230 V	 47/4 W 38/4 W 38/6 W
Fail-safe setting	adjustable with App
Electrical connection	terminal block
Overload protection	electronic throughout rotation
Auxiliary switch(es)	2x SPDT 3A resistive (0.5 inductive) @ AC 24...250 V, one set at 9° and one field adjustable 0...90° (85° default)
Ambient temperature	-22...+122°F [-30...+50°C]
Housing	NEMA 4X, IP66/67, UL enclosure Type 4X
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

♦ Variable with MFT.

GKB / GKX Series

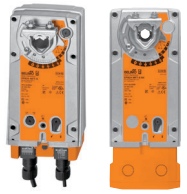
360 in-lb [40 Nm]
Approx. 90 sq.ft.



Angle of rotation♦	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits shaft diameter	½...1.05" (center on ¾" shaft with insert and on 1.05" without insert)
Position indication	reflective visual indicator (snap on)
Manual override	external push button
Direction of rotation♦	external switch
Fail-safe setting -3, -SR MFT	 0...95° at 10° intervals 0...100% at 10% intervals
Electrical connection	3 ft., 18 GA plenum rated cable, ½" conduit fitting
Overload protection	electronic throughout rotation
Ambient temperature	-22...+122°F [-30...+50°C]
Auxiliary switch(es)	add on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5...85°
Housing X..N4 Type Accessory	NEMA 2, IP54, UL enclosure Type 2 NEMA 4X low temperature heater
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

EFB / EFX Series

270 in-lb [30 Nm]
Approx. 66 sq.ft.



Angle of rotation♦	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits shaft diameter	½...1.05" (center on ¾" shaft with insert and on 1.05" without insert)
Position indication	visual indicator
Manual override	5 mm hex crank (3/16" allen), supplied
Direction of rotation♦	external switch with -SR and MFT
Spring return	CW/CCW mounting (reversible)
Electrical connection	3 ft., 18 GA appliance cable, ½" conduit fitting (default)
Overload protection	electronic throughout rotation
Ambient temperature	-22...+122°F [-30...+50°C] **N4H models:** -40...+122°F [-40...+50°C]
Auxiliary switch(es)	(-S) NEMA 2 models: 2 SPDT, 3A (0.5A inductive) @ 250 V, one switch fixed at 10°, one adjustable 10...90°
Housing	NEMA 2/IP54, UL enclosure Type 2 **N4, N4H models:** NEMA 4/IP66, Enclosure Type 4
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

AFB / AFX Series

180 in-lb [20 Nm]
Approx. 45 sq.ft.



Angle of rotation♦	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits shaft diameter	½...1.05" (center on ½" and ¾" with insert and on 1.05" without insert)
Position indication	visual indicator
Manual override	5 mm hex crank (3/16" allen), supplied
Direction of rotation♦	external switch with -SR and MFT
Spring return	CW/CCW mounting (reversible)
Electrical connection	3 ft., 18 GA appliance cable, ½" conduit fitting (default)
Overload protection	electronic throughout rotation
Ambient temperature	-22...+122°F [-30...+50°C]
Auxiliary switch(es)	(-S) models: 2 SPDT, 3A (0.5A inductive) @ 250 V, one switch fixed at 10°, one adjustable 10...90°
Housing X..N4 Type Accessory	NEMA 2/IP54, UL enclosure Type 2 NEMA 4X low temperature heater
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

AHKX Series

100 lbf
[450 N force]
4" stroke



Linear stroke	4" [100 mm]
Manual override	external push button
Direction of stroke♦	reversible with switch
Fail-safe setting	0...100% at 10% intervals
Electrical connection	3 ft., 18 GA plenum rated cable, ½" conduit fitting
Ambient temperature	-22...+122°F [-30...+50°C]
Overload protection	electronic throughout full stroke
Housing	NEMA 2, IP54, UL enclosure Type 2
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

FAIL-SAFE

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All prices are in US Dollars (USD)

FAIL-SAFE

ACTUATOR SPECIFICATIONS

NFB / NFX Series 90 in-lb [10 Nm] Approx. 22 sq.ft.	
Angle of rotation♦	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits shaft diameter	½...1.05" (center on ½" and ¾" with insert and on 1.05" without insert)
Position indication	visual indicator
Manual override	5 mm hex crank (3/16" allen), supplied
Direction of rotation♦	external switch with -SR and MFT
Spring return	CW/CCW mounting (reversible)
Electrical connection	3 ft., 18 GA appliance cable, ½" conduit fitting (default)
Overload protection	electronic throughout rotation
Ambient temperature	-22...+122°F [-30...+50°C]
Auxiliary switch(es)	(-S) models: 2 SPDT, 3A (0.5A inductive) @ 250 V, one switch fixed at 10°, one adjustable 10...90°
Housing X..N4 Type Accessory	NEMA 2/IP54, UL enclosure Type 2 NEMA 4X low temperature heater
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

NKQB / NKQX Series 54 in-lb [6 Nm] Approx. 12 sq.ft.	
Angle of rotation♦	95°, adjustable with mechanical end stops. MFT electronically variable 0...100%
Fits shaft diameter	½...1.05" (center on ½" and ¾" with insert and on 1.05" without insert)
Position indication	reflective visual indicator (snap on)
Manual override	external push button
Direction of rotation♦	external switch
Fail-safe setting -1, -SR MFT	 0...95° at 10° intervals 0...100% at 10% intervals
Electrical connection	3 ft., 18 GA plenum rated cable, ½" conduit fitting
Ambient temperature	-22...+122°F [-30...+50°C]
Overload protection	electronic throughout rotation
Auxiliary switch(es)	add on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5...85°
Housing	NEMA 2, IP54, UL enclosure Type 2
Agency listings	cULus according to UL 60730-1A/-2-14, UL 2043, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

LF Series 35 in-lb [4 Nm] Approx. 8.5 sq. ft.	
Angle of rotation♦	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits shaft diameter	3/8...½" standard (centers on ½"); ½...¾" with K6-1 clamp accessory
Position indication	visual indicator
Direction of rotation♦	external switch with -3, -SR and -MFT
Spring return reversible	CW/CCW mounting
Electrical connection	3 ft., 18 GA plenum cable (modulating), 3 ft., 18 GA appliance cable (on/off, MFT, -S types), ½" conduit fitting
Overload protection	electronic throughout rotation
Ambient temperature	-22...+122°F [-30...+50°C]
Auxiliary switch(es)	(-S) models: 1 SPDT, 3A (0.5 A inductive) @ 250 V adjustable 0...95°
Housing	NEMA 2 (IP54) any orientation
Agency listings	cULus according to UL 873, UL 2043 and CAN/CSA C22.2 No. 24-93

♦ Variable with MFT.

TFB / TFX Series 22 in-lb [2.5 Nm] Approx. 5.5 sq. ft.	
Angle of rotation♦	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits shaft diameter	¼...½" (centers on ½")
Position indication	visual indicator
Direction of rotation♦	external switch with -3, -SR and -MFT
Spring return reversible	CW/CCW mounting
Electrical connection	3 ft., 18 GA plenum cable (modulating), 3 ft., 18 GA appliance cable (on/off, -S types), ½" conduit fitting
Overload protection	electronic throughout rotation
Ambient temperature	-22...+122°F [-30...+50°C]
Auxiliary switch(es)	(-S) models: 1 SPDT, 3 A (0.5 A inductive) @ 250 V adjustable 0...95°
Housing	NEMA 2 (IP42), UL enclosure Type 2, any orientation
Agency listings	cULus according to UL60730-1A/-2-14, UL 2043, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

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3 FIRE AND SMOKE DAMPER ACTUATORS

Technology that Saves Lives

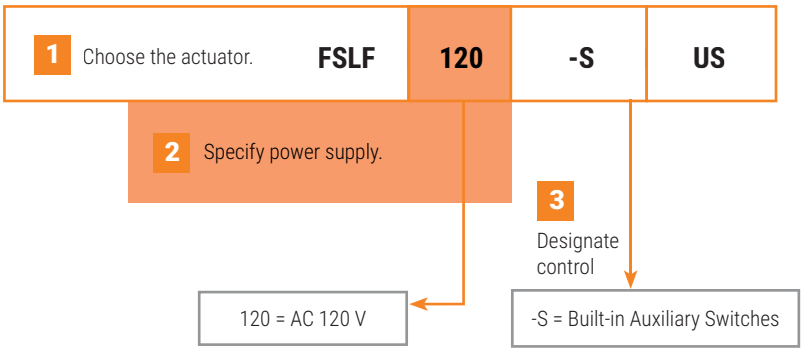
- Lowest power consumption life safety actuators available in the market.
- ISO 9001 Certified Quality Control and a 5-year warranty assure reliable operation with exceptional customer support.
- Extensive product range offers 18...180 in-lb for 250°F and 350°F elevated temperatures in UL 555 and UL 555S applications.

Aimee Devlin, SAP Analyst

Fire and Smoke Damper Actuator Nomenclature

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

Ordering Example



4 Complete Ordering Example: FSLF120-S US

The Fire Code Requires Periodic Testing of Life Safety Dampers

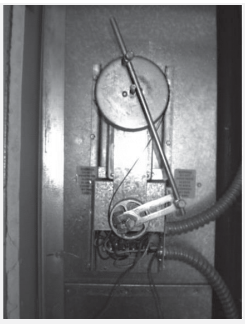
The building owner's responsibility is to record periodic testing and corrective actions regarding fire and smoke dampers. When inspecting a building, the fire marshal or building official will request the record, a requirement of the NFPA 80 (fire) & NFPA 105 (smoke) standards.

Chapter 7 IBC Containment Dampers	
Every 4 years. In hospitals, every 6 years	
Chapter 9 Smoke Control System Dampers	
Dedicated	**Non-dedicated**
Semi-annually	Annually

Belimo's Fire and Smoke Damper Actuator Replacement Solutions

- Meets UL 555 and UL 555S listing with all damper manufacturers, along with New York City OTCR and MEA requirements; California State Fire Marshall Listed
- UL 2043 compliant - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC
- Extensive range of torque offerings to fit a variety of applications (18, 30, 70, and 180 in-lb)
- Lowest current draws versus the competition; saving energy and cost
- Compact solutions for space-constrained locations

For replacement guidelines, visit
www.belimo.us/firesmoke
or contact a Belimo Regional Application Consultant.



Problem: Failed MultiProducts motor



Solution: Belimo FSLF120 US



Problem: Failed motor



Solution: Belimo FSTF with linkage

Discover the advantages
www.belimo.us/firesmoke

5-year warranty

c UL us

FSAF*A, FSAFB, FSNF, FSLF, FSTF Fire and Smoke Fail-Safe Damper Actuator Product Range

5-year warranty

LISTED 94 05 TEMP. IND. & REG. EQUIP.

		Power Supply			Power Consumption		Running Time		Control Input	Auxiliary Switches		List Price
		AC/DC 24 V	AC 120 V	AC 230 V	VA Rating	Wattage Running (Holding)	Motor Drive	Fail-Safe	On/Off	2 SPST	2 SPDT	
FSAF*A Series 180 in-lb [20 Nm] Approx. 18 sq. ft. @ 350°F	FSAF24A	●			32	23 (5)	<25	<15	●			$1,016
	FSAF24A-S	●			32	23 (5)	<25	<15	●	●		$1,184
	FSAF120A		●		30	24 (7.5)	<25	<15	●			$1,116
	FSAF120A-S		●		30	24 (7.5)	<25	<15	●	●		$1,284
	FSAF230A			●	37	29 (10)	<25	<15	●			$1,320
	FSAF230A-S			●	37	29 (10)	<25	<15	●	●		$1,490
FSAFB Series 180 in-lb [20 Nm] Approx. 18 sq. ft. @ 250°F	FSAFB24-SR	●			9.5	6 (3)	<75	<20	2...10 V			$1,269
	FSAFB24-SR-S	●			9.5	6 (3)	<75	<20	2...10 V		●	$1,439
FSNF Series 70 in-lb [8 Nm] Approx. 12 sq. ft. @ 350°F	FSNF24 US	●			27	18 (3)	<15	<15	●			$902
	FSNF24-S US	●			27	18 (3)	<15	<15	●		●	$1,070
	FSNF120 US		●		27	22 (6)	<15	<15	●			$1,002
	FSNF120-S US		●		27	22 (6)	<15	<15	●		●	$1,170
	FSNF230 US			●	27	22 (5)	<15	<15	●			$1,228
	FSNF230-S US			●	27	22 (5)	<15	<15	●		●	$1,396
FSLF Series 30 in-lb [3.5 Nm] Approx. 4 sq. ft. @ 350°F	FSLF24 US	●			15	12 (2.5)	<15	<15	●			$760
	FSLF24-S US	●			15	12 (2.5)	<15	<15	●	●		$906
	FSLF120 US		●		18	15 (4)	<15	<15	●			$836
	FSLF120-S US		●		18	15 (4)	<15	<15	●	●		$982
	FSLF230 US			●	17	15 (4)	<15	<15	●			$995
	FSLF230-S US			●	17	15 (4)	<15	<15	●	●		$1,142
FSTF Series* 18 in-lb [2 Nm] Approx. 1.5 sq. ft. @ 250°F	FSTF24 US	●			3	2 (1.5)	<75	<25	●			$457
	FSTF24-S US	●			3	2 (1.5)	<75	<25	●	●		$572
	FSTF120 US		●		3.5	2 (1.5)	<75	<25	●			$506
	FSTF120-S US		●		3.5	2 (1.5)	<75	<25	●	●		$620
	FSTF230 US			●	4.5	2.5 (2)	<75	<25	●			$629
	FSTF230-S US			●	4.5	2.5 (2)	<75	<25	●	●		$746

VA Rating Note:

The FSAF*A, FSNF, and FSLF series actuators draw more current when driving against any stops. Neither UL nor Belimo requires any local fusing or breakers. If used, see individual data sheets for End Stop current draws and current limit values.

*See retrofit installation instructions for details.

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

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

Use 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 and FSAFB, FSNF, and FSTF.

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ACTUATOR SPECIFICATIONS

FSAF*A Series

180 in-lb
[20 Nm]**
Approx. 18 sq. ft.
@ 350°F ♦



Control	on/off
Angle of rotation	95°
Fits shaft diameter	½...1.05" (clamp self-centers on ½" and 1.05". Order 23115-00001 insert for ¾")
Position indication	visual indicator, 0...95°
Manual override	none
Direction of rotation	CW/CCW mounting
Dimensions	10.2" x 3.86" x 3.23" [259 x 98 x 82 mm]
Electrical connection	3 ft., 18 GA, ½" conduit fitting
Overload protection	electronic throughout rotation
Auxiliary switches	2 SPST 6A (2.5A inductive) @ 120/250 V
Housing	NEMA 1/IP40
Agency listings	cULus listed to UL 873 and CAN/CSA C22.2 No. 24-93. UL 2043 compliant - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC.

**For UL555S, torque is the same for ½ hour at 350°F.

FSAFB Series

180 in-lb
[20 Nm]***
Approx. 18 sq. ft.
@ 250°F ♦



Control	modulating
Angle of rotation	95°
Fits shaft diameter	½...1.05" (clamp self-centers on ½", ¾" and 1.05")
Position indication	visual indicator, 0...95°
Manual override	5 mm hex crank
Direction of rotation	reversible with built-in switch
Dimensions	9.69" x 3.86" x 3.42" [246 x 98 x 86 mm]
Electrical connection	3 ft., 18 GA, ½" conduit fitting
Overload protection	electronic throughout rotation
Auxiliary switches	2 SPDT, 3A (0.5A inductive) 125/250 V
Housing	NEMA 2/IP54, enclosure Type 2
Agency listings	cULus listed to UL 60730-1A/2-14, CAN/CSA E60730. UL 2043 compliant - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC.

***For UL555S, torque is the same for ½ hour at 250°F.

FSNF Series

70 in-lb
[8 Nm]**
Approx. 12 sq. ft.
@ 350°F ♦



Control	on/off
Angle of rotation	95°
Fits shaft diameter	½...1.05" (clamp self-centers on ½", ¾" and 1.05")
Position indication	visual indicator, 0...95°
Manual override	none
Direction of rotation	CW/CCW mounting
Dimensions	10.2" x 3.86" x 3.23" [259 x 98 x 82 mm]
Electrical connection	3 ft., 18 GA, ½" conduit fitting
Overload protection	electronic throughout rotation
Auxiliary switches	2 SPDT, 7A (2.5A inductive) @ 125/250 V
Housing	NEMA 1/IP40
Agency listings	cULus listed to UL 873 and CAN/CSA C22.2 No. 24-93. UL 2043 compliant - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC.

**For UL555S, torque is the same for ½ hour at 350°F.

FSLF Series

30 in-lb
[3.5 Nm]**
Approx. 4 sq. ft.
@ 350°F ♦



Control	on/off
Angle of rotation	95°
Fits shaft diameter	3/8...½" (K6 clamp standard); ½...¾" (with K6-1 clamp optional)
Position indication	visual indicator, 0...95°
Manual override	none
Direction of rotation	CW/CCW mounting
Dimensions	7.03" x 3.86" x 3.23" [179 x 98 x 82 mm]
Electrical connection	3 ft., 18 GA, ½" conduit fitting
Overload protection	electronic throughout rotation
Auxiliary switches	2 SPST, 3A (0.5A inductive) @ 125/250 V, 1 mA @ 5 VDC
Housing	NEMA 1/IP40
Agency listings	cULus listed to UL 60730-1A/2-14, CAN/CSA E60730-1 and CSA22-2 No. 24-93. UL 2043 compliant - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC.

**UL 555S torque is the same for ½ hour at 350°F.

FSTF Series

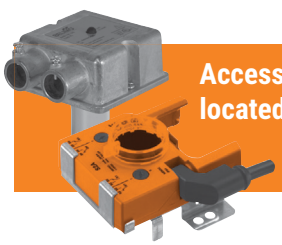
18 in-lb
[2 Nm]***
Approx. 1.5 sq. ft.
@ 250°F ♦



Control	on/off
Angle of rotation	95°
Fits shaft diameter	¼...½" (clamp self-centers on ½")
Position indication	visual indicator, 0...95°
Manual override	none
Direction of rotation	CW/CCW mounting
Dimensions	6.28" x 3.0" x 3.30" [159 x 76 x 84 mm]
Electrical connection	3 ft., 18 GA, ½" conduit fitting
Overload protection	electronic throughout rotation
Auxiliary switches	2 SPST, 3A (0.5A inductive) @ AC 120 V, UL approved
Housing	NEMA 2/IP42
Agency listings	cULus listed to UL 60730-1A/2-14, CAN/CSA E60730-1 and CSA22-2 No. 24-93. UL 2043 compliant - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC.

***UL 555S torque is the same for ½ hour at 250°F.

♦ Specific models and sizes vary with each damper manufacturer.

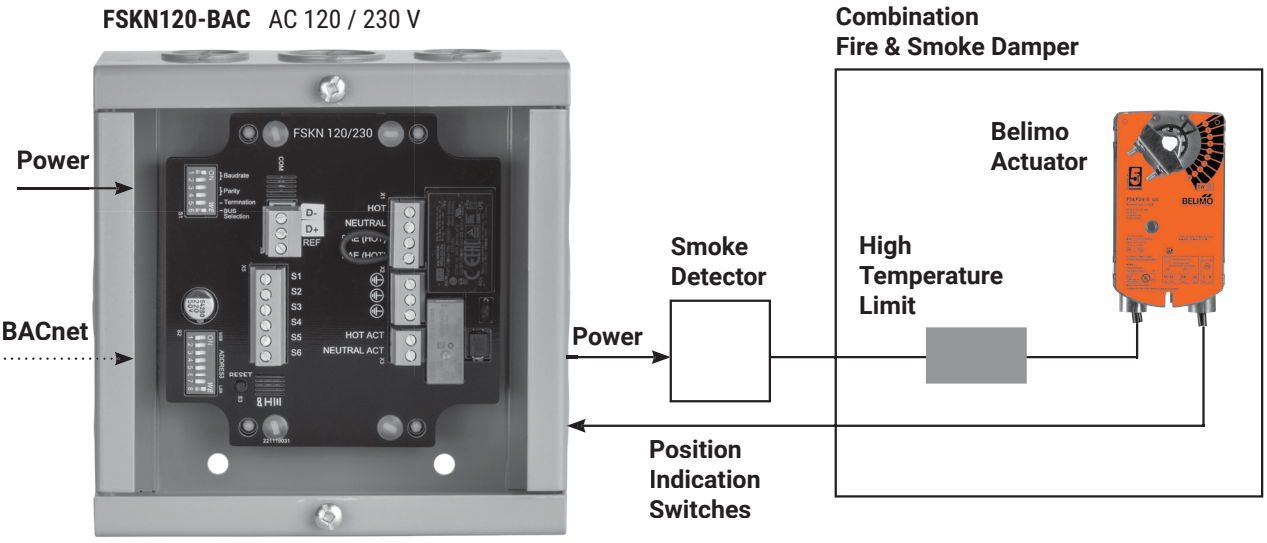


Accessories
located on page 5-12

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BACnet Life Safety Damper Remote Inspection Module

FSKN24-BAC AC / DC 24 V
FSKN120-BAC AC 120 / 230 V

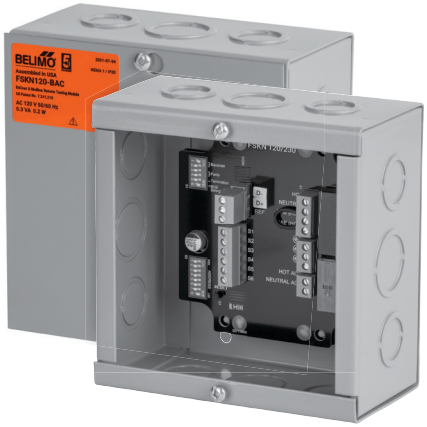


(FSKN120-BAC shown)

Belimo's remote inspection module allows testing of actuated life safety dampers without costly visual inspections. The module initiates damper cycling and verifies damper position to ensure proper operation in emergency situations. It connects seamlessly to Fire Alarm panels or Building Automation Systems using BACnet or Modbus communication protocols.

1. Upon a test command, the actuator power is cut, allowing it to spring the damper closed.
2. The actuator is then again powered, and it drives the damper open to its normal operating position.
3. Auxiliary switches on the actuator or the damper blades are monitored to observe the correct damper blade position in each mode of test and operation.
4. Upon completion of the test cycle, a Pass or Fail message is delivered via the BACnet controller.

The Fire Alarm and BAS companies will be more efficient with testing dampers and comply with code requirements ensuring proper damper operation.



With the module:

- Inaccessible dampers can be inspected.
- Deferred testing and maintenance will be reduced with automatic testing and generating of inspection reports.
- Systems commissioning can be more carefully performed.
- Instead of every 4 or 6 years, frequent testing can be performed at a minimal cost.
- Overall the integrity of life safety will increase.

5-year warranty

c UL US LISTED

ASHRAE BACnet

		Voltage		Communication	List Price
		AC/DC 24 V	AC 120 V		
FSKN Life Safety Damper Inspection Module	FSKN24-BAC	•		BACnet/Modbus	$980
	FSKN120-BAC		•	BACnet/Modbus	$1,050

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Kaitlynn Plummer, Logistics Scheduler

ZIP ECONOMIZER AND DAMPER ACTUATOR ACCESSORIES

Solutions to Save You Time

- Electrical and mechanical accessories that can help solve any installation problem.
- Economizing offers optimal indoor air quality with increased energy efficiency.
- ZIP Economizer provides the most energy savings through advanced economizer logic strategies.

ZIP Economizer

ZIP ECONOMIZER,
DAMPER ACTUATOR ACCESSORIES



Energy Efficient Indoor Air Quality

The ZIP Economizer with BACnet capability gets efficiency strategies back on track with easy setup, automatic code change over temperatures, and superior troubleshooting capability. The ZIP's BACnet objects allow facility managers to configure the economizer logic and monitor its performance through the Building Management System (BMS). The ZIP Economizer is compliant with energy codes and standards (ASHRAE 90.1, IECC, California Title 24, ASHRAE 189.1).

Discover the advantages
www.belimo.us

5
5-year warranty

BELIMO



4 ZIP ECONOMIZER

Reliable Energy Savings

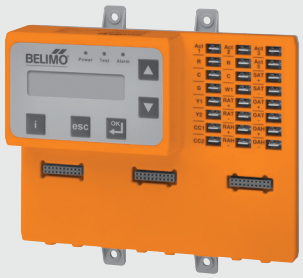
- Display simplifies setup, making changes, and viewing live status information.
- Integrated on-board help for fast setup or troubleshooting.
- Compliant with the most recent energy codes and standards (ASHRAE 90.1, IECC, California Title 24, NECB).

Christine Silva, Senior Manager, Accounting

BELIMO

Select Economizer Base and ZIP-10K

ECON-ZIP-BASE



AND



ECON-ZIP-10K
(Supply Air Sensor)

Select Actuator



TFB24-SR
up to 7.5 Tons



LF24-SR US
7.5...12 Tons



NFB24-SR
12...15 Tons



AFB24-SR
15...30 Tons

Select Additional Sensors*

SINGLE DRY BULB



DIFFERENTIAL DRY BULB



ECON-ZIP-10K

OR

SINGLE ENTHALPY



DIFFERENTIAL ENTHALPY



ECON-ZIP-TH

Optional Add-On Modules



- Demand Control Ventilation (DCV)** - ECON-ZIP-EM + CO2 sensor of your choice (0...2000 PPM, 0...10 V).
- Preoccupancy Purge** - ECON-ZIP-EM
  Requires thermostat with purge setting and contacts.
- Remote Damper Override - ECON-ZIP-EM + SGA24
- Exhaust Fan - ECON-ZIP-EM
- 2 Speed fan control or remote diagnostic alarm notification - ECON-ZIP-EM



- Remote Diagnostic Alarm Notification** - ECON-ZIP-COM
  - Required for BACnet MS/TP communication.

* Selection based upon high limit changeover strategy chosen.
** May be required by local codes.

See page 4-4 for a list of ZIP Pack Solutions & Retrofit Kits.

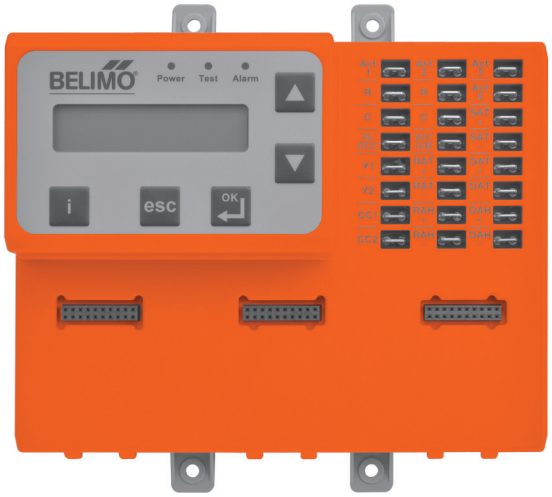
Learn More
www.belimo.us

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SPECIFICATIONS

Power Supply	AC 24 V ±20%, 50/60 Hz, Class 2 power
Power Consumption*	4 VA base control (ECON-ZIP-BASE)
	5.5 VA base control with Energy Module (ECON-ZIP-BASE + ECON-ZIP-EM)
	5 VA base control with Communication Module (ECON-ZIP-BASE + ECON-ZIP-COM)
	6.5 VA base control with Energy Module and Communication Module
Supported Temperature Sensor	NTC 10K-2 thermistor sensor auto-detection
Supported Humidity Sensor	0...10 V; sensor auto-detection
Supported CO_2 Sensor	0...10 V; sensor auto-detection
Environmental	RoHS, conformally coated
Ambient Temperature	-40...+158°F [-40...+70°C]
Storage Temperature	-40...+176°F [-40...+80°C]
Humidity	5...95% R.H. (non-condensing)
Wiring	¼" male spade connectors
Housing Material	UL94-5VA
Housing	NEMA 1
Display	2x16 character LCD; LED backlight
Display Operating Temperature**	-22...+176°F [-30...+80°C]
Agency Listings	EMC according to UL60730-1, cULus according to UL873, CAN/CSA C22.2, No. 24-93, IECC
Energy Code Compliant	ASHRAE 90.1, CA Title 24, NECB, IECC

*The power consumption is for the control only and does not include connected loads such as actuator, compressors, fans, and sensors.
**At low temperatures the display has decreased response time. Below -22°F [-30°C] it will not function.



5-year warranty

Model	List Price
ECON-ZIP-BASE	$1,103

FAIL-SAFE ACTUATORS***

Model #	Torque	Control Input	Feedback	Power Supply	Running Time		VA Rating	List Price
					Motor Drive	Fail-Safe		
AFB24-SR	180 in-lb [20 Nm]	2...10 V	2...10 V	AC/DC 24 V	95 seconds	<20 seconds	8.5	$914
NFB24-SR	90 in-lb [10 Nm]	2...10 V	2...10 V	AC/DC 24 V	95 seconds	<20 seconds	6	$786
LF24-SR US	35 in-lb [4 Nm]	2...10 V	2...10 V	AC/DC 24 V	150 seconds	<25 seconds	5	$655
TFB24-SR	22 in-lb [2.5 Nm]	2...10 V	2...10 V	AC/DC 24 V	95 seconds	<25 seconds	4	$557

*** Up to three actuators can be wired in parallel. Visit www.belimo.us for details.
Belimo fail-safe actuators must be used to facilitate faster commissioning procedures (-SR required).

Accessories	List Price
 **ECON-ZIP-TH** The ECON-ZIP-TH Sensor may be used to measure temperature and humidity in the outdoor or return air stream. The temperature and humidity output is via 2 discrete analog channels that can be independently measured with a multimeter. One sensor is used in the outdoor air intake for single enthalpy changeover strategy. An additional sensor can be added in the return air stream for differential enthalpy changeover strategy. Note: When using the ECON-ZIP-TH it is not necessary to use a separate temperature sensor ECON-ZIP-10K for outdoor air (OAT), return air (RAT).	$242
 **ECON-ZIP-10K** The ECON-ZIP-10K allows for reliable air temperature readings. The sensor may be used for outdoor air (OAT), return air (RAT), or supply air (SAT) temperature measurements and control, with no configuration required. A minimum of one SAT is always required. One sensor is used in the outdoor air intake for single dry bulb changeover strategy. An additional sensor can be added in the return air stream for differential dry bulb changeover strategy. For best control results, sensors should be placed in the air stream. The T-Bracket mounting is universal and can be inserted through the ductwork, fan housing or surface mounted.	$58
 **22DC-51** The 22DC-51 Carbon Dioxide (CO_2) air quality sensor may be incorporated to further increase energy savings and occupant comfort through Demand Control Ventilation (DCV). By directly measuring CO_2 concentration levels in the served space, the outside air damper position will modulate to accommodate for changes in space occupancy (CO_2). ECON-ZIP-EM required for Demand Control Ventilation functionality.	$694

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Accessories		List Price



ECON-ZIP-EM
The ZIP Economizer Energy Module provides additional I/Os to offer higher control functionalities that will save even more energy. The Energy Module is needed for demand control ventilation, indoor fan- 2 speed control or remote diagnostic alarm notification, power exhaust fan, remote override for damper positioning, and preoccupancy purge. The auto-detection and plug and play capability offers quick set up.

Technical Data

Type	Name	Description	Electrical Specification
Input	CO2 ±	CO2 sensor input for DCV	requires CO_2 sensor capable of 0.5...10 V signal representing 0...2000 ppm. (not supplied)
Output*	ALM/IF	Remote diagnostic alarm/indoor fan low speed enable	AC 24 V output (1.5 A max.) impedance for IF auto detection @ AC 24 V: <600 Ω @ 60 Hz <800 Ω @ 50 Hz
Output	EF	Exhaust fan enable	AC 24 V output (1.5A max.) impedance for auto detection @ AC 24 V: <600 Ω @ 60 Hz <800 Ω @ 50 Hz
Input	AUX1 ±	Preoccupancy purge contact input	on/off, AC 24 V, 50/60 Hz current load min. 10 mA
Input**	AUX2 ±	Remote damper override input	2...10 V signal represents 0...100% damper position

*IF output is configured via the Settings menu (default output is remote diagnostic alarm).
** Use remote override potentiometer; Belimo part number SGA24 or SGF24.

$162



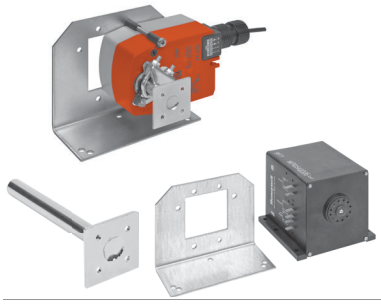
ECON-ZIP-COM
The ZIP Economizer Communication Module provides remote diagnostic alarm indication with future capabilities such as data trending and building automation integration. Required for BACnet MS/TP communication.

Technical Data

Type	Name	Description	Electrical Specification
I/O	RS-485	Communication interface	RS485 Interface Optical isolation max. 1k VDC (for max. 1 min.) Terminal assignments: (+) Data B (-) Data A GND Ground
Relay	ALM	Diagnostic alarm	Relay contact 24 V Normal current: 0.5 A Inrush current: 1A

$249

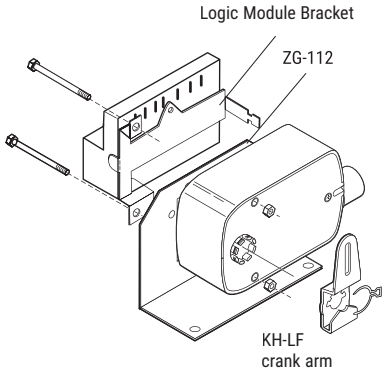
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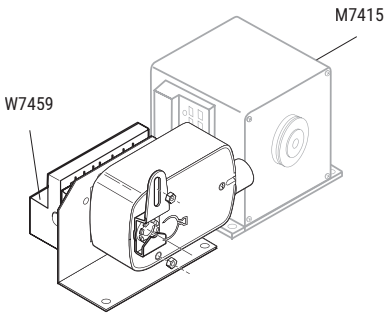
Retrofit Kits for Honeywell Foot Mounted Actuators (Belimo and Honeywell actuator shown for reference only)		Components (# included in kit)	List Price
	**ECON-ZIP-ACT** Actuator shaft adapter allows easy retrofit from Honeywell® black box motors (M7..) to Belimo fail-safe actuator.	Shaft, M4x8 Screws (4), Locking Nuts (4)	$97
	ECON-ZIP-LF1 Bracket with hole patterns to mount the LF series actuator, horizontal or vertical position to meet space requirements.	ECON-ZIP-ACT, ZG-112, Screws	$140
	ECON-ZIP-TF1 Bracket with hole patterns to mount the TF series actuator, horizontal or vertical position to meet space requirements.	ECON-ZIP-ACT, ZG-113, Spacers and Screws	$139

ZIP Packs		Components (# included in kit)	List Price
	**ECON-ZIP-SDTF** Single Dry Bulb with DCV* capability and TF fail-safe actuator (22 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-10K (2), TFB24-SR, ECON-ZIP-TF1	$1,921
	**ECON-ZIP-DDTF** Differential Dry Bulb with DCV* capability and TF fail-safe actuator (22 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-10K (3), TFB24-SR, ECON-ZIP-TF1	$1,957
	**ECON-ZIP-SETF** Single Enthalpy with DCV* capability and TF fail-safe actuator (22 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-10K, ECON-ZIP-TH, TFB24-SR, ECON-ZIP-TF1	$2,073
	**ECON-ZIP-DETF** Differential Enthalpy with DCV* capability and TF fail-safe actuator (22 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM ECON-ZIP-10K, ECON-ZIP-TH (2) TFB24-SR, ECON-ZIP-TF1	$2,240
	**ECON-ZIP-SDLF** Single Dry Bulb with DCV* capability and LF fail-safe actuator (35 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-10K (2), LF24-SR US, ECON-ZIP-LF1	$2,004
	**ECON-ZIP-DDLF** Differential Dry Bulb with DCV* capability and LF fail-safe actuator (35 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-10K (3), LF24-SR US, ECON-ZIP-LF1	$2,040
	**ECON-ZIP-SELF** Single Enthalpy with DCV* capability and LF fail-safe actuator (35 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-10K, ECON-ZIP-TH, LF24-SR US, ECON-ZIP-LF1	$2,156
	**ECON-ZIP-DELF** Differential Enthalpy with DCV* capability and LF fail-safe actuator (35 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM ECON-ZIP-10K, ECON-ZIP-TH (2) LF24-SR US, ECON-ZIP-LF1	$2,322

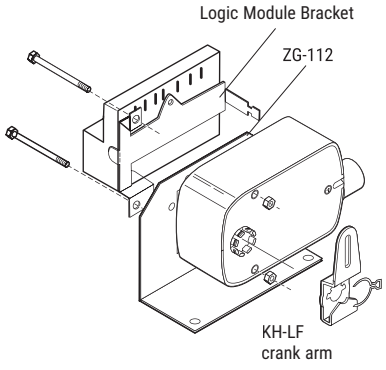
* CO_2 sensor not included

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Retrofit Replacement Solutions - Honeywell M8405 Actuator	List Price
	
M8405 Actuator The floating point control functionality of the LF24-SR-E US allows direct replacement of a Honeywell M8405A foot mounted economizer actuator	
LF24-SR-E US 35 in-lb fail-safe actuator, 2...10 V, AC 24 V with minimum position selection	$708
ZG-LF112 Crank arm adaptor kit - includes KH-LF crank arm and clip, ZG-112 bracket and mounting hardware	$85
20477-00001 Logic module bracket for Honeywell	$86
KG6 Ball joint (if needed)	$29

Retrofit Replacement Solutions - Honeywell M7415 Actuator	List Price
	
M7415 Actuator The modulating control of a mixed air set point of the LF24-ECON-RO3 US allows direct replacement of a Honeywell M7415 economizer actuator	
LF24-ECON-R03 US 35 in-lb fail-safe actuator, AC 24 V, 3K Ω thermistor	$745
ZG-ECON1 Includes ZG-112, KH-LF, 20477-00001 (logic module bracket), KG6 (ball joint), and 4 male spade connectors	$144
ZG-ECON2 Includes ZG-112, KH-LF, KG6 (ball joint), and 4 female spade connectors	$114

Choose either ZG-ECON1 or ZG-ECON2.

Retrofit Replacement Solutions - Honeywell M7215 Actuator	List Price
	
M7215 Actuator The modulating control of a mixed air set point of the LF24-SR US allows direct replacement of a Honeywell M7215 economizer actuator	
LF24-SR US 35 in-lb fail-safe actuator, 2...10 V, AC 24 V	$655
ZG-ECON1 Includes ZG-112, KH-LF, 20477-00001 (logic module bracket), KG6 (ball joint), and 4 male spade connectors	$144

Note: For economizer retrofit, please visit www.belimo.us.

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5 DAMPER ACTUATOR ACCESSORIES

Enhance Performance

- Programming of any MFT actuator is possible with ZTH interface, PC-Tool software, or if equipped, with Near Field Communication (NFC) using the Belimo Assistant App.
- Universal mounting brackets are designed for applications where the actuator cannot be mounted directly to the shaft.
- Jackshaft linkage (ZG-JSL) or crank arm adaptor kits allow for easy retrofit applications.

Tania Salazar, Assembler 1



Belimo University

Efficiency Through Training

Belimo University provides comprehensive training in HVAC fundamentals. Our portfolio includes classroom training, online learning modules, webinars, and continuing education courses for Professional Engineers.

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www.belimo.us

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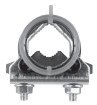
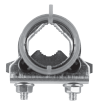
PROGRAMMING TOOLS		EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	PKB PMB	GKB GKX	NKQB NKQX	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	List Price
	**PC-Tool** Belimo MFT configuration software. Available in the download center at www.belimo.us	•	•	•	•	•	•	•	•	•	•	•	•	•	•	No Charge
INTERFACES, CABLES																
	**ZTH US** Handheld interface module that allows field programming. Includes ZK1-GEN, ZK2-GEN, and ZK6-GEN cables	*Available for all –MFT, -MOD, -MP Actuators*														$1,072
	**ZK1-GEN** Cable for use with ZTH-GEN, ZTH US, or ZIP-USB-MP US to connect to actuator via diagnostic/ programming socket	•					•	•	•	•	•	•	•	•	•	$163
	**ZK2-GEN** Cable for use with ZTH-GEN, ZTH US, or ZIP-USB-MP US to connect to actuators not equipped with diagnostic/ programming socket	•	•	•	•	•	•	•	•	•	•	•	•	•	•	$76
	**ZK4-GEN** Cable for use with ZTH US to connect to UK24.. gateways and VRP-M	*Available for all MFT Actuators*														$163
	**UK24BAC** BACnet gateway that can connect up to 8 MFT actuators	*Available for all MFT Actuators*														$1,443
	**UK24MOD** Modbus gateway that can connect up to 8 MFT actuators	*Available for all MFT Actuators*														$1,443
NFC INTERFACE																
	**ZIP-BT-NFC** Bluetooth® to NFC converter for temporary wireless operation of Belimo devices with NFC capabilities. iOS and Android compatible.	*Available for NFC Labeled Actuators Only*														$361

ACTUATOR ACCESSORIES

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Mechanical Damper Actuator Accessories

5-year warranty

CLAMPS		EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	GKB GKX	NKQB NKQX	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	List Price
	**K9-2** Standard EFB clamp (½...1.05")	•													$72
	**K7-2** Standard AFB/NFB clamp (½...1.05")		•	•											$46
	**K6 US** Standard LF clamp (⅜...½")				•										$33
	K6-1 Jackshaft clamp (½...¾")				•										$29
	K8 US Standard TF clamp (¼...½")					•									$29
	**K-GM20** Reversible clamp (½...1.05")						•		•						$54
	**K-AM25** Standard clamp (½...1.05")							•		•	•				$35
	**K-SA** Reversible clamp (½...¾")							•		•					$46
	K-NA Reversible clamp (½...¾")										•				$46
	**K-LM20** Clamp (¾")											•			$25
	**K-LM16** Standard clamp (⅝")											•			$25
	**K-LM12** Clamp (½")											•			$25
	**K-LM10** Clamp (⅜")											•			$25

ACTUATOR ACCESSORIES

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POSITION INDICATORS / ROTATION LIMITERS		EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	GKB GKX	NKQB NKQX	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	List Price
	**IND-EFB** Position indicator	•													$27
	**IND-AFB** Position indicator		•	•											$19
	**IND-LF** Position indicator				•										$19
	IND-TF Position indicator					•									$19
	**ZDB-LF** Angle of rotation limiter for LF				•										$19
	**ZDB-TF** Angle of rotation limiter for TF					•									$19
MOUNTING BRACKETS															
	**ZG-100** Right angle (17" H x 11 1/8" W x 6" base)	•	•	•			•	•	•	•	•				$130
	**ZG-101** Right angle (13" H x 11" W x 7 7/16" base)		•	•			•	•	•	•	•				$130
	**ZG-102** Multiple actuator mounting bracket		•				•		•						$128
	**ZG-103*** Right angle (7½" H x 11" W x 2¾" base)						•	•	•	•	•				$96
	**ZG-104** Right angle (13 5/8" H x 7½" W x 4" base)						•	•	•	•	•				$96

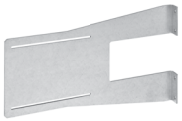
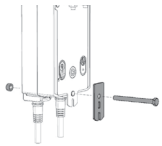
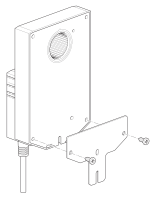
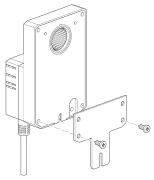
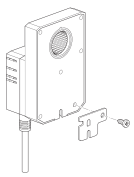
* Positions crank arm in same relative position as crank arm on electric foot mount-type linkage actuators.

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Mechanical Damper Actuator Accessories

5-year warranty

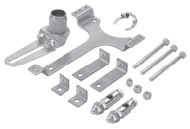
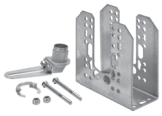
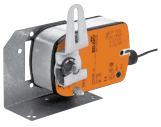
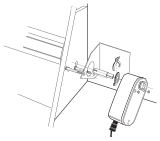
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MOUNTING BRACKETS		EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	GKB GKX	NKQB NKQX	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	List Price
	**ZG-105** Right angle										•				$54
	**ZG-112*** Right angle (4½" H x 5½" W x 2½" base)				•										$54
	ZG-113* Right angle (4½" H x 5½" W x 2½" base)					•									$54
	**ZG-118*** Channel ($5^{7}/_{8}$" H x 5½" W x $2^{19}/_{32}$" base)		•	•											$88
	**ZG-120** Jackshaft mounting bracket	•	•	•			•	•	•	•	•				$128
	**Z-AF** AF/NF to AFB, AFX/NFB, NFX retrofit mounting bracket		•	•											$33
	Z-SF 20 piece Z-AF kit		•	•											$30
	**Z-GMA** GM to GMB, GMX retrofit mounting bracket (supplied with non fail-safe actuators)						•		•						$29
	**Z-SMA** AM, SM to AMB, AMX retrofit mounting bracket (supplied with non fail-safe actuators)									•					$29
	**Z-NMA** NM to NMB, NMX retrofit mounting bracket (supplied with non fail-safe actuators)							•			•				$29

* Positions crank arm in same relative position as crank arm on electric foot mount-type linkage actuators.

ACTUATOR ACCESSORIES

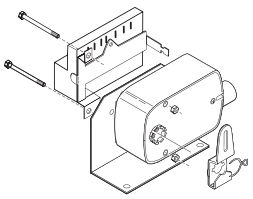
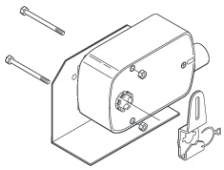
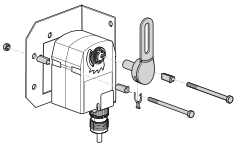
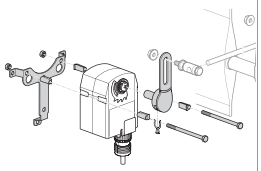
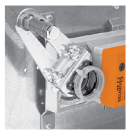
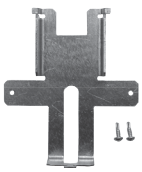
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CRANK ARM ADAPTOR KITS		EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	PKB PMB	GKB GKX	NKQB NKQX	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	List Price
	**KH-EFB** Crank arm	•														$68
	**KH-AFB** Crank arm for shafts to ¾"		•	•												$43
	**KH-LF** Crank arm for shafts to ½"				•											$41
	**KH-LFV** V-bolt kit for direct coupling with KH-LF				•											$19
	**KH-TF US** Crank arm with $^{5}/_{16}$" slot					•										$49
	KH-TF-1 US Crank arm with ¼" slot					•										$49
	**AH-GMA** GMB, GMX crank arm							•		•						$56
	AH-25 NKQ, NMB, NMX and AMB, AMX crank arm								•		•	•				$49
	**ZG-EFB** Crank arm adaptor kit	•														$163
	**ZG-AFB** Crank arm adaptor kit		•	•												$133
	**ZG-AFB118** Crank arm adaptor kit		•	•												$129
	**ZG-LF112** Crank arm adaptor kit (includes ZG-112 & KH-LF)				•											$85
	**ZG-LF2** Crank arm adaptor kit (includes mounting hardware)				•											$99
	**ZG-LFC114** Trane Voyager retrofit kit (includes retrofit bracket)				•											$160

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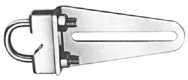
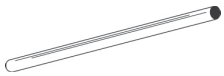
Mechanical Damper Actuator Accessories

5-year warranty

CRANK ARM ADAPTOR KITS		EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	GKB GKX	NKQB NKQX	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	List Price
	**ZG-ECON1** Honeywell economizer retrofit kit (includes 20477-00001 retrofit bracket)				•										$144
	**ZG-ECON2** Honeywell economizer retrofit kit (logic module bracket not included)				•										$114
	**20477-00001** Honeywell logic module bracket				•										$86
	**ZG-TF112** Crank arm adaptor kit (includes ZG-113 and KH-TF-1)					•									$88
	**ZG-TF2** Crank arm adaptor kit (includes mounting hardware)					•									$76
	**ZG-GMA** Crank arm adaptor kit						•		•						$144
	ZG-NMA Crank arm adaptor kit							•		•	•				$96
LINKAGES															
	**ZG-JSL** Jackshaft linkage Note: LF requires K6-1 clamp Note: EFB, EFX requires ZG-121	•	•	•	•		•	•	•	•	•				$375
	**ZG-JSLA + "Actuator"** Select actuators available preassembled to the ZG-JSL. At the factory, there is a cost savings on the ZG-JSL if assembled with the actuator		•	•	•					•	•				Visit www.belimo.us for Individual List Prices
	**ZG-121** Support plate for ZG-JSL with EF actuator	•													$82

ACTUATOR ACCESSORIES

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BALL JOINTS, DAMPER CLIPS, PUSH RODS, CRANK ARMS		EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	GKB GKX	NKQB NKQX	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	List Price
	**KH6** Universal crank arm for KG6 ball joint. Slot width ¼" [6.2 mm]. For damper shafts: $^{3}/_{8}$...$^{11}/_{16}$" diameter [10...18 mm] or $^{3}/_{8}$...$^{9}/_{16}$" sq. [10...14 mm]			•	•	•		•			•				$33
	**KH8** Universal crank arm for KG8 or KG10A ball joint. Slot width $^{21}/_{64}$" [8.2 mm]. For damper shafts: $^{3}/_{8}$...$^{11}/_{16}$" diameter [10...18 mm] or $^{3}/_{8}$...$^{9}/_{16}$" sq. [10...14 mm]		•	•	•	•		•		•	•				$33
	**KH10** Universal crank arm. Slot width $^{21}/_{64}$" [8.2 mm]. For damper shafts $^{9}/_{16}$...1" diameter [14...25 mm]	•	•	•			•		•						$76
	**KH12** Universal crank arm. Slot width $^{21}/_{64}$" [8.2 mm]. For damper shafts ¾...1" diameter [20...25 mm]		•	•	•	•		•		•	•				$42
	**KG6** Ball joint ($^{5}/_{16}$" diameter rod) zinc plated			•	•	•					•		•	•	$29
	**KG8** Ball joint ($^{5}/_{16}$" diameter rod, 90°) galvanized steel		•	•	•	•		•	•	•	•		•	•	$35
	**KG10A** Ball joint for KH8 ($^{3}/_{8}$" diameter rod) zinc plated	•	•	•	•	•	•		•	•	•		•	•	$39
	**SH8** Push rod for KG6 & KG8 ball joints (36", $^{5}/_{16}$" diameter)		•	•	•	•		•	•	•	•		•	•	$41
	SH10 Push rod for KG10 ball joints (36", $^{3}/_{8}$" diameter)	•	•	•	•	•	•		•	•	•				$53
	**ZG-DC1** Damper clip for damper blade, 3½" width	•	•	•	•	•	•	•	•	•	•				$61
	**ZG-DC2** Damper clip for damper blade, 6" width	•	•	•	•	•	•	•	•	•	•				$69

SPECIALIZED AIR FLOW CONTROL DAMPER ACTUATOR ACCESSORIES		LMV	LHV	NMV	List Price
	**ZPD-RE2-SET** Differential pressure pickup device with seal. For round ducts up to 400 mm (16") in diameter.	•	•	•	$148
	**ZPD-TA** Adapter for ¼" tubing (quantity 10).	•	•	•	$52

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Mechanical Damper Actuator Accessories

5-year warranty

BELIMO

HOUSINGS		EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	GKB GKX	NKQB NKQX	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	List Price
	**ZS-T** Terminal cover for NEMA 2 (-T models)								•	•	•	•	•	•	$35
	**ZS-100** Weather shield - galvanneal (13" L x 8" W x 6" D)		•	•	•	•	•	•	•	•	•	•			$239
	**ZS-101** Base plate for ZS-100		•	•	•	•	•	•	•	•	•	•			$54
	**ZS-150** Weather shield - polycarbonate with foam seal (16" L x 8 3/8" W x 4" D)		•	•	•	•	•	•	•	•	•	•			$266
	**ZS-260** Explosion proof housing		•	•	•		•	•	•	•					$3,959
	**ZG-109** Right angle bracket for ZS-260		•	•	•		•	•	•	•					$188
	**ZG-110** Stand-off bracket for ZS-260		•	•	•		•	•	•	•					$226
	**ZS-300** NEMA 4X, 304 stainless steel enclosure		•	•	•		•	•	•	•					$3,265
	ZS-300-5 NEMA 4X, 316L stainless steel enclosure		•	•	•		•	•	•	•					$3,950
	**ZS-300-C1** ½" Shaft adaptor (standard with ZS-300)		•	•	•		•	•	•	•					$497
	**ZS-300-C2** ¾" Shaft adaptor		•	•	•		•	•	•	•					$498
	**ZS-300-C3** 1" Shaft adaptor		•	•	•		•	•	•	•					$726

ACTUATOR ACCESSORIES

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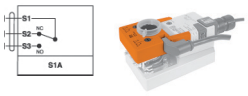
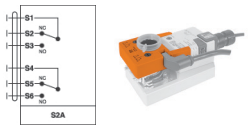
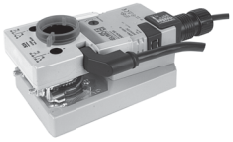
SHAFT ADAPTORS		EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	GKB GKX	NKQB NKQX	GMB GMX	AMB AMX	NMB NMX	LMB LMX	CM UM	AHB AHX	LHB LHX	List Price
	**AV6-20** 6.7" Shaft extension fits ¼...¾" diameter shafts				•	•		•				•				$80
	AV8-25* 9.8" Shaft extension fits 5/16...1" diameter shafts	•	•	•	•		•	•	•	•	•	•				$92
	**ZG-JSA-1** 1" Jackshaft adaptor [11"]	•	•	•			•	•	•	•	•					$305
	ZG-JSA-2 1 5/16" Jackshaft adaptor [12"]		•	•			•	•	•	•	•					$674
	ZG-JSA-3 1.05" Jackshaft adaptor [12"]	•	•	•			•	•	•	•	•					$565
	**ZG-NMSA-1** Shaft extension for ½" diameter shafts [3.8" long]							•			•					$86
	**ZG-LMSA** Shaft extension for ½" diameter shafts [3" long]											•				$95
	**ZG-LMSA-1** Shaft extension for 3/8" diameter shafts [4" long]				•							•				$96
	**ZG-LMSA-½"-5** Shaft extension for ½" diameter shafts [5" long]				•							•				$109
MISCELLANEOUS																
	**EF-P** Anti-rotation bracket	•					•		•							$17
	**AF-P** Anti-rotation bracket		•	•												$17
	**LF-P** Anti-rotation bracket				•											$16
	TF-P Anti-rotation bracket					•		•		•	•	•				$12
	**Z-ARCM** Anti-rotation bracket (product sold in quantities of 20)												•			$140
	**Z-DS1** Rotary support for lateral force compensation													•	•	$56
	**Z-KSA** 5/16" Shaft clevis														•	$71
	**Z-KSC** 3/8"- 16 Shaft clevis													•		$71
	**ZG-119** Bracket for linear actuators													•	•	$83
	**Tool-06** 8 mm and 10 mm wrench		•	•	•	•		•		•	•	•				No Charge
	Tool-07 13 mm wrench	•					•		•							No Charge
	**Z-PICM** Position indicator (product sold in quantities of 20)												•			$12

*K6-1 Accessory clamp is needed for use with LF actuators.

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Electronic Damper Actuator Accessories

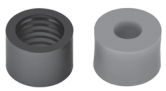
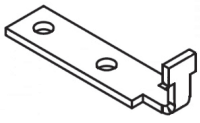
5-year warranty

AUXILIARY SWITCHES & POTENTIOMETERS		EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	GKB GKX	NKQB NKQX	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	List Price
	**S1A** Auxiliary switch, 1x SPDT, 3A resistive (0.5A inductive) @ AC 250 V						•	•	•	•	•	•			$131
	**S2A** Auxiliary switch, 2x SPDT, 3A resistive (0.5A inductive) @ AC 250 V						•	•	•	•	•	•			$198
	**P475** Shaft mount, non-Mercury auxiliary switch for ½" diameter shafts	•	•	•	•	•	•	•	•	•	•	•			$261
	**P475-1** Shaft mount, non-Mercury auxiliary switch for 1" diameter shafts	•	•	•	•	•	•	•	•	•	•	•			$279
	**P140A GR** Feedback potentiometer 140 Ω						•	•	•	•	•	•			$218
	P500A GR Feedback potentiometer 500 Ω						•	•	•	•	•	•			$218
	P1000A GR Feedback potentiometer 1000 Ω						•	•	•	•	•	•			$218
	P2800A GR Feedback potentiometer 2800 Ω						•	•	•	•	•	•			$218
	P5000A GR Feedback potentiometer 5000 Ω						•	•	•	•	•	•			$218
	P10000A GR Feedback potentiometer 10000 Ω						•	•	•	•	•	•			$218
	**P15000A-F GR** Feedback potentiometer 15000 Ω		•	•	•										$492
	**Z-SPA*** Adaptor for auxiliary switches and potentiometers						•	•							$27
CONTROL & POSITIONING															
	**SGA24** (surface mount) Positioner for remote control (modulating models)	•	•	•	•	•	•	•	•	•	•	•	•	•	$236
	**SGF24** (flush mount) Positioner for remote control (modulating models)	•	•	•	•	•	•	•	•	•	•	•	•	•	$206
	**ZG-SGF** Mounting plate for SGF	•	•	•	•	•	•	•	•	•	•	•	•	•	$39
	**IRM-100** Input rescaling module (modulating models)	•	•	•	•	•	•	•	•	•	•	•	•	•	$334
	**PTA-250** Pulse width modulation interface (modulating models)	•	•	•	•	•	•	•	•	•	•	•	•	•	$425

*For use on all NKQ actuators with switches and potentiometers.

ACTUATOR ACCESSORIES

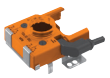
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CONTROL & POSITIONING		EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	GKB GKX	NKQB NKQX	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	List Price
	ZG-R01 4...20 mA adaptor, 500 Ω, ¼" W resistor with 6" pigtail wires	•	•	•	•	•	•	•	•	•	•	•	•	•	$33
	**ZG-R02** 50% voltage divider	•	•	•	•	•	•	•	•	•	•	•	•	•	$49
	ZG-R03 Resistor kit for -MFT95 actuators in a 0...135 Ω control application		•						•	•	•	•			$33
MISCELLANEOUS															
	**PS-100** Actuator power supply simulator	•	•	•	•	•	•	•	•	•	•	•	•	•	$2,166
	**NSV24 US** Battery back-up module								•	•	•	•	•	•	$1,248
	**NSV-BAT** 12V 1.2AH battery (2 required for NSV24 US)								•	•	•	•	•	•	$189
	**ZG-X40** **AC** 120...24 V, 40 VA transformer	•	•	•	•	•	•	•	•	•	•	•	•	•	$142
	**TF-CC US** Conduit connector	•	•	•		•	•	•	•	•	•	•	•	•	$24
	**43442-00001** Cable gland (for NEA 4 models)		•	•			•		•	•	•				$23
	**11097-00001** Gasket for cable gland (for NEMA 4 models)		•	•			•		•	•	•				$7
	**ZG-CBLS** Electrical junction box for LF actuators				•										$142
	**10478-00024** L type anti-rotation bracket bulk pack (24 pieces)											•			$39
	10478-00036 L type anti-rotation bracket bulk pack (36 pieces)											•			$50

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Specialized Fire and Smoke Damper Actuator Accessories

5-year warranty

FIRE AND SMOKE ACCESSORIES		FSAFB	FSAF*A	FSNF	FSLF	FSTF	List Price
	**BAE165 US** 165°F Electric thermal sensor. SPST, NC	•	•	•	•	•	$320
	**IND-AF2** Position indicator			•			$24
	**KH-AF US** Actuator arm			•			$55
	KH-AF-1 US Crank arm for up to 1.05” shaft			•			$99
	**K4-1 US** Jackshaft clamp for up to 1.05”			•			$54
	**SGA24 (with enclosure)** Remote potentiometer 0.5...10 V for FSAF24-SR & FSAFB24-SR	•					$236
	**SGF24 (no enclosure)** Remote potentiometer 0.5...10 V for FSAF24-SR & FSAFB24-SR	•					$206
	**S2A-F US** Auxiliary switch, 2x SPDT, 3A resistive (0.5A inductive) @ AC 250 V	•	•	•	•		$471
	**ZDB-AF2 US** Angle of rotation limiter			•			$40
	**ZG-AF US** Crank arm adaptor kit			•			$160
	**ZG-AF108** Crank arm adaptor kit			•			$169
	**ZG-AFA108** Mounting bracket, crank arm, and hardware for FSAF*A actuators		•				$194
	**ZG-AFA** Leg kit, angle brackets, crank arm, and hardware for FSAF*A actuators		•				$187

See individual Fire and Smoke data sheets for a complete list of accessories for each actuator.
NOTE: FSAFB24-SR(-S) uses the same accessories as the AFB series actuators. See page 5-5 for linkage kits.
FSAF*A uses legacy generation linkage kits and the new generation KH-AFB crank arm. No rotation limiter exists.
FSNF series actuators use legacy generation linkages shown on this page.
FSLF series actuators have no linkage capability. Use IND-LF on page 5-3.
FSTF series actuators use TF and TFB series linkage kits and accesories on pages 5-3 and 5-6.

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Standard and Customizable Damper Actuation

The damper actuator sections showcase products in an easy-to-read layout for quicker product selection. All actuator models are grouped first by non fail-safe then fail-safe functionality, followed by highest to lowest torque. Basic ("B" model) and Customizable ("X" model) actuators are consecutively listed, including the NEMA 4/4X (N4) model offerings. The standalone airflow measurement and control actuators with digital communications for rotary, linear, and in-duct applications are also included. Select 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.

GMB...
B = Basic stocked product

GMX...
X = Customizable product

Belimo is an innovator in IoT based actuation with connectivity to BACnet/IP and MS/TP and Modbus RTU and TCP. These IP and MOD designated products enable sensor integration directly into the actuator for digitization and processing. Refer to page 23-2 on "How to Select a Damper Actuator."

Basic (B model) actuators provide fixed functionality for typical application requirements. Accessories can be added in the field, such as the mechanical interfaces, mounting brackets, and crank arms.

Customizable (X model) actuators allow for factory configuration, selection of mechanical and electrical interfaces and control options. Multi-Function Technology (MFT) enables you to modify voltage control (VDC), time proportional control (PWM), floating point (-3), and on/off control signals. Additionally, MFT makes it easy to set parameters for feedback position (VDC), running time, mechanical working range, identify status, and application diagnostics.

Factory ordered customizable product(s) contain an actuator reorder number allowing for fast reordering of the same configuration. The reorder number is printed on the actuator's label, shipping documents, and on the invoice. Select NEMA 4 actuators (X..N4 types) have an optional low temperature heater, which is now part of the reorder number. The heater option is indicated in the reorder number with the letter "Y" for non fail-safe and electronic fail-safe and "H" for mechanical fail-safe actuators.

To expedite orders, some customizable products are automatically converted to the basic (B) version when the selected mechanical interface, wiring connection, and programming codes are equal to the basic product.

Select MFT actuators are field configurable with the ZTH handheld tool, MFT PC-Tool software, and Near Field Communication (NFC) with the Belimo Assistant App (ZIP-BT-NFC converter is required for Apple devices).

The customization process has five selection criteria.

1 Actuator model (page 5-14)

1.1 Select low temperature heater option (X..N4 types only)

2 Select the desired mechanical interface (page 5-15)

3 Select the desired electrical interface (page 5-15)

4 Select the desired configurable control options, for MFT actuators, choose the desired control input, position feedback, and runtime (page 5-15)

Each customizable selection has a code associated are combined to create the re-order number. Some options have an additional fee.



Reorder # for a EFX24-MFT-S N4
is: EFKL0100A01

4	No Charge
3	No Charge
2	No Charge
1	$2,309
	$2,309 Final Price



Reorder # for a GMX24-MFT
is: GM1101C3A01Y

4	No Charge
3	$37
2	No Charge
1.1	X..N4 Heater Option (+$600)
1	$1,047
	$1,084 Final Price

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Customize Model to Reorder ID

1 Select an Actuator.

Model	Base Actuator ID
AFX24	AF200
AFX24 N4	AFG200
AFX24-MFT	AF600
AFX24-MFT N4	AFG600
AFX24-MFT95	AFE10
AFX24-MFT95 N4	AFGE10
AFX24-MFT-S	AF620
AFX24-MFT-S N4	AFG620
AFX24-S	AF220
AFX24-S N4	AFG220
AFX24-SR	AF400
AFX24-SR N4	AFG400
AFX24-SR-S	AF420
AFX24-SR-S N4	AFG420
AFXUP	AF000
AFXUP N4	AFG000
AFXUP-S	AF020
AFXUP-S N4	AFG020
AHKX24-MFT-100	AHK4J0
AHX120-3-100	AH060
AHX24-MFT-200	AH280
AMCX24-MFT	AMC110
AMCX24-MFT95	AMC0M0
AMCX24-MFT-T N4	AMP3K0
AMQX24-1	AMQD60
AMQX24-MFT	AMQD00
AMX120-3	AM060
AMX120-SR	AM450
AMX24-3	AM000
AMX24-3-S	AM020
AMX24-3-T	AMT00
AMX24-3-T N4	AMPT00
AMX24-MFT	AM100
AMX24-MFT N4	AMP100
AMX24-MFT95	AM0L0
AMX24-MFT-T N4	AMPUN0
AMX24-PC	AM0N0
AMX24-SR	AM030
AMX24-SR-T	AMT40
AMX24-SR-T N4	AMPT40
EFCX120-S N4	EFGH0
EFCX24-S N4	EFGL0
EFX120	EF650
EFX120-S	EF670
EFX120-S N4	EFK20
EFX120-S N4H	EFK30
EFX120-SR N4	EFKR0

Model	Base Actuator ID
EFX120-SR-S N4	EFKT0
EFX24-MFT	EF600
EFX24-MFT-S	EF620
EFX24-MFT-S N4	EFKL0
EFX24-MFT-S N4H	EFKM0
EFX24-S	EF220
EFX24-S N4	EFK60
EFX24-S N4H	EFK70
EFX24-SR	EF400
EFX24-SR-S	EF420
EFX24-SR-S N4	EFKE0
EFX24-SR-S N4H	EFKF0
GKX24-3	GK4K0
GKX24-3-T N4	GKG4T0
GKX24-MFT	GK4J0
GKX24-MFT-T N4	GKG4N0
GKX24-SR	GK6K0
GKX24-SR GR	GKEE0
GKX24-SR-T N4	GKG4F0
GMX120-3	GM580
GMX24-3	GM540
GMX24-3-T N4	GMGHT0
GMX24-MFT	GM110
GMX24-MFT N4	GMG110
GMX24-MFT-T N4	GMG3K0
GMX24-PC	GM0P0
GMX24-SR	GM560
GMX24-SR-T N4	GMGGT0
LHX120-3-200	LH070
LHX120-3-300	LH180
LHX24-MFT-100	LH100
LHX24-MFT-200	LH280
LHX24-MFT-300	LH790
LHX24-SR-200	LH040
LMQX24-MFT	LMQD00
LMX120-3	LM060
LMX120-3-F	LM070
LMX120-SR	LM450
LMX120-SR-F	LM460
LMX24-3	LM000
LMX24-3-F	LM010
LMX24-3-F-T	LMT10
LMX24-3-S	LM020
LMX24-3-T	LMT00
LMX24-MFT	LM100
LMX24-MFT95	LM0L0
LMX24-SR	LM030
LMX24-SR-F	LM040
LMX24-SR-T	LMT40

Model	Base Actuator ID
NFX24	NF200
NFX24 N4	NFG200
NFX24-MFT	NF600
NFX24-MFT N4	NFG600
NFX24-MFT-S	NF620
NFX24-MFT-S N4	NFG620
NFX24-S	NF220
NFX24-S N4	NFG220
NFX24-SR	NF400
NFX24-SR N4	NFG400
NFX24-SR-S	NF420
NFX24-SR-S N4	NFG420
NFXUP	NF000
NFXUP N4	NFG000
NFXUP-S	NF020
NFXUP-S N4	NFG020
NKQX24-1	NKQDL0
NKQX24-MFT	NKQDJ0
NKQX24-SR	NKQDM0
NMCX24-MFT	NMC110
NMQX24-1	NMQD60
NMQX24-MFT	NMQD00
NMX120-3	NM060
NMX120-SR	NM450
NMX24-3	NM000
NMX24-3-F	NM010
NMX24-3-T	NMT00
NMX24-3-T N4	NMPT00
NMX24-MFT	NM100
NMX24-MFT N4	NMP100
NMX24-MFT95	NM0L0
NMX24-MFT-T	NMUN0
NMX24-MFT-T N4	NMPUN0
NMX24-SR	NM030
NMX24-SR-T	NMT40
NMX24-SR-T N4	NMPT40
TFCX120-S	TF2D0
TFX120	TF650
TFX120-S	TF660
TFX24	TF200
TFX24-3	TFB10
TFX24-3-S	TFB24
TFX24-MFT	TF950
TFX24-MFT-S	TF9A0
TFX24-S	TF210
TFX24-SR	TF400
TFX24-SR-S	TF410

1.1 Select Heater Option (X..N4 Types).

	Non Fail-Safe			Fail-Safe		
NEMA 4(X) Enclosure with Heater	**GMX..N4**	**AMX..N4**	**NMX..N4**	**GKX..N4**	**AFX..N4**	**NFX..N4**
Y	•	•	•	•		
H					•	•

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2 Select a Mechanical Interface.

Mechanical Interface		Non Fail-Safe						Fail-Safe					
ID	Description	GMX	AMX	NMX	LMX	AHX	LHX	GKX	EFX	AFX	NFX	TFX	NKQX
0	No insert in hollow shaft	•	•	•	•	•	•	•	•	•	•	•	•
1	Clamp standard	•	•	•	•			•	•	•	•	•	•
2	Clamp 3/8"									•	•		
4	Clamp ½"				•								
6	Clamp ¾"				•								
9	Clamp LU 8...12 mm with endstops									•		•	
B	Formfit 8 x 8 mm position indicator			•	•								
J	Clamp 1" D-shaft			•									

3 Select the Electrical Interface.

Mechanical Interface		Non Fail-Safe						Fail-Safe					
ID	Description	GMX	AMX	NMX	LMX	AHX	LHX	GKX	EFX	AFX	NFX	TFX	NKQX
31	Cable, 3 ft. [1 m] plenum, without connector	•		•	•		•	•		•	•		
33	Cable, 10 ft. [3 m] plenum, without connector		•	•	•					•			
35	Cable, 16 ft. [5 m] plenum, without connector			•	•								
00	Terminals								•				
01	Cable, 3 ft. [1 m] PVC	•	•				•		•	•			
02	Cable, 10 ft. [3 m] PVC	•								•			
03	Cable, 16 ft. [5 m] PVC									•	•		
05	Cable, 3 ft. [1 m] FRNC		•		•								•
06	Cable, 10 ft. [3 m] FRNC												•
07	Cable, 16 ft. [5 m] FRNC			•									
A1	Cable, 3 ft. [1 m] PVC connector	•	•	•	•	•	•		•	•	•	•	
A3	Cable, 10 ft. [3 m] PVC connector		•	•	•				•	•	•	•	
A5	Cable, 16 ft. [5 m] PVC connector		•	•					•	•	•	•	
C1	Cable, 3 ft. [1 m] plenum, with connector, without SL	•	•	•	•	•	•	•	•	•	•	•	•
C3	Cable, 10 ft. [3 m] plenum, with connector, without SL	•	•	•	•			•	•	•	•	•	•
C5	Cable, 16 ft. [5 m] plenum, with connector, without SL	•	•	•	•			•		•	•	•	•
E3	Cable, 10 ft. [3 m] plenum 20 mA connector				•								
T1	Terminal unprotected	•	•	•	•			•					
T2	Terminal cover connector				•								

4 Select a Control Option (..MFT).

Program Codes		Non Fail-Safe									Fail-Safe					
ID	Description	GMX	AMX	AMQX	NMX	NMQX	LMX	LMQX	AHX	LHX	GKX	EFX	AFX	NFX	NKQX	TFX
A01	VDC; In 2...10 V; Out 2...10 V; 150s	•	•		•		•		•	•	•	•	•	•		•
A02	VDC; In 0.5...10 V; Out 0.5...10 V;150s	•	•		•		•		•	•	•	•	•	•		•
A03	VDC; In 2...10 V; Out 0.5...5 V; 150s	•			•		•		•	•			•	•		•
A06	VDC; In 10.5...13.5 V; Out 2...10 V; 150s				•											
A08	VDC; In 0.5...5 V; Out 0.5...10 V; 150s						•									
A09	VDC; In 5...10 V; Out 2...10 V; 150s													•		
A11	VDC; In 0.5...5 V; Out 0.5...5 V; 150s												•			
A13	VDC; In 0.5...10 V; Out 2...10 V; 150s												•			
A16	VDC; In 2...6 V; Out 2...10 V; 150s				•											
A17	VDC; In 6...10 V; Out 2...10 V; 150s				•											
A19	VDC; In 2...10 V; Out 2...10 V; 100s		•										•			
A28	VDC; In 0.5...10 V; Out 0.5...10 V; 100s		•		•		•						•			•
A37	VDC; In 0.5...10 V; Out 0.5...10 V; 120s	•														

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Program Codes		Non Fail-Safe									Fail-Safe					
ID	Description	GMX	AMX	AMQX	NMX	NMQX	LMX	LMQX	AHX	LHX	GKX	EFX	AFX	NFX	NKQX	TFX
A39	VDC; In 10...14 V; Out 2...10 V; 150s				•											
A42	VDC; In 0.5...10 V; Out 2...10 V; 75s	•														
A55	VDC; In 2...5 V; Out 2...10 V; 75s															
A62	VDC; In 2...10 V; Out 2...10 V; 90s	•	•		•								•			
A63	VDC; In 0.5...4.5 V; Out 0.5...4.5 V; 150s				•											
A64	VDC; In 5.5...10 V; Out 5.5...10 V; 150s				•								•			
A72	VDC; In 2...10 V; Out 2...10 V; 95s											•				
A91	VDC; In 2...10 V; Out 2...10 V; 95s												•			
AAA	VDC; In 2...22 V; Out 2...10 V; 150s						•									
AAT	VDC; In 2...10 V; Out 2...10 V; 20s				•											
AAX	VDC; In 2...10 V; Out 2...10 V; 35s		•				•									
AC0	VDC; In 2...10 V; Out 2...10 V; 45s													•		
AC1	VDC; In 2...10 V; Out 2...10 V; 90s										•		•			
AC5	VDC; In 2...10 V; Out 2...10 V; 75s	•											•	•		
AD6	VDC; In 2...10 V; Out 0.5...5 V; 100s		•				•									
AE0	VDC; In 2...10 V; Out 2...10 V; 90s										•					
AE2	VDC; In 2...10 V; Out 2...10 V; 150s										•					
F01	Floating; In Float; Out 2...10 V; 150s	•	•						•	•		•	•	•		
F05	Floating; In Float; Out 0.5...10 V; 100s				•		•							•		
F06	Floating; In Float; Out 0.5...5 V; 150s												•			
F14	Floating; In Float; Out 2...10 V; 90s												•			
F19	VDC; In Float; Out 2...10 V; 45s		•													
F1A	VDC; In Float; Out 2...10 V; 35s															
H01	VDC; In 2...10 V; Out 2...10 V; 95s											•	•	•		•
H02	VDC; In 2...10 V; Out 2...10 V; 150s											•	•	•		
H06	VDC; In 2...10 V; Out 2...10 V; 90s												•	•		
H07	VDC; In 2...10 V; Out 2...10 V; 75s												•	•		
H15	VDC; w/o Close-Off Func; 2...10 V; 35s						•									
H34	Floating; In Float,Out 2...10 V; 95s															•
J01	On/Off; In On/Off; Out 2...10 V; 75s												•			
R01	R95; In 135Ohm; Out 2...10 V; 150s		•		•		•						•			
R04	R95; In 135Ohm; Out 2...10 V; 75s		•										•			
R05	R95; In 135Ohm; Out 0.5...10 V; 100s		•										•			
R09	R95; In 135Ohm; Out 2...10 V; 90s		•				•									
R0A	R95; In 135Ohm; Out 2...10 V; 37s		•													
S01	PC; In Phasecut; Out 2...10 V; 150s	•														
S04	PC; In Phasecut; Out 2...10 V; 90s		•													
T01	Q-VDC; In 2...10 V; Out 2...10 V; 2.5s							•								
T02	Q-VDC; In 2...10 V; Out 2...10 V; 4s					•									•	
T03	Q-VDC; In 2...10 V; Out 2...10 V; 7s			•												
T04	Q-VDC; In 2...10 V; Out 2...10 V; 10s														•	
T07	Q-VDC; In 0.5...10 V; Out 0.5...10 V; 2.5s							•								
T08	Q-VDC; In 0.5...10 V; Out 0.5...10 V; 4s					•									•	
T09	Q-VDC; In 0.5...10 V; Out 0.5...10 V; 7s			•												
T0A	Q-VDC; In 0.5...10 V; Out 0.5...10 V; 10s			•				•							•	
T0C	Q-VDC; In 0.5...10 V; Out 0.5...10 V; 15s					•										
T0H	Q-OC; In Open/Close; Out 2...10 V; 4s					•									•	
T0J	Q-OC; In Open/Close; 7s		•													
T0L	Q-VDC; In 2...10 V; Out 2...10 V; 4s														•	
T0N	Q-VDC; In 2...10 V; Out 2...10 V; 10s														•	
T0S	Q-OC; In Open/Close; Out 2...10 V; 15s			•												
T0T	Q-OC; In Open/Close; Out 2...10 V; 20s			•												
W01	PWM; In 0.59-2.93s; 2...10 V; 150s				•		•									
W02	PWM; In 0.02-5s; Out 2...10 V; 150s		•		•		•						•	•		•
W03	PWM; 0.1-25.5s; Out 2...10 V; 150s				•		•						•			
W06	PWM; 0.59-2.93s; 0.5...5 V; 150s												•			
W32	PWM; 0.1-25.5s; Out 2...10 V; 100s												•			
W34	PWM; In 0.59-2.93s; 2...10 V; 100s	•			•											
W3F	PWM; In 0.1-25.5s; Out 0.5...5 V; 150s				•											
W3L	PWM; In 0.2-5s; Out 2...10 V; 150s						•						•	•		

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Perfectly Balanced Room Comfort

- Pressure independent valve technology provides better comfort while saving energy.
- Automatic dynamic balancing optimizes system performance at all times.
- Improves Delta T and reduces pumping cost.

PJ Qvarnstrom, RetroFIT+ Business Development Manager



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PRESSURE INDEPENDENT VALVES

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6 ENERGY VALVES

Measure and Control

- Accurate measurement and monitoring of energy consumption in a heating and cooling system with direct IoT-based cost accounting using a single device.
- Delta T Manager algorithm reduces pumping and chiller/boiler operating costs by increasing plant efficiency by maintaining a higher Delta T.
- Cloud-connected device utilizes advanced analytic technology to leverage system data to improve coil and system performance.

Nevin Colon, Receiving, Line Leader

Energy Valve Nomenclature

EV	050			+AKRX-E		-EV	N4
Energy Valve NPT 2-way (½...2") Flanged 2-way (2½...6")	**Valve Size** 050 = ½" 075 = ¾" 100 = 1" 125 = 1¼" 150 = 1½" 200 = 2" 250 = 2½" 300 = 3" 400 = 4" 500 = 5" 600 = 6" S = Stainless Steel Ball and Stem U = Ultrasonic Flow Sensor with Glycol and Temperature Compensation	**Flow Rate** 1.65...713 GPM Refer to valve pages for a full list	**Pressure Rating** Blank = ANSI 125 -250 = ANSI 250	**Actuator Type** Non Fail-Safe LRX-E NRX-E ARB, ARX-E GRB, GRX (EV) Electronic Fail-Safe AKRB, AKRX (E), (EV) GKRB, GKRX (EV)	**Power Supply** 24 = AC/DC 24 V Blank = AC/DC 24 V	**Valve Size** Blank = ½...2" EV = 2½...6"	N4 = NEMA 4

"X" models are customizable.
Refer to page 6-3 for programming options.

Energy Valve Set Up Options

The Energy Valve can be factory set to the options starting on page 6-3. Additional options are available, please contact customer service for additional options.

NOTE: If no specific settings are selected, the product will ship with the default settings below.

DEFAULT SETTINGS

Maximum Flow	Actuator Setup	Control Signal DDC and Feedback Signal
Maximum flow of the valve	Non Fail-Safe Normally Open (NO)	Control Signal DDC (Y) 2...10 V
	Electronic Fail-Safe Normally Closed (NC) / Fail Closed (FC)	Feedback Signal (U) 2...10 V

Follow steps 1 through 4.

1. SELECT CODE FOR MAXIMUM FLOW

The Maximum GPM can be factory set from 25% to 100% of Vnom (nominal flow) see the flow code below for the desired GPM of the corresponding valve size. Other GPM settings are available, please contact customer service.

Flow Code	½" GPM	¾" GPM	1" GPM	1¼" GPM	1½" GPM	2" GPM (66 GPM)	2" GPM (100 GPM)	2½" GPM	3" GPM	4" GPM	5" GPM	6" GPM
25	1.6	2.7	4.5	7.1	11.0	16.5	25					
30	1.9	3.3	5.4	8.5	13.2	19.8	30	38	54	95	149	214
37	2.4	4.1	6.7	10.5	16.2	24.4	37	47	67	117	183	264
45	2.9	4.9	8.1	12.8	19.8	29.7	45	57	81	143	223	321
55	3.6	6.0	10.0	15.6	24.2	36.3	55	70	99	174	272	392
63	4.1	6.9	11.4	17.9	27.7	41.5	63	80	113	200	312	449
65	4.2	7.1	11.8	18.5	28.6	42.9	65	83	117	206	322	463
68	4.4	7.4	12.3	19.3	29.9	44.8	68	86	122	216	337	485
71	4.6	7.8	12.9	20.2	31.2	46.8	71	90	128	225	351	506
72	4.7	7.9	13.1	20.5	31.6	47.5	72	91	130	228	356	513
75	4.9	8.2	13.6	21.3	33.0	49.5	75	95	135	238	371	535
76	5.0	8.3	13.8	21.6	33.4	50.1	76	97	137	241	376	542
78	5.1	8.5	14.2	22.3	34.3	51.4	78	99	140	247	386	556
80	5.2	8.8	14.5	22.8	35.2	52.8	80	102	144	254	396	570
82	5.4	9.0	14.9	23.3	36.1	54.1	82	104	148	260	406	585
83	5.5	9.1	15.1	23.6	36.5	54.7	83	105	149	263	411	592
85	5.6	9.3	15.4	24.2	37.4	56.1	85	108	153	269	421	606
87	5.7	9.5	15.8	24.8	38.2	57.4	87	110	157	276	431	620
89	5.8	9.7	16.2	25.3	39.1	58.7	89	113	160	282	441	635
91	6.0	10.0	16.5	25.9	40.1	60.1	91	116	164	288	450	649
93	6.1	10.2	16.9	26.5	40.9	61.3	93	118	167	295	460	663
95	6.3	10.4	17.2	27.0	41.8	62.7	95	121	171	301	470	677
97	6.4	10.6	17.6	27.6	42.6	64.1	97	123	175	307	480	692
00	6.6	11	18.2	28.5	44	66	100	127	180	317	495	713

2. SELECT ACTUATOR SETUP

ELECTRONIC FAIL-SAFE
Options
NC/FO
NC/FC

NON FAIL-SAFE
Options
NO
NC

3. SELECT CONTROL SIGNAL DDC AND FEEDBACK SIGNAL

CONTROL SIGNAL DDC
Options
0.5...10 V
2...10 V

FEEDBACK SIGNAL
Options
0.5...10 V
2...10 V

This section does not affect BACnet or Modbus functions.

4. DOES THIS UNIT REQUIRE TAGGING

Part number for tagging: 99981-00101
Valves may be tagged per customer specification. ($15.00 charge per tag)
Example: AHU-1
FCU-2

COMPLETE PROGRAMMED ORDERING EXAMPLE

EV050+AKRX-E

Maximum Flow: 6.6 GPM
Control Signal DDC/ Feedback Signal: 2...10 V
Setup: Normally Closed/Fail Open (NC/FO)
Tag: FCU -2

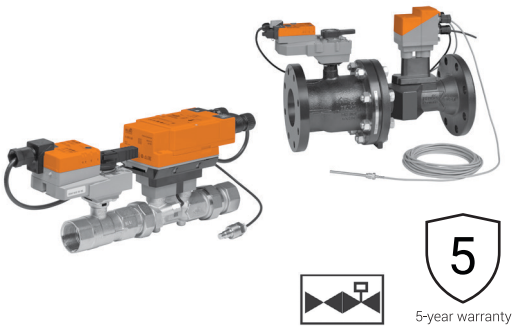
Note: Additional parameters can be factory set, contact customer service for options.

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Energy Valve Product Range

		Valve Nominal Size		Type	Suitable Actuators	
	GPM Range	Inches	DN [mm]	2-way	Non Fail-Safe	Electronic Fail-Safe
NPT	1.65…6.6*	½	15	EV050	LRX-E, ARX-E N4	AKRX-E (N4)
	2.7…11*	¾	20	EV075		
	4.5…18.2*	1	25	EV100		
	7.1…28.5*	1¼	32	EV125	NRX-E, ARX-E N4	
	11…44*	1½	40	EV150		
	16.5…66*	2	50	EV200	ARX-E (N4)	
	25…100*	2	50	EV200H**		
Flanged ANSI 125	38...127*	2½	65	EV250SU-127	ARB(X)24-EV	AKRB(X)24-EV
	54...180*	3	80	EV300SU-180		
	95...317*	4	100	EV400SU-317	GRB(X)24-EV	GKRB(X)24-EV
	149...495*	5	125	EV500SU-495		
	214...713*	6	150	EV600SU-713		
Flanged ANSI 250	38...127*	2½	65	EV250SU-127-250	ARB(X)24-EV	AKRB(X)24-EV
	54...180*	3	80	EV300SU-180-250		
	95...317*	4	100	EV400SU-317-250	GRB(X)24-EV	GKRB(X)24-EV
	149...495*	5	125	EV500SU-495-250		
	214...713*	6	150	EV600SU-713-250		

*V'nom = Maximum flow for each valve body size.
** Fluid temperature range is 39...250°F [4...120°C]



MODE OF OPERATION

The Energy Valve is an energy metering pressure independent control valve that optimizes, documents, and proves water coil performance.

PRODUCT FEATURES

Measures Energy: using its built-in electronic flow sensor and supply and return temperature sensors.
Controls Power: with its Power Control logic, providing linear heat transfer regardless of temperature and pressure variations.
Manages Delta T: by solving Low Delta T Syndrome. In addition, it reduces pumping costs while increasing chiller/boiler efficiency by optimizing coil efficiency.

ACTUATOR SPECIFICATIONS

Control type	modulating
Manual override	LR, NR, AR, GR, AKR, GKR
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting
Communication	BACnet IP, BACnet MS/TP, listed by BTL, web server, Modbus RTU, TCP, Belimo MP-Bus, analog

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 5", 6"
End fitting	NPT female (½...2") pattern to mate with ANSI 125 or 250 flange (2½...6")
Materials	
Body	
Valve	forged brass, nickel plated (½...2") cast iron - GG25 (2½...6")
Sensor housing	forged brass, nickel plated (½...2") ductile iron - GGG50 (2½...6")
Ball	stainless steel
Stem	stainless steel
Characterizing disc	Tefzel® (½...2") stainless steel (2½...6")
Fluid temp range	14...250°F [-10...+120°C], 39...250°F [4...120°C] (EV200H)
Body pressure rating	360 psi (½...2"), ANSI 125, Class B (2½...6") ANSI 250 (2½...6")
Close-off pressure	200 psid (½...2"), 175 psid (ANSI 125, 2½...6") 310 psid (ANSI 250, 2 ½...6")
Differential pressure range (ΔP)	see technical documentation
Remote temperature sensor length	
½...2"	9.8 ft. [3 m]
2½...6"	32.8 ft. [10 m]
Leakage	0%
Rangeability	100:1
Flow control tolerance	±5%
Flow measurement tolerance	±2%

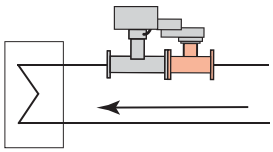
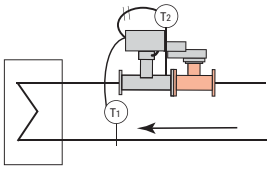
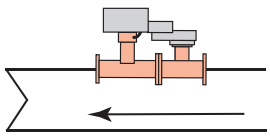
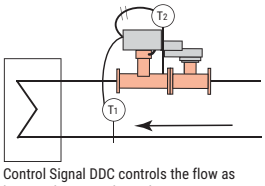
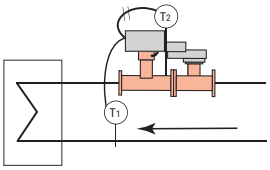
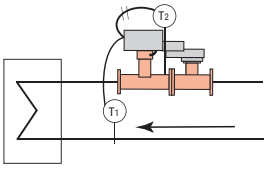
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SET-UP - Specify Upon Ordering

		2-WAY VALVE
NON FAIL-SAFE STAYS IN LAST POSITION	**LRX Series** **NRX Series** **ARX Series** **GRX Series**	**NC:** Normally Closed- valve will open as voltage increases. **NO:** Normally Open- valve will close as voltage increases.
ELECTRONIC FAIL-SAFE STAYS IN FAIL-SAFE POSITION	**AKRX Series** **GKRX Series**	**NC/FO Valve:** Normally Closed- valve will open as voltage increases. Fail Action: Will fail open upon power loss. **NC/FC Valve:** Normally Closed-valve will open as voltage increases. Fail Action: Will fail closed upon power loss.

FUNCTIONALITY

The Energy Valve offers different operating modes which can be selected using the Webview, Belimo Asistant App or ZTH US (2½" to 6" only)

	Delta T Manager OFF		Delta T Manager ON	
Position Control	 Control Signal DDC controls the valve position.	**Position Control** The Energy Valve works as a normal pressure dependent valve. The actuator is positioned based on the control signal DDC.	 Control Signal DDC controls the valve position as long as the ΔT is above the ΔT setpoint.	**Position Control + Delta T Manager** The Energy Valve works as a pressure dependent valve. If the measured ΔT is lower than the ΔT setpoint the flow will be reduced by the ΔT Manager logic to achieve the setpoint, regardless of the control signal DDC. Note: In position control, only ΔT Manager can be selected, ΔT Manager Scaling will not be available.
Flow Control	 Control Signal DDC controls the flow.	**Pressure Independent Flow Control** The Energy Valve works as an EPIV (Electronic Pressure Independent Valve). The valve reacts to any change in pressure and modulates the actuator to maintain the flow setpoint based on the control signal DDC.	 Control Signal DDC controls the flow as long as the ΔT is above the ΔT setpoint.	**Pressure Independent Flow Control+ Delta T Manager** The Energy Valve works as an EPIV. However, if the measured ΔT is lower than the ΔT setpoint, the flow will be reduced by the Δ T Manager logic to achieve the ΔT setpoint, regardless of the control signal DDC.
Power Control	 Control Signal DDC controls the coil thermal power setpoint (BTU/hr or kW).	**Power Control** The Energy Valve adjusts flow to maintain the thermal power setpoint. If the measured coil power is below setpoint, flow will be increased. If the measured coil power is above setpoint, flow will be decreased as long as the defined V'max is not exceeded.	 Control Signal DDC controls the thermal power setpoint as long as the ΔT is above the ΔT setpoint.	**Power Control + Delta T Manager** The Energy Valve adjusts flow to maintain the thermal power setpoint. If the measured coil power is below setpoint, flow will be increased. If the measured coil power is above setpoint, flow will be decreased as long as the defined V'max is not exceeded. If the measured ΔT is lower than the ΔT setpoint, flow will be reduced by the ΔT Manager logic and will override the thermal power control setpoint.

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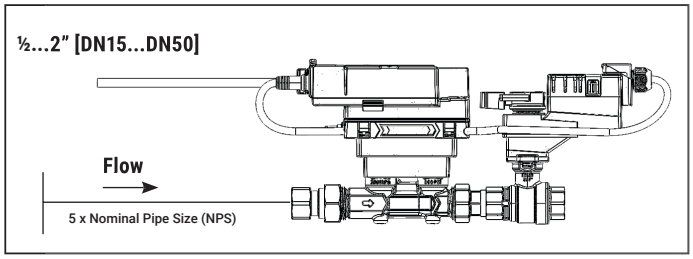
INSTALLATION

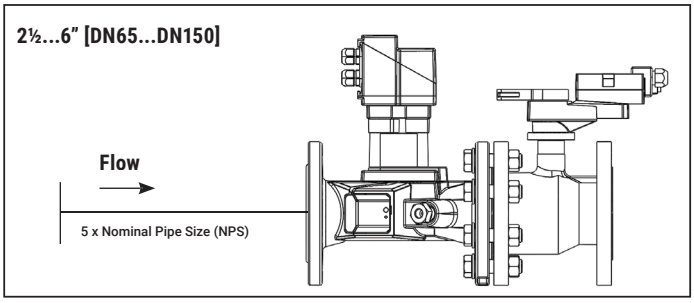
Inlet Length

The Energy Valve requires a section of straight pipe on the valve inlet to guarantee sensor accuracy. This section should be at least 5 pipe diameters long with respect to the size of the valve.

½" [DN15] 5 x nominal pipe size = 2½" [64 mm]
¾" [DN20] 5 x nominal pipe size = 3¾" [95 mm]
1" [DN25] 5 x nominal pipe size = 5" [127 mm]
1¼" [DN32] 5 x nominal pipe size = 6¼" [159 mm]
1½" [DN40] 5 x nominal pipe size = 7½" [191 mm]
2" [DN50] 5 x nominal pipe size = 10" [254 mm]

2½" [DN65] 5 x nominal pipe size = 12½" [317 mm]
3" [DN80] 5 x nominal pipe size = 15" [381 mm]
4" [DN100] 5 x nominal pipe size = 20" [508 mm]
5" [DN125] 5 x nominal pipe size = 25" [635 mm]
6" [DN150] 5 x nominal pipe size = 30" [762 mm]





Outlet Length

No requirements for outlet length.
Elbows can be installed directly after the valve.

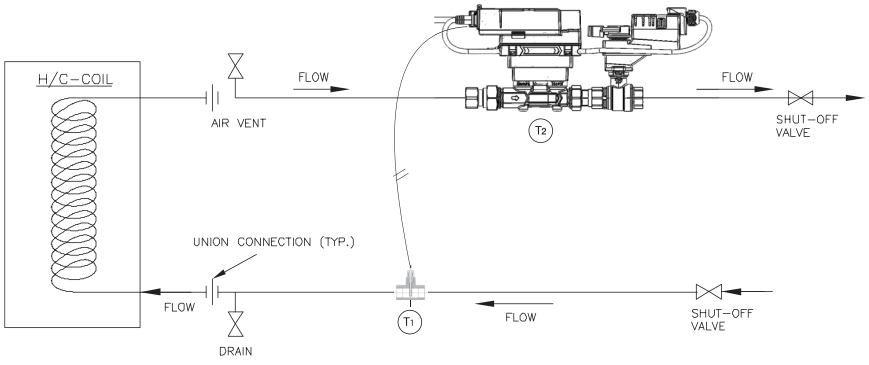
Note: All tolerances on flow measurement/control will be affected if requirements are not followed. The Energy Valve is not designed for open loop and steam systems.

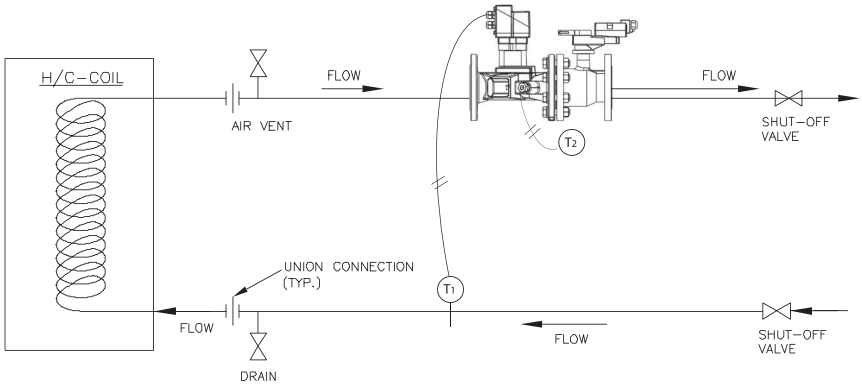
PIPING

This diagram illustrates a typical application. Consult engineering specification and drawings for particular circumstances.

The T2 sensor is integrated into the valve. The T1 sensor is installed on the other side of the coil in the provided thermo well.

Note: Energy Valves can be piped in a parallel orientation to achieve increased flow rates, contact technical support for details.



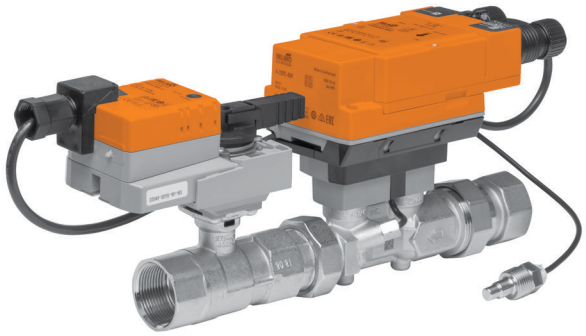


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VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
End Fitting	NPT female
Body	forged brass, nickel plated
Sensor Housing	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Stem Packing	EPDM
Fluid Temp. Range 1.9...66 GPM	14...250°F [-10...+120°C]
Fluid Temp. Range EV200H (100 GPM)	39...250°F [4...120°C]
Diff. Pressure Range 1.65...66 GPM	5...50 psid or 1...50 psid with flow reductions*
Diff. Pressure Range EV200H (100 GPM)	11...50 psid or 1...50 psid with flow reductions*
Leakage	0%
Inlet Length to Meet Specified Measurement Accuracy	5X nominal pipe size (NPS)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Remote Temperature Sensor Length	9.8 ft. [3m]

5-year warranty



ACTUATOR PART #	LRX-E	NRX-E	ARX-E	AKRX-E
Control	Modulating	Modulating	Modulating	Modulating
Manual Override	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds	90 seconds
Running Time (Fail-Safe)				35 seconds
Fail-Safe				•

2-WAY

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]	LRX-E	NRX-E	ARX-E	AKRX-E
EV050	6.6	½" [15]	360	200	$1,929			$2,804
EV075	11	¾" [20]			$1,993			$2,930
EV100	18.2	1" [25]			$2,119			$3,280
EV125	28.5	1¼" [32]				$2,798		$3,388
EV150	44	1½" [40]				$3,007		$3,700
EV200	66	2" [50]					$3,556	$4,155
EV200H	100	2" [50]					$3,556	$4,155

* See flow reduction chart in technical documentation.

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Energy Valves with Non Fail-Safe and Electronic Fail-Safe Actuators

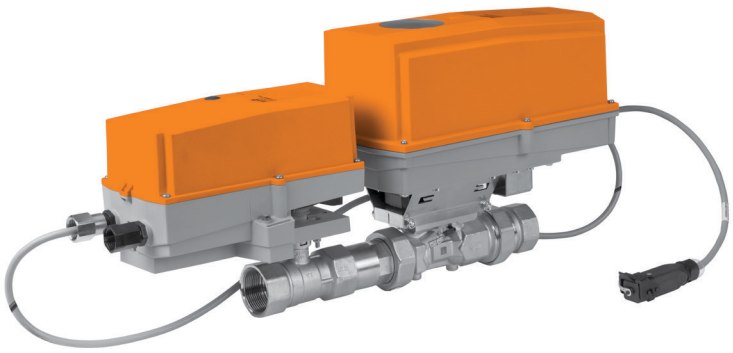
2-way Valves with Stainless Steel Ball and Stem, NPT Female Ends, NEMA 4

BELIMO

5-year warranty

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
End Fitting	NPT female
Body	forged brass, nickel plated
Sensor Housing	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Stem Packing	EPDM
Fluid Temp. Range 1.9...66 GPM	14...250°F [-10...+120°C]
Fluid Temp. Range EV200H (100 GPM)	39...250°F [4...120°C]
Diff. Pressure Range 1.65...66 GPM	5...50 psid or 1...50 psid with flow reductions*
Diff. Pressure Range EV200H (100 GPM)	11...50 psid or 1...50 psid with flow reductions*
Leakage	0%
Inlet Length to Meet Specified Measurement Accuracy	5X nominal pipe size (NPS)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Remote Temperature Sensor Length	9.8 ft. [3m]



ACTUATOR PART #	ARX-E N4	AKRX-E N4
Control	Modulating	Modulating
Manual Override	•	•
Running Time (Motor)	90 seconds	90 seconds
Running Time (Fail-Safe)		35 seconds
Fail-Safe		•

2-WAY

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]		
EV050	6.6	½" [15]	360	200	$3,153	$4,028
EV075	11	¾" [20]			$3,217	$4,154
EV100	18.2	1" [25]			$3,343	$4,504
EV125	28.5	1¼" [32]			$4,022	$4,612
EV150	44	1½" [40]			$4,231	$4,924
EV200	66	2" [50]			$4,780	$5,379
EV200H	100	2" [50]			$4,780	$5,379

* See flow reduction chart in technical documentation.
Optional heater model with thermostat temperature control:
Additional list price of $1590, add HT to end of part number i.e. EV050+ARX-E N4HT

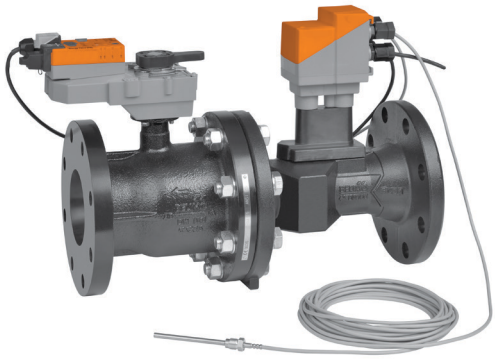
Optional heater model with hydrostat humidity control:
Additional list price of $1590, add HH to end of part number i.e. EV050+ARX-E N4HH

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VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
End Fitting	pattern to mate with ANSI 125 flange
Body	cast iron - GG25
Sensor Housing	ductile iron - GGG50
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Stem Packing	EPDM
Fluid Temperature Range (Water)	14...250°F [-10...+120°C]
Differential Pressure Range	5...50 psid or 1...50 psid with flow reductions*
Leakage	0%
Inlet Length to Meet Specified Measurement Accuracy	5X nominal pipe size (NPS)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Remote Temperature Sensor Length	standard: 32.8 ft. [10m] optional: 4.9 ft. [1.5m], 9.8 ft. [3m], 16.4 ft. [5m]

5-year warranty



ACTUATOR PART #	ARX24-EV	GRX24-EV	AKRX24-EV	GKRX24-EV
Control	Modulating	Modulating	Modulating	Modulating
Manual Override	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds	90 seconds
Running Time (Fail-Safe)			35 seconds	35 seconds
Electrical Connection	18 GA plenum rated cable and RJ45 socket (Ethernet)	18 GA plenum rated cable and RJ45 socket (Ethernet)	18 GA plenum rated cable and RJ45 socket (Ethernet)	18 GA plenum rated cable and RJ45 socket (Ethernet)
Fail-Safe			•	•

2-WAY

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
EV250SU-127	127	2½" [65]	ANSI 125, Standard Class B	175	$11,700		$13,514	
EV300SU-180	180	3" [80]			$15,185		$16,999	
EV400SU-317	317	4" [100]				$17,619		$19,868
EV500SU-495	495	5" [125]				$21,803		$24,050
EV600SU-713	713	6" [150]				$27,871		$30,120

* See flow reduction table in technical documentation.

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Energy Valves with Non Fail-Safe and Electronic Fail-Safe Actuators

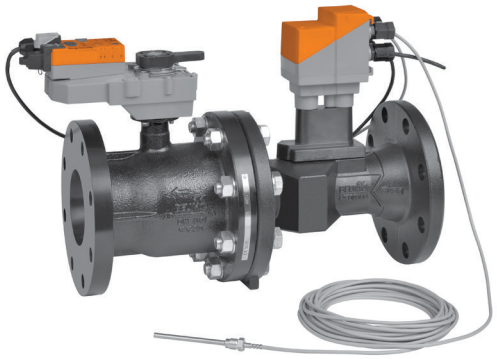
2-way Valves with Stainless Steel Ball and Stem, ANSI 250 Flanged Ends

BELIMO

5-year warranty

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
End Fitting	pattern to mate with ANSI 250 flange
Body	cast iron - GG25
Sensor Housing	ductile iron - GGG50
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Stem Packing	EPDM
Fluid Temperature Range (Water)	14...250°F [-10...+120°C]
Differential Pressure Range	5...50 psid or 1...50 psid with flow reductions*
Leakage	0%
Inlet Length to Meet Specified Measurement Accuracy	5X nominal pipe size (NPS)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Remote Temperature Sensor Length	standard: 32.8 ft. [10m] optional: 4.9 ft. [1.5m], 9.8 ft. [3m], 16.4 ft. [5m]



ACTUATOR PART #	ARX24-EV	GRX24-EV	AKRX24-EV	GKRX24-EV
Control	Modulating	Modulating	Modulating	Modulating
Manual Override	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds	90 seconds
Running Time (Fail-Safe)			35 seconds	35 seconds
Electrical Connection	18 GA plenum rated cable and RJ45 socket (Ethernet)	18 GA plenum rated cable and RJ45 socket (Ethernet)	18 GA plenum rated cable and RJ45 socket (Ethernet)	18 GA plenum rated cable and RJ45 socket (Ethernet)
Fail-Safe			•	•

2-WAY

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
EV250SU-127-250	127	2½" [65]	ANSI 250, Standard Class B	310	$16,903		$19,044	
EV300SU-180-250	180	3" [80]			$20,400		$22,540	
EV400SU-317-250	317	4" [100]				$23,485		$25,626
EV500SU-495-250	495	5" [125]				$29,538		$31,677
EV600SU-713-250	713	6" [150]				$34,796		$36,934

* See flow reduction table in technical documentation.

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7 ELECTRONIC PRESSURE INDEPENDENT CONTROL VALVES (EPIV)

High Performance Solution

- Valve maintains flow setpoint regardless of system pressure variations based on its true flow measurement.
- Automatic dynamic balancing optimizes system performance at all times.
- Simplifies commissioning and eliminates the need for a manual balance valve.

Chris Tirado, IT Support Representative

Electronic Pressure Independent Valve (EPIV) Nomenclature

EP	050			+AKRX-E				
Valve Type EP = NPT 2-way (½...2") P6 = Flanged 2-way (2½...6")	**Valve Size** 050 = ½" 075 = ¾" 100 =1" 125 = 1¼" 150 = 1½" 200 = 2" 250 = 2½" 300 = 3" 400 = 4" 500 = 5" 600 = 6" SU = Ultrasonic Flow Sensor	**Flow Rate** 1.65...713 GPM Refer to valve pages for full list	**Pressure Rating** Blank = ANSI 125 -250 = ANSI 250	**Actuator Type** **Non Fail-Safe** LRX NRX ARX GRX **Electronic Fail-Safe** AKRX GKRX	**Power Supply** 24 = AC/DC 24 V Blank = AC/DC 24 V	**Valve Size** Blank = ½...2" EP2 = 2½...6"	-MOD = Modbus & BACnet communication*	N4 = NEMA 4

*Applies to flanged models only, NPT models all have Modbus & BACnet communication

Ordering Example

1 Choose the valve actuator combination.

EP050+AKRX-E

2 Specify maximum flow (V'max)

Requested Flow

V'max = 25...100% V'nom (nominal flow)
V'max for flanged valves 25...100% V'nom (nominal flow)

3 Specify preference or configuration.

Set-Up

Non Fail-Safe Models
NO = Normally Open
NC = Normally Closed

Electronic Fail-Safe Models
NO/FO = Normally Open/Fail Open
NO/FC = Normally Open/Fail Closed

NC/FO = Normally Closed/Fail Open
NC/FC = Normally Closed/Fail Closed

4 Control DDC / Feedback signal

Y (0) 2...10 V / U 2...10 V

Y (0) 0.5...10 V / U 0.5...10 V
Y (0) 2...10 V / U 2...10 V

5 Does order require tagging?

Tagging:
Valves may be tagged per customer specification. ($15.00 charge per tag)

Example:
AHU-1
FCU-2

Part number for tagging: 99981-00101

6 Complete Ordering Example: EP050+AKRX-E
Requested Flow: 6.6 GPM
Setup: NC/FO
Control DDC/Feedback Signal: Y (0) 2...10V / U 2...10V
Tag: FCU-2

Default Settings:

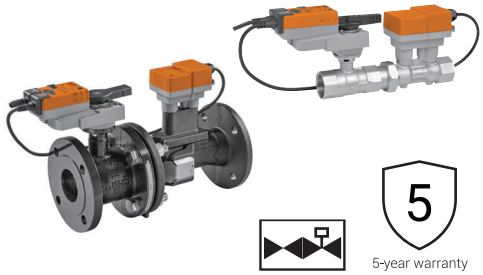
Flow: 100% of V'nom
Setup: Non Fail-Safe Models: NC = Normally Closed
Fail-Safe Models: NC/FC = Normally Closed/Fail Closed
Control DDC/Feedback: Y (0) 2...10 V / U 2...10 V

NOTE: All models should be entered with the GPM designed - in case GPM is not provided this will come with V'nom set up.
V'nom: maximum flow for the valve.
V'max: maximum flow setting. A set value to meet the flow design.
For ½...2", more options are available for configuration. Please, contact Customer Service/Technical Support for availability.

Electronic Pressure Independent Control Valve (EPIV) Product Range

		Valve Nominal Size		Type	Suitable Actuators	
	V'nom [GPM]	Inches	DN [mm]	2-way	Non Fail-Safe	Electronic Fail-Safe
NPT	6.6*	½	15	EP050	LRX-E, ARX-E N4	AKRX24-E (N4)
	11*	¾	20	EP075		
	18.2*	1	25	EP100		
	28.5*	1¼	32	EP125	NRX-E, ARX-E (N4)	
	44*	1½	40	EP150		
	66*	2	50	EP200	ARX-E (N4)	
	100*	2	50	EP200H**		
Flanged ANSI 125	127*	2½	65	P6250SU-127	ARX24-EP2 (-MOD)	AKRX24-EP2
	180*	3	80	P6300SU-180		
	317*	4	100	P6400SU-317	GRX24-EP2 (-MOD)	GKRX24-EP2
	495*	5	125	P6500SU-495		
	713*	6	150	P6600SU-713		
Flanged ANSI 250	127*	2½	65	P6250SU-127-250	ARX24-EP2 (-MOD)	AKRX24-EP2
	180*	3	80	P6300SU-180-250		
	317*	4	100	P6400SU-317-250	GRX24-EP2(-MOD)	GKRX24-EP2
	495*	5	125	P6500SU-495-250		
	713*	6	150	P6600SU-713-250		

*V'nom = Maximum flow for each valve body size.
** Fluid temperature range is 39...250°F [4...120°C].
Note: For models ½...2" flows can be field set to 25% of nominal flow rate and 30% for sizes 2½... 6"



MODE OF OPERATION

The 2-way EPIV is a pressure independent characterized control valve with an integrated electronic flow meter and a powerful control algorithm. The EPIV maintains the flow setpoint regardless of system pressure variations and modulates the valve based on its measured true flow.

PRODUCT FEATURES

Provides True Flow measurements, simplifying the flow verification. Easy integration via BACnet or Modbus for monitoring and controlling.

ACTUATOR SPECIFICATIONS

Control type	modulating
Power supply	AC/DC 24 V
Manual override	LR, NR, AR, GR, AKR, GKR
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 5", 6"
End fitting	NPT female (½...2") pattern to mate with ANSI 125 or 250 flange (2½...6")
Materials	
Body	
Valve	brass, nickel plated (½...2") cast iron - GG25 (2½...6")
Flow sensor	forged brass, nickel plated (½...2") ductile iron - GGG50 (2½...6")
Ball	stainless steel
Stem	stainless steel
Characterizing disc	Tefzel® (½...2") stainless steel (2½...6")
Fluid temp range	14...250°F [-10...+120°C] 39...250°F [4...120°C] (EP200H)
Body pressure rating	360 psi (½...2") ANSI 125, Class B (2½...6") ANSI 250 (2½...6") (-250)
Close-off pressure	200 psid (½...2") 175 psid (2½...6") 310 psid (2 ½...6") (-250)
Differential pressure range (ΔP)	see technical documentation
Communication	analog and Belimo MP-Bus, BACnet MS/TP, Modbus RTU
Leakage	0%
Rangeability	100:1
Flow control tolerance	5%
Flow measurement tolerance	±2%

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SET-UP - Specify Upon Ordering

	2-WAY VALVE				
NON FAIL-SAFE STAYS IN LAST POSITION	**LRX...Series** **NRX...Series** **ARX...Series** **GRX...Series**	**NC:** Normally Closed-valve will open as voltage increases.	**NO:** Normally Open-valve will close as voltage increases.		
ELECTRONIC FAIL-SAFE STAYS IN FAIL-SAFE POSITION	**AKRX...Series** **GKRX...Series**	**NO/FO Valve:** Normally Open-valve will close as voltage increases. Fail Action: Will fail open upon power loss.	**NO/FC Valve:** Normally Open-valve will close as voltage increases. Fail Action: Will fail closed upon power loss.	**NC/FO Valve:** Normally Closed-valve will open as voltage increases. Fail Action: Will fail open upon power loss.	**NC/FC Valve:** Normally Closed-valve will open as voltage increases. Fail Action: Will fail closed upon power loss.

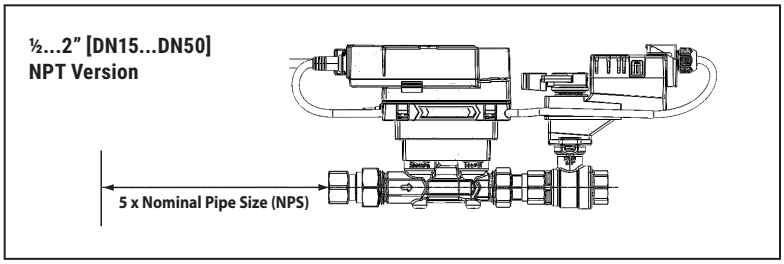
NOTE: Feedback signal is always direct acting (2 V close, 10 V open). Feedback signal can be set to true flow or valve position. The default is true flow. Actuator default setting is NC or NC/FC. Changing this setting requires the use of the ZTH, PC-Tool software or Belimo App.

INSTALLATION

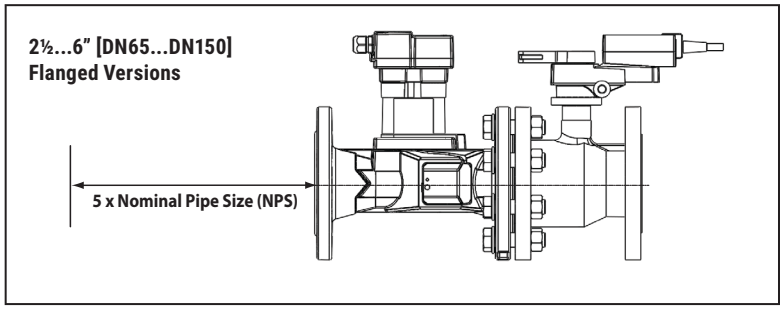
Inlet Length

The EPIV requires a section of straight pipe on the valve inlet to guarantee sensor accuracy. This section should be at least 5 pipe diameters long with respect to the size of the valve.

½" [DN15] 5 x nominal pipe size = 2½" [64 mm]
¾" [DN20] 5 x nominal pipe size = 3¾" [95 mm]
1" [DN25] 5 x nominal pipe size = 5" [127 mm]
1¼" [DN32] 5 x nominal pipe size = 6¼" [159 mm]
1½" [DN40] 5 x nominal pipe size = 7½" [191 mm]
2" [DN50] 5 x nominal pipe size = 10" [254 mm]



2½" [DN65] 5 x nominal pipe size = 12½" [317 mm]
3" [DN80] 5 x nominal pipe size = 15" [381 mm]
4" [DN100] 5 x nominal pipe size = 20" [508 mm]
5" [DN125] 5 x nominal pipe size = 25" [635 mm]
6" [DN150] 5 x nominal pipe size = 30" [762 mm]



Outlet Length

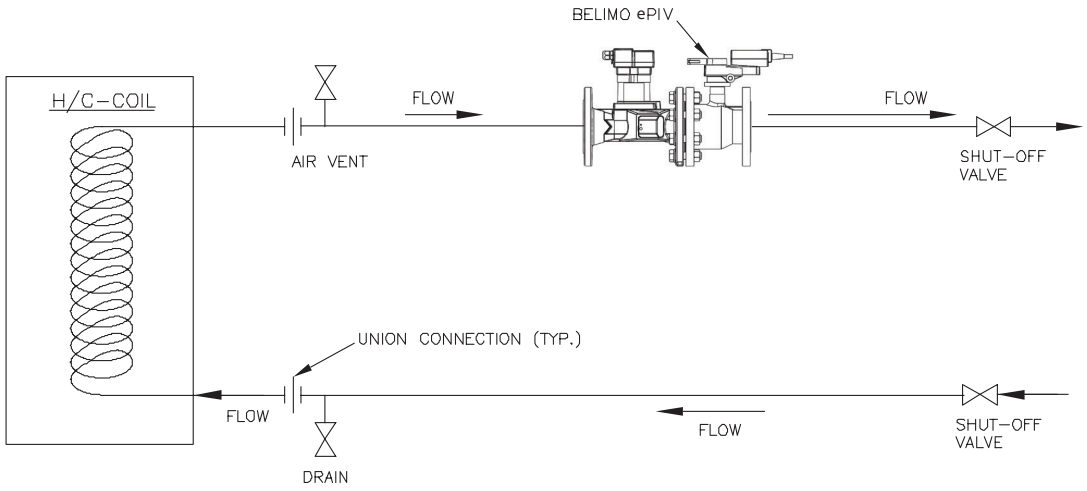
No requirements for outlet length.
Elbows can be installed directly after the valve.

NOTE: All tolerances on flow measurement/control will be affected if requirements are not followed. The EPIV is not designed for open loop and steam systems.

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PIPING

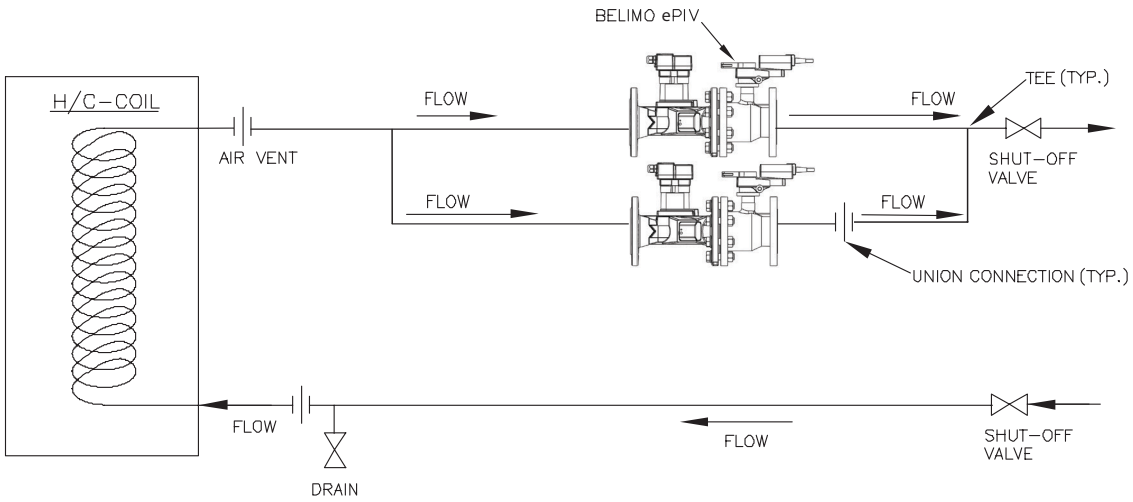
The EPIV can be installed on the supply or return side of the coil - the recommendation is to be installed on the return side. This diagram is for typical applications only. Consult engineering specification and drawings for particular circumstances. Refer to EPIV technical documentation for flow verification and commissioning procedures.



Electronic Pressure Independent Valves can be piped in a parallel orientation to achieve increased flow rates.

TYPICAL PARALLEL PIPING IN RELATION TO THE INPUT AND OUTPUT

To achieve flows larger than nominal flow, it is recommended to connect two valves in parallel leading to a common manifold. To correctly operate these valves, Multi-Function Technology (MFT) will be employed to utilize one common control signal DDC. It is recommended to use the same signal in parallel (2...10 V); the two actuators are wired from the same control signal DDC and the two valves control the flow in an identical pattern. The resulting flow will be double an individual valve. This arrangement is preferable to a split signal since it offers a more stable and accurate flow and feedback signal is easier to interpret.



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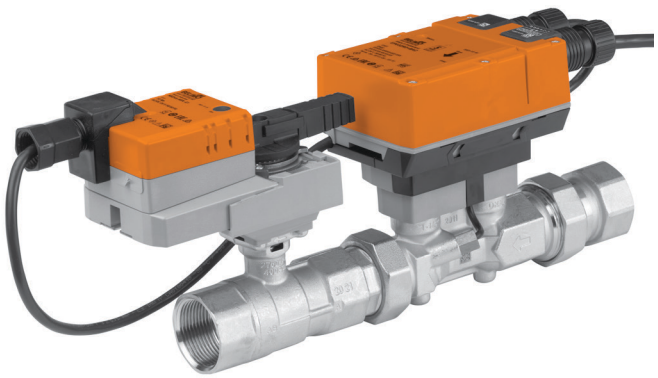
P2 Series Electronic Pressure Independent Valves with Non Fail-Safe and Electronic Fail-Safe Actuators

2-way Valves with Stainless Steel Ball and Stem, NPT Female Ends

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
End Fitting	NPT female
Body	forged brass, nickel plated
Flow Sensor	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Stem Packing	EPDM
Fluid Temp. Range 1.9...66 GPM	14...250°F [-10...+120°C]
Fluid Temp. Range EP200H (100 GPM)	39...250°F [4...120°C]
Diff. Pressure Range 1.65...66 GPM	5...50 psid or 1...50 psid with flow reductions*
Diff. Pressure Range EP200H (100 GPM)	11...50 psid or 1...50 psid with flow reductions*
Leakage	0%
Inlet Length to Meet Specified Measurement Accuracy	5X nominal pipe size (NPS)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation

5-year warranty



ACTUATOR PART #	LRX-E	NRX-E	ARX-E	AKRX-E
Control	Modulating	Modulating	Modulating	Modulating
Manual Override	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds	90 seconds
Running Time (Fail-Safe)				35 seconds
Modbus & BACnet	•	•	•	•
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector
Fail-Safe				•

2-WAY

Model #	V'nom [GPM]	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]			
EP050	6.6	½" [15]	360	200	$1,429			$1,929
EP075	11	¾" [20]		200	$1,493			$1,949
EP100	18.2	1" [25]		200	$1,619			$1,972
EP125	28.5	1¼" [32]		200		$2,600		$2,764
EP150	44	1½" [40]		200		$2,800		$3,055
EP200	66	2" [50]		200			$3,275	$3,411
EP200H**	100			200			$3,275	$3,411

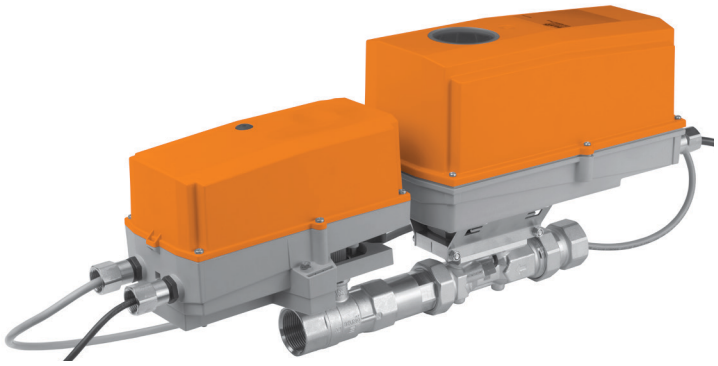
*See flow reduction table in technical documentation.
**Fluid temperature range is 39...250°F [4...120°C]. Differential pressure range is 8...50 psid.

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VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
End Fitting	NPT female
Body	forged brass, nickel plated
Sensor Housing	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Stem Packing	EPDM
Fluid Temp. Range 1.9...66 GPM	14...250°F [-10...+120°C]
Fluid Temp. Range EP200H (100 GPM)	39...250°F [4...120°C]
Diff. Pressure Range 1.65...66 GPM	5...50 psid or 1...50 psid with flow reductions*
Diff. Pressure Range EP200H (100 GPM)	11...50 psid or 1...50 psid with flow reductions*
Leakage	0%
Inlet Length to Meet Specified Measurement Accuracy	5X nominal pipe size (NPS)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Remote Temperature Sensor Length	9.8 ft. [3m]

5-year warranty



ACTUATOR PART #	ARX-E N4	AKRX-E N4
Control	Modulating	Modulating
Manual Override	•	•
Running Time (Motor)	90 seconds	90 seconds
Running Time (Fail-Safe)		35 seconds
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector
Fail-Safe		•

2-WAY

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]		
EP050	6.6	½" [15]	360	200	$2,653	$3,153
EP075	11	¾" [20]			$2,717	$3,173
EP100	18.2	1" [25]			$2,843	$3,196
EP125	28.5	1¼" [32]			$3,824	$3,988
EP150	44	1½" [40]			$4,024	$4,279
EP200	66	2" [50]			$4,499	$4,635
EP200H**	100	2" [50]			$4,499	$4,635

* See flow reduction chart in technical documentation.
Optional heater model with thermostat temperature control:
Additional list price of $1590, add HT to end of part number i.e. EP050+ARX-E N4HT

Optional heater model with hydrostat humidity control:
Additional list price of $1590, add HH to end of part number i.e. EP050+ARX-E N4HH

** Fluid temperature range is 39...250°F [4...120°C].

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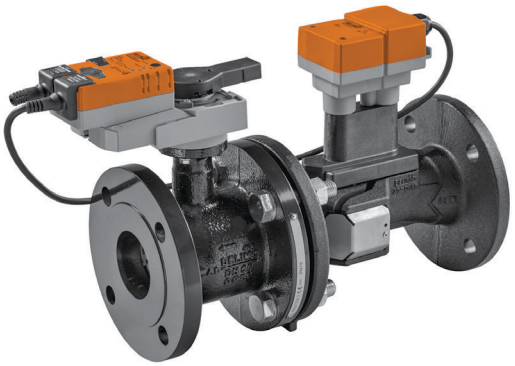
P6 Series Electronic Pressure Independent Valves with Non Fail-Safe Actuators and Electronic Fail-Safe Actuators

2-way Valves with Stainless Steel Ball and Stem, ANSI 125 Flanged

5-year warranty

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
End Fitting	pattern to mate with ANSI 125 flange
Body	cast iron - GG25
Flow Sensor	ductile iron - GGG50
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Stem Packing	EPDM
Fluid Temperature Range	14...250°F [-10...+120°C]
Differential Pressure Range	5...50 psid or 1...50 psid with flow reductions*
Leakage	0%
Inlet Length to Meet Specified Measurement Accuracy	5X nominal pipe size (NPS)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation



ACTUATOR PART #	ARX24-EP2	ARX24-EP2-MOD	GRX24-EP2	GRX24-EP2-MOD	AKRX24-EP2	GKRX24-EP2
Control	Modulating	Modulating	Modulating	Modulating	Modulating	Modulating
Manual Override	•	•	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds
Running Time (Fail-Safe)					35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector
Modbus & BACnet		•		•		
Fail-Safe					•	•

2-WAY

Model #	V'nom [GPM]	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]					
P6250SU-127	127	2½" [65]	ANSI 125, Standard Class B	175	$10,197	$11,216			$11,496	
P6300SU-180	180	3" [80]		175	$13,228	$14,552			$14,591	
P6400SU-317	317	4" [100]		175			$15,342	$16,879		$16,722
P6500SU-495	495	5" [125]		175			$18,954	$20,849		$20,331
P6600SU-713	713	6" [150]		175			$24,368	$26,806		$25,746

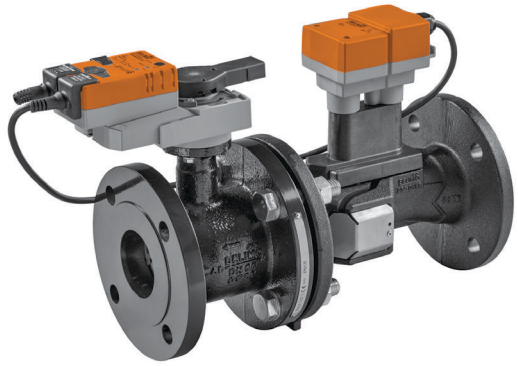
*See flow reduction table in technical documentation.

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VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
End Fitting	pattern to mate with ANSI 250 flange
Body	cast iron - GG25
Flow Sensor	ductile iron - GGG50
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Stem Packing	EPDM
Fluid Temperature Range	14...250°F [-10...+120°C]
Differential Pressure Range	5...50 psid or 1...50 psid with flow reductions*
Leakage	0%
Inlet Length to Meet Specified Measurement Accuracy	5X nominal pipe size (NPS)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation

5-year warranty



ACTUATOR PART #	ARX24-EP2	ARX24-EP2-MOD	GRX24-EP2	GRX24-EP2-MOD	AKRX24-EP2	GKRX24-EP2
Control	Modulating	Modulating	Modulating	Modulating	Modulating	Modulating
Manual Override	•	•	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds
Running Time (Fail-Safe)					35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector
Modbus & BACnet		•		•		
Fail-Safe					•	•

2-WAY

Model #	V'nom [GPM]	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]					
P6250SU-127-250	127	2½" [65]	ANSI 250, Standard Class B	310	$13,582	$14,942			$14,757	
P6300SU-180-250	180	3" [80]		310	$16,670	$18,337			$17,843	
P6400SU-317-250	317	4" [100]		310			$20,181	$22,199		$21,354
P6500SU-495-250	495	5" [125]		310			$26,651	$29,317		$27,826
P6600SU-713-250	713	6" [150]		310			$32,520	$35,773		$33,696

*See flow reduction table in technical documentation.

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6-Way Electronic Pressure Independent Valve Nomenclature

P3	050	B6	-K		+LRX	24	-LP-EP6
Electronic Pressure Independent	**Valve Size** 050 = ½" 075 = ¾"	**6-Way Valve**	**Flow** K = 5.5 GPM J = 10.3 GPM	**Meter Installation** Blank = Return S = Supply	**Actuator Type** LRX	**Power Supply** 24 = AC/DC 24 V	**Control** LP-EP6 = Modulating Input = 2...10 V Feedback = 2...10 V Analog, Modbus and BACnet communication

Ordering Example

1 Choose the valve actuator combination.

P3050B6-K+LRX24-LP-EP6

2 Specify maximum flow (V'max)

Requested Flow S1

V'max = 10…100% V'nom (nominal flow)

Requested Flow S2

V'max = 10…100% V'nom (nominal flow)

S1 = Sequence 1
S2 = Sequence 2

3 Specify preference or configuration.

Set-Up

Non Fail-Safe Models
NO = Normally Open - Sequence 1

OR

NC = Normally Closed - Sequence 1

4 Does order require tagging?

Tagging:
Valves may be tagged per customer specification. ($15.00 charge per tag)

Example:
Chilled/Heating Beam Room #1

Part number for tagging: 99981-00101

5 Complete Ordering Example: P3050B6-K+LRX24-LP-EP6
Requested Flow: S1: 4.0 GPM
S2: 1.0 GPM
Setup: NC
Tag: CB-01

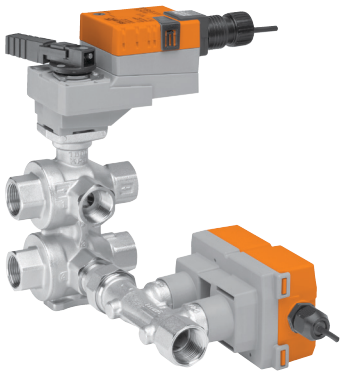
Default Settings:

Flow: S1: 100% of V'nom
S2: 100% of V'nom
Setup: NC = Normally Closed

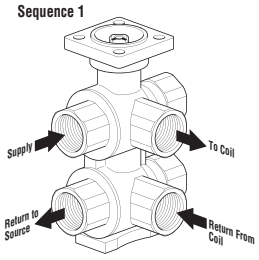
NOTE: All models should be entered with the GPM designed - in case GPM is not provided this will come with V'nom set up.

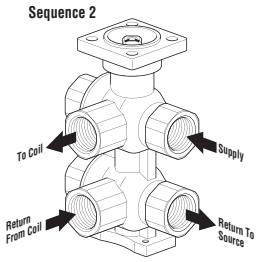
6-Way Electronic Pressure Independent Valve Product Range

Flow	Valve Nominal Size		Type	Suitable Actuators
V'nom [GPM]	Inches	DN [mm]	EPIV 6-way	Non Fail-Safe
5.5	½	15	P3050B6-K	LRX24-LP-EP6
5.5	½	15	P3050B6-KS	
10.3	¾	20	P3075B6-J	
10.3	¾	20	P3075B6-JS	



5-year warranty





MODE OF OPERATION

The 6-way EPIV is designed for chilled beams, radiant ceiling panels, and 4-pipe fan coil units providing true flow and dynamic balancing. It has the functionality of up to four 2-way control valves and two balancing valves, saving material and installation time.

PRODUCT FEATURES

Performs changeover and modulating control for a single coil 4-pipe system. Provides different flow settings for heating and cooling with zero percent leakage saving energy and costs.

ACTUATOR SPECIFICATIONS

Control type	modulating
Power supply	AC/DC 24 V
Manual override	LRX24-LP-EP6
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting
Controllable flow range	90°
Communication	Analog, Belimo MP-Bus, BACnet MS/TP, Modbus RTU

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
Controllable flow range	
Sequence 1	0...30° angle
Dead zone	30...60°
Sequence 2	60...90° angle
Sizes	½", ¾"
End fitting	NPT
Materials	
Body	nickel plated brass
Ball	chrome plated brass
Stem	nickel plated brass
Seats	Teflon® PTFE
Seat o-rings	EPDM
Characterizing disc	chrome plated steel
Stem o-rings	EPDM
Fluid temp range	43...180°F [6...82°C]
Body pressure rating	232 psi
Close-off pressure	50 psid
Minimum differential pressure at V'nom	7 psi
Maximum operating differential pressure	15 psi*
Leakage	0%
Rangeability	100:1
Flow control tolerance	±6%
Flow measurement tolerance	±2%

*See technical documentation for further information.

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6-Way Electronic Pressure Independent Valves with Non Fail-Safe Actuators

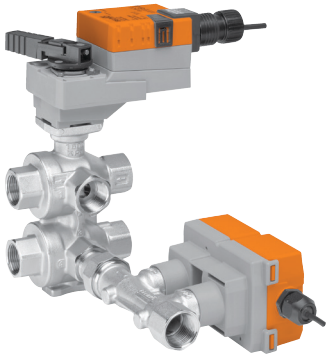
Chrome Plated Ball and Nickel Plated Stem, NPT Female Ends

BELIMO

5-year warranty

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
End Fitting	NPT female ends
Body	nickel plated brass
Ball	chrome plated brass
Stem	nickel plated brass
Seat	Teflon® PTFE
O-ring	EPDM
Characterized Disc	chrome plated steel
Fluid Temperature Range	43...180°F [6...82°C]
Minimum Differential Pressure at V'nom	7 psi
Leakage	0%
Flow Sensor Technology	ultrasonic with glycol and temperature compensation



ACTUATOR PART #	LRX24-LP-EP6
Control	Modulating
Manual Override	•
Running Time (Motor)	90 seconds (default), variable (35...90 seconds)
Modbus & BACnet	•
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector

6-WAY

Model #	V'nom [GPM]	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]	
P3050B6-K	5.5	½" [15]	232	50	$1,907
P3050B6-KS	5.5	½" [15]			$1,907
P3075B6-J	10.3	¾" [20]			$2,141
P3075B6-JS	10.3	¾" [20]			$2,141

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8 BELIMO ZONETIGHT™ PRESSURE INDEPENDENT ZONE VALVES (PIQCV)

Balancing and Control in One Compact Unit

- Smallest pressure independent characterized ball valve in the market.
- Low power consumption up to 95% less than conventional zone valves.
- Adjustable flow to meet design requirements.

Dan Herrera, Group Leader, Logistics

ZoneTight Pressure Independent Zone Valve (PIQCV) Nomenclature

Z2	050	QPT		-B	+CQB	24	-SR	-R	
Valve Type Z2 = 2-way	**Valve Size** 050 = ½" 075 = ¾"	Quick Connect Pressure Independent PT Port	Blank = NPT PF = Press Fit	**Flow Rate** B = 0.9 GPM D = 2.0 GPM F = 4.3 GPM G = 9.0 GPM	**Actuator Type** Non Fail-Safe CQB CQX Fail-Safe CQKB CQKX	**Power Supply** 24 = AC/DC 24 V UP = AC 110...240 V	**Control** -3 = Floating Point -SR = Modulating	**Direction of Rotation** -L = Open (2 V) -R = Close (2 V) -LL = Normally Open, Fail Open -RR = Normally Close, Fail Close -LR = Normally Open, Fail Close -RL = Normally Close, Fail Open	-S = Built-in Aux. Switch

"X" models are customizable. Refer to page 8-3 for factory set clip position options.

Ordering Example

1 Choose the valve actuator combination.

Z2050QPT-B+CQB24-SR **-R** **Tagging or Setting (if needed)**

2 Choose set-up required.

Set-Up

Modulating Non Fail-Safe Models
L = Normally Open
R = Normally Closed

Fail-Safe Models
LL = Normally Open/Fail Open
LR = Normally Open/Fail Closed

RL = Normally Closed/Fail Open
RR = Normally Closed/Fail Closed

Refers to valve ports from inlet to outlet, per flow arrow.

3 Does order require tagging?

Tagging:
Valves may be tagged per customer specification. ($15.00 charge per tag)

Example:
AHU-1
FCU-2

Part number for tagging: 99981-00101

4 Does order require clip setting?

Clip Setting:
Valves may be set per customer specification. (All clip settings excluding "N" [default by factory] and "No Clip" have a list price adder of $45)

Example:
Clip Position 1
No Clip

Part number for setting: CQX, CQKX

5 Complete Ordering Example: Z2050QPT-B+CQB24-SR-R

ZoneTight Pressure Independent Zone Valve (PIQCV) Product Range

		Valve Nominal Size		Type	Suitable Actuators	
	GPM	Inches	DN [mm]	2-way with PT ports	Non Fail-Safe	Fail-Safe
NPT	0.9*	½	15	Z2050QPT-B	CQ Series	CQK Series
NPT	2.0*	½	15	Z2050QPT-D	CQ Series	CQK Series
NPT	4.3*	½	15	Z2050QPT-F	CQ Series	CQK Series
NPT	9.0*	¾	20	Z2075QPT-G	CQ Series	CQK Series
Press Fit	0.9*	½	15	Z2050QPTPF-B	CQ Series	CQK Series
Press Fit	2.0*	½	15	Z2050QPTPF-D	CQ Series	CQK Series
Press Fit	4.3*	½	15	Z2050QPTPF-F	CQ Series	CQK Series
Press Fit	9.0*	¾	20	Z2075QPTPF-G	CQ Series	CQK Series

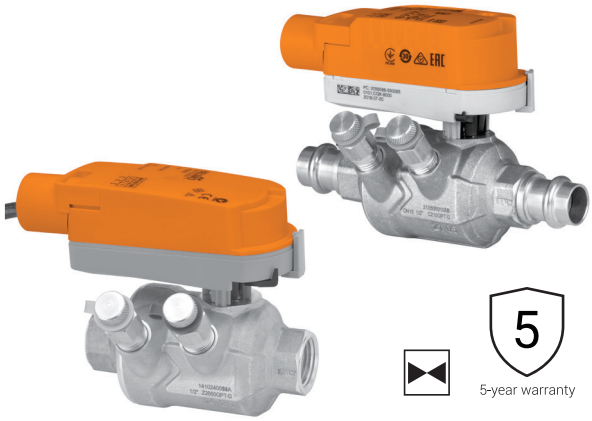
*Maximum flow value can be field adjusted, see actuator instructions.
Order "X" model actuators for Factory Clip Setting, see instruction manual for details.

	Clip Position for Flow Adjustment (GPM)							
	1	2	3	4	5	6	N	No Clip
Z2050QPT(PF)-B (½")	N/A	N/A	N/A	N/A	0.4	N/A	0.8	0.9
Z2050QPT(PF)-D (½")	0.2	0.3	0.4	0.6	0.9	1.3	1.8	2.0
Z2050QPT(PF)-F (½")	N/A	0.6	0.8	1.3	1.9	2.8	3.6	4.3
Z2075QPT(PF)-G (¾")	N/A	1.8	2.7	3.7	4.9	6.3	7.7	9.0
Actuator Runtime	30 s	37 s	43 s	49 s	55 s	62 s	68 s	75 s

For additional intermediate settings see technical documentation or the ZoneTight flow capacity setting within SelectPro on www.belimo.us.

*Specify upon ordering.

**If temperature exceeds 212°F [100°C] operating range due to a boiler control failure the valve will safely contain the hot water but manufacturer's product warranty becomes invalid.



MODE OF OPERATION

The ZoneTight Pressure Independent Zone Valve (PIQCV) is a two-way valve which combines the functionality of a control valve and a pressure regulating valve, creating one precise product which is unaffected by pressure variations in a system.

PRODUCT FEATURES

Provides constant flow regardless of pressure variations in the system. Simplified valve sizing and selection, no Cv calculations required.

ACTUATOR SPECIFICATIONS

Control type	
-3	on/off, floating point
-SR	modulating, 0.5...10 V*, 2...10 V
Blank	on/off
Manual override	use actuator to turn valve stem
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting, screw terminals
Power consumption	
CQ..	0.3 W running, 0.2 W holding
CQK..	2.5 W running, 0.5 W holding
CQ..UP	1.0 W running, 0.7 W holding
CQK..UP	3.0 W running, 0.5 W holding
Power supply	AC/DC 24 V (AC 110...240 V, UP)
Power consumption	
CQ..	0.6 VA
CQK..	5 VA
CQ..UP	2 VA
CQK..UP	7 VA

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
Flow characteristic	equal percentage
Controllable flow range	75°
Sizes	½", ¾"
End fitting	NPT female, press fit
Materials	
Body	forged brass
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
O-rings	EPDM
Spring	stainless steel
Fluid temp range	36...212°F [2...100°C]**
Fluid temp limit	250°F [120°C]**
Max. allowable operating temperature	212°F [100°C]
PT ports	2
Body pressure rating	360 psi (NPT), 250 psi (press fit)
Close-off pressure	200 psid
Differential pressure (ΔP) range	5...50 psid
Leakage	0%
Flow control tolerance	±5%

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SET-UP- Specify Upon Ordering

2-WAY VALVES

NON FAIL-SAFE Stays in Last Position	**CQB(X)UP-3**	**On/Off:** Power to brown wire (pin 2) will drive valve CW (closed). Power to brown wire (pin 2) and white wire (pin 3) will drive valve CCW (open). **Floating:** Power to brown wire (pin 2) will drive valve CW (closed). Power to white wire (pin 3) will drive valve CCW (open).	
	CQB(X)24-3	**On/Off:** Power to red wire (pin 2) will drive valve CW (closed). Power to red wire (pin 2) and white wire (pin 3) will drive valve CCW (open). **Floating:** Power to red wire (pin 2) will drive valve CW (closed). Power to white wire (pin 3) will drive valve CCW (open).	
	CQB(X)24-SR	**CQB24-SR-R:** Normally closed, valve will open as voltage increases	**CQB24-SR-L:** Normally open, valve will close as voltage increases

ELECTRONIC FAIL-SAFE	**CQKB(X)24** **CQKB(X)24-S** **CQKB(X)UP**	**CQKB24-LL, CQKB24-S-LL, CQKBUP-LL:** Normally open CCW, valve will drive closed when energized. Fail-Safe Action: Actuator will fail open CCW upon power loss.	**CQKB24-RR, CQKB24-S-RR, CQKBUP-RR:** Normally closed CW, valve will drive open when energized. Fail-Safe Action: Actuator will fail closed CW upon power loss.
	CQKB(X)24-SR	**CQKB24-SR-RL:** Normally closed CW, valve will open as voltage increases. Fail-Safe Action: Will fail open upon power loss.	**CQKB24-SR-RR:** Normally closed CW, valve will open as voltage increases. Fail-Safe Action: Will fail closed upon power loss.
		CQKB24-SR-LL: Normally open CCW, valve will close as voltage increases. Fail-Safe Action: Will fail open upon power loss.	**CQKB24-SR-LR:** Normally open CCW, valve will close as voltage increases. Fail-Safe Action: Will fail closed upon power loss.

Note: One wire control for CW or CCW rotation.

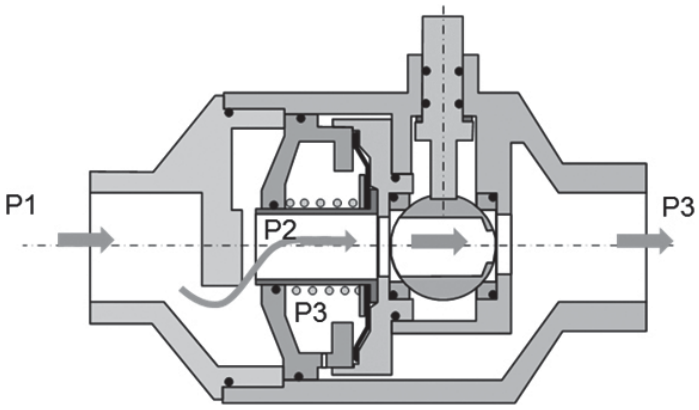
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FLOW PATTERN

PIQCV consists of a differential pressure regulator in series with a control valve.

The control valve is throttled to match the flow command of the control signal. The differential pressure regulator holds the pressure drop across the ball of the valve. As system pressures change, the differential pressure regulator moves in response to keep the flow stable.

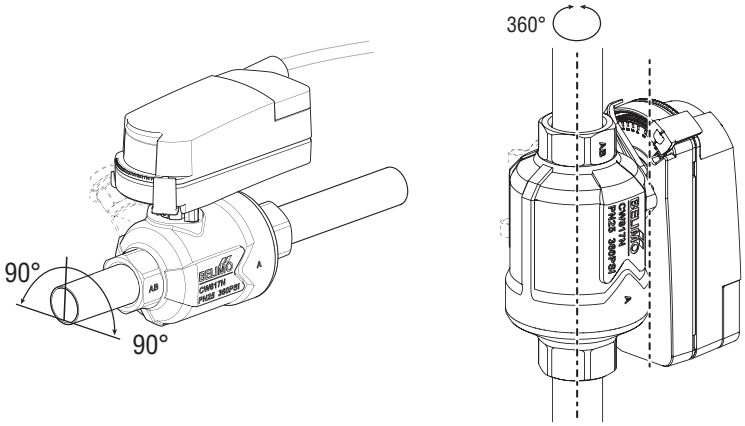
Pressure P1 at the inlet of the PIQCV is high and pressure P3 at the outlet is low. The differential pressure between P1 and P3 must be between 5 and 50 psid to achieve pressure independent flow. When differential pressure increases the regulator opening is reduced. When differential pressure decreases the regulator opening is increased. This allows for the constant pressure differential across the ball of the valve.



INSTALLATION

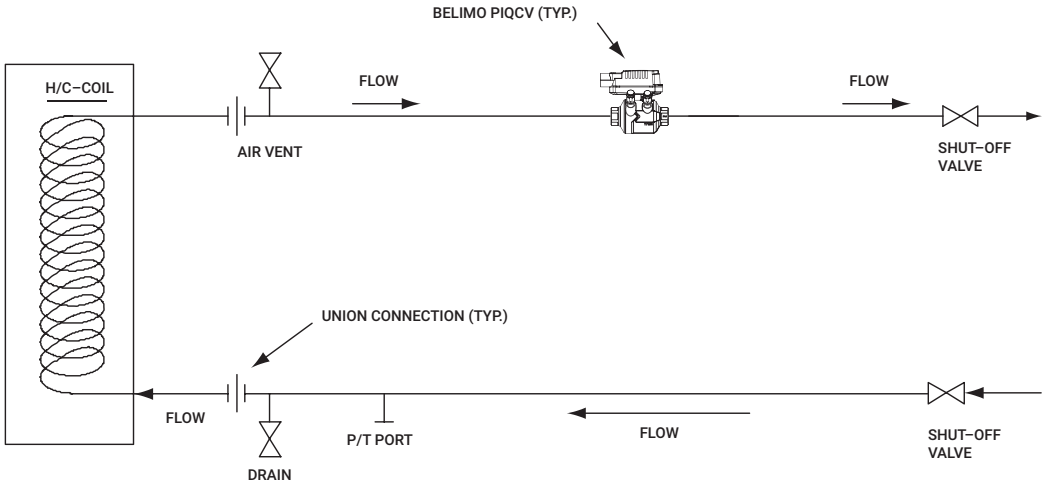
PIQCV should be installed with flow in the direction of the arrow on the valve body. If installed backwards, there could be damage to either the diaphragm or the regulator.

The valve assembly can be installed in a vertical or horizontal arrangement, as long as the actuator is positioned to avoid condensation from dripping on the actuator.



PIPING

PIQCV is recommended to be installed on the return side of the coil. This diagram is for typical applications only. Consult engineering specification and drawings for particular circumstances. PT ports are recommended on the supply side of the heat transfer device to allow for coil pressure/temperature measurements and calculation of flow. Refer to PIQCV technical documentation for flow verification and commissioning procedures.



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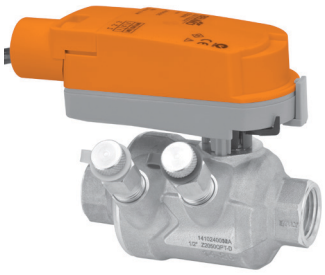
ZoneTight Pressure Independent Zone Valves (PIQCV) with Non Fail-Safe Actuators

2-way Valve with NPT Female Ends and Press Fit Connection

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
Body	forged brass
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterization	incorporated into the ball
Fluid Temperature Limit	250°F [120°C]*
Differential Pressure Range	5...50 psid
Maximum Allowable Operating Temperature	212°F [100°C]*
Leakage	0%

5-year warranty





ACTUATOR PART #	CQB24-3	CQB24-SR-L	CQB24-SR-R	CQBUP-3
Control	On/Off, Floating Point	Modulating, 2...10 V	Modulating, 2...10 V	On/Off, Floating Point
Power Supply	AC/DC 24 V	AC/DC 24 V	AC/DC 24 V	AC 110...240 V
Set-Up		NO	NC	
Running Time (Motor)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY WITH PT PORTS, NPT CONNECTION

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050QPT-B	0.9	½" [15]	360	200	$543	$654	$654	$563
Z2050QPT-D	2.0			200	$543	$654	$654	$563
Z2050QPT-F	4.3			200	$572	$686	$686	$597
Z2075QPT-G	9	¾" [20]		200	$773	$837	$837	$795

2-WAY WITH PT PORTS, PRESS FIT CONNECTION

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050QPTPF-B	0.9	½" [15]	250	200	$583	$700	$700	$603
Z2050QPTPF-D	2.0			200	$583	$700	$700	$603
Z2050QPTPF-F	4.3			200	$613	$734	$734	$640
Z2075QPTPF-G	9	¾" [20]		200	$829	$897	$897	$851

* If temperature exceeds 212°F [100°C] operating range due to a boiler control failure the valve will safely contain the hot water but manufacturer's product warranty becomes invalid.

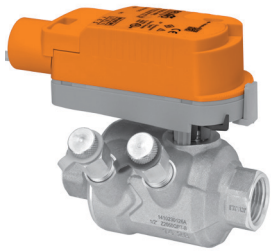
ACTUATOR PART #	CQX24-3	CQX24-SR	CQXUP-3
Add to List Price for Factory Clip Setting	+$45	+$45	+$45

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VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
Body	forged brass
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterization	incorporated into the ball
Fluid Temperature Limit	250°F [120°C]*
Differential Pressure Range	5...50 psid
Maximum Allowable Operating Temperature	212°F [100°C]*
Leakage	0%

5-year warranty





ON/OFF

ACTUATOR PART #	CQKB24-LL	CQKB24-RR	CQKB24-S-LL	CQKB24-S-RR	CQKBUP-LL	CQKBUP-RR
Control	On/Off	On/Off	On/Off	On/Off	On/Off	On/Off
Power Supply	AC/DC 24 V	AC/DC 24 V	AC/DC 24 V	AC/DC 24 V	AC 100...240 V	AC 100...240 V
Set-Up	NO/FO	NC/FC	NO/FO	NC/FC	NO/FO	NC/FC
Running Time (Motor)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)
Running Time (Fail-Safe)	60 seconds	60 seconds	60 seconds	60 seconds	60 seconds	60 seconds
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector
Auxiliary Switch			1 SPST	1 SPST		

2-WAY, NPT CONNECTION

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]						
Z2050QPT-B	0.9	½" [15]	360	200	$585	$585	$616	$616	$606	$606
Z2050QPT-D	2.0			200	$585	$585	$616	$616	$606	$606
Z2050QPT-F	4.3			200	$617	$617	$648	$648	$642	$642
Z2075QPT-G	9	¾" [20]		200	$834	$834	$864	$864	$858	$858

2-WAY, PRESS FIT CONNECTION

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]						
Z2050QPTPF-B	0.9	½" [15]	250	200	$626	$626	$659	$659	$651	$651
Z2050QPTPF-D	2.0			200	$626	$626	$659	$659	$651	$651
Z2050QPTPF-F	4.3			200	$661	$661	$694	$694	$689	$689
Z2075QPTPF-G	9	¾" [20]		200	$895	$895	$925	$925	$918	$918

ACTUATOR PART #	CQKX24	CQKX24-S	CQKXUP
Add to List Price for Factory Clip Setting	+$45	+$45	+$45

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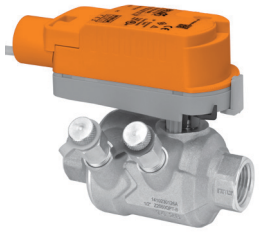
ZoneTight Pressure Independent Zone Valves (PIQCV) with Electronic Fail-Safe Actuators

2-way Valve with NPT Female Ends and Press Fit Connection

5-year warranty

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
Body	forged brass
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterization	incorporated into the ball
Fluid Temperature Limit	250°F [120°C]*
Differential Pressure Range	5...50 psid
Maximum Allowable Operating Temperature	212°F [100°C]*
Leakage	0%





MODULATING

ACTUATOR PART #	CQKB24-SR-LL	CQKB24-SR-LR	CQKB24-SR-RL	CQKB24-SR-RR
Control	Modulating, 2...10 V	Modulating, 2...10 V	Modulating, 2...10 V	Modulating, 2...10 V
Power Supply	AC/DC 24 V	AC/DC 24 V	AC/DC 24 V	AC/DC 24 V
Set-Up	NO/FO	NO/FC	NC/FO	NC/FC
Running Time (Motor)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)
Running Time (Fail-Safe)	60 seconds	60 seconds	60 seconds	60 seconds
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY, NPT CONNECTION

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050QPT-B	0.9	½" [15]	360	200	$705	$705	$705	$705
Z2050QPT-D	2.0			200	$705	$705	$705	$705
Z2050QPT-F	4.3			200	$738	$738	$738	$738
Z2075QPT-G	9	¾" [20]		200	$902	$902	$902	$902

2-WAY, PRESS FIT CONNECTION

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050QPTPF-B	0.9	½" [15]	250	200	$756	$756	$756	$756
Z2050QPTPF-D	2.0			200	$756	$756	$756	$756
Z2050QPTPF-F	4.3			200	$792	$792	$792	$792
Z2075QPTPF-G	9	¾" [20]		200	$968	$968	$968	$968

* If temperature exceeds 212°F [100°C] operating range due to a boiler control failure the valve will safely contain the hot water but manufacturer's product warranty becomes invalid.

ACTUATOR PART #	CQKX24-SR
Add to List Price for Factory Clip Setting	+$45

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Jamell Scott, Inside Sales Representative

9 POTABLE WATER VALVES

Certified, Safe and Maintenance Free

- Lead-free to NSF/ANSI 61 by the methods prescribed in NSF/ANSI 372 to ensure customer safety.
- Zero leakage preventing energy loss, reducing operating costs.
- Ideal for domestic water applications.

Potable Water Valve Nomenclature

EXT-B2	075	-PWV	-NPT	+LRB	24	-3		
Valve EXT-B2 = 2-way (½...1") EXT-LD141 = 2-way Flanged (2...10")	**Valve Size** 50...100 = ½...1" 02...10 = 2...10" (Flanged)	**Potable Water Valve**	**Connection** -NPT = NPT	**Actuator Type** **Non Fail-Safe** CQB, CQX LRB, LRX GR, DR AMB, AMX GMB, GMX PR SY **Fail-Safe Spring Return** AF LF **Electronic Fail-Safe** CQKB,CQKX GKX, DKRX PKR	**Power Supply** 24 = AC/DC 24 V 120 = AC 120 V 230 = AC 230 V UP = AC 100...240 V	**Control** -3 = On/Off, Floating Point Blank = On/Off	**Direction of Rotation*** -LL = Normally Open, Fail Open -RR = Normally Closed, Fail Closed	N4 = NEMA 4X -T = Terminal Block

*For ½" CQ Actuators only

"X" models are customizable.
Refer to page 14-4 for programming options.

Ordering Example

1 Choose the valve actuator combination.

EXT-B2075-PWV-NPT+LRB24-3

2 Specify preference or configuration.

3 **For MFT orders only - select programming code**

NO | **Tagging (if needed)**

Set-Up

Non Fail-Safe Models
NO = Normally Open
NC = Normally Closed

Fail-Safe Models
NO/FO = Normally Open/Fail Open
NO/FC = Normally Open/Fail Closed

NC/FO = Normally Closed/Fail Open
NC/FC = Normally Closed/Fail Closed

Refers to valve ports A to AB.

A01

A..	Control voltage applications
W..	Pulse width modulation applications
F..	Floating Point applications
J..	On/Off applications

4 Does order require tagging?

Tagging:
Valves may be tagged per customer specification. ($15.00 per tag)

Example:
AHU-1
FCU-2

Part number for tagging:
99981-00101

5 Complete Ordering Example: EXT-B2075-PWV-NPT+LRB24-3
Configuration: +NO
Programming: +A01

Potable Water Valve Product Range

BALL VALVES

	Valve Nominal Size			Type	Suitable Actuators			
	C_V	Inches	DN [mm]	2-way	Non Fail-Safe		Fail-Safe	
NPT	32	½	15	EXT-B2050-PWV-NPT	CQ		CQK	
	49	¾	20	EXT-B2075-PWV-NPT		LR Series		LF Series
	81	1	25	EXT-B2100-PWV-NPT				



2-year warranty

NSF/ANSI 61
NSF/ANSI 372

BUTTERFLY VALVES

Valve Nominal Size				Type	Suitable Actuators							
C_V @ 90°	C_V @ 60°	Inches	DN [mm]	2-way	Non Fail-Safe		Fail-Safe		N4			
115	44	2	50	EXT-LD14102BE1AX	AM Series		AF Series		GR Series		GK Series	
196	75	2½	65	EXT-LD14125BE1AX								
302	116	3	80	EXT-LD14103BE1AX		GM		GK				
600	230	4	100	EXT-LD14104BE1AX		DR Series		DK Series		DR Series		DK Series
1022	392	5	125	EXT-LD14105BE1AX								
1579	605	6	150	EXT-LD14106BE1AX								
3136	1202	8	200	EXT-LD14108BE1AX						PR	PK	
5340	2047	10	250	EXT-LD14110BE1AX								SY

MODE OF OPERATION

The potable water valve is operated by a rotary actuator. The actuator is controlled by standard voltage for on/off or floating point control system which move the ball or disc of the valve to the position dictated by the control system.

PRODUCT FEATURES

NSF/ANSI 61 - Water Quality
NSF/ANSI 372 - Lead Free

ACTUATOR SPECIFICATIONS

Control type	on/off, floating point
Manual override	CQ, CQK, LR, AM, AF, GM, GR, GK, DR, DK, PR, PK, SY series
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting, terminal block

VALVE SPECIFICATIONS

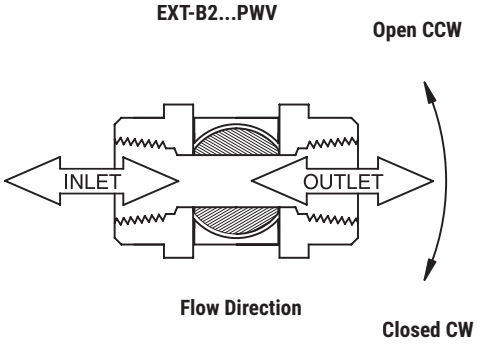
Fluid	potable water
Flow characteristic	full port
Sizes	½", ¾", 1", 2", 2½", 3", 4", 5", 6", 8", 10"
End fittings	
Ball Valve	NPT female
Butterfly Valve	for ASME/ANSI Class 125/150 flange
Materials - Ball Valve	
Body	lead free brass
Characterizing ball	chrome plated lead free brass
Stem	lead free brass
Seats	PTFE
O-rings	EPDM
Materials - Butterfly Valve	
Body	ductile iron ASTM A536
Body finish	epoxy powder coating
Disc	aluminum bronze
Shaft	416 stainless steel
Seat	EPDM
O-ring	Buna-N
Bushings	PTFE
Fluid temp range	
Ball Valves	-4...+212°F [-20...+100°C]
Butterfly Valves	-20...+250°F [-32...+120°C]
Body pressure rating	600 psi (NPT), 200 psi (flanged)
Close-off pressure	200 psid (NPT), 150 psid (flanged)
Max. operating pressure	230 psid (NPT), 200 psid (flanged)
Leakage	0%
Dead end service	
Butterfly Valve	bidirectional approved

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Potable Water Valves

General Information / Typical Installation

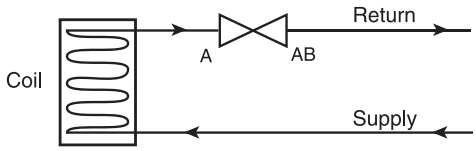
FLOW PATTERN



PIPING DIAGRAMS

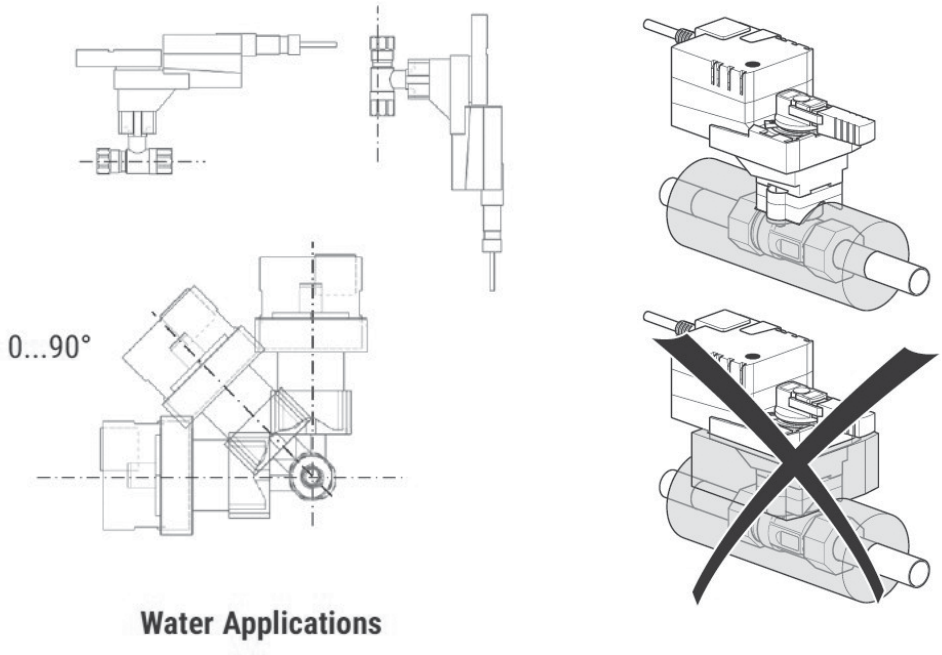
Water Application

2-way Valve Piping Diagram



PIPING/MOUNTING ORIENTATION

Assembly can be mounted horizontally or vertically for water applications. When mounted horizontally, the valve must be 0...90° off center of the pipe. Do not install with actuator below pipe.



Water Applications

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SET-UP- Specify Upon Ordering

		2-WAY VALVES	
NON FAIL-SAFE Stays in Last Position	**CQB(X)UP-3**	**On/Off:** Power to brown wire (pin 2) will drive valve CW (closed). Power to brown wire (pin 2) and white wire (pin 3) will drive valve CCW (open).	**Floating:** Power to brown wire (pin 2) will drive valve CW (closed). Power to white wire (pin 3) will drive valve CCW (open).
	CQB(X)24-3	**On/Off:** Power to red wire (pin 2) will drive valve CW (closed). Power to red wire (pin 2) and white wire (pin 3) will drive valve CCW (open).	**Floating:** Power to red wire (pin 2) will drive valve CW (closed). Power to white wire (pin 3) will drive valve CCW (open).
	LRB24-3, AMX24-3-X1, GMX24-3-X1, GRCX24-3-T, DRCX24-3-T	Power to pin 2 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "1" position to reverse, select the "0" position.	
	PR..3-T, SY	**NC:** Normally closed A to AB, valve will open as voltage increases.	**NO:** Normally open A to AB, valve will close as voltage increases.
FAIL-SAFE Note Fail Position	**CQKB(X)24 CQKB(X)24-S CQKB(X)UP**	**CQKB24-LL, CQKB24-S-LL, CQKBUP-LL:** Normally open CCW, valve will drive closed when energized. Fail-Safe Action: Actuator will fail open CCW upon power loss.	**CQKB24-RR, CQKB24-S-RR, CQKBUP-RR:** Normally closed CW, valve will drive open when energized. Fail-Safe Action: Actuator will fail closed CW upon power loss.
	LF24-3 US, AFX24-X1, AFRB24, GKB24-3-X1, GKRX24-3, DKRX24-3-T	**NC/FO:** Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail open upon power loss.	**NC/FC:** Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail closed upon power loss.
	PK..MFT-T	**NC:** Normally closed A to AB, valve will open as voltage increases when directional switch is in the "FO" position.	**NO:** Normally open A to AB, valve will close as voltage increases when directional switch is in the "FC" position.

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EXT-B2...-PWV Potable Water Ball Valves with Non Fail-Safe and Fail-Safe Actuators

2-way Valves with Chrome Plated Lead Free Brass Ball and Stem

BELIMO

C US
NSF/ANSI 61
NSF/ANSI 372

2-year warranty

VALVE SPECIFICATIONS

Fluid	potable water
Flow Characteristic	full port
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged lead free brass
Ball	chrome plated lead free brass
Stem	lead free brass
Seat	PTFE
Fluid Temperature Limit	212°F [100°C]
Leakage	0%





ACTUATOR PART #	CQB24-3	LRB24-3
Control	On/Off, Floating Point	On/Off, Floating Point
Power Supply	AC/DC 24 V	AC/DC 24 V
Running Time (Motor)	70 seconds (0...90°)	90 seconds (0...90°)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY NPT

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]		
EXT-B2050-PWV-NPT	32	½" [15]	600 psi CWP	200	$432	
EXT-B2075-PWV-NPT	49	¾" [20]		200		$564
EXT-B2100-PWV-NPT	81	1" [25]		200		$677





ACTUATOR PART #	CQKB24-LL	CQKB24-RR	CQKBUP-LL	CQKBUP-RR	LF24-3 US
Control	On/Off	On/Off	On/Off	On/Off	On/Off, Floating Point
Power Supply	AC/DC 24 V	AC/DC 24 V	AC 100...240 V	AC 100...240 V	AC/DC 24 V
Set-Up	NO/FO	NC/FC	NO/FO	NC/FC	
Running Time (Motor)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)	150 seconds (0...90°)
Running Time (Fail-Safe)	60 seconds	60 seconds	60 seconds	60 seconds	<25 seconds
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY NPT

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]					
EXT-B2050-PWV-NPT	32	½" [15]	600 psi CWP	200	$432	$432	$461	$461	
EXT-B2075-PWV-NPT	49	¾" [20]		200					$858
EXT-B2100-PWV-NPT	81	1" [25]		200					$970

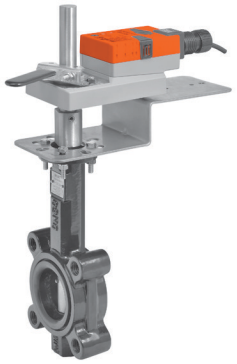
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EXT-LD..BE1AX Potable Water Butterfly Valves with Non Fail-Safe and Fail-Safe Actuators

2-way Valves, Aluminum Bronze Disc

VALVE SPECIFICATIONS

Fluid	chilled or hot water, potable
Flow Characteristic	F6- modified equal percentage
End Fitting	for use with ANSI Class 125/150 flanges
Body	ductile iron ASTM A536
Body Finish	epoxy powder coating
Disc	aluminum bronze
Shaft	416 stainless steel
Seat	EPDM
O-ring	Buna-N
Bushings	RPTFE
Fluid Temperature Range (Water)	-20...+250°F [-32...+120°C]
Maximum Velocity	12 FPS
Dead End Service	bidirectional approved





C US
NSF/ANSI 61
NSF/ANSI 372

2-year warranty

ACTUATOR PART #	AMX24-3-X1	GMX24-3-X1	DRCX24-3-T	AFX24-X1	GKB24-3-X1	DKRX24-3-T	PRBUP-3-T
Control	On/Off, Floating Point	On/Off, Floating Point	On/Off or Floating Point*	On/Off	On/Off, Floating Point	On/Off, Floating Point	On/Off or Floating Point
Manual Override	•	•	•	•	•	•	•
Running Time (Motor)	90 seconds	150 seconds	35 seconds	75 seconds	150 seconds	150 seconds	35 seconds
Running Time (Fail-Safe)				20 seconds	35 seconds	35 seconds	
Fail-Safe				•	•	•	
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	terminal block	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	terminal block	terminal block

2-WAY LUG FLANGE

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
EXT-LD14102BE1AX	115	44	2" [50]	200 psi CWP	150	$1,212			$1,511			
EXT-LD14125BE1AX	196	75	2½" [65]		150	$1,274			$1,574			
EXT-LD14103BE1AX	302	116	3" [80]		150		$1,648			$2,311		
EXT-LD14104BE1AX	600	230	4" [100]		150			$1,850			$2,447	
EXT-LD14105BE1AX	1022	392	5" [125]		150			$1,998			$3,568	
EXT-LD14106BE1AX	1579	605	6" [150]		150			$2,196			$3,920	
EXT-LD14108BE1AX	3136	1202	8" [200]		150							$5,942

*Must select On/Off OR Floating Point at time of ordering, not field changeable.

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EXT-LD..BE1AX Potable Water Butterfly Valves with NEMA 4X Non Fail-Safe and Fail-Safe Actuators

2-way Valves, Aluminum Bronze Disc

VALVE SPECIFICATIONS

Fluid	chilled or hot water, potable
Flow Characteristic	F6- modified equal percentage
End Fitting	for use with ANSI Class 125/150 flanges
Body	ductile iron ASTM A536
Body Finish	epoxy powder coating
Disc	aluminum bronze
Shaft	416 stainless steel
Seat	EPDM
O-ring	Buna-N
Bushings	RPTFE
Fluid Temperature Range (Water)	-20...+250°F [-32...+120°C]
Maximum Velocity	12 FPS
Dead End Service	bidirectional approved



NSF/ANSI 61
NSF/ANSI 372

2-year warranty

ACTUATOR PART #	GRCX24-3-T N4❖	DRCX24-3-T N4❖	PRBUP-3-T	SY4-24	GKRX24-3 N4❖	DKRX24-3-T N4❖	PKRXUP-MFT-T
Control	On/Off or Floating Point*	On/Off or Floating Point*	On/Off or Floating	On/Off or Floating	On/Off, Floating Point	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•	•	•
Running Time (Motor)	35 seconds	35 seconds	35 seconds	26 seconds	90 seconds	90 seconds	35 seconds
Running Time (Fail-Safe)					35 seconds	35 seconds	30 seconds
Fail-Safe					•	•	•
Electrical Connection	terminal block	terminal block	terminal block	terminal block	3 ft, 18 GA plenum rated cable with ½" conduit connector	terminal block	terminal block

2-WAY FULL RATED DISC

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
EXT-LD14102BE1AX	115	44	2" [50]	200 psi CWP	150	$2,000				$3,273		
EXT-LD14125BE1AX	196	75	2½" [65]		150	$2,061				$3,334		
EXT-LD14103BE1AX	302	116	3" [80]		150	$2,255				$3,523		
EXT-LD14104BE1AX	600	230	4" [100]		150		$3,484				$3,666	
EXT-LD14105BE1AX	1022	392	5" [125]		150		$3,824				$4,785	
EXT-LD14106BE1AX	1579	605	6" [100]		150		$4,024				$5,139	
EXT-LD14108BE1AX	3136	1202	8" [200]		150			$5,942				$10,174
EXT-LD14110BE1AX	5340	2047	10" [250]		150				$7,304			

❖ Heater option for NEMA 4X products has a list price adder of $600. Please specify when ordering.
*Must select On/Off OR Floating Point at time of ordering, not field changeable.

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BELIMO ZONETIGHT™ ZONE VALVES (QCV & 6-WAY)

Efficient in Every Way

- Compact design for maximum efficiency in tight spaces.
- Up to 95% less power consumption than conventional zone valves.
- Ball valve design with zero leakage eliminates energy loss.

Aarati Patel, Team Leader, Customer Service

ZONETIGHT ZONE VALVES



Flow and Cv Clip Setting Offered in SelectPro

A Quick and Efficient Way to Adjust Cv or GPM

Belimo ZoneTight™ Zone Valves offer you the option to field adjust the clip position on the actuator to the desired flow, meeting system design requirements. SelectPro includes the flow capacity application. Select the valve type, enter your design parameters, and click “Go to Valve Parameters.” Scroll to your valve, and your clip setting position is shown. It’s that easy.

Access SelectPro online at www.belimo.us

Discover the advantages
www.belimo.us

BELIMO



10 BELIMO ZONETIGHT™ ZONE VALVES (QCV)

Compact and Versatile

- Belimo ball valve design offers zero leakage, ensures tight closing eliminating energy losses, and is resistant to clogging.
- Low power consumption up to 95% less than conventional zone valves.
- Adjustable C_V value to meet design requirements.

Vone Ercoli, Picker-Packer

ZoneTight Zone Valve (QCV) Nomenclature

Z2	050	Q	S	-J	+CQB	24	-SR	-L	
Valve Type Z2 = 2-way Z3 = 3-way ZoneTight Chrome Plated Brass Ball and Brass Stem	**Valve Size** 050 = ½" 075 = ¾" 100 = 1"	Quick Connect	**Connection Type** Blank = NPT S = Sweat PF = Press Fit	**Cv*** 2-way F J K 3-way** E H J	**Actuator Type** Non Fail-Safe CQB CQX Electronic Fail-Safe CQKB CQKX	**Power Supply** 24 = AC/DC 24 V UP = AC 100...240 V	**Control** -3 = On/Off, Floating Point -SR = Modulating Input = 2...10 V	**Direction of Rotation** -L = Open (2 V) -R = Close (2 V) -LL = Normally Open, Fail Open -RR = Normally Close, Fail Close -LR = Normally Open, Fail Close -RL = Normally Close, Fail Open	-S = Built-in Aux. Switch

"X" models are customizable. Refer to page 10-3 for factory set clip position options.

*For C_V rating, see chart on next page.
**On/off only.

Ordering Example

1 Choose the valve actuator combination.

Z2050QS-J+CQB24-SR **-L**

2 Choose set-up required

Set-Up

Modulating Non Fail-Safe Models
L = Normally Open
R = Normally Closed

Fail-Safe Models
LL = Normally Open/Fail Open
LR = Normally Open/Fail Closed

RL = Normally Closed/Fail Open
RR = Normally Closed/Fail Closed

Refers to valve ports from inlet to outlet, per flow arrow.

Tagging or Setting (if needed)

3 Does order require tagging?

Tagging:
Valves may be tagged per customer specification. ($15.00 charge per tag)

Example:
AHU-1
FCU-2

Part number for tagging: 99981-00101

4 Does order require clip setting?

Clip Setting:
Valves may be set per customer specification. (All clip settings excluding "N" [default by factory] and "No Clip" have a list price adder of $45)

Example:
Clip Position 1
No Clip

Part number for setting: CQX, CQKX

5 Complete Ordering Example: Z2050QS-J+CQB24-SR-L

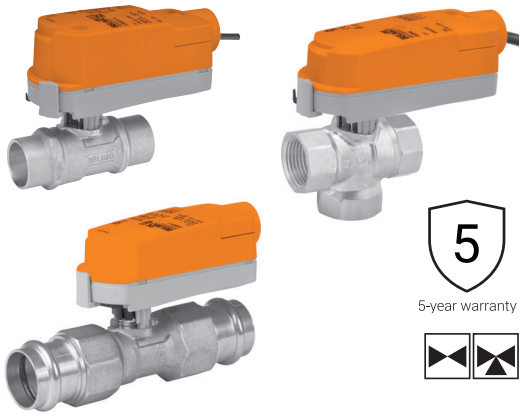
ZoneTight Zone Valve (QCV) Product Range

		Valve Nominal Size		Type		Suitable Actuators	
	C_V	Inches	DN [mm]	2-way	3-way	Non Fail-Safe	Fail-Safe
NPT	1.4*	½	15	Z2050Q-F		CQB Series	CQKB Series
	5.9*	½	15	Z2050Q-J			
	9.8*	¾	20	Z2075Q-K			
	8.2*	1	25	Z2100Q-K			
	1	½	15		Z3050Q-E		
	2.7	½	15		Z3050Q-H		
	4.6	¾	20		Z3075Q-J		
	4.4	1	25		Z3100Q-J		
Sweat	1.4*	½	15	Z2050QS-F			
	5.9*	½	15	Z2050QS-J			
	9.8*	¾	20	Z2075QS-K			
	8.2*	1	25	Z2100QS-K			
	1	½	15		Z3050QS-E		
	2.7	½	15		Z3050QS-H		
	4.6	¾	20		Z3075QS-J		
	4.4	1	25		Z3100QS-J		
Press Fit	1.4*	½	15	Z2050QPF-F			
	5.9*	½	15	Z2050QPF-J			
	9.8*	¾	20	Z2075QPF-K			
	8.2*	1	25	Z2100QPF-K			
	1	½	15		Z3050QPF-E		
	2.7	½	15		Z3050QPF-H		
	4.6	¾	20		Z3075QPF-J		
	4.4	1	25		Z3100QPF-J		

*Maximum flow. Max value can be field adjusted, see actuator instructions.
Order "X" model Actuators for Factory Clip Setting, see Instruction Manual for details.

	Clip Position for Flow Adjustment										No Clip
	1	2	3-	3	4	4+	5	5+	6	N	No end stop
Z2050Q(S)(PF)-F (½")	0.1	N/A	0.2	N/A	N/A	0.4	N/A	0.6	0.8	1.2	1.4
Z2050Q(S)(PF)-J (½")	0.5	0.7	N/A	1.2	1.7	N/A	2.4	N/A	3.4	4.8	5.9
Z2075Q(S)(PF)-K (¾")	0.5	1.0	N/A	1.5	2.3	N/A	3.3	N/A	4.6	6.6	9.8
Z2100Q(S)(PF)-K (1")	0.5	0.9	N/A	1.5	2.2	N/A	3.1	N/A	4.3	6	8.2

Teflon® is a registered trademark of DuPont™
**If temperature exceeds 212°F [100°C] operating range due to a boiler control failure the valve will safely contain the hot water but manufacturer's product warranty becomes invalid.



MODE OF OPERATION

The ZoneTight Zone Valve (QCV) is operated by a rotary actuator. The actuators are controlled by a standard voltage for on/off control, a modulating signal, or floating point control system which moves the ball of the valve to the position dictated by the control system.

PRODUCT FEATURES

The equal percentage characteristic of the flow is ensured by the design of the ball. This characteristic provides linear heating or cooling output from the coil improving energy efficiency and comfort.

ACTUATOR SPECIFICATIONS

Control type	
-3	on/off, floating point
-SR	modulating, 2...10 V
Blank	on/off
Manual override	use actuator to turn valve stem
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting, screw terminals
Power consumption	
CQ..	0.3 W running, 0.2 W holding
CQK..	2.5 W running, 0.5 W holding
CQ..UP	1.0 W running, 0.7 W holding
CQK..UP	3.0 W running, 0.5 W holding
Power supply	AC/DC 24 V (AC 110...240 V, UP)
Power consumption	
CQ..	0.6 VA
CQK..	5 VA
CQ..UP	2 VA
CQK..UP	7 VA

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
Flow characteristic	equal percentage (2-way), linear (3-way)
Controllable flow range	75° (2-way), 90° (3-way)
Sizes	½", ¾", 1"
End fitting	NPT female, sweat, press fit
Materials	
Body	forged brass
Ball	chrome plated brass
Stem	brass
Seats	Teflon® PTFE
O-rings	EPDM (lubricated)
Fluid temp range	36...212°F [2...100°C]**
Fluid temp limit	250°F [120°C]**
Max. allowable operating temp.	212°F [100°C]**
Body pressure rating	360 psi (NPT), 250 psi (press fit)
Close-off pressure	75 psid (2-way), 40 psid (3-way)
Max. differential pressure (ΔP)	40 psid
Leakage	0%

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SET-UP- Specify Upon Ordering

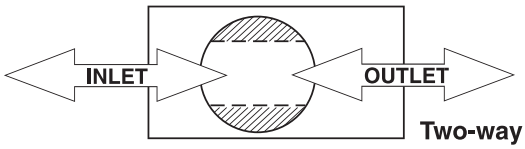
2-WAY AND 3-WAY VALVES

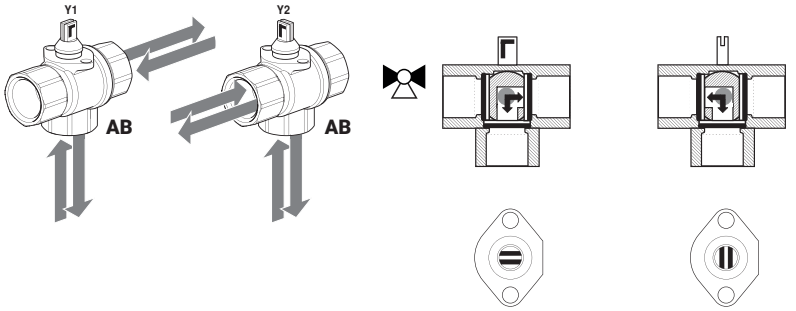
NON FAIL-SAFE Stays in Last Position	**CQB(X)UP-3**	**On/Off:** Power to brown wire (pin 2) will drive valve CW (closed). Power to brown wire (pin 3) and white wire (pin 3) will drive valve CCW (open). **Floating:** Power to brown wire (pin 2) will drive valve CW (closed). Power to white wire (pin 3) will drive valve CCW (open).	
	CQB(X)24-3	**On/Off:** Power to red wire (pin 2) will drive valve CW (closed). Power to red wire (pin 2) and white wire (pin 3) will drive valve CCW (open). **Floating:** Power to red wire (pin 2) will drive valve CW (closed). Power to white wire (pin 3) will drive valve CCW (open).	
	CQB(X)24-SR	**CQB24-SR-R:** Normally closed, valve will open as voltage increases.	**CQB24-SR-L:** Normally open, valve will close as voltage increases.
ELECTRONIC FAIL-SAFE	**CQKB(X)24** **CQKB(X)24-S** **CQKB(X)UP**	**CQKB24-LL, CQKB24-S-LL, CQKBUP-LL:** Normally open CCW, valve will drive closed when energized. Fail-Safe Action: Actuator will fail open CCW upon power loss.	**CQKB24-RR, CQKB24-S-RR, CQKBUP-RR:** Normally closed CW, valve will drive open when energized. Fail-Safe Action: Actuator will fail closed CW upon power loss.
	CQKB(X)24-SR	**CQKB24-SR-RL:** Normally closed CW, valve will open as voltage increases. Fail-Safe Action: Will fail open upon power loss.	**CQKB24-SR-RR:** Normally closed CW, valve will open as voltage increases. Fail-Safe Action: Will fail closed upon power loss.
		CQKB24-SR-LL: Normally open CCW, valve will close as voltage increases. Fail-Safe Action: Will fail open upon power loss.	**CQKB24-SR-LR:** Normally open CCW, valve will close as voltage increases. Fail-Safe Action: Will fail closed upon power loss.

Note: One wire control for CW or CCW rotation.

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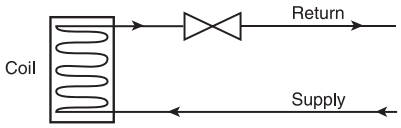
FLOW PATTERN



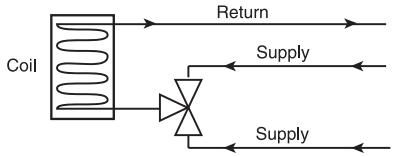


PIPING DIAGRAMS

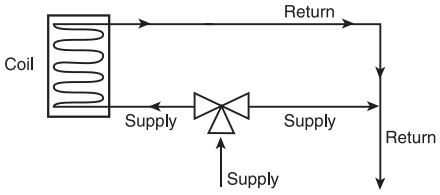
2-way Valve Piping Diagram



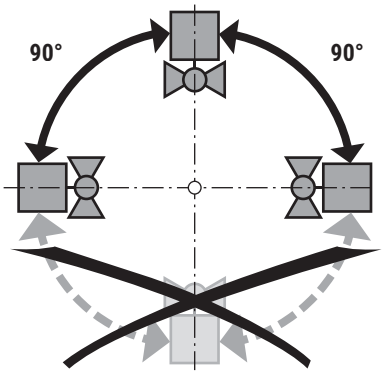
3-way Switching Valve Piping Diagram

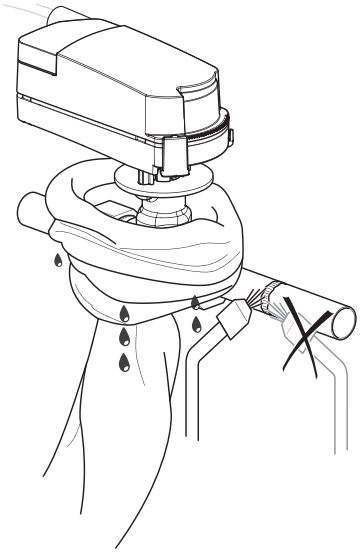


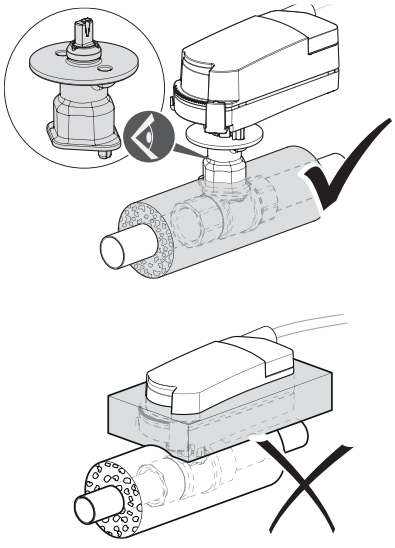
3-way Diverting Valve Piping Diagram



PIPING/MOUNTING ORIENTATION & INSULATION







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All prices are in US Dollars (USD)

ZoneTight Zone Valves (QCV) with Non Fail-Safe Actuators

2-way and 3-way Valves with Female NPT, Sweat, and Press Fit Connection

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled , hot water, 60% glycol
Flow Characteristic	equal percentage (2-way) linear (3-way)
Controllable Flow Range	75° (2-way) 90° (3-way)
End Fitting	NPT female sweat press fit
Body	forged brass
Ball	chrome plated brass
Stem	brass
Seat	Teflon® PTFE
Fluid Temperature Limit	250°F [120°C]*
Max Differential Pressure (Water)	40 psid
Maximum Allowable Operating Temperature	212°F [100°C]*
Leakage	0%

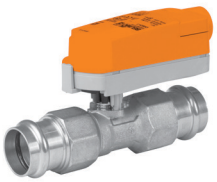
* If temperature exceeds 212°F [100°C] operating range due to a boiler control failure the valve will safely contain the hot water but manufacturers product warranty becomes invalid.
** Maximum flow. Max value can be field adjusted, see actuator instructions.

ACTUATOR PART #	CQX24-3	CQX24-SR	CQXUP-3
Add to List Price for Factory Clip Setting	+$45	+$45	+$45

5-year warranty







ACTUATOR PART #	CQB24-3	CQB24-SR-L	CQB24-SR-R	CQBUP-3
Control	On/Off, Floating Point	Modulating, 2...10 V	Modulating, 2...10 V	On/Off, Floating Point
Power Supply	AC/DC 24 V	AC/DC 24 V	AC/DC 24 V	AC 100...230 V
Set-Up		NO	NC	
Running Time (Motor)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY NPT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050Q-F**	1.4	½" [15]	360	75	$258	$366	$366	$281
Z2050Q-J**	5.9				$258	$366	$366	$281
Z2075Q-K**	9.8	¾" [20]			$287	$394	$394	$311
Z2100Q-K**	8.2	1" [25]			$364	$495	$495	$392
3-WAY NPT (ON/OFF ONLY)								
Z3050Q-E	1	½" [15]	360	40	$287			$311
Z3050Q-H	2.7				$287			$311
Z3075Q-J	4.6	¾" [20]			$318			$341
Z3100Q-J	4.4	1" [25]			$399			$429

2-WAY SWEAT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050QS-F**	1.4	½" [15]	360	75	$258	$366	$366	$281
Z2050QS-J**	5.9				$258	$366	$366	$281
Z2075QS-K**	9.8	¾" [20]			$287	$394	$394	$311
Z2100QS-K**	8.2	1" [25]			$364	$495	$495	$392
3-WAY SWEAT (ON/OFF ONLY)								
Z3050QS-E	1	½" [15]	360	40	$287			$311
Z3050QS-H	2.7				$287			$311
Z3075QS-J	4.6	¾" [20]			$318			$341
Z3100QS-J	4.4	1" [25]			$399			$429

2-WAY PRESS FIT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050QPF-F**	1.4	½" [15]	250	75	$277	$390	$390	$301
Z2050QPF-J**	5.9				$277	$390	$390	$301
Z2075QPF-K**	9.8	¾" [20]			$307	$423	$423	$333
Z2100QPF-K**	8.2	1" [25]			$389	$531	$531	$419
3-WAY PRESS FIT (ON/OFF ONLY)								
Z3050QPF-E	1	½" [15]	250	40	$307			$333
Z3050QPF-H	2.7				$307			$333
Z3075QPF-J	4.6	¾" [20]			$340			$367
Z3100QPF-J	4.4	1" [25]			$427			$460

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VALVE SPECIFICATIONS

Fluid	chilled , hot water, 60% glycol
Flow Characteristic	equal percentage (2-way) linear (3-way)
Controllable Flow Range	75° (2-way) 90° (3-way)
End Fitting	NPT female sweat press fit
Body	forged brass
Ball	chrome plated brass
Stem	brass
Seat	Teflon® PTFE
Fluid Temperature Limit	250°F [120°C]*
Max Differential Pressure (Water)	40 psid
Maximum Allowable Operating Temperature	212°F [100°C]*
Leakage	0%

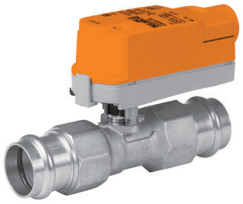
* If temperature exceeds 212°F [100°C] operating range due to a boiler control failure the valve will safely contain the hot water but manufacturers product warranty becomes invalid.
** Maximum flow. Max value can be field adjusted, see actuator instructions.

ACTUATOR PART #	CQKX24	CQKX24-S	CQKXUP
Add to List Price for Factory Clip Setting	+$45	+$45	+$45

5-year warranty







ON/OFF

ACTUATOR PART #	CQKB24-LL	CQKB24-RR	CQKB24-S-LL	CQKB24-S-RR	CQKBUP-LL	CQKBUP-RR
Control	On/Off	On/Off	On/Off	On/Off	On/Off	On/Off
Power Supply	AC/DC 24 V	AC/DC 24 V	AC/DC 24 V	AC/DC 24 V	AC 100...230 V	AC 100...230 V
Set-Up	NO/FO	NC/FC	NO/FO	NC/FC	NO/FO	NC/FC
Running Time (Motor)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)
Running Time (Fail-Safe)	60 seconds	60 seconds	60 seconds	60 seconds	60 seconds	60 seconds
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector
Auxiliary Switch			1 SPST	1 SPST		

2-WAY NPT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]						
Z2050Q-F**	1.4	½" [15]	360	75	$278	$278	$307	$307	$307	$307
Z2050Q-J**	5.9				$278	$278	$307	$307	$307	$307
Z2075Q-K**	9.8	¾" [20]			$310	$310	$339	$339	$343	$343
Z2100Q-K**	8.2	1" [25]			$392	$392	$422	$422	$434	$434

3-WAY NPT

Z3050Q-E	1	½" [15]	360	40	$310	$310	$339	$339	$343	$343
Z3050Q-H	2.7				$310	$310	$339	$339	$343	$343
Z3075Q-J	4.6	¾" [20]			$341	$341	$372	$372	$378	$378
Z3100Q-J	4.4	1" [25]			$430	$430	$461	$461	$479	$479

2-WAY SWEAT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]						
Z2050QS-F**	1.4	½" [15]	360	75	$278	$278	$307	$307	$307	$307
Z2050QS-J**	5.9				$278	$278	$307	$307	$307	$307
Z2075QS-K**	9.8	¾" [20]			$310	$310	$339	$339	$343	$343
Z2100QS-K**	8.2	1" [25]			$392	$392	$422	$422	$434	$434

3-WAY SWEAT

Z3050QS-E	1	½" [15]	360	40	$310	$310	$339	$339	$343	$343
Z3050QS-H	2.7				$310	$310	$339	$339	$343	$343
Z3075QS-J	4.6	¾" [20]			$341	$341	$372	$372	$378	$378
Z3100QS-J	4.4	1" [25]			$430	$430	$461	$461	$479	$479

2-WAY PRESS FIT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]						
Z2050QPF-F**	1.4	½" [15]	250	75	$298	$298	$330	$330	$330	$330
Z2050QPF-J**	5.9				$298	$298	$330	$330	$330	$330
Z2075QPF-K**	9.8	¾" [20]			$331	$331	$364	$364	$369	$369
Z2100QPF-K**	8.2	1" [25]			$419	$419	$453	$453	$465	$465

3-WAY PRESS FIT

Z3050QPF-E	1	½" [15]	250	40	$331	$331	$364	$364	$369	$369
Z3050QPF-H	2.7				$331	$331	$364	$364	$369	$369
Z3075QPF-J	4.6	¾" [20]			$367	$367	$399	$399	$406	$406
Z3100QPF-J	4.4	1" [25]			$461	$461	$493	$493	$513	$513

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ZoneTight Zone Valves (QCV) with Electronic Fail-Safe Actuators

2-way Valves with Female NPT, Sweat, and Press Fit Connection

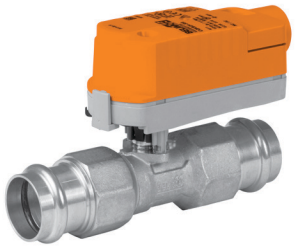
BELIMO

VALVE SPECIFICATIONS

Fluid	chilled , hot water, 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
End Fitting	NPT female sweat press fit
Body	forged brass
Ball	chrome plated brass
Stem	brass
Seat	Teflon® PTFE
Fluid Temperature Limit	250°F [120°C]*
Max Differential Pressure (Water)	40 psid
Maximum Allowable Operating Temperature	212°F [100°C]*
Leakage	0%

5-year warranty





MODULATING

ACTUATOR PART #	CQKB24-SR-LL	CQKB24-SR-LR	CQKB24-SR-RL	CQKB24-SR-RR
Control	Modulating, 2...10 V	Modulating, 2...10 V	Modulating, 2...10 V	Modulating, 2...10 V
Power Supply	AC/DC 24 V	AC/DC 24 V	AC/DC 24 V	AC/DC 24 V
Set-Up	NO/FO	NO/FC	NC/FO	NC/FC
Running Time (Motor)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)	75 seconds (0...90°)
Running Time (Fail-Safe)	60 seconds	60 seconds	60 seconds	60 seconds
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY NPT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050Q-F**	1.4	½" [15]	360	75	$424	$424	$424	$424
Z2050Q-J**	5.9				$424	$424	$424	$424
Z2075Q-K**	9.8	¾" [20]			$457	$457	$457	$457
Z2100Q-K**	8.2	1" [25]			$577	$577	$577	$577

2-WAY SWEAT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050QS-F**	1.4	½" [15]	360	75	$424	$424	$424	$424
Z2050QS-J**	5.9				$424	$424	$424	$424
Z2075QS-K**	9.8	¾" [20]			$457	$457	$457	$457
Z2100QS-K**	8.2	1" [25]			$577	$577	$577	$577

2-WAY PRESS FIT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050QPF-F**	1.4	½" [15]	250	75	$454	$454	$454	$454
Z2050QPF-J**	5.9				$454	$454	$454	$454
Z2075QPF-K**	9.8	¾" [20]			$490	$490	$490	$490
Z2100QPF-K**	8.2	1" [25]			$617	$617	$617	$617

* If temperature exceeds 212°F [100°C] operating range due to a boiler control failure the valve will safely contain the hot water but manufacturers product warranty becomes invalid.
** Maximum flow. Max value can be field adjusted, see actuator instructions.

ACTUATOR PART #	CQKX24-SR
Add to List Price for Factory Clip Setting	+$45

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11 6-WAY CHARACTERIZED CONTROL VALVES

Efficient Way to Control Both Heating and Cooling

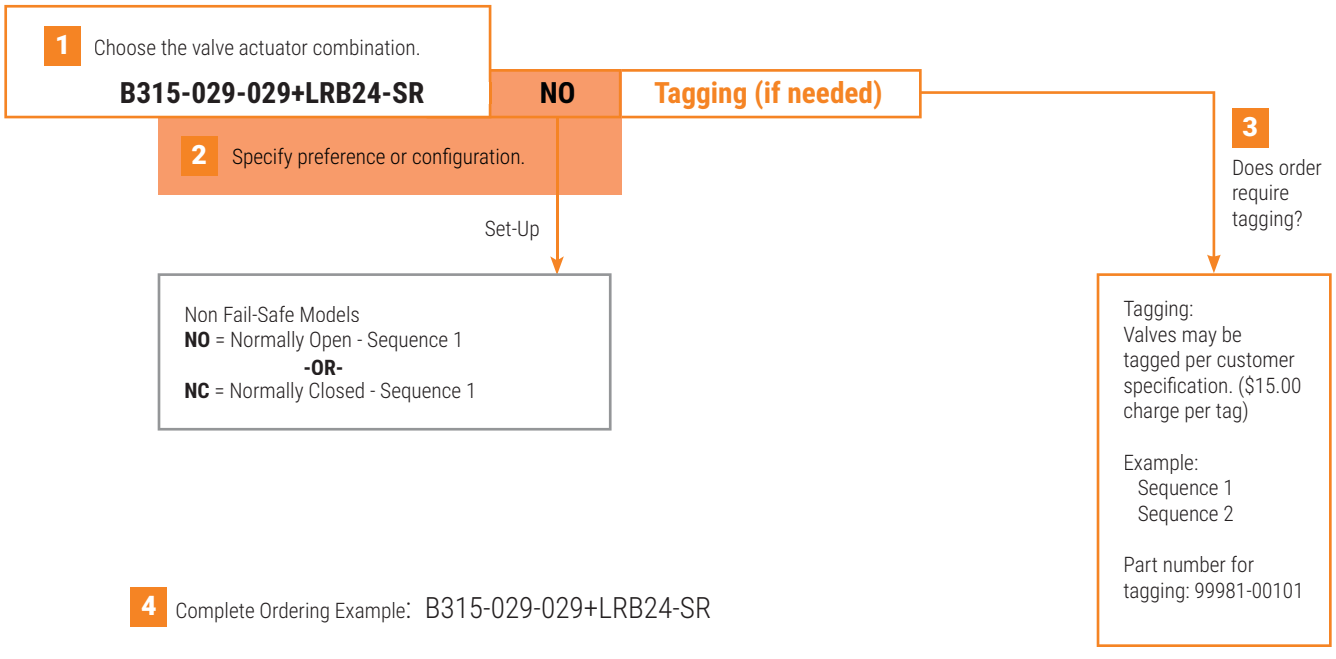
- True close-off to isolate both heating and cooling loops.
- Replaces four 2-way valves drastically simplifying installation.
- Only one actuator to integrate and wire.

Chantara Kim, Assembler 2, Line Leader

6-Way Characterized Control Valve Nomenclature

B3	15	-029	-	029	+LRB	24	-SR
Valve B3 = 3-way	**Valve Size** 15 = ½" 20 = ¾" 25 = 1"	**Sequence 1** 029 = 0.29 C_V 046 = 0.46 C_V 073 = 0.73 C_V 116 = 1.16 C_V 150 = 1.50 C_V 175 = 1.75 C_V 186 = 1.86 C_V 200 = 2.00 C_V 290 = 2.90 C_V 400 = 4.00 C_V 490 = 4.90 C_V 740 = 7.40 C_V	Two 3-way = 6-way	**Sequence 2** 029 = 0.29 C_V 046 = 0.46 C_V 073 = 0.73 C_V 116 = 1.16 C_V 150 = 1.50 C_V 175 = 1.75 C_V 186 = 1.86 C_V 200 = 2.00 C_V 290 = 2.90 C_V 400 = 4.00 C_V 470 = 4.70 C_V 700 = 7.00 C_V	**Actuator Type** LRB, LRX NRB, NRX	**Power Supply** 24 = AC/DC 24 V	**Control** -SR = 2...10 V -MFT = Multi-Function Technology Feedback = 2...10 V

Ordering Example



6-Way Characterized Control Valve Product Range

		Valve Nominal Size		Type	Suitable Actuators	
Sequence 1 C_V	Sequence 2 C_V	Inches	DN [mm]	6-way NPT	Non Fail-Safe	
0.29	0.29	½	15	B315-029-029	LRB24-SR	LRX24-MFT
0.29	0.46	½	15	B315-029-046		
0.29	0.73	½	15	B315-029-073		
0.29	1.16	½	15	B315-029-116		
0.29	1.50	½	15	B315-029-150		
0.46	0.29	½	15	B315-046-029		
0.46	0.46	½	15	B315-046-046		
0.46	0.73	½	15	B315-046-073		
0.46	1.16	½	15	B315-046-116		
0.46	1.50	½	15	B315-046-150		
0.73	0.29	½	15	B315-073-029		
0.73	0.46	½	15	B315-073-046		
0.73	0.73	½	15	B315-073-073		
0.73	1.16	½	15	B315-073-116		
0.73	1.50	½	15	B315-073-150		
1.16	0.29	½	15	B315-116-029		
1.16	0.46	½	15	B315-116-046		
1.16	0.73	½	15	B315-116-073		
1.16	1.16	½	15	B315-116-116		
1.16	1.50	½	15	B315-116-150		
1.50	0.29	½	15	B315-150-029		
1.50	0.46	½	15	B315-150-046		
1.50	0.73	½	15	B315-150-073		
1.50	1.16	½	15	B315-150-116		
1.50	1.50	½	15	B315-150-150		
1.75	2.0	½	15	B315-175-200		
2.0	1.75	½	15	B315-200-175		
2.0	2.0	½	15	B315-200-200		



Linear Characteristic

MODE OF OPERATION

The 6-way CCV has the functionality of four 2-way control valves, and each sequence is controlled individually by the electronic actuator's rotary movement. The valve is bubble-tight in the closed position preventing energy losses and helps reduce operating costs.

PRODUCT FEATURES

One valve performs changeover and modulating control for a single coil in a 4 pipe system. True close-off to isolate both heating and cooling loops.

ACTUATOR SPECIFICATIONS

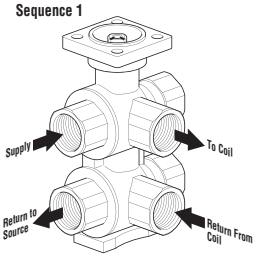
Control type	2...10 V, multi-function technology (MFT)
Manual override	LR..
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

VALVE SPECIFICATIONS

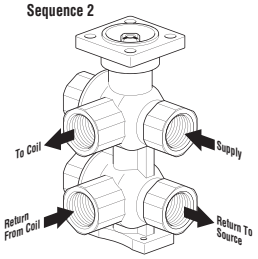
Fluid	chilled or hot water, up to 60% glycol max
Flow characteristic	linear
Controllable flow range	
Sequence 1	0...30° angle
Dead zone	30...60°
Sequence 2	60...90° angle
Sizes	½"
End fitting	NPT
Materials	
Body	nickel plated brass
Ball	chrome plated brass
Stem	nickel plated brass
Seats	Teflon® PTFE
Seat o-rings	EPDM
Characterizing disc	chrome plated steel
Stem o-rings	EPDM
Fluid temp range	43...180°F [6...82°C]
Body pressure rating	232 psi
Close-off pressure	50 psid
Max. operating differential pressure (ΔP)	15 psid*
Leakage	0%

Teflon® is a registered trademark of DuPont™
* See Technical Documentation for further explanation.

Sequence 1



Sequence 2



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6-Way Characterized Control Valve Product Range

		Valve Nominal Size		Type	Suitable Actuators	
Sequence 1 C_V	Sequence 2 C_V	Inches	DN [mm]	6-way NPT	Non Fail-Safe	
0.73	0.73	¾	20	B320-073-073	LRB24-SR	LRX24-MFT
0.73	1.16	¾	20	B320-073-116		
0.73	1.86	¾	20	B320-073-186		
0.73	2.9	¾	20	B320-073-290		
1.16	0.73	¾	20	B320-116-073		
1.16	1.16	¾	20	B320-116-116		
1.16	1.86	¾	20	B320-116-186		
1.16	2.9	¾	20	B320-116-290		
1.86	0.73	¾	20	B320-186-073		
1.86	1.16	¾	20	B320-186-116		
1.86	1.86	¾	20	B320-186-186		
1.86	2.9	¾	20	B320-186-290		
2.9	0.73	¾	20	B320-290-073		
2.9	1.16	¾	20	B320-290-116		
2.9	1.86	¾	20	B320-290-186		
2.9	2.9	¾	20	B320-290-290		
2.9	4.0	¾	20	B320-290-400		
2.9	4.7	¾	20	B320-290-470		
4.0	2.9	¾	20	B320-400-290		
4.0	4.0	¾	20	B320-400-400		
4.0	4.7	¾	20	B320-400-470		
4.9	2.9	¾	20	B320-490-290		
4.9	4.0	¾	20	B320-490-400		
4.9	4.7	¾	20	B320-490-470		
7.4	7	1	25	B325-740-700	NRB24-SR	NRX24-MFT



5-year warranty

Linear Characteristic

MODE OF OPERATION

The 6-way CCV has the functionality of four 2-way control valves, and each sequence is controlled individually by the electronic actuator's rotary movement. The valve is bubble-tight in the closed position preventing energy losses and helps reduce operating costs.

PRODUCT FEATURES

One valve performs changeover and modulating control for a single coil in a 4 pipe system. True close-off to isolate both heating and cooling loops.

ACTUATOR SPECIFICATIONS

Control type	2...10 V, multi-function technology (MFT)
Manual override	LR.., NR..
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

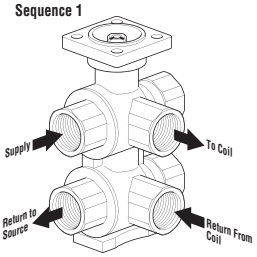
VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
Flow characteristic	linear
Controllable flow range	
Sequence 1	0...30° angle
Dead zone	30...60°
Sequence 2	60...90° angle
Sizes	¾", 1"
End fitting	NPT
Materials	
Body	nickel plated brass
Ball	chrome plated brass
Stem	nickel plated brass
Seats	Teflon® PTFE
Seat o-rings	EPDM
Characterizing disc	chrome plated steel
Stem o-rings	EPDM
Fluid temp range	43...180°F [6...82°C]
Body pressure rating	232 psi
Close-off pressure	50 psid
Max. operating differential pressure (ΔP)	15 psid*
Leakage	0%

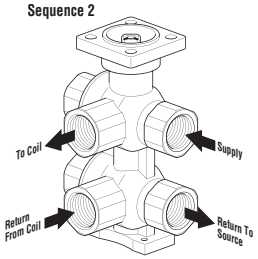
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* See Technical Documentation for further explanation.

Sequence 1



Sequence 2



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VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	linear
End Fitting	NPT female ends
Body	nickel plated brass
Ball	chrome plated brass
Stem	nickel plated brass
Seat	Teflon® PTFE
O-ring	EPDM
Characterized Disc	chrome plated steel
Fluid Temperature Range	43...180°F [6...82°C]
Max Operating Differential Pressure	15 psid for typical applications*
Leakage	0%

5-year warranty



ACTUATOR PART #	LRB24-SR	LRX24-MFT**
Control	2...10 V	Modulating/MFT
Manual Override	•	•
Running Time (Motor)	90 seconds	150 seconds (default), variable (35...150 seconds)
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

6-WAY

Model #	Seq 1 Cv	Seq 2 Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]		
B315-029-029	0.29	0.29	½" [15]	232	50	$1,013	$1,087
B315-029-046		0.46				$1,013	$1,087
B315-029-073		0.73				$1,013	$1,087
B315-029-116		1.16				$1,013	$1,087
B315-029-150		1.5				$1,013	$1,087
B315-046-029	0.46	0.29				$1,013	$1,087
B315-046-046		0.46				$1,013	$1,087
B315-046-073		0.73				$1,013	$1,087
B315-046-116		1.16				$1,013	$1,087
B315-046-150		1.5				$1,013	$1,087
B315-073-029	0.73	0.29				$1,013	$1,087
B315-073-046		0.46				$1,013	$1,087
B315-073-073		0.73				$1,013	$1,087
B315-073-116		1.16				$1,013	$1,087
B315-073-150		1.5				$1,013	$1,087
B315-116-029	1.16	0.29				$1,013	$1,087
B315-116-046		0.46				$1,013	$1,087
B315-116-073		0.73				$1,013	$1,087
B315-116-116		1.16				$1,013	$1,087
B315-116-150		1.5				$1,013	$1,087
B315-150-029	1.5	0.29				$1,013	$1,087
B315-150-046		0.46				$1,013	$1,087
B315-150-073		0.73				$1,013	$1,087
B315-150-116		1.16				$1,013	$1,087
B315-150-150		1.5				$1,013	$1,087
B315-175-200	1.75	2.0				$1,013	$1,087
B315-200-175	2.0	1.75				$1,013	$1,087
B315-200-200	2.0	2.0				$1,013	$1,087

*See Technical Documentation for further explanation.
**For 24 VAC On/Off/On Heating & Cooling Applications use –MFT actuator w/ Program Code J60.

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6-Way Characterized Control Valves with Non Fail-Safe Actuators

Chrome Plated Brass Ball and Nickel Plated Brass Stem, NPT Female Ends

BELIMO

5-year warranty

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	linear
End Fitting	NPT female ends
Body	nickel plated brass
Ball	chrome plated brass
Stem	nickel plated brass
Seat	Teflon® PTFE
O-ring	EPDM
Characterized Disc	chrome plated steel
Fluid Temperature Range	43...180°F [6...82°C]
Max Operating Differential Pressure	15 psid for typical applications*
Leakage	0%



ACTUATOR PART #	LRB24-SR	LRX24-MFT**	NRB24-SR	NRX24-MFT*
Control	2...10 V	Modulating/MFT	2...10 V	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	90 seconds	150 seconds (default), variable (35...150 seconds)	90 seconds	150 seconds (default), variable (45...150 seconds)
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

6-WAY

Model #	Seq 1 Cv	Seq 2 Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B320-073-073	0.73	0.73	¾" [20]	232	50	$1,232	$1,319		
B320-073-290		2.9				$1,232	$1,319		
B320-073-186		1.86				$1,232	$1,319		
B320-073-116		1.16				$1,232	$1,319		
B320-116-116	1.16					$1,232	$1,319		
B320-116-073		0.73				$1,232	$1,319		
B320-116-290		2.9				$1,232	$1,319		
B320-116-186		1.86				$1,232	$1,319		
B320-186-186	1.86					$1,232	$1,319		
B320-186-116		1.16				$1,232	$1,319		
B320-186-073		0.73				$1,232	$1,319		
B320-186-290		2.9				$1,232	$1,319		
B320-290-290	2.9					$1,232	$1,319		
B320-290-186		1.86				$1,232	$1,319		
B320-290-116		1.16				$1,232	$1,319		
B320-290-073		0.73				$1,232	$1,319		
B320-290-400		4				$1,232	$1,319		
B320-290-470		4.7				$1,232	$1,319		
B320-400-290	4.0	2.9				$1,232	$1,319		
B320-400-400		4				$1,232	$1,319		
B320-400-470		4.7				$1,232	$1,319		
B320-490-290	4.9	2.9				$1,232	$1,319		
B320-490-400		4				$1,232	$1,319		
B320-490-470		4.7				$1,232	$1,319		
B325-740-700	7.4	7	1" [25]					$1,449	$1,536

*See Technical Documentation for further explanation.
**For 24 VAC On/Off/On Heating & Cooling Applications use –MFT actuator w/ Program Code J60.

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CHARACTERIZED CONTROL VALVES (CCV & HTCCV)

Control and Reliability

- Maintenance free design with zero leakage.
- Designed to meet the specifications where higher media temperature is required.
- High close-off rating ensures reliable shut off to prevent energy loss.

Ben Gillotti, Website Coordinator

CHARACTERIZED CONTROL VALVES
CCV, HTCCV, BALL VALVES



Belimo SelectPro™

Sizing and Selection Made Simple

SelectPro is a quick and easy online or offline tool for accurately sizing and selecting actuators, valves, sensors, and replacement solutions. The software walks you through step by step, providing optimal product selection.

Discover the advantages
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BELIMO



12 CHARACTERIZED CONTROL VALVES (CCV)

Efficient Stable Control

- Characterized disc ensures an equal percentage flow characteristic.
- Zero leakage eliminates energy loss.
- Maintenance free with self-cleaning ball valve; no repacking required.

Lenny Engleman, Material Handler

Characterized Control Valve (CCV) Nomenclature

B2	09		+LRX	24	-MFT	
Valve B2 = 2-way B3 = 3-way	**Valve Size** 07-80 = ½...3"	**Trim Material** B = Chrome Plated Brass Ball, Nickel Plated Stem Blank = Stainless Steel Ball and Stem	**Actuator Type** **Non Fail-Safe** TR LRB, LRX LRQX NRB, NRX NRQX ARB, ARX ARQX **Fail-Safe Spring Return** TFRB, TFRX LF AFRB, AFRX	**Power Supply** 24 = AC/DC 24 V 120 = AC 120 V* 230 = AC 230 V UP = AC 24...240 V or DC 24.... 125 V	**Control** Blank = On/Off -3 = On/Off, Floating Point -SR = 2...10 V -MFT = Multi-Function Technology -MFT95 = 0...135 Ω -IP = Internet Protocol	-S = Built-in Auxiliary Switch -T = Terminal Strip N4 = NEMA 4/4X

"X" models are customizable.
Refer to page 12-7 for programming and cable options.

*LR and AR include AC 120...240 V

Ordering Example

1 Choose the valve actuator combination.

B209+LRX24-MFT

2 Specify preference or configuration.

3 **For MFT Orders Only - Select Programming Code**

NO | **Tagging (if needed)**

4 Does order require tagging?

Set-Up

Non Fail-Safe Models
NO = Normally Open
NC = Normally Closed

Fail-Safe Models
NO/FO = Normally Open/Fail Open
NO/FC = Normally Open/Fail Closed

NC/FO = Normally Closed/Fail Open
NC/FC = Normally Closed/Fail Closed

See settings
Refers to valve ports A to AB.

A01

A..	Control voltage applications
W..	Pulse width modulation applications
F..	Floating Point applications
J..	On/Off applications

Tagging:
Valves may be tagged per customer specification. ($15.00 charge per tag)

Example:
AHU-1
FCU-2

Part number for tagging: 99981-00101

5 Complete Ordering Example: B209+LRX24-MFT
Configuration: +NO
Programming: +A01

Characterized Control Valve (CCV) Nomenclature

B6	250	S	-070	+GRX	24	-MFT	
Valve B6 = 2-way Flanged	**Valve Size** 250-600 = 2½...6"	**Trim Material** S = Stainless Steel Ball & Stem	**Cv** 070 = 70 Cv 110 = 110 Cv 186 = 186 Cv 290 = 290 Cv 400 = 400 Cv	**Actuator Type** **Non Fail-Safe** ARB, ARX GRB, GRX **Fail-Safe Spring Return** AFRB, AFRX **Electronic** GKRX	**Power Supply** 24 = AC/DC 24 V 120 = AC 120 V* 230 = AC 230 V UP = AC 24...240 V or DC 24.... 125 V	**Control** Blank = On/Off -3 = On/Off, Floating Point -SR = 2...10 V -MFT = Multi-Function Technology -MFT95 = 0...135 Ω -IP = Internet Protocol	N4 = NEMA 4/4X

"X" models are customizable.
Refer to page 12-7 for programming and cable options.

*AR includes AC 120...240 V

Ordering Example

1 Choose the valve actuator combination.

B6250S-070+GRX24-MFT

2 Specify preference or configuration.

3 **For MFT Orders Only - Select Programming Code**

NO | **Tagging (if needed)**

Set-Up

Non Fail-Safe Models
NO = Normally Open
NC = Normally Closed

Fail-Safe Models
NO/FO = Normally Open/Fail Open
NO/FC = Normally Open/Fail Closed

NC/FO = Normally Closed/Fail Open
NC/FC = Normally Closed/Fail Closed

See settings
Refers to valve ports A to AB.

A01

A..	Control voltage applications
W..	Pulse width modulation applications
F..	Floating Point applications
J..	On/Off applications

4 Does order require tagging?

Tagging:
Valves may be tagged per customer specification. ($15.00 charge per tag)

Example:
AHU-1
FCU-2

Part number for tagging: 99981-00101

5 Complete Ordering Example: B6250S-070+GRX24-MFT
Configuration: +NO
Programming: +A01

Characterized Control Valve (CCV) Product Range

Valve Nominal Size			Type		Suitable Actuators								
					Non Fail-Safe		NEMA 4X	Fail-Safe		NEMA 4X	Internet Protocol		
C_v	In.	DN [mm]	2-way NPT	3-way NPT	TR Series	LR Series	NR Series	TFR Series	LF Series		LR..-IP		
0.3	½	15	B207(B)	B307(B)									
0.46	½	15	B208(B)	B308(B)									
0.8	½	15	B209(B)	B309(B)									
1.2	½	15	B210(B)	B310(B)									
1.9	½	15	B211(B)	B311(B)									
3	½	15	B212(B)	B312(B)									
4.7	½	15	B213(B)	B313(B)									
7.4	½	15	B214(B)										
10	½	15	B215(B)	B315(B)									
16	½	15	B216(B)*	B316(B)*									
4.7	¾	20	B217(B)	B317(B)									
7.4	¾	20	B218(B)	B318(B)									
10	¾	20	B219(B)										
14	¾	20	B220(B)*										
14	¾	20		B320(B)									
24	¾	20	B221(B)*	B321(B)*									
7.4	1	25	B222	B322									
10	1	25	B223	B323									
19	1	25	B224										
30	1	25	B225*	B325*									
10	1¼	32	B229										
19	1¼	32	B230*										
10	1¼	32		B329									
19	1¼	32		B330									
25	1¼	32	B231	B331									
37	1¼	32	B232*										
19	1½	40	B238	B338									
29	1½	40	B239	B339									
37	1½	40	B240*	B340									
46	1½	40		B341									
29	2	50	B248	B347									
37	2	50		B348									
46	2	50	B249	B349									
57	2	50	B250*	B350									
65	2	50	B251										
68	2	50		B351									
83	2	50		B352									
85	2	50	B252										
120	2	50	B253										
240	2	50	B254*										

						AR Series	AR Series		AFR Series	AFR Series	AR..-IP	AKR..-IP	AFR..-IP

* Models without characterizing discs. (B) Models with chrome plated brass ball and nickel plated brass stem



5-year warranty

Equal Percentage Characteristic

MODE OF OPERATION

The Characterized Control Valve is operated by a rotary actuator. The actuators are controlled by a standard voltage for on/off control, a modulating signal, or floating point control system which move the ball of the valve to the position dictated by the control system.

PRODUCT FEATURES

The equal-percentage characteristic of the flow is ensured by the integral characterizing disc. This characteristic provides linear heating or cooling output from the coil improving energy efficiency and comfort.

ACTUATOR SPECIFICATIONS

Control type	on/off, floating point, 2...10 V, multi-function technology (MFT)
Manual override	LR, TR, NR, AR, AFR Series
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
Flow characteristic	A-port equal percentage B-port modified for constant common port flow
Controllable flow range	75°
Sizes	½", ¾", 1", 1¼", 1½", 2"
End fitting	NPT female
Materials	
Body	nickel plated brass
Ball	chrome plated brass
Stem	nickel plated brass
Seats	Teflon® PTFE
Seat o-rings	EPDM
Characterizing disc	chrome plated steel
½...1½" (2-way)	Tefzel®
½...1" (3-way)	Tefzel®
2" (2-way) B248...B249	Tefzel®
2" (2-way) B251...B253	stainless steel
	stainless steel
Stem o-rings	EPDM
Fluid temp range	0...250°F [-18...+120°C]
Body pressure rating	
2-way	
All ½", ¾", 1"	600 psi
1¼" up to B230	600 psi
1¼" from B231	400 psi
1½...2"	400 psi
3-way	
All ½", ¾", 1"	600 psi
1½...2"	400 psi
Close-off pressure	200 psid
Maximum differential pressure (ΔP)	50 psid
Leakage	0% for A to AB, <2.0% for B to AB
Cv rating	B port: 70% of A to AB Cv

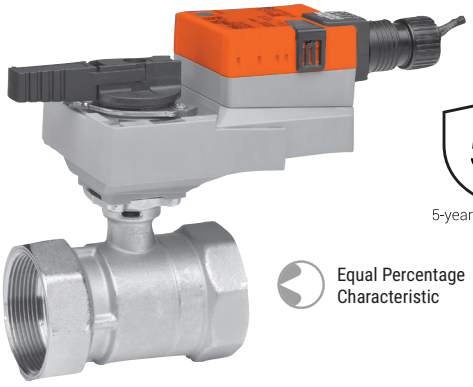
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Characterized Control Valve (CCV) Product Range

Valve Nominal Size			Type	Suitable Actuators						
C_V	Inches	DN [mm]	2-way NPT	Non Fail-Safe	NEMA 4X	Fail-Safe	NEMA 4X	Internet Protocol		
60	2½	65	B261	AR Series	AR Series	AFR Series	AFR Series	AR...-IP	AKR...-IP	AFR...-IP
75	2½	65	B262							
110	2½	65	B263							
150	2½	65	B264							
210	2½	65	B265*							
70	3	80	B277							
130	3	80	B278							
170	3	80	B280*							

* Models without characterizing disc



5-year warranty

Equal Percentage Characteristic

MODE OF OPERATION

The Characterized Control Valve is operated by a rotary actuator. The actuators are controlled by a standard voltage for on/off control, a modulating signal, or floating point control system which move the ball of the valve to the position dictated by the control system.

PRODUCT FEATURES

The equal-percentage characteristic of the flow is ensured by the integral characterizing disc. This characteristic provides linear heating or cooling output from the coil improving energy efficiency and comfort.

ACTUATOR SPECIFICATIONS

Control type	on/off, floating point, 2...10 V, multi-function technology (MFT)
Manual override	AR and AFR series
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

VALVE SPECIFICATIONS

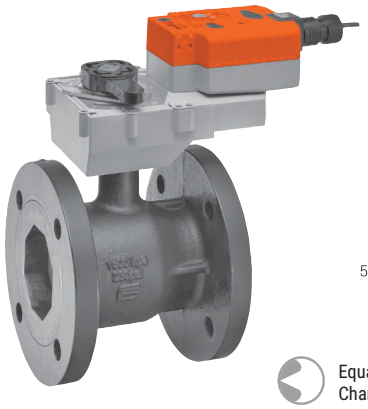
Fluid	chilled or hot water, up to 60% glycol max
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	2½", 3"
End fitting	NPT female
Materials	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
Seat o-rings	EPDM
Characterizing disc	Tefzel®
Stem o-rings	EPDM
Fluid temp range	0...212°F [-18...+100°C]
Body pressure rating	400 psi
Close-off pressure	100 psid
Maximum differential pressure (ΔP)	30 psid
Leakage	0% for A to AB

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Characterized Control Valve (CCV) Product Range

Valve Nominal Size			2-way Flanged		Suitable Actuators						
C_V	Inches	DN [mm]	ANSI 125	ANSI 250	Non Fail-Safe	NEMA 4X	Fail-Safe	NEMA 4X	Internet Protocol		
70	2½	65	B6250S-070	B6250S-070-250	AR	AR	AFR	AFR	AR..-IP	AFR..-IP	AKR..-IP
110	2½	65	B6250S-110	B6250S-110-250							
110	3	80	B6300S-110	B6300S-110-250							
186	4	100	B6400S-186	B6400S-186-250	GR		GKR	GR / GKR			
290	5	125	B6500S-290	B6500S-290-250							
400	6	150	B6600S-400	B6600S-400-250							



5
5-year warranty

Equal Percentage Characteristic

MODE OF OPERATION

The Characterized Control Valve is operated by a rotary actuator. The actuators are controlled by a standard voltage for on/off control, a modulating signal, or floating point control system which move the ball of the valve to the position dictated by the control system.

PRODUCT FEATURES

The equal-percentage characteristic of the flow is ensured by the integral characterizing disc. This characteristic provides linear heating or cooling output from the coil improving energy efficiency and comfort.

ACTUATOR SPECIFICATIONS

Control type	on/off, floating point, 2...10 V, multi-function technology (MFT)
Manual override	AR, GR, AFR and GKR series
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	2½", 3", 4", 5", 6"
End fitting	ANSI Class 125 flange, flat face*, ANSI 250
Materials	
Body	cast iron GG25
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
Seat o-rings	EPDM rubber
Characterizing disc	stainless steel
Stem o-rings	EPDM
Fluid temp range	0...250°F [-18...+120°C]
Body pressure rating	ANSI 125, Class B, ANSI 250
Close-off pressure	175 psid, 310 psid (-250)
Maximum differential pressure (ΔP)	50 psid
Leakage	0% for A to AB

*125 psi flanges have a plain flat face and should not be bolted to a raised face flange.

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SET-UP - Specify Upon Ordering

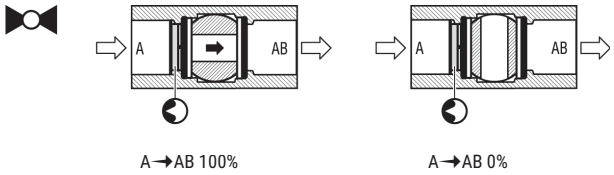
		2-WAY VALVE		3-WAY VALVE	
NON FAIL-SAFE Stays in Last Position	**TR24-3(-T)**	Power to pin 2 will drive valve CCW. Power to pin 3 will drive valve CW.		Power to pin 2 will drive valve CCW. Power to pin 3 will drive valve CW.	
	LRB24-3(-T), ARB24-3(-T)	Power to pin 2 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "1" position to reverse, select the "0" position.		Power to pin 2 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "1" position to reverse, select the "0" position.	
	TR24-SR(-T), LRB24-SR, LRB(X)24-MFT, ARB24-SR, ARB(X)24-MFT	**NC:** Normally closed A to AB, valve will open as voltage increases	**NO:** Normally open A to AB, valve will close as voltage increases	**NC:** Normally closed A to AB, valve will open as voltage increases	**NO:** Normally open A to AB, valve will close as voltage increases
SPRING RETURN Note Fail Position	**TFRB24, LF24 US, AFRB24**	**NO/FO:** Normally open A to AB, valve will drive closed. Spring Action: Actuator will fail open A to AB upon power loss.	**NC/FC:** Normally closed A to AB, valve will drive open. Spring Action: Actuator will fail closed A to AB upon power loss.	**NO/FO:** Normally open A to AB, valve will drive closed. Spring Action: Actuator will fail open A to AB upon power loss.	**NC/FC:** Normally closed A to AB, valve will drive open. Spring Action: Actuator will fail closed A to AB upon power loss.
	TFRB24-3, TFRB24-SR, TFRX24-MFT, LF24-3 US, LF24-SR US, LF24-MFT US, AFRB24-SR, AFRX24-MFT	**NC/FO:** Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail open upon power loss.	**NC/FC:** Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail closed upon power loss.	**NO/FC:** Normally open A to AB, valve will close as voltage increases. Actuator switch on CCW. Spring Action: Will fail closed upon power loss.	**NO/FO:** Normally open A to AB, valve will close as voltage increases. Actuator switch on CCW. Spring Action: Will fail open upon power loss.
ELECTRONIC FAIL-SAFE	**GKRX24-3†**	Power to pin 4 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "FO" position to reverse, select the "FC" position.		Power to pin 4 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "FO" position to reverse, select the "FC" position.	
	GKRX24-MFT†	**NC:** Normally closed A to AB, will open as voltage increases when directional switch is in the "FO" position.	**NO:** Normally open A to AB, will close as voltage increases when directional switch is in the "FC" position.	**NC:** Normally closed A to AB, will open as voltage increases when directional switch is in the "FO" position.	**NO:** Normally open A to AB, will close as voltage increases when directional switch is in the "FC" position.

† The GK series Electronic Fail-Safe actuator will drive to a predetermined postion using the FO/FC dial on the actuator upon loss of power.

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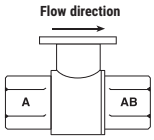
FLOW PATTERNS

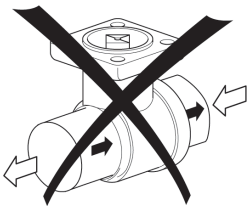
2-way Characterized Control Valves™ **(Belimo B2 Series)**



A→AB 100% A→AB 0%

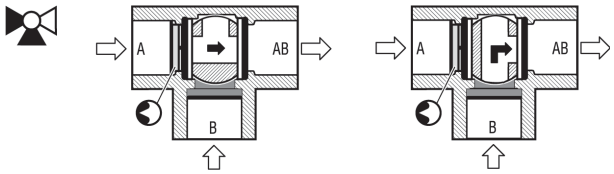
Two-way valves should be installed with the disc upstream.





3-way Characterized Control Valves™ **(Belimo B3 Series)**

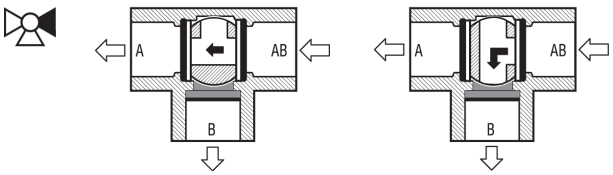
MIXING



A→AB 100% A→AB 0%
B→AB 0% B→AB 70%

The A-port must be piped to the coil to maintain proper control.

DIVERTING

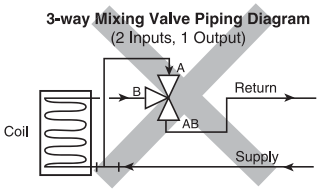


AB→A 100% AB→A 0%
AB→B 0% AB→B 70%

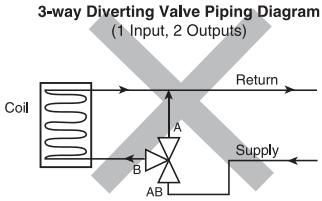
INCORRECT PIPING

The A-port must be piped to the coil to maintain proper control.

3-way Mixing Valve Piping Diagram
(2 Inputs, 1 Output)



3-way Diverting Valve Piping Diagram
(1 Input, 2 Outputs)



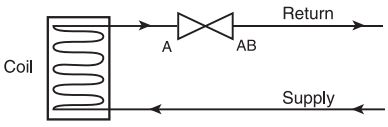
WARNING! Do Not Pipe in this manner!
Note Valve Porting!
The A-port must be piped to the coil, not the B-port!

Flow is not possible from A to B. If AB-port is not piped as the common port, the valve must be re-piped. It is good practice to install a balancing valve in the bypass line. These valves are intended for closed loop systems. Do not install in an open loop system or in an application that is open to atmospheric pressure.

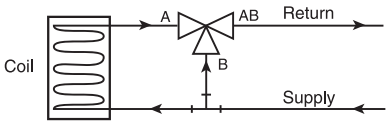
OPERATION/INSTALLATION – CORRECT PIPING

2-way valves should be installed with the characterizing discs upstream. No damage to the valve will result if installed incorrectly with the characterizing discs downstream.

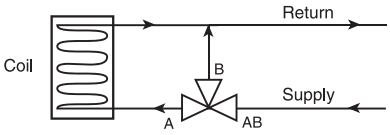
2-way Valve Piping Diagram
(1 Input, 1 Output)



3-way Mixing Valve Piping Diagram
(2 Inputs, 1 Output)



3-way Diverting Valve Piping Diagram
(1 Input, 2 Outputs)



Not for use in change over applications.
Please consider industrial valves in section 14.

3-WAY VALVES MUST BE PIPED CORRECTLY. They can be mixing or diverting. Mixing is the preferred piping arrangement.

The Belimo Characterized Control Valve is a CONTROL valve, not a manual valve adapted for actuation. The control port is the A-port. It is similar to the globe valve in that the middle port is the B or bypass port. The common port AB is on the main opposite the A-port. These diagrams are for typical applications only. Consult engineering specification and drawings for particular circumstances.

REDUCED B-PORT FLOW

Note: The B-port flow of the 3-way CCV is lower than that of the A-port. In most applications this is beneficial since the reduced flow compensates for the inexistent pressure drop across the coil in the bypass mode. Therefore, proper sizing is important to avoid flow noise in particular when the system is designed with constant speed pumps. Please refer to our valve sizing and selection guidelines.

The flow velocity in the pipe upstream and downstream of the valve should be considered as well. **The typical HVAC design maximum flow is 4...8 ft./s to avoid noise issues.**

Also, the pipe reduction factor must be considered. Pipe reducers decrease the C_V value of a valve and consequently increase the pressure drop across the valve creating a situation that could lead to noise or a lower than designed flow.

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ARB...

B = Basic stocked product

- Standard 150 second run time.
- Standard 3' plenum cable with conduit connector.

Typical Lead Time: 1 day

ARX...

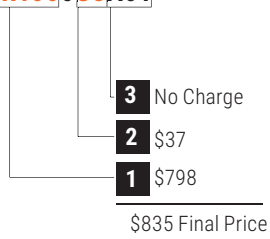
X = Customizable product

- Choice of 10' or 16' cable with conduit connector.
- Option of 3' right angle cables for tight spaces (-3 version only).
- Factory programming for run time, control signal and feedback.

Typical Lead Time: 3 days or less

Reorder number consists of options which differ from standard product. This number is printed on the actuator for easy reordering.
For example:

Reorder # for a ARX24-MFT is: AR1000C3A01



1 ACTUATOR TYPE

2 CABLES

CABLE (with conduit fitting)	SIZE	CABLE CODE	List Price
24 V Plenum Rated	3 ft.	C1	No Charge
	10 ft.	C3	$37
	16 ft.	C5	$63
120 V Appliance Rated	3 ft.	A1	No Charge
	10 ft.	A3	$37
	16 ft.	A5	$63

3 PROGRAM

		CONTROL			
ACTUATOR TYPE	CONFIGURATION DESCRIPTION	CONTROL INPUT	FEEDBACK POSITION	RUNNING TIME	List Price
-3 and SR	0	2...10 V (for -3)	2...10 V (for -3)	150 seconds	No Charge
	2	2...10 V (for -SR)	2...10 V (for -SR)	90 seconds	No Charge
MFT and PC	A01*	2...10 V	2...10 V	150 seconds	No Charge
	A02	0.5...10 V	0.5...10 V	150 seconds	No Charge
	A03	2...10 V	0.5...5 V	150 seconds	No Charge
	A04	4...7 V	2...10 V	150 seconds	No Charge
	A05	6...9 V	2...10 V	150 seconds	No Charge
	A06	10.5 ...13.5 V	2...10 V	150 seconds	No Charge
	A07	0.5...5 V	2...10 V	150 seconds	No Charge
	A09	5...10 V	2...10 V	150 seconds	No Charge
	A10	5...10 V	0.5...10 V	150 seconds	No Charge
	A13	0.5...10 V	2...10 V	150 seconds	No Charge
	A15	2...5 V	2...10 V	150 seconds	No Charge
	A16	2...6 V	2...10 V	150 seconds	No Charge
	A17	6...10 V	2...10 V	150 seconds	No Charge
	A18	14...17 V	2...10 V	150 seconds	No Charge
	A20	9...12 V	2...10 V	150 seconds	No Charge
	A28	0.5...10 V	0.5...10 V	100 seconds	No Charge
	A31	0.5...4 V	2...10 V	150 seconds	No Charge
	A63	0.5...4.5 V	0.5...4.5 V	150 seconds	No Charge
	A32	6...14 V	2...10 V	150 seconds	No Charge
	A64	5.5...10 V	5.5...10 V	150 seconds	No Charge
	AAT	2...10 V	2...10 V	20 seconds	No Charge
	W01	0.59...2.93 seconds	2...10 V	150 seconds	No Charge
	W02	0.02...5.00 seconds	2...10 V	150 seconds	No Charge
	W03	0.10...25.50 seconds	2...10 V	150 seconds	No Charge
	W04	0.10...25.60 seconds	2...10 V	150 seconds	No Charge
	W05	0.10...5.20 seconds	0.5...5 V	150 seconds	No Charge
	F01	Floating Point	2...10 V	150 seconds	No Charge
	F02	Floating Point	0.5...10 V	150 seconds	No Charge
	J02	On/Off	2...10 V	150 seconds	No Charge
	S01 (-PC only)	Phasecut	2...10 V	150 seconds	No Charge
	R01 (-MFT95 only)	0 to 135 Ω	2...10 V	150 seconds	No Charge

NOTE: Additional codes are available, consult factory.
*A01 is the default configuration for MFT.

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B2/B3 Series Characterized Control Valves with Non Fail-Safe Actuators

2-way and 3-way Valves with Chrome Plated Brass Ball and Brass Stem, NPT Female Ends

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic (B2)	A-port equal percentage
Flow Characteristic (B3)	A- port equal percentage; B-port modified linear for constant flow
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	nickel plated brass
Seat	Teflon® PTFE
Characterized Disc	TEFZEL®
Seat 0-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0% for A to AB, <2.0% for B to AB
Cv Flow Rating	A-port: as stated in chart B-port: 70% of A to AB Cv

Visit *www.belimo.us* to see additional non fail-safe actuator options including 120 V and -S models.

5-year warranty





CCV

ACTUATOR PART #				TR24-3-T US	TR24-3 US	TR24-SR-T US	TR24-SR US	LRB24-3	LRB24-SR
Control				On/Off, Floating Point	On/Off, Floating Point	Modulating	Modulating	On/Off, Floating Point	Modulating
Manual Override				•	•	•	•	•	•
Running Time (Motor)				90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds
Electrical Connection				terminal block	3 ft, 18 GA plenum cable	terminal block	3 ft, 18 GA plenum cable	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector
2-WAY									
Model #	**Cv**	**Size [mm]**	**Body Pressure Rating [psi]**	**Close-Off Pressure [psid]**					
B207B	0.3	½" [15]	600	200	$277	$293	$407	$428	$378	$563
B208B	0.46			200	$277	$293	$407	$428	$378	$563
B209B	0.8			200	$277	$293	$407	$428	$378	$563
B210B	1.2			200	$281	$297	$411	$432	$383	$566
B211B	1.9			200	$281	$297	$411	$432	$383	$566
B212B	3			200	$286	$302	$416	$440	$390	$577
B213B	4.7			200	$288	$304	$418	$442	$394	$579
B214B	7.4			200	$293	$311	$426	$447	$400	$585
B215B	10			200	$293	$311	$426	$447	$402	$587
B216B*	16			200	$296	$315	$429	$449	$407	$591
B217B	4.7	¾" [20]		200	$353	$372	$487	$506	$455	$640
B218B	7.4			200	$356	$377	$491	$510	$458	$643
B219B	10			200	$356	$377	$491	$510	$460	$646
B220B*	14			200	$364	$385	$499	$517	$462	$648
B221B*	24			200					$469	$655
3-WAY MIXING/DIVERTING									
B307B	0.3	½" [15]	600	200	$337	$356	$502	$522	$441	$628
B308B	0.46			200	$337	$356	$502	$522	$441	$628
B309B	0.8			200	$337	$356	$502	$522	$441	$628
B310B	1.2			200	$339	$358	$505	$526	$443	$630
B311B	1.9			200	$339	$358	$505	$526	$443	$630
B312B	3			200	$349	$372	$516	$537	$448	$635
B313B	4.7			200	$353	$376	$518	$540	$455	$641
B315B	10			200	$354	$377	$520	$542	$462	$650
B316B*	16			200	$367	$390	$534	$554	$464	$653
B317B	4.7	¾" [20]		200	$438	$458	$602	$624	$498	$685
B318B	7.4			200	$436	$457	$601	$623	$502	$689
B320B	14			200					$511	$699
B321B*	24			200					$516	$703

*Models without characterizing discs.
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

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VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic (B2)	A-port equal percentage
Flow Characteristic (B3)	A- port equal percentage; B-port modified linear for constant flow
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	nickel plated brass
Seat	Teflon® PTFE
Characterized Disc	TEFZEL®
Seat O-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0% for A to AB, <2.0% for B to AB
Cv Flow Rating	A-port: as stated in chart B-port: 70% of A to AB Cv

Visit *www.belimo.us* to see additional fail-safe actuator options including 120 V and -S models.

5-year warranty





ACTUATOR PART #				TFRB24	TFRB24-3	TFRB24-SR	LF24 US	LF24-3 US	LF24-SR US
Control				On/Off	Floating Point	Modulating	On/Off	Floating Point	Modulating
Manual Override				<75 seconds	90 seconds	90 seconds	75 seconds	150 seconds	150 seconds
Running Time (Motor)				75 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds
Electrical Connection				3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector
2-WAY									
Model #	**Cv**	**Size [mm]**	**Body Pressure Rating [psi]**	**Close-Off Pressure [psid]**					
B207B	0.3	½" [15]	600	200	$534	$610	$655	$607	$774	$796
B208B	0.46			200	$534	$610	$655	$607	$774	$796
B209B	0.8			200	$534	$610	$655	$607	$774	$796
B210B	1.2			200	$538	$614	$659	$611	$777	$798
B211B	1.9			200	$538	$614	$659	$611	$777	$798
B212B	3			200	$545	$621	$664	$621	$785	$807
B213B	4.7			200	$547	$624	$668	$624	$790	$810
B214B	7.4			200	$549	$628	$672	$628	$792	$812
B215B	10			200	$549	$628	$672	$635	$799	$820
B216B*	16			200	$549	$628	$672	$639	$801	$824
B217B	4.7	¾" [20]		200	$614	$690	$736	$693	$859	$882
B218B	7.4			200	$617	$692	$739	$697	$861	$886
B219B	10			200	$617	$692	$739	$702	$865	$889
B220B*	14			200	$624	$699	$745	$704	$869	$891
B221B*	24			200				$707	$873	$897
3-WAY MIXING/DIVERTING									
B307B	0.3	½" [15]	600	200	$631	$736	$770	$722	$888	$918
B308B	0.46			200	$631	$736	$770	$722	$888	$918
B309B	0.8			200	$631	$736	$770	$722	$888	$918
B310B	1.2			200	$633	$739	$773	$725	$890	$920
B311B	1.9			200	$639	$744	$777	$725	$890	$920
B312B	3			200	$643	$748	$782	$740	$904	$935
B313B	4.7			200	$650	$755	$791	$744	$906	$938
B315B	10			200	$650	$755	$791	$746	$911	$942
B316B*	16			200	$650	$755	$791	$748	$914	$944
B317B	4.7	¾" [20]		200	$704	$810	$843	$799	$964	$993
B318B	7.4			200	$702	$807	$841	$801	$969	$999
B320B	14			200				$808	$974	$1,004
B321B*	24			200				$812	$978	$1,007

*Models without characterizing discs.
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

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B2 Series Characterized Control Valves with Non Fail-Safe Actuators

2-way Valve with Stainless Steel Ball and Stem, NPT Female Ends

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	TEFZEL®
Seat O-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0%

Visit *www.belimo.us* for additional non fail-safe actuator options including 120 V and -S models.

5 5-year warranty





ACTUATOR PART #	TR24-3-T US	TR24-3 US	TR24-SR-T US	TR24-SR US	LRB24-3	LRB24-SR	LRX24-MFT
Control	On/Off, Floating Point	On/Off, Floating Point	Modulating	Modulating	On/Off, Floating Point	Modulating	Modulating/MFT
Manual Override	•	•	•	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	150 seconds (variable)
Electrical Connection	terminal block	3 ft, 18 GA plenum cable	terminal block	3 ft, 18 GA plenum cable	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]						
B207	0.3	½" [15]	600	200	$314	$338	$476	$495	$400	$557	$735
B208	0.46			200	$314	$338	$476	$495	$400	$557	$735
B209	0.8			200	$314	$338	$476	$495	$400	$557	$735
B210	1.2			200	$325	$348	$485	$505	$404	$561	$738
B211	1.9			200	$325	$348	$485	$505	$404	$561	$738
B212	3			200	$331	$352	$492	$511	$406	$566	$741
B213	4.7			200	$335	$358	$497	$518	$426	$582	$761
B214	7.4			200	$342	$370	$505	$526	$435	$591	$769
B215	10			200	$342	$370	$505	$526	$449	$594	$784
B216*	16			200	$410	$426	$564	$582	$452	$594	$787
B217	4.7	¾" [20]		200	$401	$426	$536	$555	$470	$600	$805
B218	7.4			200	$404	$429	$537	$557	$473	$607	$807
B219	10			200	$404	$429	$540	$558	$478	$616	$813
B220*	14			200	$408	$435	$541	$560	$481	$617	$816
B221*	24			200					$484	$618	$820
B222	7.4	1" [25]		200					$495	$640	$831
B223	10			200					$505	$647	$841
B224	19			200					$505	$650	$841
B225*	30			200					$509	$656	$844
B229	10	1¼" [32]		200					$564	$693	$898
B230*	19			200					$567	$703	$901

*Models without characterizing discs.
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

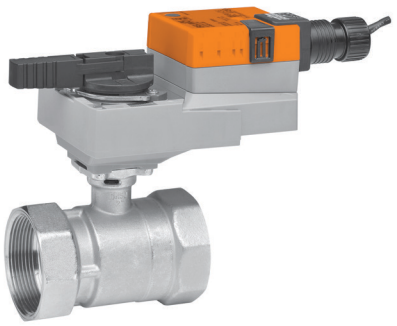
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VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	TEFZEL® or stainless steel
Seat O-ring	EPDM
Fluid Temp. Range 1¼...2"	0...250°F [-18...+120°C]
Fluid Temp. Range 2½...3"	0...212°F [-18...+100°C]
Max Differential Pressure 1¼...2"	50 psid
Max Differential Pressure 2½...3"	30 psid
Leakage	0%

Visit *www.belimo.us* to see additional non fail-safe actuator options including 120 V and -S models.

5-year warranty



ACTUATOR PART #	ARB24-3	ARB24-SR	ARX24-MFT
Control	On/Off, Floating Point	Modulating	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	90 seconds	90 seconds	150 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]			
B231	25	1¼" [32]	400	200	$654	$869	$947
B232*	37			200	$670	$881	$960
B238	19	1½" [40]		200	$670	$881	$960
B239	29			200	$670	$881	$960
B240*	37			200	$672	$883	$962
B248	29	2" [50]		200	$865	$1,079	$1,159
B249	46			200	$871	$1,082	$1,163
B250*	57			200	$873	$1,084	$1,165
B251	65			200	$1,259		$1,573
B252	85			200	$1,355		$1,711
B253	120			200	$1,465		$1,781
B254*	240			200	$1,482		$2,095
B261	60	2½" [65]		100	$1,489		$1,707
B262	75			100	$1,494		$1,808
B263	110			100	$1,592		$1,907
B264	150			100	$1,699		$2,012
B265*	210			100	$1,908		$2,033
B277	70	3" [80]		100	$1,719		$2,034
B278	130			100	$1,819		$2,133
B280*	170			100	$2,244		$2,559

*Models without characterizing discs.
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

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B3 Series Characterized Control Valves with Non Fail-Safe Actuators

3-way Valve with Stainless Steel Ball and Stem, NPT Female Ends

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	A-port equal percentage, B-port modified linear for constant flow
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	TEFZEL®
Seat O-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0% for A to AB, <2.0% for B to AB
Cv Flow Rating	A-port: as stated in chart B-port: 70% of A to AB Cv

Visit *www.belimo.us* to see additional non fail-safe actuator options including 120 V and -S models.

5-year warranty





ACTUATOR PART #	TR24-3-T US	TR24-3 US	TR24-SR-T US	TR24-SR US	LRB24-3	LRB24-SR	LRX24-MFT
Control	On/Off, Floating Point	On/Off, Floating Point	Modulating	Modulating	On/Off, Floating Point	Modulating	Modulating/MFT
Manual Override	•	•	•	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	150 seconds (variable)
Electrical Connection	terminal block	3 ft, 18 GA plenum cable	terminal block	3 ft, 18 GA plenum cable	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

3-WAY MIXING/DIVERTING

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]						
B307	0.3	½" [15]	600	200	$394	$410	$569	$587	$489	$655	$831
B308	0.46			200	$394	$410	$569	$587	$489	$655	$831
B309	0.8			200	$394	$410	$569	$587	$489	$655	$831
B310	1.2			200	$399	$414	$572	$590	$491	$659	$835
B311	1.9			200	$399	$414	$572	$590	$491	$659	$835
B312	3			200	$406	$425	$580	$598	$501	$673	$845
B313	4.7			200	$408	$428	$582	$601	$509	$678	$853
B315	10			200	$408	$428	$582	$601	$519	$687	$863
B316*	16			200	$423	$441	$596	$616	$524	$691	$867
B317	4.7	¾" [20]		200	$494	$511	$670	$686	$605	$776	$951
B318	7.4			200	$495	$512	$671	$687	$611	$779	$954
B320	14			200					$619	$787	$962
B321*	24			200					$624	$793	$969
B322	7.4	1" [25]		200					$654	$824	$997
B323	10			200					$656	$826	$1,001
B325*	30			200					$663	$831	$1,006

*Models without characterizing discs.
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

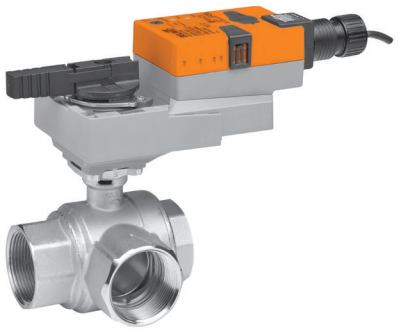
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VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	A-port equal percentage, B-port modified linear for constant flow
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	stainless steel
Seat O-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0% for A to AB, <2.0% for B to AB
Cv Flow Rating	A-port: as stated in chart B-port: 70% of A to AB Cv

Visit *www.belimo.us* for additional non fail-safe actuator options including 120 V and -S models.

5-year warranty



ACTUATOR PART #	ARB24-3	ARB24-SR	ARX24-MFT
Control	On/Off, Floating Point	Modulating	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	90 seconds	90 seconds	150 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

3-WAY MIXING/DIVERTING

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]			
B329	10	1¼" [32]	400	200	$764	$903	$1,049
B330	19			200	$773	$907	$1,059
B331	25			200	$971	$1,163	$1,258
B338	19	1½" [40]		200	$985	$1,174	$1,271
B339	29			200	$989	$1,180	$1,276
B340	37			200	$992	$1,182	$1,278
B341	46			200	$997	$1,187	$1,285
B347	29	2" [50]		200	$1,319	$1,508	$1,606
B348	37			200	$1,323	$1,512	$1,609
B349	46			200	$1,323	$1,512	$1,609
B350	57			200	$1,330	$1,521	$1,617
B351	68			200	$1,340	$1,531	$1,625
B352	83			200	$1,365	$1,543	$1,679

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B2 Series Characterized Control Valves with Fail-Safe Actuators

2-way Valve with Stainless Steel Ball and Stem, NPT Female Ends

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	TEFZEL®
Seat 0-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0%

Visit *www.belimo.us* for additional fail-safe actuator options including 120 V and -S models.

5-year warranty





ACTUATOR PART #	TFRB24	TFRB24-3	TFRB24-SR	TFRX24-MFT	LF24 US	LF24-3 US	LF24-SR US	LF24-MFT US
Control	On/Off	Floating Point	Modulating	Modulating/ MFT	On/Off	Floating Point	Modulating	Modulating/ MFT
Running Time (Motor)	<75 seconds	90 seconds	90 seconds	150 seconds (variable)	75 seconds	150 seconds	150 seconds	150 seconds (variable)
Running Time (Fail-Safe)	75 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]							
B207	0.3	½" [15]	600	200	$542	$619	$666	$776	$626	$785	$808	$940
B208	0.46			200	$542	$619	$666	$776	$626	$785	$808	$940
B209	0.8			200	$542	$619	$666	$776	$626	$785	$808	$940
B210	1.2			200	$548	$623	$671	$780	$631	$791	$815	$944
B211	1.9			200	$548	$623	$671	$780	$631	$791	$815	$944
B212	3			200	$558	$634	$679	$791	$638	$798	$823	$955
B213	4.7			200	$561	$636	$683	$793	$640	$800	$825	$957
B214	7.4			200	$566	$639	$686	$795	$647	$806	$829	$961
B215	10			200	$566	$639	$686	$795	$640	$800	$825	$957
B216*	16			200	$567	$640	$687	$797	$647	$806	$829	$961
B217	4.7	¾" [20]		200	$626	$701	$746	$858	$704	$865	$887	$1,019
B218	7.4			200	$630	$704	$749	$861	$709	$871	$891	$1,024
B219	10			200	$626	$701	$746	$858	$711	$873	$895	$1,026
B220*	14			200	$635	$711	$759	$869	$716	$876	$898	$1,029
B221*	24			200					$720	$880	$902	$1,035
B222	7.4	1" [25]		200					$726	$885	$912	$1,041
B223	10			200					$735	$895	$918	$1,049
B224	19			200					$748	$912	$932	$1,065
B225*	30			200					$759	$918	$940	$1,074
B229	10	1¼" [32]		200					$773	$932	$956	$1,085
B230*	19			200					$776	$934	$959	$1,090

*Models without characterizing discs.
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

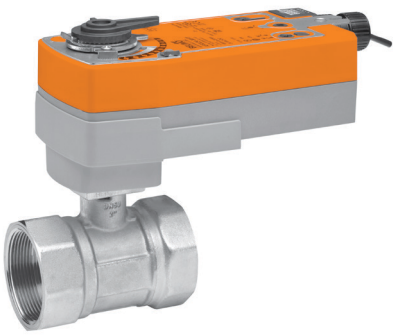
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VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	TEFZEL® or stainless steel
Seat O-ring	EPDM
Fluid Temp. Range 1¼...2"	0...250°F [-18...+120°C]
Fluid Temp. Range 2½...3"	0...212°F [-18...+100°C]
Max Differential Pressure 1¼...2"	50 psid
Max Differential Pressure 2½...3"	30 psid
Leakage	0%

Visit *www.belimo.us* for additional fail-safe actuator options including 120 V and -S models.

5-year warranty



ACTUATOR PART #	AFRB24	AFRB24-SR	AFRX24-MFT
Control	On/Off	Modulating	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	75 seconds	95 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]			
B231	25	1¼" [32]	400	200	$894	$1,126	$1,284
B232*	37			200	$897	$1,128	$1,286
B238	19	1½" [40]		200	$902	$1,134	$1,292
B239	29			200	$904	$1,136	$1,294
B240*	37			200	$907	$1,138	$1,297
B248	29	2" [50]		200	$1,259	$1,491	$1,569
B249	46			200	$1,274	$1,504	$1,584
B250*	57			200	$1,286	$1,518	$1,597
B251	65			200	$1,569		$1,776
B252	85			200	$1,670		$1,879
B253	120			200	$1,771		$1,978
B254*	240			200	$1,776		$1,984
B261	60	2½" [65]		100	$1,781		$1,990
B262	75			100	$1,862		$2,071
B263	110			100	$1,956		$2,166
B264	150			100	$2,003		$2,210
B265*	210			100	$2,220		$2,424
B277	70	3" [80]		100	$2,026		$2,233
B278	130			100	$2,132		$2,340
B280*	170			100	$2,549		$2,756

*Models without characterizing discs.
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

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B3 Series Characterized Control Valves with Fail-Safe Actuators

3-way Valve with Stainless Steel Ball and Stem, NPT Female Ends

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	A-port equal percentage, B-port modified linear for constant flow
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	TEFZEL® or stainless steel
Seat 0-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0% for A to AB, <2.0% for B to AB
Cv Flow Rating	A-port: as stated in chart B-port: 70% of A to AB C_V

Visit *www.belimo.us* for additional fail-safe actuator options including 120 V and -S models.

5-year warranty





ACTUATOR PART #	TFRB24	TFRB24-3	TFRB24-SR	TFRX24-MFT	LF24 US	LF24-3 US	LF24-SR US	LF24-MFT US
Control	On/Off	Floating Point	Modulating	Modulating/ MFT	On/Off	Floating Point	Modulating	Modulating/ MFT
Running Time (Motor)	<75 seconds	90 seconds	90 seconds	150 seconds (variable)	75 seconds	150 seconds	150 seconds	150 seconds (variable)
Running Time (Fail-Safe)	75 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector

3-WAY MIXING/DIVERTING

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]							
B307	0.3	½" [15]	600	200	$654	$759	$776	$888	$732	$897	$934	$1,031
B308	0.46			200	$654	$759	$776	$888	$732	$897	$934	$1,031
B309	0.8			200	$654	$759	$776	$888	$732	$897	$934	$1,031
B310	1.2			200	$656	$761	$779	$891	$735	$899	$938	$1,035
B311	1.9			200	$666	$767	$784	$899	$735	$899	$938	$1,035
B312	3			200	$675	$779	$794	$912	$750	$917	$956	$1,050
B313	4.7			200	$677	$781	$797	$914	$755	$919	$959	$1,053
B315	10			200	$677	$781	$797	$914	$759	$923	$961	$1,056
B316*	16			200	$676	$780	$795	$913	$761	$925	$964	$1,061
B317	4.7	¾" [20]		200	$738	$842	$859	$973	$800	$967	$1,006	$1,100
B318	7.4			200	$738	$842	$859	$973	$818	$981	$1,019	$1,116
B320	14			200					$826	$991	$1,029	$1,126
B321*	24			200					$834	$995	$1,036	$1,130
B322	7.4	1" [25]		200					$851	$1,017	$1,054	$1,153
B323	10			200					$863	$1,026	$1,066	$1,163
B325*	30			200					$871	$1,035	$1,074	$1,168

*Models without characterizing discs.
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

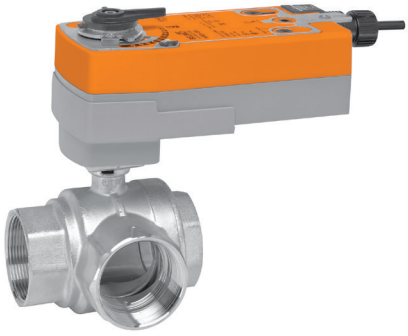
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VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	A-port equal percentage, B-port modified linear for constant flow
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	stainless steel
Seat O-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0% for A to AB, <2.0% for B to AB
Cv Flow Rating	A-port: as stated in chart B-port: 70% of A to AB C_V

Visit *www.belimo.us* for additional fail-safe actuator options including 120 V and -S models.

5-year warranty



ACTUATOR PART #	AFRB24	AFRB24-SR	AFRX24-MFT
Control	On/Off	Modulating	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	75 seconds	95 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

3-WAY MIXING/DIVERTING

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]			
B329	10	1¼" [32]	400	200	$1,018	$1,221	$1,274
B330	19			200	$1,026	$1,242	$1,291
B331	25			200	$1,242	$1,495	$1,556
B338	19	1½" [40]		200	$1,261	$1,513	$1,575
B339	29			200	$1,265	$1,516	$1,577
B340	37			200	$1,274	$1,525	$1,587
B341	46			200	$1,518	$1,771	$1,832
B347	29	2" [50]		200	$1,789	$2,044	$2,104
B348	37			200	$1,795	$2,048	$2,109
B349	46			200	$1,797	$2,051	$2,112
B350	57			200	$1,804	$2,056	$2,118
B351	68			200	$2,059	$2,309	$2,372
B352	83			200	$2,150	$2,401	$2,463

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B6 Series Characterized Control Valves with Non Fail-Safe Actuators

2-way Valve with Stainless Steel Ball and Stem, Flanged Ends

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
End Fitting	pattern to mate with ANSI 125 flange, flat face, ANSI 250 flange
Body	cast iron - GG25
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	stainless steel
Seat 0-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0%

Visit *www.belimo.us* for additional non fail-safe actuator options including 120 V and -S models.

5-year warranty





ACTUATOR PART #	ARB24-3-5-14	ARX24-MFT	GRB24-3-5-14	GRX24-MFT
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	90 seconds	150 seconds (variable)	150 seconds	150 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY ANSI 125

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B6250S-070	70	2½" [65]	ANSI 125, Standard Class B	175	$2,732	$2,900		
B6250S-110	110			175	$2,853	$3,021		
B6300S-110	110	3" [80]		175	$2,992	$3,343		
B6400S-186	186	4" [100]		175			$3,460	$3,709
B6500S-290	290	5" [125]		175			$5,016	$5,152
B6600S-400	400	6" [150]		175			$6,273	$6,504

2-WAY ANSI 250

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B6250S-070-250	70	2½" [65]	ANSI 250	310	$3,523	$3,738		
B6250S-110-250	110			310	$3,678	$3,895		
B6300S-110-250	110	3" [80]		310	$3,857	$4,311		
B6400S-186-250	186	4" [100]		310			$4,458	$4,784
B6500S-290-250	290	5" [125]		310			$6,466	$6,642
B6600S-400-250	400	6" [150]		310			$8,210	$8,385

Add the MFT configuration number to the actuator when ordering, as needed. See page 12-7 for more details.

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All prices are in US Dollars (USD)

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
End Fitting	pattern to mate with ANSI 125 flange, flat face, ANSI 250 flange
Body	cast iron - GG25
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	stainless steel
Seat 0-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0%

Visit *www.belimo.us* for additional fail-safe actuator options including 120 V and -S models.

5-year warranty





ACTUATOR PART #	AFRX24	AFRX24-MFT	GKRX24-3	GKRX24-MFT
Control	On/Off	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	75 seconds	150 seconds (variable)	150 seconds (variable)	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY ANSI 125

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B6250S-070	70	2½" [65]	ANSI 125, Standard Class B	175	$2,785	$3,146		
B6250S-110	110			175	$2,913	$3,271		
B6300S-110	110	3" [80]		175	$3,145	$3,501		
B6400S-186	186	4" [100]		175			$3,897	$4,210
B6500S-290	290	5" [125]		175			$5,553	$5,772
B6600S-400	400	6" [150]		175			$6,800	$7,101

2-WAY ANSI 250

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B6250S-070-250	70	2½" [65]	ANSI 250	310	$3,523	$3,738		
B6250S-110-250	110			310	$3,678	$3,895		
B6300S-110-250	110	3" [80]		310	$3,957	$4,311		
B6400S-186-250	186	4" [100]		310			$4,458	$4,784
B6500S-290-250	290	5" [125]		310			$6,466	$6,642
B6600S-400-250	400	6" [150]		310			$8,210	$8,385

AFRX24 MFT is customizable. Add MFT configuration number to the actuator when ordering, as needed. See page 12-7 for more details.

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B2 Series Characterized Control Valves with NEMA 4X Non Fail-Safe Actuators

2-way Valve with Stainless Steel Ball and Stem, NPT Female Ends

BELIMO

5-year warranty

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow characteristic	equal percentage
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	TEFZEL® or stainless steel
Seat 0-ring	EPDM
Fluid Temp. Range ½...2"	0...250°F [-18...+120°C]
Fluid Temp. Range 2½...3"	0...212°F [-18...+100°C]
Max Differential Pressure ½...2"	50 psid
Max Differential Pressure 2½...3"	30 psid
Leakage	0%





ACTUATOR PART #	NRX24-3-T N4❖	NRX24-SR-T N4❖	NRX24-MFT-T N4❖	ARX24-3-T N4❖	ARX24-SR-T N4❖	ARX24-MFT-T N4❖
Control	On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	Modulating	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	150 seconds (variable)	90 seconds	90 seconds	150 seconds (variable)
Electrical Connection	terminal block	terminal block	terminal block	terminal block	terminal block	terminal block

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]						
B207	0.3	½" [15]	600	200	$837	$979	$1,167			
B208	0.46			200	$837	$979	$1,167			
B209	0.8			200	$837	$979	$1,167			
B210	1.2			200	$841	$985	$1,171			
B211	1.9			200	$841	$985	$1,171			
B212	3			200	$841	$985	$1,171			
B213	4.7			200	$845	$989	$1,177			
B214	7.4			200	$855	$997	$1,184			
B215	10			200	$863	$1,006	$1,195			
B216*	16			200	$863	$1,006	$1,195			
B217	4.7	¾" [20]		200	$912	$1,052	$1,240			
B218	7.4			200	$915	$1,056	$1,244			
B219	10			200	$917	$1,061	$1,248			
B220*	14			200	$924	$1,067	$1,255			
B221*	24			200	$930	$1,074	$1,260			
B222	7.4	1" [25]		200	$935	$1,080	$1,267			
B223	10			200	$942	$1,085	$1,275			
B224	19			200	$942	$1,085	$1,275			
B225*	30			200	$951	$1,092	$1,279			
B229	10	1¼" [32]		200	$1,001	$1,142	$1,331			
B230*	19			200	$1,005	$1,148	$1,333			
B231	25		400	200				$1,091	$1,306	$1,392
B232*	37			200				$1,093	$1,308	$1,397
B238	19	1½" [40]		200				$1,105	$1,321	$1,408
B239	29			200				$1,105	$1,321	$1,408
B240*	37			200				$1,112	$1,326	$1,413
B248	29	2" [50]		200				$1,141	$1,360	$1,445
B249	46			200				$1,300	$1,514	$1,605
B250*	57			200				$1,304	$1,518	$1,607
B251	65			200				$1,306	$1,521	$1,609
B252	85			200				$1,699	$1,911	$2,001
B253	120			200				$1,799	$2,012	$2,101
B254*	240			200				$1,906	$2,122	$2,209
B261	60	2½" [65]		100				$1,924	$2,138	$2,225
B262	75			100				$1,926	$2,140	$2,229
B263	110			100				$1,930	$2,142	$2,231
B264	150			100				$2,030	$2,247	$2,336
B265*	210			100				$2,132	$2,346	$2,435
B277	70	3" [80]		100				$2,156	$2,370	$2,457
B278	130			100				$2,259	$2,473	$2,563
B280*	170			100				$2,345	$2,562	$2,648

For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

❖Heater option for NEMA 4X products has a list price adder of $600. Please specify when ordering.

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All prices are in US Dollars (USD)

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	A-port equal percentage, B-port modified linear for constant flow
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	TEFZEL® or stainless steel
Seat O-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0% for A to AB, <2.0% for B to AB
Cv Flow Rating	A-port: as stated in chart B-port: 70% of A to AB Cv

5-year warranty





ACTUATOR PART #	NRX24-3-T N4❖	NRX24-SR-T N4❖	NRX24-MFT-T N4❖	ARX24-3-T N4❖	ARX24-SR-T N4❖	ARX24-MFT-T N4❖
Control	On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	Modulating	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	150 seconds (variable)	90 seconds	90 seconds	150 seconds (variable)
Electrical Connection	terminal block	terminal block	terminal block	terminal block	terminal block	terminal block

3-WAY MIXING/DIVERTING

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]					
B307	0.3	½" [15]	600	200	$903	$1,082	$1,277			
B308	0.46			200	$903	$1,082	$1,277			
B309	0.8			200	$903	$1,082	$1,277			
B310	1.2			200	$905	$1,084	$1,279			
B311	1.9			200	$905	$1,084	$1,279			
B312	3			200	$912	$1,087	$1,284			
B313	4.7			200	$912	$1,087	$1,284			
B315	10			200	$915	$1,092	$1,287			
B316*	16			200	$913	$1,090	$1,285			
B317	4.7	¾" [20]		200	$1,028	$1,156	$1,597			
B318	7.4			200	$1,031	$1,159	$1,600			
B320	14			200	$1,037	$1,164	$1,606			
B321*	24			200	$1,041	$1,167	$1,609			
B322	7.4	1" [25]		200	$1,063	$1,248	$1,454			
B323	10			200	$1,065	$1,250	$1,456			
B325*	30			200	$1,078	$1,262	$1,468			
B329	10	1¼" [32]	400	200				$1,208	$1,331	$1,497
B330	19			200				$1,213	$1,336	$1,503
B331	25			200				$1,412	$1,610	$1,706
B338	19	1½" [40]		200				$1,426	$1,623	$1,723
B339	29			200				$1,428	$1,625	$1,729
B340	37			200				$1,430	$1,628	$1,734
B341	46			200				$1,434	$1,632	$1,748
B347	29	2" [50]		200				$1,759	$1,955	$2,028
B348	37			200				$1,763	$1,959	$2,030
B349	46			200				$1,765	$1,962	$2,044
B350	57			200				$1,772	$1,967	$2,049
B351	68			200				$1,780	$1,977	$2,052
B352	83			200				$1,785	$1,984	$2,056

Models without characterizing discs.
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

❖ Heater option for NEMA 4X products has a list price adder of $600. Please specify when ordering.

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B2, B3 Series Characterized Control Valves with NEMA 4X Fail-Safe Actuators

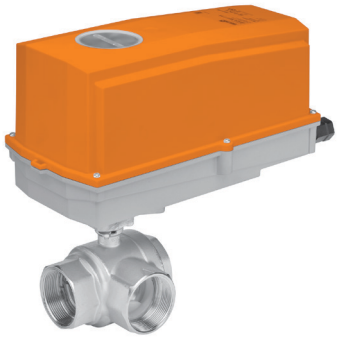
2-way and 3-way Valve with Stainless Steel Ball and Stem, NPT Female Ends

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	A-port equal percentage, B-port modified linear for constant flow
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	TEFZEL® or stainless steel
Seat 0-ring	EPDM
Fluid Temp. Range 1¼...2"	0...250°F [-18...+120°C]
Fluid Temp. Range 2½...3"	0...212°F [-18...+100°C]
Max Differential Pressure 1¼...2"	50 psid
Max Differential Pressure 2½...3"	30 psid
Leakage	0% for A to AB, <2.0% for B to AB
Cv Flow Rating	A-port: as stated in chart B-port: 70% of A to AB Cv

5-year warranty



ACTUATOR PART #	AFRX24 N4❖	AFRX24-MFT N4❖
Control	On/Off	Modulating/MFT
Manual Override	•	•
Running Time (Motor)	75 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]		
B231	25	1¼" [32]	400	200	$1,725	$2,254
B232*	37			200	$1,730	$2,260
B238	19	1½" [40]		200	$1,736	$2,265
B239	29			200	$1,738	$2,267
B240*	37			200	$1,742	$2,273
B248	29	2" [50]		200	$2,094	$2,344
B249	46			200	$2,108	$2,363
B250*	57			200	$2,119	$2,375
B251	65			200	$2,399	$2,656
B252	85			200	$2,504	$2,758
B253	120			200	$2,607	$2,862
B254*	240			200	$2,919	$3,177
B261	60	2½" [65]		100	$2,531	$2,788
B262	75			100	$2,633	$2,887
B263	110			100	$2,738	$2,993
B264	150			100	$2,836	$3,092
B265*	210			100	$3,054	$3,309
B277	70	3" [80]		100	$2,860	$3,114
B278	130			100	$2,966	$3,223
B280*	170			100	$3,378	$3,635

3-WAY MIXING/DIVERTING

B329	10	1¼" [32]	400	200	$2,000	$2,315
B330	19			200	$2,009	$2,327
B331	25			200	$2,222	$2,537
B338	19	1½" [40]		200	$2,244	$2,560
B339	29			200	$2,246	$2,563
B340	37			200	$2,253	$2,571
B341	46			200	$2,498	$2,814
B347	29	2" [50]		200	$2,766	$3,084
B348	37			200	$2,772	$3,087
B349	46			200	$2,774	$3,089
B350	57			200	$2,785	$3,098
B351	68			200	$3,037	$3,355
B352	83			200	$3,126	$3,444

*Models without characterizing discs.
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

❖Heater option for NEMA 4X products has a list price adder of $600. Please specify when ordering.

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B6 Series Characterized Control Valves with NEMA 4X Non Fail-Safe Actuators

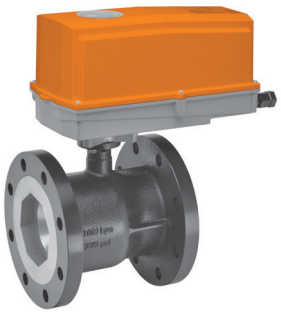
2-way Valve with Stainless Steel Ball and Stem, Flanged Ends

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
End Fitting	pattern to mate with ANSI 125 flange, flat face, ANSI 250 flange
Body	cast iron - GG25
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	stainless steel
Seat O-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0%

5-year warranty





ACTUATOR PART #	ARX24-3-T N4❖	ARX24-MFT-T N4❖	GRX24-3-T N4❖	GRX24-MFT-T N4❖
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	90 seconds	150 seconds (variable)	150 seconds	150 seconds (variable)
Electrical Connection	terminal block	terminal block	terminal block	terminal block

2-WAY ANSI 125

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B6250S-070	70	2½" [65]	ANSI 125, Standard Class B	175	$3,689	$4,040		
B6250S-110	110			175	$3,936	$4,285		
B6300S-110	110	3" [80]		175	$3,943	$4,590		
B6400S-186	186	4" [100]		175			$4,403	$5,003
B6500S-290	290	5" [125]		175			$5,928	$6,530
B6600S-400	400	6" [150]		175			$6,547	$7,147

2-WAY ANSI 250

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B6250S-070-250	70	2½" [65]	ANSI 250	310	$4,756	$5,206		
B6250S-110-250	110			310	$5,073	$5,524		
B6300S-110-250	110	3" [80]		310	$5,084	$5,920		
B6400S-186-250	186	4" [100]		310			$5,677	$6,450
B6500S-290-250	290	5" [125]		310			$7,640	$8,418
B6600S-400-250	400	6" [150]		310			$8,439	$9,216

❖Heater option for NEMA 4X products has a list price adder of $600. Please specify when ordering.

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B6 Series Characterized Control Valves with NEMA 4X Fail-Safe Actuators

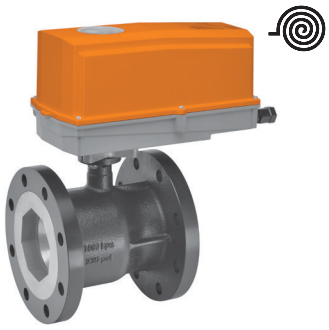
2-way Valve with Stainless Steel Ball and Stem, Flanged Ends

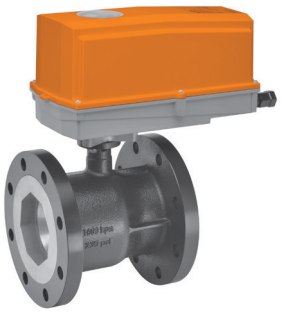
BELIMO

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
End Fitting	pattern to mate with ANSI 125 flange, flat face, ANSI 250 flange
Body	cast iron - GG25
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	stainless steel
Seat O-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0%

5-year warranty





ACTUATOR PART #	AFRX24 N4❖	AFRX24-MFT N4❖	GKRX24-3 N4❖	GKRX24-MFT N4❖
Control	On/Off	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	75 seconds	150 seconds (variable)	150 seconds (variable)	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY ANSI 125

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B6250S-070	70	2½" [65]	ANSI 125, Standard Class B	175	$3,748	$4,333		
B6250S-110	110			175	$4,082	$4,580		
B6300S-110	110	3" [80]		175	$4,089	$4,887		
B6400S-186	186	4" [100]		175			$4,844	$5,448
B6500S-290	290	5" [125]		175			$6,372	$6,970
B6600S-400	400	6" [150]		175			$7,285	$7,830

2-WAY ANSI 250

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B6250S-070-250	70	2½" [65]	ANSI 250	310	$4,831	$5,589		
B6250S-110-250	110			310	$5,262	$5,907		
B6300S-110-250	110	3" [80]		310	$5,273	$6,300		
B6400S-186-250	186	4" [100]		310			$6,247	$7,022
B6500S-290-250	290	5" [125]		310			$8,215	$8,987
B6600S-400-250	400	6" [150]		310			$9,391	$10,095

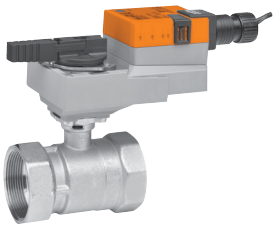
❖Heater option for NEMA 4X products has a list price adder of $600. Please specify when ordering.

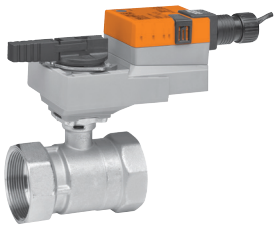
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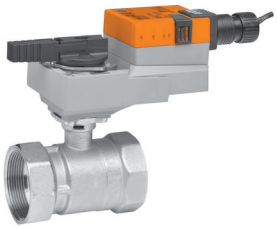
VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	equal percentage
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	TEFZEL® or stainless steel
Seat O-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0%

5-year warranty







ACTUATOR PART #	LRQX24-MFT	NRQX24-MFT	ARQX24-MFT
Control	Modulating/MFT	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	4 seconds (variable)	4 seconds (variable)	10 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]			
B207	0.3	½" [15]	600	200	$966		
B208	0.46			200	$966		
B209	0.8			200	$966		
B210	1.2			200	$971		
B211	1.9			200	$971		
B212	3			200	$977		
B213	4.7			200	$992		
B214	7.4			200	$1,001		
B215	10			200	$1,008		
B216*	16			200	$1,010		
B217	4.7	¾" [20]		200	$1,028		
B218	7.4			200	$1,031		
B219	10			200	$1,035		
B220*	14			200	$1,037		
B221*	24			200	$1,041		
B222	7.4	1" [25]		200	$1,078		
B223	10			200	$1,084		
B224	19			200	$1,093		
B225*	30			200	$1,098		
B229	10	1¼" [32]		200	$1,128		
B230*	19			200	$1,134		
B231	25		400	200		$1,180	
B232*	37			200		$1,208	
B238	19	1½" [40]		200		$1,208	$1,388
B239	29			200		$1,213	$1,388
B240*	37			200		$1,215	$1,388
B248	29	2" [50]		200			$1,388
B249	46			200			$1,392
B250*	57			200			$1,407
B251	65			200			$1,774
B252	85			200			$1,880
B253	120			200			$1,977
B254*	240			200			$2,260

*Models without characterizing discs.
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

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B3 Series Characterized Control Valves with Quick Running Non Fail-Safe Actuators

3-way Valve with Stainless Steel Ball and Stem, NPT Female Ends

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	A-port equal percentage, B-port modified linear for constant flow
Controllable Flow Range	75°
End Fitting	NPT female
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seat	Teflon® PTFE
Characterized Disc	TEFZEL® or stainless steel
Seat O-ring	EPDM
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0% for A to AB, <2.0% for B to AB
Cv Flow Rating	A-port: as stated in chart B-port: 70% of A to AB Cv

5-year warranty





ACTUATOR PART #	LRQX24-MFT	ARQX24-MFT
Control	Modulating/MFT	Modulating/MFT
Manual Override	•	•
Running Time (Motor)	4 seconds (variable)	10 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

3-WAY MIXING/DIVERTING

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]		
B307	0.3	½" [15]	600	200	$1,080	
B308	0.46			200	$1,080	
B309	0.8			200	$1,080	
B310	1.2			200	$1,082	
B311	1.9			200	$1,082	
B312	3			200	$1,084	
B313	4.7			200	$1,098	
B315	10			200	$1,100	
B316*	16			200	$1,099	
B317	4.7	¾" [20]		200	$1,134	
B318	7.4			200	$1,138	
B320	14			200	$1,141	
B321*	24			200	$1,141	
B322	7.4	1" [25]		200	$1,267	
B323	10			200	$1,271	
B325*	30			200	$1,276	
B329	10	1¼" [32]	400	200		$1,293
B330	19			200		$1,352
B331	25			200		$1,551
B338	19	1½" [40]		200		$1,566
B339	29			200		$1,569
B340	37			200		$1,572
B341	46			200		$1,577
B347	29	2" [50]		200		$1,900
B348	37			200		$1,903
B349	46			200		$1,905
B350	57			200		$1,909
B351	68			200		$1,921
B352	83			200		$1,931

*Models without characterizing discs.
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

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ACTUATOR SPECIFICATIONS

Torque	45 in-lb [5 Nm]
Ambient Temperature	-22...+122°F [-30...+50°C]
Angle of Rotation♦	max. 90°, adjustable with mechanical stop electronically variable
Position Indication	handle
Manual Override	external push-button
Direction of Rotation♦	reversible with switch
Electrical Connection	18 GA plenum rated cable, ½" conduit fitting terminal strip (-T) models
Overload Protection	electronic throughout rotation
Auxiliary Switch	(-S) models: 1 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5...85°
Housing	NEMA 2/IP54
Agency Listings	cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CSA C22.2 No. 24-93, CE acc. to 2006/95/EC and 89/336/EEC

♦ Variable with MFT





MFT

MFT= 2...10 V Default, or Set, Modify, Read:

- Control (PWM, VDC range, Floating Point)
- Feedback (0.5...10 V, 0...5 V, 2...10 V, Variable)
- Motion (run time)

All actuators have BDCM

LISTED 94 D5 TEMP. IND. & REG. EQUIP.

5-year warranty

Model	Control Input	Feedback	Power Supply	Running Time(s) [Default]	VA Rating	Cable Length	Re-order Number	List Price
LRB24-3	On/Off, Floating Point	Add on	AC/DC 24 V	90	2	3 ft.	N/A**	$298
LRB24-3-S	On/Off, Floating Point	Add on	AC/DC 24 V	90	2	3 ft.	N/A**	$421
LRB24-3-T	On/Off, Floating Point	Add on	AC/DC 24 V	90	2	N/A	N/A**	$281
LRB24-SR	2...10 V (4...20 mA*)	2...10 V	AC/DC 24 V	90	4.5	3 ft.	N/A**	$441
LRB24-SR-T	2...10 V (4...20 mA*)	2...10 V	AC/DC 24 V	90	4.5	N/A	N/A**	$431
MFT VERSION								
LRB24-MFT	Various	Various	AC/DC 24 V	90	5	3 ft.	N/A**	$584
IOT VERSION								
LRB24-IP	2...10 V (4...20 mA*)	Various	AC/DC 24 V	90	5	3 ft.	N/A**	$810

See page 12-7 for actuator customizing and available configuration codes.

*With 500 Ω resistor- ZG-R01.

** Re-order numbers only available for customizable "X" version actuators (e.g. LRX24-3).

The configuration code programs the actuator for the desired Control Input, Feedback and Running Time.

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All prices are in US Dollars (USD)

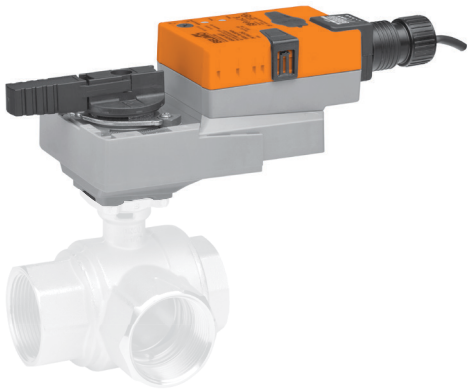
AR Series Non Fail-Safe Actuators

Custom Non Fail-Safe Actuator, 180 in-lb Minimum Torque

BELIMO

ACTUATOR SPECIFICATIONS	
Torque	180 in-lb [20 Nm]
Ambient Temperature	-22...+122°F [-30...+50°C]
Angle of Rotation♦	max 90°, adjustable with mechanical stop electronically variable
Position Indication	handle
Manual Override	external push-button
Direction of Rotation♦	reversible with switch
Electrical Connection	18 GA plenum rated cable, ½" conduit connector
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	(-S) models: 1 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5°...85°
Housing	NEMA 2/IP54
Agency Listings	cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CSA C22.2 No. 24-93, CE acc. to 2006/95/EC and 89/336/EEC

♦ Variable with MFT





MFT

MFT= 2...10 V Default, or Set, Modify, Read:

- Control (PWM, VDC range, Floating Point)
- Feedback (0.5...10 V, 0...5 V, 2...10 V, Variable)
- Motion (run time)

All Actuators have BDCM

LISTED 94 D5 TEMP. IND. & REG. EQUIP.

5-year warranty

CCV

Model	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Cable Length	Re-order Number	List Price
ARB24-3	On/Off, Floating Point	Add on	AC/DC 24 V	90	5.5	3 ft.	N/A**	$546
ARB24-3-S	On/Off, Floating Point	Add on	AC/DC 24 V	90	5.5	3 ft.	N/A**	$706
ARB24-3-T	On/Off, Floating Point	Add on	AC/DC 24 V	90	5.5	N/A	N/A**	$524
ARB24-SR	2...10 V (4...20 mA*)	2...10 V	AC/DC 24 V	90	5	3 ft.	N/A**	$803
ARB24-SR-T	2...10 V (4...20 mA*)	2...10 V	AC/DC 24 V	90	5	N/A	N/A**	$770
MFT VERSIONS								
ARB24-MFT	Various	Various	AC/DC 24 V	90	6	3 ft.	N/A**	$798
ARX24-MFT95	0 to 135 Ω	Various	AC/DC 24 V	150	6	3 ft.	AR0L0 0C3 R01	$813
IOT VERSION								
ARB24-IP	2...10 V (4...20 mA*)	Various	AC/DC 24 V	90	6	3 ft.	N/A**	$973

See page 12-7 for actuator customizing and available configuration codes.
*With 500 Ω resistor- ZG-R01.
** Re-order numbers only available for customizable "X" version actuators (e.g. LRX24-3).
The configuration code programs the actuator for the desired Control Input, Feedback and Running Time.

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All prices are in US Dollars (USD)

ACTUATOR SPECIFICATIONS

Torque	180 in-lb [20 Nm]
Ambient Temperature	-22...+122°F [-30...+50°C]
Angle of Rotation	max 90°, adjustable with mechanical stop electronically variable
Position Indication	handle
Manual Override	external push-button
Direction of Rotation	reversible with switch
Electrical Connection	18 GA plenum rated cable, ½" conduit connector
Overload Protection	electronic throughout rotation
Housing	NEMA 2/IP54
Agency Listings	cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CSA C22.2 No. 24-93, CE acc. to 2006/95/EC and 89/336/EEC





5-year warranty

ELECTRONIC FAIL-SAFE

Model	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Cable Length	Re-order Number	List Price
AKRB24-IP	2...10 V (4...20 mA*)	Various	AC/DC 24 V	150	21	3 ft.	N/A**	$1,301

See page 12-7 for actuator customizing and available configuration codes.
** Re-order numbers only available for customizable "X" version actuators (e.g. LRX24-3).
The configuration code programs the actuator for the desired Control Input, Feedback and Running Time.

SPRING RETURN

Model	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Cable Length	Re-order Number	List Price
AFRB24-IP	2...10 V (4...20 mA*)	Various	AC/DC 24 V	150	8.5	3 ft.	N/A**	$1,212

See page 12-7 for actuator customizing and available configuration codes.
** Re-order numbers only available for customizable "X" version actuators (e.g. LRX24-3).
The configuration code programs the actuator for the desired Control Input, Feedback and Running Time.

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BELIMO



13 HIGH TEMPERATURE CHARACTERIZED CONTROL VALVES (HTCCV)

Efficiency for Low Pressure Steam

- Characterizing disc reduces turbulent flow and improves system efficiency.
- Maintenance free with self-cleaning ball valve; no repacking required.
- Zero leakage prevents circulation losses and reduces energy waste.

Gloria Roman, Assembler I

High Temperature Characterized Control Valve Nomenclature

B2	15	HT	186	+TR	24	-SR	
Valve B2 = 2-way	**Valve Size** 15 = ½" 20 = ¾" 25 = 1"	High Temperature	**C_V** 1.86 Refer to Table on Page 13-1	**Actuator Type** **Non Fail-Safe** TR LRB, LRX **Fail-Safe** TFRB, TFRX LF	**Power Supply** 24 = AC/DC 24 V 120 = AC 120 V*	**Control** Blank = On/Off -3 = On/Off, Floating Point -SR = 2...10 V -MFT = Multi-Function Technology	-S = Built-in Auxiliary Switch

"X" models are customizable. Refer to page 12-7 for programming and cable options.

*TFR Series has AC 100...240 V nominal power supply.

Ordering Example

1 Choose the valve actuator combination.

B215HT186+TR24-SR US **NO** **Tagging (if needed)**

2 Specify preference or configuration.

Set-Up

Non Fail-Safe Models
NO = Normally Open
NC = Normally Closed

Fail-Safe Models
NO/FO = Normally Open/Fail Open
NO/FC = Normally Open/Fail Closed

NC/FO = Normally Closed/Fail Open
NC/FC = Normally Closed/Fail Closed

Refers to valve ports A to AB.

3 Does order require tagging?

Tagging:
Valves may be tagged per customer specification. ($15.00 per tag)

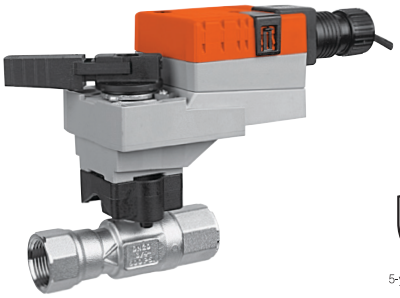
Example:
AHU-1
FCU-2

Part number for tagging: 99981-00101

4 Complete Ordering Example: B215HT186+TR24-SR US
Configuration: +NO

High Temperature Characterized Control Valve (HTCCV) Product Range

Valve Nominal Size			Type	Suitable Actuators			
C_V	Inches	DN [mm]	2-way NPT	Non Fail-Safe		Fail-Safe	
0.29	½	15	B215HT029	TR Series	LR Series	TFR Series	
0.46	½	15	B215HT046				
0.73	½	15	B215HT073				
1.16	½	15	B215HT116				
1.86	½	15	B215HT186				
2.90	½	15	B215HT290				
4.55	½	15	B215HT455				
1.86	¾	20	B220HT186				LF Series
2.90	¾	20	B220HT290				
4.64	¾	20	B220HT464				
7.31	¾	20	B220HT731				
9.28	¾	20	B220HT928				
13.20	¾	20	B220HT1320				
4.64	1	25	B225HT464				
7.31	1	25	B225HT731				
11.60	1	25	B225HT1160				
18.56	1	25	B225HT1856				
28.00	1	25	B225HT2800				



5-year warranty

Equal Percentage Characteristic

MODE OF OPERATION

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off, modulating or floating point control system. The actuator will then move the ball of the valve to the position dictated by the control signal or voltage and change the flow.

PRODUCT FEATURES

Equal-percentage flow characteristic.

ACTUATOR SPECIFICATIONS

Control type	on/off, floating point, 2...10 V, multi-function technology (MFT)
Manual override	only TR, LR series
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

VALVE SPECIFICATIONS

Fluid	hot water, up to 60% glycol max, steam
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	½", ¾", 1"
End fitting	NPT female
Materials	
Body	brass (DZR) P-CuZn35Pb2
Ball	stainless steel
Stem	stainless steel
Seat	ETFE
Stem packing	Viton®
Characterizing disc	ETFE
Seat o-rings	EPDM
Body pressure rating	600 psi
Fluid temperature range	
Steam	250°F [120°C]
Water	60...266°F [16...130°C]
Close-off pressure	200 psid
Maximum differential pressure (ΔP)	
Steam	15 psid
Water	60 psid partially open ball 116 psid full open only (B215HT455)
Maximum inlet pressure	
Steam	15 psi
Leakage	0%

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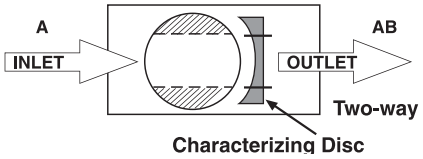
SET-UP - Specify Upon Ordering

			2-WAY VALVE
NON FAIL-SAFE Stays in Last Position	**TR24-3 US**	Power to pin 2 will drive valve CCW. Power to pin 3 will drive valve CW.	
	TR24-SR US	**NC:** Closed A to AB, will open as voltage increases.	**NO:** Open A to AB, will close as voltage increases (Can be chosen with switch inside terminal block of actuator).
	LRB24-3, LRX..	Power to pin 2 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "1" position, to reverse select the "0" position.	**NO:** Open A to AB, will close as power is applied.
FAIL-SAFE Note Fail Position	**TFRB24 LF24 US**	**NO/FO** Valve: Open A to AB will drive closed. Spring Action: Will spring open A to AB upon power loss.	**NC/FC** Valve: Closed A to AB will drive open. Spring Action: Will spring closed A to AB upon power loss.
	TFRB (-3), -MFT, -SR LF (-3), -MFT, -SR Floating or Modulating type actuators	**NC/FO** Valve: Closed A to AB will drive open upon increase in voltage. Spring Action: Will spring open A to AB upon power loss.	**NC/FC** Valve: Closed A to AB . Spring Action: Will spring closed A to AB upon power loss.
		NO/FO Valve: Open A to AB will drive closed upon increase in voltage. Spring Action: Will spring open A to AB upon power loss.	**NO/FC** Valve: Open A to AB. Spring Action: Will spring closed A to AB upon power loss.

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FLOW PATTERN

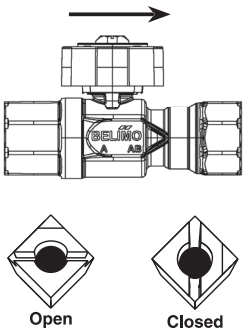
2-way High Temperature Characterized Control Valves



Upstream A
Downstream AB

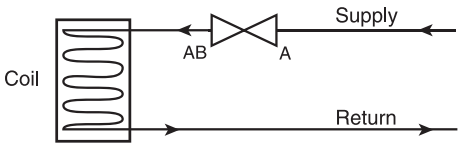
Valve should be installed with the disc downstream unlike the CCV.

Flow direction

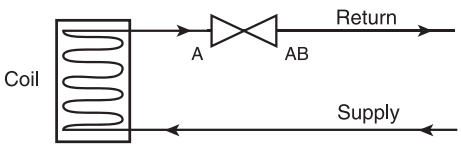


PIPING DIAGRAMS

2-way Valve Piping Diagram
Steam (1 Input, 1 Output)

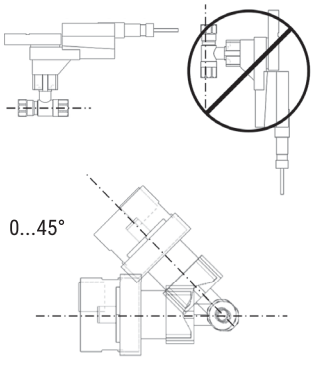


2-way Valve Piping Diagram
Water (1 Input, 1 Output)

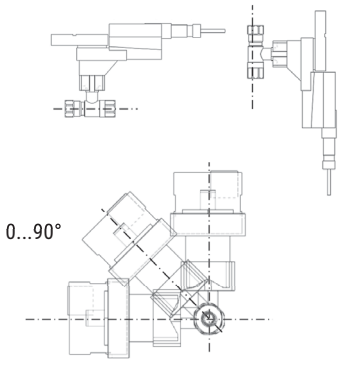


PIPING/MOUNTING ORIENTATION & INSULATION

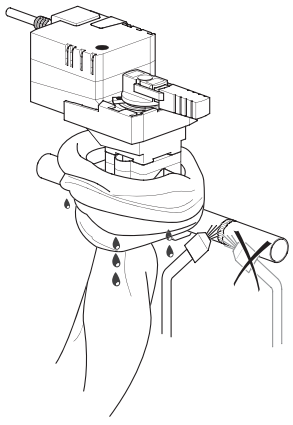
Assembly can be mounted horizontally or vertically for water applications. For steam applications the valve cannot be mounted vertically. When mounted horizontally, the valve must be 0...45° off center of the pipe. Do not install with actuator below pipe.

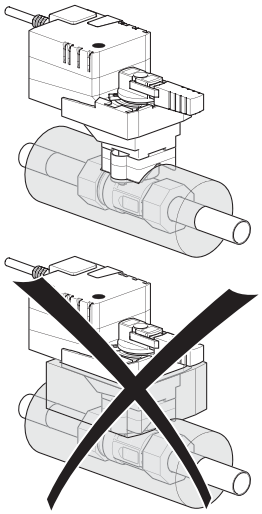


Steam Applications



Water Applications





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High Temperature Characterized Control Valves with Non Fail-Safe Actuators

2-way Valve with Stainless Steel Ball and Stem, NPT Female Ends

BELIMO

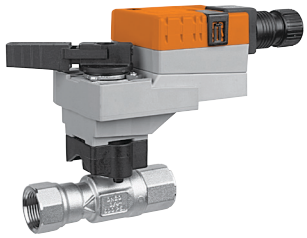
VALVE SPECIFICATIONS

Fluid	hot water, up to 60% glycol, steam
Flow Characteristic	A-port equal percentage
Controllable Flow Range	75°
End Fitting	NPT female
Body	brass (DZR) P-CuZn35Pb2
Ball	stainless steel
Stem	stainless steel
Seat	ETFE
Stem packing	Viton
Characterized Disc	ETFE
O-ring	EPDM
Fluid Temperature Range (Steam)	250°F [120°C]
Fluid Temperature Range (Water)	60...266°F [16...130°C]
Max Differential Pressure (Water)	60 psid partially open ball, 116 psid full open (#B215HT455)
Max Inlet Pressure (Steam)	15 psi
Leakage	0%

Visit *www.belimo.us* for additional non fail-safe actuator options.

5-year warranty





ACTUATOR PART #	TR24-3 US	TR24-SR US	LRB24-3	LRB24-SR	LRX24-MFT
Control	On/Off, Floating Point	Modulating	On/Off, Floating Point	Modulating	Modulating/MFT
Running Time (Motor)	90 seconds	90 seconds	90 seconds	90 seconds	150 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum cable	3 ft, 18 GA plenum cable	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B215HT029	0.29	½" [15]	600	200	$468	$671	$539	$703	$949
B215HT046	0.46			200	$468	$671	$539	$703	$949
B215HT073	0.73			200	$468	$671	$539	$703	$949
B215HT116	1.16			200	$480	$680	$542	$706	$953
B215HT186	1.86			200	$480	$680	$545	$711	$957
B215HT290	2.9			200	$482	$684	$551	$714	$963
B215HT455	4.55			200	$487	$688	$610	$775	$1,023
B220HT186	1.86	¾" [20]		200			$610	$775	$1,023
B220HT290	2.9			200			$610	$775	$1,023
B220HT464	4.64			200			$612	$778	$1,026
B220HT731	7.31			200			$612	$778	$1,026
B220HT928	9.28			200			$617	$781	$1,030
B220HT1320	13.2			200			$625	$787	$1,037
B225HT464	4.64	1" [25]		200			$691	$856	$1,107
B225HT731	7.31			200			$691	$856	$1,107
B225HT1160	11.6			200			$699	$868	$1,115
B225HT1856	18.56			200			$699	$868	$1,115
B225HT2800	28			200			$710	$873	$1,123

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VALVE SPECIFICATIONS

Fluid	hot water, up to 60% glycol, steam
Flow Characteristic	A-port equal percentage
Controllable Flow Range	75°
End Fitting	NPT female
Body	brass (DZR) P-CuZn35Pb2
Ball	stainless steel
Stem	stainless steel
Seat	ETFE
Stem packing	Viton
Characterized Disc	ETFE
O-ring	EPDM
Fluid Temperature Range (Steam)	250°F [120°C]
Fluid Temperature Range (Water)	60...266°F [16...130°C]
Max Differential Pressure (Water)	60 psid partially open ball, 116 psid full open (#B215HT455)
Max Inlet Pressure (Steam)	15 psi
Leakage	0%

Visit *www.belimo.us* for additional fail-safe actuator options.

5-year warranty





ACTUATOR PART #	TFRB24	TFRB24-3	TFRB24-SR	TFRX24-MFT	LF24 US	LF24-SR US	LF24-MFT US
Control	On/Off	Floating Point	Modulating	Modulating/MFT	On/Off	Modulating	Modulating/MFT
Running Time (Motor)	<75 seconds	95 seconds	95 seconds	150 seconds (variable)	75 seconds	150 seconds	150 seconds (variable)
Running Time (Fail-Safe)	< 75 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]						
B215HT029	0.29	½" [15]	600	200	$679	$800	$869	$982			
B215HT046	0.46			200	$679	$800	$869	$982			
B215HT073	0.73			200	$679	$800	$869	$982			
B215HT116	1.16			200	$681	$806	$872	$986			
B215HT186	1.86			200	$681	$806	$872	$986			
B215HT290	2.9			200	$696	$820	$886	$1,001			
B215HT455	4.55			200	$703	$825	$892	$1,007			
B220HT186	1.86	¾" [20]		200					$821	$1,055	$1,288
B220HT290	2.9			200					$821	$1,055	$1,288
B220HT464	4.64			200					$821	$1,055	$1,288
B220HT731	7.31			200					$823	$1,058	$1,293
B220HT928	9.28			200					$832	$1,068	$1,300
B220HT1320	13.2			200					$837	$1,074	$1,306
B225HT464	4.64	1" [25]		200					$956	$1,193	$1,428
B225HT731	7.31			200					$956	$1,193	$1,428
B225HT1160	11.6			200					$963	$1,200	$1,435
B225HT1856	18.56			200					$972	$1,207	$1,442
B225HT2800	28			200					$986	$1,220	$1,458

Note: Weather shields are not available at this time.
Note: 120 V and -S models have appliance cables.

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Potable Valves



Certified, Safe and Maintenance Free

Belimo's potable valve assemblies are certified to NSF 61 via the methods and values defined in NSF 372, ensuring customer safety. A comprehensive range engineered and manufactured for dependable, trouble-free performance offering superior flow control and long-lasting reliability.

Discover the advantages
www.belimo.us

5-year warranty

NSF/ANSI 61
NSF/ANSI 372

BELIMO



14 INDUSTRIAL BALL VALVES

Achieve Control and Reliability

- Bronze, brass, and stainless steel ball valves with NPT connection for low and medium pressure steam applications.
- Range of media temperature ratings suited for chilled, hot water and steam service.
- Fitted with rotary actuators offers easy field assembly and installation.

Diana Surovy, Design Drafter

Industrial Ball Valve Nomenclature

B2	19	VS	+NMX	24	-MFT-X1	
Valve B2 = 2-way B3 = 3-way	**Valve Size** 15-50 = ½...2"	**Industrial Construction/ Material** VS = Bronze Body, Stainless Steel Ball and Stem VSS = Stainless Steel Body, Ball and Stem L = Nickel Plated Brass Body, Chrome Plated Brass Ball and Stem	**Actuator Type** Non Fail-Safe LMB, LMX NMB, NMX AMB, AMX GMB, GMX NRB, NRX ARB, ARX LRB, LRX GRCX PRB, PRX Fail-Safe Spring Return LF NFB, NFX AFB, AFX	**Power Supply** 24 = AC/DC 24 V 120 = AC 120 V UP = AC 24...240 V or DC 24...125 V	**Control** -3-X1 = On/Off, Floating Point -MFT-X1 = Multi-Function Technology -MFT95-X1 = 0...135 Ω	-S = Built-in Auxiliary Switch

"X" models are customizable.
Refer to page 14-4 for programming options.

Ordering Example

1 Choose the valve actuator combination.

B219VS+NMX24-MFT-X1

2 Specify preference or configuration.

NO

Set-Up

Non Fail-Safe Models
NO = Normally Open
NC = Normally Closed

Fail-Safe Models
NO/FO = Normally Open/Fail Open
NO/FC = Normally Open/Fail Closed

NC/FO = Normally Closed/Fail Open
NC/FC = Normally Closed/Fail Closed

Refers to valve ports A to AB.

3 **For MFT orders only - select programming code**

Tagging (if needed)

A01

A..	Control voltage applications
W..	Pulse width modulation applications
F..	Floating point applications
J..	On/off applications

4 Does order require tagging?

Tagging:
Valves may be tagged per customer specification. ($15.00 per tag)

Example:
AHU-1
FCU-2

Part number for tagging:
99981-00101

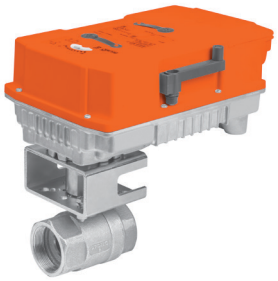
5 Complete Ordering Example: B219VS+NMX24-MFT-X1
Configuration: +NO
Programming: +A01

Industrial Ball Valve Product Range

Valve Nominal Size			Type		Suitable Actuators			
					Non Fail-Safe			Fail-Safe
C_V	Inches	DN [mm]	2-way NPT	3-way NPT				
1	½	15	B2050VS-01*		LM Series	GR Series		LF Series
2	½	15	B2050VS-02*					
4	½	15	B2050VS-04*					
15	½	15	B2050VS-15*					
30	¾	20	B219VS		NM Series			NF Series
51	¾	20	B220VS					
43	1	25	B224VS					AF Series
68	1	25	B225VS		AM Series			
48	1¼	32	B232VS					
84	1½	40	B239VS		GM Series		PR Series	
177	1½	40	B240VS					
108	2	50	B249VS					
15	½	15	B2050VSS-15*		LM	GR Series		LF
30	¾	20	B219VSS**		NM			NF
43	1	25	B224VSS**		AM			AF Series
108	2	50	B249VSS**		GM		PR Series	
6.4	½	15		B315L***	LR Series			LF Series
12.8	¾	20		B320L***				
11	1	25		B325L***				
34	1¼	32		B332L***	NR			AFR Series
57	1½	40		B340L***	AR Series			
87	2	50		B350L***				

* For hot only or cold only applications. Not for temperature changeover applications.
** NSF/ANSI/CAN 61 Section 8, Annex G, NSF/ANSI 372 - Drinking Water System Components - Lead Content
*** Not for steam applications.

NOTE: Industrial ball valves (B2..VS, B2..VSS) have serviceable components. Proper maintenance of these parts will ensure a longer in-service life for the valves. The seats of these valves will require replacement at an interval consistent with number of full cycles the valve has be operated, or as field condition dictates.



2-year warranty

MODE OF OPERATION

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, modulating, or floating point control system. The actuator will then move the ball of the valve to the position dictated by the control signal thus changing the flow.

PRODUCT FEATURES

Modified equal percentage of flow for B2. Modified linear flow for B3.
B3..L valves are for diverting applications and are not rated for steam.

ACTUATOR SPECIFICATIONS

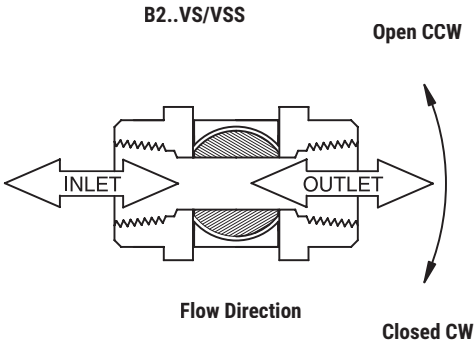
Control type	on/off, floating point, modulating, 2...10 V, multi-function technology (MFT)
Manual override	LM, NM, GM, AM, GR, PR, AF, NF
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

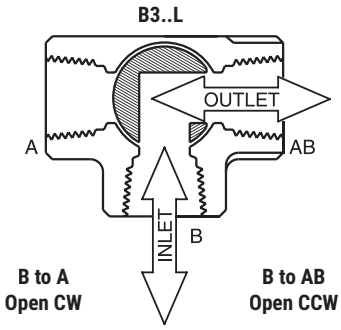
VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max, steam (2-way)
Flow characteristic	modified equal percentage (B2), modified linear (B3..L)
Sizes	½", ¾", 1", 1¼", 1½", 2"
End fitting	FNPT
Materials	
Body	bronze (B2..VS) stainless steel (B2..VSS) nickel plated brass (B3..L)
Ball	stainless steel, bronze (B2050VSS-15) chrome plated brass (B3..L)
Stem	stainless steel, nickel plated brass (B3..L)
Seats	MPTFE, RPTFE (2-way, B2050) Teflon® PTFE (3-way)
Stem packing	MPTFE (2-way NPT)
O-rings	NPT EPDM (B3..L)
Fluid temp range	
B2..VS	-22...+280°F [-30...+138°C]
B2..VSS	-22...+298°F [-30...+148°C]
B3..L	0...250°F [-18...+120°C]
Body pressure rating	
3-way	600 psi DN 15...25 (B3..L ½...1") 400 psi DN 32...50 (B3..L 1¼...2")
Maximum inlet pressure	
Steam	35 psi (B2..VS) 50 psi (B2..VSS)
Leakage	ANSI Class VI (B2..VS, VSS) 0% (B3..L)

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FLOW PATTERN

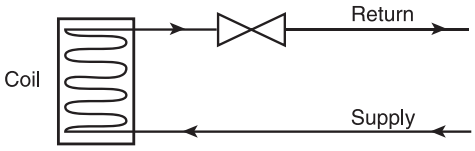




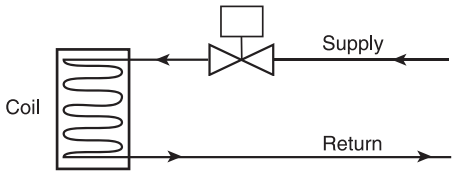
NOTE: B3..L are piped differently than B3 CCV Valves.

PIPING DIAGRAMS

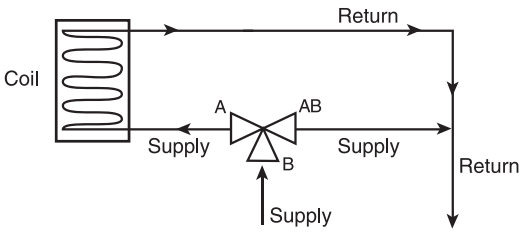
2-way Valve Piping Diagram Water

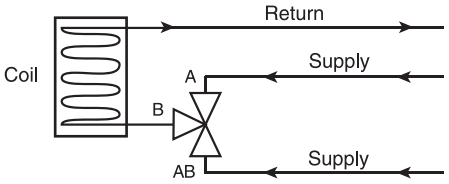


2-way Valve Piping Diagram Steam



B3..L Diverting & Changeover (Switching) Valve Piping Diagram

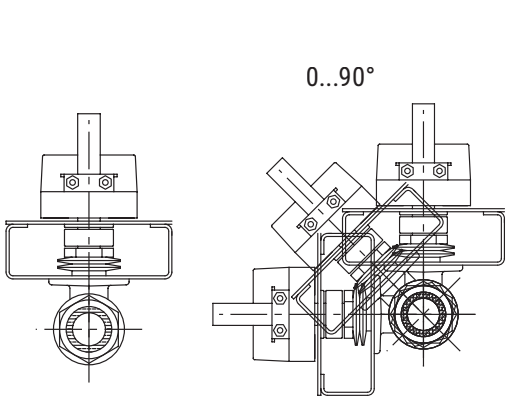




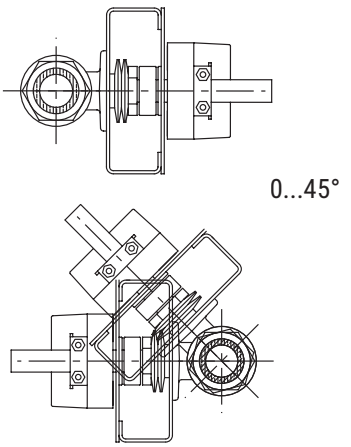
NOTE:
To avoid torque increase during off season shut down or other periods of inactivity longer than 1 month, the valve should be exercised (actuator or manually driven full open-closed cycle) at least once per month. This is necessary to avoid any application problems after an off season shut down. This is not required for B3..L valves.

PIPING/MOUNTING ORIENTATION

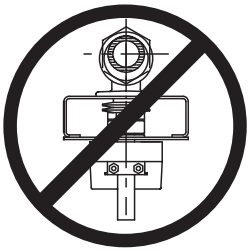
Assembly can be mounted horizontally or vertically for water applications. For steam applications the valve cannot be mounted vertically. When mounted horizontally, the valve must be 0...45° off center of the pipe. Do not install with actuator below pipe.



Water Applications



Steam Applications



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SET-UP - Specify Upon Ordering

		2-WAY VALVE		3-WAY VALVE	
NON FAIL-SAFE Stays in Last Position	**LMB24-3-X1, NMB24-3-X1, AMB24-3-X1, GMB24-3-X1, LRB24-3, NRB24-3, ARB24-3, GRB24-3**	Power to pin 2 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "1" position to reverse, select the "0" position.		Power to pin 2 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "1" position to reverse, select the "0" position.	
	LMX24-MFT-X1, NMX24-MFT-X1, AMX24-MFT-X1, GMX24-MFT-X1, LRX24-MFT, NRX24-MFT, ARX24-MFT, GRX24-MFT	**NC:** Normally closed A to AB, valve will open as voltage increases	**NO:** Normally open A to AB, valve will close as voltage increases	**NC:** Normally closed B to AB, valve will open as voltage increases	**NO:** Normally open B to AB, valve will close as voltage increases
FAIL-SAFE Note Fail Position	**LF24 US, LF120 US, NFB24-X1, AFB24-X1, AFBUP-X1, AFRBUP**	**NO/FO:** Normally open A to AB, valve will drive closed. Spring Action: Actuator will fail open A to AB upon power loss.	**NC/FC:** Normally closed A to AB, valve will drive open. Spring Action: Actuator will fail closed A to AB upon power loss.	**NO/FO:** Normally open B to AB, valve will drive closed. Spring Action: Actuator will fail open B to AB upon power loss.	**NC/FC:** Normally closed B to AB, valve will drive open. Spring Action: Actuator will fail closed B to AB upon power loss.
	LF24-MFT US, NFX24-MFT-X1, AFX24-MFT-X1, AFRX24-MFT	**NC/FO:** Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail open upon power loss.	**NC/FC:** Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail closed upon power loss.	**NO/FC:** Normally open B to AB, valve will close as voltage increases. Actuator switch on CCW. Spring Action: Will fail closed upon power loss.	**NO/FO:** Normally open B to AB, valve will close as voltage increases. Actuator switch on CCW. Spring Action: Will fail open upon power loss.

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		CONTROL			
ACTUATOR TYPE	**CONFIGURATION DESCRIPTION**	**CONTROL INPUT**	**FEEDBACK POSITION**	**RUNNING TIME**	**LIST PRICE**
-MFT	A01*	2...10 V	2...10 V	150 seconds	No Charge
	A02	0.5...10 V	0.5...10 V	150 seconds	No Charge
	A03	2...10 V	0.5...5 V	150 seconds	No Charge
	A04	4...7 V	2...10 V	150 seconds	No Charge
	A05	6...9 V	2...10 V	150 seconds	No Charge
	A06	10.5...13.5 V	2...10 V	150 seconds	No Charge
	A07	0.5...5 V	2...10 V	150 seconds	No Charge
	A09	5...10 V	2...10 V	150 seconds	No Charge
	A10	5...10 V	0.5...10 V	150 seconds	No Charge
	A13	0.5...10 V	2...10 V	150 seconds	No Charge
	A15	2...5 V	2...10 V	150 seconds	No Charge
	A16	2...6 V	2...10 V	150 seconds	No Charge
	A17	6...10 V	2...10 V	150 seconds	No Charge
	A18	14...17 V	2...10 V	150 seconds	No Charge
	A19	2...10 V	2...10 V	100 seconds	No Charge
	A20	9...12 V	2...10 V	150 seconds	No Charge
	A28	0.5...10 V	0.5...10 V	100 seconds	No Charge
	A31	0.5...4 V	2...10 V	150 seconds	No Charge
	A63	0.5...4.5 V	0.5...4.5 V	150 seconds	No Charge
	A32	6...14 V	2...10 V	150 seconds	No Charge
	A64	5.5...10 V	5.5...10 V	150 seconds	No Charge
	W01	0.59...2.93 seconds PWM	2...10 V	150 seconds	No Charge
	W02	0.02...5.00 seconds PWM	2...10 V	150 seconds	No Charge
	W03	0.10...25.50 seconds PWM	2...10 V	150 seconds	No Charge
	W04	0.10...25.60 seconds PWM	2...10 V	150 seconds	No Charge
	W05	0.10...5.20 seconds PWM	0.5...5 V	150 seconds	No Charge
	F01	Floating Point	2...10 V	150 seconds	No Charge
	F02	Floating Point	0.5...10 V	150 seconds	No Charge
	J02	On/Off	2...10 V	150 seconds	No Charge

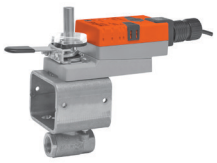
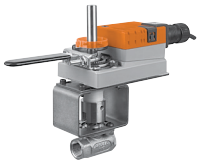
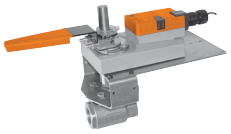
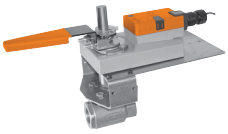
* Default configuration

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VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, 35 lbs. steam
Flow Characteristic	modified equal percentage
Controllable Flow Range	90° rotation, valve open CCW, valve closed CW
End Fitting	FNPT
Body	B584-C84400 bronze
Ball	316 stainless steel
Seat	MPTFE, RPTFE (B2050)
Stem	316 stainless steel
Bearing	PEEK/PTFE, RPTFE (B2050)
Stem Packing	MPTFE
Body Seal	PTFE
Retainer	B16 brass
Gland	B16 brass
Jam Nut	stainless steel
Fluid Temperature Range (Water)	-22...+280°F [-30...+138°C]
Maximum Velocity	15 FPS
Leakage	ANSI Class VI

2-year warranty

ACTUATOR PART #	LMB24-3-X1	NMB24-3-X1	AMB24-3-X1	GMB24-3-X1
Control	On/Off, Floating Point	On/Off, Floating Point	On/Off, Floating Point	On/Off, Floating Point
Manual Override	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds	150 seconds
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B2050VS-01	1	½" [15]	600 psig WOG	100	$994			
B2050VS-02	2			100	$994			
B2050VS-04	4			100	$994			
B2050VS-15	15			100	$994			
B219VS	30	¾" [20]		400		$1,278		
B220VS	51			400		$1,319		
B224VS	43	1" [25]		400		$1,466		
B225VS	68			200			$1,641	
B232VS	48	1¼" [32]		600			$1,930	
B239VS	84	1½" [40]		600				$2,319
B240VS	177			600				$2,390
B249VS	108	2" [50]		600				$2,706

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All prices are in US Dollars (USD)

B2..VS Series Ball Valves with Non Fail-Safe Actuators

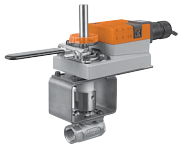
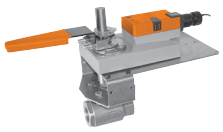
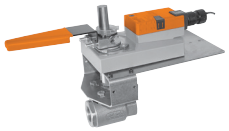
2-way Valve, Bronze Body, NPT Female Ends

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, 35 lbs. steam
Flow Characteristic	modified equal percentage
Controllable Flow Range	90° rotation, valve open CCW, valve closed CW
End Fitting	FNPT
Body	B584-C84400 bronze
Ball	316 stainless steel
Seat	MPTFE, RPTFE (B2050)
Stem	316 stainless steel
Bearing	PEEK/PTFE, RPTFE (B2050)
Stem Packing	MPTFE
Body Seal	PTFE
Retainer	B16 brass
Gland	B16 brass
Jam Nut	stainless steel
Fluid Temperature Range (Water)	-22...+280°F [-30...+138°C]
Maximum Velocity	15 FPS
Leakage	ANSI Class VI

2-year warranty

ACTUATOR PART #	LMX24-MFT-X1	NMX24-MFT-X1	AMX24-MFT-X1	GMX24-MFT-X1
Control	Modulating/MFT	Modulating/MFT	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	150 seconds (variable)	150 seconds (variable)	150 seconds (variable)	150 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B2050VS-01	1	½" [15]	600 psig WOG	100	$1,353			
B2050VS-02	2			100	$1,353			
B2050VS-04	4			100	$1,353			
B2050VS-15	15			100	$1,353			
B219VS	30	¾" [20]		400		$1,853		
B220VS	51			400		$1,920		
B224VS	43	1" [25]		400		$1,985		
B225VS	68			200			$2,160	
B232VS	48	1¼" [32]		600			$2,390	
B239VS	84	1½" [40]		600				$2,415
B240VS	177			600				$2,645
B249VS	108	2" [50]		600				$2,938

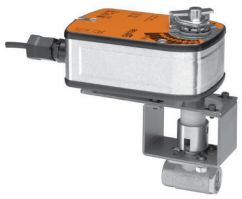
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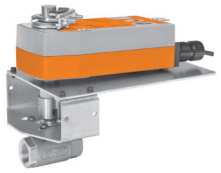
VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, 35 lbs. steam
Flow Characteristic	modified equal percentage
Controllable Flow Range	90° rotation, valve open CCW, valve closed CW
End Fitting	FNPT
Body	B584-C84400 bronze
Ball	316 stainless steel
Seat	MPTFE, RPTFE (B2050)
Stem	316 stainless steel
Bearing	PEEK/PTFE, RPTFE (B2050)
Stem Packing	MPTFE
Body Seal	PTFE
Retainer	B16 brass
Gland	B16 brass
Jam Nut	stainless steel
Fluid Temperature Range (Water)	-22...+280°F [-30...+138°C]
Maximum Velocity	15 FPS
Leakage	ANSI Class VI

Visit *www.belimo.us* for additional fail-safe options.

2-year warranty





ACTUATOR PART #	LF24 US	LF120 US	LF24-MFT US	NFB24-X1	NFBUP-X1	NFX24-MFT-X1
Control	On/Off	On/Off	Modulating/MFT	On/Off	On/Off	Modulating/MFT
Manual Override				•	•	•
Running Time (Motor)	75 seconds	75 seconds	150 seconds (variable)	<75 seconds	<75 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<25 seconds	<25 seconds	<25 seconds	20 seconds	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable wtih ½" conduit connector	3 ft, 18 GA appliance cable wtih ½" conduit connector	3 ft, 18 GA appliance cable wtih ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]					
B2050VS-01	1	½" [15]	600 psig WOG	100	$1,071	$1,139	$1,495		
B2050VS-02	2			100	$1,071	$1,139	$1,495		
B2050VS-04	4			100	$1,071	$1,139	$1,495		
B2050VS-15	15			100	$1,071	$1,139	$1,495		
B219VS	30	¾" [20]		400				$1,456	$1,541	$1,874
B220VS	51			400				$1,524	$1,604	$1,944

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B2..VS Series Ball Valves with Fail-Safe Actuators

2-way Valve, Bronze Body, NPT Female Ends

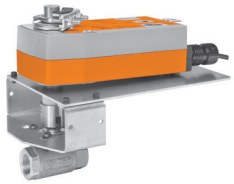
BELIMO

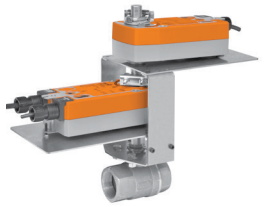
VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, 35 lbs. steam
Flow Characteristic	modified equal percentage
Controllable Flow Range	90° rotation, valve open CCW, valve closed CW
End Fitting	FNPT
Body	B584-C84400 bronze
Ball	316 stainless steel
Seat	MPTFE, RPTFE (B2050)
Stem	316 stainless steel
Bearing	PEEK/PTFE
Stem Packing	MPTFE
Body Seal	PTFE
Retainer	B16 brass
Gland	B16 brass
Jam Nut	stainless steel
Fluid Temperature Range (Water)	-22...+280°F [-30...+138°C]
Maximum Velocity	15 FPS
Leakage	ANSI Class VI

Visit *www.belimo.us* for additional fail-safe options.

2-year warranty





ACTUATOR PART #	AFB24-X1	AFBUP-X1	AFX24-MFT-X1	2*AFX24-MFT-X1
Control	On/Off	On/Off	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	<75 seconds	<75 seconds	150 seconds (variable)	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]			
B224VS	43	1" [25]	600 psig WOG	600	$1,644	$1,755	$2,049	
B225VS	68			200	$1,962	$2,075	$2,264	
B232VS	48	1¼" [32]		600	$2,077	$2,188	$2,392	
B239VS	84	1½" [40]		600				$3,642
B240VS	177			600				$3,668
B249VS	108	2" [50]		600				$4,107

1½" and 2" use tandem mounted actuators

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VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	modified linear
End Fitting	FNPT
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	nickel plated brass
Seat	Teflon PTFE
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0%

2-year warranty







ACTUATOR PART #	LRB24-3	LRX24-MFT	NRX24-3	NRX24-MFT	ARB24-3	ARX24-MFT
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	90 seconds	150 seconds (variable)	90 seconds	150 seconds (variable)	90 seconds	150 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA applicance rated cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA applicance rated cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector

3-WAY DIVERTING

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]						
B315L	6.4	½" [15]	600	200	$782	$1,205				
B320L	12.8	¾" [20]		200	$827	$1,251				
B325L	11	1" [25]		200	$957	$1,378				
B332L	34	1¼" [32]	400	200			$1,247	$1,652		
B340L	57	1½" [40]		200					$1,992	$2,422
B350L	87	2" [50]		200					$2,538	$2,968

B3..L Ball Valves are not for steam applications.

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B3..L Series Ball Valves with Fail-Safe Actuators

3-way Valve, Nickel Plated Brass Body, NPT Female Ends

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled , hot water, up to 60% glycol
Flow Characteristic	modified linear
End Fitting	FNPT
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	nickel plated brass
Seat	Teflon PTFE
Fluid Temperature Range (Water)	0...250°F [-18...+120°C]
Max Differential Pressure (Water)	50 psid
Leakage	0%

Visit *www.belimo.us* to see additional fail-safe options.

2-year warranty



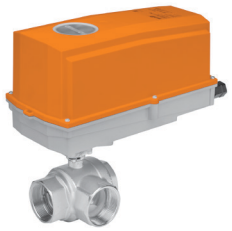


ACTUATOR PART #	LF24-3 US	LF24-MFT US	AFRBUP	AFRX24-MFT
Control	On/Off, Floating Point	Modulating/MFT	On/Off	Modulating/MFT
Manual Override			•	•
Running Time (Motor)	75 seconds	150 seconds (variable)	75 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<25 seconds	<25 seconds	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector

3-WAY DIVERTING

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B315L	6.4	½" [15]	600	200	$1,062	$1,361		
B320L	12.8	¾" [20]		200	$1,107	$1,408		
B325L	11	1" [25]		200	$1,233	$1,533		
B332L	34	1¼" [32]	400	200			$2,378	$2,998
B340L	57	1½" [40]		200			$2,704	$3,321
B350L	87	2" [50]		200			$3,250	$3,866

B3..L Ball Valves are not for steam applications.



ACTUATOR PART #	AFRXUP N4❖	AFRX24-MFT N4❖
Control	On/Off	Modulating/MFT
Manual Override	•	•
Running Time (Motor)	75 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector

3-WAY DIVERTING

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]		
B350L	87	2" [50]	400	200	$3,774	$4,508

❖Heater option for NEMA 4X products has a list price adder of $600. Please specify when ordering.

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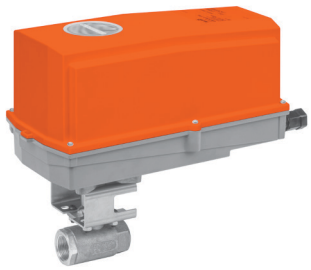
B2..VS Series Ball Valves with NEMA 4X Non Fail-Safe Actuators

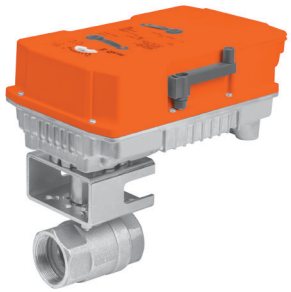
2-way Valve, Bronze Body, NPT Female Ends

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, 35 lb. steam
Flow Characteristic	modified equal percentage
Controllable Flow Range	90° rotation, valve open CCW, valve closed CW
End Fitting	FNPT
Body	B584-C84400 bronze
Ball	316 stainless steel
Seat	MPTFE, RPTFE (B2050)
Stem	316 stainless steel
Bearing	PEEK/PTFE, RPTFE (B2050)
Stem Packing	MPTFE
Body Seal	PTFE
Retainer	B16 brass
Gland	B16 brass
Jam Nut	stainless steel
Fluid Temperature Range (Water)	-22...+280°F [-30...+138°C]
Maximum Velocity	15 FPS
Leakage	ANSI Class VI

2-year warranty





ACTUATOR PART #	GRCX24-3-T N4❖	GRCX24-MFT-T N4❖	GRCX120-3 N4❖	GRCX120-SR-T N4❖	PRBUP-3-T	PRXUP-MFT-T*
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	35 seconds	35 seconds	35 seconds	35 seconds	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable
Electrical Connection	terminal block	terminal block	3 ft, 18 GA plenum cable with ½" conduit connector	terminal block	terminal block	terminal block

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]					
B2050VS-01	1	½" [15]	600 psig WOG	600	$2,097	$2,201	$2,233	$2,347		
B2050VS-02	2			600	$2,097	$2,201	$2,233	$2,347		
B2050VS-04	4			600	$2,097	$2,201	$2,233	$2,347		
B2050VS-15	15			600	$2,097	$2,201	$2,233	$2,347		
B219VS	30	¾" [20]		600	$2,325	$2,442	$2,476	$2,601		
B220VS	51			600	$2,354	$2,474	$2,510	$2,635		
B224VS	43	1" [25]		600	$2,400	$2,520	$2,555	$2,683		
B225VS	68			600	$2,422	$2,543	$2,579	$2,709		
B232VS	48	1¼" [32]		600	$2,632	$2,763	$2,802	$2,943		
B239VS	84	1½" [40]		600	$2,724	$2,862	$2,902	$3,047	$4,508	$6,469
B240VS	177			600					$4,594	$6,556
B249VS	108	2" [50]		600					$4,783	$6,746

*Factory programmed running time 35, 60, 90, 120 seconds available with "X" model, e.g. PRXUP-MFT-T

❖Heater option for NEMA 4X products has a list price adder of $600. Please specify when ordering.

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B2..VSS Series Ball Valves with Non Fail-Safe Actuators

2-way Valve, Stainless Steel Body, NPT Female Ends

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, 50 lb. steam
Flow Characteristic	modified equal percentage
Controllable Flow Range	90° rotation, valve open CCW, valve closed CW
End Fitting	FNPT
Body	A351-CF8M 316 stainless steel
Ball	316 stainless steel
Seat	MPTFE, RPTFE (B2050)
Stem	316 stainless steel
Bearing	PEEK/PTFE, RPTFE (B2050)
Stem Packing	MPTFE
Body Seal	PTFE
Retainer	316 stainless steel
Gland	A276-316
Jam Nut	stainless steel
Fluid Temperature Range (Water)	-22...+298°F [-30...+148°C]
Maximum Velocity	15 FPS
Leakage	ANSI Class VI

2-year warranty



ACTUATOR PART #	LMB24-3-X1	LMX24-MFT-X1	NMB24-3-X1	NMX24-MFT-X1	AMB24-3-X1	AMX24-MFT-X1	GMB24-3-X1	GMX24-MFT-X1
Control	On/Off, Floating Point	Modulating/ MFT	On/Off, Floating Point	Modulating/ MFT	On/Off, Floating Point	Modulating/ MFT	On/Off, Floating Point	Modulating/ MFT
Manual Override	•	•	•	•	•	•	•	•
Running Time (Motor)	90 seconds	150 seconds (variable)	90 seconds	150 seconds (variable)	90 seconds	150 seconds (variable)	150 seconds	150 seconds (variable)
Electrical Connection	3 ft, 18 GA appliance rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA appliance rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]								
B2050VSS-15	15	½" [15]	2000 psig WOG	1000	$1,290	$1,893						
B219VSS	30	¾" [20]	1500 psig WOG	1000			$1,790	$2,390				
B224VSS	43	1" [25]		1000					$2,014	$2,530		
B249VSS	108	2" [50]		1000							$3,912	$4,194

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VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, 50 lb. steam
Flow Characteristic	modified equal percentage
Controllable Flow Range	90° rotation, valve open CCW, valve closed CW
End Fitting	FNPT
Body	A351-CF8M 316 stainless steel
Ball	316 stainless steel
Seat	MPTFE, RPTFE (B2050)
Stem	316 stainless steel
Bearing	PEEK/PTFE, RPTFE (B2050)
Stem Packing	MPTFE
Body Seal	PTFE
Retainer	316 stainless steel
Gland	A276-316
Jam Nut	stainless steel
Fluid Temperature Range (Water)	-22...+298°F [-30...+148°C]
Maximum Velocity	15 FPS
Leakage	ANSI Class VI

Visit *www.belimo.us* for additional fail-safe options.

2-year warranty






ACTUATOR PART #	LF24 US	LF24-MFT US	NFB24-X1	NFX24-MFT-X1	AFB24-X1	AFX24-MFT-X1	2*AFX24-MFT-X1
Control	On/Off	Modulating/MFT	On/Off	Modulating/MFT	On/Off	Modulating/MFT	Modulating/MFT
Manual Override			•	•	•	•	•
Running Time (Motor)	75 seconds	150 seconds (variable)	<75 seconds	150 seconds (variable)	<75 seconds	150 seconds (variable)	150 seconds (variable)
Running Time (Fail-Safe)	<25 seconds	<25 seconds	<20 seconds	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	18 GA applicance rated cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	18 GA applicance rated cable with ½" conduit connector	18 GA applicance rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]							
B2050VSS-15	15	½" [15]	2000 psig WOG	1000	$1,342	$1,485					
B219VSS	30	¾" [20]	1500 psig WOG	1000			$2,038	$2,622			
B224VSS	43	1" [25]		1000					$2,190	$2,715	
B249VSS	108	2" [50]		1000							$6,223

2* Designates tandem actuators.

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B2..VSS Series Ball Valves with NEMA 4X Non Fail-Safe Actuators

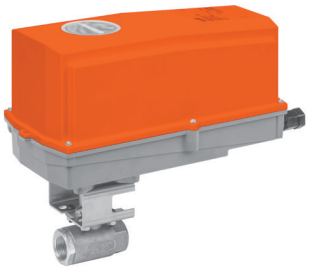
2-way Valve, Stainless Steel Body, NPT Female Ends

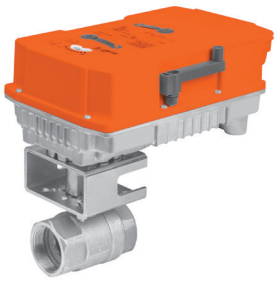
BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, 50 lb. steam
Flow Characteristic	modified equal percentage
Controllable Flow Range	90° rotation, valve open CCW, valve closed CW
End Fitting	FNPT
Body	A351-CF8M 316 stainless steel
Ball	316 stainless steel
Seat	MPTFE, RPTFE (B2050)
Stem	316 stainless steel
Bearing	PEEK/PTFE, RPTFE (B2050)
Stem Packing	MPTFE
Body Seal	PTFE
Retainer	316 stainless steel
Gland	A276-316
Jam Nut	stainless steel
Fluid Temperature Range (Water)	-22...+298°F [-30...+148°C]
Maximum Velocity	15 FPS
Leakage	ANSI Class VI

2-year warranty





ACTUATOR PART #	GRCX24-3-T N4❖	GRCX24-MFT-T N4❖	GRCX120-3 N4❖	GRCX120-SR-T N4❖	PRBUP-3-T	PRXUP-MFT-T*
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	35 seconds	35 seconds	35 seconds	35 seconds	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable
Electrical Connection	terminal block	terminal block	3 ft, 18 GA plenum cable with ½" conduit connector	terminal block	terminal block	terminal block

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]					
B2050VSS-15	15	½" [15]	2000 psig WOG	1000	$2,411	$2,520	$2,569	$2,676		
B219VSS	30	¾" [20]	1500 psig WOG	1000	$2,756	$2,881	$2,937	$3,060		
B224VSS	43	1" [25]		1000	$2,894	$3,025	$3,083	$3,212		
B249VSS	108	2" [50]		1000					$5,658	$7,619

*Factory programmed running time 35, 60, 90, 120 seconds available with "X" model, e.g. PRXUP-MFT-T

❖Heater option for NEMA 4X products has a list price adder of $600. Please specify when ordering.

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15 INDUSTRIAL BALL VALVES

High Performance for Aggressive Applications

- ANSI Class IV leakage rating preventing energy loss and reduces operating costs.
- Fluid temperature up to 380°F is ideal for chilled, hot water or steam service.
- Fitted with rotary actuators for easy field assembly and installation.

Ella Iszczyszyn, Manager, Marketing Americas

V Ball Control Valve Nomenclature

B2	100	VB	-024	+AMX	24	-MFT-X1	
Valve B2 = 2-way (1...2") B6 = 2-way Flanged (3...12")	**Valve Size** 12...50 = 1...2" 80...300 = 3...12" (Flanged)	**Industrial Construction/ Material** VB = Chrome plated stainless steel V ball	**Cv** 24...1905	**Actuator Type** **Non Fail-Safe** AMB, AMX SY PRB, PRX **Fail-Safe Spring Return** NFB, NFX AFB, AFX **Electronic** GKB, GKX PKRB, PKRX	**Power Supply** 24 = AC/DC 24 V 120 = AC 120 V 230 = AC 230 V UP = AC 24...240 V or DC 24...125 V	**Control** -3-X1 = On/Off, Floating Point -MFT-X1 = Multi-Function Technology -MFT95-1X = 0...135 Ω	-S = Built-in Auxiliary Switch

"X" models are customizable.
Refer to page 14-4 for programming options.

Ordering Example

1 Choose the valve actuator combination.

B2100VB-024+AMX24-MFT-X1

2 Specify preference or configuration.

NO

3 **For MFT orders only - select programming code**

Tagging (if needed)

4 Does order require tagging?

Set-Up

Non Fail-Safe Models
NO = Normally Open
NC = Normally Closed

Fail-Safe Models
NO/FO = Normally Open/Fail Open
NO/FC = Normally Open/Fail Closed

NC/FO = Normally Closed/Fail Open
NC/FC = Normally Closed/Fail Closed

Refers to valve ports A to AB.

A01

A.. Control voltage applications
W.. Pulse width modulation applications
F.. Floating Point applications
J.. On/Off applications

Tagging:
Valves may be tagged per customer specification. ($15.00 per tag)

Example:
AHU-1
FCU-2

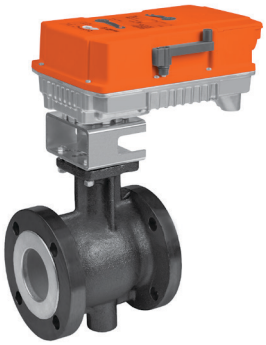
Part number for tagging:
99981-00101

5 Complete Ordering Example: B2100VB-024+AMX24-MFT-X1
Configuration: +NO
Programming: +A01

V Ball Control Valve Product Range

Valve Nominal Size			Type						
C_V	Inches	DN [mm]	2-way NPT	2-way Flanged	Non Fail-Safe		Fail-Safe		
							Spring Return		Electronic
024	1	25	B2100VB-024		AM Series	PR Series	NF Series		PKR Series
055	1½	40	B2150VB-055						
077	2	50	B2200VB-077					AF	
207	3	80		B6300VB-207					GK Series
350	4	100		B6400VB-350					
507	6	150		B6600VB-507					
865	8	200		B6800VB-865					
1550	10	250		B61000VB-1550		SY Series			
1905	12	300		B61200VB-1905					

NOTE: Industrial ball valves have serviceable components. Proper maintenance of these parts will ensure a longer in-service life for the valves. The seats of these valves will require replacement at an interval consistent with number of full cycles the valve has be operated, or as field condition dictates.



2

2-year warranty

Equal Percentage Characteristic

MODE OF OPERATION

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, modulating, or floating point control system. The actuator will then move the ball of the valve to the position dictated by the control signal thus changing the flow.

PRODUCT FEATURES

Equal percentage of flow
300:1 rangeability
ANSI Leakage Class IV

ACTUATOR SPECIFICATIONS

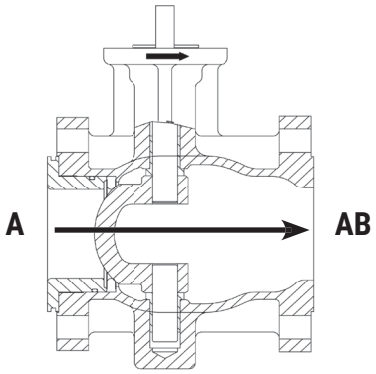
Control type	on/off, floating point, modulating 2...10 V, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting, terminal block

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max, steam
Flow characteristic	equal percentage
Sizes	1", 1½", 2", 3", 4", 6", 8", 10", 12"
End fitting	NPT female (1...2") ANSI flanged (3...12")
Materials	
Body	carbon steel
Characterizing ball	hardened chrome plated stainless steel
Stem	stainless steel
Seat	Teflon®
O-rings	ALFAS
Stem packing	spring loaded Teflon® V-ring
Bushings	Stanyl PA46
Body pressure rating	NPT ANSI 300 (1...2") flanged ANSI 150 (3...12")
Fluid temperature range	380°F max.
Close-off pressure	
Water	250 psid
Steam	150 psid
Maximum inlet pressure	
Steam	150 psi
Leakage	ANSI Class IV

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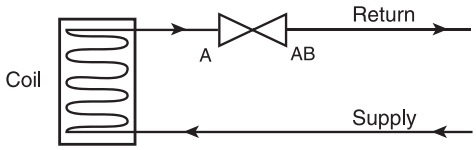
FLOW PATTERN



PIPING DIAGRAMS

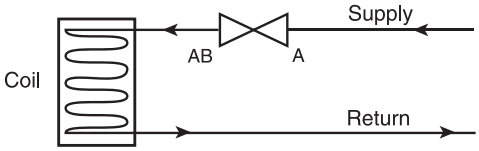
Water Application

2-way Valve Piping Diagram



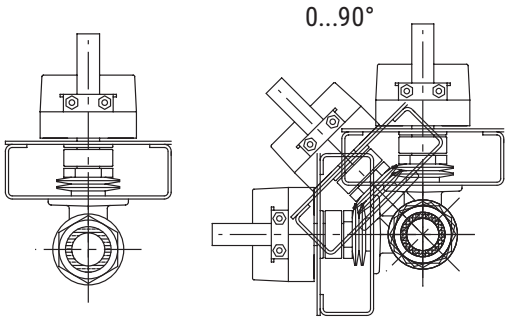
Steam Application

2-way Valve Piping Diagram

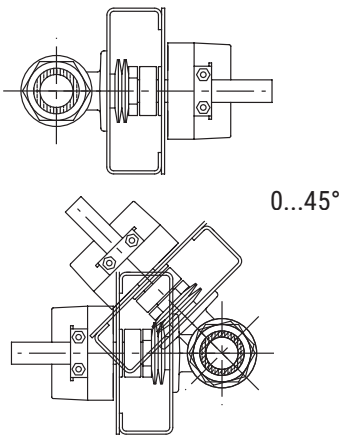


PIPING/MOUNTING ORIENTATION

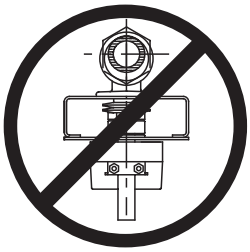
Assembly can be mounted horizontally or vertically for water applications. For steam applications the valve cannot be mounted vertically. When mounted horizontally, the valve must be 0...45° off center of the pipe. Do not install with actuator below pipe.



Water Applications



Steam Applications



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SET-UP - Specify Upon Ordering

		2-WAY VALVE	
NON FAIL-SAFE Stays in Last Position	**AMB24-3-X1**	Power to pin 2 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "1" position to reverse, select the "0" position.	
	AMX24-MFT-X1, PR...MFT-T, SY...MFT	**NC:** Normally closed A to AB, valve will open as voltage increases	**NO:** Normally open A to AB, valve will close as voltage increases
SPRING RETURN Note Fail Position	**AFB24-X1, AFBUP-X1, NFB24-X1**	**NO/FO:** Normally open A to AB, valve will drive closed. Spring Action: Actuator will fail open A to AB upon power loss.	**NC/FC:** Normally closed A to AB, valve will drive open. Spring Action: Actuator will fail closed A to AB upon power loss.
	NFX24-MFT-X1, AFX24-MFT-X1	**NC/FO:** Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail open upon power loss.	**NC/FC:** Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail closed upon power loss.
ELECTRONIC FAIL-SAFE	**GKB24-3-X1†**	Power to pin 4 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "FO" position to reverse, select the "FC" position.	
	GKX24-MFT-X1†, PK...MFT-T†	**NC:** Normally closed A to AB, will open as voltage increases when directional switch is in the "FO" position.	**NO:** Normally open A to AB, will close as voltage increases when directional switch is in the "FC" position.

† The GK and PK series Electronic Fail-Safe actuator will drive to a predetermined postion using the FO/FC dial on the actuator upon loss of power.

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V Ball Control Valves with Non Fail-Safe Actuators

2-way Valve with Stainless Steel Ball and Stem

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	equal percentage
Controllable Flow Range	75°
End Fitting	NPT female (1...2"); ANSI flange (3...12")
Body	WCC grade carbon steel
Ball	stainless steel
Stem	stainless steel
Seat	Teflon®
Stem packing	spring loaded Teflon® V-ring
Fluid Temperature Range (Water)	-22...+380°F [-30...+193°C]
Fluid Temperature Range (Steam)	-22...+380°F [-30...+193°C]
Max Inlet Pressure (Steam)	150 psi
Leakage	ANSI Class IV

2-year warranty







ACTUATOR PART #	AMB24-3-X1	AMX24-MFT-X1	PRBUP-3-T	PRXUP-MFT-T*	SY4-24MFT, SY4-120MFT, SY4-230MFT
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•	•	•
Running Time (Motor)	90 seconds	150 seconds (variable)	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable	20, 24, 22 seconds
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	terminal block	terminal block	terminal block

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]					
				Water	Steam				
B2100VB-024	24	1" [25]	ASME/ ANSI Class 150/300	250	150	$3,821	$4,145	$6,288	$8,206	
B2150VB-055	55	1½" [40]		250	150	$4,504	$4,827	$7,045	$8,963	
B2200VB-077	77	2" [50]		250	150	$4,753	$5,075	$7,544	$9,456	
B6300VB-207	207	3" [80]	ASME/ANSI Class 150	250	150	$7,467	$7,795	$10,139	$12,055	
B6400VB-350	350	4" [100]		250	150			$13,609	$15,525	
B6600VB-507	507	6" [150]		250	150			$17,859	$19,773	
B6800VB-865	865	8" [200]		250	150			$31,236	$34,199	
B61000VB-1550	1550	10" [250]		250	150					$48,422
B61200VB-1905	1905	12" [300]		250	150					$71,997

*Factory programmed running time 35, 60, 90, 120 seconds available with "X" model, e.g. PRXUP-MFT-T

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VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	equal percentage
Controllable Flow Range	75°
End Fitting	NPT female (1...2"); ANSI flange (3...8")
Body	WCC grade carbon steel
Ball	stainless steel
Stem	stainless steel
Seat	Teflon®
Stem packing	spring loaded Teflon® V-ring
Fluid Temperature Range (Water)	-22...+380°F [-30...+193°C]
Fluid Temperature Range (Steam)	-22...+380°F [-30...+193°C]
Max Inlet Pressure (Steam)	150 psi
Leakage	ANSI Class IV

Visit *www.belimo.us* for additional fail-safe options.

2-year warranty









ACTUATOR PART #	NFB24-X1	NFX24-MFT-X1	AFB24-X1	AFBUP-X1	AFX24-MFT-X1	GKB24-3-X1	GKX24-MFT-X1	PKRXUP-MFT-T
Control	On/Off	Modulating/ MFT	On/Off	On/Off	Modulating/ MFT	On/Off, Floating Point	Modulating/ MFT	Modulating/MFT
Manual Override	•	•	•	•	•	•	•	•
Running Time (Motor)	<75 seconds	150 seconds (variable)	<75 seconds	<75 seconds	150 seconds (variable)	90 seconds	150 seconds (variable)	35 seconds (default), 30...120 field adjustable
Running Time (Fail-Safe)	<20 seconds	<20 seconds	<20 seconds	<20 seconds	<20 seconds	35 seconds	35 seconds	30 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	18 GA applicance rated cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	18 GA applicance rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	18 GA plenum rated cable with ½" conduit connector	terminal block

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]								
				Water	Steam							
B2100VB-024	24	1" [25]	ASME/ANSI Class150/300	250	150	$3,948	$4,290					$9,030
B2150VB-055	55	1½" [40]		250	150	$4,629	$4,967					$9,788
B2200VB-077	77	2" [50]		250	150			$5,064	$5,162	$5,381		$10,283
B6300VB-207	207	3" [80]	ASME/ANSI Class 150	250	150				$8,777	$9,205	$9,687	$10,360	$12,878
B6400VB-350	350	4" [100]		250	150						$11,461	$12,133	$16,349
B6600VB-507	507	6" [150]		250	150								$20,598
B6800VB-865	865	8" [200]		250	150								$35,567

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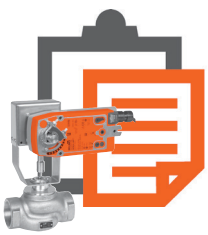
Belimo Retrofit Smart Forms

Upgrade HVAC Systems Easily

Over the decades, Belimo has continued to innovate and create customized retrofit solutions for actuators, valves, and sensors that increase performance, efficiency, and reliability with fast delivery backed with a 5-year warranty. When a standard, off-the-shelf retrofit solution is not quite right for our customer needs, our Retrofit team designs a custom solution. Our Retrofit Team and dedicated onsite machine shop will fabricate a solution with only having a completed Smart Retrofit Form.

If you can dream it, Belimo can build it.







BELIMO®



Steven Lopes, Product Specialist

16 GLOBE VALVES

Greater Force and Flexibility

- Accurate modulation at low flow with rangeability specification of 100:1.
- ANSI 250 and ANSI 125 pressure rating to withstand rigorous HVAC applications.
- Soft seat design providing ANSI Class VI leakage rating.

Globe Valve Nomenclature

G2	15	B	-C	+LVX	24	-MFT
Valve Type G2 = 2-way NPT G3 = 3-way NPT G6 = 2-way Flanged G7 = 3-way Flanged	**Valve Size** **NPT** 15 = ½" 20 = ¾" 25 = 1" 32 = 1¼" 40 = 1½" 50 = 2" **Flanged** 65 = 2½" 80 = 3" 100 = 4" 125 = 5" 150 = 6"	**Trim Material** B = Bronze Trim S = Stainless Trim -250 = ANSI 250 Bronze Trim S-250 = ANSI 250 Stainless Trim C = Bronze Trim Pressure Compensated CS = Stainless Trim Pressure Compensated LCS = Linear Stainless Trim Pressure Compensated D = Diverting Bronze Trim DS = Diverting Stainless Trim	**Cv** -C = 0.4 -F = 1.3 -G = 2.2 -J = 4.4 (½") -J = 5.5 (¾") -K = 7.5 (¾") -K = 10 (1") -L = 14 -M = 20 -N = 28 (1½") -N = 40 (2")	**Actuator Type** **Non Fail-Safe** LVB, LVX SVB, SVX EVB, EVX RVB, RVX **Fail-Safe Spring Return** LF NFB, NFX AFB, AFX **Electronic** GKB, GKX LVKB, LVKX SVKB, SVKX AVKB, AVKX	**Power Supply** 24 = AC/DC 24 V 120 = AC 120 V UP = AC 24...240 V or DC 24...125 V	**Control** Blank = On/Off -3 = On/Off, Floating Point -SR = 2...10 V -MFT or -MFT-X1= Multi-Function Technology -MFT95-X1= 0...135 Ω

"X" models are customizable.
Refer to page 16-6 for programming options.

Ordering Example

1 Choose the valve actuator combination.

G215B-C+LVX24-MFT

2 Specify preference or configuration.

3 **For MFT orders only - select programming code**

NO | **Tagging (if needed)**

4 Does order require tagging?

Set-Up

Non Fail-Safe Models
NO = Normally Open
NC = Normally Closed

Fail-Safe Models
NO/FO = Normally Open/Fail Open
NO/FC = Normally Open/Fail Closed

NC/FO = Normally Closed/Fail Open
NC/FC = Normally Closed/Fail Closed

Refers to valve ports A to AB.

G43

G43	2...10 V
G53	0.5...10 V
W3M	0.02...5 seconds PWM
G13	Floating Point
G03	On/Off

Tagging:
Valves may be tagged per customer specification. ($15.00 per tag)

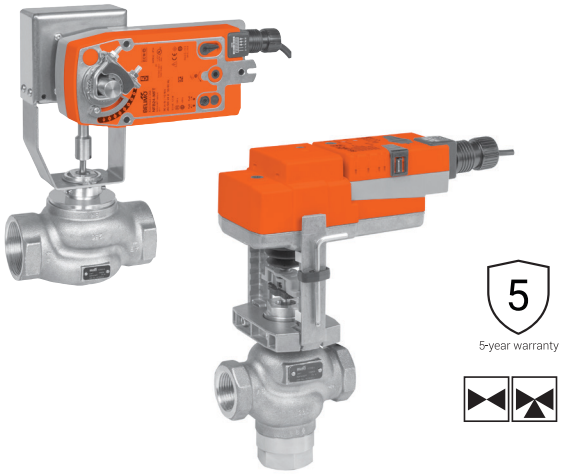
Example:
AHU-1
FCU-2

Part number for tagging:
99981-00101

5 Complete Ordering Example: G215B-C+LVX24-MFT
Configuration: +NO
Programming: +G43

Globe Valve Product Range

Valve Nominal Size			Type		Suitable Actuators		
						Fail-Safe	
C_V	Inches	DN [mm]	2-way NPT	3-way NPT	Non Fail-Safe	Spring Return	Electronic
0.4	½	15	G215B-C		LV Series	LF Series	LVK Series
0.4	½	15	G215S-C				
1.3	½	15	G215B-F				
1.3	½	15	G215S-F				
2.2	½	15	G215B-G				
2.2	½	15	G215S-G				
4.4	½	15	G215B-J				
4.4	½	15	G215S-J				
5.5	¾	20	G220B-J				
5.5	¾	20	G220S-J				
7.5	¾	20	G220B-K				
7.5	¾	20	G220S-K				
10	1	25	G225B-K				
10	1	25	G225S-K				
14	1	25	G225B-L				
14	1	25	G225S-L				
20	1¼	32	G232B-M				
20	1¼	32	G232S-M				
28	1½	40	G240B-N			NF Series	
28	1½	40	G240S-N				
40	2	50	G250B-N				
40	2	50	G250S-N				
2.2	½	15		G315B-G	SV Series		SVK Series
4.4	½	15		G315B-J			
6.75	¾	20		G320B-K			
14	1	25		G325B-L			
20	1¼	32		G332B-M			
28	1½	40		G340B-N		AF Series	
40	2	50		G350B-N			



5-year warranty

MODE OF OPERATION

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, modulating, floating point control system. The actuator will then move the plug of the valve to the position dictated by the control signal thus changing the flow.

PRODUCT FEATURES

New G2 and G3 globe valves offer a modified equal percentage flow characteristic for a wide variety of HVAC applications. Capable of being used for heating, cooling, and steam service. Repack kits are available to extend the life of the valve without full replacement.

ACTUATOR SPECIFICATIONS

Control type	on/off, floating point, 2...10 V, multi-function technology (MFT)
Manual override	all models except LF
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max, steam
Flow characteristic	modified equal percentage, G3: linear flow from B to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
End fitting	NPT female
Materials	
Body	bronze
Stem	stainless steel
Plug	G2B, G3B: brass G2S: stainless steel
Seat	G2B, G3B: bronze G2S: stainless steel
Stem packing	EPDM o-ring
Fluid temp range	G2B, G3B: 20...280°F [-7...+138°C] G2S: 20...338°F [-7...+170°C]
Body pressure rating	ANSI Class 250
Maximum inlet pressure Steam	 G2B: 35 psi [241 kPa] G2S: 100 psi [690 kPa]
Maximum differential pressure (ΔP)	G2B: 35 psid [241 kPa] G2S: 50 psid [345 kPa]
Leakage	ANSI Class VI
Rangeability	100:1

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Globe Valve Product Range

2-way

Valve Nominal Size			Type	Suitable Actuators		
					Fail-Safe	
C_V	Inches	DN [mm]	2-way Flanged	Non Fail-Safe	Spring Return	Electronic
65	2½	65	G665C	EV Series	AF Series	AVK Series
65	2½	65	G665CS			
65	2½	65	G665C-250			
65	2½	65	G665CS-250			
65	2½	65	G665LCS			
90	3	80	G680C			
90	3	80	G680CS			
90	3	80	G680C-250			
90	3	80	G680CS-250			
90	3	80	G680LCS			
170	4	100	G6100C			
170	4	100	G6100CS			
170	4	100	G6100C-250			
170	4	100	G6100CS-250			
170	4	100	G6100LCS			
263	5	125	G6125C			
263	5	125	G6125CS			
263	5	125	G6125C-250			
263	5	125	G6125CS-250			
263	5	125	G6125LCS			
344	6	150	G6150C			
344	6	150	G6150CS			
344	6	150	G6150C-250			
344	6	150	G6150CS-250			
344	6	150	G6150LCS			

The G...(C)(CS)(LCS) Series valve is a pressure compensated valve that allows high close-off ratings while utilizing standard actuation.



5-year warranty

MODE OF OPERATION

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, modulating, or floating point control system. The actuator will then move the plug of the valve to the position dictated by the control signal thus changing the flow.

PRODUCT FEATURES

Equal percentage and linear flow curve options available for a wide variety of HVAC applications. Capable of being used for heating, cooling, and steam service. Repack and rebuild kits are available to extend the life of the valve without full replacement.

ACTUATOR SPECIFICATIONS

Control type	on/off, floating point, 2...10 V, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max, steam
Flow characteristic	
G6	A-port equal percentage
G6LCS	linear
Sizes	2½", 3", 4", 5", 6"
End fitting	ANSI flanged
Materials	
Body	cast iron
Stem	stainless steel
Plug	
G6	bronze
G6S	stainless steel
Seat	stainless steel
Stem packing	
G6, G6S	NLP (EPDM)
Body pressure rating	
G6, 125# ANSI flange	125 psi
G6, 250# ANSI flange	250 psi
Fluid temperature range	refer to valve specification pages in the Product Guide and Price List
Maximum inlet pressure	
Water	150 psi [1034 kPa] G6C, G6CS 250 psi [1724 kPa] G6C..250, G6CS..250
Steam	35 psi [241 kPa] G6C, G6C..250 100 psi [690 kPa] G6CS, G6CS..250
Max. differential pressure (ΔP)	
Water	25 psi [172 kPa] G6C, G6C..250 50 psi [345 kPa] G6CS, G6CS..250
Steam	15 psid [103 kPa] G6C, G6C..250
Rangeability	85:1 (G665..), 91:1 (G680..) 98.1 (G6100..), 100:1 (G6125..) 98:1 (G6150..)

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Globe Valve Product Range

3-way



Valve Nominal Size			Type	Suitable Actuators			
				Non Fail-Safe	Fail-Safe		
C_V	Inches	DN [mm]	3-Way Flanged		Spring Return	Electronic	
68	2½	65	G765	EV / RV Series	AF Series	AVK Series	GK Series
68	2½	65	G765S				
68	2½	65	G765-250				
68	2½	65	G765S-250				
85	3	80	G780				
85	3	80	G780S				
85	3	80	G780-250				
85	3	80	G780S-250				
190	4	100	G7100				
190	4	100	G7100S				
190	4	100	G7100-250				
190	4	100	G7100S-250				
280	5	125	G7125	RV Series			
280	5	125	G7125S				
280	5	125	G7125-250				
280	5	125	G7125S-250				
340	6	150	G7150				
340	6	150	G7150S				
340	6	150	G7150-250				
340	6	150	G7150S-250				
68	2½	65	G765D	EV Series	AF Series	AVK Series	
68	2½	65	G765DS				
68	2½	65	G765DS-250				
85	3	80	G780D				
85	3	80	G780DS				
85	3	80	G780DS-250				
154	4	100	G7100D				
154	4	100	G7100DS				
154	4	100	G7100DS-250				
195	5	125	G7125D				
195	5	125	G7125DS				
195	5	125	G7125DS-250				
248	6	150	G7150D				
248	6	150	G7150DS				
248	6	150	G7150DS-250				

5-year warranty

MODE OF OPERATION

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, modulating, or floating point control system. The actuator will then move the plug of the valve to the position dictated by the control signal thus changing the flow.

PRODUCT FEATURES

Equal percentage (G6) and linear (G7) flow curve options available for a wide variety of HVAC applications. Capable of being used for heating, cooling, and steam service. Repack and rebuild kits are available to extend the life of the valve without full replacement.

ACTUATOR SPECIFICATIONS

Control type	on/off, floating point, 2...10 V, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
Flow characteristic	linear
Sizes	2½", 3", 4", 5", 6"
End fitting	ANSI flanged
Materials	
Body	cast iron
Stem	stainless steel
Plug	
G7	bronze
G7S	stainless steel
Seat	stainless steel
Stem packing	
G7, G7S	NLP (EPDM)
Body pressure rating	
G7, 125# ANSI flange	125 psi
G7, 250# ANSI flange	250 psi
Fluid temperature range	refer to valve specification pages in the Product Guide and Price List
Maximum inlet pressure	
Water	150 psi [1034 kPa] G7, G7S 250 psi [1724 kPa] G7..250, G7S..250
Max. differential pressure (ΔP)	
Water	25 psid [172 kPa] G7, G7..250 50 psid [345 kPa] G7S, G7S..250
Rangeability	50:1

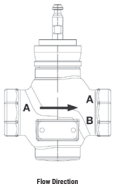
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BELIMO

FLOW PATTERN AND VALVE ASSEMBLY SET-UP - Specify Upon Ordering

All valves shown stem down

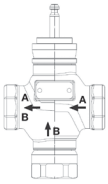
2-WAY VALVE (STEM UP OPEN A TO AB)



G2 2-way Valve

NON FAIL-SAFE	**LV Series**	**NC:** Normally closed A to AB, valve will open upon increase in min. signal/power.	**NO:** Normally open A to AB, valve will close upon increase in min. signal/power.		
ELECTRONIC FAIL-SAFE AND SPRING RETURN	**LVK Series**	**NC/FO:** Normally closed A to AB with power and min. signal applied. When loss of power will fail open A to AB. If desired both normal position and fail position can be reversed in field with direction switch.	**NO/FO:** Normally open A to AB with power and min. signal applied. When loss of power will fail open A to AB. If desired both normal position and fail position can be reversed in field with direction switch.	**NC/FC:** Normally closed A to AB with power and min. signal applied. When loss of power will fail closed A to AB. If desired both normal position and fail position can be reversed in field with direction switch.	**NO/FC:** Normally open A to AB with power and min. signal applied. When loss of power will fail closed A to AB. If desired both normal position and fail position can be reversed in field with direction switch.
	LVK, LF, NF Series (on/off)	**NC/FC:** Normally closed A to AB, valve will drive open with power. Fail Action: Will fail closed A to AB upon power loss. Can be reversed with direction switch or actuator remounting.	**NO/FO:** Normally open A to AB, valve will drive open with power. Fail Action: Will fail open A to AB upon power loss. Can be reversed with direction switch or actuator remounting.		
	LF, NF, Series	**NC/FO:** Normally closed A to AB with power and min. signal applied. When loss of power will fail open A to AB. If desired both normal position and fail position can be reversed in field with direction switch and actuator remounting.	**NO/FO:** Normally open A to AB with power and min. signal applied. When loss of power will fail open A to AB. If desired both normal position and fail position can be reversed in field with direction switch and actuator remounting.	**NC/FC:** Normally closed A to AB with power and min. signal applied. When loss of power will fail closed A to AB. If desired both normal position and fail position can be reversed in field with direction switch and actuator remounting.	**NO/FC:** Normally open A to AB with power and min. signal applied. When loss of power will fail closed A to AB. If desired both normal position and fail position can be reversed in field with direction switch and actuator remounting.

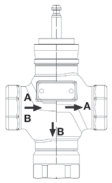
3-WAY MIXING VALVE (STEM UP OPEN B TO AB)



G3 3-way Mixing Valve

NON FAIL-SAFE	**SV Series**	**NC:** Normally closed A to AB, valve will open upon increase in min. signal/power.	**NO:** Normally open A to AB, valve will close upon increase in min. signal/power.		
ELECTRONIC FAIL-SAFE AND SPRING RETURN	**SVK Series**	**NC/FO:** Normally closed A to AB with power and min. signal applied. When loss of power will fail open A to AB. If desired both normal position and fail position can be reversed in field with direction switch.	**NO/FO:** Normally open A to AB with power and min. signal applied. When loss of power will fail open A to AB. If desired both normal position and fail position can be reversed in field with direction switch.	**NC/FC:** Normally closed A to AB with power and min. signal applied. When loss of power will fail closed A to AB. If desired both normal position and fail position can be reversed in field with direction switch.	**NO/FC:** Normally open A to AB with power and min. signal applied. When loss of power will fail closed A to AB. If desired both normal position and fail position can be reversed in field with direction switch.
	SVK, NF, AF Series (on/off)	**NC/FC:** Normally closed A to AB, valve will drive open with power. Fail Action: Will fail closed A to AB upon power loss. Can be reversed with direction switch or actuator remounting.	**NO/FO:** Normally open A to AB, valve will drive open with power. Fail Action: Will fail open A to AB upon power loss. Can be reversed with direction switch or actuator remounting.		
	NF, AF Series	**NC/FO:** Normally closed A to AB with power and min. signal applied. When loss of power will fail open A to AB. If desired both normal position and fail position can be reversed in field with direction switch and actuator remounting.	**NO/FO:** Normally open A to AB with power and min. signal applied. When loss of power will fail open A to AB. If desired both normal position and fail position can be reversed in field with direction switch and actuator remounting.	**NC/FC:** Normally closed A to AB with power and min. signal applied. When loss of power will fail closed A to AB. If desired both normal position and fail position can be reversed in field with direction switch and actuator remounting.	**NO/FC:** Normally open A to AB with power and min. signal applied. When loss of power will fail closed A to AB. If desired both normal position and fail position can be reversed in field with direction switch and actuator remounting.

3-WAY DIVERTING VALVE (STEM UP OPEN AB TO B)



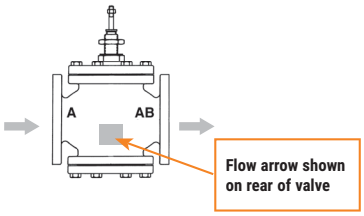
G3 3-way Diverting Valve

NON FAIL-SAFE	**SV Series**	**NC:** Normally closed AB to A, valve will open upon increase in min. signal/power.	**NO:** Normally open AB to A, valve will close upon increase in min. signal/power.		
ELECTRONIC FAIL-SAFE AND SPRING RETURN	**SVK Series**	**NC/FO:** Normally closed AB to A with power and min. signal applied. When loss of power will fail open AB to A. If desired both normal position and fail position can be reversed in field with direction switch.	**NO/FO:** Normally open AB to A with power and min. signal applied. When loss of power will fail open AB to A. If desired both normal position and fail position can be reversed in field with direction switch.	**NC/FC:** Normally closed AB to A with power and min. signal applied. When loss of power will fail closed AB to A. If desired both normal position and fail position can be reversed in field with direction switch.	**NO/FC:** Normally open AB to A with power and min. signal applied. When loss of power will fail closed AB to A. If desired both normal position and fail position can be reversed in field with direction switch.
	SVK, NF, AF Series (on/off)	**NC/FC:** Normally closed AB to A, valve will drive open with power. Fail Action: Will fail closed AB to A upon power loss. Can be reversed with direction switch or actuator remounting.	**NO/FO:** Normally open AB to A, valve will drive open with power. Fail Action: Will fail open AB to A upon power loss. Can be reversed with direction switch or actuator remounting.		
	NF, AF Series	**NC/FO:** Normally closed AB to A with power and min. signal applied. When loss of power will fail open AB to A. If desired both normal position and fail position can be reversed in field with direction switch and actuator remounting.	**NO/FO:** Normally open AB to A with power and min. signal applied. When loss of power will fail open AB to A. If desired both normal position and fail position can be reversed in field with direction switch and actuator remounting.	**NC/FC:** Normally closed AB to A with power and min. signal applied. When loss of power will fail closed AB to A. If desired both normal position and fail position can be reversed in field with direction switch and actuator remounting.	**NO/FC:** Normally open AB to A with power and min. signal applied. When loss of power will fail closed AB to A. If desired both normal position and fail position can be reversed in field with direction switch and actuator remounting.

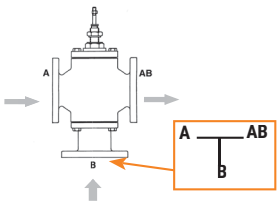
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FLOW PATTERN – Flow Pattern is Marked on Valve

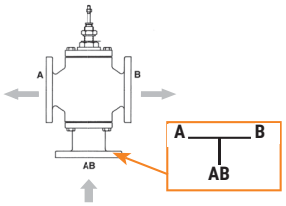
G6 2-way Valve
Stem Up = Open A to AB



G7 3-way Mixing Valve
Stem Up = Open B to AB



G7…D 3-way Diverting Valve
Stem Up = Open AB to B



VALVE ASSEMBLY SET-UP - Specify Upon Ordering

2-WAY VALVE

NON FAIL-SAFE	**EV, RV Series**	**NC:** Normally closed A to AB, valve will open upon increase in signal/power. Note: To change valve to A to AB open, reverse the directional switch in actuator.	**NO:** Normally open A to AB, valve will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse the directional switch in actuator.
SPRING RETURN	**AFB, AFX Series** On/Off	**NO/FO:** Normally open A to AB valve will drive closed. Spring Action: Will fail open A to AB upon power loss.	**NC/FC:** Normally closed A to AB valve will drive open. Spring Action: Will fail closed A to AB upon power loss.
SPRING RETURN	**AFB, AFX MFT Series**	**NC/FO:** Normally closed A to AB, valve will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Spring Action: Will fail open A to AB upon power loss.	**NO/FC or NC/FC:** Normally Open/Normally Closed: valve can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Spring Action: Closed A to AB upon power loss.
SPRING RETURN	**AFB, AFX MFT Series**	**NC/FO:** Normally closed A to AB, valve will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Spring Action: Will fail open A to AB upon power loss.	**NO/FO:** Normally open A to AB. Spring Action: Will fail open A to AB upon power loss. (NO or NC action can be chosen with CW/CCW switch).
ELECTRONIC FAIL-SAFE	**AVK, GK Series**	**NC/FO:** Normally closed A to AB, valve will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch.Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0...100%, in 10% increments.	**NO/FC or NC/FC:** Valve: Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0...100%, in 10% increments.
ELECTRONIC FAIL-SAFE	**AVK, GK Series**	**NC/FO:** Normally closed A to AB, valve will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch.Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0...100%, in 10% increments.	**NO/FO:** Normally open A to AB. Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0...100%, in 10% increments.

3-WAY MIXING VALVE

NON FAIL-SAFE	**EV, RV Series**	**NC:** Normally closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse the directional switch in actuator.	**NO:** Normally open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse the directional switch in actuator.
SPRING RETURN	**AFB, AFX Series** On/Off	**NO/FO** Normally open A to AB, valve will drive closed. Spring Action: Will fail open A to AB upon power loss.	**NC/FC** Normally closed A to AB, valve will drive open. Spring Action: Will fail closed A to AB upon power loss.
SPRING RETURN	**AFB, AFX MFT Series**	**NC/FO** Normally closed A to AB, valve will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Spring Action: Will fail open A to AB upon power loss.	**NO/FC or NC/FC** Normally Open/Normally Closed: valve be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Spring Action: Closed A to AB upon power loss.
SPRING RETURN	**AFB, AFX MFT Series**	**NC/FO** Normally closed A to AB, valve will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Spring Action: Will fail open A to AB upon power loss.	**NO/FO** Normally open A to AB. Spring Action: Will fail open A to AB upon power loss. (NO or NC action can be chosen with CW/CCW switch).
ELECTRONIC FAIL-SAFE	**AVK, GK Series**	**NC/FO** Normally closed A to AB, valve will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0...100%, in 10% increments.	**NO/FC or NC/FC** Valve: Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0...100%, in 10% increments.
ELECTRONIC FAIL-SAFE	**AVK, GK Series**	**NC/FO** Normally closed A to AB, valve will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0...100%, in 10% increments.	**NO/FO** Normally open A to AB. Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0...100%, in 10% increments.

3-WAY DIVERTING VALVE

NON FAIL-SAFE	**EV, RV Series**	**NC:** Normally closed AB to B, will open upon increase in signal/power. Note: To change valve to AB to B open, reverse the directional switch in actuator.	**NO:** Normally open AB to B, will close upon increase in signal/power. Note: To change valve to AB to B closed, reverse the directional switch in actuator.
SPRING RETURN	**AFB, AFX Series** On/Off	**NO/FO** Normally open AB to B, valve will drive closed. Spring Action: Will fail open AB to B upon power loss.	**NC/FC** Normally closed AB to B, valve will drive open. Spring Action: Will fail closed AB to B upon power loss.
SPRING RETURN	**AFB, AFX MFT Series**	**NC/FO** Normally closed AB to B, valve will open upon increase in signal. Note: To change valve to AB to B open, reverse CW/CCW switch. Spring Action: Will fail open AB to B upon power loss.	**NO/FC or NC/FC** Normally Open/Normally Closed: valve be open or closed, will drive closed or open AB to B (can be chosen with CW/CCW switch). Spring Action: Closed AB to B upon power loss.
SPRING RETURN	**AFB, AFX MFT Series**	**NC/FO** Normally closed AB to B, valve will open upon increase in signal. Note: To change valve to AB to B open, reverse CW/CCW switch. Spring Action: Will fail open AB to B upon power loss.	**NO/FO** Normally open AB to B. Spring Action: Will fail open AB to B upon power loss. (NO or NC action can be chosen with CW/CCW switch).
ELECTRONIC FAIL-SAFE	**AVK, GK Series**	**NC/FO** Normally closed AB to B, valve will open upon increase in signal. Note: To change valve to AB to B open, reverse CW/CCW switch. Fail Position: Will default fail AB to B open, from the factory. Fail position can be set from 0...100%, in 10% increments.	**NO/FC or NC/FC** Valve: Can be open or closed, will drive closed or open AB to B (can be chosen with CW/CCW switch). Fail Position: Will default fail AB to B open, from the factory. Fail position can be set from 0...100%, in 10% increments.
ELECTRONIC FAIL-SAFE	**AVK, GK Series**	**NC/FO** Normally closed AB to B, valve will open upon increase in signal. Note: To change valve to AB to B open, reverse CW/CCW switch. Fail Position: Will default fail AB to B open, from the factory. Fail position can be set from 0...100%, in 10% increments.	**NO/FO** Normally open AB to B. Fail Position: Will default fail AB to B open, from the factory. Fail position can be set from 0...100%, in 10% increments.

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Customize Products

Default and MFT Programming Codes

*A01 is the default configuration for MFT.
**Not available on RV models.
*** Available only on LV and SV models

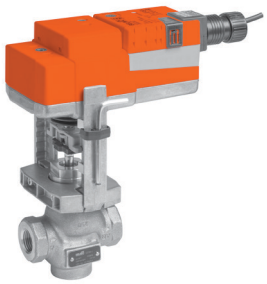
ACTUATOR TYPE		CONFIGURATION DESCRIPTION	CONTROL		
			CONTROL INPUT	FEEDBACK POSITION	RUNNING TIME
ROTARY ACTUATOR	-3 and -SR	0	2...10 V (for -3)	2...10 V (for -3)	150 seconds
		2	2...10 V (for -SR)	2...10 V (for -SR)	90 seconds
	-MFT and -PC	A01*	2...10 V	2...10 V	150 seconds
		A02	0.5...10 V	0.5...10 V	150 seconds
		A03	2...10 V	0.5...5 V	150 seconds
		A04	4...7 V	2...10 V	150 seconds
		A05	6...9 V	2...10 V	150 seconds
		A06	10.5...13.5 V	2...10 V	150 seconds
		A07	0.5...5 V	2...10 V	150 seconds
		A09	5...10 V	2...10 V	150 seconds
		A10	5...10 V	0.5...10 V	150 seconds
		A13	0.5...10 V	2...10 V	150 seconds
		A15	2...5 V	2...10 V	150 seconds
		A16	2...6 V	2...10 V	150 seconds
		A17	6...10 V	2...10 V	150 seconds
		A18	14...17 V	2...10 V	150 seconds
		A19	2...10 V	2...10 V	100 seconds
		A20	9...12 V	2...10 V	150 seconds
		A28	0.5...10 V	0.5...10 V	100 seconds
		A31	0.5...4 V	2...10 V	150 seconds
		A63	0.5...4.5 V	0.5...4.5 V	150 seconds
		A32	6...14 V	2...10 V	150 seconds
		A64	5.5...10 V	5.5...10 V	150 seconds
		AAT	2...10 V	2...10 V	20 seconds
		W01	0.59...2.93 seconds	2...10 V	150 seconds
		W02	0.02...5.00 seconds	2...10 V	150 seconds
		W03	0.10...25.50 seconds	2...10 V	150 seconds
		W04	0.10...25.60 seconds	2...10 V	150 seconds
		W05	0.10...5.20 seconds	0.5...5 V	150 seconds
		F01	Floating Point	2...10 V	150 seconds
		F02	Floating Point	0.5...10 V	150 seconds
		J02	On/Off	2...10 V	150 seconds
		S01 (for -PC only)	Phasecut	2...10 V	150 seconds
		R01 (for -MFT95 only)	0...135 Ω	2...10 V	150 seconds
LINEAR ACTUATOR	-3 and -MFT	G01***	On/Off	2...10 V MFT only	35 seconds
		G02***	On/Off	2...10 V MFT only	60 seconds
		G03	On/Off	2...10 V MFT only	90 seconds
		G04	On/Off	2...10 V MFT only	150 seconds
		G11	Floating Point	2...10 V MFT only	35 seconds
		G12	Floating Point	2...10 V MFT only	60 seconds
		G13	Floating Point	2...10 V MFT only	90 seconds
		G14	Floating Point	2...10 V MFT only	150 seconds
	-SR and -MFT	G41*** (G21 for -SR)	2...10 V	2...10 V	35 seconds
		G42*** (G22 for -SR)	2...10 V	2...10 V	60 seconds
		G43 (G23 for -SR)	2...10 V	2...10 V	90 seconds
		G44 (G24 for -SR)	2...10 V	2...10 V	150 seconds
	-MFT	G51***	0.5...10 V	0.5...10 V	35 seconds
		G52***	0.5...10 V	0.5...10 V	60 seconds
		G53	0.5...10 V	0.5...10 V	90 seconds
		G54	0.5...10 V	0.5...10 V	150 seconds
		G2A	5.5...10 V	5.5...10 V	150 seconds
		G2B	0.5...4.5 V	0.5...4.5 V	150 seconds
		G2C	2...10 V	0.5...5 V	150 seconds
		G2D	6...9 V	2...10 V	150 seconds
		G2E	10.5...13.5 V	2...10 V	150 seconds
		W3M**	0.02...5.00 seconds PWM	2...10 V	90 seconds
		W3P**	0.2...5.00 seconds PWM	2...10 V	90 seconds

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VALVE SPECIFICATIONS

Fluid	G2: chilled or hot water, 60% glycol, steam G3: chilled or hot water, 60% glycol
Flow Characteristic	modified equal percentage, G3B linear flow from B to AB
Action	G2B: stem up - open A to AB G3B (mixing): stem up - open B to AB G3B (diverting): stem up - open AB to B
End Fitting	NPT female
Body	bronze
Seat	bronze
Stem	stainless steel
Stem Packing	EPDM O-ring
Plug	brass
Fluid Temperature	20...280°F [-7...+138°C]
Max Diff Pressure (ΔP)	35 psid [241 kPa]
Max Inlet Pressure (Steam)	35 psi [241 kPa] (G2)
Leakage	ANSI Class VI

5-year warranty





ACTUATOR PART #	LVB24-3	LVB24-SR	LVX24-MFT	SVB24-3	SVB24-SR	SVX24-MFT
Control	On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	Modulating	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds (variable)	90 seconds	90 seconds	90 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
G215B-C	0.4	½" [15]	ANSI 250	250	$1,133	$1,260	$1,341			
G215B-F	1.3			250	$1,137	$1,265	$1,344			
G215B-G	2.2			250	$1,141	$1,269	$1,347			
G215B-J	4.4			250	$1,146	$1,272	$1,350			
G220B-J	5.5	¾" [20]		250	$1,157	$1,284	$1,361			
G220B-K	7.5			250	$1,164	$1,291	$1,370			
G225B-K	10	1" [25]		250	$1,267	$1,393	$1,471			
G225B-L	14			250	$1,279	$1,405	$1,484			
G232B-M	20	1¼" [32]		250	$1,385	$1,511	$1,590			
G240B-N	28	1½" [40]		250	$1,592	$1,719	$1,799			
G250B-N	40	2" [50]		250	$1,808	$1,936	$2,016			

3-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
				Mixing	Diverting					
G315B-G	2.2	½" [15]	ANSI 250	250	250				$1,237	$1,364	$1,445
G315B-J	4.4			250	250				$1,242	$1,370	$1,452
G320B-K	6.75	¾" [20]		250	182				$1,247	$1,376	$1,456
G325B-L	14	1" [25]		250	109				$1,345	$1,472	$1,553
G332B-M	20	1¼" [32]		246	82				$1,474	$1,603	$1,684
G340B-N	28	1½" [40]		137	46				$1,959	$2,089	$2,171
G350B-N	41	2" [50]		86	29				$2,170	$2,298	$2,379

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
Please see www.belimo.us for details.

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G2..B/G3..B Series Globe Valves with Electronic Fail-Safe Actuators

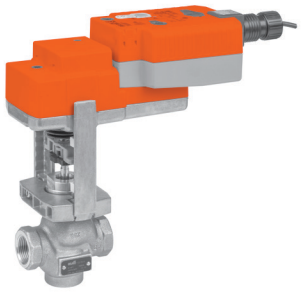
2-way and 3-way Valves with Bronze Trim, NPT Female Ends

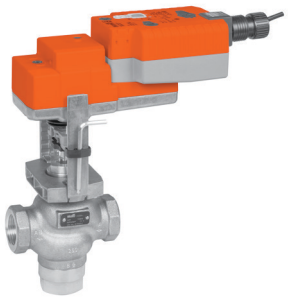
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VALVE SPECIFICATIONS

Fluid	G2: chilled or hot water, 60% glycol, steam G3: chilled or hot water, 60% glycol
Flow Characteristic	modified equal percentage G3B: linear flow from B to AB
Action	G2B: stem up - open A to AB G3B: (mixing): stem up - open B to AB G3B: (diverting): stem up - open AB to B
End Fitting	NPT female
Body	bronze
Seat	bronze
Stem	stainless steel
Stem Packing	EPDM O-ring
Plug	brass
Fluid Temperature	20...280°F [-7...+138°C]
Max Diff Pressure (ΔP)	35 psid [241 kPa]
Max Inlet Pressure (Steam)	35 psi [241 kPa] (G2)
Leakage	ANSI Class VI

5-year warranty





ACTUATOR PART #	LVKB24-3	LVKB24-SR	LVKB24-MFT	SVKB24-3	SVKB24-SR	SVKB24-MFT
Control	On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	Modulating	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds (variable)	90 seconds	90 seconds	90 seconds (variable)
Running Time (Fail-Safe)	35 seconds	35 seconds	35 seconds	35 seconds	35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]					
G215B-C	0.4	½" [15]	ANSI 250	250	$1,355	$1,465	$1,547		
G215B-F	1.3			250	$1,358	$1,470	$1,549		
G215B-G	2.2			250	$1,361	$1,474	$1,553		
G215B-J	4.4			250	$1,365	$1,479	$1,557		
G220B-J	5.5	¾" [20]		250	$1,443	$1,556	$1,634		
G220B-K	7.5			250	$1,453	$1,564	$1,645		
G225B-K	10	1" [25]		250	$1,603	$1,715	$1,793		
G225B-L	14			250	$1,614	$1,725	$1,805		
G232B-M	20	1¼" [32]		250	$1,780	$1,893	$1,970		
G240B-N	28	1½" [40]		250	$1,894	$2,005	$2,085		
G250B-N	40	2" [50]		250	$2,225	$2,338	$2,415		

3-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]					
				Mixing	Diverting				
G315B-G	2.2	½" [15]	ANSI 250	250	250			$1,449	$1,559	$1,644
G315B-J	4.4			250	250			$1,455	$1,564	$1,648
G320B-K	6.75	¾" [20]		250	182			$1,523	$1,635	$1,717
G325B-L	14	1" [25]		250	109			$1,702	$1,812	$1,895
G332B-M	20	1¼" [32]		246	82			$1,996	$2,107	$2,188
G340B-N	28	1½" [40]		137	46			$2,317	$2,426	$2,509
G350B-N	41	2" [50]		86	29			$2,670	$2,782	$2,863

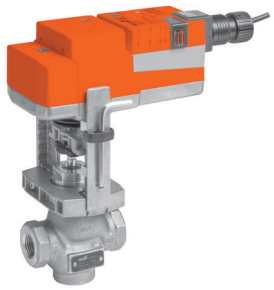
See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
Please see www.belimo.us for details.

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VALVE SPECIFICATIONS

Fluid	chilled, hot water, 60% glycol, steam
Flow Characteristic	modified equal percentage
Action	stem up - open A to AB
End Fitting	NPT female
Body	bronze
Seat	stainless steel
Stem	stainless steel
Stem Packing	EPDM O-ring
Plug	stainless steel
Fluid Temperature	20...338°F [-7...+170°C]
Max Diff Pressure (ΔP)	50 psid [345 kPa]
Max Inlet Pressure (Steam)	100 psi [690 kPa]
Leakage	ANSI Class VI

5-year warranty



ACTUATOR PART #	LVB24-3	LVB24-SR	LVX24-MFT
Control	On/Off, Floating Point	Modulating	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
G215S-C	0.4	½" [15]	ANSI 250	250	$1,571	$1,692	$1,771
G215S-F	1.3			250	$1,575	$1,698	$1,775
G215S-G	2.2			250	$1,578	$1,701	$1,778
G215S-J	4.4			250	$1,581	$1,704	$1,784
G220S-J	5.5	¾" [20]		250	$1,736	$1,859	$1,935
G220S-K	7.5			250	$1,744	$1,866	$1,946
G225S-K	10	1" [25]		250	$1,978	$2,102	$2,180
G225S-L	14			250	$1,987	$2,109	$2,186
G232S-M	20	1¼" [32]		250	$2,361	$2,485	$2,565
G240S-N	28	1½" [40]		250	$2,805	$2,925	$3,006
G250S-N	40	2" [50]		250	$3,126	$3,250	$3,327

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
Please see www.belimo.us for details.

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G2..S Series Globe Valves with Electronic Fail-Safe Actuators

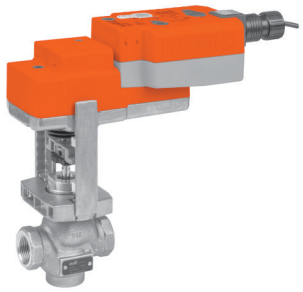
2-way Valve with Stainless Steel Trim, NPT Female Ends

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled, hot water, 60% glycol, steam
Flow Characteristic	modified equal percentage
Action	stem up - open A to AB
End Fitting	NPT female
Body	bronze
Seat	stainless steel
Stem	stainless steel
Stem Packing	EPDM O-ring
Plug	stainless steel
Fluid Temperature	20...338°F [-7...+170°C]
Max Diff Pressure (ΔP)	50 psid [345kPa]
Max Inlet Pressure (Steam)	100 psi [690 kPa]
Leakage	ANSI Class VI

5-year warranty



ACTUATOR PART #	LVKB24-3	LVKB24-SR	LVKB24-MFT
Control	On/Off, Floating Point	Modulating	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds (variable)
Running Time (Fail-Safe)	35 seconds	35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
G215S-C	0.4	½" [15]	ANSI 250	250	$1,788	$1,898	$1,976
G215S-F	1.3			250	$1,792	$1,903	$1,981
G215S-G	2.2			250	$1,798	$1,910	$1,985
G215S-J	4.4			250	$1,803	$1,911	$1,988
G220S-J	5.5	¾" [20]		250	$1,958	$2,067	$2,145
G220S-K	7.5			250	$1,969	$2,077	$2,156
G225S-K	10	1" [25]		250	$2,342	$2,451	$2,527
G225S-L	14			250	$2,422	$2,528	$2,608
G232S-M	20	1¼" [32]		250	$2,910	$3,019	$3,096
G240S-N	28	1½" [40]		250	$3,390	$3,503	$3,577
G250S-N	40	2" [50]		250	$3,743	$3,855	$3,930

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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VALVE SPECIFICATIONS

Fluid	chilled, hot water, 60% glycol, steam
Flow Characteristic	modified equal percentage
Action	stem up - open A to AB
End Fitting	NPT female
Body	bronze
Seat	G2B: bronze G2S: stainless steel
Stem	stainless steel
Stem Packing	EPDM O-ring
Plug	G2B: brass G2S: stainless steel
Fluid Temperature	G2B: 20...280°F [-7...+138°C] G2S: 20...338°F [-7...+170°C]
Max Diff Pressure (ΔP)	G2B: 35 psid [241 kPa] G2S: 50 psid [345 kPa]
Max Inlet Pressure (Steam)	G2B: 35 psi [241 kPa] G2S: 100 psi [690 kPa]
Leakage	ANSI Class VI

Visit *www.belimo.us* for additional Spring Return options.

5-year warranty





ACTUATOR PART #	LF24 US	LF24-SR US	LF24-MFT US	NFBUP-X1	NFB24-SR-X1	NFX24-MFT-X1
Control	On/Off	Modulating	Modulating/MFT	On/Off	Modulating	Modulating/MFT
Manual Override				•	•	•
Running Time (Motor)	75 seconds	150 seconds	150 seconds (variable)	<75 seconds	95 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<25 seconds	<25 seconds	<25 seconds	<20 seconds	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector

2-WAY, BRONZE TRIM

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
G215B-C	0.4	½" [15]	ANSI 250	160	$1,603	$1,755	$1,851			
G215B-F	1.3			160	$1,606	$1,761	$1,856			
G215B-G	2.2			160	$1,608	$1,764	$1,860			
G215B-J	4.4			160	$1,611	$1,769	$1,862			
G220B-J	5.5	¾" [20]		155	$1,654	$1,808	$1,905			
G220B-K	7.5			155	$1,657	$1,813	$1,915			
G225B-K	10	1" [25]		147	$1,746	$1,908	$2,146			
G225B-L	14			147	$1,748	$1,912	$2,149			
G232B-M	20	1¼" [32]		141	$1,880	$2,040	$2,287			
G240B-N	28	1½" [40]		250				$2,477	$2,580	$2,681
G250B-N	40	2" [50]		250				$2,568	$2,767	$2,775

2-WAY, STAINLESS STEEL TRIM

G215S-C	0.4	½" [15]	ANSI 250	160	$2,003	$2,160	$2,258			
G215S-F	1.3			160	$2,006	$2,163	$2,260			
G215S-G	2.2			160	$2,010	$2,166	$2,265			
G215S-J	4.4			160	$2,012	$2,168	$2,269			
G220S-J	5.5	¾" [20]		155	$2,064	$2,496	$2,597			
G220S-K	7.5			155	$2,067	$2,499	$2,599			
G225S-K	10	1" [25]		147	$2,382	$2,557	$2,797			
G225S-L	14			147	$2,387	$2,558	$2,800			
G232S-M	20	1¼" [32]		141	$2,849	$3,031	$3,269			
G240S-N	28	1½" [40]		250				$3,720	$3,824	$3,924
G250S-N	40	2" [50]		250				$4,015	$4,121	$4,214

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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G3 Series Globe Valves with Spring Return Actuators

3-way Valve with Bronze Trim, Mixing and Diverting, NPT Female Ends

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled, hot water, 60% glycol
Flow Characteristic	modified equal percentage linear flow from B to AB
Action	mixing: stem up - open B to AB diverting: stem up - open AB to B
End Fitting	NPT female
Body	bronze
Seat	bronze
Stem	stainless steel
Stem Packing	EPDM O-ring
Plug	brass
Fluid Temp. Water	20...280°F [-7...+138°C]
Max Diff Pressure (ΔP)	35 psid [241 kPa]
Leakage	ANSI Class VI

Visit *www.belimo.us* for additional Spring Return options.

5-year warranty





ACTUATOR PART #	NFBUP-X1	NFB24-SR-X1	NFX24-MFT-X1	AFBUP-X1	AFB24-SR-X1	AFX24-MFT-X1
Control	On/Off	Modulating	Modulating/MFT	On/Off	2...10 V	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	<75 seconds	95 seconds	150 seconds (variable)	<75 seconds	<75 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector

3-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]							
				Mixing	Diverting						
G315B-G	2.2	½" [15]	ANSI 250	250	166	$1,850	$1,952	$2,048			
G315B-J	4.4			250	166	$1,852	$1,954	$2,050			
G320B-K	6.75	¾" [20]		250	101	$1,895	$2,002	$2,103			
G325B-L	14	1" [25]		179	60	$1,921	$2,085	$2,322			
G332B-M	20	1¼" [32]		133	44	$2,048	$2,217	$2,470			
G340B-N	28	1½" [40]		167	56				$2,785	$2,892	$2,989
G350B-N	40	2" [50]		105	35				$2,885	$2,995	$3,092

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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VALVE SPECIFICATIONS

Fluid G6,G7	(G6) chilled, hot water, 60% glycol, steam; (G7) chilled, hot water, 60% glycol
Flow Characteristic G6, G7	(G6) equal percentage; (G6LCS, G7) linear
Action G6	stem up - open A to AB
Action G7	stem up - open B to AB
Action G7D	stem up - open AB to B
End Fitting	125 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	bronze
Fluid Temp. Water G6	32...300°F [0...149°C]
Fluid Temp. Steam G6	32...280°F [0...138°C]
Fluid Temp. Water G7	32...350°F [0...176°C]
Fluid Temp. Water G7D	32...300°F [0...149°C] 6"only: 32...150°F [0...66°C]
Max Differential Pressure (Water)	25 psid [172 kPa]
Max Differential Pressure (Steam) G6	15 psid [103 kPa]
Leakage	ANSI Class III
Max Inlet PSI (Water) G6, G7	150 psi [1034 kPa] @ 250°F
Max Inlet Pressure (Steam) G6	35 psi [241 kPa]

5-year warranty





ACTUATOR PART #	EVB24-3	EVB24-SR	EVB24-MFT	RVB24-3	RVB24-MFT
Control	On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds (variable)	90 seconds	90 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]					
G665C	65	2½" [65]	ANSI 125	140	$3,884	$4,021	$4,096		
G680C	90	3" [80]		140	$4,318	$4,451	$4,529		
G6100C	170	4" [100]		140	$5,442	$5,573	$5,654		
G6125C	263	5" [125]		140	$8,074	$8,218	$8,288		
G6150C	344	6" [150]		140	$8,792	$8,937	$9,008		
3-WAY MIXING									
G765	68	2½" [65]	ANSI 125	106	$3,924	$4,057	$4,774		
G765	68			125				$5,080	$5,293
G780	85	3" [80]		73	$4,279	$4,414	$4,797		
G780	85			125				$5,423	$5,640
G7100	190	4" [100]		40	$5,315	$5,447	$5,530		
G7100	190			75				$6,249	$6,465
G7125	280	5" [125]		47				$9,090	$9,315
G7150	340	6" [150]		32				$10,134	$10,358
3-WAY DIVERTING									
G765D	68	2½" [65]	ANSI 125	140	$7,534	$7,670	$7,751		
G780D	85	3" [80]		140	$8,494	$8,620	$8,705		
G7100D	154	4" [100]		140	$9,847	$9,982	$10,064		
G7125D	195	5" [125]		140	$13,167	$13,308	$13,227		
G7150D	248	6" [150]		140	$16,558	$16,684	$16,763		

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
Please see www.belimo.us for details.

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G6..C/G7..(D) Series Flanged Globe Valves with Spring Return Actuators

2-way and 3-way Valves with Bronze Trim– ANSI 125 Flanged

BELIMO

VALVE SPECIFICATIONS

Fluid G6,G7	(G6) chilled, hot water, 60% glycol, steam; (G7) chilled, hot water, 60% glycol
Flow Characteristic G6, G7	(G6) equal percentage; (G6LCS, G7) linear
Action G6	stem up - open A to AB
Action G7	stem up - open B to AB
Action G7D	stem up - open AB to B
End Fitting	125 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	bronze
Fluid Temp. Water G6	32...300°F [0...149°C]
Fluid Temp. Steam G6	32...280°F [0...138°C]
Fluid Temp. Water G7	32...350°F [0...176°C]
Fluid Temp. Water G7D	32...300°F [0...149°C] 6"only: 32...150°F [0...66°C]
Max Differential Pressure (Water)	25 psid [172 kPa]
Max Differential Pressure (Steam) G6	15 psid [103 kPa]
Leakage	ANSI Class III
Max Inlet PSI (Water) G6, G7	150 psi [1034 kPa] @ 250°F
Max Inlet Pressure (Steam) G6	35 psi [241 kPa]

Visit *www.belimo.us* for additional Spring Return options.

5-year warranty





ACTUATOR PART #	AFBUP-X1	AFX24-MFT-X1	2*AFBUP-X1	2*AFX24-MFT-X1
Control	On/Off	Modulating/MFT	On/Off	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	<75 seconds	150 seconds (variable)	<75 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
2-WAY								
G665C	65	2½" [65]	ANSI 125	140	$4,409	$4,633		
G680C	90	3" [80]		140	$4,830	$5,057		
G6100C	170	4" [100]		140			$6,087	$6,239
G6125C	263	5" [125]		140			$8,499	$8,744
G6150C	344	6" [150]		108			$9,383	
G6150C	344	6" [150]		140				$9,467
3-WAY MIXING								
G765	68	2½" [65]	ANSI 125	50	$3,724	$3,924		
G765	68			78			$4,784	
G765	68			107				$5,158
G780	85	3" [80]		33	$4,068	$4,274		
G780	85			53			$5,128	
G780	85			73				$5,540
G7100	190	4" [100]		12			$6,318	
G7100	190			18				$6,399
3-WAY DIVERTING								
G765D	68	2½" [65]	ANSI 125	140	$7,494	$7,722		
G780D	85	3" [80]		140	$8,428	$8,634		
G7100D	154	4" [100]		140	$9,700	$9,942		
G7125D	195	5" [125]		140			$13,472	$13,925
G7150D	248	6" [150]		140			$17,349	$17,879

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
Please see www.belimo.us for details.

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VALVE SPECIFICATIONS

Fluid G6,G7	(G6) chilled, hot water, 60% glycol, steam; (G7) chilled, hot water, 60% glycol
Flow Characteristic G6, G7	(G6) equal percentage; (G6LCS, G7) linear
Action G6	stem up - open A to AB
Action G7	stem up - open B to AB
Action G7D	stem up - open AB to B
End Fitting	125 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	bronze
Fluid Temp. Water G6	32...300°F [0...149°C]
Fluid Temp. Steam G6	32...280°F [0...138°C]
Fluid Temp. Water G7	32...350°F [0...176°C]
Fluid Temp. Water G7D	32...300°F [0...149°C] 6"only: 32...150°F [0...66°C]
Max Differential Pressure (Water)	25 psid [172 kPa]
Max Differential Pressure (Steam) G6	15 psid [103 kPa]
Leakage	ANSI Class III
Max Inlet PSI (Water) G6, G7	150 psi [1034 kPa] @ 250°F
Max Inlet Pressure (Steam) G6	35 psi [241 kPa]

5-year warranty





ACTUATOR PART #	AVKB24-3	AVKB24-MFT	2*GKX24-MFT-X1
Control	On/Off, Floating Point	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	90 seconds	90 seconds (variable)	150 seconds (variable)
Running Time (Fail-Safe)	35 seconds	35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
G665C	65	2½" [65]	ANSI 125	140	$4,194	$4,409	
G680C	90	3" [80]		140	$4,640	$4,856	
G6100C	170	4" [100]		140	$5,923	$6,137	
G6125C	263	5" [125]		140	$7,935	$8,158	
G6150C	344	6" [150]		140	$9,190	$9,417	
3-WAY MIXING							
G765	68	2½" [65]	ANSI 125	84	$3,975	$4,190	
G765	68			125			$8,105
G780	85	3" [80]		57	$4,064	$4,274	
G780	85			125			$8,487
G7100	190	4" [100]		41			$9,382
G7125	280	5" [125]		26			$12,240
G7150	340	6" [150]		17			$13,291
3-WAY DIVERTING							
G765D	68	2½" [65]	ANSI 125	140	$7,498	$7,707	
G780D	85	3" [80]		140	$8,412	$8,626	
G7100D	154	4" [100]		140	$9,430	$9,653	
G7125D	195	5" [125]		140	$13,302	$13,521	

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
Please see www.belimo.us for details.

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G6..CS/G7..(D)S Series Flanged Globe Valves with Non Fail-Safe Actuators

2-way and 3-way Valves with Stainless Steel Trim – ANSI 125 Flanged

BELIMO

5-year warranty

VALVE SPECIFICATIONS

Fluid G6,G7	(G6) chilled, hot water, 60% glycol, steam; (G7) chilled, hot water, 60% glycol
Flow Characteristic G6, G7	(G6) equal percentage; (G6LCS, G7) linear
Action G6	stem up - open A to AB
Action G7	stem up - open B to AB
Action G7D	stem up - open AB to B
End Fitting	125 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	stainless steel
Fluid Temp. Water G6	32...350°F [0...176°C]
Fluid Temp. Steam G6	32...338°F [0...170°C]
Fluid Temp. Water G7	32...350°F [0...176°C]
Fluid Temp. Water G7D	32...300°F [0...149°C] 6"only: 32...150°F [0...66°C]
Max Differential Pressure (Water)	50 psid [345 kPa]
Max Differential Pressure (Steam) G6	50 psid [345 kPa]
Leakage	ANSI Class III
Max Inlet PSI (Water) G6, G7	150 psi [1034 kPa] @ 250°F
Max Inlet Pressure (Steam) G6	100 psi [690 kPa]





ACTUATOR PART #	EVB24-3	EVB24-SR	EVB24-MFT	RVB24-3	RVB24-MFT
Control	On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds (variable)	90 seconds	90 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]					
G665CS	65	2½" [65]	ANSI 125	125	$5,549	$5,683	$5,761		
G680CS	90	3" [80]		125	$6,464	$6,604	$6,670		
G6100CS	170	4" [100]		125	$8,667	$8,799	$8,870		
G6125CS	263	5" [125]		125	$11,490	$11,628	$11,696		
G6150CS	344	6" [150]		125	$12,256	$12,383	$12,462		
3-WAY MIXING									
G765S	68	2½" [65]	ANSI 125	106	$5,000	$5,126	$5,201		
G765S	68			125				$5,670	$6,566
G780S	85	3" [80]		73	$5,913	$6,045	$6,124		
G780S	85			125				$6,579	$7,476
G7100S	190	4" [100]		40	$7,386	$7,522	$7,599		
G7100S	190			75				$7,732	$8,632
G7125S	280	5" [125]		47				$11,590	$12,522
G7150S	340	6" [150]		32				$14,272	$15,117
3-WAY DIVERTING									
G765DS	68	2½" [65]	ANSI 125	140	$10,907	$11,037	$11,114		
G780DS	85	3" [80]		140	$12,394	$12,535	$12,601		
G7100DS	154	4" [100]		140	$14,134	$14,261	$14,341		
G7125DS	195	5" [125]		140	$20,416	$20,544	$20,641		
G7150DS	248	6" [150]		140	$23,400	$23,529	$23,609		

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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VALVE SPECIFICATIONS

Fluid G6,G7	(G6) chilled, hot water, 60% glycol, steam; (G7) chilled, hot water, 60% glycol
Flow Characteristic G6, G7	(G6) equal percentage; (G6LCS, G7) linear
Action G6	stem up - open A to AB
Action G7	stem up - open B to AB
Action G7D	stem up - open AB to B
End Fitting	125 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	stainless steel
Fluid Temp. Water G6	32...350°F [0...176°C]
Fluid Temp. Steam G6	32...338°F [0...170°C]
Fluid Temp. Water G7	32...350°F [0...176°C]
Fluid Temp. Water G7D	32...300°F [0...149°C] 6"only: 32...150°F [0...66°C]
Max Differential Pressure (Water)	50 psid [345 kPa]
Max Differential Pressure (Steam) G6	50 psid [345 kPa]
Leakage	ANSI Class III
Max Inlet PSI (Water) G6, G7	150 psi [1034 kPa] @ 250°F
Max Inlet Pressure (Steam) G6	100 psi [690 kPa]

Visit *www.belimo.us* for additional Spring Return options.

5-year warranty





ACTUATOR PART #	AFBUP-X1	AFX24-MFT-X1	2*AFBUP-X1	2*AFX24-MFT-X1
Control	On/Off	Modulating/MFT	On/Off	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	<75 seconds	150 seconds (variable)	<75 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
2-WAY								
G665CS	65	2½" [65]	ANSI 125	125	$6,065	$6,261		
G680CS	90	3" [80]		125	$6,981	$7,175		
G6100CS	170	4" [100]		125			$9,652	$9,334
G6125CS	263	5" [125]		125			$12,768	$12,647
G6150CS	344	6" [150]		108			$13,351	
G6150CS	344			125				$13,046
3-WAY MIXING								
G765S	68	2½" [65]	ANSI 125	50	$4,935	$5,200		
G765S	68			78			$5,937	
G765S	68			107				$6,631
G780S	85	3" [80]		33	$5,813	$6,105		
G780S	85			53			$6,852	
G780S	85			73				$7,385
G7100S	190	4" [100]		12			$8,634	
G7100S	190			18				$8,614
3-WAY DIVERTING								
G765DS	68	2½" [65]	ANSI 125	140	$10,840	$11,106		
G780DS	85	3" [80]		140	$12,333	$12,611		
G7100DS	154	4" [100]		140	$14,332	$14,613		
G7125DS	195	5" [125]		140			$21,016	$21,536
G7150DS	248	6" [150]		140			$24,386	$24,933

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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G6..CS/G7..(D)S Series Flanged Globe Valves with Electronic Fail-Safe Actuators

2-way and 3-way Valves with Stainless Steel Trim – ANSI 125 Flanged

BELIMO

5-year warranty

VALVE SPECIFICATIONS

Fluid G6,G7	(G6) chilled, hot water, 60% glycol, steam; (G7) chilled, hot water, 60% glycol
Flow Characteristic G6, G7	(G6) equal percentage; (G6LCS, G7) linear
Action G6	stem up - open A to AB
Action G7	stem up - open B to AB
Action G7D	stem up - open AB to B
End Fitting	125 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	stainless steel
Fluid Temp. Water G6	32...350°F [0...176°C]
Fluid Temp. Steam G6	32...338°F [0...170°C]
Fluid Temp. Water G7	32...350°F [0...176°C]
Fluid Temp. Water G7D	32...300°F [0...149°C] 6"only: 32...150°F [0...66°C]
Max Differential Pressure (Water)	50 psid [345 kPa]
Max Differential Pressure (Steam) G6	50 psid [345 kPa]
Leakage	ANSI Class III
Max Inlet PSI (Water) G6, G7	150 psi [1034 kPa] @ 250°F
Max Inlet Pressure (Steam) G6	100 psi [690 kPa]





ACTUATOR PART #	AVKB24-3	AVKB24-MFT	2*GKX24-MFT-X1
Control	On/Off, Floating Point	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	90 seconds	90 seconds (variable)	150 seconds (variable)
Running Time (Fail-Safe)	35 seconds	35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
G665CS	65	2½" [65]	ANSI 125	125	$5,793	$5,933	
G680CS	90	3" [80]		125	$6,825	$6,965	
G6100CS	170	4" [100]		125	$8,920	$9,065	
G6125CS	263	5" [125]		125	$12,496	$12,635	
G6150CS	344	6" [150]		125	$12,514	$12,655	
3-WAY MIXING							
G765S	68	2½" [65]	ANSI 125	84	$4,998	$5,206	
G765S	68			125			$9,573
G780S	85	3" [80]		57	$5,890	$6,110	
G780S	85			125			$10,325
G7100S	190	4" [100]		41			$11,554
G7125S	280	5" [125]		26			$15,461
G7150S	340	6" [150]		17			$18,068
3-WAY DIVERTING							
G765DS	68	2½" [65]	ANSI 125	140	$10,898	$11,106	
G780DS	85	3" [80]		140	$12,392	$12,599	
G7100DS	154	4" [100]		140	$13,967	$14,172	

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	linear
Action	stem up - open A to AB
End Fitting	125 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	stainless steel
Fluid Temperature Range (Water)	32...350°F [0...176°C]
Fluid Temperature Range (Steam)	32...338°F [0...170°C]
Max Differential Pressure (Water)	50 psid [345 kPa]
Max Differential Pressure (Steam)	50 psid [345 kPa]
Leakage	ANSI Class III
Max Inlet Pressure (Water)	150 psi [1034 kPa] @ 250°F
Max Inlet Pressure (Steam)	100 psi [690 kPa]

5-year warranty



ACTUATOR PART #	EVB24-3	EVB24-SR	EVB24-MFT
Control	On/Off, Floating Point	Modulating	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
G665LCS	65	2½" [65]	ANSI 125	125	$5,613	$5,740	$5,822
G680LCS	90	3" [80]		125	$6,606	$6,741	$6,813
G6100LCS	170	4" [100]		125	$8,798	$8,934	$9,012
G6125LCS	263	5" [125]		125	$11,268	$11,405	$11,485
G6150LCS	344	6" [150]		125	$12,178	$12,318	$12,383

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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G6..LCS Series Flanged Globe Valves with Spring Return Actuators

2-way Linear Valve with Stainless Steel Trim – ANSI 125 Flanged

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	linear
Action	stem up - open A to AB
End Fitting	125 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	stainless steel
Fluid Temperature Range (Water)	32...350°F [0...176°C]
Fluid Temperature Range (Steam)	32...338°F [0...170°C]
Max Differential Pressure (Water)	50 psid [345 kPa]
Max Differential Pressure (Steam)	50 psid [345 kPa]
Leakage	ANSI Class III
Max Inlet Pressure (Water)	150 psi [1034 kPa] @ 250°F
Max Inlet Pressure (Steam)	100 psi [690 kPa]

Visit *www.belimo.us* for additional Spring Return options.

5-year warranty





ACTUATOR PART #	AFBUP-X1	AFX24-MFT-X1	2*AFBUP-X1	2*AFX24-MFT-X1
Control	On/Off	Modulating/MFT	On/Off	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	<75 seconds	150 seconds (variable)	<75 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
G665LCS	65	2½" [65]	ANSI 125	125	$6,059	$6,216		
G680LCS	90	3" [80]		125	$6,975	$7,275		
G6100LCS	170	4" [100]		125			$9,644	$9,326
G6125LCS	263	5" [125]		125			$12,755	$12,635
G6150LCS	344	6" [150]		108			$13,351	
G6150LCS	344			125				$13,021

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	linear
Action	stem up - open A to AB
End Fitting	125 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	stainless steel
Fluid Temperature Range (Water)	32...350°F [0...176°C]
Fluid Temperature Range (Steam)	32...338°F [0...170°C]
Max Differential Pressure (Water)	50 psid [345 kPa]
Max Differential Pressure (Steam)	50 psid [345 kPa]
Leakage	ANSI Class III
Max Inlet Pressure (Water)	150 psi [1034 kPa] @ 250°F
Max Inlet Pressure (Steam)	100 psi [690 kPa]

5-year warranty



ACTUATOR PART #	AVKB24-3	AVKB24-MFT
Control	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•
Running Time (Motor)	90 seconds	90 seconds (variable)
Running Time (Fail-Safe)	35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]		
G665LCS	65	2½" [65]	ANSI 125	125	$5,793	$5,928
G680LCS	90	3" [80]		125	$6,645	$6,788
G6100LCS	170	4" [100]		125	$8,920	$9,057
G6125LCS	263	5" [125]		125	$12,496	$12,622
G6150LCS	344	6" [150]		125	$12,514	$12,655

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
Please see www.belimo.us for details.

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G6..C-250/G7..-250 Series Flanged Globe Valves with Non Fail-Safe Actuators

2-way and 3-way Valves with Bronze Trim – ANSI 250 Flanged

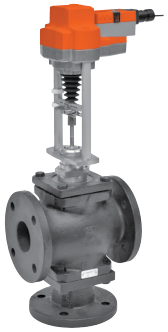
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5-year warranty

VALVE SPECIFICATIONS

Fluid G6,G7	(G6) chilled, hot water, 60% glycol, steam; (G7) chilled, hot water, 60% glycol
Flow Characteristic G6, G7	(G6) equal percentage; (G6LCS, G7) linear
Action G6	stem up - open A to AB
Action G7	stem up - open B to AB
End Fitting	250 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	bronze
Fluid Temp. Water G6	32...300°F [0...149°C]
Fluid Temp. Steam G6	32...280°F [0...138°C]
Fluid Temp. Water G7	32...350°F [0...176°C]
Max Differential Pressure (Water)	25 psid [172 kPa]
Max Differential Pressure (Steam) G6	15 psid [103 kPa]
Leakage	ANSI Class III
Max Inlet PSI (Water)	(G6) 280 psi [1930 kPa] @ 350°F (G7) 310 psi [2137 kPa] @ 300°F
Max Inlet Pressure (Steam) G6	35 psi [241 kPa]





ACTUATOR PART #	EVB24-3	EVB24-SR	EVB24-MFT	RVB24-3	RVB24-MFT
Control	On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds (variable)	90 seconds	90 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
G665C-250	65	2½" [65]	ANSI 250	310	$3,892	$4,018	$4,099		
G680C-250	90	3" [80]		310	$4,550	$4,678	$4,755		
G6100C-250	170	4" [100]		310	$5,993	$6,124	$6,199		
G6125C-250	263	5" [125]		310	$8,499	$8,626	$8,707		
G6150C-250	344	6" [150]		310	$8,883	$9,010	$9,087		
3-WAY MIXING									
G765-250	68	2½" [65]	ANSI 250	106	$5,158	$5,288	$5,367		
G765-250	68			198				$7,041	$7,243
G780-250	85	3" [80]		73	$5,881	$6,008	$6,087		
G780-250	85			136				$7,158	$7,364
G7100-250	190	4" [100]		40	$8,704	$8,831	$8,908		
G7100-250	190			75				$9,565	$9,772
G7125-250	280	5" [125]		47				$14,156	$14,364
G7150-250	340	6" [150]		32				$16,341	$16,559

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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VALVE SPECIFICATIONS

Fluid G6,G7	(G6) chilled, hot water, 60% glycol, steam; (G7) chilled, hot water, 60% glycol
Flow Characteristic G6, G7	(G6) equal percentage; (G6LCS, G7) linear
Action G6	stem up - open A to AB
Action G7	stem up - open B to AB
End Fitting	250 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	bronze
Fluid Temp. Water G6	32...300°F [0...149°C]
Fluid Temp. Steam G6	32...280°F [0...138°C]
Fluid Temp. Water G7	32...350°F [0...176°C]
Max Differential Pressure (Water)	25 psid [172 kPa]
Max Differential Pressure (Steam) G6	15 psid [103 kPa]
Leakage	ANSI Class III
Max Inlet PSI (Water)	(G6) 280 psi [1930 kPa] @ 350°F (G7) 310 psi [2137 kPa] @ 300°F
Max Inlet Pressure (Steam) G6	35 psi (241 kPa)

Visit *www.belimo.us* for additional Spring Return options.

5-year warranty





ACTUATOR PART #	AFBUP-X1	AFX24-MFT-X1	2*AFBUP-X1	2*AFX24-MFT-X1
Control	On/Off	Modulating/MFT	On/Off	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	<75 seconds	150 seconds (variable)	<75 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
G665C-250	65	2½" [65]	ANSI 250	310	$4,497	$4,699		
G680C-250	90	3" [80]		310	$5,025	$4,976		
G680C-250	90			310			$5,937	$6,373
G6100C-250	170	4" [100]		212			$6,964	
G6100C-250	170			310				$7,356
G6125C-250	263	5" [125]		155			$8,521	
G6125C-250	263			241				$8,910
G6150C-250	344	6" [150]		108			$11,581	
G6150C-250	344			182				$11,972

3-WAY MIXING

G765-250	68	2½" [65]	ANSI 250	50	$5,042	$5,161		
G765-250	68			78			$6,130	
G765-250	68			107				$6,454
G780-250	85	3" [80]		33	$5,795	$6,053		
G780-250	85			53			$6,844	
G780-250	85			73				$7,379
G7100-250	190	4" [100]		18				$8,158

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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G6..C-250/G7..-250 Series Flanged Globe Valves with Electronic Fail-Safe Actuators

2-way and 3-way Valves with Bronze Trim – ANSI 250 Flanged

VALVE SPECIFICATIONS

Fluid G6,G7	(G6) chilled, hot water, 60% glycol, steam; (G7) chilled, hot water, 60% glycol
Flow Characteristic G6, G7	(G6) equal percentage; (G6LCS, G7) linear
Action G6	stem up - open A to AB
Action G7	stem up - open B to AB
End Fitting	250 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	bronze
Fluid Temp. Water G6	32...300°F [0...149°C]
Fluid Temp. Steam G6	32...280°F [0...138°C]
Fluid Temp. Water G7	32...350°F [0...176°C]
Max Differential Pressure (Water)	25 psid [172 kPa]
Max Differential Pressure (Steam) G6	15 psid [103 kPa]
Leakage	ANSI Class III
Max Inlet PSI (Water)	(G6) 280 psi [1930 kPa] @ 350°F (G7) 310 psi [2137 kPa] @ 300°F
Max Inlet Pressure (Steam) G6	35 psi [241 kPa]

5-year warranty





ACTUATOR PART #	AVKB24-3	AVKB24-MFT	2*GKX24-MFT-X1
Control	On/Off, Floating Point	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	90 seconds	90 seconds (variable)	150 seconds (variable)
Running Time (Fail-Safe)	35 seconds	35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
G665C-250	65	2½" [65]	ANSI 250	310	$4,188	$4,397	
G680C-250	90	3" [80]		310	$4,740	$4,946	
G6100C-250	170	4" [100]		310	$6,928	$7,145	
G6125C-250	263	5" [125]		300	$8,706	$8,910	
G6150C-250	344	6" [150]		232	$11,416	$11,625	
3-WAY MIXING							
G765-250	68	2½" [65]	ANSI 250	84	$5,305	$5,514	
G765-250	68			222			$9,408
G780-250	85	3" [80]		57	$5,843	$6,053	
G780-250	85			153			$10,325
G7100-250	190	4" [100]		41			$12,694

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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5-year warranty

VALVE SPECIFICATIONS

Fluid G6,G7	(G6) chilled, hot water, 60% glycol, steam; (G7) chilled, hot water, 60% glycol
Flow Characteristic G6, G7	(G6) equal percentage; (G6LCS, G7) linear
Action G6	stem up - open A to AB
Action G7	stem up - open B to AB
Action G7D	stem up - open AB to B
End Fitting	250 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	stainless steel
Fluid Temp. Water G6	32...350°F [0...176°C]
Fluid Temp. Steam G6	32...338°F [0...170°C]
Fluid Temp. Water G7	32...350°F [0...176°C]
Fluid Temp. Water G7D	32...300°F [0...149°C] 6"only: 32...150°F [0...66°C]
Max Differential Pressure (Water)	50 psid [345 kPa]
Max Differential Pressure (Steam) G6	50 psid [345 kPa]
Leakage	ANSI Class III
Max Inlet PSI (Water)	(G6) 280 psi [1930 kPa] @ 350°F (G7) 310 psi [2137 kPa] @ 300°F
Max Inlet Pressure (Steam) G6	100 psi [690 kPa]





ACTUATOR PART #	EVB24-3	EVB24-SR	EVB24-MFT	RVB24-3	RVB24-MFT
Control	On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•
Running Time (Motor)	90 seconds	90 seconds	90 seconds (variable)	90 seconds	90 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]					
G665CS-250	65	2½" [65]	ANSI 250	280	$6,222	$6,354	$6,436		
G680CS-250	90	3" [80]		280	$6,662	$6,790	$6,868		
G6100CS-250	170	4" [100]		280	$9,078	$9,215	$9,293		
G6125CS-250	263	5" [125]		280	$12,739	$12,858	$12,935		
G6150CS-250	344	6" [150]		280	$16,061	$16,188	$16,269		
3-WAY MIXING									
G765S-250	68	2½" [65]	ANSI 250	106	$5,509	$5,635	$5,710		
G765S-250	68			198				$6,825	$7,039
G780S-250	85	3" [80]		73	$6,313	$6,443	$6,519		
G780S-250	85			136				$7,619	$7,824
G7100S-250	190	4" [100]		40	$10,210	$10,335	$10,426		
G7100S-250	190			75				$11,052	$11,278
G7125S-250	280	5" [125]		47				$16,037	$16,246
G7150S-250	340	6" [150]		32				$16,662	$16,868
3-WAY DIVERTING									
G765DS-250	68	2½" [65]	ANSI 250	310	$12,829	$12,957	$13,037		
G780DS-250	85	3" [80]		310	$14,579	$14,708	$14,788		
G7100DS-250	154	4" [100]		310	$16,508	$16,634	$16,715		
G7125DS-250	195	5" [125]		310	$23,789	$23,918	$23,995		
G7150DS-250	248	6" [150]		310	$29,129	$29,255	$29,334		

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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G6..CS-250/G7..S(DS)-250 Series Flanged Globe Valves with Spring Return Actuators

2-way and 3-way Valves with Stainless Steel Trim – ANSI 250 Flanged

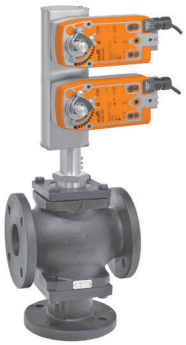
VALVE SPECIFICATIONS

Fluid G6,G7	(G6) chilled, hot water, 60% glycol, steam; (G7) chilled, hot water, 60% glycol
Flow Characteristic G6, G7	(G6) equal percentage; (G6LCS, G7) linear
Action G6	stem up - open A to AB
Action G7	stem up - open B to AB
Action G7D	stem up - open AB to B
End Fitting	250 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	stainless steel
Fluid Temp. Water G6	32...350°F [0...176°C]
Fluid Temp. Steam G6	32...338°F [0...170°C]
Fluid Temp. Water G7	32...350°F [0...176°C]
Fluid Temp. Water G7D	32...300°F [0...149°C] 6"only: 32...150°F [0...66°C]
Max Differential Pressure (Water)	50 psid [345 kPa]
Max Differential Pressure (Steam) G6	50 psid [345 kPa]
Leakage	ANSI Class III
Max Inlet PSI (Water)	(G6) 280 psi [1930 kPa] @ 350°F (G7) 310 psi [2137 kPa] @ 300°F
Max Inlet Pressure (Steam) G6	100 psi [690 kPa]

Visit *www.belimo.us* for additional Spring Return options.

5-year warranty





ACTUATOR PART #	AFBUP-X1	AFX24-MFT-X1	2*AFBUP-X1	2*AFX24-MFT-X1
Control	On/Off	Modulating/MFT	On/Off	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	<75 seconds	150 seconds (variable)	<75 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Electrical Connection	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector	3 ft, 18 GA appliance cable, ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
G665CS-250	65	2½" [65]	ANSI 250	280	$5,042	$6,323		
G680CS-250	90	3" [80]		280	$7,932	$8,166		
3-WAY MIXING								
G765S-250	68	2½" [65]	ANSI 250	50	$5,392	$5,657		
G765S-250	68			78			$6,406	
G765S-250	68			107				$6,924
G780S-250	85	3" [80]		33	$6,204	$6,099		
G780S-250	85			53			$7,219	
G780S-250	85			73				$7,379
G7100S-250	190	4" [100]		40				$8,598
3-WAY DIVERTING								
G765DS-250	68	2½" [65]	ANSI 250	310	$12,767	$13,032		
G780DS-250	85	3" [80]		310	$14,588	$14,828		
G7100DS-250	154	4" [100]		310	$16,966	$17,243		
G7125DS-250	195	5" [125]		310			$23,278	$23,805
G7150DS-250	248	6" [150]		310			$30,141	$30,667

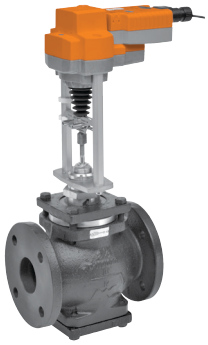
See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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5-year warranty

VALVE SPECIFICATIONS

Fluid G6,G7	(G6) chilled, hot water, 60% glycol, steam; (G7) chilled, hot water, 60% glycol
Flow Characteristic G6, G7	(G6) equal percentage; (G6LCS, G7) linear
Action G6	stem up - open A to AB
Action G7	stem up - open B to AB
Action G7D	stem up - open AB to B
End Fitting	250 lb. flanged
Body	cast iron - ASTM A126 Class B
Seat	stainless steel
Stem	stainless steel
Stem Packing	NLP (no lip packing) (EPDM)
Plug	stainless steel
Fluid Temp. Water G6	32...350°F [0...176°C]
Fluid Temp. Steam G6	32...338°F [0...170°C]
Fluid Temp. Water G7	32...350°F [0...176°C]
Fluid Temp. Water G7D	32...300°F [0...149°C] 6"only: 32...150°F [0...66°C]
Max Differential Pressure (Water)	50 psid [345 kPa]
Max Differential Pressure (Steam) G6	50 psid [345 kPa]
Leakage	ANSI Class III
Max Inlet PSI (Water)	(G6) 280 psi [1930 kPa] @ 350°F (G7) 310 psi [2137 kPa] @ 300°F
Max Inlet Pressure (Steam) G6	100 psi [690 kPa]





ACTUATOR PART #	AVKB24-3	AVKB24-MFT	2*GKX24-MFT-X1
Control	On/Off, Floating Point	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	90 seconds	90 seconds (variable)	150 seconds (variable)
Running Time (Fail-Safe)	35 seconds	35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
G665CS-250	65	2½" [65]	ANSI 250	280	$6,816	$7,021	
G680CS-250	90	3" [80]		280	$7,920	$7,846	
G6100CS-250	170	4" [100]		280	$9,927	$10,144	
G6125CS-250	263	5" [125]		280	$13,659	$13,880	
G6150CS-250	344	6" [150]		280	$18,129	$18,318	
G6150CS-250	344			280			$19,432
3-WAY MIXING							
G765S-250	68	2½" [65]	ANSI 250	84	$5,452	$5,657	
G765S-250	68			149			$9,402
G780S-250	85	3" [80]		57	$5,890	$6,099	
G780S-250	85			102			$10,148
G7100S-250	190	4" [100]		41			$13,570
3-WAY DIVERTING							
G765DS-250	68	2½" [65]	ANSI 250	310	$12,824	$13,032	
G780DS-250	85	3" [80]		310	$14,617	$14,828	
G7100DS-250	154	4" [100]		310	$16,533	$16,742	

See page 16-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions.
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Belimo Globe Valves

Best in Class Internal Leakage

Belimo globe valve assemblies provide best in class, ANSI Class VI internal leakage rating. Designed for reliable and precise operation in steam and high pressure HVAC applications. Built-in field adjustability makes installation fast and easy.

Discover the advantages
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5
5-year warranty

BELIMO



17 BUTTERFLY VALVES

Advanced Technology for High Flow Applications

- Full range of actuators with NEMA 2 or 4X rated enclosures providing application flexibility and reliability.
- Innovative seat and disc design provide zero percent leakage capability at each valve's rated temperature/pressure while maintaining a low seating torque.
- Stainless steel disc and shaft are standard for superior durability and long-lasting operation.

Paul Tilkins, Assembler II

Butterfly Valve Nomenclature

F6	200	L	+PRB	UP	-3	-T	-200
Valve F6 = 2-way F7 = 3-way	**Valve Size** 50 = 2” 65 = 2½” 80 = 3” 100 = 4” 125 = 5” 150 = 6” 200 = 8” 250 = 10” 300 = 12” 350 = 14” 400 = 16” 450 = 18” 500 = 20” 600 = 24”	**Trim Material** **HD** = Stainless Disc, Ductile Iron Body, EPDM Liner, 0% Leakage to 200 psid (2...6”), 150 psid (14”+) **L** = Stainless Disc, Ductile Iron Body, EPDM Liner, 0% Leakage to 200 psid (8...12”) **HDU/LU** = Stainless Disc, Ductile Iron Body, EPDM Liner, 0% Leakage to 50 psid (3...10”) **VIC** = Ductile Iron Grooved End Body, Nickel Coated Ductile Iron Disc, 0% Leakage up to 200 psid **-150SHP** = ANSI Class 150, Stainless Disc, Steel Body, RPTFE Seat, 0% Leakage up to 285 psid **-300SHP** = ANSI Class 300, Stainless Disc, Steel Body, RPTFE Seat, 0% Leakage up to 600 psid	**Actuator Type** **Non Fail-Safe** ARB, ARX AMB, AMX GMB, GMX GRB, GRX GR/GM.. N4 DRB, DRX DR.. N4 PRB, PRX SY **Fail-Safe Electronic** GKB, GKX GK..N4 DKRB, DKRX DKR..N4 PKRB, PKRX **Spring Return** AFB, AFX AFRB, AFRX “X” models are customizable. Refer to page 17-10 for programming options.	**Power Supply** -24 = AC/DC 24 V -110 = AC 110/120 V -120 = AC 120 V -220 = AC 230 V UP = AC 24...240 V or DC 24...125 V	**Control** -3-X1 = On/Off, Floating Point -SR = Modulating Input = 2...10 V -MFT or -MFT-X1 = Multi-Function Technology	-S = Built-in Auxiliary Switch N4 = NEMA 4X -T = Terminal Block	-200 = 8” -250 = 10”

Ordering Example

1 Choose the valve actuator combination.

F6200L+PRBUP-3-T-200

2 Specify preference or configuration.

3 **For MFT orders only - select programming code (consult factory)**
Programming codes, refer to page 17-10.

NO

Tagging (if needed)

4 Does order require tagging?

Tagging:
Valves may be tagged per customer specification.
($15.00 per tag)

Example:
Chiller 1
3rd Floor East

Part number for tagging:
99981-00101

2-way Configuration

Non Fail-Safe	On/Off		No Set Up Required Field Logic Determines Normal Position
	Modulating	NC	(Normally Closed) 0.5 V/2 V/4 mA = Closed
		NO	(Normally Open) 0.5 V/2 V/4 mA = Open
Fail-Safe	On/Off	NO/FO	(Normally Open/Fail Open) Field Logic Determines Normal Position Valve Fails OPEN
		NC/FC	(Normally Closed/Fail Closed) Field Logic Determines Normal Position Valve Fails CLOSED
	Modulating	NO/FC	(Normally Open/Fail Closed) 0.5 V/2 V/4 mA = Open Valve Fails CLOSED
		NC/FO	(Normally Closed/Fail Open) 0.5 V/2 V/4 mA = Closed Valve Fails OPEN
		NO/FO	(Normally Open/Fail Open) 0.5 V/2 V/4 mA = Primary Valve Open Primary (Actuated) Valve Fails OPEN
		NC/FC	(Normally Closed/Fail Closed) 0.5 V/2 V/4 mA = Primary Valve Closed Primary (Actuated) Valve Fails CLOSED

Set-Up

3-way Configuration

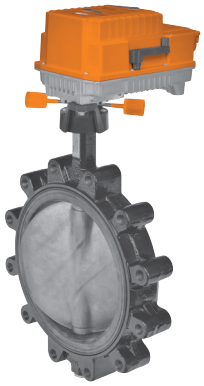
Non Fail-Safe	On/Off		Specify Flow Pattern [see pages 17-4, 17-5]	No Set Up Required Field Logic Determines Normal Position
	Modulating	NC		Primary (Actuated) Valve (Normally Closed) 0.5 V/2 V/4 mA = Closed
		NO		Primary (Actuated) Valve (Normally Open) 0.5 V/2 V/4 mA = Open
Fail-Safe	On/Off	NO/FO	Specify Flow Pattern [see pages 17-4, 17-5]	(Normally Open/Fail Open) Field Logic Determines Normal Position Primary (Actuated) Valve Fails OPEN
		NC/FC		(Normally Closed/Fail Closed) Field Logic Determines Normal Position Primary (Actuated) Valve Fails CLOSED
	Modulating	NO/FC		(Normally Open/Fail Closed) 0.5 V/2 V/4 mA = Primary Valve Open Primary (Actuated) Valve Fails CLOSED
		NC/FO		(Normally Closed/Fail Open) 0.5 V/2 V/4 mA = Primary Valve Closed Primary (Actuated) Valve Fails OPEN
		NO/FO		(Normally Open/Fail Open) 0.5 V/2 V/4 mA = Primary Valve Open Primary (Actuated) Valve Fails OPEN
		NC/FC		(Normally Closed/Fail Closed) 0.5 V/2 V/4 mA = Primary Valve Closed Primary (Actuated) Valve Fails CLOSED

5 Complete Ordering Example: F6200L+PRBUP-3-T-200
Configuration: NO
Programming: N/A

Resilient Seat Butterfly Valve Product Range

2-way					Suitable Actuators								
		Valve Nominal Size		Type	Non Fail-Safe					Fail-Safe			
										Spring Return	Electronic		
C_V 90°	C_V 60°	IN	DN [mm]	2-way	HDU LU	L	HD			HD	L	HD	
115	44	2	50	F650			AR	GR Series		AF Series			
196	75	2½	65	F665									
302	116	3	80	F680	AR GR							GK	
600	230	4	100	F6100	GR		DR		PR Series			DKR	PKR Series
1022	392	5	125	F6125									
1579	605	6	150	F6150	DR								
3136	1202	8	200	F6200	PR	PR					PKR		
5340	2047	10	250	F6250									
8250	3162	12	300	F6300									
11917	4568	14	350	F6350					SY Series (2 Year Warranty)				
16388	6282	16	400	F6400									
21705	8320	18	450	F6450									
27908	10698	20	500	F6500									
43116	16528	24	600	F6600									

3-way					Suitable Actuators							
		Valve Nominal Size		Type	Non Fail-Safe					Fail-Safe		
										Spring Return	Electronic	
C_V 90°	C_V 60°	IN	DN [mm]	3-way	HDU	L	HD			HD	L	HD
115	44	2	50	F750			AM	GM Series		AF		
196	75	2½	65	F765								GK Series
302	116	3	80	F780	GM Series							
600	230	4	100	F7100				PR Series				PKR Series
1022	392	5	125	F7125								
1579	605	6	150	F7150								
3136	1202	8	200	F7200		PR					PKR	
5340	2047	10	250	F7250								
8250	3162	12	300	F7300								
11917	4568	14	350	F7350					SY Series (2 Year Warranty)			
16388	6282	16	400	F7400								
21705	8320	18	450	F7450								



5-year warranty

MODE OF OPERATION

Butterfly valves are capable of handling higher flow rates with relatively low pressure loss. These valves may be used for isolation (shut-off) service or throttling service within a range of 0...60 degrees for two-way valves. Butterfly valves are controlled with a maintenance-free electronic actuator or manually with an ergonomic handle or gear operator.

PRODUCT FEATURES

The unique disc and seat design ensures positive valve seating while maintaining low seating torque.

ACTUATOR SPECIFICATIONS

Control type	on/off, floating point, modulating, 2...10 V, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft. [1 m] cable terminal block (-T models)
Communication (PR)	BACnet MS/TP, NFC, listed by BTL, Modbus

VALVE SPECIFICATIONS

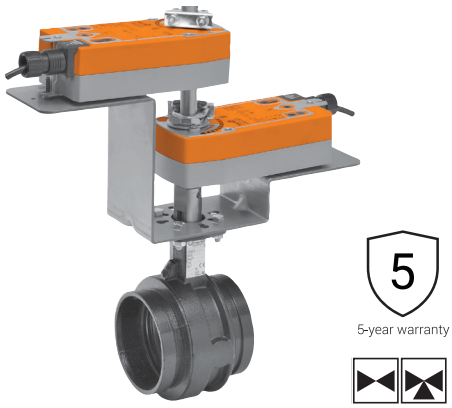
Fluid	chilled, hot water, up to 60% glycol max
Flow characteristic	F6 modified equal percentage F7 modified linear
Sizes	2...24"
End fitting	for ASME/ANSI Class 125/150 flanges
Materials	
Body	ductile iron ASTM A536
Body finish	polyester powder coat
Disc	304 stainless steel
Shaft	
HD series	420 stainless steel
L series	420 stainless steel
Seat	EPDM
O-rings	EPDM
Bushings	
HD series	RPTFE
L series	bronze, steel, PTFE
Body pressure rating	232 psi cold working pressure (CWP)
Fluid (water) temperature range	-22...+250°F [-30...+120°C]
Close-off pressure	
HDU, LU series	50 psid, 3...10"
HD series	200 psid, 2...6", 150 psid 14...24"
L series	200 psid, 8...12"
Maximum velocity	12 FPS
Leakage	0%

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Grooved Butterfly Valve Product Range

2-way					Suitable Actuators							
		Valve Nominal Size		Type	Non Fail-Safe				Fail-Safe			
									Spring Return	Electronic		
C_V 90°	C_V 60°	IN	DN [mm]	2-way	AM Series	GR Series	DR Series	PR Series	AF Series	GK Series	PKR Series	
115	36	2	50	F650VIC								
260	80	2½	65	F665VIC								
440	140	3	80	F680VIC								
820	250	4	100	F6100VIC								
1200	370	5	125	F6125VIC								
1800	560	6	150	F6150VIC								
3400	1050	8	200	F6200VIC								
5800	1800	10	250	F6250VIC								
9000	2790	12	300	F6300VIC				SY (2 Year Warranty)				

3-way					Suitable Actuators				
		Valve Nominal Size		Type	Non Fail-Safe			Fail-Safe	
								Spring Return	Electronic
C_V 90°	C_V 60°	IN	DN [mm]	3-way	GM Series	PR Series	SY Series (2 Year Warranty)	AF	GK Series	PKR Series
115	36	2	50	F750VIC						
260	80	2½	65	F765VIC						
440	140	3	80	F780VIC						
820	250	4	100	F7100VIC						
1200	370	5	125	F7125VIC						
1800	560	6	150	F7150VIC						
3400	1050	8	200	F7200VIC						
5800	1800	10	250	F7250VIC						
9000	2790	12	300	F7300VIC						



MODE OF OPERATION

Grooved butterfly valves are designed for body pressures ranging from full vacuum to 300 psi and for bi-directional, dead end services to full body pressure. The valve patented seat design ensures full 360° sealing. The pressure enhanced seat compresses to form a larger seating area as the pressure increases. Valve construction and performance meet and exceed MSS-SP-67 requirements.

PRODUCT FEATURES

The unique single offset disc and seat design ensures positive valve seating while maintaining low seating torque.

ACTUATOR SPECIFICATIONS

Control type	on/off, floating point, modulating, 2...10 V, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft. [1 m] cable terminal block (-T models)
Communication (PR)	BACnet MS/TP, NFC, (BTL certified), Modbus

VALVE SPECIFICATIONS

Fluid	chilled, hot water, up to 60% glycol max
Flow characteristic	F6 modified equal percentage F7 modified linear
Sizes	2...12"
End fitting	grooved ANSI/AWWA (C606)
Materials*	
Body	ductile iron ASTM A536, grade 65-45-12
Body finish	black powder coating
Disc	electroless nickel coated ductile iron
Shaft	416 stainless steel
Seat	EPDM
Bearings	fiberglass and 316 SS with TFE lining
Body pressure rating	300 psi
Fluid temperature range	-22...+230°F [-30...+110°C]
Close-off pressure	200 psid (for most combinations)
Maximum velocity	20 FPS
Leakage	0%

*VIC-300™ Masterseal™ is manufactured by the Victaulic Company.

Note: Valves rated for dead end service.

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High Performance Butterfly Valve Product Range



2-way Valves					Suitable Actuators									
		Valve Nominal Size	Type		Non Fail-Safe				Fail-Safe					
									Spring Return		Electronic			
C_V 90°	C_V 60°	IN	ANSI 150 2-way	ANSI 300 2-way	150		300		150	300	150		300	
102	56	2	F650-150SHP	F650-300SHP	GM Series	PR Series	GM Series	PR Series	AF Series	AF Series	GK Series	PKR Series	GK Series	PKR Series
146	80	2½	F665-150SHP	F665-300SHP										
228	125	3	F680-150SHP	F680-300SHP										
451	248	4	F6100-150SHP	F6100-300SHP										
714	392	5	F6125-150SHP	F6125-300SHP										
1103	607	6	F6150-150SHP	F6150-300SHP										
2064	1135	8	F6200-150SHP	F6200-300SHP		SY (2 Year Warranty)		SY (2 Year Warranty)						
3517	1934	10	F6250-150SHP	F6250-300SHP										
4837	2660	12	F6300-150SHP	F6300-300SHP										
6857	3592	14*	F6350-150SHP	F6350-300SHP										
9287	4865	16*	F6400-150SHP											
11400	6270	18*	F6450-150SHP											
14420	7590	20*	F6500-150SHP											
22050	11550	24*	F6600-150SHP											

Note: C_V values listed for ANSI Class 150 Butterfly Valves. Please consult the technical documentation for ANSI Class 300 C_V values and configurations.
*Call Customer Service at 1-800-543-9038 for product availability. Longer lead times may apply.

3-way Valves					Suitable Actuators							
		Valve Nominal Size	Type		Non Fail-Safe				Electronic Fail-Safe			
C_V 90°	C_V 60°	Inches	ANSI 150 3-way	ANSI 300 3-way	150		300		150		300	
102	56	2	F750-150SHP	F750-300SHP	GM Series	PR Series	GM Series	PR Series	GK Series	PK Series	GK Series	PK Series
146	80	2½	F765-150SHP	F765-300SHP								
228	125	3	F780-150SHP	F780-300SHP								
451	248	4	F7100-150SHP	F7100-300SHP								
714	392	5	F7125-150SHP	F7125-300SHP								
1103	607	6	F7150-150SHP	F7150-300SHP		SY Series (2 Year Warranty)		SY Series (2 Year Warranty)				
2064	1135	8	F7200-150SHP	F7200-300SHP								
3517	1934	10	F7250-150SHP	F7250-300SHP								
4837	2660	12	F7300-150SHP	F7300-300SHP								
6857	3592	14*	F7350-150SHP									

Note: C_V values listed for ANSI Class 150 Butterfly Valves. Please consult the technical documentation for ANSI Class 300 C_V values and configurations.
*Call Customer Service at 1-800-543-9038 for product availability. Longer lead times may apply.

MODE OF OPERATION

High performance butterfly valves are designed for modulating and isolation service and feature a machined seat design and blow out proof solid shaft, providing better torque consistency, which offers longer actuator life and reduced risk of leakage. Available for a variety of high temperature and pressure ratings i.e., ASME/ANSI Class 300 or 150. Valve sizes range from 2...24 inches, with rangeabilities of 100:1, 0% leakage ratings, and a maximum valve velocity of 32 FPS.

PRODUCT FEATURES

Unique body seat and double offset disc design ensures positive valve sealing to help assure leak free performance in water applications while maintaining low seating torque.

ACTUATOR SPECIFICATIONS

Control type	on/off, floating point, modulating, 2...10 V, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft. [1 m] cable terminal block (-T models)
Communication (PR)	BACnet MS/TP, NFC, (BTL certified), Modbus

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max, steam to 50 psi
Flow characteristic	F6 modified equal percentage, unidirectional F7 modified linear, unidirectional
Sizes	2...24"
End fitting	ASME/ANSI Class 150 or 300
Materials	
Body	carbon steel full lug
Disc	316 stainless steel
Shaft	17-4 PH stainless
Seat	RTFE
Gland Seal	TFE
Bearings	glass backed PTFE
Body pressure rating	150 SHP: ASME/ANSI Class 150 300 SHP: ASME/ANSI Class 300
Fluid temperature range	-22...+400°F [-30...+204°C]
Close-off pressure	150 SHP: 285 psid 300 SHP: 600 psid max.
Maximum velocity	32 FPS
Leakage	0%

Double Dead End Service: Utilizes larger retainer ring set screws to allow the valve to be placed at the end of the line without a down stream flange in either flow direction while still holding full pressure.

The SHP series are Flowseal® valves manufactured by the CRANE company.

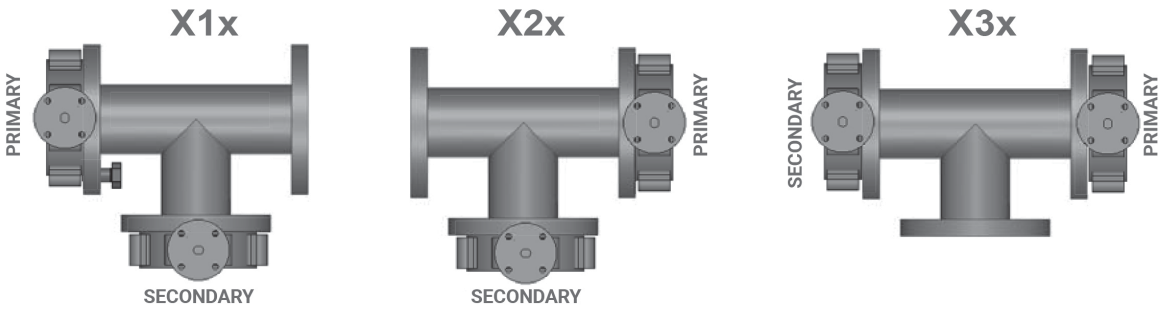
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Butterfly Valve Selection

HD, L, VIC Series Valves, 3-way Configuration

Actuators installed default over Primary Valve.

MIXING/DIVERTING



CONFIG CODE	ON/OFF OR MOD@2 VDC PRIMARY VALVE IS	PRIMARY VALVE @ FAIL
X10	OPEN	FAIL IN PLACE
X11	OPEN	OPEN
X12	OPEN	CLOSED
X13	CLOSED	FAIL IN PLACE
X14	CLOSED	OPEN
X15	CLOSED	CLOSED

CONFIG CODE	ON/OFF OR MOD@2 VDC PRIMARY VALVE IS	PRIMARY VALVE @ FAIL
X20	OPEN	FAIL IN PLACE
X21	OPEN	OPEN
X22	OPEN	CLOSED
X23	CLOSED	FAIL IN PLACE
X24	CLOSED	OPEN
X25	CLOSED	CLOSED

CONFIG CODE	ON/OFF OR MOD@2 VDC PRIMARY VALVE IS	PRIMARY VALVE @ FAIL
X30	OPEN	FAIL IN PLACE
X31	OPEN	OPEN
X32	OPEN	CLOSED
X33	CLOSED	FAIL IN PLACE
X34	CLOSED	OPEN
X35	CLOSED	CLOSED

X Specifies Bi-Directional Flow Capability

Notes:

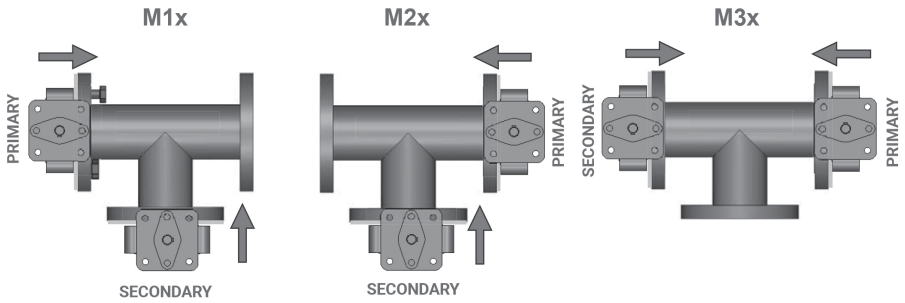
1. Secondary Valve operates inversely of the Primary Valve.
2. The Primary Valve is always located on the run.
3. The Secondary Valve may also have an actuator if required (Direct Coupled).
4. On/Off actuator normal position is a function of field logic.
5. Modulating actuator normal position (i.e., fully CW or fully CCW) is set by the direction control switch, PC-Tool or field programming via NFC app.
6. All 3-way assemblies are designed for 90 degree actuator rotation.

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SHP Series Valves are Flow Direction Specific.

MIXING

Actuators installed default over Primary Valve.



CONFIG CODE	ON/OFF OR MOD@2VDC PRIMARY VALVE IS	PRIMARY VALVE @ FAIL
M10	OPEN	FAIL IN PLACE
M11	OPEN	OPEN
M12	OPEN	CLOSED
M13	CLOSED	FAIL IN PLACE
M14	CLOSED	OPEN
M15	CLOSED	CLOSED

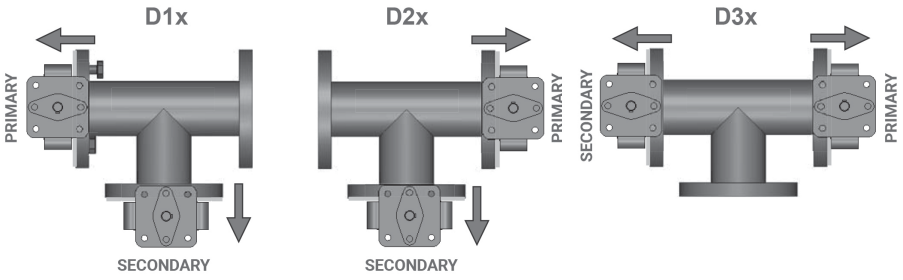
CONFIG CODE	ON/OFF OR MOD@2VDC PRIMARY VALVE IS	PRIMARY VALVE @ FAIL
M20	OPEN	FAIL IN PLACE
M21	OPEN	OPEN
M22	OPEN	CLOSED
M23	CLOSED	FAIL IN PLACE
M24	CLOSED	OPEN
M25	CLOSED	CLOSED

CONFIG CODE	ON/OFF OR MOD@2VDC PRIMARY VALVE IS	PRIMARY VALVE @ FAIL
M30	OPEN	FAIL IN PLACE
M31	OPEN	OPEN
M32	OPEN	CLOSED
M33	CLOSED	FAIL IN PLACE
M34	CLOSED	OPEN
M35	CLOSED	CLOSED

Notes:

1. Secondary Valve operates inversely of the Primary Valve.
2. The Primary Valve is always located on the run.
3. The Secondary Valve may also have an actuator if required (Direct Coupled).
4. On/Off actuator normal position is a function of field logic.
5. Modulating actuator normal position (i.e., fully CW or fully CCW) is set by the direction control switch or field programming via NFC app.
6. All 3-way assemblies are designed for 90 degree actuator rotation.

DIVERTING



CONFIG CODE	ON/OFF OR MOD@2VDC PRIMARY VALVE IS	PRIMARY VALVE @ FAIL
D10	OPEN	FAIL IN PLACE
D11	OPEN	OPEN
D12	OPEN	CLOSED
D13	CLOSED	FAIL IN PLACE
D14	CLOSED	OPEN
D15	CLOSED	CLOSED

CONFIG CODE	ON/OFF OR MOD@2VDC PRIMARY VALVE IS	PRIMARY VALVE @ FAIL
D20	OPEN	FAIL IN PLACE
D21	OPEN	OPEN
D22	OPEN	CLOSED
D23	CLOSED	FAIL IN PLACE
D24	CLOSED	OPEN
D25	CLOSED	CLOSED

CONFIG CODE	ON/OFF OR MOD@2VDC PRIMARY VALVE IS	PRIMARY VALVE @ FAIL
D30	OPEN	FAIL IN PLACE
D31	OPEN	OPEN
D32	OPEN	CLOSED
D33	CLOSED	FAIL IN PLACE
D34	CLOSED	OPEN
D35	CLOSED	CLOSED

Notes:

1. Secondary Valve operates inversely of the Primary Valve.
2. The Primary Valve is always located on the run.
3. The Secondary Valve may also have an actuator if required (Direct Coupled).
4. On/Off actuator normal position is a function of field logic.
5. Modulating actuator normal position (i.e., fully CW or fully CCW) is set by the direction control switch, PC-Tool or field programming via NFC app.
6. All 3-way assemblies are designed for 90 degree actuator rotation.

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Butterfly Valve Selection

Velocity Chart

Flow in Schedule 40 Pipe (Fluid Velocity in GPM). Use with HD/L Series Butterfly Valves.

VALVE	SIZE	2 FPS	4 FPS	6 FPS	8 FPS	10 FPS	12 FPS
HD	2"	19	39	59	78	98	118
HD	2½"	30	61	92	122	153	184
HD	3"	44	88	132	176	220	264
HD	4"	78	157	235	313	392	470
HD	5"	122	245	367	490	612	734
HD	6"	176	352	529	705	881	1058
L	8"	313	627	940	1253	1567	1880
L	10"	490	979	1469	1958	2448	2738
L	12"	705	1410	2115	2820	3525	4230
HD	14"	959	1919	2879	3838	4798	5758
HD	16"	1253	2507	3760	5013	6267	7520
HD	18"	1586	3173	4759	6345	7931	9518
HD	20"	1958	3917	5875	7834	9792	11750
HD	24"	2820	5640	8460	11280	14100	16921

It is not recommended to exceed 12 feet per second through resilient seat butterfly valves.
Velocities greater than 12 fps may damage the valve liner and disc. Torque may increase, potentially exceeding the actuator's capacity.

Flow in Schedule 40 Pipe (Fluid Velocity in GPM). Use with Grooved Series Butterfly Valves.

SIZE	1 FPS	3 FPS	5 FPS	8 FPS	10 FPS	12 FPS	15 FPS	16 FPS	20 FPS
2"	10	31	52	78	98	118	147	157	196
2½"	15	45	75	122	153	184	230	245	306
3"	23	69	115	176	220	264	330	353	441
4"	40	119	198	313	392	470	590	627	783
5"	62	187	312	490	612	734	920	979	1224
6"	90	270	450	705	881	1058	1321	1410	1763
8"	156	468	780	1253	1567	1880	2350	2507	3133
10"	246	737	1229	1958	2448	2738	3669	3917	4896
12"	353	1058	1763	2820	3525	4230	5288	5640	7050

It is not recommended to exceed 20 feet per second through grooved butterfly valves. Velocities greater than 20 fps may damage the valve.

SHP Flow in Schedule 40 Pipe (Fluid Velocity in GPM). Use with SHP Series Butterfly Valves.

SIZE	4 FPS	8 FPS	12 FPS	16 FPS	20 FPS	24 FPS	28 FPS	32 FPS
2"	39	78	118	157	196	235	274	313
2½"	61	122	184	245	306	367	428	490
3"	88	176	264	353	441	529	617	705
4"	157	313	470	627	783	940	1097	1253
5"	245	490	734	979	1224	1469	1714	1958
6"	352	705	1058	1410	1763	2115	2468	2820
8"	627	1253	1880	2507	3133	3760	4387	5013
10"	979	1958	2738	3917	4896	5875	6854	7834
12"	1410	2820	4230	5640	7050	8460	9870	11280
14"	1919	3838	5758	7677	9596	11515	13435	15354
16"	2507	5013	7520	10027	12534	15040	17547	20054
18"	3173	6345	9518	12690	15863	19036	22208	25381
20"	3917	7834	11750	15667	19584	23501	27418	31334
24"	5640	11280	16921	22561	28201	33841	39481	45121

It is not recommended to exceed 32 feet per second through high performance butterfly valves. Velocities greater than 32 fps may damage the valve.

Max GPM = Maximum US gallons of water (gpm) per minute, at room temperature that will flow through the fully 90° open valve without exceeding design velocity limits.

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				CONTROL TYPE				
SERIES	MODEL #	Power Supply	Duty Cycle	Modulating	3 Point	On/Off	Feedback	List Price
PR	PRBUP-3-T*	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%		•	•	none	$3,174
	PRXUP-3-T*	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%		•	•	none	$3,174
	PRBUP-MFT-T*	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%	•	•	•	2...10 V	$6,082
	PRXUP-MFT-T*	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%	•	•	•	2...10 V	$6,082
PKR	PKRXUP-MFT-T*	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%	•	•	•	2...10 V	$7,453
SY4	SY4-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$4,245
	SY4-24	AC/DC 24 V ±10%, 50/60 Hz	30%		•	•	none	$4,245
	SY4-220	AC 230 V ±10%, 50/60 Hz	30%		•	•	none	$4,245
	SY4-24MFT	AC/DC 24 V ±10%, 50/60 Hz	75%	•			2...10 V	$7,797
	SY4-120MFT	AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V	$7,797
	SY4-230MFT	AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V	$7,797
SY5	SY5-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$4,908
	SY5-24	AC/DC 24 V ±10%, 50/60 Hz	30%		•	•	none	$4,908
	SY5-24MFT	AC/DC 24 V ±10%, 50/60 Hz	75%	•			2...10 V	$8,490
	SY5-120MFT	AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V	$8,490
SY6	SY6-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$5,949
	SY6-120MFT	AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V	$9,589
SY7	SY7-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$7,141
	SY7-120MFT	AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V	$10,698
	SY7-230MFT	AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V	$10,698
SY8	SY8-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$9,883
	SY8-120MFT	AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V	$13,519
	SY8-230MFT	AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V	$13,519
SY9	SY9-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$12,233
	SY9-120MFT	AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V	$15,897
	SY9-230MFT	AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V	$15,897
SY10	SY10-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$12,839
	SY10-120MFT	AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V	$16,508
	SY10-230MFT	AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V	$16,508
SY11	SY11-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$17,087
	SY11-120MFT	AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V	$20,775
	SY11-230MFT	AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V	$20,775
SY12	SY12-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$19,875
	SY12-120MFT	AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V	$21,740
	SY12-230MFT	AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V	$21,740

Modulating actuators will accept 0.5...10 V, 2...10 V or 4-20 mA control signals as standard.
All SY actuators are non fail-safe, but can be used with back up systems for fail-safe applications.
Fail-safe options available with PKR.
SY products carry a two year warranty when sold as part of an assembly or with a UFLK retrofit kit

*-200 and -250 versions have the same ratings.

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Butterfly Valve Actuators

BELIMO

Power Supply AC/DC 24 V Single Phase

Model #	Torque	Current Draw (60 Hz)	VA (60 Hz)	Override
PRBUP-3-T*	1400 in-lb / 160 Nm	0.8 A	20	Manual override crank
PRXUP-3-T*	1400 in-lb / 160 Nm	0.8 A	20	Manual override crank
SY4-24	3540 in-lb / 400 Nm	9.4 A	226	Hand wheel
SY5-24	4430 in-lb / 500 Nm	8.9 A	214	Hand wheel

Power Supply AC 120 V Single Phase

Model #	Torque	Current Draw (60 Hz)	VA (60 Hz)	Override
PRBUP-3-T*	1400 in-lb / 160 Nm	0.2 A	23	Manual override crank
PRXUP-3-T*	1400 in-lb / 160 Nm	0.2 A	23	Manual override crank
SY4-110	3540 in-lb / 400 Nm	2.1 A	254	Hand wheel
SY5-110	4430 in-lb / 500 Nm	2 A	240	Hand wheel
SY6-110	5750 in-lb / 650 Nm	2.4 A	288	Hand wheel
SY7-110	8850 in-lb / 1000 Nm	4.2 A	504	Hand wheel
SY8-110	13280 in-lb / 1500 Nm	4.2 A	504	Hand wheel
SY9-110	17700 in-lb / 2000 Nm	3 A	360	Hand wheel
SY10-110	22130 in-lb / 2500 Nm	3.2 A	384	Hand wheel
SY11-110	26550 in-lb / 3000 Nm	3.6 A	432	Hand wheel
SY12-110	30980 in-lb / 3500 Nm	3.8 A	456	Hand wheel

Power Supply AC 230 V Single Phase

Model #	Torque	Current Draw (60 Hz)	VA (60 Hz)	Override
PRBUP-3-T*	1400 in-lb / 160 Nm	0.2 A	52	Manual override crank
PRXUP-3-T*	1400 in-lb / 160 Nm	0.2 A	52	Manual override crank
SY4-220	3540 in-lb / 400 Nm	1.1 A	253	Hand wheel

*-200 and -250 versions have the same ratings.

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Power Supply AC/DC 24 V Single Phase

Model #	Torque	Current Draw (60 Hz)	VA (60 Hz)	Override
PRBUP-MFT-T*	1400 in-lb / 160 Nm	0.9 A	20	Manual override crank
PRXUP-MFT-T*	1400 in-lb / 160 Nm	0.9 A	20	Manual override crank
PKRXUP-MFT-T*	1400 in-lb / 160 Nm	2.2 A	55	Manual override crank
SY4-24MFT	3540 in-lb / 400 Nm	9.4 A	226	Hand wheel
SY5-24MFT	4430 in-lb / 500 Nm	8.9 A	214	Hand wheel

Power Supply AC 120 V Single Phase

Model #	Torque	Current Draw (60 Hz)	VA (60 Hz)	Override
PRBUP-MFT-T*	1400 in-lb / 160 Nm	0.2 A	23	Manual override crank
PRXUP-MFT-T*	1400 in-lb / 160 Nm	0.2 A	23	Manual override crank
PKRXUP-MFT-T*	1400 in-lb / 160 Nm	0.3 A	43	Manual override crank
SY4-120MFT	3540 in-lb / 400 Nm	2.1 A	252	Hand wheel
SY5-120MFT	4430 in-lb / 500 Nm	1.9 A	228	Hand wheel
SY6-120MFT	5750 in-lb / 650 Nm	2 A	240	Hand wheel
SY7-120MFT	8850 in-lb / 1000 Nm	2 A	240	Hand wheel
SY8-120MFT	13280 in-lb / 1500 Nm	2.8 A	336	Hand wheel
SY9-120MFT	17700 in-lb / 2000 Nm	2.7 A	324	Hand wheel
SY10-120MFT	22130 in-lb / 2500 Nm	3 A	360	Hand wheel
SY11-120MFT	26550 in-lb / 3000 Nm	4.3 A	516	Hand wheel
SY12-120MFT	30980 in-lb / 3500 Nm	4.5 A	540	Hand wheel

Power Supply AC 230 V Single Phase

Model #	Torque	Current Draw (60 Hz)	VA (60 Hz)	Override
PRBUP-MFT-T*	1400 in-lb / 160 Nm	0.1 A	52	Manual override crank
PRXUP-MFT-T*	1400 in-lb / 160 Nm	0.1 A	52	Manual override crank
PKRXUP-MFT-T*	1400 in-lb / 160 Nm	0.2 A	68	Manual override crank
SY4-230MFT	3540 in-lb / 400 Nm	1.1 A	253	Hand wheel
SY7-230MFT	8850 in-lb / 1000 Nm	1.2 A	276	Hand wheel
SY9-230MFT	17700 in-lb / 2000 Nm	1.1 A	253	Hand wheel
SY12-230MFT	30980 in-lb / 3500 Nm	2.5 A	575	Hand wheel

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*-200 and -250 versions have the same ratings.

Customize Products

Default and MFT Programming Codes

ACTUATOR TYPE		CONFIGURATION DESCRIPTION	CODE	CONTROL: CONTROL INPUT	CONTROL: FEEDBACK POSITION	RUNNING TIME**	LIST PRICE
Standard Actuator Series: AR, AM, GR, GM,GKR, AFR, AF, DKR	-MFT		A01*	2...10 V	2...10 V	150 seconds	No Charge
			A02	0.5...10 V	0.5...10 V	150 seconds	No Charge
			A03	2...10 V	0.5...10 V	150 seconds	No Charge
			A19	2...10 V	2...10 V	100 seconds	No Charge
			A28	0.5...10 V	0.5...10 V	100 seconds	No Charge
			A63	0.5...4.5 V	0.5...4.5 V	150 seconds	No Charge
			A64	5.5...10 V	5.5...10 V	150 seconds	No Charge
			F01	Floating Point	2...10 V	150 seconds	No Charge
			J02	On/Off, Floating Point	2...10 V	150 seconds	No Charge
PR Series	-3, -T	NC	L11	On/Off, Floating Point	N/A	35 seconds	No Charge
		NC	L12	On/Off, Floating Point	N/A	60 seconds	No Charge
		NO	L15	On/Off, Floating Point	N/A	35 seconds	No Charge
		NO	L16	On/Off, Floating Point	N/A	60 seconds	No Charge
	-MFT	NC	L05*	2...10 V	2...10 V	35 seconds	No Charge
		NC	L06	2...10 V	2...10 V	60 seconds	No Charge
		NC	L09	0.5...10 V	0.5...10 V	35 seconds	No Charge
		NC	L0A	0.5...10 V	0.5...10 V	60 seconds	No Charge
		NC	L0D	4...20 mA	2...10 V	35 seconds	No Charge
		NC	L0E	4...20 mA	2...10 V	60 seconds	No Charge
		NO	L0H	2...10 V	2...10 V	35 seconds	No Charge
		NO	L0J	2...10 V	2...10 V	60 seconds	No Charge
		NO	L0M	0.5...10 V	0.5...10 V	35 seconds	No Charge
		NO	L0R	4...20 mA	2...10 V	35 seconds	No Charge
PKR Series		NC-FC	L21	On/Off, Floating Point	2...10 V	35 seconds	No Charge
		NC-FO	L25	On/Off, Floating Point	2...10 V	35 seconds	No Charge
		NO-FC	L29	On/Off, Floating Point	2...10 V	35 seconds	No Charge
		NO-FO	L2D	On/Off, Floating Point	2...10 V	35 seconds	No Charge
		NC-FC	L31*	2...10 V	2...10 V	35 seconds	No Charge
		NC-FO	L35	2...10 V	2...10 V	35 seconds	No Charge
		NO-FC	L39	2...10 V	2...10 V	35 seconds	No Charge
		NO-FO	L3D	2...10 V	2...10 V	35 seconds	No Charge
		NC-FC	L41	0.5...10 V	0.5...10 V	35 seconds	No Charge
		NC-FO	L45	0.5...10 V	0.5...10 V	35 seconds	No Charge
		NO-FC	L49	0.5...10 V	0.5...10 V	35 seconds	No Charge
		NO-FO	L4D	0.5...10 V	0.5...10 V	35 seconds	No Charge
		NC-FC	L51	4...20 mA	2...10 V	35 seconds	No Charge
		NC-FO	L55	4...20 mA	2...10 V	35 seconds	No Charge
		NO-FC	L59	4...20 mA	2...10 V	35 seconds	No Charge
		NO-FO	L5D	4...20 mA	2...10 V	35 seconds	No Charge
		NO-FO	L5E	4...20 mA	2...10 V	60 seconds	No Charge
SY Series	-MFT	Loss of Signal Stop	ACE*	2...10 V	2...10 V	Varies by model	No Charge
		Loss of Signal Stop	ACF	0.5...10 V	0.5...10 V	Varies by model	No Charge
		Loss of Signal Stop	ACG	4...20 mA	4...20 mA	Varies by model	No Charge
		Loss of Signal Open	ACJ	2...10 V	2...10 V	Varies by model	No Charge
		Loss of Signal Open	ACK	0.5...10 V	0.5...10 V	Varies by model	No Charge
		Loss of Signal Open	ACL	4...20 mA	4...20 mA	Varies by model	No Charge
		Loss of Signal Close	ACN	2...10 V	2...10 V	Varies by model	No Charge
		Loss of Signal Close	ACP	0.5...10 V	0.5...10 V	Varies by model	No Charge
		Loss of Signal Close	ACR	4...20 mA	4...20 mA	Varies by model	No Charge

*Default configuration
**Additional running times available upon request

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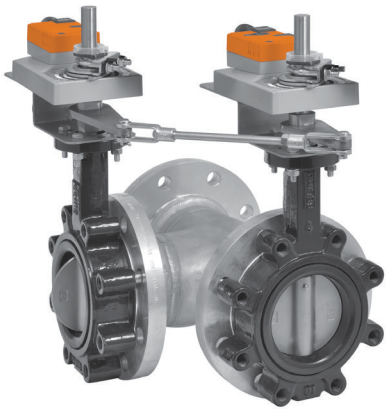
F6/F7 HD and HDU Series Butterfly Valves with Non Fail-Safe Actuators

2-way and 3-way Valves, Undercut and Full Rated Disc

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	for use with ANSI Class 125/150 flanges
Body	ductile iron ASTM A536
Body Finish	polyester powder coated
Disc	304 stainless steel
Shaft	420 stainless steel
Seat	EPDM
O-ring	EPDM
Bushings	RPTFE
Fluid Temperature Range (Water)	-22...+250°F [-30...+120°C]
Maximum Velocity	12 FPS





5-year warranty

ACTUATOR PART #	ARX24-3	ARX24-MFT	GRX24-3	GRCX120-3	GRX24-MFT	DRCX24-3-T	DRCX120-3	DRX24-MFT-T
Control	On/Off, Floating Point	Modulating/ MFT	On/Off, Floating Point	On/Off, Floating Point	Modulating/ MFT	On/Off or Floating Point*	On/Off, Floating Point	Modulating/ MFT
Manual Override	•	•	•	•	•	•	•	•
Running Time (Motor)	90 seconds	150 seconds (variable)	150 seconds	35 seconds	150 seconds (variable)	35 seconds	35 seconds	150 seconds (variable)
Electrical Connection	3 ft, 18 GA appliance rated cable with ½" conduit connector	3 ft, 18 GA appliance rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA appliance rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	terminal block	3 ft, 18 GA appliance rated cable with ½" conduit connector	terminal block

*Must select On/Off OR Floating Point at time of ordering, not field changeable.

2-WAY UNDERCUT DISC

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]							
F680HDU	302	116	3" [80]	232 psi CWP	50	$1,018	$1,229					
F6100HDU	600	230	4" [100]		50			$1,323	$1,304	$1,451		
F6125HDU	1022	392	5" [125]		50			$1,469	$1,467	$1,595		
F6150HDU	1579	605	6" [125]		50						$2,160	$2,131	$2,440

2-WAY FULL RATED DISC

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]							
F650HD	115	44	2" [50]	232 psi CWP	200	$914	$1,108		$972			
F665HD	196	75	2½" [65]		200	$954	$1,155		$1,011			
F680HD	302	116	3" [80]		200			$1,147	$1,204	$1,297		
F6100HD	600	230	4" [100]		200						$1,578	$1,583	$1,776
F6125HD	1022	392	5" [125]		200						$1,706	$1,782	$1,902

ACTUATOR PART #	AMB24-3-X1	AMX24-MFT-X1	GMB24-3-X1	GMCX120-SR-T-X1	GMB24-MFT-X1	2*GMX24-MFT-X1
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	90 seconds	150 seconds (variable)	150 seconds	35 seconds	150 seconds (variable)	150 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	terminal block	3 ft, 18 GA plenum rated cable with ½" conduit connector	18 GA applicance rated cable with ½" conduit connector

3-WAY MIXING/DIVERTING UNDERCUT DISC

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
F780HDU	302	116	3" [80]	232 psi CWP	50			$2,386	$2,535	$2,682	
F7100HDU	600	230	4" [100]		50						$3,976
F7125HDU	1022	392	5" [125]		50						$4,340
F7150HDU	1579	605	6" [125]		50						$4,466

3-WAY MIXING/DIVERTING FULL RATED DISC

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
F750HD	115	44	2" [50]	232 psi CWP	200	$1,920	$2,179				
F765HD	196	75	2½" [65]		200			$2,316	$2,596	$2,622	
F780HD	302	116	3" [80]		200						$3,572

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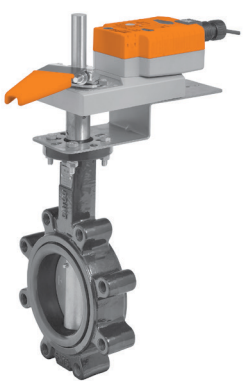
F6/F7 HD Series Butterfly Valves with Fail-Safe Actuators

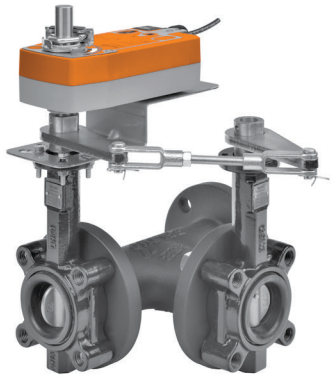
2-way and 3-way Valves, Standard (Full Rated) Disc

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	for use with ANSI Class 125/150 flanges
Body	ductile iron ASTM A536
Body Finish	polyester powder coated
Disc	304 stainless steel
Shaft	420 stainless steel
Seat	EPDM
O-ring	EPDM
Bushings	RPTFE
Fluid Temperature Range (Water)	-22...+250°F [-30...+120°C]
Maximum Velocity	12 FPS





5-year warranty

ACTUATOR PART #	AFRXUP	AFRX24-MFT	GKX24-MFT-X1	DKRX24-3-T	DKRX24-MFT-T
Control	On/Off	Modulating/MFT	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•
Running Time (Motor)	<75 seconds	150 seconds (variable)	150 seconds (variable)	150 seconds (variable)	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	35 seconds	35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA appliance cables with ½" conduit connector	18 GA applicance rated cable with ½" conduit connector	18 GA applicance rated cable with ½" conduit connector	terminal block	terminal block

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]					
F650HD	115	44	2" [50]	232 psi CWP	200	$1,310	$1,428			
F665HD	196	75	2½" [65]		200	$1,345	$1,605			
F680HD	302	116	3" [80]		200			$2,711	$1,828	
F6100HD	600	230	4" [100]		200				$2,074	$2,861
F6125HD	1200	370	5" [125]		200				$3,046	$3,583

ACTUATOR PART #	AFBUP-X1	AFX24-MFT-X1	GKX24-MFT-X1	2*GKX24-MFT-X1
Control	On/Off	Modulating/MFT	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	<75 seconds	150 seconds (variable)	150 seconds (variable)	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA appliance cable, with ½" conduit connector	18 GA applicance rated cable with ½" conduit connector	18 GA appliance rated cable with ½" conduit connector protected	18 GA appliance rated cable with ½" conduit connector

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
F750HD	115	44	2" [50]	232 psi CWP	200	$2,259	$2,643		
F765HD	196	75	2½" [65]		200			$3,836	
F780HD	302	116	3" [80]		200				$4,979

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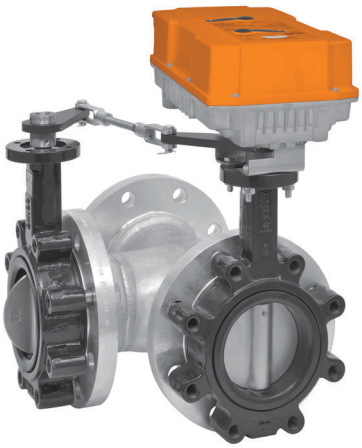
F6/F7 HD, HDU, and L Series Butterfly Valves with NEMA 4X Non Fail-Safe Actuators

2-way and 3-way Valves, Undercut and Full Rated Disc

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	modified equal percentage
End Fitting	for use with ANSI Class 125/150 flanges
Body	ductile iron ASTM A536
Body Finish	polyester powder coated
Disc	304 stainless steel
Shaft	
HD Series	420 stainless steel
L Series	420 stainless steel
Seat	EPDM
O-ring	EPDM
Bushings	
HD Series	RPTFE
L Series	bronze, steel, PTFE
Fluid Temperature Range (Water)	-22...+250°F [-30...+120°C]
Maximum Velocity	12 FPS





5-year warranty

ACTUATOR PART #	GRCX24-3-T N4❖	GRX24-MFT-T N4❖	DRCX24-3-T N4❖	DRX24-MFT-T N4❖	PRBUP-3-T-200	PRBUP-3-T-250	PRBUP-MFT-T-200	PRBUP-MFT-T-250
Control	On/Off or Floating Point*	Modulating/ MFT	On/Off or Floating Point*	Modulating/ MFT	On/Off, Floating Point	On/Off, Floating Point	Modulating/ MFT	Modulating/ MFT
Manual Override	•	•	•	•	•	•	•	•
Running Time (Motor)	35 seconds	150 seconds (variable)	35 seconds	150 seconds (variable)	35 seconds (default)	35 seconds (default)	35 seconds (default)	35 seconds (default)
(2) Temperature Sensor Inputs							•	•
Default Set Up**							2...10 V NC	2...10 V NC
Electrical Connection	terminal block	terminal block	terminal block	terminal block	terminal block	terminal block	terminal block	terminal block

*Must select On/Off OR Floating Point at time of ordering, not field changeable.

**Field selectable with Belimo Assistant app.

❖Heater option for NEMA 4X products has a list price adder of $600. Please specify when ordering.

2-WAY UNDERCUT DISC

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]							
F680HDU	302	116	3" [80]	232 psi CWP	50	$2,242	$2,396					
F6100HDU	600	230	4" [100]		50	$2,366	$2,520					
F6125HDU	1022	392	5" [125]		50	$2,462	$2,614					
F6150HDU	1579	605	6" [125]		50			$3,609	$3,896			
F6200LU	3136	1202	8" [200]		50					$5,181		$7,063	
F6250LU	5340	2047	10" [250]		50						$6,602		$9,484

ACTUATOR PART #	PRBUP-3-T	PRBUP-3-T-200	PRBUP-3-T-250	PRBUP-MFT-T	PRBUP-MFT-T-200	PRBUP-MFT-T-250
Control	On/Off, Floating Point	On/Off, Floating Point	On/Off, Floating Point	Modulating/MFT	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable
(2) Temperature Sensor Inputs				•	•	•
Default Set Up**				2...10 V NC	2...10 V NC	2...10 V NC
Electrical Connection	terminal block	terminal block	terminal block	terminal block	terminal block	terminal block

**Field selectable with Belimo Assistant app.

2-WAY FULL RATED DISC

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
F6100HD	600	230	4" [100]	232 psi CWP	200	$3,393			$5,210		
F6125HD	1022	392	5" [125]		200	$4,289			$6,118		
F6150HD	1579	605	6" [150]		200	$4,460			$6,261		
F6200L	3136	1202	8" [200]		200		$6,444			$8,302	
F6250L	5340	2047	10" [250]		200			$7,909			$9,689
F6300L	8250	3162	12" [300]		200	$10,172			$12,282		

3-WAY MIXING/DIVERTING FULL RATED DISC

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
F7100HD	600	230	4" [100]	232 psi CWP	200	$7,019			$8,749		
F7125HD	1022	392	5" [125]		200	$7,324			$9,240		
F7150HD	1579	605	6" [150]		200	$8,368			$10,112		
F7200L	3136	1202	8" [200]		200		$9,815			$11,735	
F7250L	5340	2047	10" [250]		200			$13,196			$14,946
F7300L	8250	3162	12" [300]		200	$16,636			$18,428		

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All prices are in US Dollars (USD)

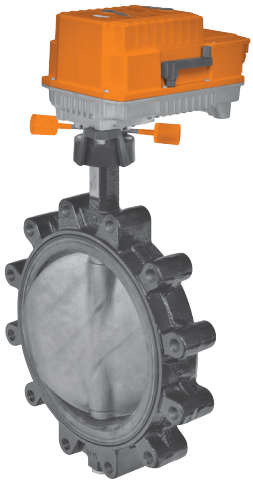
F6/F7 HD and L Series Butterfly Valves with NEMA 4X Electronic Fail-Safe Actuators

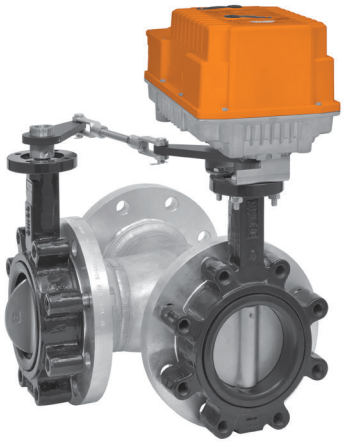
2-way and 3-way Valves, Standard (Full Rated) Disc

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	modified linear
End Fitting	for use with ANSI Class 125/150 flanges
Body	ductile iron ASTM A536
Body Finish	polyester powder coated
Disc	304 stainless steel
Shaft	
HD Series	420 stainless steel
L Series	420 stainless steel
Seat	EPDM
O-ring	EPDM
Bushings	
HD Series	RPTFE
L Series	bronze, steel, PTFE
Fluid Temperature Range (Water)	-22...+250°F [-30...+120°C]
Maximum Velocity	12 FPS





5-year warranty

ACTUATOR PART #	PKRXUP-MFT-T	PKRXUP-MFT-T-200	PKRXUP-MFT-T-250
Control	Modulating/MFT	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable
Running Time (Fail-Safe)	30 seconds	30 seconds	30 seconds
(2) Temperature Sensor Inputs	•	•	•
BACnet Communication	•	•	•
Electrical Connection	terminal block	terminal block	terminal block

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
F6100HD	600	230	4" [100]	232 psi CWP	200	$6,661		
F6125HD	1022	392	5" [125]		200	$7,587		
F6150HD	1579	605	6" [150]		200	$7,736		
F6200L	3136	1202	8" [200]		200		$9,828	
F6250L	5340	2047	10" [250]		200			$11,248
F6300L	8250	3162	12" [300]		200	$13,493		

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
F7100HD	600	230	4" [100]	232 psi CWP	200	$10,280		
F7125HD	1022	392	5" [125]		200	$10,781		
F7150HD	1579	605	6" [150]		200	$11,671		
F7200L	3136	1202	8" [200]		200		$13,349	
F7250L	5340	2047	10" [250]		200			$16,631
F7300L	8250	3162	12" [300]		200	$18,949		

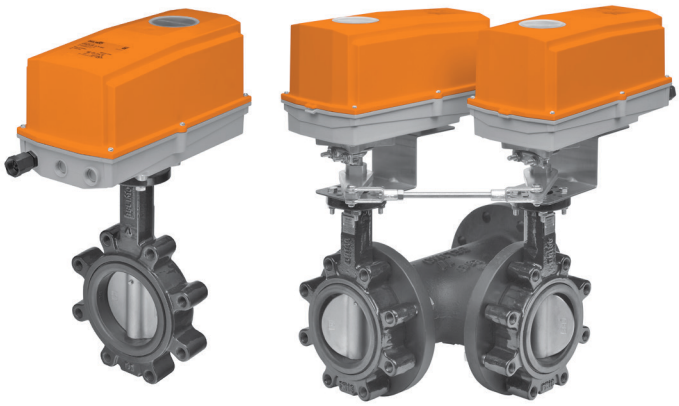
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F6/F7 HD Series Butterfly Valves with NEMA 4X Non Fail-Safe Actuators

2-way and 3-way Valves, Standard (Full Rated) Disc

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	for use with ANSI Class 125/150 flanges
Body	ductile iron ASTM A536
Body Finish	polyester powder coated
Disc	304 stainless steel
Shaft	420 stainless steel
Seat	EPDM
O-ring	EPDM
Bushings	RPTFE
Fluid Temperature Range (Water)	-22...+250°F [-30...+120°C]
Maximum Velocity	12 FPS



5-year warranty

ACTUATOR PART #						GRCX24-3-T N4❖	GRCX120-3 N4❖	GRCX120-SR-T N4❖	GRCX24-MFT-T N4❖
Control						On/Off or Floating Point*	On/Off, Floating Point	Modulating	Modulating/MFT
Manual Override						•	•	•	•
Running Time (Motor)						35 seconds	35 seconds	35 seconds	35 seconds (variable)
Electrical Connection						terminal block	3 ft, 18 GA appliance cables with ½" conduit connector	terminal block	terminal block
2-WAY									
Model #	**Cv 90°**	**Cv 60°**	**Size [mm]**	**Body Pressure Rating**	**Close-Off Pressure [psid]**				
F650HD	115	44	2" [50]	232 psi CWP	200	$1,974	$2,021	$2,241	$2,457
F665HD	196	75	2½" [65]		200	$2,258	$2,306	$2,525	$2,744
F680HD	302	116	3" [80]		200	$2,317	$2,362	$2,561	$2,807

ACTUATOR PART #						DRCX24-3-T N4❖	DRCX120-3 N4❖	DRCX24-MFT-T N4❖	DRX24-MFT-T N4❖
Control						On/Off or Floating Point*	On/Off, Floating Point	Modulating/MFT	Modulating/MFT
Manual Override						•	•	•	•
Running Time (Motor)						35 seconds	35 seconds	35 seconds (variable)	150 seconds (variable)
Electrical Connection						terminal block	3 ft, 18 GA appliance cables with ½" conduit connector	terminal block	terminal block
2-WAY									
Model #	**Cv 90°**	**Cv 60°**	**Size [mm]**	**Body Pressure Rating**	**Close-Off Pressure [psid]**				
F6100HD	600	230	4" [100]	232 psi CWP	200	$3,488	$3,524	$3,746	$3,746
F6125HD	1200	370	5" [125]		200	$3,652	$3,778	$3,910	$3,910

ACTUATOR PART #						GMCX24-3-T-X1 N4❖	GMX24-MFT-T-X1 N4❖	2*GMCX24-3-T-X1 N4❖	2*GMX24-MFT-T-X1 N4❖
Control						On/Off or Floating Point*	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override						•	•	•	•
Running Time (Motor)						35 seconds	150 seconds (variable)	35 seconds	150 seconds (variable)
Electrical Connection						terminal block	terminal block	terminal block	terminal block
3-WAY MIXING/DIVERTING									
Model #	**Cv 90°**	**Cv 60°**	**Size [mm]**	**Body Pressure Rating**	**Close-Off Pressure [psid]**				
F750HD	115	44	2" [50]	232 psi CWP	200	$3,013	$3,455		
F765HD	196	75	2½" [65]		200	$3,453	$3,941		
F780HD	302	116	3" [80]		200			$5,239	$6,214

❖Heater option for NEMA 4X products has a list price adder of $600. Please specify when ordering.

*Must select On/Off OR Floating Point at time of ordering, not field changeable.

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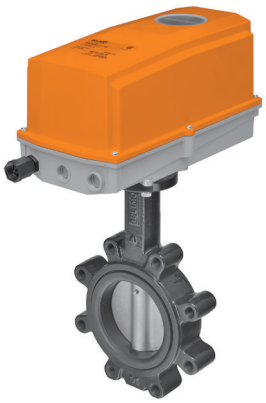
F6 HD Series Butterfly Valves with NEMA 4X Fail-Safe Actuators

2-way Valves, Standard (Full Rated) Disc

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	modified equal percentage
End Fitting	for use with ANSI Class 125/150 flanges
Body	ductile iron ASTM A536
Body Finish	polyester powder coated
Disc	304 stainless steel
Shaft	420 stainless steel
Seat	EPDM
O-ring	EPDM
Bushings	RPTFE
Fluid Temperature Range (Water)	-22...+250°F [-30...+120°C]
Maximum Velocity	12 FPS



5-year warranty

ACTUATOR PART #	AFRXUP N4❖	AFRX24-MFT N4❖	GKRX24-3 N4❖	GKRX24-MFT N4❖
Control	On/Off	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	75 seconds	150 seconds (variable)	150 seconds (variable)	150 seconds (variable)
Running Time (Fail-Safe)	<20 seconds	<20 seconds	35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA appliance cables with ½" conduit connectors	18 GA applicance rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
F650HD	115	44	2" [50]	232 psi CWP	200	$2,077	$2,367		
F665HD	196	75	2½" [65]		200	$2,361	$2,711		
F680HD	302	116	3" [80]		200			$3,950	$4,563

ACTUATOR PART #	DKRX24-3-T N4❖	DKRX24-MFT-T N4❖
Control	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•
Running Time (Motor)	150 seconds (variable)	150 seconds (variable)
Running Time (Fail-Safe)	35 seconds	35 seconds
Electrical Connection	terminal block	terminal block

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]		
F6100HD	600	230	4" [100]	232 psi CWP	200	$3,700	$4,247
F6125HD	1200	370	5" [125]		200	$3,844	$4,392

❖Heater option for NEMA 4X products has a list price adder of $600. Please specify when ordering.

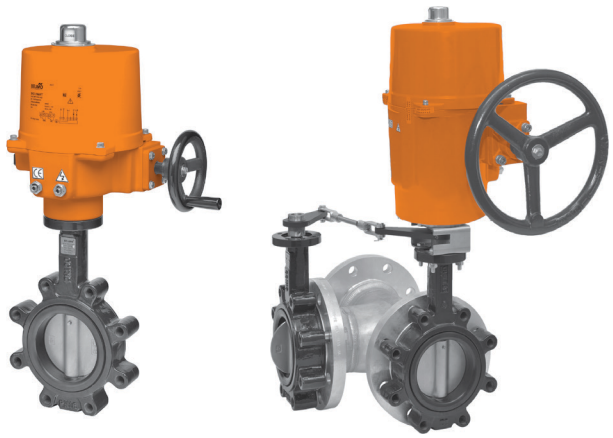
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F6/F7 HD Series Butterfly Valves with NEMA 4X Non Fail-Safe Actuators

2-way and 3-way Valves, Standard (Full Rated) Disc

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	for use with ANSI Class 125/150 flanges
Body	ductile iron ASTM A536
Body Finish	polyester powder coated
Disc	304 stainless steel
Shaft	420 stainless steel
Seat	EPDM
O-ring	EPDM
Bushings	RPTFE
Fluid Temperature Range (Water)	-22...+250°F [-30...+120°C]
Maximum Velocity	12 FPS



2-year warranty

ACTUATOR PART #	SY5-24, SY5-110	SY5-24MFT, SY5-120MFT	SY7-110	SY7-120MFT, SY7-230MFT	SY8-110	SY8-120MFT, SY8-230MFT
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	26 seconds	26, 28 seconds	50 seconds	59, 59 seconds	51 seconds	79 seconds
Electrical Connection	terminal block	terminal block	terminal block	terminal block	terminal block	terminal block

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]					
F6350HD	11917	4568	14" [350]	232 psi CWP	150	$11,621	$15,788				
F6400HD	16388	6282	16" [400]		150			$16,022	$17,827		
F6450HD	21705	8320	18" [450]		150					$19,587	$21,782
F6500HD	27908	10698	20" [500]		150					$23,660	$26,348

ACTUATOR PART #	SY6-110	SY6-120MFT	SY8-110	SY8-120MFT, SY8-230MFT
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	34 seconds	38 seconds	51 seconds	79, 79 seconds
Electrical Connection	terminal block	terminal block	terminal block	terminal block

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
F7350HD	11917	4568	14" [350]	232 psi CWP	150	$28,256	$30,040		
F7400HD	16388	6282	16" [400]		150			$31,747	$33,206

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F6/F7 HD Series Butterfly Valves with NEMA 4X Non Fail-Safe Actuators

2-way and 3-way Valves, Standard (Full Rated) Disc

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	for use with ANSI Class 125/150 flanges
Body	ductile iron ASTM A536
Body Finish	polyester powder coated
Disc	304 stainless steel
Shaft	420 stainless steel
Seat	EPDM
O-ring	EPDM
Bushings	RPTFE
Fluid Temperature Range (Water)	-22...+250°F [-30...+120°C]
Maximum Velocity	12 FPS



2-year warranty

ACTUATOR PART #						SY11-110	SY11-120MFT, SY11-230MFT
Control						On/Off, Floating Point	Modulating/MFT
Manual Override						•	•
Running Time (Motor)						62 seconds	71, 61 seconds
Electrical Connection						terminal block	terminal block
2-WAY							
Model #	**Cv 90°**	**Cv 60°**	**Size [mm]**	**Body Pressure Rating**	**Close-Off Pressure [psid]**		
F6600HD	43116	16528	24" [600]	232 psi CWP	150	$39,094	$42,619

ACTUATOR PART #						SY8-110	SY8-120MFT, SY8-230MFT
Control						On/Off, Floating Point	Modulating/MFT
Manual Override						•	•
Running Time (Motor)						51 seconds	79 seconds
Electrical Connection						terminal block	terminal block
3-WAY MIXING/DIVERTING							
Model #	**Cv 90°**	**Cv 60°**	**Size [mm]**	**Body Pressure Rating**	**Close-Off Pressure [psid]**		
F7450HD	21705	8320	18" [450]	232 psi CWP	150	$50,371	$55,079

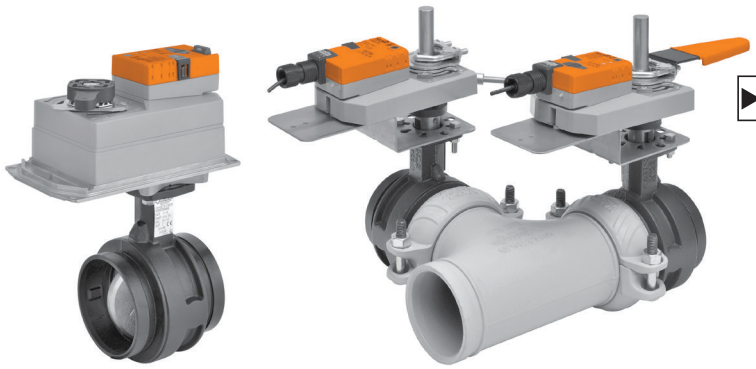
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F6/F7 Grooved Series Butterfly Valves with Non Fail-Safe Actuators

2-way and 3-way Valves, Grooved End Body

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	grooved ANSI\AWWA (C606)
Body	ductile iron ASTM A536 grade 65-45-12
Body Finish	black powder coating
Disc	electroless nickel coated ductile iron
Shaft	416 stainless steel
Seat	EPDM
Fluid Temperature Range (Water)	-22...+230°F [-30...+110°C]
Maximum Velocity	20 FPS



5-year warranty

ACTUATOR PART #	AMB24-3-X1	AMX24-MFT-X1	GRCX24-3-T	GRCX120-SR-T	GRCX24-MFT-T	DRCX24-3-T	DRX24-MFT-T
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point*	Modulating	Modulating/MFT	On/Off or Floating Point*	Modulating/MFT
Manual Override	•	•	•	•	•	•	•
Running Time (Motor)	90 seconds	150 seconds (variable)	35 seconds	35 seconds	35 seconds (variable)	35 seconds	150 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	terminal block	terminal block	terminal block	terminal block	terminal block

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
F650VIC	115	36	2" [50]	300	200	$2,149	$2,401				
F665VIC	260	80	2½" [65]		200	$2,601	$2,854				
F665VIC	260	80	2½" [65]		200			$2,742	$2,807	$2,872	
F680VIC	440	140	3" [80]		200			$2,870	$2,938	$3,002	
F6100VIC	820	250	4" [100]		200						$4,664	$4,861
F6125VIC	1200	370	5" [125]		200						$5,042	$5,241
F6150VIC	1800	560	6" [150]		50						$5,567	$5,765

*Must select On/Off OR Floating Point at time of ordering, not field changeable.

ACTUATOR PART #	GMB24-3-X1	GMCX120-SR-T-X1	GMB24-MFT-X1	2*GMX24-MFT-X1
Control	On/Off, Floating Point	Modulating	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	150 seconds	35 seconds	150 seconds (variable)	150 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	terminal block	terminal block	3 ft, 18 GA plenum rated cable with ½" conduit connector

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
F750VIC	115	36	2" [50]	300	200	$5,157	$5,226	$5,294	
F765VIC	260	80	2½" [65]		50	$6,099	$6,165	$6,232	
F765VIC	260	80	2½" [65]		200				$7,426
F780VIC	440	140	3" [80]		50	$6,498	$6,693	$6,791	
F780VIC	440	140	3" [80]		200				$7,864

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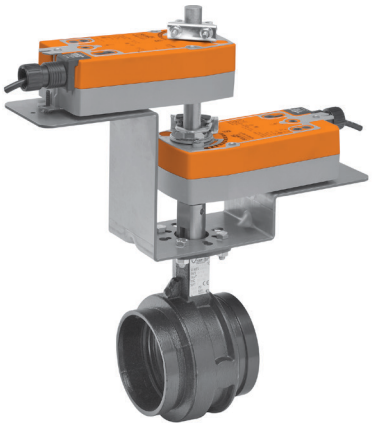
F6/F7 Grooved Series Butterfly Valves with Fail-Safe Actuators

2-way and 3-way Valves, Grooved End Body

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	grooved ANSI\AWWA (C606)
Body	ductile iron ASTM A536 grade 65-45-12
Body Finish	black powder coating
Disc	electroless nickel coated ductile iron
Shaft	416 stainless steel
Seat	EPDM
Fluid Temperature Range (Water)	-22...+230°F [-30...+110°C]
Maximum Velocity	20 FPS



5-year warranty

ACTUATOR PART #	AFBUP-X1	AFX24-MFT-X1	2*AFBUP-X1	2*AFX24-MFT-X1	2*GKX24-MFT-X1	PKRXUP-MFT-T
Control	On/Off	Modulating/MFT	On/Off	Modulating/MFT	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	<75 seconds	150 seconds (variable)	<75 seconds	150 seconds (variable)	150 seconds (variable)	35 seconds (default), 30...120 field adjustable
Running Time (Fail-Safe)	<20 seconds	<20 seconds	<20 seconds	<20 seconds	35 seconds	30 seconds
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	terminal block

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
F650VIC	115	36	2" [50]	300	200	$2,453	$2,619				
F665VIC	260	80	2½" [65]		50	$3,337	$3,502				
F665VIC	260	80	2½" [65]		200			$3,777	$4,106		
F680VIC	440	140	3" [80]		50			$3,993	$4,323		$7,705
F6100VIC	820	250	4" [100]		200					$7,865	$7,871
F6125VIC	1200	370	5" [125]		200						$8,946
F6150VIC	1800	560	6" [150]		200						$9,447
F6200VIC	3400	1050	8" [200]		50						$10,737

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
F750VIC	115	36	2" [50]	300	50	$5,186	$5,384				
F750VIC	115	36	2" [50]		200			$7,220	$7,610		
F765VIC	260	80	2½" [65]		200					$8,407	
F780VIC	440	140	3" [80]		200					$9,088	
F7100VIC	820	250	4" [100]		200						$13,323
F7125VIC	1200	370	5" [125]		200						$15,988

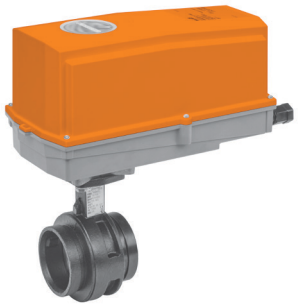
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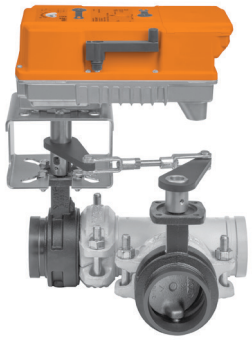
F6/F7 Grooved Series Butterfly Valves with NEMA 4X Non Fail-Safe Actuators

2-way and 3-way Valves, Grooved End Body

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	grooved ANSI\AWWA (C606)
Body	ductile iron ASTM A536 grade 65-45-12
Body Finish	black powder coating
Disc	electroless nickel coated ductile iron
Shaft	416 stainless steel
Seat	EPDM
Fluid Temperature Range (Water)	-22...+230°F [-30...+110°C]
Maximum Velocity	20 FPS





5-year warranty

ACTUATOR PART #	GRCX24-3-T N4❖	GRCX120-3 N4❖	GRCX120-SR-T N4❖	GRCX24-MFT-T N4❖	PRBUP-3-T	PRBUP-MFT-T
Control	On/Off, Floating Point*	On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	35 seconds	35 seconds	35 seconds	35 seconds (variable)	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable
(2) Temperature Sensor Inputs						•
Default Set Up**						2...10 V NC
Electrical Connection	terminal block	3 ft, 18 GA appliance cable with ½" conduit connector	terminal block	terminal block	terminal block	terminal block

*Must select On/Off OR Floating Point at time of ordering, not field changeable. **Field selectable with Belimo Assistant app.

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]					
F650VIC	115	36	2" [50]	300	200	$2,421	$2,555	$2,704	$2,852		
F665VIC	260	80	2½" [65]		200	$2,687	$2,819	$2,969	$3,119		
F680VIC	440	140	3" [80]		200	$2,859	$2,992	$3,103	$3,218	$4,451	$6,451
F6100VIC	820	250	4" [100]		200					$4,857	$6,858
F6125VIC	1200	370	5" [125]		200					$5,175	$7,796
F6150VIC	1800	560	6" [150]		200					$5,610	$8,233
F6200VIC	3400	1050	8" [200]		50					$7,205	$9,900

ACTUATOR PART #	GMCX24-3-T -X1 N4❖	GMCX120-3-X1 N4❖	GMCX120-SR-T-X1 N4❖	GMCX24-MFT-T-X1 N4❖	PRBUP-3-T	PRBUP-MFT-T
Control	On/Off or Floating Point*	On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	35 seconds	35 seconds	35 seconds	35 seconds (variable)	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable
(2) Temperature Sensor Inputs						•
Default Set Up**						2...10 V NC
Electrical Connection	terminal block	3 ft, 18 GA appliance cable with ½" conduit connector	terminal block	terminal block	terminal block	terminal block

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]					
F750VIC	115	36	2" [50]	300	200	$4,413	$4,546	$4,678	$4,811		
F765VIC	260	80	2½" [65]		50	$6,005	$6,138	$6,204	$6,272		
F780VIC	440	140	3" [80]		50			$7,150	$7,250		
F7100VIC	820	250	4" [100]		200					$8,468	$10,521
F7125VIC	1200	370	5" [125]		200					$13,328	$14,941
F7150VIC	1800	560	6" [150]		50					$14,294	$16,645

❖Heater option for NEMA 4X products has a list price adder of $600. Please specify when ordering.

*Must select On/Off OR Floating Point at time of ordering, not field changeable. **Field selectable with Belimo Assistant app.

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All prices are in US Dollars (USD)

F6/F7 Grooved Series Butterfly Valves with NEMA 4X Non Fail-Safe Actuators

2-way and 3-way Valves, Grooved End Body

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	grooved ANSI\AWWA (C606)
Body	ductile iron ASTM A536 grade 65-45-12
Body Finish	black powder coating
Disc	electroless nickel coated ductile iron
Shaft	416 stainless steel
Seat	EPDM
Fluid Temperature Range (Water)	-22...+230°F [-30...+110°C]
Maximum Velocity	20 FPS



2-year warranty

ACTUATOR PART #						SY5-24, SY5-110	SY5-24MFT, SY5-120MFT	SY6-110	SY6-120MFT
Control						On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override						•	•	•	•
Running Time (Motor)						26 seconds	26, 28 seconds	34 seconds	38 seconds
Electrical Connection						terminal block	terminal block	terminal block	terminal block
2-WAY									
Model #	**Cv 90°**	**Cv 60°**	**Size [mm]**	**Body Pressure Rating**	**Close-Off Pressure [psid]**				
F6250VIC	5800	1800	10" [250]	300	200	$12,135	$13,589		
F6300VIC	9000	2790	12" [300]		200			$13,462	$14,927

ACTUATOR PART #						SY4-24, SY4-110	SY4-24MFT, SY4-120MFT	SY6-110	SY6-120MFT, SY6-230MFT	SY7-110	SY7-120MFT, SY7-230MFT
Control						On/Off	Modulating/MFT	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override						•	•	•	•	•	•
Running Time (Motor)						20, 19 seconds	20, 24 seconds	34 seconds	38, 35 seconds	50 seconds	59 seconds
Electrical Connection						terminal block	terminal block	terminal block	terminal block	terminal block	terminal block
3-WAY MIXING/DIVERTING											
Model #	**Cv 90°**	**Cv 60°**	**Size [mm]**	**Body Pressure Rating**	**Close-Off Pressure [psid]**						
F7200VIC	3400	1050	8" [200]	300	50	$20,664	$23,242				
F7250VIC	5800	1800	10" [250]		50			$30,320	$33,049	$30,671	$33,514
F7300VIC	9000	2790	12" [300]		200					$36,167	$38,675

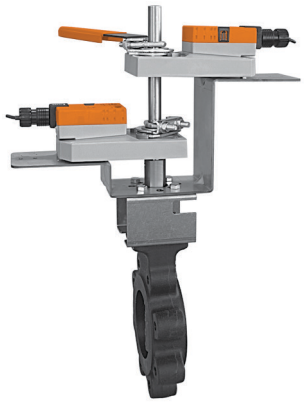
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All prices are in US Dollars (USD)

F6/F7 ANSI Class 150 Butterfly Valves with Non Fail-Safe Actuators

2-way and 3-way Valves, Reinforced Teflon Seat, 316 Stainless Steel Disc

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	for use with ASME/ANSI Class 150 flanges
Body	carbon steel full lug
Disc	316 stainless steel
Shaft	17-4 PH stainless steel
Seat	RPTFE
Gland Seal	TFE
Bushings	glass backed PTFE
Fluid Temperature Range (Water)	-22...+400°F [-30...+204°C]
Maximum Velocity	32 FPS





5-year warranty

ACTUATOR PART #	GMB24-3-X1	GMB24-MFT-X1	2*GMX24-MFT-X1
Control	On/Off, Floating Point	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	150 seconds	150 seconds (variable)	150 seconds
Noise Level (Motor)	<45 dB (A)	<45 dB (A)	<45 dB (A)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
F650-150SHP	102	56	2" [50]	ASME/ ANSI Class 150	285	$3,682	$3,827	
F665-150SHP	146	80	2½" [65]		285	$3,705	$3,847	
F680-150SHP	228	125	3" [80]		285	$3,725	$3,873	
F6100-150SHP	451	248	4" [100]		150	$4,508	$4,650	
F6100-150SHP	451	248	4" [100]		285			$5,212

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
F750-150SHP	102	56	2" [50]	ASME/ ANSI Class 150	150	$7,571	$7,709	
F750-150SHP	102	56	2" [50]		285			$8,266
F765-150SHP	146	80	2½" [65]		150	$7,767	$7,902	
F765-150SHP	146	80	2½" [65]		285			$8,463
F780-150SHP	228	125	3" [80]		150	$7,777	$7,917	
F780-150SHP	228	125	3" [80]		285			$8,511

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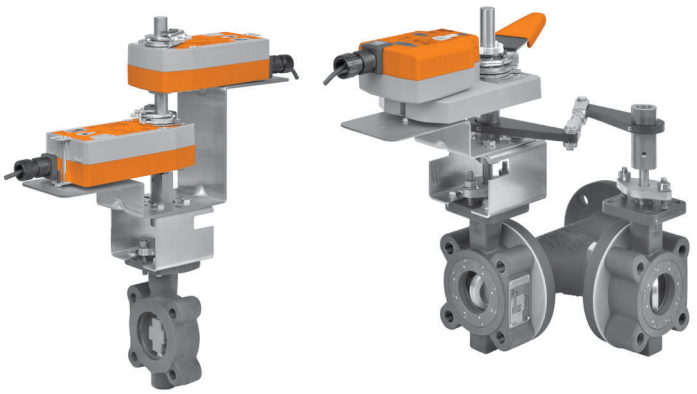
F6/F7 ANSI Class 150 Butterfly Valves with Fail-Safe Actuators

2-way and 3-way Valves, Reinforced Teflon® Seat, 316 Stainless Disc

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	for use with ASME/ANSI Class 150 flanges
Body	carbon steel full lug
Disc	316 stainless steel
Shaft	17-4 PH stainless steel
Seat	RPTFE
Gland Seal	TFE
Bushings	glass backed PTFE
Fluid Temperature Range (Water)	-22...+400°F [-30...+204°C]
Maximum Velocity	32 FPS



5-year warranty

ACTUATOR PART #	2*AFBUP-X1	GKX24-MFT-X1	2*GKX24-MFT-X1	PKRXUP-MFT-T
Control	On/Off	Modulating/MFT	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	<75 seconds	150 seconds (variable)	150 seconds (variable)	35 seconds (default), 30...120 field adjustable
Running Time (Fail-Safe)	<20 seconds	35 seconds	35 seconds	30 seconds
(2) Temperature Sensor Inputs				•
BACnet Communication				•
NEMA Rating	2	2	2	4X
Electrical Connection	3 ft, 18 GA appliance cable with ½" conduit connector	18 GA plenum rated cable with ½" conduit connector	18 GA plenum rated cable with ½" conduit connector	terminal block

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
F650-150SHP	102	56	2" [50]	ASME/ ANSI Class 150	150	$4,041	$4,901		
F650-150SHP	102	56	2" [50]		285				$9,206
F665-150SHP	146	80	2½" [65]		150	$4,065	$4,925		
F665-150SHP	146	80	2½" [65]		285				$9,233
F680-150SHP	228	125	3" [80]		150	$4,087	$4,947		
F680-150SHP	228	125	3" [80]		285				$9,617
F6100-150SHP	451	248	4" [100]		150	$4,868	$5,723		
F6100-150SHP	451	248	4" [100]		285			$7,240	$9,993
F6125-150SHP	714	392	5" [125]		285				$11,600
F6150-150SHP	1103	607	6" [150]		285				$11,389
F6200-150SHP	2064	1135	8" [200]		150				$12,930

ACTUATOR PART #	GKX24-MFT-X1	2*GKX24-MFT-X1	PKRXUP-MFT-T
Control	Modulating/MFT	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	150 seconds (variable)	150 seconds (variable)	35 seconds (default), 30...120 field adjustable
Running Time (Fail-Safe)	35 seconds	35 seconds	30 seconds
(2) Temperature Sensor Inputs			•
BACnet Communication			•
NEMA Rating	2	2	4X
Electrical Connection	18 GA plenum rated cable with ½" conduit connector	18 GA plenum rated cable with ½" conduit connector	terminal block

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
F750-150SHP	102	56	2" [50]	ASME/ ANSI Class 150	150	$8,739		
F750-150SHP	102	56	2" [50]		285		$10,325	$14,709
F765-150SHP	146	80	2½" [65]		150	$8,933		
F765-150SHP	146	80	2½" [65]		285		$10,523	$14,952
F780-150SHP	228	125	3" [80]		150	$8,944		
F780-150SHP	228	125	3" [80]		285		$10,571	$15,153
F7100-150SHP	451	248	4" [100]		285			$17,860

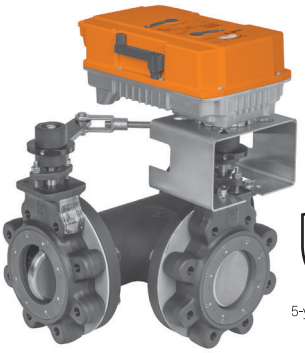
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F6/F7 ANSI Class 150 Butterfly Valves with NEMA 4X Non Fail-Safe Actuators

2-way and 3-way Valves, Reinforced Teflon Seat, 316 Stainless Steel Disc

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	for use with ASME/ANSI Class 150 flanges
Body	carbon steel full lug
Disc	316 stainless steel
Shaft	17-4 PH stainless steel
Seat	RPTFE
Gland Seal	TFE
Bushings	glass backed PTFE
Fluid Temperature Range (Water)	-22...+400°F [-30...+204°C]
Maximum Velocity	32 FPS



5

5-year warranty



2

2-year warranty

ACTUATOR PART #	PRBUP-3-T	PRBUP-MFT-T	SY4-24, SY4-110, SY4-220	SY4-24MFT, SY4-120MFT, SY4-230MFT
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable	20, 19, 20 seconds	21, 24, 22 seconds
(2) Temperature Sensor Inputs		•		
Default Set Up*		2...10 V NC		
Electrical Connection	terminal block	terminal block	terminal block	terminal block

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
F650-150SHP	102	56	2" [50]	ASME/ ANSI Class 150	285	$5,732	$7,886		
F665-150SHP	146	80	2½" [65]		285	$5,757	$7,907		
F680-150SHP	228	125	3" [80]		285	$5,780	$7,934		
F6100-150SHP	451	248	4" [100]		285	$6,801	$8,693		
F6125-150SHP	714	392	5" [125]		285	$8,154	$10,304		
F6150-150SHP	1103	607	6" [150]		285	$8,196	$10,352		
F6200-150SHP	2064	1135	8" [200]		150	$9,886	$12,053		
F6200-150SHP	2064	1135	8" [200]		285			$10,749	$13,297
F6250-150SHP	3517	1934	10" [250]		285			$14,559	$17,105
F6300-150SHP	4837	2660	12" [300]		150			$17,795	$20,344

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
F750-150SHP	102	56	2" [50]	ASME/ ANSI Class 150	285	$9,606	$11,793		
F765-150SHP	146	80	2½" [65]		285	$9,802	$11,988		
F780-150SHP	228	125	3" [80]		285	$9,815	$11,997		
F7100-150SHP	451	248	4" [100]		285	$12,136	$14,318		
F7125-150SHP	714	392	5" [125]		285	$14,392	$17,733		
F7150-150SHP	1103	607	6" [150]		150	$14,490	$17,392		
F7150-150SHP	1103	607	6" [150]		285			$15,741	$17,967
F7200-150SHP	2064	1135	8" [200]		285			$20,465	$23,054
F7250-150SHP	3517	1934	10" [250]		150			$29,648	$32,237

*Field selectable with Belimo Assistant app.

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F6/F7 ANSI Class 150 Butterfly Valves with NEMA 4X Non Fail-Safe Actuators

2-way and 3-way Valves, Reinforced Teflon Seat, 316 Stainless Disc

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	for use with ASME/ANSI Class 150 flanges
Body	carbon steel full lug
Disc	316 stainless steel
Shaft	17-4 PH stainless steel
Seat	RPTFE
Gland Seal	TFE
Bushings	glass backed PTFE
Fluid Temperature Range (Water)	-22...+400°F [-30...+204°C]
Maximum Velocity	32 FPS





2

2-year warranty

ACTUATOR PART #	SY5-24, SY5-110	SY5-24MFT, SY5-120MFT	SY7-110	SY7-120MFT, SY7-230MFT	SY8-110	SY8-120MFT, SY8-230MFT	SY10-110	SY10-120MFT, SY10-230MFT
Control	On/Off, Floating Point	Modulating/ MFT	On/Off, Floating Point	Modulating/ MFT	On/Off, Floating Point	Modulating/ MFT	On/Off, Floating Point	Modulating/ MFT
Manual Override	•	•	•	•	•	•	•	•
Running Time (Motor)	26 seconds	26, 28 seconds	50 seconds	59 seconds	51 seconds	79 seconds	62 seconds	76, 85 seconds
Electrical Connection	terminal block	terminal block	terminal block	terminal block	terminal block	terminal block	terminal block	terminal block

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]							
F6300-150SHP	4837	2660	12" [300]	ASME/ ANSI Class 150	285	$18,230	$20,766					
F6350-150SHP	6857	3592	14" [350]		150	$22,679	$25,236					
F6350-150SHP	6857	3592	14" [350]		285			$24,161	$26,639			
F6400-150SHP*	9287	4865	16" [400]		150			$33,489	$35,970			
F6450-150SHP*	11400	6270	18" [450]		285					$40,504	$42,994	
F6500-150SHP*	14420	7590	20" [500]		150					$49,451	$51,935	
F6600-150SHP*	22050	11550	24" [600]		150							$70,762	$66,757

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]								
F7250-150SHP	3517	1934	10" [250]	ASME/ ANSI Class 150	285	$30,091	$32,691						
F7300-150SHP	4837	2660	12" [300]		285			$39,828	$42,353				
F7350-150SHP*	6857	3592	14" [350]		285			$53,108	$55,631				

*Call Customer Service at 1-800-543-9038 for product availability. Longer lead times may apply.

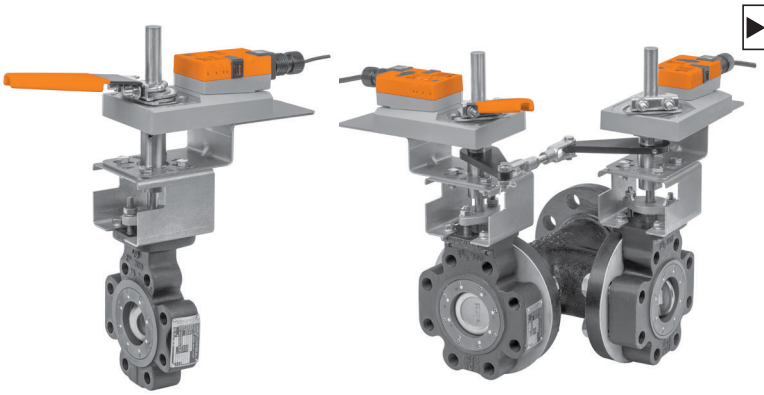
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F6/F7 ANSI Class 300 Butterfly Valves with Non Fail-Safe Actuators

2-way and 3-way Valves, Reinforced Teflon Seat, 316 Stainless Disc

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	for use with ASME/ANSI Class 300 flanges
Body	carbon steel full lug
Disc	316 stainless steel
Shaft	17-4 PH stainless steel
Seat	RPTFE
Gland Seal	TFE
Bushings	glass backed PTFE
Fluid Temperature Range (Water)	-22...+400°F [-30...+204°C]
Maximum Velocity	32 FPS



5-year warranty

ACTUATOR PART #	GMB24-3-X1	GMB24-MFT-X1
Control	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•
Running Time (Motor)	150 seconds	150 seconds (variable)
Electrical Connection	3 ft, 18 GA plenum rated cable with ½" conduit connector	3 ft, 18 GA plenum rated cable with ½" conduit connector

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]		
F650-300SHP	102	56	2" [50]	ASME/ ANSI Class 300	285	$4,158	$4,305
F665-300SHP	146	80	2½" [65]		285	$4,183	$4,325
F680-300SHP	228	125	3" [80]		285	$4,243	$4,388
F6100-300SHP	451	248	4" [100]		150	$4,877	$5,020

ACTUATOR PART #	2*GMX24-MFT-X1
Control	Modulating/MFT
Manual Override	•
Running Time (Motor)	150 seconds
Electrical Connection	18 GA applicance rated cable with ½" conduit connector

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]	
F750-300SHP	102	56	2" [50]	ASME/ ANSI Class 300	285	$9,866
F765-300SHP	146	80	2½" [65]		285	$11,411
F780-300SHP	228	125	3" [80]		285	$11,655
F7100-300SHP	451	248	4" [100]		150	$14,378

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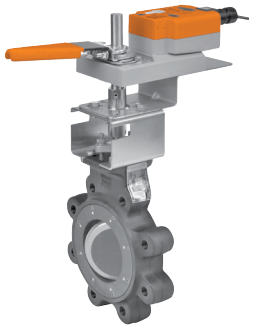
F6/F7 ANSI Class 300 Butterfly Valves with Electronic Fail-Safe Actuators

2-way and 3-way Valves, Reinforced Teflon Seat, 316 Stainless Disc

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	for use with ASME/ANSI Class 300 flanges
Body	carbon steel full lug
Disc	316 stainless steel
Shaft	17-4 PH stainless steel
Seat	RPTFE
Gland Seal	TFE
Bushings	glass backed PTFE
Fluid Temperature Range (Water)	-22...+400°F [-30...+204°C]
Maximum Velocity	32 FPS





5-year warranty

ACTUATOR PART #	GKX24-MFT-X1	2*GKX24-MFT-X1	PKRXUP-MFT-T
Control	Modulating/MFT	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	150 seconds (variable)	150 seconds (variable)	35 seconds (default), 30...120 field adjustable
Running Time (Fail-Safe)	35 seconds	35 seconds	30 seconds
(2) Temperature Sensor Inputs			•
BACnet Communication			•
NEMA Rating	2	2	4X
Electrical Connection	18 GA plenum rated cable with ½" conduit connector	18 GA plenum rated cable with ½" conduit connector	terminal block

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
F650-300SHP	102	56	2" [50]	ASME/ANSI Class 300	285	$5,351		
F650-300SHP	102	56	2" [50]		400		$6,943	$9,732
F665-300SHP	146	80	2½" [65]		285	$5,377		
F665-300SHP	146	80	2½" [65]		400		$6,968	$9,886
F680-300SHP	228	125	3" [80]		285	$5,402		
F680-300SHP	228	125	3" [80]		400		$6,986	$10,010
F6100-300SHP	451	248	4" [100]		150	$6,072		
F6100-300SHP	451	248	4" [100]		285		$7,670	
F6100-300SHP	451	248	4" [100]		600			$10,430
F6125-300SHP	714	392	5" [125]		285			$12,881
F6150-300SHP	1103	607	6" [150]		285			$13,080

ACTUATOR PART #	2*GKX24-MFT-X1	PKRXUP-MFT-T
Control	Modulating/MFT	Modulating/MFT
Manual Override	•	•
Running Time (Motor)	150 seconds (variable)	35 seconds (default), 30...120 field adjustable
Running Time (Fail-Safe)	35 seconds	30 seconds
(2) Temperature Sensor Inputs		•
BACnet Communication		•
NEMA Rating	2	4X
Electrical Connection	18 GA plenum rated cable with ½" conduit connector	terminal block

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]		
F750-300SHP	102	56	2" [50]	ASME/ANSI Class 300	285	$11,930	$15,892
F765-300SHP	146	80	2½" [65]		285	$13,475	$17,602
F780-300SHP	228	125	3" [80]		285	$13,719	$20,270
F7100-300SHP	451	248	4" [100]		285	$16,441	
F7100-300SHP	451	248	4" [100]		400		$21,141

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F6/F7 ANSI Class 300 Butterfly Valves with NEMA 4X Non Fail-Safe Actuators

2-way and 3-way Valves, Reinforced Teflon Seat, 316 Stainless Disc

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	for use with ASME/ANSI Class 300 flanges
Body	carbon steel full lug
Disc	316 stainless steel
Shaft	17-4 PH stainless steel
Seat	RPTFE
Gland Seal	TFE
Bushings	glass backed PTFE
Fluid Temperature Range (Water)	-22...+400°F [-30...+204°C]
Maximum Velocity	32 FPS



5

5-year warranty



2

2-year warranty

ACTUATOR PART #	PRBUP-3-T	PRBUP-MFT-T	SY4-24, SY4-110, SY4-220	SY4-24MFT, SY4-120MFT, SY4-230MFT
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•
Running Time (Motor)	35 seconds (default), 30...120 field adjustable	35 seconds (default), 30...120 field adjustable	20, 19, 20 seconds	20, 24, 22 seconds
(2) Temperature Sensor Inputs		•		
Default Set Up*		2...10 V NC		
Electrical Connection	terminal block	terminal block	terminal block	terminal block

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
F650-300SHP	102	56	2" [50]	ASME/ ANSI Class 300	600	$6,176	$8,333		
F665-300SHP	146	80	2½" [65]		600	$6,197	$8,352		
F680-300SHP	228	125	3" [80]		600	$6,220	$8,376		
F6100-300SHP	451	248	4" [100]		600	$6,871	$9,025		
F6125-300SHP	714	392	5" [125]		400	$9,099	$11,275		
F6150-300SHP	1103	607	6" [150]		285	$9,336	$11,462		
F6200-300SHP	2064	1135	8" [200]		600			$12,883	$15,508
F6250-300SHP	3517	1934	10" [250]		285			$18,698	$21,286
F6300-300SHP	4837	2660	12" [300]		150			$24,153	$26,517

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
F750-300SHP	102	56	2" [50]	ASME/ ANSI Class 300	600	$12,257	$14,438		
F765-300SHP	146	80	2½" [65]		600	$13,956	$16,136		
F780-300SHP	228	125	3" [80]		600	$16,604	$18,782		
F7100-300SHP	451	248	4" [100]		400	$17,466	$19,645		
F7125-300SHP	714	392	5" [125]		600			$24,142	$26,669
F7150-300SHP	1103	607	6" [150]		600			$28,190	$30,791
F7200-300SHP	2064	1135	8" [200]		400			$34,037	$36,639
F7250-300SHP	3517	1934	10" [250]		150			$49,256	$51,856

*Field selectable with Belimo Assistant app.

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F6/F7 ANSI Class 300 Butterfly Valves with NEMA 4X Non Fail-Safe Actuators

2-way and 3-way Valves, Reinforced Teflon Seat, 316 Stainless Disc

BELIMO

VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	F6- modified equal percentage F7- modified linear
End Fitting	for use with ASME/ANSI Class 300 flanges
Body	carbon steel full lug
Disc	316 stainless steel
Shaft	17-4 PH stainless steel
Seat	RPTFE
Gland Seal	TFE
Bushings	glass backed PTFE
Fluid Temperature Range (Water)	-22...+400°F [-30...+204°C]
Maximum Velocity	32 FPS





2-year warranty

ACTUATOR PART #	SY5-24, SY5-110	SY5-24MFT, SY5-120MFT	SY7-110	SY7-120MFT, SY7-230MFT	SY8-110	SY8-120MFT, SY8-230MFT
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	26 seconds	26, 28 seconds	50 seconds	59 seconds	51 seconds	79 seconds
Electrical Connection	terminal block	terminal block	terminal block	terminal block	terminal block	terminal block

2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]					
F6250-300SHP	3517	1934	10" [250]	ASME/ ANSI Class 300	400	$19,137	$21,726			
F6250-300SHP	3517	1934	10" [250]		600			$20,630	$23,156	
F6300-300SHP	4837	2660	12" [300]		285	$24,372	$26,962			
F6300-300SHP	4837	2660	12" [300]		600			$25,867	$28,386	
F6350-300SHP*	6857	3592	14" [350]		150	$39,495	$42,085			
F6350-300SHP*	6857	3592	14" [350]		400			$40,994	$42,085	
F6350-300SHP*	6857	3592	14" [350]		600					$42,679	$45,203

3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
F7200-300SHP	2064	1135	8" [200]	ASME/ ANSI Class 300	600	$34,483	$37,084				
F7250-300SHP	3517	1934	10" [250]		600			$51,206	$53,740		
F7300-300SHP*	4837	2660	12" [300]		400			$67,667	$70,204		
F7300-300SHP*	4837	2660	12" [300]		600					$69,354	$71,899

*Call Customer Service at 1-800-543-9038 for product availability. Longer lead times may apply.

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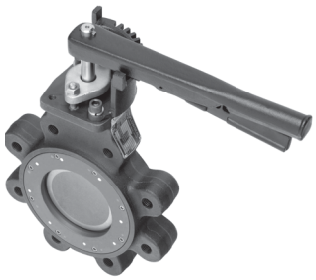
MANUAL HANDLES		VALVE HD	VALVE L	LIST PRICE
	**F650HD+HND01** 2" HD series valve with manual handle ductile iron, 200 psid close-off, C_V 115	•		$320
	F665HD+HND01 2½" HD series valve with manual handle ductile iron, 200 psid close-off, C_V 196	•		$342
	F680HD+HND01 3" HD series valve with manual handle ductile iron, 200 psid close-off, C_V 302	•		$377
	F6100HD+HND02 4" HD series valve with manual handle ductile iron, 200 psid close-off, C_V 600	•		$497
	F6125HD+HND02 5" HD series valve with manual handle ductile iron, 200 psid close-off, C_V 1022	•		$718
	F6150HD+HND02 6" HD series valve with manual handle ductile iron, 200 psid close-off, C_V 1579	•		$836
GEAR OPERATORS				
	**F650HD+GW01** 2" HD series valve with manual gear operator ductile iron, 200 psid close-off, C_V 115	•		$513
	F665HD+GW01 2½" HD series valve with manual gear operator ductile iron, 200 psid close-off, C_V 196	•		$675
	F680HD+GW01 3" HD series valve with manual gear operator ductile iron, 200 psid close-off, C_V 302	•		$737
	F6100HD+GW02 4" HD series valve with manual gear operator ductile iron, 200 psid close-off, C_V 600	•		$852
	F6125HD+GW02 5" HD series valve with manual gear operator ductile iron, 200 psid close-off, C_V 1022	•		$1,011
	F6150HD+GW02 6" HD series valve with manual gear operator ductile iron, 200 psid close-off, C_V 1579	•		$1,087
	F6200L+ZD6N-S150 8" L series valve with manual gear operator ductile iron, 200 psid close-off, C_V 3136		•	$1,545
	F6250L+ZD6N-S150 10" L series valve with manual gear operator ductile iron, 200 psid close-off, C_V 5340		•	$2,491
	F6300L+ZD6N-S150 12" L series valve with manual gear operator ductile iron, 200 psid close-off, C_V 5340		•	$2,855
	F6350HD+GW04 14" HD series valve with manual gear operator ductile iron, 150 psid close-off, C_V 11917	•		$3,987

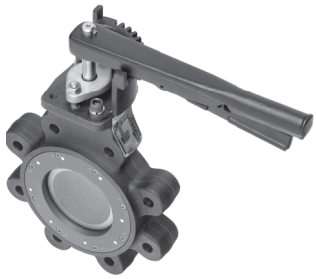
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Manual Handles and Gear Operators

For SHP Series Butterfly Valves

5-year warranty

MANUAL HANDLES		VALVE 150SHP	LIST PRICE
	**F650-150SHP+HND05** 2" SHP series valve with manual handle cast steel, ANSI 150 close-off limitations, C_V 102	•	$3,407
	F665-150SHP+HND05 2½" SHP series valve with manual handle cast steel, ANSI 150 close-off limitations, C_V 146	•	$3,502
	F680-150SHP+HND06 3" SHP series valve with manual handle cast steel, ANSI 150 close-off limitations, C_V 228	•	$3,576
	F6100-150SHP+HND06 4" SHP series valve with manual handle cast steel, ANSI 150 close-off limitations, C_V 451	•	$3,813
	F6125-150SHP+HND07 5" SHP series valve with manual handle cast steel, ANSI 150 close-off limitations, C_V 714	•	$6,120
	F6150-150SHP+HND07 6" SHP series valve with manual handle cast steel, ANSI 150 close-off limitations, C_V 1103	•	$5,590
GEAR OPERATORS			
	**F650-150SHP+GW10** 2" SHP series valve with manual gear operator cast steel, ANSI 150 close-off limitations, C_V 102	•	$4,686
	F665-150SHP+GW10 2½" SHP series valve with manual gear operator cast steel, ANSI 150 close-off limitations, C_V 146	•	$4,792
	F680-150SHP+GW11 3" SHP series valve with manual gear operator cast steel, ANSI 150 close-off limitations, C_V 228	•	$4,864
	F6100-150SHP+GW11 4" SHP series valve with manual gear operator cast steel, ANSI 150 close-off limitations, C_V 451	•	$5,013
	F6125-150SHP+GW12 5" SHP series valve with manual gear operator cast steel, ANSI 150 close-off limitations, C_V 714	•	$6,902
	F6150-150SHP+GW12 6" SHP series valve with manual gear operator cast steel, ANSI 150 close-off limitations, C_V 1103	•	$7,007

MANUAL HANDLES		VALVE 300SHP	LIST PRICE
	**F650-300SHP+HND05** 2" SHP series valve with manual handle cast steel, ANSI 300 close-off limitations, C_V 100	•	$4,014
	F665-300SHP+HND05 2½" SHP series valve with manual handle cast steel, ANSI 300 close-off limitations, C_V 143	•	$4,043
	F680-300SHP+HND06 3" SHP series valve with manual handle cast steel, ANSI 300 close-off limitations, C_V 223	•	$3,715
	F6100-300SHP+HND06 4" SHP series valve with manual handle cast steel, ANSI 300 close-off limitations, C_V 435	•	$3,977
	F6125-300SHP+HND07 5" SHP series valve with manual handle cast steel, ANSI 300 close-off limitations, C_V 688	•	$6,944
GEAR OPERATORS			
	**F650-300SHP+GW10** 2" SHP series valve with manual gear operator cast steel, ANSI 300 close-off limitations, C_V 100	•	$4,945
	F665-300SHP+GW10 2½" SHP series valve with manual gear operator cast steel, ANSI 300 close-off limitations, C_V 143	•	$4,970
	F680-300SHP+GW11 3" SHP series valve with manual gear operator cast steel, ANSI 300 close-off limitations, C_V 223	•	$4,644
	F6100-300SHP+GW11 4" SHP series valve with manual gear operator cast steel, ANSI 300 close-off limitations, C_V 435	•	$4,900
	F6125-300SHP+GW12 5" SHP series valve with manual gear operator cast steel, ANSI 300 close-off limitations, C_V 688	•	$7,850
	F6150-300SHP+GW13 6" SHP series valve with manual gear operator cast steel, ANSI 300 close-off limitations, C_V 1041	•	$6,526

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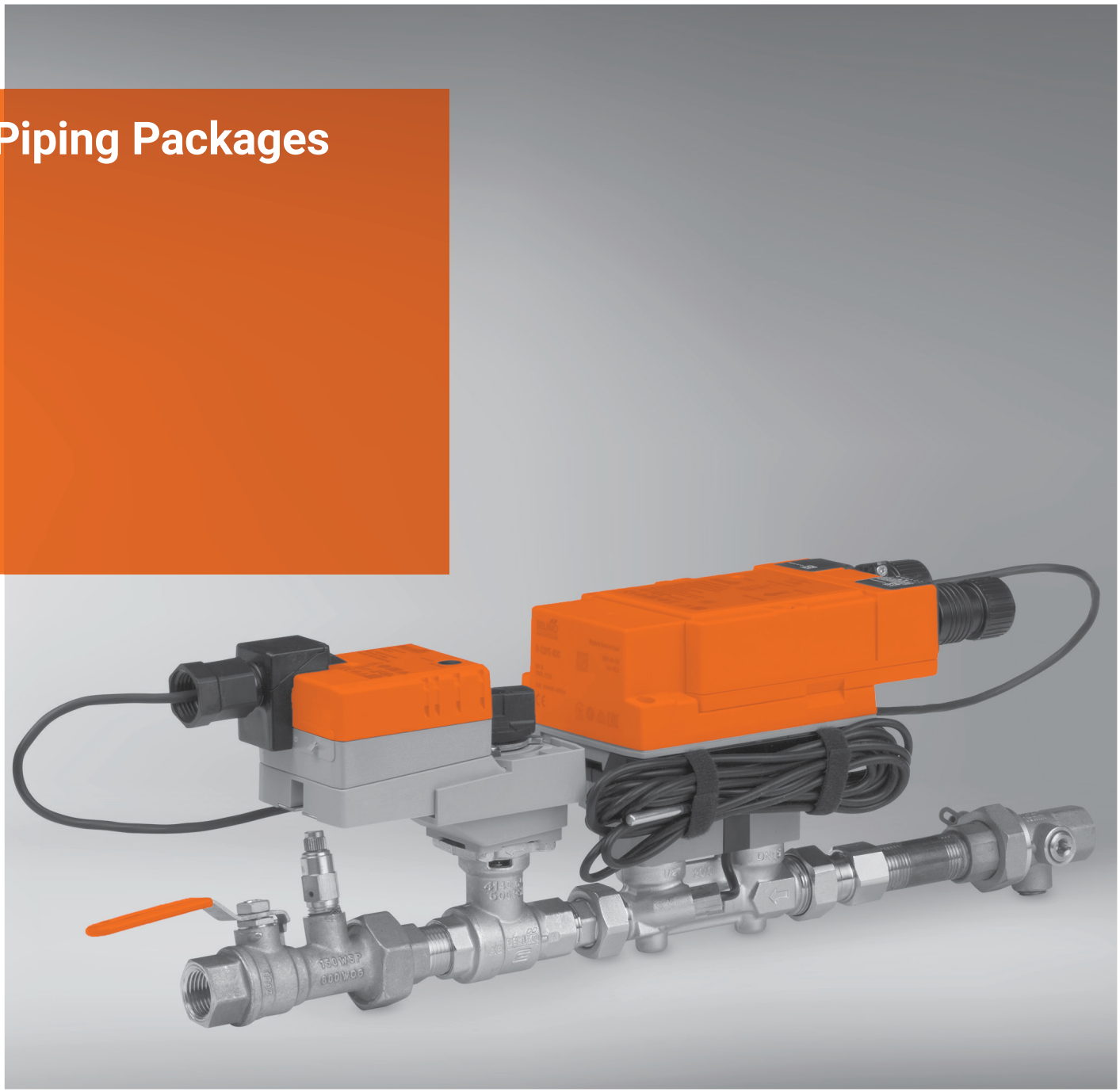
Sibil George, SAP Analyst

PIPING PACKAGES AND VALVE ACCESSORIES

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Piping Packages



Saving Time and Money

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18 PIPING PACKAGES

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Jeff Snetzko, Product Specialist

Piping Package Nomenclature

P 2	1 1 1	1 2 1 3	1 2 1 1	2
Piping Package P = Piping Package **Valve Type** 2 = 2-way CCV 3 = 3-way CCV E = EPIV / EV P = PIQCV Q = QCV **Options** S = Supply Side Package X = Extension Package	**Union** **Valve Size** 1 = ½" 2 = ¾" 3 = 1" 4 = 1...¾" 5 = ¾...½" A = 1½" B = 1¼" C = 2" D = 1¼...1" E = 1½...1¼" F = 2...1½" G = 1...½" H = 1¼...¾" J = 1½...1" K = 2...1¼" **Body End** 1 = Female NPT 2 = Copper Sweat **Configuration** 1= Standard **Tailpiece End** Male NPT Only	**Isolation Valve / Manual Balance Valve** **Valve Size** 1 = ½" 2 = ¾" 3 = 1" 4 = 1...¾" 5 = ¾...½" A = 1½" B = 1¼" C = 2" D = 1¼...1" E = 1½...1¼" F = 2...1½" G = 1...½" H = 1¼...¾" J = 1½...1" K = 2...1¼" **Body End** 1 = Female NPT 2 = Copper Sweat **Configuration** 1 = Standard **Tailpiece End** Male NPT Only	**Strainer / Isolation Valve** **Valve Size** 1 = ½" 2 = ¾" 3 = 1" 4 = 1...¾" 5 = ¾...½" A = 1½" B = 1¼" C = 2" D = 1¼...1" E = 1½...1¼" F = 2...1½" G = 1...½" H = 1¼...¾" J = 1½...1" K = 2...1¼" **Body End** 1 = Female NPT 2 = Copper Sweat **Configuration** 1 = Standard **Tailpiece End (Strainer Option)** 1 = Female NPT 2 = Copper Sweat 3 = Male NPT **Tailpiece End (Isolation Valve Option)** 0 = Select "0" for Isolation Valve Option Male NPT Only	**Hose** **Diameter & Length** 1 = ½" (12" length) 2 = ½" (24" length) 3 = ¾" (12" length) 4 = ¾" (24" length) 5 = 1" (12" length) 6 = 1" (24" length) 7 = ½" (18" length) 8 = ¾" (18" length) 9 = 1" (18" length) A = 1¼" (18" length) H = 1¼" (24" length) B = 1¼" (36" length) C = 1½" (18" length) D = 1½" (24" length) E = 1½" (36" length) F = 2" (24" length) G = 2" (36" length)

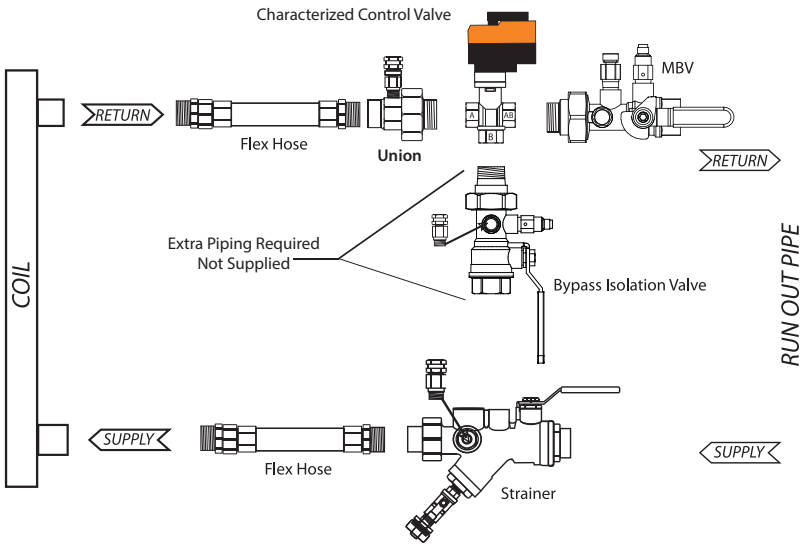
Please refer to typical Piping Package layouts on pages prior to ordering. Nomenclature chart does not include all configuration options or press connection types. Manual Balance Valves require flow consideration for proper sizing. Download Select-Pro software for complete options and available configurations. Consult factory for lead time. Non-standard items have increased lead time.

Non-Standard items include:

- 1¼...2" packages of all types
- All sizes of Unions, Manual Balance Valves, Strainers and Isolation Valves without P/T ports
- All sizes of Unions, Manual Balance Valves, Strainers and Isolation Valves with extensions
- All sizes of components with press fit connections

Note: Piping Package smart code does not include the Belimo control valve in the price.

UNION BODY x TAIL	PART NUMBER	UNION LIST PRICE	ISOLATION VALVE BODY x TAIL	PART NUMBER	ISOLATION VALVE LIST PRICE	MANUAL BALANCE VALVE BODY x TAIL**	PART NUMBER	MANUAL BALANCE VALVE LIST PRICE
½" x ½"	PPU111	$81	½" x ½"	PPV1110	$143	½" x ½" (Cv 1.30, 0.48...1.21 GPM)	PPL1111	$242
¾" x ¾"	PPU211	$91	¾" x ¾"	PPV2110	$164	½" x ½" (Cv 2.65, 0.89...2.47 GPM)	PPL1112	$242
1" x 1"	PPU311	$123	1" x 1"	PPV3110	$244	½" x ½" (Cv 7.05, 2.22...6.60 GPM)	PPL1113	$242
1" x ¾"	PPU411	$123	1" x ¾"	PPV4110	$244	¾" x ¾" (Cv 1.30, 0.48...1.21 GPM)	PPL2111	$249
¾" x ½"	PPU511	$91	¾" x ½"	PPV5110	$165	¾" x ¾" (Cv 2.65, 0.89...2.47 GPM)	PPL2112	$249
1½" x 1½"	PPUA11*	$243	1½" x 1½"	PPVA110*	$716	¾" x ¾" (Cv 7.05, 2.22...6.60 GPM)	PPL2113	$249
1¼" x 1¼"	PPUB11*	$174	1¼" x 1¼"	PPVB110*	$557	1" x 1" (Cv 7.05, 2.6...6.60 GPM)	PPL3114	$375
2" x 2"	PPUC11*	$353	2" x 2"	PPVC110*	$969	1" x 1" (Cv 17.6, 5.5...16.5 GPM)	PPL3115	$375
1¼" x 1"	PPUD11*	$174	1¼" x 1"	PPVD110*	$557	1" x ¾" (Cv 7.05, 2.6...6.60 GPM)	PPL4114	$375
1½" x 1¼"	PPUE11*	$243	1½" x 1¼"	PPVE110*	$716	1" x ¾" (Cv 17.6, 5.5...16.5 GPM)	PPL4115	$375
2" x 1½"	PPUF11*	$353	2" x 1½"	PPVF110*	$969	¾" x ½" (Cv 1.30, 0.48...1.21 GPM)	PPL5111	$249
1" x ½"	PPUG11*	$123	1" x ½"	PPVG110*	$244	¾" x ½" (Cv 2.65, 0.89...2.47 GPM)	PPL5112	$249
1¼" to ¾"	PPUH11*	$174	1¼" to ¾"	PPVH110*	$557	¾" x ½" (Cv 7.05, 2.22...6.60 GPM)	PPL5113	$249
1½" x 1"	PPUJ11*	$243	1½" x 1"	PPVJ110*	$716	1½" x 1½" (Cv 57.0, 12.8...38.0 GPM)	PPLA11B*	$666
2" x 1¼"	PPUK11*	$353	2" x 1¼"	PPVK110*	$969	1¼" x 1¼" (Cv 34.0, 10.6...31.8 GPM)	PPLB11A*	$551
						2" x 2" (Cv 57.0, 18.0...53.0 GPM)	PPLC11C*	$909
						2" x 2" (Cv 88, 30.0...88.0 GPM)	PPLC11D*	$909
						1¼" x 1" (Cv 34.0, 10.6...31.8 GPM)	PPLD114*	$551
						1½" x 1¼" (Cv 57.0, 12.8...38.0 GPM)	PPLE11B*	$666
						2" x 1½" (Cv 57.0, 18.0...53.0 GPM)	PPLF11C*	$909
						1" x ½" (Cv 7.05, 2.6...6.6 GPM)	PPLG114*	$375
						1" x ½" (Cv 17.6, 5.5...16.5 GPM)	PPLG115*	$375
						1¼" x ¾" (Cv 34.0, 10.6...31.8 GPM)	PPLH11A*	$688
						1½" x 1" (Cv 57.0, 12.8...38.0 GPM)	PPLJ11B*	$667
						2" x 1¼" (Cv 57.0, 18.0...53.0 GPM)	PPLK11C*	$909



***Non-Standard Items**

**Referenced flow values are based on 10...90" Dp range at 2 ft. head.

STRAINER BODY x TAIL	PART NUMBER	STRAINER LIST PRICE	HOSE	PART NUMBER	HOSE (1) LIST PRICE
½" x ½"	PPS1111	$193	½" (12" length)	PHOSE1	$60
¾" x ¾"	PPS2111	$236	½" (24" length)	PHOSE2	$78
1" x 1"	PPS3111	$263	¾" (12" length)	PHOSE3	$98
1" x ¾"	PPS4111	$263	¾" (24" length)	PHOSE4	$127
¾" x ½"	PPS5111	$236	1" (12" length)	PHOSE5	$187
1½" x 1½"	PPSA111*	$482	1" (24" length)	PHOSE6	$217
1¼" x 1¼"	PPSB111*	$430	½" (18" length)	PHOSE1C*	$78
2" x 2"	PPSC111*	$738	¾" (18" length)	PHOSE3C*	$124
1¼" x 1"	PPSD111*	$430	1" (18" length)	PHOSE5C*	$222
1½" x 1¼"	PPSE111*	$482	1¼" (18" length)	PHOSEAA*	$336
2" x 1½"	PPSF111*	$738	1¼" (24" length)	PHOSEAB*	$372
1" x ½"	PPSG111*	$263	1¼" (36" length)	PHOSEAC*	$436
1¼" x ¾"	PPSH111*	$430	1½" (18" length)	PHOSEBA*	$479
1½" x 1"	PPSJ111*	$482	1½"(24" length)	PHOSEBB*	$528
2" x 1¼"	PPSK111*	$738	1½" (36" length)	PHOSEBC*	$668
			2" (24" length)	PHOSECA*	$1,022
			2" (36" length)	PHOSECB*	$1,187

***Non-Standard Items**

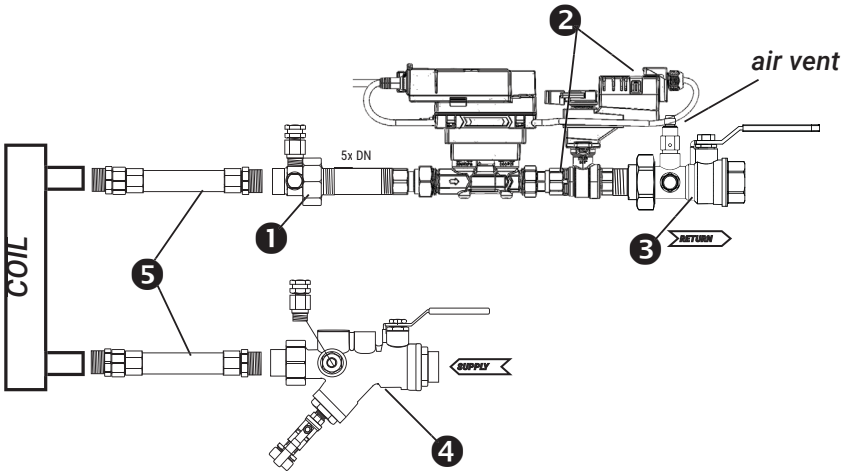
Add price for Isolation Bypass Valve for 3-way CCV Packages. Bypass Valve is not shown in the reorder number.
Example: A ½" 3-way CCV, will get a ½" Isolation Valve for the Bypass Port. The adder for the Isolation Valve in this example is $143 List Price.

F-NPT configurations shown above. For complete selection of all available connection types including press and sweat, refer to Select-Pro software.

Please Note: For return policy, refer to Piping Package section in Terms and Conditions.

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All prices are in US Dollars (USD)

Piping Packages for 2-way Electronic Pressure Independent Valves (EPIV) and Energy Valves (EV)



2-way EPIV/EV (½...2") Return Side Package (Standard)

1. Union with integral 5 X DN tail
2. Belimo Valve and Actuator (Not included in Smart Code or List Price)
3. Isolation Valve
4. Strainer or Isolation Valve (Strainer shown)
5. Optional hoses are available (Ships loose with the package)

Supply side packages feature the Belimo control valve on the supply side of the coil and the above components arranged in a supply configuration. Refer to the SelectPro software for supply side configurations.

5-year warranty

UNION TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union nut	forged brass
Tailpiece	forged brass with red brass tail extension
O-ring	EPDM
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½...2"	600 psi
Component temperature	250°F maximum
Fluid temperature range	14...250°F [-10...120°C] 39°F [4°C] on P2200SU-1000/ EV200H

ISOLATION VALVE TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Gland nut	extruded brass
Ball	chrome plated/hot forged brass
Stem	extruded brass
Union nut	forged brass
Tailpiece	forged brass
Seats	virgin PTFE
Packing	virgin PTFE
Stem o-rings	Viton
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½...¾"	600 psi
1...2"	500 psi
Component temperature	300°F maximum
Fluid temperature range	14...250°F [-10...120°C] 39°F [4°C] on P2200SU-1000/ EV200H
Leakage	0%

STRAINER TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union nut	forged brass
Ball	chrome plated/forged brass
Stem & gland nut	forged brass
Tailpiece	forged brass
Seals & packing	PTFE
Stem o-rings	Viton
Strainer screen	304 stainless steel /20 mesh standard
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½...2"	600 psi
Component temperature	325°F maximum
Fluid temperature range	14...250°F [-10...120°C] 39°F [4°C] on P2200SU-1000/ EV200H
Leakage	0%

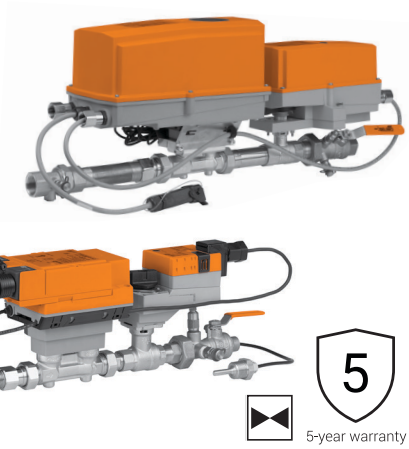
HOSE TECHNICAL SPECIFICATIONS

External braiding	stainless steel AISI 304
Crimping ferrules	stainless steel AISI 304
Connectors	machined brass
Fiber gasket	BA-U fiber washer
Core	formulated EPDM
Operating & burst pressure rating:	
½"	375 psi operating *400 psi <195°F [90°C]
	1500 psi burst pressure
¾"	300 psi operating *400 psi <195°F [90°C]
	1200 psi burst pressure
1"	225 psi operating
	900 psi burst pressure
1¼"	200 psi operating
	800 psi burst pressure
1½"	175 psi operating
	600 psi burst pressure
2"	150 psi operating
	500 burst pressure
Component temperature	-5...+230°F [-20...+110°C] less than 41°F with use of glycol additive

Note: Fluid temperature may be limited by the hose rating

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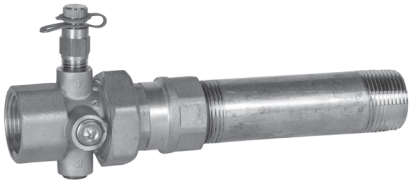
Piping Packages for 2-way Electronic Pressure Independent Valves (EPIV) and Energy Valves (EV)



5-year warranty

COMPONENT ORDER NOMENCLATURE

EXAMPLE: PE	21C	2110	2111	3
	Union PPU21C	Isolation PPV2110	Strainer PPS2111	Hose PHOSE3



UNION WITH 5X DN TAIL

Nominal Size	Part Number	List Price
½"	PPU11C	$129
¾"	PPU21C	$166
1"	PPU31C	$227
1¼"	PPUB1C	$367
1½"	PPUA1C	$482
2"	PPUC1C	$711

Note: EV/EPIV hybrid unions currently available in F-NPT, no size reduction.
All combinations of reorder numbers are not reflected. Please contact customer service or download the SelectPro software at www.belimo.us to configure other possible combinations.

Please Note: For return policy, refer to Piping Package section in Terms and Conditions.

*** Contains Non-Standard Items**

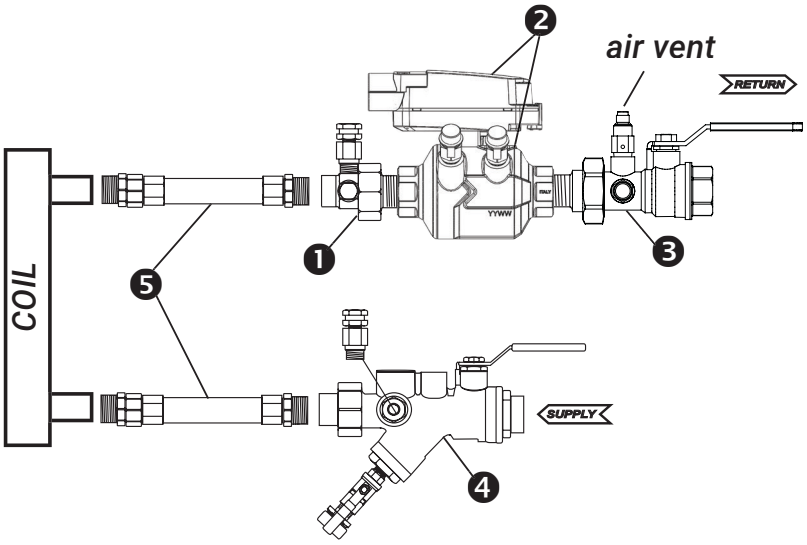
PIPING PACKAGE SMARTCODE (EPIV/EV)			UNION	ISOLATION VALVE	STRAINER	LIST PRICE
Piping Package Part # (2-way EPIV/EV) without hose	Valve Nominal Size		Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
	Inches	DN [mm]				
PE 11C 1110 1111 0	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$465
PE 11C 1210 1212 0	½	15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$465
PE 11C 11B0 11B3 0*	½	15	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$553
PE 21C 2110 2111 0	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$566
PE 21C 2210 2212 0	¾	20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$567
PE 21C 21B0 21B3 0*	¾	20	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$736
PE 31C 3110 3111 0	1	25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$734
PE 31C 3210 3212 0	1	25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$734
PE 31C 31B0 21B3 0*	1	25	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$966
PE B1C B110 B111 0*	1¼	32	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,354
PE B1C B210 B212 0*	1¼	32	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$1,354
PE B1C B1B0 B1B3 0*	1¼	32	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,930
PE A1C A110 A111 0*	1½	40	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,680
PE A1C A210 A212 0*	1½	40	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$1,680
PE A1C A1B0 A1B3 0*	1½	40	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$2,555
PE C1C C110 C111 0*	2	50	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$2,418
PE C1C C210 C212 0*	2	50	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$2,414
PE C1C C1B0 C1B3 0*	2	50	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$3,867

PIPING PACKAGE SMARTCODE (EPIV/EV)			UNION	ISOLATION VALVE	STRAINER	LIST PRICE
Piping Package Part # (2-way EPIV/EV) with short hose	Valve Nominal Size		Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
	Inches	DN [mm]				
PE 11C 1110 1111 1	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$585
PE 11C 1210 1211 1	½	15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$585
PE 11C 11B0 11B3 1*	½	15	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$673
PE 21C 2110 2111 3	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$762
PE 21C 2210 2211 3	¾	20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$763
PE 21C 21B0 21B3 3*	¾	20	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$932
PE 31C 3110 3111 5	1	25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,108
PE 31C 3210 3211 5	1	25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$1,108
PE 31C 31B0 31B3 5*	1	25	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,340
PE B1C B110 B111 A*	1¼	32	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$2,026
PE B1C B210 B211 A*	1¼	32	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$2,026
PE B1C B1B0 B1B3 A*	1¼	32	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$2,602
PE A1C A110 A111 C*	1½	40	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$2,638
PE A1C A210 A211 C*	1½	40	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$2,638
PE A1C A1B0 A1B3 C*	1½	40	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$3,513
PE C1C C110 C111 F*	2	50	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$4,462
PE C1C C210 C211 F*	2	50	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$4,458
PE C1C C1B0 C1B3 F*	2	50	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$5,911

PIPING PACKAGE SMARTCODE (EPIV/EV)			UNION	ISOLATION VALVE	STRAINER	LIST PRICE
Piping Package Part # (2-way EPIV/EV) with long hose	Valve Nominal Size		Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
	Inches	DN [mm]				
PE 11C 1110 1111 2	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$621
PE 11C 1210 1211 2	½	15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$621
PE 11C 11B0 11B3 2*	½	15	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$709
PE 21C 2110 2111 4	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$820
PE 21C 2210 2211 4	¾	20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$821
PE 21C 21B0 21B3 4*	¾	20	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$990
PE 31C 3110 3111 6	1	25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,168
PE 31C 3210 3211 6	1	25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$1,168
PE 31C 31B0 31B3 6*	1	25	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,400
PE B1C B110 B111 B*	1¼	32	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$2,226
PE B1C B210 B211 B*	1¼	32	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$2,226
PE B1C B1B0 B1B3 B*	1¼	32	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$2,802
PE A1C A110 A111 E*	1½	40	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$3,016
PE A1C A210 A211 E*	1½	40	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$3,016
PE A1C A1B0 A1B3 E*	1½	40	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$3,891
PE C1C C110 C111 G*	2	50	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$4,792
PE C1C C210 C211 G*	2	50	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$4,788
PE C1C C1B0 C1B3 G*	2	50	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$6,241

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Piping Packages for 2-way ZoneTight Pressure Independent Zone Valves (PIQCV)



2-way PIQCV (½ ...¾") Return Side Package (Standard)

1. Union
2. Belimo Valve and Actuator (Not included in Smart Code or List Price)
3. Isolation Valve
4. Strainer or Isolation Valve (Strainer shown)
5. Optional hoses are available (Ships loose with the package)

Supply side packages feature the Belimo control valve on the supply side of the coil and the above components arranged in a supply configuration. Refer to the SelectPro software for supply side configurations.

5
5-year warranty

UNION TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾"
Materials:	
Body	forged brass
Union nut	forged brass
Tailpiece	forged brass
O-ring	EPDM
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½...¾"	600 psi
Component temperature	250°F maximum
Fluid temperature range	36...212°F [2...100°C]

ISOLATION VALVE TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾"
Materials:	
Body	forged brass
Gland nut	extruded brass
Ball	chrome plated/hot forged brass
Stem	extruded brass
Union nut	forged brass
Tailpiece	forged brass
Seats	virgin PTFE
Packing	virgin PTFE
Stem o-rings	Viton
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½...¾"	600 psi
Component temperature	300°F maximum
Fluid temperature range	36...212°F [2...100°C]
Leakage	0%

STRAINER TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾"
Materials:	
Body	forged brass
Union nut	forged brass
Ball	chrome plated/forged brass
Stem & gland nut	forged brass
Tailpiece	forged brass
Seals & packing	PTFE
Stem o-rings	Viton
Strainer screen	304 stainless steel /20 mesh standard
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½...¾"	600 psi
Component temperature	325°F maximum
Fluid temperature range	36...212°F [2...100°C]
Leakage	0%

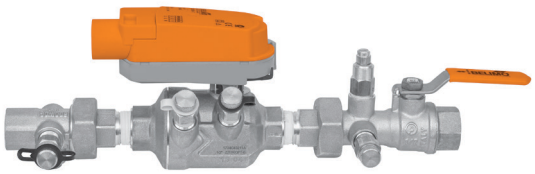
HOSE TECHNICAL SPECIFICATIONS

External braiding	stainless steel AISI 304
Crimping ferrules	stainless steel AISI 304
Connectors	machined brass
Fiber gasket	BA-U fiber washer
Core	formulated EPDM
Operating & burst pressure rating:	
½"	375 psi operating *400 psi <195°F [90°C]
	1500 psi burst pressure
¾"	300 psi operating *400 psi <195°F [90°C]
	1200 psi burst pressure
Component temperature	-5...+230°F [-20...+110°C] less than 41°F with use of glycol additive

Note: Fluid temperature may be limited by the hose rating

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Piping Packages for 2-way ZoneTight Pressure Independent Zone Valves (PIQCV)



5-year warranty

COMPONENT ORDER NOMENCLATURE

EXAMPLE: PP	211	2110	2111	3
	Union PPU211	Isolation PPV2110	Strainer PPS2111	Hose PHOSE3



Extension Packages Include:

- Extended handle for Isolation Valve and Strainer
- Extended P/T port for Union, Isolation Valve and Strainer
- Extended air vent for Isolation Valve

PIPING PACKAGE SMARTCODE (PIQCV)			UNION	ISOLATION VALVE	STRAINER	LIST PRICE
Piping Package Part # (2-way PIQCV) without hose	Valve Nominal Size		Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
	Inches	DN [mm]				
PP 111 1110 1111 0	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$417
PP 121 1210 1212 0	½	15	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$417
PP 131 1110 1113 0	½	15	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$417
PP 11B 11B0 11B3 0*	½	15	Press/M-NPT	Press/M-NPT	Press/F-NPT	$566
PP 211 2110 2111 0	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$491
PP 221 2210 2212 0	¾	20	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$492
PP 231 2110 2113 0	¾	20	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$491
PP 21B 21B0 21B3 0*	¾	20	Press/M-NPT	Press/M-NPT	Press/F-NPT	$757

PIPING PACKAGE SMARTCODE (PIQCV)			UNION	ISOLATION VALVE	STRAINER	LIST PRICE
Piping Package Part # (2-way PIQCV) with short hose	Valve Nominal Size		Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
	Inches	DN [mm]				
PP 111 1110 1111 1	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$537
PP 111 1210 1211 1	½	15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$537
PP 111 11B0 11B3 1*	½	15	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$625
PP 211 2110 2111 3	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$687
PP 211 2210 2211 3	¾	20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$688
PP 211 21B0 21B3 3*	¾	20	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$857

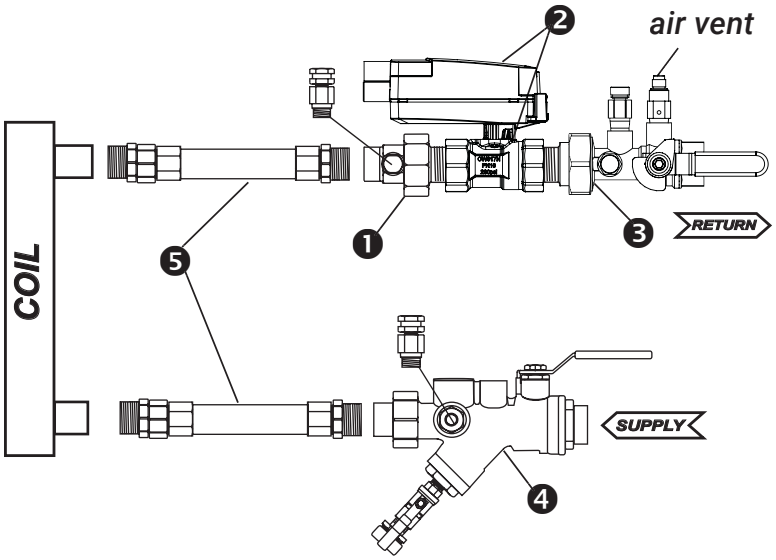
PIPING PACKAGE SMARTCODE (PIQCV)			UNION	ISOLATION VALVE	STRAINER	LIST PRICE
Piping Package Part # (2-way PIQCV) with long hose	Valve Nominal Size		Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
	Inches	DN [mm]				
PP 111 1110 1111 2	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$573
PP 111 1210 1211 2	½	15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$573
PP 111 11B0 11B3 2*	½	15	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$661
PP 211 2110 2111 4	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$745
PP 211 2210 2211 4	¾	20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$746
PP 211 21B0 21B3 4*	¾	20	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$915

All combinations of reorder numbers are not reflected above. Please use the nomenclature or download the SelectPro software at www.belimo.us to configure other possible combinations.

Please Note: For return policy, refer to Piping Package section in Terms and Conditions.

*** Contains Non-Standard Items**

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2-way QCV (½...1" NPT)
Return Side Package (Standard)

1. Union
2. Belimo Valve and Actuator (Not included in Smart Code or List Price)
3. Manual Balance Valve
4. Strainer
5. Optional hoses are available (Ships loose with the package)

Supply side packages feature the Belimo control valve on the supply side of the coil and the above components arranged in a supply configuration. Refer to the SelectPro software for supply side configurations.

5
5-year warranty

UNION TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾", 1"
Materials:	
Body	forged brass
Union nut	forged brass
Tailpiece	forged brass
O-ring	EPDM
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½...1"	600 psi
Component temperature	250°F maximum
Fluid temperature range	36...212°F [2...100°C]

MANUAL BALANCE VALVE TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾", 1"
Materials:	
Body	forged brass
Ball	chrome plated/forged brass
Stem	extruded brass
Union	forged brass
Tailpiece	forged brass
Gland nut	extruded brass
Seats & packing	virgin PTFE
O-rings	Viton
Venturi	extruded brass
Readout port body & cap	extruded brass
Readout port seal	Nordel
Memory stop	forged brass
Pressure/temperature ratings:	
½...1"	400 psi
Component temperature	300°F maximum
Fluid temperature range	36...212°F [2...100°C]
Leakage	0%

STRAINER TECHNICAL SPECIFICATIONS

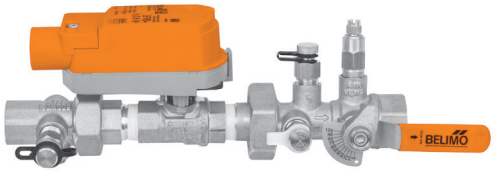
Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾", 1"
Materials:	
Body	forged brass
Union nut	forged brass
Ball	chrome plated/forged brass
Stem & gland nut	forged brass
Tailpiece	forged brass
Seals & packing	PTFE
Stem o-rings	Viton
Strainer screen	304 stainless steel /20 mesh standard
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½...1"	600 psi
Component temperature	325°F maximum
Fluid temperature range	36...212°F [2...100°C]
Leakage	0%

HOSE TECHNICAL SPECIFICATIONS

External braiding	stainless steel AISI 304
Crimping ferrules	stainless steel AISI 304
Connectors	machined brass
Fiber gasket	BA-U fiber washer
Core	formulated EPDM
Operating & burst pressure rating:	
½"	375 psi operating *400 psi <195°F [90°C]
	1500 psi burst pressure
¾"	300 psi operating *400 psi <195°F [90°C]
	1200 psi burst pressure
1"	225 psi operating
	900 psi burst pressure
Component temperature	-5...+230°F [-20...+110°C] less than 41°F with use of glycol additive

Note: Fluid temperature may be limited by the hose rating

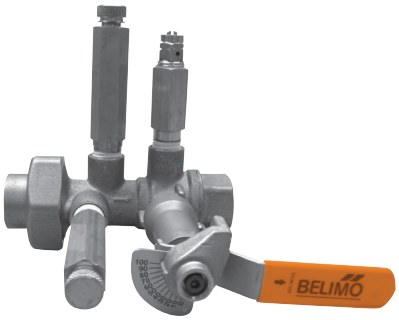
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5-year warranty

COMPONENT ORDER NOMENCLATURE

EXAMPLE: PQ	111	1111	1111	0
	Union PPU111	MBV PPL1111	Strainer PPS1111	No Hose



Extension Packages Include:

- Extended handle for Manual Balance Valve, Isolation Valve and Strainer
- Extended P/T ports for Union, Manual Balance Valve, Strainer or Isolation Valve
- Extended air vent for Manual Balance Valve and Isolation Valve

PIPING PACKAGE SMARTCODE (ZONETIGHT)			UNION	MANUAL BALANCE VALVE**	STRAINER	LIST PRICE
Piping Package Model # (2-way QCV) without hose	Valve Nominal Size		Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
	Inches	DN [mm]				
PQ 111 1111 1111 0	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$516
PQ 121 1211 1212 0	½	15	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$523
PQ 131 1111 1113 0	½	15	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$516
PQ 11B 11B1 11B3 0*	½	15	Press/M-NPT	Press/M-NPT	Press/F-NPT	$670
PQ 211 2111 2111 0	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$576
PQ 221 2211 2212 0	¾	20	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$576
PQ 231 2111 2113 0	¾	20	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$576
PQ 21B 21B1 21B3 0*	¾	20	Press/M-NPT	Press/M-NPT	Press/F-NPT	$846
PQ 311 3114 3111 0	1	25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$761
PQ 321 3214 3212 0	1	25	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$761
PQ 331 3114 3113 0	1	25	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$761
PQ 31B 31B4 31B3 0*	1	25	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,130

PIPING PACKAGE SMARTCODE (ZONETIGHT)			UNION	MANUAL BALANCE VALVE**	STRAINER	LIST PRICE
Piping Package Model # (2-way QCV) with short hose	Valve Nominal Size		Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
	Inches	DN [mm]				
PQ 111 1111 1111 1	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$636
PQ 111 1211 1211 1	½	15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$643
PQ 111 11B1 11B3 1*	½	15	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$729
PQ 211 2111 2111 3	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$772
PQ 211 2211 2211 3	¾	20	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	$772
PQ 211 21B1 21B3 3*	¾	20	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$946
PQ 311 3114 3111 5	1	25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,135
PQ 321 3214 3211 5	1	25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$1,135
PQ 331 31B4 31B3 5*	1	25	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,366

PIPING PACKAGE SMARTCODE (ZONETIGHT)			UNION	MANUAL BALANCE VALVE**	STRAINER	LIST PRICE
Piping Package Model # (2-way QCV) with long hose	Valve Nominal Size		Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
	Inches	DN [mm]				
PQ 111 1111 1111 2	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$672
PQ 111 1211 1211 2	½	15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$679
PQ 111 11B1 11B3 2*	½	15	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$765
PQ 211 2111 2111 4	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$830
PQ 211 2211 2111 4	¾	20	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	$830
PQ 211 21B1 21B3 4*	¾	20	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,004
PQ 311 3114 3111 6	1	25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,195
PQ 321 3214 3212 6	1	25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$1,195
PQ 331 31B4 31B3 6*	1	25	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,426

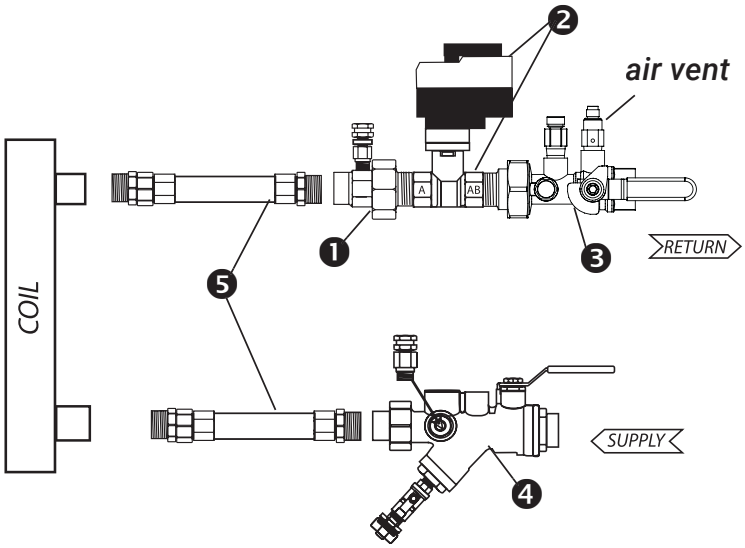
All combinations of reorder numbers are not reflected above. Please use the nomenclature or download the SelectPro software at www.belimo.us to configure other possible combinations.
**Manual Balance Valve require flow consideration for proper selection. Reference 18-1 or Select-Pro for flow ranges.

Please Note: For return policy, refer to Piping Package section in Terms and Conditions.

*** Contains Non-Standard Items**

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Piping Packages for 2-way Characterized Control Valves (CCV)



2-way CCV (½...2") Return Side Package (Standard)

1. Union
2. Belimo Valve and Actuator (Not included in Smart Code or List Price)
3. Manual Balance Valve
4. Strainer
5. Optional hoses are available (Ships loose with the package)

Supply side packages feature the Belimo control valve on the supply side of the coil and the above components arranged in a supply configuration. Refer to the SelectPro software for supply side configurations.

5-year warranty

UNION TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union nut	forged brass
Tailpiece	forged brass
O-ring	EPDM
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½...2"	600 psi
Component temperature	250°F maximum
Fluid temperature range	0...250°F [-18...+120°C]

MANUAL BALANCE VALVE TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Ball	chrome plated/forged brass
Stem	extruded brass
Union	forged brass
Tailpiece	forged brass
Gland nut	extruded brass
Seats & packing	virgin PTFE
O-rings	viton
Venturi	extruded brass
Readout port body & cap	extruded brass
Readout port seal	Nordel
Memory stop	forged brass
Pressure/temperature ratings:	
½...2"	400 psi
Component temperature	300°F maximum
Fluid temperature range	0...250°F [-18...+120°C]
Leakage	0%

STRAINER TECHNICAL SPECIFICATIONS

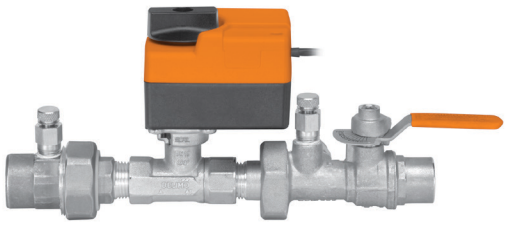
Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union nut	forged brass
Ball	chrome plated/forged brass
Stem & gland nut	forged brass
Tailpiece	forged brass
Seals & packing	PTFE
Stem o-rings	Viton
Strainer screen	304 stainless steel /20 mesh standard
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½...2"	600 psi
Component temperature	325°F maximum
Fluid temperature range	0...250°F [-18...+120°C]
Leakage	0%

HOSE TECHNICAL SPECIFICATIONS

External braiding	stainless steel AISI 304
Crimping ferrules	stainless steel AISI 304
Connectors	machined brass
Fiber gasket	BA-U fiber washer
Core	formulated EPDM
Operating & burst pressure rating:	
½"	375 psi operating *400 psi <195°F [90°C]
	1500 psi burst pressure
¾"	300 psi operating *400 psi <195°F [90°C]
	1200 psi burst pressure
1"	225 psi operating
	900 psi burst pressure
1¼"	200 psi operating
	800 psi burst pressure
1½"	175 psi operating
	600 psi burst pressure
2"	150 psi operating
	500 burst pressure
Component temperature	-5...+230°F [-20...+110°C] less than 41°F with use of glycol additive

Note: Fluid temperature may be limited by the hose rating

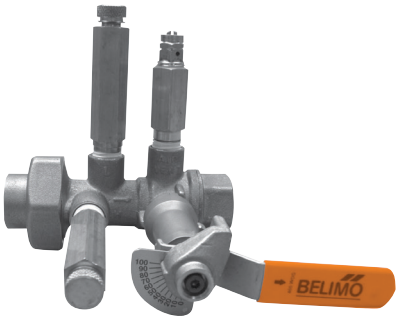
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5-year warranty

COMPONENT ORDER NOMENCLATURE

EXAMPLE: P2	111	1111	1111	1
	Union PPU111	MBV PPL1111	Strainer PPS1111	Hose PHOSE1



Extension Packages Include:

- Extended handle for Manual Balance Valve, Isolation Valve and Strainer
- Extended P/T ports for Union, Manual Balance Valve, Strainer or Isolation Valve
- Extended air vent for Manual Balance Valve and Isolation Valve

All combinations of reorder numbers are not reflected. Please use the nomenclature or download the Select-Pro software at www.belimo.us to configure other possible combinations.

** Manual Balance Valve require flow consideration for proper selection. Reference 18-1 or Select-Pro for flow ranges.

Please Note: For return policy, refer to Piping Package section in Terms and Conditions.

*** Contains Non-Standard Items**

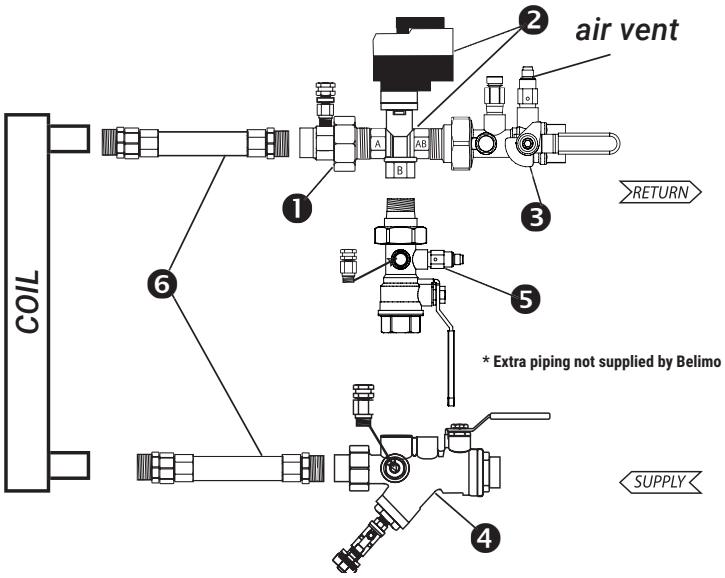
PIPING PACKAGE SMARTCODE (CCV)			UNION	MANUAL BALANCE VALVE**	STRAINER	LIST PRICE
Piping Package Model # (2-way CCV) without hose	Valve Nominal Size Inches	Valve Nominal Size DN [mm]	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
P2 111 1111 1111 0	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$516
P2 121 1211 1212 0	½	15	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$523
P2 131 1111 1113 0	½	15	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$516
P2 11B 11B1 11B3 0*	½	15	Press/M-NPT	Press/M-NPT	Press/F-NPT	$670
P2 211 2111 2111 0	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$576
P2 221 2211 2212 0	¾	20	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$576
P2 231 2111 2113 0	¾	20	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$576
P2 21B 21B1 21B3 0*	¾	20	Press/M-NPT	Press/M-NPT	Press/F-NPT	$846
P2 311 3114 3111 0	1	25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$761
P2 321 3214 3212 0	1	25	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$761
P2 331 3114 3113 0	1	25	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$761
P2 31B 31B4 31B3 0*	1	25	Press/M-NPT	Press/M-NPT	Press/F-NPT	$1,130
P2 B11 B11A B111 0*	1¼	32	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,155
P2 B21 B21A B212 0*	1¼	32	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$1,155
P2 B31 B11A B113 0*	1¼	32	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$1,155
P2 B1B B1BA B1B3 0*	1¼	32	Press/M-NPT	Press/M-NPT	Press/F-NPT	$2,119
P2 A11 A11B A111 0*	1½	40	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,391
P2 A21 A21B A212 0*	1½	40	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$1,391
P2 A31 A11B A113 0*	1½	40	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$1,391
P2 A1B A1BB A1B3 0*	1½	40	Press/M-NPT	Press/M-NPT	Press/F-NPT	$2,810
P2 C11 C11C C111 0*	2	50	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$2,000
P2 C21 C21C C212 0*	2	50	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$1,996
P2 C31 C11C C113 0*	2	50	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$2,000
P2 C1B C1BC C1B3 0*	2	50	Press/M-NPT	Press/M-NPT	Press/F-NPT	$4,336

PIPING PACKAGE SMARTCODE (CCV)			UNION	MANUAL BALANCE VALVE**	STRAINER	LIST PRICE
Piping Package Model # (2-way CCV) with short hose	Valve Nominal Size Inches	Valve Nominal Size DN [mm]	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
P2 111 1111 1111 1	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$636
P2 111 1211 1211 1	½	15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$643
P2 111 11B1 11B3 1*	½	15	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$729
P2 211 2111 2111 3	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$772
P2 211 2211 2211 3	¾	20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$772
P2 211 21B1 21B3 3*	¾	20	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$946
P2 311 3114 3111 5	1	25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,135
P2 311 3214 3211 5	1	25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$1,135
P2 311 31B4 31B3 5*	1	25	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,366
P2 B11 B11A B111 A*	1¼	32	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,827
P2 B11 B21A B211 A*	1¼	32	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$1,827
P2 B11 B1BA B1B3 A*	1¼	32	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$2,440
P2 A11 A11B A111 C*	1½	40	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$2,349
P2 A11 A21B A211 C*	1½	40	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$2,349
P2 A11 A1BB A1B3 C*	1½	40	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$3,282
P2 C11 C11C C111 F*	2	50	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$4,044
P2 C11 C21C C211 F*	2	50	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$4,040
P2 C11 C1BC C1B3 F*	2	50	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$5,583

PIPING PACKAGE SMARTCODE (CCV)			UNION	MANUAL BALANCE VALVE**	STRAINER	LIST PRICE
Piping Package Model # (2-way CCV) with long hose	Valve Nominal Size Inches	Valve Nominal Size DN [mm]	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
P2 111 1111 1111 2	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$672
P2 111 1211 1211 2	½	15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$679
P2 111 11B1 11B3 2*	½	15	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$765
P2 211 2111 2111 4	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$830
P2 211 2211 2211 4	¾	20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$830
P2 211 21B1 21B3 4*	¾	20	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,004
P2 311 3114 3111 6	1	25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,195
P2 311 3214 3211 6	1	25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$1,195
P2 311 31B4 31B3 6*	1	25	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,426
P2 B11 B11A B111 B*	1¼	32	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$2,027
P2 B11 B21A B211 B*	1¼	32	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$2,027
P2 B11 B1BA B1B3 B*	1¼	32	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$2,640
P2 A11 A11B A111 E*	1½	40	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$2,727
P2 A11 A21B A211 E*	1½	40	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$2,727
P2 A11 A1BB A1B3 E*	1½	40	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$3,660
P2 C11 C11C C111 G*	2	50	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$4,374
P2 C11 C21C C211 G*	2	50	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$4,370
P2 C11 C1BC C1B3 G*	2	50	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$5,913

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Piping Packages for 3-way Characterized Control Valves (CCV)



3-way CCV (½...2") Return Side Package (Standard)

1. Union
2. Belimo Valve and Actuator (Not included in Smart Code or List Price)
3. Manual Balance Valve
4. Strainer
5. Isolation Valve
6. Optional hoses are available (Ships loose with the package)

*Note: Extra piping for Isolation Valve to CCV and Strainer is required (not supplied).

Supply side packages feature the Belimo control valve on the supply side of the coil and the above components arranged in a supply configuration. Refer to the SelectPro software for supply side configurations.

5-year warranty

UNION TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union nut	forged brass
Tailpiece	forged brass
O-ring	EPDM
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½...2"	600 psi
Component temperature	250°F maximum
Fluid temperature range	0...250°F [-18...+120°C]

MANUAL BALANCE VALVE TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Ball	chrome plated/forged brass
Stem	extruded brass
Union	forged brass
Tailpiece	forged brass
Gland nut	extruded brass
Seats & packing	virgin PTFE
O-rings	Viton
Venturi	extruded brass
Readout port body & cap	extruded brass
Readout port seal	Nordel
Memory stop	forged brass
Pressure/temperature ratings:	
½...2"	400 psi
Component temperature	300°F maximum
Fluid temperature range	0...250°F [-18...+120°C]
Leakage	0%

STRAINER TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union nut	forged brass
Ball	chrome plated/forged brass
Stem & gland nut	forged brass
Tailpiece	forged brass
Seals & packing	PTFE
Stem o-rings	Viton
Strainer screen	304 stainless steel / 20 mesh standard
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½...2"	600 psi
Component temperature	325°F maximum
Fluid temperature range	0...250°F [-18...+120°C]
Leakage	0%

ISOLATION VALVE TECHNICAL SPECIFICATIONS

Fluid	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Gland nut	extruded brass
Ball	chrome plated/hot forged brass
Stem	extruded brass
Union nut	forged brass
Tailpiece	forged brass
Seats	virgin PTFE
Packing	virgin PTFE
Stem o-rings	Viton
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½...¾"	600 psi
1...2"	500 psi
Component temperature	300°F maximum
Fluid temperature range	0...250°F [-18...+120°C]
Leakage	0%

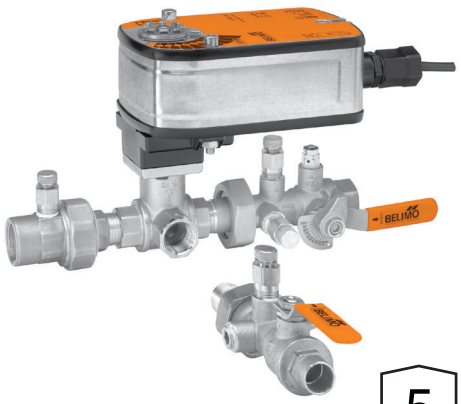
HOSE TECHNICAL SPECIFICATIONS

External braiding	stainless steel AISI 304
Crimping ferrules	stainless steel AISI 304
Connectors	machined brass
Fiber gasket	BA-U fiber washer
Core	formulated EPDM
Operating & burst pressure rating:	
½"	375 psi operating *400 psi <195°F [90°C]
	1500 psi burst pressure
¾"	300 psi operating *400 psi <195°F [90°C]
	1200 psi burst pressure
1"	225 psi operating
	900 psi burst pressure
1¼"	200 psi operating
	800 psi burst pressure
1½"	175 psi operating
	600 psi burst pressure
2"	150 psi operating
	500 burst pressure
Component temp.	-5...+230°F [-20...+110°C] less than 41°F with use of glycol additive.

Note: Fluid temperature may be limited by the hose rating

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Piping Packages for 3-way Characterized Control Valves (CCV)

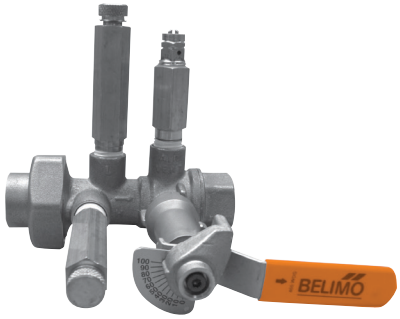


5-year warranty

COMPONENT ORDER NOMENCLATURE

EXAMPLE: P3	311	3114	3111	5
	Union PPU311	MBV PPL3114	Strainer PPS3111	Hose PHOSE5

Includes PPV3110



Extension Packages Include:

- Extended handle for Manual Balance Valve, Isolation Valve and Strainer
- Extended P/T ports for Union, Manual Balance Valve, Strainer or Isolation Valve
- Extended air vent for Manual Balance Valve and Isolation Valve

All combinations of reorder numbers are not reflected. Please use the nomenclature or download the Select-Pro software at www.belimo.us to configure other possible combinations.

** Manual Balance Valve require flow consideration for proper selection. Reference 18-1 or Select-Pro for flow ranges.

Please Note: For return policy, refer to Piping Package section in Terms and Conditions.

*** Contains Non-Standard Items**

PIPING PACKAGE SMARTCODE (CCV)			UNION	MANUAL BALANCE VALVE**	STRAINER	LIST PRICE
Piping Package Model # (3-way CCV) without hose	Valve Nominal Size Inches	Valve Nominal Size DN [mm]	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
P3 111 1111 1111 0	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$659
P3 121 1211 1212 0	½	15	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$666
P3 131 1111 1113 0	½	15	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$659
P3 11B 11B1 11B3 0*	½	15	Press/M-NPT	Press/M-NPT	Press/F-NPT	$813
P3 211 2111 2111 0	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$740
P3 221 2211 2212 0	¾	20	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$740
P3 231 2111 2113 0	¾	20	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$740
P3 21B 21B1 21B3 0*	¾	20	Press/M-NPT	Press/M-NPT	Press/F-NPT	$1,010
P3 311 3114 3111 0	1	25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,005
P3 321 3214 3212 0	1	25	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$1,005
P3 331 3114 3113 0	1	25	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$1,005
P3 31B 31B4 31B3 0*	1	25	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,374
P3 B11 B11A B111 0*	1¼	32	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,712
P3 B21 B21A B212 0*	1¼	32	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$1,712
P3 B31 B11A B113 0*	1¼	32	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$1,712
P3 B1B B1BA B1B3 0*	1¼	32	Press/M-NPT	Press/M-NPT	Press/F-NPT	$2,676
P3 A11 A11B A111 0*	1½	40	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$2,107
P3 A21 A21B A212 0*	1½	40	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$2,107
P3 A31 A11B A113 0*	1½	40	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$2,107
P3 A1B A1BB A1B3 0*	1½	40	Press/M-NPT	Press/M-NPT	Press/F-NPT	$3,526
P3 C11 C11C C111 0*	2	50	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$2,969
P3 C21 C21C C212 0*	2	50	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	$2,965
P3 C31 C11C C113 0*	2	50	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	$2,969
P3 C1B C1BC C1B3 0*	2	50	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$5,305

PIPING PACKAGE SMARTCODE (CCV)			UNION	MANUAL BALANCE VALVE**	STRAINER	LIST PRICE
Piping Package Model # (3-way CCV) with short hose	Valve Nominal Size Inches	Valve Nominal Size DN [mm]	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
P3 111 1111 1111 1	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$779
P3 111 1211 1211 1	½	15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$786
P3 111 11B1 11B3 1*	½	15	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$872
P3 211 2111 2111 3	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$936
P3 211 2211 2211 3	¾	20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$936
P3 211 21B1 21B3 3*	¾	20	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,110
P3 311 3114 3111 5	1	25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,379
P3 311 3214 3211 5	1	25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$1,379
P3 311 31B4 31B3 5*	1	25	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,610
P3 B11 B11A B111 A*	1¼	32	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$2,384
P3 B11 B21A B211 A*	1¼	32	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$2,384
P3 B11 B1BA B1B3 A*	1¼	32	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$2,997
P3 A11 A11B A111 C*	1½	40	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$3,065
P3 A11 A21B A211 C*	1½	40	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$3,065
P3 A11 A1BB A1B3 C*	1½	40	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$3,998
P3 C11 C11C C111 F*	2	50	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$5,013
P3 C11 C21C C211 F*	2	50	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$5,009
P3 C11 C1BC C1B3 F*	2	50	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$6,552

PIPING PACKAGE SMARTCODE (CCV)			UNION	MANUAL BALANCE VALVE**	STRAINER	LIST PRICE
Piping Package Model # (3-way CCV) with long hose	Valve Nominal Size Inches	Valve Nominal Size DN [mm]	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
P3 111 1111 1111 2	½	15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$815
P3 111 1211 1211 2	½	15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$822
P3 111 11B1 11B3 2*	½	15	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$908
P3 211 2111 2111 4	¾	20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$994
P3 211 2211 2211 4	¾	20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$994
P3 211 21B1 21B3 4*	¾	20	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,168
P3 311 3114 3111 6	1	25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$1,439
P3 311 3214 3211 6	1	25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	$1,439
P3 311 31B4 31B3 6*	1	25	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$1,670
P3 B11 B11A B111 B*	1¼	32	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$2,584
P3 B11 B21A B211 B*	1¼	32	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$2,584
P3 B11 B1BA B1B3 B*	1¼	32	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$3,197
P3 A11 A11B A111 E*	1½	40	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$3,443
P3 A11 A21B A211 E*	1½	40	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$3,443
P3 A11 A1BB A1B3 E*	1½	40	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$4,376
P3 C11 C11C C111 G*	2	50	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	$5,343
P3 C11 C21C C211 G*	2	50	F-NPT/M-NPT	Sweat/M-NPT	Sweat/Sweat	$5,339
P3 C11 C1BC C1B3 G*	2	50	F-NPT/M-NPT	Press/M-NPT	Press/F-NPT	$6,882

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Retrofit Solutions



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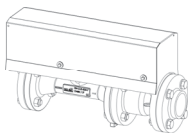
19 VALVE ASSEMBLY ACCESSORIES

Added Protection

- Weather shields are designed for additional valve protection when mounted outdoors.
- Auxiliary switches to indicate when the desired position of a valve is reached or to interface controls for a particular control sequence.
- Feedback potentiometers to provide a resistive signal.

Alan Kovacs, VP, Quality and Customer Service Americas

BELIMO

WEATHER SHIELDS		VALVES	LR	NR	AR	GR	AKR	GK/ GKR	LF	NF	AF/ AFR	LM	NM	AM	GM	List Price
	**ZS-EPIV-EV-20-NF**** For valve sizes ½...¾" [DN15...DN20] (cover only)	Energy Valves	•													$793
		EPIV	•													
	ZS-EPIV-EV-50-SCNF** For valve sizes 1...2" [DN25...DN50] on non-fail-safe actuator series (cover only) For valve sizes ½...2" [DN15...DN50] on electronic fail-safe actuator series (cover only)	Energy Valves	•	•	•		•									$793
		EPIV	•	•	•		•									
	ZS-EPIV-EV-80 For ANSI 125, valve sizes 2½" [DN65] and 3" [DN80] (cover only). For assemblies with electromagnetic flow sensor only	Energy Valves			•		•									$1,703
		EPIV			•		•									
	**ZS-EPIV-EV-150** For ANSI 125, valve sizes 4" [DN100], 5" [DN125], and 6" [DN150] (cover only). For assemblies with electromagnetic flow sensor only	Energy Valves				•		•								$1,703
		EPIV				•		•								
	ZS-EPIV-EV-80U For ANSI 125, valve sizes 2½" [DN65] and 3" [DN80] (cover only). For assemblies with ultrasonic flow sensor only	Energy Valves			•		•									$1,744
		EPIV			•		•									
	ZS-EPIV-EV-150U For ANSI 125, valve sizes 4" [DN100], 5" [DN125], and 6" [DN150] (cover only). For assemblies with ultrasonic flow sensor only	Energy Valves				•		•								$1,744
		EPIV				•		•								
	**ZS-CCV-90*** Kit for LF actuator series	PICCV							•							$338
		CCV							•							
	ZS-CCV-100* Kit for LR/AR actuator series	PICCV	•		•											$338
		CCV	•		•											
	**ZS-CCV-110*** Kit for AFR actuator series	PICCV									•					$338
		CCV									•					
	**ZS-SPBV-10** For NM, AM,GM, NF, AF, and GK actuator series	Ball Valves						•		•	•		•	•	•	$446
	ZS-SPBV-20 For dual mounted GM, AF, and GK actuator series							•			•				•	$446
	ZS-BVVS-0002 For LM actuator series on VS/VSS models											•				$442
	ZS-BVVS-0003 For LF actuator series on VS/VSS models								•							$442

*Designed for NEMA 4 specifications.
** Not Compatible with EV4/ EPIV4
NOTE: Weather shields are not available for B6 LGCCV, HTCCV, TFR, TR, ARQ, and KR actuators at this time. Please call 800-543-9038 for assistance.

WEATHER SHIELDS		VALVES	GM	2* GM	GR/ GKR	LF	NF	AF	2* AF	GK	2* GK	LV/ SV	EV/ RV	LVK/ SVK	AVK	List Price
	**ZS-SPGV-60** For LF actuators on NPT series	Globe Valves				•										$577
	ZS-SPGV-10 For dual AF series actuators on flanged globe valves								•							$621
	ZS-SPGV-20 For single NF, AF actuator series						•	•								$606

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WEATHER SHIELDS		VALVES	GM	2* GM	GR/ GKR	LF	NF	AF	2* AF	GK	2* GK	LV/ SV	EV/ RV	LVK/ SVK	AVK	List Price
	**ZS-SPGV-40** For GM, GK series on flanged globe valves	Globe Valves	•							•						$621
	ZS-SPGV-50 For dual GM, GK series on flanged globe valves			•							•					$606
	ZS-GV-001 For LV, SV actuators on NPT series											•		•		$754
	**ZS-GV-002** For EV, RV, AVK actuator on flanged series												•		•	$798
	ZS-BFV-20** For GM, GK actuators on F6, F7, HD, HDU, SHP, and VIC series	Butterfly Valves	•							•						$455
	ZS-BFV-30** For AF actuators on F6, F7, HD, HDU SHP, and VIC series							•								$455
	**ZS-BFV-60**** For dual GM, GK actuators on butterfly valves F6, HD, HDU (4...6"), SHP, and VIC series			•							•					$790
	ZS-BFV-70** For dual AF series on butterfly valves F6, HD, HDU (2½...3"), SHP and VIC series								•							$790
	ZS-BFV-90** For dual AF, single/dual GM, GK on F7 series (2...4"). No holes unless factory mounted		•	•					•	•	•					$809
	ZS-BFV-100** Dual GM/GK series for F7, HD, HDU, SHP (4...6"). **Two required**			•							•					$790
	ZS-BFV-110 GR, GKR series for F6, HD, HDU (4...6")				•											$809

**Cannot be used with direct mount actuators.

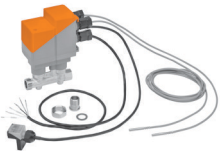
COVERS			List Price
	**ZS-T** Terminal cover for NEMA 2, -T models	*Available for all -T Model Actuators (except TR)*	$35

EPIV SENSORS		VALVES	LR	NR	AR	GR	AK	GK	List Price
	**M2415-EP** ½" ultrasonic flow sensor	EPIV	•				•		$907
	M2420-EP ¾" ultrasonic flow sensor		•				•		$917
	M2425-EP 1" ultrasonic flow sensor		•				•		$1,204
	M2432-EP 1¼" ultrasonic flow sensor			•			•		$1,851
	M2440-EP 1½" ultrasonic flow sensor			•			•		$1,985
	M2450-EP 2" ultrasonic flow sensor, 76.1 GPM				•		•		$2,285
	M2450-EP-100 2" ultrasonic flow sensor, 80 to 100 GPM				•		•		$2,285
	**M24250-EP** 2½" ultrasonic flow sensor - ANSI125				•		•		$8,956
	M24300-EP 3" ultrasonic flow sensor - ANSI125				•		•		$9,833
	M24400-EP 4" ultrasonic flow sensor - ANSI125					•		•	$10,587
	M24500-EP 5" ultrasonic flow sensor - ANSI125					•		•	$11,536
	M24600-EP 6" ultrasonic flow sensor - ANSI125					•		•	$12,432

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BELIMO

EPIV SENSORS		VALVES	LR	NR	AR	GR	AK	GK	List Price
	**M24250-EP-250** 2½" ultrasonic flow sensor - ANSI250	EPIV			•		•		$11,643
	M24300-EP-250 3" ultrasonic flow sensor - ANSI250				•		•		$12,781
	M24400-EP-250 4" ultrasonic flow sensor - ANSI250					•		•	$13,763
	M24500-EP-250 5" ultrasonic flow sensor - ANSI250					•		•	$14,998
	**M24600-EP-250** 6" ultrasonic flow sensor - ANSI250					•		•	$16,160
	EPIVFS-60 2½...6" ANSI 125 electromagnetic flow sensor				•	•	•	•	$2,428

ENERGY VALVE ACCESSORIES		VALVES	LR	NR	AR	GR	AKR	GKR	List Price
	EV050S-055 ½" Energy unit includes flow sensor, control valve, 2 temperature sensors and 2 fittings for temperature sensors	Energy Valves	•				•		$1,571
	EV075S-103 ¾" Energy unit includes flow sensor, control valve, 2 temperature sensors and 2 fittings for temperature sensors		•				•		$1,689
	EV100S-182 1" Energy unit includes flow sensor, control valve, 2 temperature sensors and 2 fittings for temperature sensors		•				•		$2,077
	**EV125S-285** 1¼" Energy unit includes flow sensor, control valve, 2 temperature sensors and 2 fittings for temperature sensors			•			•		$2,150
	EV150S-396 1½" Energy unit includes flow sensor, control valve, 2 temperature sensors and 2 fittings for temperature sensors			•			•		$2,518
	EV200S-761 2" Energy unit includes 76.1 GPM flow sensor, control valve, 2 temperature sensors, and 2 fittings for temperature sensors				•		•		$2,769
	EV200S-1000 2" Energy unit includes 80...100 GPM flow sensor, control valve, 2 temperature sensors, and 2 fittings for temperature sensors				•		•		$2,897
	M2415-EV ½" Energy Valve ultrasonic flow sensor		•				•		$1,465
	M2420-EV ¾" Energy Valve ultrasonic flow sensor		•				•		$1,520
	**M2425-EV** 1" Energy Valve ultrasonic flow sensor		•				•		$1,619
	M2432-EV 1¼" Energy Valve ultrasonic flow sensor			•			•		$2,159
	M2440-EV 1½" Energy Valve ultrasonic flow sensor			•			•		$2,258
	M2450-EV 2" Energy Valve ultrasonic flow sensor, up to 76.1 GPM				•		•		$2,742
	M2450-EV-100 2" Energy Valve flow sensor, 30...100 GPM				•		•		$2,680
	**EV FS-60** 2½...6" ANSI 125 Energy Valve electromagnetic flow sensor includes 2 temperature sensors				•	•	•	•	$3,003
	M24250-EV 2½" ANSI 125 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 125 ultrasonic sensor				•			•	$4,928
	M24300-EV 3" ANSI 125 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 125 ultrasonic sensor				•			•	$5,035
	M24400-EV 4" ANSI 125 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 125 ultrasonic sensor					•		•	$5,168
	M24500-EV 5" ANSI 125 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 125 ultrasonic sensor					•		•	$5,332
	M24600-EV 6" ANSI 125 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 125 ultrasonic sensor					•		•	$5,958

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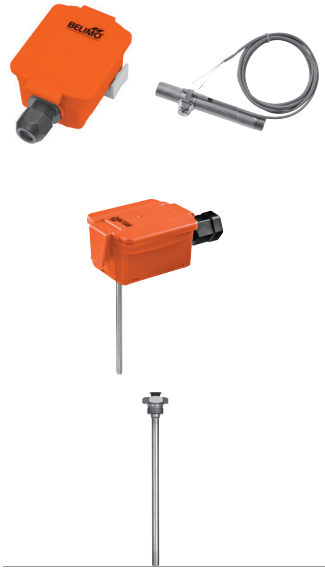
ENERGY VALVE ACCESSORIES		VALVES	LR	NR	AR	GR	AKR	GKR	List Price
	**A-22PE-A09** Temperature sensor, threaded pipe body ½", EV1...3	Energy Valves	•				•		$54
	A-22PE-A10 Temperature sensor fitting, threaded pipe body ¾", EV1...3		•				•		$63
	A-22PE-A11 Temperature sensor fitting, threaded pipe body 1", EV1...3		•				•		$76
	A-22PE-A12 Temperature sensor fitting, threaded pipe body 1¼", EV1...3			•			•		$93
	A-22PE-A13 Temperature sensor fitting, threaded pipe body 1½", EV1...3			•			•		$112
	A-22PE-A14 Temperature sensor fitting, threaded pipe body 2", EV1...3				•		•		$145
	**A-22PE-A15** Thermowell (½...2") 1" length, EV4		•	•	•		•		$32
	A-22PE-A16 Thermowell (½...2") 3" length, EV4		•	•	•		•		$49
	R-22PE-0UC Sensor Module, non MID version, ½", EV4		•	•	•		•		$1,124
	R-22PE-0UD Sensor Module, non MID version, ¾", EV4		•	•	•		•		$1,178
	R-22PE-0UE Sensor Module, non MID version, 1", EV4		•	•	•		•		$1,290
	R-22PE-0UF Sensor Module, non MID version, 1¼", EV4		•	•	•		•		$1,785
	R-22PE-0UG Sensor Module, non MID version, 1½", EV4		•	•	•		•		$1,968
	R-22PE-0UH Sensor Module, non MID version, 2", EV4		•	•	•		•		$2,451
	A-22PEM-A04 Silicone grommet with clamp IP 54 protection for Ethernet		•	•	•		•		$34
	G-22PEM-A01 Converter for M-BUS		•	•	•		•		$432
	EAP005 Clear Edge device. On-site platform for Energy Valve optmization. 5 valve licenses included		•	•	•	•	•	•	$7,432
	**EAP020** Clear Edge device. On-site platform for Energy Valve optmization. 20 valve licenses included		•	•	•	•	•	•	$11,242
	EAP050 Clear Edge device. On-site platform for Energy Valve optmization. 50 valve licenses included		•	•	•	•	•	•	$14,735

GLOBE VALVE ACCESSORIES		GLOBE VALVE	List Price
	ZG-GV60 Stem repacking kit for G2B, G2S, G3B series NPT valves	•	$174
	01ST-5B3 Stem repacking for G6, G7 series flanged valves	•	$320
	01HT-5L Coupler repair kit for LV, LVK, SV, SVK Globe Valve actuators	•	$23
	**01HT-5B** Stem adapter replacement for EV, RV, AVK Globe Valve actuators	•	$469

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BATTERY BACKUP		VALVES	LM/ LR	NM/ NR	AM	GM	AR	GR/ DR	EV	RV	PR	SY	List Price
	**NSV24 US** Battery backup module	Ball Valves	•	•	•	•							$1,248
		Globe Valves							•	•			
		Butterfly Valves					•	•			•		
	**NSV-BAT** DC 12 V 1.2 AH battery (2 required)	Ball Valves	•	•	•	•							$189
		Globe Valves							•	•			
		Butterfly Valves					•	•			•		
	**EXT-NSV-B03-120*** Battery backup system for SY4...SY6 AC 120 V, on/off actuators	Butterfly Valves										•	$10,698
	EXT-NSV-B04-120* Battery backup system for SY4...SY6 AC 120 V, MFT actuators											•	$12,274
	EXT-NSV-B13-24* Battery backup system for SY4...SY5 AC 24 V, on/off actuators											•	$13,240
	EXT-NSV-B14-24* Battery backup system for SY4...SY5 AC 24 V, MFT actuators											•	$12,980

NOTE: Each NSV-24 US requires 2 NSV-BAT. *All EXT part numbers are not returnable.

PR/PKR TEMPERATURE SENSORS		VALVE TYPE BUTTERFLY	List Price
	**01ST-5L3** Contact Temperature Sensor, NTC10k2, cable 6.5 ft. [2 m]	•	$50
	01ST-5B3 Contact Temperature Sensor, PT1000, cable 6.5 ft. [2 m]	•	$63
	01HT-5L Contact Temperature Sensor, NTC10k2	•	$56
	01HT-5B Contact Temperature Sensor, PT1000	•	$73
	01DT-5LN Immersion Temperature Sensor, NTC10k2, probe length 6" [150 mm]	•	$37
	01DT-5LP Immersion Temperature Sensor, NTC10k2, probe length 8" [200 mm]	•	$37
	01DT-5BN Immersion Temperature Sensor, PT1000, probe length 6" [150 mm]	•	$57
	01DT-5BP Immersion Temperature Sensor, PT1000, probe length 8" [200 mm]	•	$57
	A-22P-A09 Thermowell (2 part) stainless steel, 6" [150 mm], ½" NPT	•	$45
	A-22P-A11 Thermowell (2 part) stainless steel, 8" [200 mm], ½" NPT	•	$56

Additional sensor options are located in Section 20.

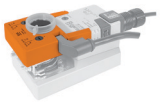
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REPLACEMENT TEMPERATURE SENSORS		VALVES	LR	NR	AR	GR	AKR	GKR	EV	AVK	List Price
	**EV-RT-15** Remote temperature sensor 4.9 ft. [1.5 m] for valve sizes 2½...6" [DN65...DN150]	Energy Valves			•	•	•	•	•	•	$849
	EV-RT-30 Remote temperature sensor 9.8 ft. [3 m] for valve sizes 2½...6" [DN65...DN150]				•	•	•	•	•	•	$849
	EV-RT-50 Remote temperature sensor 16.4 ft. [5 m] for valve sizes 2½...6" [DN65...DN150]				•	•	•	•	•	•	$849
	EV-RT-100 Remote temperature sensor 32.8 ft. [10 m] for valve sizes 2½...6" [DN65...DN150]				•	•	•	•	•	•	$849
	ZM-T15 Remote temperature sensor 4.9 ft. [1.5 m] for valve sizes ½...2" [DN15...DN50]		•	•	•		•				$674
	ZM-T30 Remote temperature sensor 9.8 ft. [3 m] for valve sizes ½...2" [DN15...DN50]		•	•	•		•				$674

ZTH REPLACEMENT CABLES		VALVES	AM	GM	AR	GR	DR	GK	DK	SY	List Price
	**ZK1-GEN** Cable for use with ZTH US to connect to new generation non fail-safe and electronic fail-safe actuators via diagnostic/programming socket	Ball Valves	•	•							$163
		Butterfly Valves	•	•	•	•	•	•	•		
	**ZK2-GEN** Cable for use with ZTH US to connect to actuators not equipped with diagnostic/programming socket	*Available for all MFT Actuators Only*									$76
	**ZK6-GEN** Cable for use with ZTH US to connect to SY actuator via RJII port	Ball Valves								•	$80
		Butterfly Valves								•	

PROGRAMMING TOOLS			List Price
	**Belimo Assistant (NFC) App** Allows fast programming, commissioning, and troubleshooting even when the actuator is not powered. Available through Google Play and Apple App Store	*Available on NFC Labeled Actuators Only*	No Charge
	**PC-Tool** Belimo MFT configuration software. Available in the download center at www.belimo.us	*Available for all MFT Actuators Only*	No Charge
	**ZTH US** Handheld interface module that allows field programming. Includes ZK1-GEN, ZK2-GEN, and ZK6-GEN cables	*Available for all MFT Actuators Only*	$1,072
	**ZIP-BT-NFC** Bluetooth® to NFC converter for temporary wireless operation of Belimo devices with NFC capabilities	*Available for NFC Labeled Actuators Only*	$361

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AUXILIARY SWITCHES & POTENTIOMETERS		VALVES	LR/LM	NR/NM	AR/AM	GR/GM	AK	GK/GKR	DR/DK	List Price
	**S1A** Auxiliary switch 1x SPDT, 3A (0.5A inductive) @ AC 250 V	Available for All Valves	•	•	•	•	•	•	•	$131
	S2A Auxiliary switch 2x SPDT, 3A (0.5A inductive) @ AC 250 V		•	•	•	•	•	•	•	$198
	P140A GR Feedback potentiometer 140 Ω		•	•	•	•	•	•	•	$218
	P500A GR Feedback potentiometer 500 Ω		•	•	•	•	•	•	•	$218
	P1000A GR Feedback potentiometer 1000 Ω		•	•	•	•	•	•	•	$218
	P2800A GR Feedback potentiometer 2800 Ω		•	•	•	•	•	•	•	$218
	**P5000A GR** Feedback potentiometer 5000 Ω		•	•	•	•	•	•	•	$218
	P10000A GR Feedback potentiometer 10000 Ω		•	•	•	•	•	•	•	$218

		VALVES	LV/SV	EV	RV	LVK/SVK	AVK	List Price
	**S2A-GV** Auxiliary switch 2x SPDT, 3A (0.5A inductive) @ AC 250 V for LV, SV, EV, and AVK series actuators	Energy Valves		•			•	$198
		EPIV		•			•	
		Globe Valves	•	•	•	•	•	

EXTENSION BRACKET*		VALVES	LR	AR	LF	AFR	List Price
	**ZR-EXT-01*** Linkage extension kit for CCV and PICCV	PICCV	•	•	•	•	$282
		CCV	•	•	•	•	

*ZR-EXT-01 is not compatible with HTCCV, LGCCV, and N4 actuators

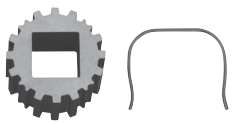
ELECTRIC DISCONNECT		VALVES	SY	List Price
	**HOA-120V** Local electric disconnect for SY4-SY12 110/230 V - 2 position	Ball Valves	•	$1,262
		Butterfly Valves	•	
	HOA-120VMFT Local electric disconnect for SY4-SY12 110/230 V - modulating	Ball Valves	•	$1,262
		Butterfly Valves	•	

HAND CRANK		PR	PKR	List Price
	**ZG-HND PR** Replacement hand crank for PR and PKR actuators	•	•	$56

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ZONETIGHT VALVE ACCESSORIES		VALVES	VALVE TYPE Z2 (2-WAY)	VALVE TYPE Z3 (3-WAY)	List Price
	**ZCQB-FL** Flow setter	PIQCV	•		$77
		QCV	•		
	**ZCQ-E** QCV or PIQCV valve stem extension. Designed for chilled/ hot water service 36...190°F [2...88°C] media temperature	PIQCV	•		$34
		QCV	•	•	
FLOW ORIFICE					
	**FO15010** ½" Flow orifice for 1.0 GPM	PIQCV	•		$146
		QCV	•		
	FO15025 ½" Flow orifice for 2.5 GPM	PIQCV	•		$146
		QCV	•		
	FO15055 ½" Flow orifice for 5.5 GPM	PIQCV	•		$146
		QCV	•		
	FO20100 ¾" Flow orifice for 10.0 GPM	QCV	•		$161
		PIQCV	•		
	FO25210 1" Flow orifice for 21.0 GPM	QCV	•		$177
		PIQCV	•		
ARCHITECTURAL COVER					
	**ZCQB-W** Housing cover for CQ actuators (white)	PIQCV	•		$30
		QCV	•	•	

MOUNTING BRACKET		VALVE TYPE 6-WAY CCV	List Price
	**ZR-004** Mounting bracket for 6-way CCV. Includes screw kit M4.	•	$42

PR/PKR RETROFIT LINKAGE		VALVE TYPE BUTTERFLY	List Price
	**IND-PR01** Valve linkage for 4...6" HDU/HD series 2-way with indicator	•	$164
	IND-PR02 Valve linkage for 4...6" HDU/HD series 2-way without indicator	•	$83
	**IND-PR03** Valve linkage for 8...12" L series 2-way with indicator	•	$170
	IND-PR04 Valve linkage for 8...12" L series 2-way without indicator	•	$83

Butterfly Manual Handle and Gear Operator options located on page 17-31.

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Belimo
Butterfly Valves



Commissioning at your Fingertips

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20 SENSORS AND METERS

Experience Installation Ease

- Innovative technology that works seamlessly with all major control systems ensuring top performance.
- Reliable and accurate readings provide energy and cost-efficient control, backed with a 5-year warranty.
- Universal and compact modular design, incorporating a screw-less snap on cover with a detachable mounting plate and NEMA 4X/IP65 rating for quick installation and commissioning.

Eddie Kelley, Product Manager

Room Sensor Nomenclature

Temperature

P	-	01	R	T	-	5	M	-	0
Adjustment P = Setpoint (Resistive) Blank = Standard		**Power** 01 = Passive	**Application** R = Room	**Measured Values** T = Temperature		**Region** 5 = Americas	**Signal Type** B = PT1000 L = NTC10K2 M = NTC10K3 Q = NTC20K		**Series** 0 = Passive

Belimo's room sensor portfolio includes both passive and active variants. The passive sensors measure temperature and are available with and without a setpoint adjustment dial. All passive versions include a discrete manual override button as standard.

Accuracy Temperature Passive	Pt.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] NTC.. = ±0.35°F @ 77°F [±0.2°C @ 25°C]
Cable Entry	wire openings at the back side for in-wall wiring and top/bottom for on-wall wiring
Ambient Temperature	32...122°F [0...50°C]
Operating Temperature	32...122°F [0...50°C]
Degree of Protection	NEMA 1, IP30



P-01RT-5M-0
Includes mounting screws



01RT-5M-0

5

5-year warranty

Room Sensor Nomenclature

Temperature, Relative Humidity, Dew Point, CO_2

22	R	T	-	5	9	00	D
Power 22 = Active	**Application** R = Room	**Measured Values** T = Temperature TH = Temperature, Relative Humidity, Dew Point TM = Temperature, Relative Humidity, Dew Point, CO_2		**Region** 5 = Americas	**Signal Type** 9 = V (Volt) Multi-Range, MP-Bus U = BACnet/Modbus communication	**Passive Outputs** 00 = No Passive Outputs L0 = NTC10K2 M0 = NTC10K3	**Display Options** A = No Display (Display App) D = ePaper Display

Belimo's room sensor portfolio includes both passive and active variants. All active versions measure temperature, humidity (relative and dew point), and CO_2. The active sensors incorporate Near Field Communication (NFC) for setup, installation, and commissioning using the Belimo Assistant App. A virtual display is available for all active non-display room sensors using the Belimo Display App. Belimo room sensors have a dual channel, self-calibrating, CO_2 sensing element, making them ideal for buildings.

Accuracy	
CO_2	±50 ppm + 2% of value between 0...2000 ppm
Humidity	±2% between 0...90% r.H @77°F [25°C]
Temperature Active	±0.9°F @ 77°F [±0.5°C @ 25°C]
Cable Entry	wire openings at the back side for in-wall wiring and top/bottom for on-wall wiring
Ambient Humidity	max. 95% r.H., non-condensing
Ambient Temperature	32...122°F [0...50°C]
Operating Temperature	32...122°F [0...50°C]
Selectable Humidity	relative humidity and dew point
Degree of Protection	NEMA 1, IP30, Enclosure Type 1 (IEC 60730)



22RTM-5900A
Includes mounting screws



22RTM-5900D

5

5-year warranty

Measuring Values						Additional Features											List Price
		Output Signals (default)	Temperature	Humidity (rH and Dew Point)	CO_2	Setpoint Adjustment	Manual Override	NFC	MP Bus	Customizable Temperature Range	Customizable CO_2 Range	ePaper Display	Display App	Belimo Assistant App	Stainless Steel, Flush Mount	Selectable AO; 0...5 V, 2...10 V, 0...10 V	
01RT-5B-0	Passive	PT1000	●				●										$56
01RT-5L-0		NTC10K2	●				●										$33
01RT-5M-0		NTC10K3	●				●										$33
01RT-5Q-0		NTC20K	●				●										$36
P-01RT-5B-0		PT1000	●			●	●										$64
P-01RT-5L-0		NTC10K2	●			●	●										$43
P-01RT-5M-0		NTC10K3	●			●	●										$43
P-01RT-5Q-0		NTC20K	●			●	●										$46
EXT-RT-SS1000		PT1000	●												●		$50
EXT-RT-SS10K2		NTC10K2	●												●		$30
EXT-RT-SS10K3		NTC10K3	●												●		$30
EXT-RT-SS20K		NTC20K	●												●		$30
22RT-5900A	Active	2 Analog Outputs	●			●		●	●	●			●	●		●	$207
22RTH-59L0A		2 Analog Outputs; NTC10K2	●	●		●	●	●	●	●			●	●		●	$382
22RTH-5900A		3 Analog Outputs	●	●		●		●	●	●			●	●		●	$382
22RTM-59L0A		2 Analog Outputs; NTC10K2	●	●	●	●	●	●	●	●	●		●	●		●	$599
22RTH-59M0A		2 Analog Outputs; NTC10K3	●	●		●	●	●	●	●			●	●		●	$382
22RTM-59M0A		2 Analog Outputs; NTC10K3	●	●	●	●	●	●	●	●	●		●	●		●	$599
22RTM-5900A		3 Analog Outputs	●	●	●	●		●	●	●	●		●	●		●	$599
22RT-5900D		2 Analog Outputs	●			●		●	●	●		●		●		●	$419
22RTH-5900D		3 Analog Outputs	●	●		●		●	●	●		●		●		●	$594
22RTM-5900D		3 Analog Outputs	●	●	●	●		●	●	●	●	●		●		●	$875
22RTH-5U00A		Modbus/BACnet, 1 x DI	●	●		●		●		●			●	●			$398
22RTM-5U00A		Modbus/BACnet, 1 x DI	●	●	●	●		●		●			●	●			$647
22RTH-5U00D		Modbus/BACnet, 1 x DI	●	●		●		●		●		●		●			$610
22RTM-5U00D		Modbus/BACnet, 1 x DI	●	●	●	●		●		●		●		●			$943

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Duct / Pipe Sensor Nomenclature

Temperature

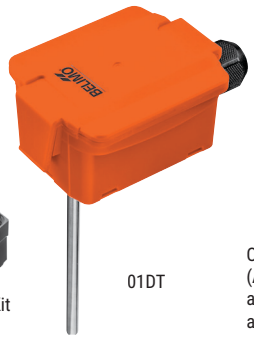
01	D	T	-	5	A	H
Power 01 = Passive	**Application** D = Duct / Pipe	**Measured Values** T = Temperature		**Region** 5 = Americas	**Signal Type** A = PT100 B = PT1000 E = Ni1000 L = NTC10K2 M = NTC10K3 Q = NTC20K	**Length [mm]** H = 2" [50] L = 4" [100] N = 6" [150] P = 8" [200] R = 12" [300] T = 18" [450]

Belimo's immersion temperature sensors are for duct and pipe applications. For liquid applications, a Thermowell (A-22P-A..) is required. These sensors include a duct mounting kit, making them ideal for mounting to HVAC equipment that does not require an electrical conduit.

Accuracy	PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.35°F @ 77°F [±0.2°C @ 25°C]
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	-31...+120°F [-35...+50°C]
Operating Temperature	NTC..= -60...+300°F [-50...+150°C] PT., Ni.. = -60...+320°F [-50...+160°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X



Includes Duct Mounting Kit



01DT



Optional Accessory: A Thermowell (A-22P-A..) is required for all liquid applications. ½" Thermowell Adaptor available for retrofit applications. See additional accessories on pages 20-26 to 20-28.

5-year warranty

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Measuring Values				List Price
DUCT/PIPE TEMPERATURE		Output Signal Temperature	Probe Length [mm]	
01DT-5AH		PT100	2" [50]	$57
01DT-5AL		PT100	4" [100]	$57
01DT-5AN		PT100	6" [150]	$57
01DT-5AP		PT100	8" [200]	$57
01DT-5AR		PT100	12" [300]	$57
01DT-5AT		PT100	18" [450]	$65
01DT-5BH		PT1000	2" [50]	$57
01DT-5BL		PT1000	4" [100]	$57
01DT-5BN		PT1000	6" [150]	$57
01DT-5BP		PT1000	8" [200]	$57
01DT-5BR		PT1000	12" [300]	$57
01DT-5BT		PT1000	18" [450]	$65
01DT-5EH		Ni1000	2" [50]	$46
01DT-5EL		Ni1000	4" [100]	$46
01DT-5EN		Ni1000	6" [150]	$46
01DT-5EP		Ni1000	8" [200]	$46
01DT-5ER		Ni1000	12" [300]	$46
01DT-5ET		Ni1000	18" [450]	$65
01DT-5LH	Passive	NTC10K2	2" [50]	$37
01DT-5LL		NTC10K2	4" [100]	$37
01DT-5LN		NTC10K2	6" [150]	$37
01DT-5LP		NTC10K2	8" [200]	$37
01DT-5LR		NTC10K2	12" [300]	$37
01DT-5LT		NTC10K2	18" [450]	$57
01DT-5MH		NTC10K3	2" [50]	$37
01DT-5ML		NTC10K3	4" [100]	$37
01DT-5MN		NTC10K3	6" [150]	$37
01DT-5MP		NTC10K3	8" [200]	$37
01DT-5MR		NTC10K3	12" [300]	$37
01DT-5MT		NTC10K3	18" [450]	$57
01DT-5QH		NTC20K	2" [50]	$37
01DT-5QL		NTC20K	4" [100]	$37
01DT-5QN		NTC20K	6" [150]	$37
01DT-5QP		NTC20K	8" [200]	$37
01DT-5QR		NTC20K	12" [300]	$37
01DT-5QT		NTC20K	18" [450]	$57

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

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Duct / Pipe Sensor Nomenclature

Temperature

22	D	T	-	5	2	H
Power 22 = Active	**Application** D = Duct / Pipe	**Measured Values** T = Temperature		**Region** 5 = Americas	**Signal Type** 2 = V (Volt) Multi-Range 4 = 4...20 mA	**Length [mm]** H = 2" [50] L = 4" [100] N = 6" [150] P = 8" [200] R = 12" [300] T = 18" [450]

Belimo's immersion temperature sensors are for duct and pipe applications. For liquid applications, a Thermowell (A-22P-A..) is required. These sensors include a duct mounting kit, making them ideal for mounting to HVAC equipment that does not require an electrical conduit.

Accuracy	±1% of the selected measuring range
Power Supply	DC 15...24 V (± 10%), AC 24 V (± 10%) DC 15...24 V (± 10%) (4...20 mA)
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	-30...+120°F [-35...+50°C]
Operating Temperature	-60...+320°F [-50...+160°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X



Includes Duct Mounting Kit



22DT



Optional Accessory: A Thermowell (A-22P-A..) is required for all liquid applications. ½" Thermowell Adaptor available for retrofit applications. See additional accessories on pages 20-26 to 20-28.

5-year warranty

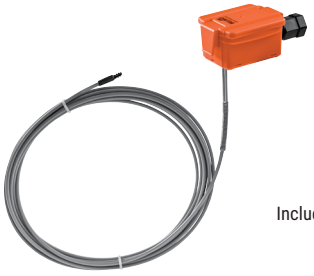
Duct Averaging Sensor Nomenclature

Temperature

01	M	T	-	5	B	4
Power 01 = Passive 22 = Active	**Application** M = Averaging (Duct)	**Measured Values** T = Temperature		**Region** 5 = Americas	**Signal Type** 2 = V (Volt) Multi-Range 4 = 4...20 mA B = PT1000 E = Ni1000 L = NTC10K2 M = NTC10K3 Q = NTC20K	**Length** 4 = 10 ft. [3 m] 5 = 20 ft. [6 m]

Duct averaging temperature sensors with 10 or 20 foot [3 or 6 meter] probes are for applications where stratified layers of hot and cold air can occur when outside air and return air are mixed. PT1000 and Active versions are true averaging and one continuous RTD across entire length of the probe to combat against air stratification problems.

Accuracy	
22MT	±1% of the selected measuring range
01MT	PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.35°F @ 77°F [±0.2°C @ 25°C]
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	
Passive	-30...+122°F [-35...+50°C]
Active	-30...+122°F [-35...+50°C]
Operating Temperature	
Passive PT, Ni NTC	 -30...+158°F [-35...+70°C] 30...122°F [0...50°C]
Active	-30...+158°F [-35...+70°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X



22MT and 01MT



Includes Duct Mounting Kit

5-year warranty

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Measuring Values			Measuring Ranges									Additional Features	List Price
				Temperature									
DUCT / PIPE TEMPERATURE		Output Signals (default)	Multirange	-30...+130°F [-50...+50°C]	0...150°F [0...160°C]	0...100°F [-15...+35°C]	0...250°F [-10...+120°C]	30...480°F [0...250°C]	40...90°F [-20...+80°C]	40...140°F [0...50°C]	40...240°F [0...100°C]	Probe Length [mm]	
22DT-52H	Active	0...5 V (0...10 V)	8	●	•	●	●	●	●	●	●	2" [50]	$208
22DT-52L		0...5 V (0...10 V)	8	●	•	●	●	●	●	●	●	4" [100]	$208
22DT-52N		0...5 V (0...10 V)	8	●	•	●	●	●	●	●	●	6" [150]	$208
22DT-52P		0...5 V (0...10 V)	8	●	•	●	●	●	●	●	●	8" [200]	$208
22DT-52R		0...5 V (0...10 V)	8	●	•	●	●	●	●	●	●	12" [300]	$208
22DT-52T		0...5 V (0...10 V)	8	●	•	●	●	●	●	●	●	18" [450]	$208
22DT-54H		4...20 mA	8	●	•	●	●	●	●	●	●	2" [50]	$208
22DT-54L		4...20 mA	8	●	•	●	●	●	●	●	●	4" [100]	$208
22DT-54N		4...20 mA	8	●	•	●	●	●	●	●	●	6" [150]	$208
22DT-54P		4...20 mA	8	●	•	●	●	●	●	●	●	8" [200]	$208
22DT-54R		4...20 mA	8	●	•	●	●	●	●	●	●	12" [300]	$208
22DT-54T		4...20 mA	8	●	•	●	●	●	●	●	●	18" [450]	$208

Measuring Values			Measuring Ranges										Additional Features	List Price
					Temperature									
DUCT AVERAGING TEMPERATURE		Output Signals (default)	Multirange	True Averaging	-30...+130°F [-50...+50°C]	0...150°F [0...160°C]	0...100°F [-15...+35°C]	0...250°F [-10...+120°C]	30...480°F [0...250°C]	40...90°F [-20...+80°C]	40...140°F [0...50°C]	40...240°F [0...100°C]	Probe Length [m]	
01MT-5B4	Passive	PT1000		●									10 ft [3]	$346
01MT-5B5		PT1000		●									20 ft [6]	$396
01MT-5E4		Ni1000											10 ft [3]	$322
01MT-5E5		Ni1000											20 ft [6]	$396
01MT-5L4		NTC10K2											10 ft [3]	$247
01MT-5L5		NTC10K2											20 ft [6]	$305
01MT-5M4		NTC10K3											10 ft [3]	$247
01MT-5M5		NTC10K3											20 ft [6]	$305
01MT-5Q4		NTC20K											10 ft [3]	$247
01MT-5Q5		NTC20K											20 ft [6]	$305
22MT-524	Active	0...5 V (0...10 V)	8	●	●	●	●	●	●	•	●	●	10 ft [3]	$522
22MT-525		0...5 V (0...10 V)	8	●	●	●	●	●	●	•	●	●	20 ft [6]	$570
22MT-544		4...20 mA	8	●	●	●	●	●	●	•	●	●	10 ft [3]	$522
22MT-545		4...20 mA	8	●	●	●	●	●	●	•	●	●	20 ft [6]	$570

• Factory setting (setting ranges are configurable on the sensor).

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

Active selectable measuring ranges are for application and scaling purposes, please ensure installation is within stated ambient and operating temperature range.

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Duct and Pipe Cable Sensor Nomenclature

Temperature

22	C	T	-	5	2	H	
Power 01 = Passive 22 = Active	**Application** C = Cable	**Measured Values** T = Temperature		**Region** 5 = Americas	**Signal Type** 2 = V (Volt) Multi-Range 4 = 4...20 mA A = PT100 B = PT1000 E = Ni1000 L = NTC10K2 M = NTC10K3 Q = NTC20K	**Length [mm]** H = 2" [50] L = 4" [100] P = 8" [200]	**Cable Length** Blank = 6.5 ft. [2 m] 4 = 9.8 ft. [3 m]

Belimo's immersion temperature sensors are for duct and pipe applications. For liquid applications, a Thermowell (A-22P-A..) is required.

Accuracy	
22CT	±1% of the selected measuring range
01CT	PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.35°F @ 77°F [±0.2°C @ 25°C]
Power Supply	
22CT	DC 15...24 V (± 10%), AC 24 V (± 10%) DC 15...24 V (± 10%) (4...20 mA)
Cable Entry	
22CT	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	
Passive 01CT5.. 01CT-5..1..	 -40...+300°F [-40...+150°C] -13...+167°F [-25...+75°C]
Active	-30...+120°F [-35...+50°C]
Operating Temperature	
Passive 01CT5.. 01CT-5..1..	 -40...+300°F [-40...+150°C] -13...+167°F [-25...+75°C]
Active	-40...+300°F [-40...+150°C]
Degree of Protection	
22CT	NEMA 4X, IP65
01CT	NEMA 4X, IP67
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X



22CT

Includes Mounting Plate



01CT

with Mounting Flange Included



01CT

c UL us

5

5-year warranty

Low Limit Detection Sensor Nomenclature

Temperature

01	D	TS	-	5	0	4	X
Power 01 = Passive	**Application** D = Low Limit Detection	**Measured Values** TS = Temperature & Switch		**Region** 5 = Americas	**Signal Type** 0 = Switch	**Length** 4 = 9.8 ft. [3 m] 5 = 19.7 ft. [6 m]	**Details** Blank = Auto Reset X = Manual Reset

Duct mounted low-temperature detection sensors with vapor filled copper capillary tube are used to protect water coils from freezing within the air handling equipment. Any section of the capillary tube that is below the setpoint will cause the vapor to condense to a liquid and trip the SPDT contact. Reset option is manual or automatic.

Accuracy	±0.9°F [±0.5°C]
Cable Entry	cable gland cap nut with strain relief Ø6...8 mm
Ambient Temperature	-30...+160°F [-35...+70°C]
Operating Temperature	-30...+160°F [-35...+70°C]
Degree of Protection	NEMA 4, IP65



01DTS



Includes Mounting Kit

5

5-year warranty

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Measuring Values			Measuring Ranges									Additional Features				List Price
				Temperature												
CABLE TEMPERATURE		Output Signals (default)	Multirange	-30...+130°F [-50...+50°C]	0...100°F [-15...+35°C]	0...150°F [0...160°C]	0...250°F [-10...+120°C]	30...480°F [0...250°C]	40...90°F [-20...+80°C]	40...140°F [0...50°C]	40...240°F [0...100°C]	Probe Length [mm]	Cable Length [m]	Cable Rating	Adjustable Mounting Flange Included	
22CT-52H	Active	0...5 V (0...10 V)	8	●	●	●	●	●	●	●	●	2" [50]	6.5 ft [2]	302°F [150°C]		$209
22CT-54H	Active	4...20 mA	8	●	●	●	●	●	●	●	●	2" [50]	6.5 ft [2]	302°F [150°C]		$209
PROBE ONLY																
01CT-5AH	Passive	PT100										2" [50]	6.5 ft [2]	302°F [150°C]		$48
01CT-5BH	Passive	PT1000										2" [50]	6.5 ft [2]	302°F [150°C]		$48
01CT-5EH	Passive	Ni1000										2" [50]	6.5 ft [2]	302°F [150°C]		$48
01CT-5LH	Passive	NTC10K2										2" [50]	6.5 ft [2]	302°F [150°C]		$36
01CT-5MH	Passive	NTC10K3										2" [50]	6.5 ft [2]	302°F [150°C]		$36
01CT-5QH	Passive	NTC20K										2" [50]	6.5 ft [2]	302°F [150°C]		$36
01CT-5BL	Passive	PT1000										4" [100]	6.5 ft [2]	302°F [150°C]		$48
01CT-5BP	Passive	PT1000										8" [200]	6.5 ft [2]	302°F [150°C]		$48
01CT-5LL	Passive	NTC10K2										4" [100]	6.5 ft [2]	302°F [150°C]		$36
01CT-5LP	Passive	NTC10K2										8" [200]	6.5 ft [2]	302°F [150°C]		$36
01CT-5ML	Passive	NTC10K3										4" [100]	6.5 ft [2]	302°F [150°C]		$36
01CT-5MP	Passive	NTC10K3										8" [200]	6.5 ft [2]	302°F [150°C]		$36
01CT-5QL	Passive	NTC20K										4" [100]	6.5 ft [2]	302°F [150°C]		$36
01CT-5QP	Passive	NTC20K										8" [200]	6.5 ft [2]	302°F [150°C]		$36
01CT-5LH01	Passive	NTC10K2										2" [50]	6.5 ft [2]	167°F [75°C]		$24
01CT-5LL01	Passive	NTC10K2										4" [100]	6.5 ft [2]	167°F [75°C]		$25
01CT-5LP01	Passive	NTC10K2										8" [200]	6.5 ft [2]	167°F [75°C]		$30
01CT-5MH01	Passive	NTC10K3										2" [50]	6.5 ft [2]	167°F [75°C]		$24
01CT-5ML01	Passive	NTC10K3										4" [100]	6.5 ft [2]	167°F [75°C]		$25
01CT-5MP01	Passive	NTC10K3										8" [200]	6.5 ft [2]	167°F [75°C]		$30
01CT-5QH01	Passive	NTC20K										2" [50]	6.5 ft [2]	167°F [75°C]		$24
01CT-5QL01	Passive	NTC20K										4" [100]	6.5 ft [2]	167°F [75°C]		$28
01CT-5QP01	Passive	NTC20K										8" [200]	6.5 ft [2]	167°F [75°C]		$30
01CT-5LLF1-4	Passive	NTC10K2										4" [100]	9.8 ft [3]	167°F [75°C]	●	$36
01CT-5LPF1-4	Passive	NTC10K2										8" [200]	9.8 ft [3]	167°F [75°C]	●	$36
01CT-5MLF1-4	Passive	NTC10K3										4" [100]	9.8 ft [3]	167°F [75°C]	●	$36
01CT-5MPF1-4	Passive	NTC10K3										8" [200]	9.8 ft [3]	167°F [75°C]	●	$36
01CT-5QLF1-4	Passive	NTC20K										4" [100]	9.8 ft [3]	167°F [75°C]	●	$38
01CT-5QPF1-4	Passive	NTC20K										8" [200]	9.8 ft [3]	167°F [75°C]	●	$38

Measuring Values						Additional Features	List Price
		Output Signal	Reset		Setpoint Range		
LOW LIMIT DETECTION TEMPERATURE (FROST PROTECTION)		SPDT	Auto	Manual	14...54°F [-10...+12°C]	Probe Length [m]	
01DTS-504	Switch	●	●		●	9.8 ft [3]	$313
01DTS-504X	Switch	●		●	●	9.8 ft [3]	$343
01DTS-505	Switch	●	●		●	19.7 ft [6]	$350
01DTS-505X	Switch	●		●	●	19.7 ft [6]	$386

• Factory setting (setting ranges are configurable on the sensor).

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

Active selectable measuring ranges are for application and scaling purposes, please ensure installation is within stated ambient and operating temperature range.

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Duct Sensor Nomenclature

Temperature / Humidity

22	D	TH	-	5	1	M	B
Power	**Application**	**Measured Values**		**Region**	**Signal Type**	**Length [mm]**	**Details**
22 = Active	D = Duct	TH = Temperature & Humidity		5 = Americas	1 = V (Volt) Multi-Range 3 = 4...20 mA 5 = Modbus RTU 6 = BACnet MS/TP	M = 5.5" [140]	B = PT1000 E = Ni1000 L = NTC10K2 M = NTC10K3 Q = NTC20K

Duct mounted combination temperature and humidity sensors are factory set to relative humidity to manage occupant comfort. This relative humidity output can be easily changed to measure absolute humidity, dew point, or enthalpy conforming to ASHRAE's 62.1 standard. Belimo's combination temperature and humidity sensors are offered in many different outputs and include optional BACnet MS/TP and ModBus RTU.

Accuracy	
Temperature	Active = ±0.54°F @ 77°F [±0.3°C @ 25°C] PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.35°F @ 77°F [±0.2°C @ 25°C]
Humidity	±2% between 0...80% RH @ 77°F [25°C]
Power Supply	DC 15...24 V (± 10%), AC 24 V (± 10%) DC 15...24 V (± 10%) (4...20 mA)
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	-30...120°F [-35...50°C]
Operating Temperature	-30...120°F [-35...50°C]
Measurement Types	temperature, relative humidity, absolute humidity, dew point, and enthalpy
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9/-2-13, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X



22DTH



Includes Adjustable Mounting Flange and ½" Conduit Adapter

Modbus BTL c UL us 5-year warranty

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Measuring Values				Measuring Ranges: Temperature					Measuring Ranges: Relative Humidity	Measuring Ranges: Absolute Humidity	Measuring Ranges: Dewpoint	Measuring Ranges: Enthalpy	Additional Features		List Price
HUMIDITY / TEMPERATURE	Temperature	Output Signal Temperature (default)	Output Signal Humidity (default)	Multirange	40...140°F [0...50°C]	-40...+160°F [-40...+60°C]	0...100°F [-15...+35°C]	0...200°F [-20...+80°C]	0...100% RH non-condensing	0...50 g/m³ (default) 0...80 g/m³	0...200°F [-20...+80°C] 40...140°F [0...50°C] (default)	0...85 kJ/kg	Communication	Probe Length [mm]	
22DTH-51M	Active	0...5 V (0...10 V)	0...5 V (0...10 V)	4	●	●	●	•	•	●	●	●		5.5" [140]	$405
22DTH-53M		4...20 mA	4...20 mA	4	●	●	●	•	•	●	●	●		5.5" [140]	$405
22DTH-51MB	Passive	PT1000	0...5 V (0...10 V)						•	●	●	●		5.5" [140]	$405
22DTH-51ME		Ni1000	0...5 V (0...10 V)						•	●	●	●		5.5" [140]	$405
22DTH-51ML		NTC10K2	0...5 V (0...10 V)						•	●	●	●		5.5" [140]	$405
22DTH-51MM		NTC10K3	0...5 V (0...10 V)						•	●	●	●		5.5" [140]	$405
22DTH-51MQ		NTC20K	0...5 V (0...10 V)						•	●	●	●		5.5" [140]	$405
22DTH-53MB	Passive	PT1000	4...20 mA						•	●	●	●		5.5" [140]	$405
22DTH-53ME		Ni1000	4...20 mA						•	●	●	●		5.5" [140]	$405
22DTH-53ML		NTC10K2	4...20 mA						•	●	●	●		5.5" [140]	$405
22DTH-53MM		NTC10K3	4...20 mA						•	●	●	●		5.5" [140]	$405
22DTH-53MQ		NTC20K	4...20 mA						•	●	●	●		5.5" [140]	$405
22DTH-55M	Active	0...5 V (0...10 V)	0...5 V (0...10 V)						•	●	●	●	Modbus RTU	5.5" [140]	$495
22DTH-56M		0...5 V (0...10 V)	0...5 V (0...10 V)						•	●	●	●	BACnet MS/TP	5.5" [140]	$495

• Factory setting (setting ranges are configurable on the sensor).

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

Active selectable measuring ranges are for application and scaling purposes, please ensure installation is within stated ambient and operating temperature range.

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Duct Sensor Nomenclature

Air Quality

22	D	TM	-	5	1	0	6
Power	**Application**	**Measured Values**		**Region**	**Signal Type**	**Length**	**Details**
22 = Active	D = Duct	C = CO_2 CK = CO_2, VOC, Temperature, CO_2 / VOC Mix CM = CO_2, VOC, Temperature CV = CO_2, VOC TC = Temperature, CO_2 TM = Temperature, Humidity, CO_2		5 = Americas (°F) 1 = Americas (°C)	1 = V (Volt) Multi-Range 3 = 4...20 mA 6 = BACnet MS/TP	0 = 7" [180]	6 = LCD Display

Combined duct mounted air quality sensors for detection of CO_2, VOC, temperature, and humidity. The dual channel CO_2 sensor monitors building occupancy levels and is used to control the amount of outside air supplied by the air handling equipment to ensure air quality and maximize energy savings over the life-cycle of the building.

Accuracy	
Temperature	±0.9 °F @ 70 °F [±0.5 °C @ 21 °C]
Humidity	±2% between 10...90% RH @ 70°F [21°C]
CO_2	±(50 ppm + 3% of reading)
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%)
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	30...120°F [0...50°C]
Operating Temperature	30...120°F [0...50°C]
Measurement Types	CO_2, VOC, temperature, humidity
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X



22DTM



Includes Adjustable Mounting Flange and ½" Conduit Adapter

5-year warranty

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Measuring Values			Measuring Ranges									Additional Features			List Price
			Temperature		Relative Humidity	Absolute Humidity	Dewpoint	Enthalpy	CO_2		VOC				
CO_2		Output Signals (default)	40...140°F	0...50°C	0...100% RH non-condensing	0...50 g/m³ (default) 0...80 g/m³	0...200°F [-20...+80°C] 40...140°F [0...50°C] (default)	0...85 kJ/kg	0...2000 ppm	0...5000 ppm	0...100%	Communication	Probe Length [mm]	Display	
22DC-51		0...5 V (0...10 V)							●				6" [150]		$694
22DC-53		4...20 mA							●				6" [150]		$694
CO_2 / TEMPERATURE															
22DTC-51		0...5 V (0...10 V)	●						●				7" [180]		$794
22DTC-11*		0...5 V (0...10 V)		●					●				7" [180]		$794
22DTC-53		4...20 mA	●						●				7" [180]		$794
22DTC-13*		4...20 mA		●					●				7" [180]		$794
22DTC-5105		0...5 V (0...10 V)	●							●			7" [180]		$794
22DTC-1105*		0...5 V (0...10 V)		●						●			7" [180]		$794
CO_2 / HUMIDITY / TEMPERATURE															
22DTM-51		0...5 V (0...10 V)	●		●	●	●	●	●				7" [180]		$1,062
22DTM-11*		0...5 V (0...10 V)		●	●	●	●	●	●				7" [180]		$1,062
22DTM-5106		0...5 V (0...10 V)	●		●	●	●	●	●				7" [180]	LCD	$1,239
22DTM-1106*		0...5 V (0...10 V)		●	●	●	●	●	●				7" [180]	LCD	$1,239
22DTM-56		0...5 V (0...10 V)	●		●	●	●	●	●			BACnet MS/TP	7" [180]		$1,088
CO_2 / VOC															
22DCV-51		0...5 V (0...10 V)							●		●		6" [150]		$1,141
CO_2 / VOC / MIX CO_2 + VOC / TEMPERATURE															
22DCK-51		0...5 V (0...10 V)	●						●		●		7" [180]		$1,338
22DCK-11*		0...5 V (0...10 V)		●					●		●		7" [180]		$1,338
CO_2 / VOC / TEMPERATURE															
22DCM-51		0...5 V (0...10 V)	●						●		●		7" [180]		$1,240
22DCM-11*		0...5 V (0...10 V)		●					●		●		7" [180]		$1,240

*Temperature range configured for degrees Celsius.

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Duct Switch Nomenclature

Differential Pressure / Static Pressure

01	A	PS	-	5	0	1	.1
Power	**Application**	**Measured Values**		**Region**	**Signal Type**	**Range**	**Option**
01 = Passive	A = Air	PS = Pressure Switch		5 = Americas	0 = Switch	R = 0.08...1.2"wc [20...300 Pa] U = 0.2...2.0"wc [50...500 Pa] 1 = 0.8...4.0"wc [200...1000 Pa] 4 = 2.0...10"wc [500...2500 Pa]	.1 = Multi-pack

Duct mounted pressure switches monitor overpressure, vacuum and differential and static pressure of air or other noncombustible, non-aggressive gases. The pressure switches with automatic reset and field adjustable setpoint are used in air handling applications to monitor air filter cleanliness and fan status.

Accuracy	See data sheet for Accuracy and Repeatability
Cable Entry	cable gland M20 x 1.5 mm with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	-4...+140°F [-20...+60°C]
Operating Temperature	-4...+140°F [-20...+60°C]
Degree of Protection	NEMA 13, IP54
Agency Listing	ETL listed



01APS



Includes 6.5 ft. [2 m] tubing and two 4" [100 mm] plastic probes

5-year warranty

Duct Sensor Nomenclature

Differential Pressure / Static Pressure

22	A	DP	-	5	5	Q	A
Power	**Application**	**Measured Values**		**Region**	**Signal Type**	**Range**	**Details**
22 = Active	A = Air	DP = Differential Pressure / Static Pressure		5 = Americas	5 = Modbus RTU 6 = BACnet MS/TP 8 = 4...20 mA and V (Volt) Multi-Range	Q = 1"wc [250 Pa] Selectable 4 = 10"wc [2500 Pa] Selectable 6 = 28"wc [7000 Pa] Selectable	Blank = Standard A = Auto Zero B = Auto Zero + LCD L = LCD

Duct mounted pressure sensors monitor overpressure, vacuum and differential pressure of air or other noncombustible, non-aggressive gases. The differential and static pressure sensors with optional LCD, Modbus communications, true auto-zero or manual calibration are used to control air handler supply and return fan speed, maintain a differential pressure between spaces such as hospital isolation rooms or building entrances.

Accuracy	Refer to datasheet for accuracy on all field selectable pressure ranges
Power Supply	DC 15...24 V (± 10%), AC 24 V (± 10%)
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	15...122°F [-10...+50°C]
Operating Temperature	15...122°F [-10...+50°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-6, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X



22ADP



Includes 6.5 ft. [2 m] tubing and two 4" [100 mm] plastic probes



EXT-RP-SSRPV
Room pressure pickup plate

5-year warranty

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Measuring Values			Measuring Ranges Pressure				Units	List Price
DIFFERENTIAL / STATIC PRESSURE SWITCH		Output Signals (default)	0.08...1.20 inch WC [20...300 Pa]	0.20...2 inch WC [50...500 Pa]	0.80...4 inch WC [200...1000 Pa]	2...10 inch WC [500...2500 Pa]	package of 45	
01APS-501	Switch	SPDT			●			$88
01APS-501.1		SPDT			●		●	$72
01APS-504		SPDT				●		$88
01APS-504.1		SPDT				●	●	$72
01APS-50R		SPDT	●					$88
01APS-50R.1		SPDT	●				●	$72
01APS-50U		SPDT		●				$88
01APS-50U.1		SPDT		●			●	$72

Measuring Values			Measuring Ranges																	Additional Features			List Price
				Pressure																			
DIFFERENTIAL / STATIC PRESSURE SENSOR		Output Signals (default)	Multirange	-0.1...0.1 inch WC [-25...25 Pa]	-0.2...0.2 inch WC [-50...50 Pa]	-0.4...0.4 inch WC [-100...100 Pa]	-0.6...0.6 inch WC [-150...150 Pa]	0...0.1 inch WC [0...25 Pa]	0...0.2 inch WC [0...50 Pa]	0...0.4 inch WC [0...100 Pa]	0...1 inch WC [0...250 Pa]	0...2 inch WC [0...500 Pa]	0...4 inch WC [0...1000 Pa]	0...6 inch WC [0...1500 Pa]	0...8 inch WC [0...2000 Pa]	0...10 inch WC [0...2500 Pa]	0...12 inch WC [0...3000 Pa]	0...16 inch WC [0...4000 Pa]	0...20 inch WC [0...5000 Pa]	0...28 inch WC [0...7000 Pa]	Auto Zero - Calibration	Communication	Display	
22ADP-58Q		0...5 V (0...10 V, 4...20 mA)	8	●	●	●	●	●	●	●	•													$388
22ADP-58QA		0...5 V (0...10 V, 4...20 mA)	8	●	●	●	●	●	●	●	•											●			$496
22ADP-58QB		0...5 V (0...10 V, 4...20 mA)	8	●	●	●	●	●	●	●	•											●		LCD	$646
22ADP-58QL		0...5 V (0...10 V, 4...20 mA)	8	●	●	●	●	●	●	●	•													LCD	$475
22ADP-55Q		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	•												Modbus RTU		$475
22ADP-56Q		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	•												BACnet MS/TP		$475
22ADP-55QA		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	•											●	Modbus RTU		$618
22ADP-55QB		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	•											●	Modbus RTU	LCD	$722
22ADP-56QB		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	•											●	BACnet MS/TP	LCD	$722
22ADP-55QL		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	•												Modbus RTU	LCD	$618
22ADP-584	Active	0...5 V (0...10 V, 4...20 mA)	8			●				●	●	●	●	●	●	•									$388
22ADP-584A		0...5 V (0...10 V, 4...20 mA)	8			●				●	●	●	●	●	●	•						●			$496
22ADP-584B		0...5 V (0...10 V, 4...20 mA)	8			●				●	●	●	●	●	●	•						●		LCD	$646
22ADP-584L		0...5 V (0...10 V, 4...20 mA)	8			●				●	●	●	●	●	●	•								LCD	$475
22ADP-554		0...5 V (0...10 V)	8			●				●	●	●	●	●	●	•							Modbus RTU		$475
22ADP-554L		0...5 V (0...10 V)	8			●				●	●	●	●	●	●	•							Modbus RTU	LCD	$618
22ADP-564L		0...5 V (0...10 V)	8			●				●	●	●	●	●	●	•							BACnet MS/TP	LCD	$618
22ADP-556		0...5 V (0...10 V)	8										●	●	●	●	●	●	●	•			Modbus RTU		$475
22ADP-556L		0...5 V (0...10 V)	8										●	●	●	●	●	●	●	•			Modbus RTU	LCD	$618
22ADP-566L		0...5 V (0...10 V)	8										●	●	●	●	●	●	●	•			BACnet MS/TP	LCD	$618
22ADP-586		0...5 V (0...10 V, 4...20 mA)	8										●	●	●	●	●	●	●	•					$388
22ADP-586L		0...5 V (0...10 V, 4...20 mA)	8										●	●	●	●	●	●	●	•				LCD	$475

• Factory setting (setting ranges are configurable on the sensor).

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Pipe Sensor Nomenclature

Temperature

22	H	T	-	5	A	3
Power	**Application**	**Measured Values**		**Region**	**Signal Type**	**Length**
01 = Passive 22 = Active	H = Surface Mount (Housing) S = Surface Mount (Cable)	T = Temperature		5 = Americas	2 = V (Volt) Multi-Range 4 = 4...20 mA A = PT100 B = PT1000 E = Ni1000 L = NTC10K2 M = NTC10K3 Q = NTC20K	3 = 6.5 ft. [2 m]

01HT and 22HT are surface mounted strap-on temperature sensors that incorporate a spring loaded brass contact to ensure fast response and accurate hydronic temperature readings. 01ST range offers a 2" brass probe arched surface for fast response and has a plenum rated cable. Both models include an adjustable pipe clamp.

Accuracy	
01ST, 01HT	PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.35°F @ 77°F [±0.2°C @ 25°C]
22HT	±1% of the selected measuring range
Power Supply	DC 15...24 V (± 10%), AC 24 V (± 10%) DC 15...24 V (± 10%) (4...20 mA)
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	
Passive (01HT)	-30...+120°F [-35...+50°C]
Passive (01ST)	-40...+300°F [-40...+150°C]
Active (22HT)	-30...+120°F [-35...+50°C]
Operating Temperature	
Passive (01ST)	-40...+300°F [-40...+150°C]
Passive (01HT)	-30...+195°F [-35...+90°C]
Active (22HT)	-30...+160°F [-35...+70°C]
Degree of Protection	
01ST	NEMA 4X, IP65
01HT and 22HT	NEMA 1, IP54
Agency Listing	cULus acc. to UL60730-1A/-2-6, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X
	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 1



01HT & 22HT



01ST

Includes pipe clamp (≤ ø 4.33" [110 mm])

See accessories for larger pipe clamp:
A-22P-A42 (≤ ø 9.84" [250 mm])

5-year warranty

Pipe Sensor Nomenclature

Condensation

22	H	H	-	5	0	0	X
Power	**Application**	**Measured Values**		**Region**	**Signal Type**	**Length**	**Details**
22 = Active	H = Surface Mount (Housing)	H = Condensation		5 = Americas	0 = Switch	0 = 6.5 ft. [2 m]	X = Remote Cable Probe

Condensation sensor with LED indication has a SPDT switched contact to prevent condensation on chilled beams or other cold surfaces. Also available with 6.5' [2 m] cable.

Power Supply	DC 15...24 V (±10%), AC 24 V (±10%)
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	-5...+120°F [-20...+50°C]
Operating Temperature	-5...+140°F [-20...+60°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X



22HH



22HH-500X

Includes Mounting Ties

5-year warranty

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Measuring Values			Measuring Ranges									Additional Features	List Price
				Temperature									
TEMPERATURE		Output Signals (default)	Multirange	-30...+130°F [-50...+50°C]	0...250°F [-10...+120°C]	0...100°F [-15...+35°C]	40...90°F [-20...80°C]	40...140°F [0...50°C]	0...150°F [0...160°C]	40...240°F [0...100°C]	30...480°F [0...250°C]	Cable Length [m]	
01ST-5A3	Passive	PT100										6.5 ft. [2]	$63
01ST-5B3		PT1000										6.5 ft. [2]	$63
01ST-5E3		Ni1000										6.5 ft. [2]	$63
01ST-5L3		NTC10K2										6.5 ft. [2]	$50
01ST-5M3		NTC10K3										6.5 ft. [2]	$50
01ST-5Q3		NTC20K										6.5 ft. [2]	$50
01HT-5A	Passive	PT100											$73
01HT-5B		PT1000											$73
01HT-5E		Ni1000											$73
01HT-5L		NTC10K2											$56
01HT-5M		NTC10K3											$56
01HT-5Q		NTC20K											$56
22HT-52	Active	0...5 V (0...10 V)	8	●	●	●	●	●	●	•	●		$209
22HT-54		4...20 mA	8	●	●	●	●	●	●	•	●		$209

• Factory setting (setting ranges are configurable on the sensor).

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

Active selectable measuring ranges are for application and scaling purposes, please ensure installation is within stated ambient and operating temperature range.

Measuring Values			Additional Features		List Price
CONDENSATION		Output Signals (default)	Cable Length [m]	Remote Probe	
22HH-50	Switch	SPDT			$276
22HH-500X		SPDT	6.5 ft. [2]	●	$301

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Pipe Sensor Nomenclature

Pressure

22	W	P	-	5	1	1
Power	**Application**	**Measured Values**		**Region**	**Signal Type**	**Range**
22 = Active	W = Water P = Pipe	P = Pressure		5 = Americas	1 = V (Volt) 3 = 4...20 mA 8 = 4...20 mA and V (Volt) Multi-Range	1 = 0...15 psi 4 = 0...50 psi 6 = 0...100 psi 7 = 0...200 psi

Pressure sensors incorporate stainless steel strain gauge technology to measure liquids and provide gauge pressure readings for a wide variety of applications in industrial process and HVAC controls.

Accuracy	±0.5% Full Scale @ 77°F [25°C]
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%)
Cable Entry	mvs plug according to DIN EN175301-803 / type A
Thread/Port Connection	¼" NPT (external)
Ambient Temperature	-40...+220°F [-40...+105°C]
Operating Temperature	-40...+255°F [-40...+125°C]
Degree of Protection	NEMA 4, IP65



22WP



A-22WP-A01 Adaptor
¼" NPT...½" NPT

5

5-year warranty

Pipe Sensor Nomenclature

Differential Pressure

22	W	DP	-	5	1	1
Power	**Application**	**Measured Values**		**Region**	**Signal Type**	**Range**
22 = Active	W = Water P = Pipe	DP = Differential Pressure		5 = Americas	1 = V (Volt) 3 = 4...20 mA 8 = 4...20 mA and V (Volt) Multi-Range	1 = 0...15 psid 2 = 0...30 psid 4 = 0...50 psid 5 = 0...100 psid 8 = 0...250 psid

Differential pressure sensors measure water and/or non-aggressive gases and are used with the building management system (BMS) to maintain adequate air or water pressure to critical zones.

Accuracy	<±1% of measuring range @ 23...167°F [-5...+75°C]
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%)
Cable Entry	angle plug according to DIN 43650, construction A
Ambient Temperature	15...120°F [-10...+50°C]
Operating Temperature	15...175°F [-10...+80°C]
Thread/Port Connection	¼" NPT (internal)
Degree of Protection	NEMA 4, IP65



22WDP



22PDP-585

5

5-year warranty

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Measuring Values			Measuring Range: Pressure					List Price
GAUGE PRESSURE		Output Signals	0...15 psi	0...50 psi	0...100 psi	0...200 psi	0...580 psid	
22WP-511	Active	0...10 V	●					$428
22WP-514		0...10 V		●				$428
22WP-516		0...10 V			●			$428
22WP-517		0...10 V				●		$428
22WP-51G		0...10 V					●	$428
22WP-531		4...20 mA	●					$428
22WP-534		4...20 mA		●				$428
22WP-536		4...20 mA			●			$428
22WP-537		4...20 mA				●		$428
22WP-53G		4...20 mA					●	$428

Measuring Values			Measuring Range: Pressure				List Price
DIFFERENTIAL PRESSURE		Output Signals	0...15 psid	0...30 psid	0...50 psid	0...100 psid	
22WDP-511	Active	0...10 V	●				$1,071
22WDP-512		0...10 V		●			$1,071
22WDP-514		0...10 V			●		$1,071
22WDP-515		0...10 V				●	$1,071
22WDP-531		4...20 mA	●				$1,071
22WDP-532		4...20 mA		●			$1,071
22WDP-534		4...20 mA			●		$1,071
22WDP-535		4...20 mA				●	$1,071

Measuring Values			Measuring Range: Pressure							Additional Features				List Price
DIFFERENTIAL PRESSURE, REMOTE PROBES, DISPLAY		Output Signals	0...10 psid	0...20 psid	0...25 psid	0...50 psid	0...100 psid	0...125 psid	0...250 psid	Display	Remote Probe	Remote Zeroing	On-Board Zeroing	
22PDP-585	Active	4...20 mA, 0...5 V, 0...10 V	●	●		●	●			●	●	●	●	$1,505
22PDP-588		4...20 mA, 0...5 V, 0...10 V			●	●		●	●	●	●	●	●	$1,505

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Pipe Sensor Nomenclature

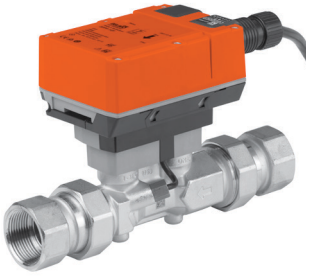
Flow

22	P	F		-5	U		C
FM = Flow Sensor 22 = Power Active	**Application** P = Pipe	**Measurement** F = Flow	**Valve Size (FM)** 250 = 2½" 300 = 3" 400 = 4" 500 = 5" 600 = 6"	**Region** 5 = Americas	**Communication** U = BACnet /Modbus / MP-Bus / NFC	**Pressure Rating** Blank = 360 psi (½...2") ANSI 125 (2½...6") -250 = ANSI 250 (2½...6")	**Size** C = ½" D = ¾" E = 1" F = 1¼" G = 1½" H = 2", 79.2 GPM HH = 2", 100 GPM

Flow sensors utilize ultrasonic technology with glycol and temperature compensation to accurately measure water flow for HVAC plant applications and sub-metering of hot or chilled water flow.

Power Supply	AC/DC 24 V
Cable Connection	cable connection with 3ft. [1 m], 18 GA appliance cable
Degree of Protection	NEMA 2, IP54
Fluid	chilled or hot water, up to 60% glycol max, condenser water (open loop/steam not allowed)
End Fitting	NPT female inlet, NPT female outlet
Sensor Housing	nickel plated brass (forged), cast iron
Sensor Housing Pressure Rating	360 psi, ANSI 125, or ANSI 250
Fluid Temp. Range	-4...+250°F [-20...+120°C]
Ambient Temp. Range	-22...+122°F [-30...+50°C]
Inlet Length to Meet Specified Measurement Accuracy	inlet: 5x nominal pipe size (NPS) outlet: no requirement
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Flow Measurement Tolerance	±2%*
Agency Listing	cULus: UL 94 D5 E108966, UL Enclosure Type 2

*See data sheet for Accuracy information



PF
Flow Sensor
For ½...2" pipe size



FM
Flow Sensor
For 2½...6" pipe size

5-year warranty

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Measuring Values				Flow (GPM)												Body Pressure Rating (psi)			Valve Size		Additional Features		List Price
	FLOW SENSORS		Output Signals	0.07...7.9	0.13...13	0.18...18.5	0.31...31.7	0.52...52.7	0.79...79.2	1.00...100	1.52...152	2.15...215	3.80...380	5.94...594	8.55...855	360 psi	ANSI 125	ANSI 250	Inches [mm]	Totalized Flow	BACnet / Modbus / MP-Bus / NFC	Belimo Assistant App	
NPT	22PF-5UC		0.5...10 V	●												●			½" [15]	●	●	●	$999
	22PF-5UD		0.5...10 V		●											●			¾" [20]	●	●	●	$1,050
	22PF-5UE		0.5...10 V			●										●			1" [25]	●	●	●	$1,350
	22PF-5UF		0.5...10 V				●									●			1¼" [32]	●	●	●	$1,950
	22PF-5UG		0.5...10 V					●								●			1½" [40]	●	●	●	$2,200
	22PF-5UH		0.5...10 V						●							●			2" [50]	●	●	●	$2,500
	22PF-5UHH		0.5...10 V							●						●			2" [50]	●	●	●	$2,500
Flanged	FM250		0.5...10 V								●						●		2½" [65]				$7,769
	FM250-250	Active	0.5...10 V								●							●	2½" [65]				$10,100
	FM300		0.5...10 V									●					●		3" [80]				$8,529
	FM300-250		0.5...10 V									●						●	3" [80]				$11,087
	FM400		0.5...10 V										●				●		4" [100]				$9,186
	FM400-250		0.5...10 V										●					●	4" [100]				$11,940
	FM500		0.5...10 V											●			●		5" [125]				$10,006
	FM500-250		0.5...10 V											●				●	5" [125]				$13,010
	FM600		0.5...10 V												●		●		6" [150]				$10,784
	FM600-250		0.5...10 V												●			●	6" [150]				$14,019

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Thermal Energy Meter Nomenclature

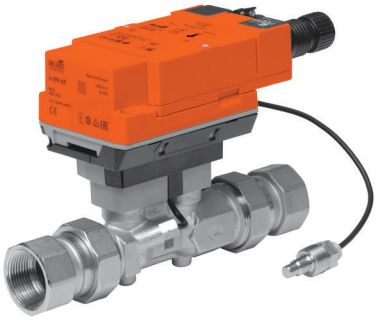
BTU Measurement with Glycol Measurement

22	P	E	-	5	U	C	N
Power 22 = Active	**Application** P = Pipe	**Energy** E = Water		**Region** 5 = Americas	**Signal Type** U = Modbus, BACnet, MP-Bus, NFC	**Size** C = ½" D = ¾" E = 1" F = 1¼" G = 1½" H = 2", 66 GPM HH = 2", 100 GPM	**Protection** Blank = NEMA 2 N = NEMA 4

Provide precise measurement of thermal energy even if there is glycol in the system. Utilizing integrated glycol compensation, Belimo's Thermal Energy Meters automatically and continuously measure glycol content in the fluid, ensuring reliable volumetric flow and energy measurement.

Power Supply	AC/DC 24 V power over ethernet PoE; DC 37...57 V IEEE 802.3af / at Type 1, Class 3 11 W (PD13W)
Cable Connection	cable connection with 3ft [1m] 18 Ga appliance cable
Degree of Protection	NEMA 2, IP54 or NEMA 4X
Fluid	chilled or hot water up to 60% glycol max, condenser water open loop/steam not allowed
End Fitting	NPT female inlet, NPT female outlet
Sensor Housing	forged brass, nickel plated
Sensor Housing Pressure Rating	360 psi
Fluid Temp. Range	-5...+250°F [-20...+120°C]
Ambient Temp. Range	-22...+122°F [-30...+50°C]
Inlet Length to Meet Specified Measurement Accuracy	5x nominal pipe size (NPS)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Flow Measurement Tolerance	±2%*
Agency Listing	cULus:UL 94 D5 E108966, UL Enclosure Type 2
Standards	meets the accuracy requirements of EN1434
Temperature Sensors	PT1000 - EN60751, 2 conductor technology, inseparably connected Cable length external sensor T1: 10 ft. [3m]

*See technical documentation



Thermal Energy Meter

c UL us

5

5-year warranty

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Measuring Values					Flow (GPM)							Body Pressure Rating (psi)	Valve Size	Additional Features		List Price
	BTU METERS		Degree of Protection	Output Signals (default)	0.066...6.6	0.110...11	0.154...15.4	0.264...26.4	0.440...44	0.660...66	1.00...100	360 psi	Inches [mm]	Communication	Belimo Assistant App	
NPT	22PE-5UC	Active	NEMA 2 IP54	0...10 V, 0.5...10 V (2...10 V)	●							●	½" [15]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$1,698
	22PE-5UD		NEMA 2 IP54	0...10 V, 0.5...10 V (2...10 V)		●						●	¾" [20]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$1,755
	22PE-5UE		NEMA 2 IP54	0...10 V, 0.5...10 V (2...10 V)			●					●	1" [25]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$1,876
	22PE-5UF		NEMA 2 IP54	0...10 V, 0.5...10 V (2...10 V)				●				●	1¼" [32]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$2,412
	22PE-5UG		NEMA 2 IP54	0...10 V, 0.5...10 V (2...10 V)					●			●	1½" [40]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$2,609
	22PE-5UH		NEMA 2 IP54	0...10 V, 0.5...10 V (2...10 V)						●		●	2" [50]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$3,129
	22PE-5UHH		NEMA 2 IP54	0...10 V, 0.5...10 V (2...10 V)							●	●	2" [50]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$3,129
	22PE-5XUCN		NEMA 4	0...10 V, 0.5...10 V (2...10 V)	●							●	½" [15]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$2,387
	22PE-5XUDN		NEMA 4	0...10 V, 0.5...10 V (2...10 V)		●						●	¾" [20]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$2,444
	22PE-5XUEN		NEMA 4	0...10 V, 0.5...10 V (2...10 V)			●					●	1" [25]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$2,565
	22PE-5XUFN		NEMA 4	0...10 V, 0.5...10 V (2...10 V)				●				●	1¼" [32]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$3,101
	22PE-5XUGN		NEMA 4	0...10 V, 0.5...10 V (2...10 V)					●			●	1½" [40]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$3,298
	22PE-5XUHN		NEMA 4	0...10 V, 0.5...10 V (2...10 V)						●		●	2" [50]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$3,818
	22PE-5XUHK		NEMA 4	0...10 V, 0.5...10 V (2...10 V)							●	●	2" [50]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	●	$3,818

Optional heater model with thermostat temperature control for NEMA 4 models:
Additional list price of $805, add T to end of part number i.e. 22PE-5XUCNT

Optional heater model with hydrostat humidity control for NEMA 4 models:
Additional list price of $805, add H to end of part number i.e. 22PE-5XUCNH

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Outdoor Air Sensor Nomenclature

Temperature

22	U	T	-	5	A
Power 01 = Passive 22 = Active	**Application** U = Outside	**Measured Values** T = Temperature		**Region** 5 = Americas	**Signal Type** 2 = V (Volt) Multi-Range 4 = 4...20 mA A = PT100 B = PT1000 E = Ni1000 L = NTC10K2 M = NTC10K3 Q = NTC20K

Outdoor air mounted temperature sensors designed to measure the outside temperature for efficient heating/cooling automation. Equipped with a NEMA 4X / IP65 rated enclosure, snap cover and mounting plate for ease of installation. Available with passive or with an external probe version for active outputs and compatible to major building automation systems.

Accuracy	
Temperature	
01UT	PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.35°F @ 77°F [±0.2°C @ 25°C]
22UT	±1% of the selected measuring range
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%) DC 15...24 V (±10%), (4...20 mA)
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	
Passive (01UT)	-30...+120°F [-35...+50°C]
Active (22UT)	-30...+120°F [-35...+50°C]
Operating Temperature	
Passive (01UT)	-30...+120°F [-35...+50°C]
Active (22UT)	-30...+120°F [-35...+50°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X



01UT



A-22D-A09
Included with 01UT/22UT devices



22UT

5-year warranty

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Measuring Values			Measuring Ranges									Additional Features	List Price
				Temperature									
OUTDOOR AIR		Output Signal Temperature (default)	Multirange	40...140°F [0...50°C]	-30...+130°F [-50...+50°C]	0...100°F [-15...+35°C]	0...150°F [0...160°C]	0...250°F [-10...+120°C]	30...480°F [0...250°C]	40...90°F [-20...+80°C]	40...240°F [0...100°C]	Probe Length [mm]	
01UT-5A	Passive	PT100											$93
01UT-5B		PT1000											$93
01UT-5E		Ni1000											$86
01UT-5L		NTC10K2											$59
01UT-5M		NTC10K3											$59
01UT-5Q		NTC20K											$59
22UT-52	Active	0...5 V (0...10 V)	8	●	•	●	●	●	●	●	●	1" [25]	$224
22UT-54		4...20 mA	8	●	•	●	●	●	●	●	●	1" [25]	$224

• Factory setting (setting ranges are configurable on the sensor).

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

Active selectable measuring ranges are for application and scaling purposes, please ensure installation is within stated ambient and operating temperature range.

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Outdoor Air Sensor Nomenclature

Temperature / Humidity

22	U	TH	-	5	1	0	X
Power 22 = Active	**Application** U = Outside	**Measured Values** TH = Temperature & Humidity		**Region** 5 = Americas	**Signal Type** 1 = V (Volt) 3 = 4...20 mA 5 = Modbus 6 = BACnet	**Length** 0 = N/A	**Details** X = Weather Shield B = PT1000 E = Ni1000 JCI L = NTC10K2 M = NTC10K3 Q = NTC20K

Outside air mounted combined humidity and temperature sensors with selectable relative humidity, absolute humidity, dewpoint and enthalpy outputs. Optional BACnet and Modbus communications and optional weather/sun shield.

Accuracy	
Temperature	
Active	±0.9°F @ 70°F [±0.5°C @ 21°C]
Passive, PT	±0.5°F @ 32°F [±0.3°C @ 0°C]
Passive, Ni	±0.7°F @ 32°F [±0.4°C @ 0°C]
Passive, NTC	±0.35°F @ 77°F [±0.2°C @ 25°C]
Humidity	±2% between 0...80% RH @77°F [25°C]
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%) DC 15...24 V (±10%), (4...20 mA)
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	-30...+120°F [-35...+50°C]
Operating Temperature	-30...+120°F [-35...+50°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9/-2-13, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X



22UTH
with weather shield



22UTH

Includes Rain Protector and Mounting Plate

Modbus BTL c UL us 5-year warranty

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Measuring Values				Measuring Ranges									Additional Features		List Price
					Temperature				Relative Humidity	Absolute Humidity	Dewpoint	Enthalpy			
OUTDOOR AIR	Temperature	Output Signal Temperature (default)	Output Signal Humidity (default)	Multirange	-40...+160°F [-40...+60°C]	0...200°F [-20...+80°C]	40...140°F [0...50°C]	0...100°F [-15...+35°C]	0...100% RH (non condensing)	0...50 g/m³ (default) 0...80 g/m³	0...200°F [-20...+80°C] 40...140°F [0...50°C] (default)	0...85 kJ/kg	Communication	Weather Shield	
22UTH-51	**Active**	0...5 V (0...10 V)	0...5 V (0...10 V)	4	●	●	●	●	●	●	●	●			$527
22UTH-53		4...20 mA	4...20 mA	4	●	●	●	●	●	●	●	●			$527
22UTH-510B	**Passive**	PT1000	0...5 V (0...10 V)						●	●	●	●			$527
22UTH-510E		Ni1000	0...5 V (0...10 V)						●	●	●	●			$527
22UTH-510L		NTC10K2	0...5 V (0...10 V)						●	●	●	●			$527
22UTH-510M		NTC10K3	0...5 V (0...10 V)						●	●	●	●			$527
22UTH-510Q		NTC20K	0...5 V (0...10 V)						●	●	●	●			$527
22UTH-530B		PT1000	4...20 mA						●	●	●	●			$527
22UTH-530E		Ni1000	4...20 mA						●	●	●	●			$527
22UTH-530L		NTC10K2	4...20 mA						●	●	●	●			$527
22UTH-530M		NTC10K3	4...20 mA						●	●	●	●			$527
22UTH-530Q		NTC20K	4...20 mA						●	●	●	●			$527
22UTH-510X	**Active**	0...5 V (0...10 V)	0...5 V (0...10 V)	4	●	●	●	●	●	●	●	●		●	$617
22UTH-530X		4...20 mA	4...20 mA	4	●	●	●	●	●	●	●	●		●	$617
22UTH-550X		0...5 V (0...10 V)	0...5 V (0...10 V)						●	●	●	●	Modbus RTU	●	$772
22UTH-560X		0...5 V (0...10 V)	0...5 V (0...10 V)						●	●	●	●	BACnet MS/TP	●	$772

• Factory setting (setting ranges are configurable on the sensor).

Please note: For temperature and humidity sensors, the °F and °C are not direct conversions. °F is the standard range for the United States, and °C is the standard range for Canada and Latin America.

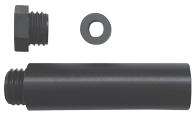
Active selectable measuring ranges are for application and scaling purposes, please ensure installation is within stated ambient and operating temperature range.

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5-year warranty

	Model Number	01DT	01DTS	01CT	01MT	22MT	22CT	22HH	01UT	22UT	22UTH	22DT	22DTH	22DTC	22DTM	22DC	22DCV	22DCK	22DCM	01APS	22ADP	List Price
	**A-22AP-A01** Metal duct connectors, L = 1.5" [40 mm]																			•	•	$18
	A-22AP-A03 Metal duct connectors, L = 4" [100 mm]																			•	•	$30
	**A-22AP-A05.1** PVC tube 6.5 ft. [2 m] and 2 plastic duct probes 4" [100 mm] for 01APS/22ADP pressure switch/sensor (multipack- 50 pcs)																			•	•	$19
	A-22AP-A08 PVC tube 6.5 ft. [2 m] and 2 plastic duct probes 4" [100 mm] for 01APS/22ADP pressure switch/sensor																			•	•	$29
	**A-22D-A03** Mounting flange for duct temperature sensors Ø ¼" [6 mm]	•		•			•					•										$12
	A-22D-A03.1 Bulk pack of 50 pieces for A-22D-A03 mounting flange for duct temperature sensors Ø ¼" [6 mm]	•		•			•					•										$6
	**A-22D-A05** Brass mounting flange for duct temperature sensors, up to 500°F [260°C]	•		•			•					•										$30
	**A-22D-A06** Replacement filter for humidity sensors										•		•	•	•			•	•			$29
	**A-22D-A08** Mounting kit for duct averaging and low temp limit detection		•		•	•																$19
	**A-22D-A09** Mounting plate for sensors with small housing	•			•	•	•	•	•	•		•										$8
	**A-22D-A10** Mounting plate for sensors with large housing										•			•	•	•	•	•	•		•	$11
	**A-22D-A11** Mounting clip for duct temperature	•					•		•	•		•										$3
	**A-22D-A34** Mounting flange for duct humidity and CO_2 sensor												•	•	•	•	•	•	•			$18
	**A-22G-A04.1** ½" NPT conduit adaptor (Pack of 10)	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	$7
	**EXT-RP-SSRPV** Room pressure pickup plate used with 22ADP products																				•	$40

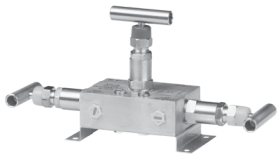
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Model Number		01DT	22DT	01CT	22CT	01ST	01HT	22WP	22WDP	List Price
	**A-22P-A05** Thermowell (2 part) stainless steel 2" [50 mm] ½" NPT	•	•	•	•					$36
	A-22P-A07 Thermowell (2 part) stainless steel 4" [100 mm] ½" NPT	•	•	•	•					$38
	A-22P-A09 Thermowell (2 part) stainless steel 6" [150 mm] ½" NPT	•	•	•	•					$45
	A-22P-A11 Thermowell (2 part) stainless steel 8" [200 mm] ½" NPT	•	•	•	•					$56
	A-22P-A13 Thermowell (2 part) stainless steel 12" [300 mm] ½" NPT	•	•	•	•					$87
	A-22P-A15 Thermowell (2 part) stainless steel 18" [450 mm] ½" NPT	•	•	•	•					$117
	**A-22P-A17** Thermowell (2 part) brass 2" [50 mm] ½" NPT	•	•	•	•					$27
	A-22P-A19 Thermowell (2 part) brass 4" [100 mm] ½" NPT	•	•	•	•					$32
	A-22P-A21 Thermowell (2 part) brass 6" [150 mm] ½" NPT	•	•	•	•					$37
	A-22P-A23 Thermowell (2 part) brass 8" [200 mm] ½" NPT	•	•	•	•					$45
	A-22P-A25 Thermowell (2 part) brass) 12" [300 mm] ½" NPT	•	•	•	•					$68
	A-22P-A27 Thermowell (2 part) brass 18" [450 mm] ½" NPT	•	•	•	•					$83
	**A-22P-A36** Thermowell (machined) stainless steel 2" [50 mm] ½" NPT	•	•	•	•					$121
	A-22P-A37 Thermowell (machined) stainless steel 4" [100 mm] ½" NPT	•	•	•	•					$162
	A-22P-A38 Thermowell (machined) stainless steel 6" [150 mm] ½" NPT	•	•	•	•					$166
	A-22P-A39 Thermowell (machined) stainless steel 8" [200 mm] ½" NPT	•	•	•	•					$189
	**A-22P-A51** 2" (50mm) condensation barrier to isolate the sensor housing from the sensor probe	•	•	•	•					$31
	**A-22P-A40** Fixing strap with thermal paste for pipes up to Ø 0.8...4.3" [20...110 mm]			•	•	•	•			$14
	A-22P-A42 Fixing strap with thermal paste for pipes up to Ø 0.8...9.8" [20...250 mm]			•	•	•	•			$27
	A-22P-A44 Thermal contact fluid 0.04 oz [1.2 ml]	•	•	•	•	•	•			$8
	**A-22WP-A01** Adapter ¼" NPT to ½" NPT							•		$30

SENSORS AND METERS

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5-year warranty

Model Number		01DT	01DTS	22DT	01CT	22CT	01ST	01HT	22WP	22WDP	22PDP	List Price
	**A-22WP-A03** Adapter connection set 6 mm ¼" NPT brass (2x)									•		$42
	A-22WP-A05 Adapter connection set 6 mm ¼" NPT stainless steel (2x)									•		$188
	A-22WP-A07 Adapter connection set 8 mm ¼" NPT brass (2x)									•		$48
	A-22WP-A09 Adapter connection set 8 mm ¼" NPT stainless steel (2x)									•		$218
	**A-22G-A04.1** ½" NPT conduit adaptor (Pack of 10)	•		•		•		•				$7
	EXT-TTS-M1612 ½" NPT conduit adaptor for 22WDP products		•							•		$24
	43423-00001 ½" NPT conduit adaptor for 22WP products								•			$24
	**A-22P-A60** Brass compression fitting ¼...½" NPT adapter for competitor retrofit applications of a thermowell with ½" NPT internal thread, includes brass compression sleeve and optional nylon sleeve	•		•	•	•						$14
	**EXT-GS-3WM** 3-way valve manifold for installing and isolating pipe differential sensors										•	$615

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21 GAS MONITORING

Accurate and Reliable Ventilation

- Single or dual gas monitors.
- Universal robust enclosure features an electronic display, and an audible and visual alarm.
- Field replaceable sensor elements promote simple and easy on-site calibration.
- Combined CAN bus and BACnet MS/TP networks allow for seamless integration into an already existing network or complete standalone operation.
- Analog outputs and relays allow on-demand ventilation without the need for an additional controller.

Brett Kavanagh, Product Specialist

Vehicle Emissions Nomenclature

Carbon Monoxide / Nitrogen Dioxide

22	G	0214	-5	A
Power 22 = Active	**Gas Monitoring**	**Sensor Type** 02 = Carbon Monoxide (CO) 14 = Nitrogen Dioxide (NO_2) 0214 = Carbon Monoxide (CO) and Nitrogen Dioxide (NO_2)	**Region** -5 = Americas	**Outputs** A = CAN bus, BACnet MS/TP, 1 x SPDT, 2 Analog Outputs B = CAN bus, BACnet MS/TP, 2 x SPDT C = CAN bus

Belimo gas monitors are factory calibrated and can measure up to two different gases at the same time. All monitors offer CAN bus communication, as well as LED and audio alarms, which allow for standalone operation and daisy chaining of up to 32 devices. The monitors can be easily assigned to groups on-site, for ventilation zoning on the same network, significantly reducing control wiring and installation time. Enhanced communication enables expanded system integration and BMS control with the addition of BACnet MS/TP on select models. All gas monitors come with a five year warranty and all sensor replacement modules come with a one year warranty.

Vehicle Emissions monitors are ideal for parking garages, municipal maintenance facilities, bus terminals, automobile dealerships, loading docks, warehouses, and any other location where carbon monoxide and nitrogen dioxide are present.

Repeatability	
Carbon Monoxide (CO)	<±3% CO equivalent
Nitrogen Dioxide (NO_2)	<±2% NO_2 equivalent
Drift	
Carbon Monoxide (CO)	<5% per year
Nitrogen Dioxide (NO_2)	<2% per month
Response Time	
Carbon Monoxide (CO)	<30 seconds (T90)
Nitrogen Dioxide (NO_2)	<30 seconds (T90)
Ambient Temperature	-4...+104°F [-20...+40°C]
Operating Temperature	-4...+104°F [-20...+40°C]
Agency Listing	UL-2075 (CO) and ULC-588 (CO) listed CSA C22.2 205-17 CSA C22.2 61010-1, conforms to UL61010-1

These gas monitors are factory calibrated using NIST traceable gas bottle mixtures in a typical operational environment. It is recommended to perform calibration procedures on an annual basis. For non-typical applications, it is also recommended to perform calibration upon installation within the operational setting.



22G0214-5C

UL-2075/ULC-588 listed
(22G02-5x models only)



Gas monitoring accessories include addressable relay units, communication modules, replaceable sensing elements, enclosures, and more; please refer to the accessories section on pages 21-6 to 21-7.

5-year warranty

		Output Signals		Measuring Values		Measuring Ranges	Additional Features		List Price
BELIMO MATERIAL NUMBER		Relay Output Signal	Analog Output Signal (2 x, Field Selectable)	Carbon Monoxide (CO)	Nitrogen Dioxide (NO2)	Range	CAN bus	BACnet MS/TP	
22G02-5A	Active	1 x SPDT	2...10 V or 4...20 mA	●		0...250 ppm	●	●	$1,426
22G02-5B		2 x SPDT		●		0...250 ppm	●	●	$1,343
22G02-5C				●		0...250 ppm	●		$991
22G14-5A		1 x SPDT	2...10 V or 4...20 mA		●	0...10 ppm	●	●	$1,508
22G14-5B		2 x SPDT			●	0...10 ppm	●	●	$1,426
22G14-5C					●	0...10 ppm	●		$1,054
22G0214-5A		1 x SPDT	2...10 V or 4...20 mA	●	●	0...250 ppm CO, 0...10 ppm NO_2	●	●	$2,095
22G0214-5B		2 x SPDT		●	●	0...250 ppm CO, 0...10 ppm NO_2	●	●	$2,012
22G0214-5C				●	●	0...250 ppm CO, 0...10 ppm NO_2	●		$1,874

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Indoor Air Quality Nomenclature

Carbon Dioxide

22	G	15	-5	A	3
Power	**Gas Monitoring**	**Sensor Type**	**Region**	**Outputs**	**Measuring Range**
22 = Active		15 = Carbon Dioxide (CO_2)	-5 = Americas	A = CAN bus, BACnet MS/TP, 1 x SPDT, 2 Analog Outputs B = CAN bus, BACnet MS/TP, 2 x SPDT C = CAN bus	3 = 2000 ppm 5 = 5000 ppm 6 = 10000 ppm

Belimo gas monitors are factory calibrated and can measure up to two different gases at the same time. All monitors offer CAN bus communication, as well as LED and audio alarms, which allow for standalone operation and daisy chaining of up to 32 devices. The monitors can be easily assigned to groups on-site, for ventilation zoning on the same network, significantly reducing control wiring and installation time. Enhanced communication enables expanded system integration and BMS control with the addition of BACnet MS/TP on select models. All gas monitors come with a five year warranty and all sensor replacement modules come with a one year warranty.

Indoor Air Quality monitors are ideal for fresh air control and ventilation in public spaces.

Accuracy	
0...2000 ppm	<±70 ppm ±3% of reading
0...5000 ppm	<±50 ppm ±3% of reading
0...10000 ppm	<±100 ppm ±5% of reading
Response Time	
0...2000 ppm	120 seconds (T90)
0...5000 ppm	105 seconds (T90)
0...10000 ppm	105 seconds (T90)
Sensing Technology	
0...2000 ppm	ABC Logic Auto Calibration
0...5000 ppm	Dual Channel Auto Calibration
0...10000 ppm	Dual Channel Auto Calibration
Operating Temperature	-4...+104°F [-20...+40°C]
Agency Listing	listed CSA C22.2 205-17 CSA C22.2 61010-1, conforms to UL61010-1



22G15-5B5



Gas monitoring accessories include addressable relay units, communication modules, replaceable sensing elements, enclosures, and more; please refer to the accessories section on pages 21-6 to 21-7.

5-year warranty

		Output Signals		Measuring Values	Measuring Ranges	Additional Features		List Price
BELIMO MATERIAL NUMBER		Relay Output Signal	Analog Output Signal (2 x, Field Selectable)	Carbon Dioxide (CO_2)	Range	CAN bus	BACnet MS/TP	
22G15-5A3	Active	1 x SPDT	2...10 V or 4...20 mA	●	0...2000 ppm	●	●	$1,243
22G15-5B3		2 x SPDT		●	0...2000 ppm	●	●	$1,206
22G15-5A5		1 x SPDT	2...10 V or 4...20 mA	●	0...5000 ppm	●	●	$1,790
22G15-5B5		2 x SPDT		●	0...5000 ppm	●	●	$1,754
22G15-5B6		2 x SPDT		●	0...10000 ppm	●	●	$1,886
22G15-5C6				●	0...10000 ppm	●		$1,754

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Combustible and Toxic Gas Monitoring

Ammonia / Chlorine / Hydrogen / Hydrogen Sulfide / Methane / Oxygen Depletion / Oxygen Leak / Propane

22	G	05	-5	A
Power	**Gas Monitoring**	**Sensor Type**	**Region**	**Outputs**
22 = Active		04 = Ammonia (NH_3) 05 = Methane (CH_4) 06 = Propane (C_3H_8) 08 = Hydrogen (H_2) 16 = Hydrogen Sulfide (H_2S) 17 = Chlorine (CL_2) 22 = Oxygen (O_2) Leak 23 = Oxygen (O_2) Depletion	-5 = Americas	A = CAN bus, BACnet MS/TP, 1 x SPDT, 2 Analog Outputs B = CAN bus, BACnet MS/TP, 2 x SPDT C = CAN bus

Belimo gas monitors are factory calibrated and can measure up to two different gases at the same time. All monitors offer CAN bus communication, as well as LED and audio alarms, which allow for standalone operation and daisy chaining of up to 32 devices. The monitors can be easily assigned to groups on-site, for ventilation zoning on the same network, significantly reducing control wiring and installation time. Enhanced communication enables expanded system integration and BMS control with the addition of BACnet MS/TP on select models. All gas monitors come with a five year warranty and all sensor replacement modules come with a one year warranty.

Belimo combustible and toxic gas monitors are ideal for mechanical rooms, warehouses, landfills, laboratories, hospitals, hotels, pools, recycle centers and any other location that requires monitoring of combustible and toxic gases.

Response Time	
NH_3 (Ammonia)	<10 seconds (T90)
CH_4 (Methane)	<15 seconds (T90)
C_3H_8 (Propane)	<16 seconds (T90)
H_2 (Hydrogen)	<10 seconds (T90)
H_2S (Hydrogen Sulfide)	<30 seconds (T90)
CL_2 (Chlorine)	<40 seconds (T90)
O_2 Leak	<15 seconds (T90)
O_2 Depletion	<15 seconds (T90)
Sensing Technology	
NH_3 (Ammonia)	Electrochemical
CH_4 (Methane)	Catalytic
C_3H_8 (Propane)	Catalytic
H_2 (Hydrogen)	Catalytic
H_2S (Hydrogen Sulfide)	Electrochemical
CL_2 (Chlorine)	Electrochemical
O_2 Leak	Electrochemical (fuel cell)
O_2 Depletion	Electrochemical (fuel cell)
Operating Temperature	-4...+122°F [-20...+50°C]
Agency Listing	listed CSA C22.2 205-17 CSA C22.2 61010-1, conforms to UL61010-1



22G05-5B



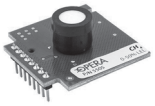
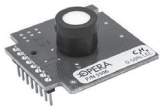
Gas monitoring accessories include addressable relay units, communication modules, replaceable sensing elements, enclosures, and more; please refer to the accessories section on pages 21-6 to 21-7.

5-year warranty

Measuring Values												Measuring Range	Additional Features		List Price
BELIMO MATERIAL NUMBER		Relay Output Signal	Analog Output Signal (2 x, Field Selectable)	NH_3	CH_4	C_3H_8	H_2	H_2S	CL_2	O_2 (Leak)	O_2 (Depletion)	Range	CAN bus	BACnet MS/TP	
22G04-5A		1 x SPDT	2...10 V or 4...20 mA	●								0...250 ppm	●	●	*
22G04-5B		2 x SPDT		●								0...250 ppm	●	●	*
22G05-5A		1 x SPDT	2...10 V or 4...20 mA		●							0...50% LEL	●	●	*
22G05-5B		2 x SPDT			●							0...50% LEL	●	●	*
22G05-5C					●							0...50% LEL	●		*
22G06-5A		1 x SPDT	2...10 V or 4...20 mA			●						0...50% LEL	●	●	*
22G06-5B		2 x SPDT				●						0...50% LEL	●	●	*
22G06-5C						●						0...50% LEL	●		*
22G08-5A		1 x SPDT	2...10 V or 4...20 mA				●					0...50% LEL	●	●	*
22G08-5B	**Active**	2 x SPDT					●					0...50% LEL	●	●	*
22G08-5C							●					0...50% LEL	●		*
22G16-5A		1 x SPDT	2...10 V or 4...20 mA					●				0...50 ppm	●	●	*
22G16-5B		2 x SPDT						●				0...50 ppm	●	●	*
22G17-5A		1 x SPDT	2...10 V or 4...20 mA						●			0...10 ppm	●	●	*
22G17-5B		2 x SPDT							●			0...10 ppm	●	●	*
22G22-5A		1 x SPDT	2...10 V or 4...20 mA							●		0...50% O2	●	●	*
22G22-5B		2 x SPDT								●		0...50% O2	●	●	*
22G23-5A		1 x SPDT	2...10 V or 4...20 mA								●	0...50% O2	●	●	*
22G23-5B		2 x SPDT									●	0...50% O2	●	●	*

*Check www.belimo.us for pricing details.

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VEHICLE EMISSIONS SENSOR MODULES		22G02-5..	22G0214-5..	22G14-5..	22G15-5A3	22G15-5A5	22G04-5..	22G05-5..	22G06-5..	22G08-5..	22G16-5..	22G17-5..	22G22-5..	22G23-5..	List Price
	**R-G02** Carbon Monoxide (CO) replacement sensor module 0...250 ppm	•	•												$422
	**R-G14** Nitrogen Dioxide (NO_2) replacement sensor module 0...10 ppm		•	•											$527
INDOOR AIR QUALITY SENSOR MODULES															
	**R-G15-003** Carbon Dioxide (CO_2) replacement sensor module 0…2000 ppm				•										$550
	**R-G15-005** Carbon Dioxide (CO_2) replacement sensor module 0…5000 ppm					•									$1,097
COMBUSTIBLE AND TOXIC GASES SENSOR MODULES															
	**R-G04** Ammonia (NH_3) replacement sensor module 0...250 ppm						•								*
	**R-G05** Methane (CH_4) replacement sensor module 0...50% LEL							•							*
	**R-G06** Propane (C_3H_8) replacement sensor module 0...50% LEL								•						*
	R-G08 Hydrogen (H_2) replacement sensor module 0...50% LEL									•					*
	**R-G16** Hydrogen Sulfide (H_2S) replacement sensor module 0...50 ppm										•				*
	R-G17 Chlorine (CL_2) replacement sensor module 0...10 ppm											•			*
	**R-G22** Oxygen Leak (O_2 Leak) replacement sensor module 0...50% O_2												•		*
	R-G23 Oxygen Depletion (O_2 Depletion) replacement sensor module 0...50% O_2													•	*

*Check www.belimo.us for pricing details.

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		22G02-5..	22G0214-5..	22G14-5..	22G15-5A3	22G15-5A5	22G15-5A6	22G04-5..	22G05-5..	22G06-5..	22G08-5..	22G16-5..	22G17-5..	22G22-5..	22G23-5..	List Price
COMMUNICATION MODULES																
	**C-22G-5A** Communication module, features CAN bus, BACnet MS/TP, 1 x SPDT, 2 analog outputs	●	●	●	●	●	●	●	●	●	●	●	●	●	●	$778
	C-22G-5B Communication module, features CAN bus, BACnet MS/TP, 2 x SPDT	●	●	●	●	●	●	●	●	●	●	●	●	●	●	$716
	C-22G-5C Communication module, features CAN bus	●	●	●	●	●	●	●	●	●	●	●	●	●	●	$590
RELAY UNIT																
	**C-22G-50** Relay unit with 4 x SPDT and CAN bus	●	●	●	●	●	●	●	●	●	●	●	●	●	●	$506
MISCELLANEOUS ACCESSORIES																
	**A-22G-A16** Audible Alarm	●	●	●	●	●	●	●	●	●	●	●	●	●	●	$873
	**A-22G-A12** Wall mount splash guard	●	●	●	●	●	●	●	●	●	●	●	●	●	●	$361
	**A-22G-A13** Duct mount splash guard	●	●	●	●	●	●	●	●	●	●	●	●	●	●	$462
	**A-22G-A22** Reguator (0.5 LPM)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	$925
	A-22G-A50 Transformer, 50 Va	●	●	●	●	●	●	●	●	●	●	●	●	●	●	$207
	A-22G-A100 Transformer, 100 Va	●	●	●	●	●	●	●	●	●	●	●	●	●	●	$222
	**A-22G-A14** The Belimo high-low kit connects a remote sensor to a 6000 series gas monitor to address different mounting height requirements.	●	●	●												$342

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Belimo
Gas Monitors



Accurate and Reliable Control

Belimo's gas monitors are factory calibrated and measure single or dual gas combinations to help maintain adequate ventilation. The monitors can be used as a standalone system or integrated into a building automation system using BACnet MS/TP.

Discover the advantages
www.belimo.us

5
5-year warranty

BELIMO



Kevin Webb, RMA Analysis Technician

22 RETROFIT SOLUTIONS

Increasing Performance and Efficiency

- Quickly and conveniently restores applications without any interruption in service.
- Custom solutions are available with our in-house retrofit machine shop with lead times of 5 days or less.
- Simple way to implement Belimo actuators in existing buildings whether electronic or pneumatic.

Retrofit Solutions Nomenclature

U	F	L	K	XXXX	AFB	24	-MFT
Series U = Universal S = Schneider W = Warren F = Flanged	**Valve Type** F = Butterfly G = Globe B = Ball	**Retrofit Type** L = Linkage V = Valve SP = Special Order S = Short Stroke	**Packaging** K = Kit L = Linkage Blank with SP	Dependent upon valve you are selecting to retrofit	**Actuator Type** **Non Fail-Safe** LVB, LVX SVB, SVX EVB, EVX RVB, RVX **Fail-Safe Spring Return** LF NFB, NFX AFB, AFX **Electronic** LVKB, LVKX SVKB, SVKX AVKB, AVKX GKB, GKX	**Power Supply** 24 = AC/DC 24 V 120 = AC 120 V	**Control** Blank = On/Off -3-X1 = On/Off, Floating Point -SR = 2...10 V -MFT or MFT-X1 = Multi-Function Technology -MFT95-X1 = 0...135 Ω

Nomenclature for example only.
All Belimo actuators are suitable for retrofit solutions depending on specific application parameters.

"X" models are customizable. Refer to pages 22-16 and 22-45 for programming options.

Ordering Example

1 Select linkage solution based on the **Valve Number**, **Configuration**, and **Size**; select the proper **Linkage Solution** for your valve.

Example: **599 Flowrite, 2-Way, 1¼"** valve to be retrofitted.

Choose correct kit **UGLK1208** or **UGVL**.

Siemens\Landis\Powers
599 Flowrite Series Valves
Linkage/Actuator Selection Guide

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage
599 Flowrite	1¼"	No	221	AM	**UGLK1208**
		Yes		AF	**UGLK1208**
		No	236	SV	**UGVL**
		Yes		SVK	**UGVL**
		Yes	110	NF	**UGLK1208**

2 Verify close-off is suitable for application. Looking at the **UGLK or UGVL**, the **AF and SVK** Series actuator will provide **221 psid (AF) or 236 psid (SVK) close-off** for the **1¼" valve**.

3 Select actuator based on needed control type. Decide between **AFB24, AFB24-MFT**

or **SVKX24-3, SVKB24-MFT**.

BASIC PRODUCTS

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switch
				(M)	♦♦		
AFB24	On/Off	-	AC/DC 24 V	<75 seconds	20 s	7.5	-
AFB24-S	On/Off	-	AC/DC 24 V	<75 seconds	20 s	7.5	Built-In
AFBUP	On/Off	-	AC 24...240 V	<75 seconds	20 s	8.5	-
AFBUP-S	On/Off	-	AC 24...240 V	<75 seconds	20 s	8.5	Built-In
AFB24-SR	2...10 V (4...20 mA)	2...10 V	AC/DC 24 V	95 seconds	<20 s	8.5	-
AFB24-SR-S	2...10 V (4...20 mA)	2...10 V	AC/DC 24 V	95 seconds	<20 s	8.5	Built-In
AFB24-PC	0.5...10 V Phasecut	2...10 V	AC/DC 24 V	150 seconds	<20 s	10	-
AFB24-MFT	2...10 V (4...20 mA)	2...10 V	AC/DC 24 V	150 seconds	<20 s	10	-
AFB24-MFT-S	2...10 V (4...20 mA)	2...10 V	AC/DC 24 V	150 seconds	<20 s	10	Built-In
AFB24-MFT95	0...135 Ω	2...10 V	AC/DC 24 V	150 seconds	<20 s	10	-

4 Complete Ordering Example Option One:

Item 1: **UGLK1208**

Item 2: **AFB24-MFT**

4 Complete Ordering Example Option Two:

Item 1: **UGVL + SVKB24-MFT**

ACTUATOR PART #		LVKX24-3	LVKB24-SR	LVKX24-MFT	SVKX24-3	SVKB24-SR	SVKB24-MFT
Control type		On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	Modulating	Modulating/MFT
Input signal / Feedback		-	2...10 V	Variable	-	2...10 V	Variable
Running time	Motor	150 seconds	150 seconds	Variable	150 seconds	150 seconds	Variable
	Fail-Safe	35 seconds	35 seconds	35 seconds	35 seconds	35 seconds	35 seconds
Actuator travel		24 mm	24 mm	24 mm	24 mm	24 mm	24 mm
Actuator noise level		<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
GVL LINKAGES							
UGVL	Universal Adjustable for 1/2...2"	$	$	$	$	$	$
SGVL	Schnieder VB7..., VB9...	$	$	$	$	$	$

FAIL-SAFE ACTUATORS

DISCONTINUED MODEL	REPLACEMENT MODEL
AF120 US	AFBUP
AF120-S US	AFBUP-S
AF230 US	AFBUP
AF230-S US	AFBUP-S
AF24 US	AFB24
AF24-3 US	AFX24-MFT + F ❑❑
AF24-3-S US	AFX24-MFT-S + F ❑❑
AF24-MFT US	AFB24-MFT
AF24-MFT95 US	AFB24-MFT95
AF24-MFT-S US	AFB24-MFT-S
AF24-PC US	AFB24-PC
AF24-PWM US	AFX24-MFT + W ❑❑
AF24-S US	AFB24-S
AF24-SR US	AFB24-SR**
AF24-SR US*	AFB24-PC if phasecut is needed
AF24-SR95 US	AFB24-MFT95
AF24-SR-S US	AFB24-SR-S**
AFA24-SR US**	AFB24-SR**
AFR120 US	AFBUP
AFR120-S US	AFBUP-S
AFR24 US	AFB24
AFR24-3 US	AFX24-MFT + F ❑❑
AFR24-3-S US	AFX24-MFT-S + F ❑❑
AFR24-S US	AFB24-S
AFR24-SR US	AFB24-SR**
FM24 US	AFB24
FM24-SR US	AFB24-SR
FM24-SR90 US	AFB24-MFT95
FM24-SR95 US	AFB24-MFT95
FS24	AFB24
FS24-S	AFB24-S
FSAF120 US	FSAF120A
FSAF120-S US	FSAF120A-S
FSAF230 US	FSAF230A

* Purchased before May 2003. ** Not piggy back capable.

FAIL-SAFE ACTUATORS

DISCONTINUED MODEL	REPLACEMENT MODEL
FSAF230-S US	FSAF230A-S
FSAF24 US	FSAF24A
FSAF24-BAL US	FSAFB24-SR + SGA24 or SGF24
FSAF24-BAL-S US	FSAFB24-SR-S + SGA24 or SGF24
FSAF24-S US	FSAF24A-S
FSAF24-SR US	FSAFB24-SR
FSAF24-SR-S US	FSAFB24-SR-S
LF24-SR-MP US	LF24-MFT-20 US
LF24-SR-S-MP US	LF24-MFT-S-20 US
NF120 US	NFBUP
NF120-S US	NFBUP-S
NF230 US	NFBUP
NF230-S US	NFBUP-S
NF24 US	NFB24
NF24-MFT US	NFB24-MFT
NF24-S US	NFB24-S
NF24-S2 US	NFB24-S
NF24-SR US	NFB24-SR
NF24-SR-S US	NFB24-SR-S
SF120 US	AFBUP
SF120-S US	AFBUP-S
SF24 US	AFB24
SF24-S US	AFB24-S
TF120 US	TFB120
TF120-S US	TFB120-S
TF24 US	TFB24
TF24-3 US	TFB24-3
TF24-3-S US	TFB24-3-S
TF24-MFT US	TFB24-MFT
TF24-MFT-S US	TFB24-MFT-S
TF24-S US	TFB24-S
TF24-SR US	TFB24-SR
TF24-SR-S US	TFB24-SR-S
TFC120-S US	TFCB120-S

NON FAIL-SAFE ACTUATORS

DISCONTINUED MODEL	REPLACEMENT MODEL
AM24 US	AMB24-3
AM24-MFT 95 US	AMX24-MFT95 + # AM0L0 1C1 R01
AM24-MFT US	AMX24-MFT + # AM100 1C1 ❑❑❑
AM24-PC US	AMX24-PC + # AM0N0 1C1 ❑❑❑
AM24-PWM-A US	AMX24-MFT + # AM100 1C1 W02
AM24-PWM-B US	AMX24-MFT + # AM100 1C1 W03
AM24-PWM-C US	AMX24-MFT + # AM100 1C1 W01
AM24-S US	AMB24-3-S
AM24-SR US	AMB24-SR
AM24-SRS-A US	AMX24-MFT + # AM100 1C1 A04
AM24-SRS-B US	AMX24-MFT + # AM100 1C1 A05
AM24-SRS-C US	AMX24-MFT + # AM100 1C1 A06
GM24 US	GMB24-3
GM24-MFT US	GMX24-MFT+ # GM110 1C1 ❑❑❑
GM24-SR US	GMB24-SR
GM24-SR US	GMX24-PC if phasecut is needed
LM24 US	LMB24-3
LM24-3 US	LMB24-3
LM24-MFT US	LMX24-MFT + # LM100 1C1 ❑❑❑
LM24-MFT.1 US	LMX24-MFT+ # LM100 1C1 ❑❑❑
LM24-SR US	LMB24-SR
LM24-SR.1 US	LMB24-SR.1
LM24-SR-2.0 US	LMB24-SR

* Purchased before May 2003. ** Not piggy back capable. ❑ Placeholder for custom options.

NON FAIL-SAFE ACTUATORS

DISCONTINUED MODEL	REPLACEMENT MODEL
LM24-SR-T US	LMB24-SR-T
LM24-SR-T.1 US	LMB24-SR-T.1
LM24-SR-T-2.0 US	LMB24-SR-T
LMC24-SR US	LMCB24-SR
NM24 EU	NMB24-3
NM24 US	NMB24-3
NM24-1 US	NMB24-3
NM24-1/200 US	NMX24-3 + # NM00 1C3 000
NM24-1/300 US	NMX24-3 + # NM00 1C3 000
NM24-MFT US	NMX24-MFT + # NM100 1C1 ❑❑❑
NM24-MFT.1 US	NMX24-MFT + # NM100 1C1 ❑❑❑
NM24-PWM US	NMX24-MFT + # NM100 1C1 W ❑❑
NM24-SR US	NMB24-SR
NM24-SRS US	NMX24-MFT + # NM100 1C1 A ❑❑
NMQ24-MFT US	NMQX24-MFT + #NMQD00 1C1 ❑❑❑
NMV24-D US	NMV-D3-MFT
NMV24-V US	NMV-D3-MFT
SM24 US	AMB24-3
SM24-S US	AMX24-MFT + # AM110 1C1 ❑❑❑ + S1A/S2A
SM24-SR US	AMB24-SR
SM24-SR US	AMX24-PC if phasecut is needed
SM24-SR94 US	AMX24-MFT95 + # AM0L0 1C1 R01
SM24-SRS US	AMX24-MFT + # AM100 1C1 A ❑❑

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Discontinued Belimo to Belimo

Valve Actuator Replacement Cross Reference

When replacing an actuator on a valve, whether Belimo or other manufacture, be sure to consider the application parameters. The new product may not be the best fit for the application. For example, an existing MAR actuator mounted to a valve linkage. The direct replacement of the actuator would be the PR series actuator. The MAR and the PR have different linkage construction. The linkage would also need to be replaced.
When retrofitting or replacing actuators, it is recommended to select the new product based on application parameters. This ensures the selected actuator is fit for the application.
Please consult Belimo for assistance with valve actuator replacement.

FAIL-SAFE ACTUATORS

DISCONTINUED MODEL	REPLACEMENT MODEL
AF24 US	AFRB24
AF24-SR US	AFRB24-SR
AF24-3 US	AFX24-MFT + F ❑❑
AF24-3-S US	AFX24-MFT-S + F ❑❑
AF24-PWM US	AFX24-MFT + W ❑❑
AF24-SR95 US	AFB24-MFT95
AF24-SR-S US	AFB24-SR-S
LF24-SR-MP US	LF24-MFT-20 US
LF24-SR-S-MP US	LF24-MFT-S-20 US
NVF24-MFT US	SVKX24-MFT* or SVKB24-SR*
NVF24-MFT-E US	SVKX24-MFT* or SVKB24-SR*

*New linkage required.

NON FAIL-SAFE ACTUATORS

DISCONTINUED MODEL	REPLACEMENT MODEL
LR24 US	LRB24-3
LR24/200 US*	LRX24-3 + # LR000 RC3 002
LR24/300 US	LRX24-3 + # LR000 RC3 002
LR24-1 US	LRB24-3
LR24-1/200 US*	LRX24-3 + # LR000 RC3 002
LR24-1/300 US	LRB24-3 + # LR000 RC3 002
LR24-3-1 US	LRB24-3
LR24-3-1/200 US*	LRX24-3 + # LR000 RC3 002
LR24-3-1/300 US	LRX24-3 + # LR000 RC3 002
LR24-MFT US	LRX24-MFT + # LR100 RC1 ❑❑❑
LR24-MFT/200 US*	LRX24-MFT + # LR100 RC3 ❑❑❑
LR24-MFT/300 US	LRX24-MFT + # LR100 RC3 ❑❑❑
LR24-SR/200 US*	LRX24-SR + # LR030 RC3 002
LR24-SR/300 US	LRX24-SR + # LR030 RC3 002
LR24-SR-1 US	LRB24-SR
LR24-SR-1/200 US*	LRX24-SR + # LR030 RC3 002
LR24-SR-1/300 US	LRX24-SR + # LR030 RC3 002
LR24-SR-1-2.0 US	LRB24-SR
LR24-SR-1-2.0/200 US*	LRX24-SR + # LR030 RC3 002
LR24-SR-1-2.0/300 US	LRX24-SR + # LR030 RC3 002
LR24-SR-2.0 US	LRB24-SR
LR24-SR-2.0/200 US*	LRX24-SR + # LR030 RC3 002
LR24-SR-2.0/300 US	LRX24-SR + # LR030 RC3 002
LV24 US	CCV with LR..or TR..or Zonetight with CQ
LV24/200 US*	CCV with LR..or TR..or Zonetight with CQ
LV24/300 US	CCV with LR..or TR..or Zonetight with CQ
LV24-1 US	CCV with LR..or TR..or Zonetight with CQ
LV24-1/200 US*	CCV with LR..or TR..or Zonetight with CQ
LV24-1/300 US	CCV with LR..or TR..or Zonetight with CQ
LV24-3 US	CCV with LR..or TR..or Zonetight with CQ
LV24-3-1 US	CCV with LR..or TR..or Zonetight with CQ
LV24-SR US	CCV with LR..or TR..or Zonetight with CQ
LV24-SR/200 US*	CCV with LR..or TR..or Zonetight with CQ
LV24-SR/300 US	CCV with LR..or TR..or Zonetight with CQ
LV24-SR-1 US	CCV with LR..or TR..or Zonetight with CQ
LV24-SR-1/200 US*	CCV with LR..or TR..or Zonetight with CQ
LV24-SR-1/300 US	CCV with LR..or TR..or Zonetight with CQ
LV24-SR-1-2.0 US	CCV with LR..or TR..or Zonetight with CQ
LV24-SR-1-2.0/200 US*	CCV with LR..or TR..or Zonetight with CQ
LV24-SR-1-2.0/300 US	CCV with LR..or TR..or Zonetight with CQ

❑ Placeholder for custom options.
*These models had a 2 m/6' long cable and the replacement is a 3 m/10' long cable.
CV must be known for proper replacement.

NON FAIL-SAFE ACTUATORS

DISCONTINUED MODEL	REPLACEMENT MODEL
AM24 US	ARB24-3
AM24-MFT US	ARX24-MFT + # AR100 RC1 ❑❑❑
AM24-S US	ARB24-S US
NM24 US	ARB24-3
NM24-MFT US	ARX24-MFT + # AR100 RC1A ❑❑
NM24-SR US	ARX24-SR + # AR030 RC1 ❑❑❑
NM24-SRS US	ARX24-MFT + # AR100 RC1W ❑❑
NR24-3 US**	LRB24-3
NR24-SR US**	LRX24-MFT + # LR100 RC1 ❑❑❑
NV24-3 US	SVX24-3*
NV24-MFT US	SVX24-MFT* or SVB24-SR*
NVG24-MFT US	EVX24-MFT* or EVX24-3*

* New linkage required.
❑ Placeholder for custom options.
** Consider ambient temperature for application.

NON FAIL-SAFE – AC 24 V / NON FAIL-SAFE – AC 24 V

DISCONTINUED MODEL	Torque (in-lb)	REPLACEMENT MODEL	Torque (in-lb)
MAR100B-24V	1,500	SY4-24*	3,560
MAR160-B-24V	2,000	SY4-24*	3,560
MAR100BP-24V	1,800	SY4-24MFT*	3,560
MAR160-BP-24V	2,500	SY4-24MFT*	3,560
MAR250-60-24V	5,000	SY5-24*	4,450
MAR250-60P-24V	5,000	SY5-24MFT*	4,450

*New linkage required.

NON FAIL-SAFE – AC 24 V / NON FAIL-SAFE – AC 24 V

DISCONTINUED MODEL	Torque (in-lb)	REPLACEMENT MODEL	Torque (in-lb)
MAR100B	1,500	SY4-110*	3,559
MAR160B	2,000	SY4-110*	3,560
MAR100BP	1,800	SY4-120MFT*	3,560
MAR160-BP	2,500	SY4-120MFT*	3,560
MAR250-30	5,000	SY5-110*	4,450
MAR250-30P	5,000	SY6-110*	6,450
		SY6-120MFT*	6,450
MAR800-30	10,000	SY7-110*	9,790
MAR800-30P	10,000	SY8-110 *	13,350
		SY8-120MFT*	13,350
MAR1600-70	21,000	SY10-110*	22,250
MAR1600-70P	21,000	SY10-120MFT*	22,250
MAR4000-70	48,000	SY12-110*	31,150
MAR4000-70P	48,000	SY12-120MFT*	31,150

*New linkage required.

NON FAIL-SAFE – SY ACTUATORS / NON FAIL-SAFE – AC 24...240 V

DISCONTINUED MODEL	Torque (in-lb)	REPLACEMENT MODEL	Torque (in-lb)
SY2-110*	800	PRBUP-3-T	1,400
SY3-110*	1,335	PRBUP-3-T	1,400
SY2-120MFT*	800	PRBUP-MFT-T	1,400
SY3-120MFT*	1,335	PRBUP-MFT-T	1,400
SY2-24*	800	PRBUP-3-T	1,400
SY3-24*	1,335	PRBUP-MFT-T	1,400
SY2-24MFT*	800	PRBUP-3-T	1,400
SY3-24MFT*	1,335	PRBUP-MFT-T	1,400

*New linkage required.

RETROFIT SOLUTIONS

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Fire and Smoke Actuator Replacement Solutions

For Fire and Smoke Actuators use the UL555S test to select the correct actuator for your application - do not match actuator to actuator.

Different methods are employed by different manufacturers to achieve the fire spring-closed function. For example, Pottorff damper with the MA220 actuator is a single spring. To replace the discontinued MA220, the fusible link must be removed and a thermal sensor installed.

Ruskin dampers use an external spring and a thermal sensor, so removal of the old MA220 and external spring and replacement with Belimo is all that is required.

Note: NFPA 80 and NFPA 105 require that dampers be repaired as soon as possible. In most jurisdictions, this is a normal repair. In all cases, a log of periodic testing and any repairs must be maintained within the facility. Repair of any fire and smoke damper is required by codes. A permit and retest may be required if the replacement is not an ordinary repair.

When any fire alarm wiring is touched, or any structural changes are made, the fire department or building official must be consulted, and a permit plus inspection is required.

Visit http://www.belimo.us/firesmoke for detailed instructions for each damper manufacturer.

All Belimo FSXX actuators are spring return. "-S" models have two auxiliary switches. All 24 V models are DC capable as long as the minimum voltage is 24VDC and a filtered and regulated power supply is used.

	MODEL	BELIMO REPLACEMENT MODEL		
Notes	HONEYWELL	BELIMO	Power	Torque (in-lb)
Go to www.belimo.us/firesmoke for Installation Instructions. At velocities <2,000fpm FSTF may be used on dampers <1.5 sq.ft. Use FSLF for dampers < 4 sq.ft. Use FSNF for dampers between 4 sq.ft. and 12 sq.ft. Use FSAF*A for dampers up to 16 sq.ft. Multi-section dampers should be investigated for number of actuators required. See data sheets for linkages. FSLF is direct couple only.	ML4105A1000	FSLF120 US	AC 120 V	30
	ML4105B1009			
	ML4105C1008	FSLF230 US	AC 230 V	
	ML4105D1007			
	ML4115A1009	FSLF120 US	AC 120 V	
	ML4115A1017			
	ML4115B1008			
	ML4115B1016			
	ML4115C1007	FSLF230 US	AC 230 V	
	ML4115C1015			
	ML4115D			
	ML4115D1006			
	ML4115H	FSLF120 US	AC 120 V	
	ML4115H1002			
	ML4115J			
	ML4202			
	ML4202F1000			
	ML4302F1008			
	ML4702			
	ML4802	FSLF230 US	AC 230 V	
	ML8105A1006	FSLF24 US	AC 24 V	
	ML8105B1005			
	ML8115A1005			
	ML8115A1013			
	ML8115B1004			
	ML8115B1012			
	ML8115H			
	ML8115J			
	ML8202			
	ML8302			
	MS4104F1010	FSLF120 US	AC 120 V	
	MS4104F1210	FSLF120-S US		
	MS4109F1010	FSNF120 US		70
	MS4109F1210	FSNF120-S US		
	MS4120F1006	FSAF120A		180
	MS4120F1204	FSAF120A-S		
	MS4209F	FSNF120 US		70
	MS4209F1007			
	MS4309F			
	MS4309F1005			
	MS4604F1010	FSLF230 US	AC 230 V	30
	MS4604F1210	FSLF230-S US	AC 230 V	

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Honeywell/Ruskin to Belimo

Fire and Smoke Actuator Replacement Cross Reference

	MODEL	BELIMO REPLACEMENT MODEL		
Notes	HONEYWELL	BELIMO	Power	Torque (in-lb)
Go to www.belimo.us/firesmoke for Installation Instructions.	MS4609F1010	FSNF230 US	AC 230 V	70
	MS4609F1210	FSNF230-S US		
At velocities <2,000fpm	MS4620F1005	FSAF230A		180
	MS4620F1203	FSAF230A-S		
FSTF may be used on dampers <1.5 sq.ft.	MS4709F	FSNF230 US		70
	MS4709F1014			
Use FSLF for dampers < 4 sq.ft.	MS4809F			
Use FSNF for dampers between 4 sq.ft. and 12 sq.ft.	MS4809F1012			
	MS7520A2015	FSAFB24-SR	AC 24 V	180
Use FSAF*A for dampers up to 16 sq.ft.	MS8104F1010	FSLF24 US		30
	MS8104F1210			
Multi-section dampers should be investigated for number of actuators required.	MS8109F1010	FSNF24 US		70
	MS8109F1210	FSNF24-S US		
	MS8120F1002	FSAF24A		180
See data sheets for linkages. FSLF is direct couple only.	MS8120F1200	FSAF24A-S		
	MS8209F	FSNF24 US		70
	MS8209F1003			
	MS8309F			
	MS8309F1001			
	MS8103F10XX	FSLF24 US		30
	MS8103F12XX	FSLF24-S US		
	MS4103F10XX	FSLF120 US	AC 120 V	
	MS4103F12XX	FSLF120 US	AC 120 V	
	S20230-F	FSAF230A	AC 230 V	180
	S20230-F-SW2	FSAF230A-S		
	S2024-F	FSAF24A	AC 24 V	
	S2024-F-SW2	FSAF24A-S		
Auxiliary switch packages	32003532-002 Aux Switch Package	Use Belimo "-S" models	N/A	N/A

ECM	Call Belimo for assistance. Digital photographs of damper and old motor mounting will be needed. Generally replaced by FSLF for direct coupled and FSNF if linkages are needed. Motors were non-spring. Damper OEM external spring must be removed or disabled.
Prefco	Honeywell, 5800 EMB 2X and other models can easily be replaced if damper shaft is present. Call Belimo for more information. Refer to Multiproducts on page 22-6
Modulating	Various models of Honeywell and other modulating can be replaced. FSAFB24-SR and FSAFB24-SR-S are available.
Pneumatic	Retrofit of pneumatic actuators with Belimo electronic ones will usually require some re-control also. Depending on age and manufacturer, the fusible links, fusible air valve, smoke control relays, or other components may have to be replaced or upgraded.

	MODEL	BELIMO REPLACEMENT MODEL		
Notes	RUSKIN	BELIMO	Power	Torque (in-lb)
The Ruskin/HW motors vary irregularly in torque. It is best to use damper size to select.	H-2000A/3 Low	FSLF120 US	AC 120 V	30
	H-2000A/6 Medium	FSNF120 US		70
< 4 sq.ft. use FSLF Series.	H-2000A/8 High			
	H-2000B/3 Low	FSLF120 US		30
> 4 sq.ft. use FSNF Series.	H-2000B/6 Medium	FSNF120 US		70
	H-2000B/8 High			
	H-2024A/3 Low	FSLF24 US	AC 24 V	30
	H-2024A/6 Medium	FSNF24 US		70
	H-2024A/8 High			
	H-2024B/3 Low	FSLF24 US		30
	H-2024B/6 Medium	FSNF24 US		70
	H-2024B/8 High			
	H-2230A/3 Low	FSLF230 US	AC 230 V	30
	H-2230A/6 Medium	FSNF230 US		70
	H-2230A/8 High			
	H-2230B/3 Low	FSLF230 US		30
	H-2230B/6 Medium	FSNF230 US		70
	H-2230B/8 High			
	RH-24	FSNF24 US	AC 24 V	
	RH-24-S	FSNF24-S US		
	RH-120	FSNF120 US	AC 120 V	
	RH-120-S	FSNF120-S US		
	RH-24-MOD	FSAFB24-SR	AC 24 V	180

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	MODEL	BELIMO REPLACEMENT MODEL		
Notes - PHILLIPS P150	RUSKIN	BELIMO	Power	Torque (in-lb)
Shaft spring must be disabled. See Ruskin with Phillips P150 at www.belimo.us/firesmoke Linkages and switch model available. Some used with Negator springs; if so, call for assistance. Use FSNF for dampers up to 12 sq.ft. Use FSNF*A for dampers up to 16 sq.ft	Phillips P150	See notes on left	On/Off	See notes on left.

	MODEL	BELIMO REPLACEMENT MODEL		
Notes	MULTIPRODUCTS	BELIMO	Power	Torque (in-lb)
Greenheck. Typically these were linkaged using a crank arm on the square motor shaft and the spring was on the round shaft. Remove all linkage parts and direct couple to damper shaft.	2430	FSLF120 US if direct coupled. See notes 1, 2, 3 below	AC 120 V	30
Air Balance. Square shaft inserted into damper sleeve with special crankarm. If a smoke damper, replacement may be possible and requires a new shaft and other linkage parts. If a combination fire and smoke damper, it is possible Belimo cannot be used. Most dampers must be replaced.	2553A			
Greenheck. Typically these were linkaged using a crank arm on the square motor shaft and the spring was on the round shaft. Remove all linkage parts and direct couple to damper shaft.	2585, 2586			
Safe-Air / Imperial. Typically linkaged. There was an internal spring and fusible link for the fire function.	2659			
Air Balance. FSLF < 3 sq.ft.; FSNF 3...8 sq.ft. Remove old motor and external spring. Belimo mounts on shaft without linkages. Use old motor as a mounting platform for anti-rotation strap.	2724			
Ruskin. FSLF120/MP Kit available from Ruskin Reps. See instructions for negator spring removal. Some dampers will need fusible link replaced and thermal sensor installed.	2781 or 1161B		AC 24...120 V	
Ruskin. 10 in-lb. "A" model = CW rotation; plain = CCW. Check voltage. FSLF replaces both in most cases. Use FSTF when linkages necessary.	2814A-SQ		AC 120 V	
Depends on specific geometry of installation. All FSTF & FSNF parts can be used. Inside clamp mounting or a shaft extension required. Inside clamp mounting or a shaft extension may be required.	2920			
Greenheck.Typically these were linkaged using a crank arm on the square shaft and the spring was on the round shaft. Remove all linkage parts and direct couple to damper shaft. (Model difference is CW vs. CCW.)	2985, 2986			
Greenheck. Some were direct coupled to the damper shaft with an external spring. Some were linkaged using a crank arm on the square motor shaft and the spring was on the round shaft. Remove all linkage parts and direct couple to damper shaft. (Model difference is CW vs. CCW.)	3158, 3159			
Prefco. Outside the duct, 1 is top mount, power open. 10 is bottom mount, power closed. Review of linkages, springs, fusible link or McCabeLink© must be performed. Power closed typically used in smoke control systems so switches may be needed.	5800EMB1,10			
Prefco. Review of linkages, springs, fusible link or McCabeLink© must be performed.	5800EMB2XPC, PO, 5800EMB8, 9			
Prefco. Inside the duct, 5 is top mount, power open. 7 is bottom mount, power closed. Review of linkages, springs, fusible link or McCabeLink©must be performed. Power closed typically used in smoke control systems so switches may be needed.	5800EMB5, 7			
Nailor. Remove linkage parts and mount to damper shaft. FSLF for dampers <4 sq.ft. and FSNF for dampers >4 sq.ft.	6247			
	MZRHM			
Greenheck and others. Typically these were linkaged using a crank arm on the square motor shaft and the spring was on the round shaft. Remove all linkage parts and direct couple to damper shaft.	TB2001, TSB2000			
	ML4202F1000			

1. In general, use FSLF If a shaft is available for direct coupling and damper is < 4 sq.ft. Use FSNF and ZG-AF US or other linkage if linkage is necessary and damper is > 4 sq.ft.. Use FSTF if damper < 1.5 sq.ft. Linkage or direct couple.

2. Note that in almost all cases the old linkage, spring, and motor can be removed and mounting Belimo to the shaft is the accepted procedure to make the assembly conform to modern fire & smoke dampers.

3. Investigation of each application is necessary. Check voltage and breakers. In all cases disconnect external motor spring without compromising fusible link and internal spring ability to close the blades. These are quite old and changes may have been made by others over the years. Check fusible links or McCabeLink©. Verify damper functions after replacement by testing damper open and spring closed.

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Siemens/Siebe to Belimo

Fire and Smoke Actuator Replacement Cross Reference

MODEL	BELIMO REPLACEMENT MODEL			MODEL	BELIMO REPLACEMENT MODEL		
SIEMENS*	BELIMO	Power	Torque (in-lb)	SIEMENS*	BELIMO	Power	Torque (in-lb)
GGD121.1U	FSAF24A	AC 24 V	180	GJD326.1U	FSTF230-S	AC 230 V	18
GGD121.3U	FSAF24A	AC 24 V	180	GKD121.1U	FSNF24	AC 24 V	70
GGD221.1U	FSAF120A	AC 120 V	180	GKD126.1U	FSNF24-S	AC 24 V	70
GGD221.3U	FSAF120A	AC 120 V	180	GKD221.1U	FSNF120	AC 120 V	70
GGD321.1U	FSAF230A	AC 230 V	180	GKD226.1U	FSNF120-S	AC 120 V	70
GND12x.1x	FSLF24 US	AC 24 V	30	GKD321.1U	FSNF230	AC 230 V	70
GND22x.1x	FSLF120 US	AC 120 V	30	GKD326.1U	FSNF230-S	AC 230 V	70
GND32x.1x	FSLF230 US	AC 230 V	30	GVD121.1U	FSAF24A	AC 24 V	180
GJD121.1U	FSTF24	AC 24 V	18	GVD126.1U	FSAF24A-S	AC 24 V	180
GJD126.1U	FSTF24-S	AC 24 V	18	GVD221.1U	FSAF120A	AC 120 V	180
GJD221.1U	FSTF120	AC 120 V	18	GVD226.1U	FSAF120A-S	AC 120 V	180
GJD226.1U	FSTF120-S	AC 120 V	18	GVD321.1U	FSAF230A	AC 230 V	180
GJD321.1U	FSTF230	AC 230 V	18	GVD326.1U	FSAF230A-S	AC 230 V	180
ASK79.165	BAE165 US						

*While drive torque of Siemens is 142 in-lb, spring torque is 110 in-lb. Belimo has passed UL555S at 16 sq.ft.

	MODEL	BELIMO REPLACEMENT MODEL		
Notes	SIEBE	BELIMO	Power	Torque (in-lb)
Where linkages are needed, use FSNF. Timing is a function of damper spring. When replacing the actuator, remove the old spring from the damper. If the damper has one spring, add a new electric thermal sensor. (Belimo BAE 165) A -500 part number indicates an auxiliary switch. Replace with a Belimo "-S" version.	MA220	FSLF120 US FSLF230 US	AC 120 V	"For <4 sq. ft. dampers use FSLF Series For >4 sq. ft. use FSNF Series"
	MA221			
	MA223	FSLF24 US FSNF120 US	AC 24 V	
	MA230			
	MA231	FSNF230 US FSNF24 US CALL BELIMO FSNF120 US FSNF230 US FSNF24 US FSNF24 US FSNF24 -S US FSNF120 US	AC 240 V	
	MA233			
	MA240			
	MA250			
	MA251			
	MA253			
	MA-318			
	MA-318-500			
	MA-418			
	MA-418-500	FSNF120-S US	AC 120 V	<4 sq.ft use FSLF >4.sq.ft. use FSNF

Qualifications for Belimo in Replacing Defective Competitive Actuators

Belimo is UL 555S Listed with all damper manufacturers. In addition, all Belimo Fire and Smoke actuators have passed UL 2043 in accordance to requirements of the NEC 300.22 (c) and the IMC 602 for use in plenums. The basic UL listings are either UL 873 or UL 60730 which has supplanted UL 873. UL 873 has been grandfathered.

Infrequently, the fire alarm standard, UL 864, and list of qualified smoke control systems, UUKL, are specified. UL has clearly stated that it will not investigate dampers or actuators in accordance with these standards and that UL 555 (fire) and UL 555S (smoke) are the only correct standards.

UL has stated that while field replacement of actuators is allowed, the local AHJ is in charge; UL does not regulate field repairs. NFPA 80 (fire) & NFPA 105 (smoke) are the standards referenced by the IBC which regulate replacement and repair.

Visit www.belimo.us/firesmoke for detailed instructions for each damper manufacturer.



FSAF*A Actuators
180 in-lb [20 Nm]
Honeywell Replacements

MS4120 is replaced by the FSAF120A
MS8120 is replaced by the FSAF24A

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How to Select a Globe Valve Retrofit Solution

Follow the four steps listed below when ordering a globe valve retrofit kit for either UGLK or GVL series linkages.

Example: Siemens 599 Flowrite, **1¼"** valve, needing **200 psid** close-off pressure and **Fail-Safe** actuation.

1 Based on the **Valve Number, Configuration** and **Size**, select the proper linkage or linkages for your valve.

Some valves will have more than one linkage offered, use the actuator or combination pages to determine the appropriate linkage for a given application. In this example there is a **UGLK1208** and a **UGVL** series linkage available.

2 Use the selection guide and your close-off pressure requirement to select the correct actuator series for your application. Looking at the **UGLK1208** or **UGVL,** the **AF** or **SVK** Series actuator will provide over **200 psid close-off** for the **1¼" valve**.

3 Use the actuator listings to make your final actuator selection.

4 HOW TO ORDER:

Option One:
Item 1 1pc UGLK1208
Item 2 1pc AFB24-MFT

Option Two:
Item 1 1pc UGVL + SVKB24-MFT

5
5-year warranty

1 Select linkage solution based on the **Valve Number**, **Configuration**, and **Size**; select the proper **Linkage Solution** for your valve.

Example: **Siemens 599 Flowrite, 2-Way, 1¼"** valve to be retrofitted.

Choose correct kit **UGLK1208** or **UGVL**.

2 Verify close-off is suitable for application. Looking at the **UGLK or UGVL**, the **AF and SVK** Series actuator will provide **221 psid (AF) or 236 psid (SVK) close-off** for the **1¼" valve**.

3 Select actuator based on needed control type. Decide between **AFB24, AFB24-MFT**

or **SVKX24-3, SVKB24-MFT**. Consult actuator overview section for full details.

4 Complete Ordering Example Option One:
Item 1: **UGLK1208**
Item 2: **AFB24-MFT**

4 Complete Ordering Example Option Two:
Item 1: **UGVL + SVKB24-MFT**

Siemens\Landis\Powers

599 Flowrite Series Valves
Linkage/Actuator Selection Guide

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage
599 Flowrite	1¼"	No	221	AM	UGLK1208
		Yes		AF	UGLK1208
		No	236	SV	UGVL
		Yes		SVK	UGVL
		Yes	110	NF	UGLK1208

BASIC PRODUCTS

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switch
				Ⓜ			
AF24	On/Off	-	AC/DC 24 V	<75 seconds	20 s	7.5	-
AFB24-S	On/Off	-	AC/DC 24 V	<75 seconds	20 s	7.5	Built-In
AFBUP	On/Off	-	AC 24...240 V	<75 seconds	20 s	8.5	-
AFBUP-S	On/Off	-	AC 24...240 V	<75 seconds	20 s	8.5	Built-In
AFB24-SR	2...10 V (4...20mA)	2...10 V	AC/DC 24 V	95 seconds	<20 s	8.5	-
AFB24-SR-S	2...10 V (4...20mA)	2...10 V	AC/DC 24 V	95 seconds	<20 s	8.5	Built-In
AFB24-PC	0.5...10 V Phasecut	2...10 V	AC/DC 24 V	150 seconds	<20 s	10	-
AFB24-MFT	2...10 V (4...20mA)	2...10 V	AC/DC 24 V	150 seconds	<20 s	10	-
AFB24-MFT-S	2...10 V (4...20mA)	2...10 V	AC/DC 24 V	150 seconds	<20 s	10	Built-In
AFB24-MFT95	0 to 135 Ω	2...10 V	AC/DC 24 V	150 seconds	<20 s	10	-

ACTUATOR PART #		LVKX24-3	LVKB24-SR	LVKB24-MFT	SVKX24-3	SVKB24-SR	SVKB24-MFT
Control type		On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	Modulating	Modulating/MFT
Input signal / Feedback		-	2...10 V	Variable	-	2...10 V	Variable
Running time	Motor	150 seconds	150 seconds	Variable	150 seconds	150 seconds	Variable
	Fail-Safe	35 seconds	35 seconds	35 seconds	35 seconds	35 seconds	35 seconds
Actuator travel		24 mm	24 mm	24 mm	24 mm	24 mm	24 mm
Actuator noise level		<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
GVL LINKAGES							
UGVL	Universal Adjustable for 1/2"...2"	$	$	$	$	$	$
SGVL	Schnieder VB7..., VB9...	$	$	$	$	$	$

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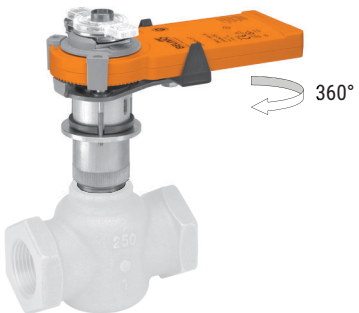
Linkage List Price: $137 5-year warranty

Technical Data	UGSL1200
Housing	aluminum
Materials:	
Coupling nut	brass
Shafts	stainless steel
Base plate	aluminum
Upper plate	stainless steel
Cams	nylon 6/6 with MDS
Stroke	6 mm in CW direction
Max out force	67 lbf [300 N]
Mounting position	360° mountable as shown
Ambient temperature	-22...+122°F [-30...+50°C]
Storage temperature	-40...+176°F [-40...+80°C]
Fluid	chilled or hot water max steam inlet 15 psi
Weight	1.25 lb [0.57 kg]
Accessories	UGSL-ADPT Collar for: • Danfoss • HW Braukman • Oventrop • JCI • Cazzaniga • Taco • Spartan

Mounting Configurations



TF Actuator*



CM Actuator**

Application
The UGSL1200 retrofit kit is designed to easily attach to the valve bonnet on select Siemens 599 MT/MZ short-stroke valves utilizing Belimo CM and TF* series actuators. See accessories in Technical Data table for all available competitor collars.

The unique coupler design allows the UGSL1200 to be mounted on any ½...1¼" two-way or three-way valves. In addition, the linkage is suitable for both normally open and normally closed valves.

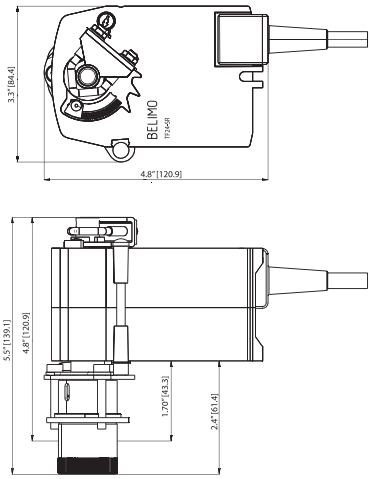
Default/Configuration
The default set up for this linkage is for usage with the CM actuator. Included in the kit is an extension piece for TF actuators. Hardware is supplied to attach the shaft extension and anti-rotation screws to both a CM or TF actuator.

Operation
The UGSL1200 linkage provides 6 mm of downward stroke with 95° CW rotation on the actuator. This allows the valve to extend fully open or closed based on signal. The slot located on the housing provides indication when the maximum stroke has been reached. For troubleshooting when using a CM actuator, the operator may use the manual override feature to rotate the linkage up or down. When using the TF, refer to electronic override instructions according to actuator model.

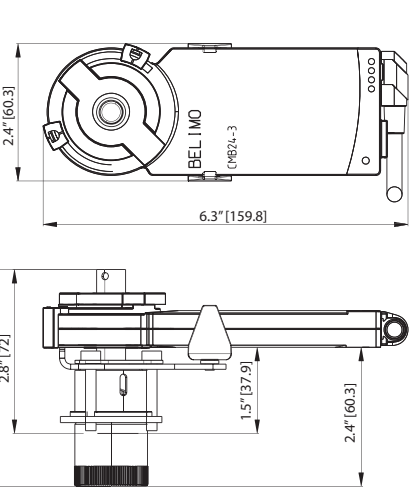
Note: Linkage cannot be used on 1½" normally closed valves.

***TFL actuators required for on/off applications.**
**** CMB24-SR-R for 2V stem down, CMB24-SR-L for 2V stem up.**

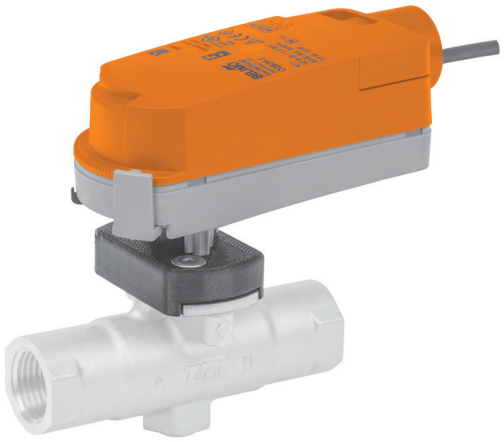
TF Dimensions (Inches [mm])



CM Dimensions (Inches [mm])



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5-year warranty

Linkage List Price*: $135

Technical Data	UBLK1000
Hardware	stainless steel
Stem Adaptor	stainless steel
Collar	Nylon 66
Coupling	Stainless Steel
Weight	0.13 lb [0.60 kg]
Fluid Temp Range (water)	Please Refer to Manufacturer's Valve Specifications

*Actuator not included

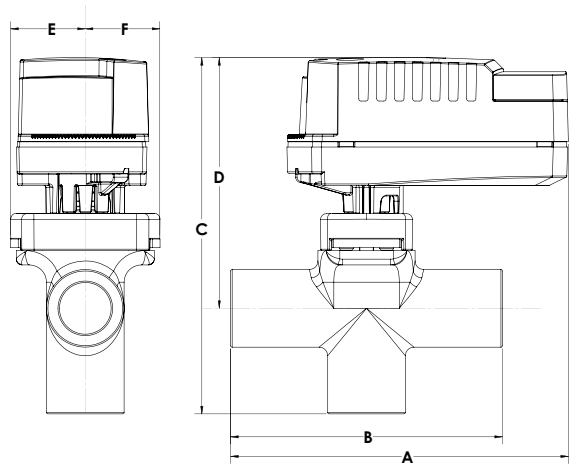
Application

The UBLK1000 retrofit kit is designed to easily attach to the TACO Zone Sentry zone valve utilizing Belimo CQ and CQK series actuators. This ensures minimal downtime and reliable actuation all backed by a 5-year warranty.

Suitable Actuators

	Non Fail-Safe	Electronic Fail-Safe
UBLK1000	CQB(X)	CQKB(X)

Dimensions (Inches [mm])



CQ/CQK

A	B	C	D	E	F
4.6" [118]	3.7" [95]	4.9" [124]	3.4" [87]	1" [25]	1" [26]

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5-year warranty

Linkage List Price*: $135

Technical Data	UBLK1100
Hardware	stainless steel
Stem Adaptor	stainless steel
Collar	Nylon 66
Coupling	stainless steel
Bearing	Nylon 66
Weight	0.13 lb [0.60 kg]
Fluid Temp Range (water)	Please Refer to Manufacturer's Valve Specifications

*Actuator not included

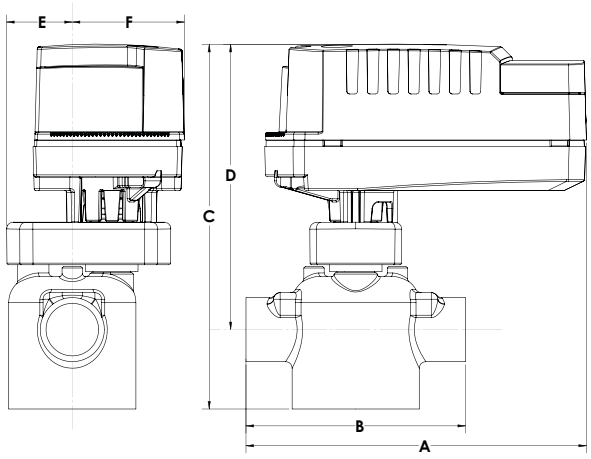
Application

The UBLK1100 retrofit kit is designed to easily attach to the Erie VM Zone valve utilizing Belimo CQ and CQK series actuators. This ensures minimal downtime and reliable actuation all backed by a 5-year warranty.

Suitable Actuators

	Non Fail-Safe	Electronic Fail-Safe
UBLK1100	CQB(X)	CQKB(X)

Dimensions (Inches [mm])



CQ/CQK

A	B	C	D	E	F
4.1" [105]	2.7" [69]	4.3" [108]	3.4" [87]	0.7" [19]	1.3" [33]

RETROFIT SOLUTIONS

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5-year warranty

Linkage List Price*: $135

Technical Data	UBLK1200
Hardware	stainless steel
Stem Adaptor	stainless steel
Collar	Nylon 66
Coupling	stainless steel
Bearing	Nylon 66
Weight	0.13 lb [0.60 kg]
Fluid Temp Range (water)	Please Refer to Manufacturer's Valve Specifications

*Actuator not included

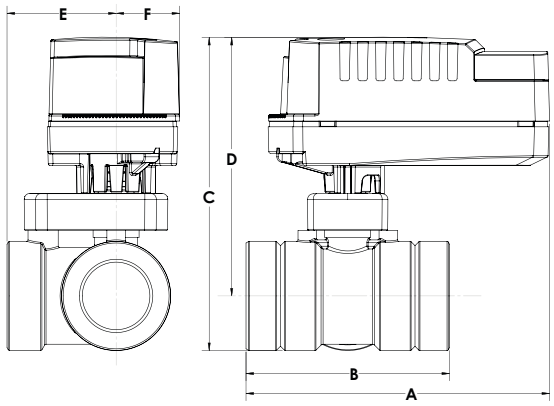
Application

The UBLK1200 retrofit kit is designed to easily attach to the Schneider VBB ball valve utilizing Belimo CQ and CQK series actuators. This ensures minimal downtime and reliable actuation all backed by a 5-year warranty.

Suitable Actuators

	Non Fail-Safe	Electronic Fail-Safe
UBLK1200	CQB(X)	CQKB(X)

Dimensions (Inches [mm])



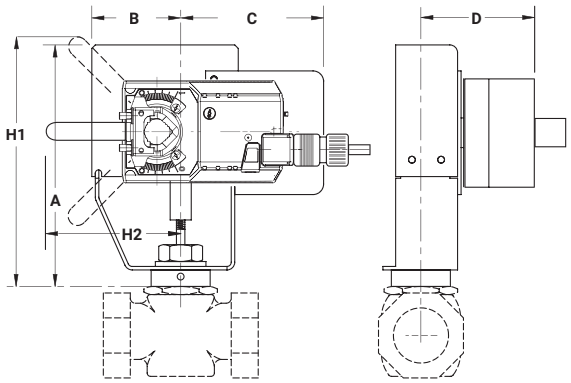
CQ/CQK

A	B	C	D	E	F
4.2" [106]	2.8" [70]	4.3" [108]	3.5" [89]	1.5" [39]	0.9" [24]

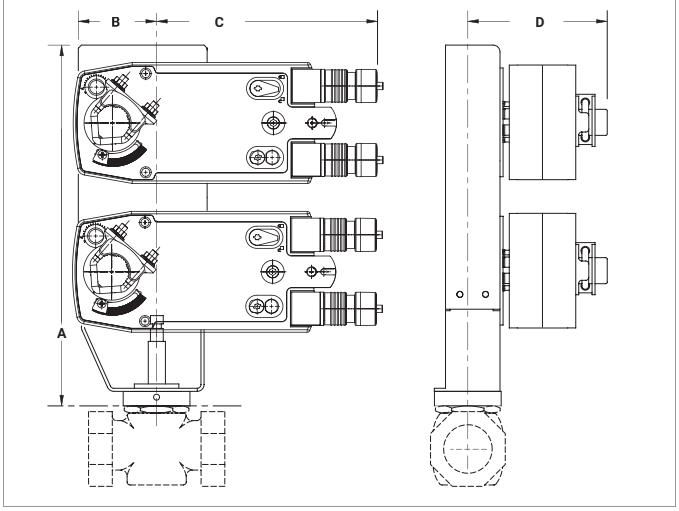
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MAXIMUM DIMENSIONS – UGLK Linkages with Rotary Actuators

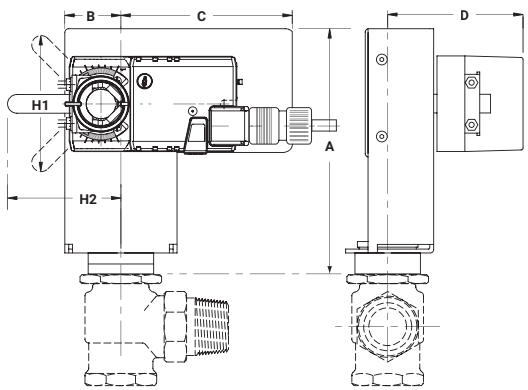
Linkages Taking 1 Actuator



Linkages Taking 2 Actuators



UGLK1150 and UGLK1550



MAXIMUM DIMENSIONS

If the required spring return direction is not known, a UGLK linkage and spring return actuator may be selected. The rotary actuators can be turned over on the linkage and produce a spring return function in either direction.

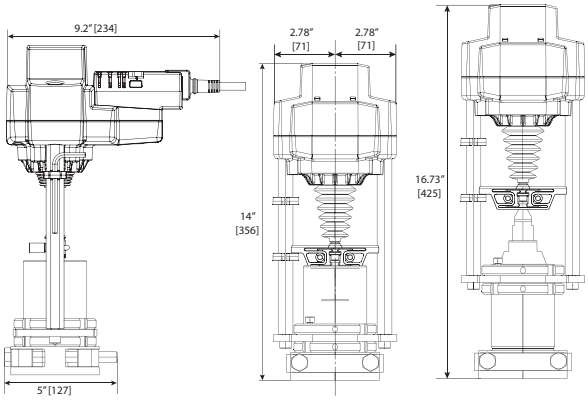
Linkages Taking 1 Actuator			
A	7...14" [356]	D	5" [127]
B	3" [76]	H1	9½" [241]
C	9" [229]	H2	9½"

Linkages Taking 2 Actuators			
A	19" [483]	D	5" [127]
B	3" [76]		
C	9" [229]		

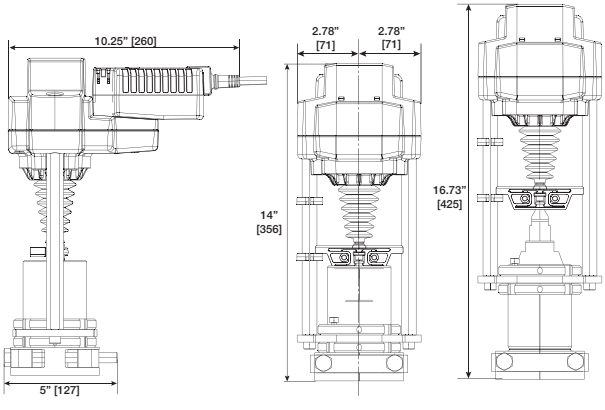
UGLK1150 and UGLK1550			
A	6½" [165]	D	4.0" [102]
B	1½" [33]	H1	4.0" [102]
C	5.0" [127]	H2	3½" [89]

MAXIMUM DIMENSIONS – GVL Linkages with New Generation Linear Series Actuators

FGVL with EV, RV Actuators



FGVL with AVK Actuators

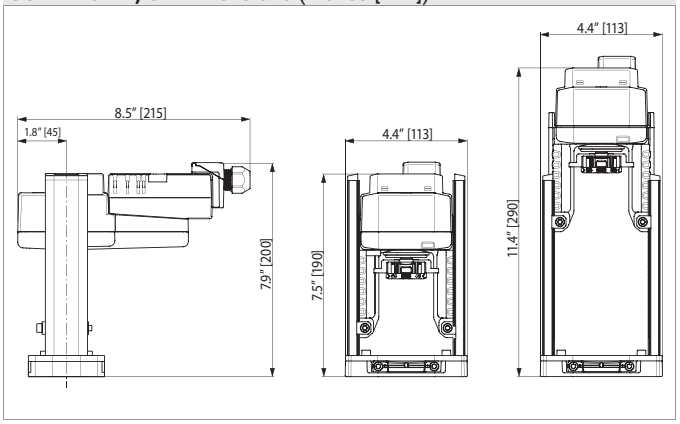


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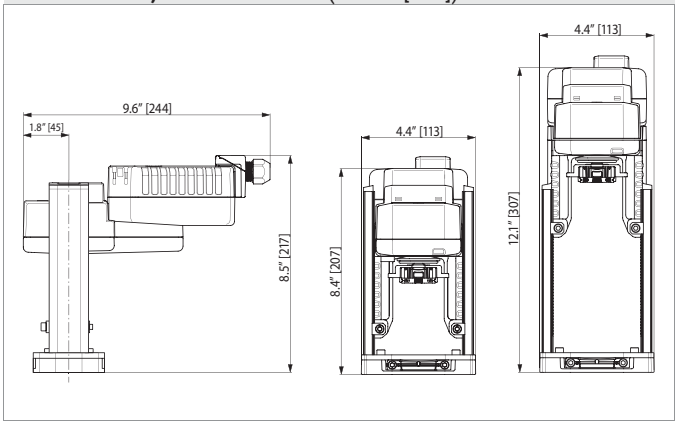
MAXIMUM DIMENSIONS – GVL Linkages with New Generation Linear Series Actuators

Self Adapting Stroke
The "V" Series actuators, which are used with the UGVL, SGVL, FGVL, and WGVL retrofit kits, are stroke adapting actuators. In modulating applications, the actuator will recognize the stroke length requirement and automatically adjust the control signal for maximum resolution.

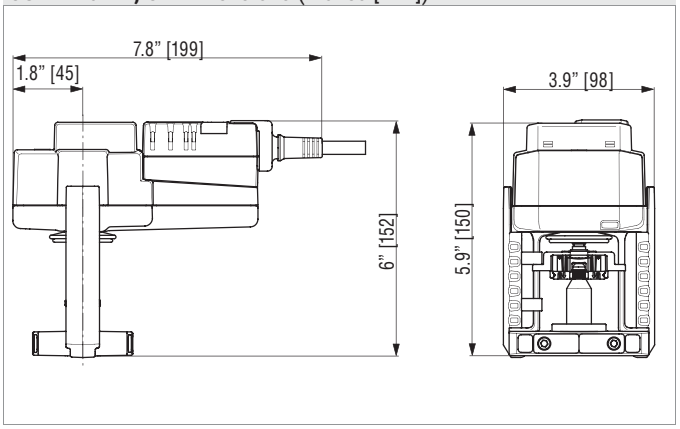
UGVL with LV, SV Dimensions (Inches [mm])



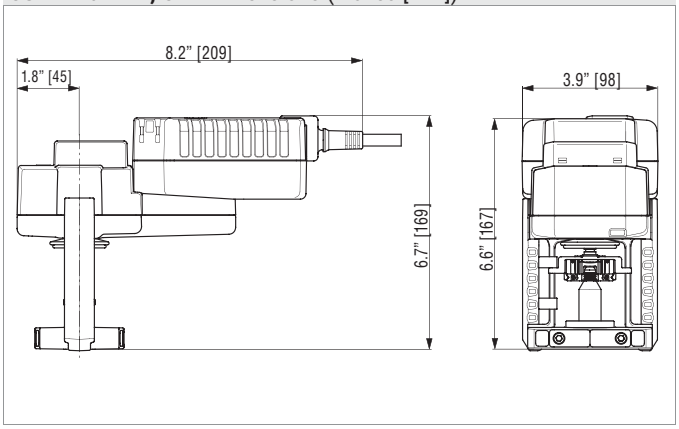
UGVL with LVK, SVK Dimensions (Inches [mm])



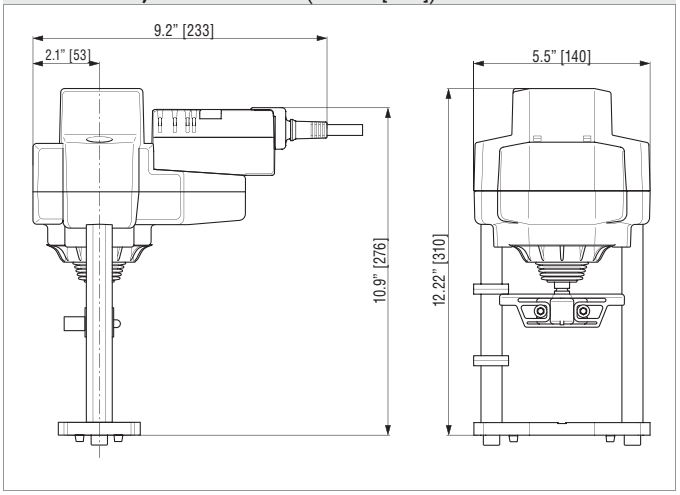
SGVL with LV, SV Dimensions (Inches [mm])



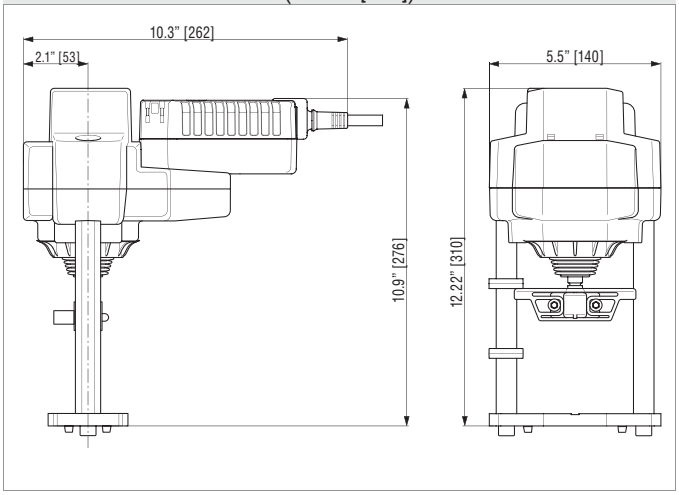
SGVL with LVK, SVK Dimensions (Inches [mm])



WGVL with EV, RV Dimensions (Inches [mm])



WGVL with AVK Dimensions (Inches [mm])



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UGVL, SGVL, FGVL, and WGVL Series Linkages with Non Fail-Safe Actuators

Retrofit Linkages for NPT and Flanged Globe Valves

BELIMO

ACTUATOR/LINKAGE SPECIFICATIONS

Force (valve size)	
LV	112 lbf [500 N] (½...¾")
SV	337 lbf [1500 N] (1...2")
EV	562 lbf [2500 N] (2½...4")
RV	1011 lbf [4500 N] (4...6")
Linkage Material	aluminum and steel
Fits Valve Bonnet Diameter	up to 1.7" [43.18 mm] UGVL up to 2.3" [58.4 mm] FGVL
Position Indication	adjustable inserts on linkage
Manual Override	external push button
LV, SV	4 mm hex (wrench supplied)
EV, RV	5 mm hex (wrench supplied)
Direction of Rotation♦	external switch
Dimensions	
UGVL	7½...11.4" x 7.8" x 4½"
SGVL	6" x 7.8" x 3.9"
FGVL	14" x 9.2" x 5½"
WGVL	10" x 9.2" x 5½"
Electrical Connection 24 V	3 ft., 18 GA plenum rated cable, ½" conduit fitting
120 V	appliance cable
Overload Protection	electronic throughout stroke
Auxiliary Switch(es)	add on: 2 SPDT, 3A @ 250 V
Housing	NEMA 2/IP54, UL Enclosure Type 2
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

CE LISTED 94D5 TEMP, IND, & REG. EQUIP. c UL us

BRUSHLESS DC motor

All actuators have BDCM

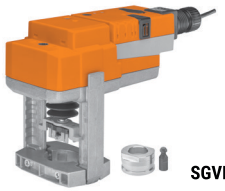
MFT

5

5-year warranty



UGVL

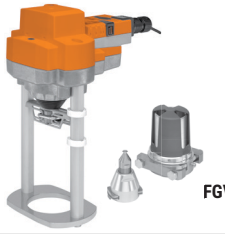


SGVL

ACTUATOR PART #		LVB24-3	LVX120-3	LVB24-SR	LVX24-MFT	SVX24-3	SVX120-3	SVB24-SR	SVX24-MFT
Control Type		On/Off, Floating Point	On/Off, Floating Point	Modulating	Modulating/ MFT	On/Off, Floating Point	On/Off, Floating Point	Modulating	Modulating/ MFT
Input Signal / Feedback		-	-	2...10 V*	Variable	-	-	2...10 V*	Variable
Running Time		90 seconds	90 seconds (variable)	90 seconds	90 seconds (variable)	90 seconds (variable)	90 seconds (variable)	90 seconds	90 seconds (variable)
Actuator Travel		15 mm (0.60")	15 mm (0.60")	15 mm (0.60")	15 mm (0.60")	20 mm (0.75")	20 mm (0.75")	20 mm (0.75")	20 mm (0.75")
Actuator Noise Level		55 dB(A)	55 dB(A)	55 dB(A)	55 dB(A)	45 dB(A)	45 dB(A)	45 dB(A)	45 dB(A)
GVL LINKAGES									
UGVL	Universal adjustable for ½...2"	$890	$933	$976	$1,072**	$1,041	$1,082	$1,126	$1,225**
SGVL	Schneider VB7000 (½...2"), VB9000 (½...1¼")	$815	$859	$898	$985**	$918	$1,034	$1,006	$1,098**

♦ Variable with MFT.

* 4...20 mA with 500 Ω resistor ZG-R01. **See page 22-16 for linear actuator MFT codes.



FGVL



WGVL

ACTUATOR PART #		EVB24-3	EVB120-3	EVB24-SR	EVB24-MFT	RVB24-3	RVB24-MFT
Control Type		On/Off, Floating Point	On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Input Signal / Feedback		-	-	2...10 V*	2...10 V*	-	2...10 V*
Running Time		90 seconds	90 seconds	90 seconds	90 seconds (variable)	90 seconds	90 seconds (variable)
Actuator Travel		50 mm (2")	50 mm (2")	50 mm (2")	50 mm (2")	50 mm (2")	50 mm (2")
Actuator Noise Level		65 dB(A)	65 dB(A)	65 dB(A)	65 dB(A)	65 dB(A)	65 dB(A)
GVL LINKAGES							
FGVL	Flanged valves adjustable for 2½...6"	$2,192	$2,317	$2,268	$2,285**	$2,473	$2,582**
WGVL	Warren Controls Type 20, 22, 30, 32	$1,259	$1,671	$1,332	$1,431**	$1,413	$1,585**

* 4...20 mA with 500 Ω resistor ZG-R01.

**See page 22-16 for linear actuator MFT codes.

Note: All "B" versions available as customizable "X" versions. Please see www.belimo.us for details.

RETROFIT SOLUTIONS

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ACTUATOR/LINKAGE SPECIFICATIONS

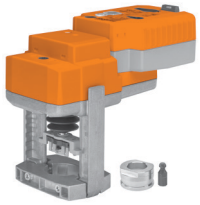
Force (valve size)	
LVK	112 lbf [500 N] (½...¾")
SVK	337 lbf [1500 N] (1...2")
AVK	450 lbf [2000 N] (2½...4")
Linkage Material	aluminum and steel
Fits Valve Bonnet Diameter	up to 1.7" [43.18 mm] UGVL up to 2.3" [58.4 mm] FGVL
Position Indication	adjustable inserts on linkage
Manual Override	external push button
LV, SV	4 mm hex (wrench supplied)
AVK	5 mm hex (wrench supplied)
Fail Postion	field selectable
Direction of Rotation♦	external switch
Dimensions	
UGVL	8...12" x 9.5" x 4.5"
SGVL	6.5" x 9.5" x 4.5"
FGVL	14" x 9.2" x 5.5"
WGVL	10" x 9.2" x 5.5"
Electrical Connection 24 V	3 ft., 18 GA plenum rated cable, ½" conduit fitting
120 V	appliance cable
Overload Protection	electronic throughout stroke
Auxiliary Switch(es)	add on: 2 SPDT, 3A @ 250 V
Housing	NEMA 2/IP54, UL Enclosure Type 2
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

All actuators have BDCM

MFT

5-year warranty

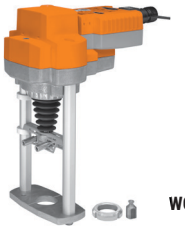

UGVL


SGVL

ACTUATOR PART #		LVKX24-3	LVKX120-3	LVKB24-SR	LVKB24-MFT	SVKX24-3	SVKX120-3	SVKB24-SR	SVKB24-MFT
Control Type		On/Off, Floating Point	On/Off, Floating Point	Modulating	Modulating/ MFT	On/Off, Floating Point	On/Off, Floating Point	Modulating	Modulating/ MFT
Input Signal / Feedback		-	-	2...10 V*	2...10 V*	-	-	2...10 V*	2...10 V*
Running Time	Motor	90 seconds (variable)	90 seconds (variable)	90 seconds	90 seconds (variable)	90 seconds (variable)	90 seconds (variable)	90 seconds	90 seconds (variable)
	Fail-Safe	35 seconds	35 seconds	35 seconds	35 seconds	35 seconds	35 seconds	35 seconds	35 seconds
Actuator Travel		15 mm (0.60")	15 mm (0.60")	15 mm (0.60")	15 mm (0.60")	20 mm (0.75")	20 mm (0.75")	20 mm (0.75")	20 mm (0.75")
Actuator Noise Level		55 dB(A)	55 dB(A)	55 dB(A)	55 dB(A)	45 dB(A)	45 dB(A)	45 dB(A)	45 dB(A)
GVL LINKAGES									
UGVL	Universal adjustable for ½...2"	$1,297	$1,347	$1,373	$1,482**	$1,456	$1,509	$1,532	$1,641**
SGVL	Schneider VB7000 (½...2"), VB9000 (½...1¼")	$1,124	$1,174	$1,200	$1,343**	$1,238	$1,287	$1,319	$1,418**

♦ Variable with MFT.
* 4...20 mA with 500 Ω resistor ZG-R01. **See page 22-16 for linear actuator MFT codes.


FGVL


WGVL

ACTUATOR PART #		AVKB24-3	AVKB120-3	AVKB24-MFT
Control Type		On/Off, Floating Point	On/Off, Floating Point	Modulating/MFT
Input Signal / Feedback		-	-	2...10 V*
Running Time	Motor	90 seconds	90 seconds	90 seconds (variable)
	Fail-Safe	35 seconds	35 seconds	35 seconds
Actuator Travel		32 mm (1.25")	32 mm (1.25")	32 mm (1.25")
Actuator Noise Level		60 dB(A)	60 dB(A)	60 dB(A)
GVL LINKAGES				
FGVL	Flanged valves adjustable for 2½...4"	$2,785	$2,596	$2,910**
WGVL	Warren Controls Type 20, 22, 30, 32	$1,547	$2,226	$1,709**

* 4...20 mA with 500 Ω resistor ZG-R01.
**See page 22-16 for linear actuator MFT codes.
Note: All "B" versions available as customizable "X" versions. Please see www.belimo.us for details.

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ROTARY ACTUATORS SUGGESTION

SERIES	TORQUE	MODEL	Spring Return	Electronic Fail-Safe	Tandem Mounting Available	Control Input	Feedback Position	Power Supply	Standard Running Time	List Price
LF Series*	35 in-lb [4 Nm]	LF24 US	•			On/Off	-	AC/DC 24 V	Consult Specifications	$480
		LF24-MFT US	•			Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V		$745
NF Series*	90 in-lb [10 Nm]	NFBUP-X1	•			On/Off	-	AC 24...240 V		$662
		NFX24-MFT-X1	•			(AC/DC 24 V) Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V		$870
AF Series*	180 in-lb [20 Nm]	AFBUP-X1	•		•	On/Off	-	AC 24...240 V		$833
		AFX24-MFT-X1	•		•	Variable with MFT (V, PWM, Floating Pt., On/Off)	variable V	AC/DC 24 V		$1,020
LM Series*	45 in-lb [5 Nm]	LMB24-3-X1				Floating Point, On/Off	-	AC/DC 24 V		$279
		LMX24-MFT-X1				Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V		$559
NM Series*	90 in-lb [10 Nm]	NMB24-3-X1				Floating Point, On/Off	-	AC/DC 24 V		$386
		NMX24-MFT-X1				Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V		$661
AM Series*	180 in-lb [20 Nm]	AMB24-3-X1				Floating Point, On/Off	-	AC/DC 24 V		$542
		AMX24-MFT-X1				Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V		$837
GM Series*	360 in-lb [40 Nm]	GMB24-3-X1				Floating Point, On/Off	-	AC/DC 24 V		$736
		GMX24-MFT-X1			•	Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V		$1,078
GK Series*	360 in-lb [40 Nm]	GKB24-3-X1		•		Floating Point, On/Off	-	AC 24 V		$1,633
		GKX24-MFT-X1		•	•	Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V		$2,246

***Please consult the damper actuator sections for a full list of product offerings. Standard run times should be considered in the selection. All airside products are applicable for retrofit kits. Select "X1" actuators come with a handle.**

MULTI-FUNCTION TECHNOLOGY

	PROGRAMMING CODE	Control Input	Running Time	Built-in Feedback
ROTARY ACTUATOR	A01	2...10 V	150 seconds	2...10 V
	A02	0.5...10 V	150 seconds	0.5...10 V
	A28	0.5...10 V	100 seconds	0.5...10 V
	A63	0.5...4.5 V	150 seconds	0.5...4.5 V
	A64	5.5...10 V	150 seconds	5.5...10 V
	W02	0.02...5 seconds PWM	150 seconds	2...10 V
	W03	0.10...25.5 seconds PWM	150 seconds	2...10 V
	F01	Floating Point	150 seconds	2...10 V
	J02	On/Off	150 seconds	2...10 V
LINEAR ACTUATOR	G01	On/Off	35 seconds	2...10 V MFT only
	G02	On/Off	60 seconds	2...10 V MFT only
	G03	On/Off	90 seconds	2...10 V MFT only
	G04	On/Off	150 seconds	2...10 V MFT only
	G11	Floating Point	35 seconds	2...10 V MFT only
	G12	Floating Point	60 seconds	2...10 V MFT only
	G13	Floating Point	90 seconds	2...10 V MFT only
	G14	Floating Point	150 seconds	2...10 V MFT only
	G41(G21 for -SR)	2...10 V	35 seconds	2...10 V
	G42 (G22 for -SR)	2...10 V	60 seconds	2...10 V
	G43 (G23 for -SR)	2...10 V	90 seconds	2...10 V
	G44 (G24 for -SR)	2...10 V	150 seconds	2...10 V
	G51	0.5...10 V	35 seconds	0.5...10 V
	G52	0.5...10 V	60 seconds	0.5...10 V
	G53	0.5...10 V	90 seconds	0.5...10 V
	G54	0.5...10 V	150 seconds	0.5...10 V
	G2A	5.5...10 V	150 seconds	5.5...10 V
	G2B	0.5...4.5 V	150 seconds	0.5...4.5 V
	G2C	2...10 V	150 seconds	0.5...5 V
	G2D	6...9 V	150 seconds	2...10 V
	G2E	10.5...13.5 V	150 seconds	2...10 V
	W3M	0.02...5 seconds PWM	90 seconds	2...10 V
	W3P	0.2...5 seconds PWM	90 seconds	2...10 V

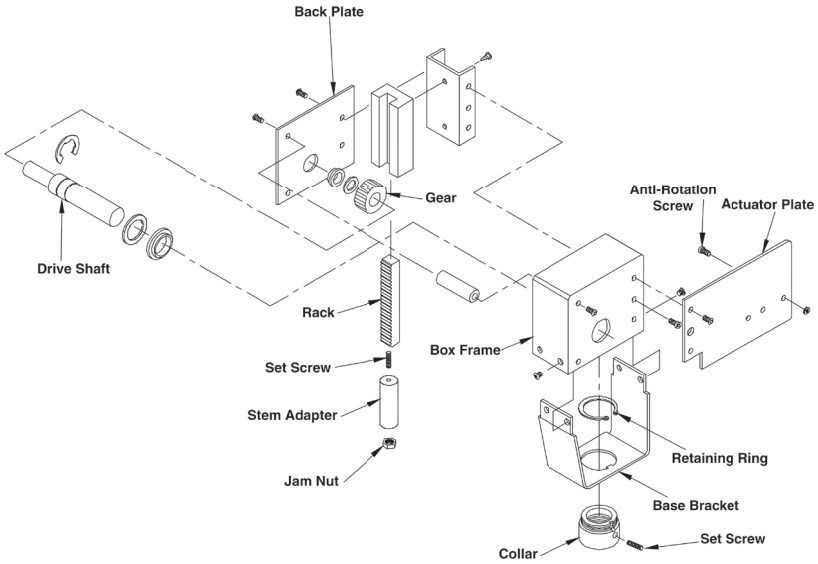
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UGLK COLLARS*			MOST COMMONLY USED VALVE STYLE					
Part Number	Inside Diameter	Description	Style 1	Style 2	Style 3	Style 4	Style 5	List Price
UGLK-COL-1005	1.000"	3 setscrews, for frame type		•				$261
UGLK-COL-1063	1.063"	3 setscrews, for frame type		•				$261
UGLK-COL-1100	1.100"	3 setscrews, for frame type, counterbored top				•		$261
UGLK-COL-1255	1.250"	3 setscrews, for frame type		•				$261
UGLK-COL-1315	1.315"	3 setscrews, for frame type, can be used with VB7 with shim			•			$261
UGLK-COL-1375	1.375"	3 setscrews, for frame type		•				$261
UGLK-COL-BC10	1.250"- 16 Thd.	Fits Siebe VB7/VB9. Use on frame type only	•					$261
UGLK-COL-HY02	1.370"	1 setscrew, for frame type					•	$261
UGLK-COL-LG02	1.740"	1 setscrew, for frame type			•			$261
UGLK-COL-LG04	1.740"	1 setscrew, for frame type			•			$261
UGLK-COL-JC05	1.070"	3 setscrews, for frame type		•				$261
UGLK-COL-JC06	1.562"- 14 Thd.	Threaded, brass		•				$261
UGLK-COL-JC08	0.760"	3 setscrews, for frame type, counterbored top				•		$261
UGLK-COL-JC15	1.070"	Ring, no setscrews		•				$261
UGLK-COL-0880	0.880"	3 setscrews, for frame type, counterbored top				•		$261
UGLK-COL-WNUT	1.375"- 20 Thd.	Replacement Warren nut. Will not go over damaged threads		•				$261
UGLK-COL-AD01	1.250"- 16 Thd.	Fits Siebe VB7/VB9. For VB7 frame only	•					$261
UGLK-COL-UNIV	Custom	3 setscrews, for frame type. Must be machined		•	•	•	•	$458
UGSL-ADPT	Custom	Custom collar for UGSL1200. Must be machined						$111

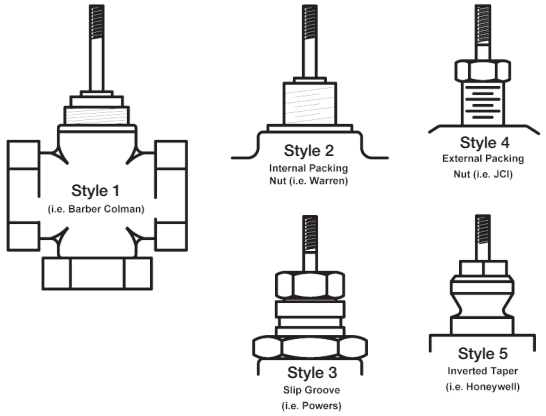
* Must reuse retaining clip and set screws.

UGLK STEM ADAPTERS			MOST COMMONLY USED VALVE STYLE					
Part Number	Inside Diameter	Description	1	2	3	4	5	List Price
UGLK-STM-1800	1/4" 28 Stem Thd.	Stem adapter for 1/4" 28 valve stems	•	•	•	•	•	$144
UGLK-STM-1801	3/8" 24 Stem Thd.	Stem adapter for 3/8" 24 valve stems	•	•	•	•	•	$144
UGLK-STM-1802	1/2" 20 Stem Thd.	Stem adapter for 1/2" 20 valve stems	•			•	•	$144
UGLK-STM-1803	7/16" 20 Stem Thd.	Stem adapter for 7/16" 20 valve stems					•	$144
UGLK-STM-1501	3/8" 24 Stem Thd.	For Warren FLG valves with UGLK		•				$144
UGLK-STM-1805	3/8" OD Grooved	Landis 2.5...3" 599 Series			•			$144
UGLK-STM-2305	1/2" OD Grooved	Landis 4...6" 599 Series			•			$144
UGLK-STM-UNIV	Custom	Must be machined	•	•	•	•	•	$210

UGLK Stem Adapters



UGLK Collars



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5
5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
VP526 Series	5/8"	No	58	CM	UGLK1808	$619
		Yes		TF	UGLK1808	$619
VP531 Series		No	70	CM	UGLK1808	$619
		Yes		TF	UGLK1808	$619
VP531 Series	7/8"	No	70	CM	UGLK1808	$619
		Yes		TF	UGLK1808	$619
V5011 Series	½"	No	236	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
				LF	UGLK1806	$859
V5011F (1014, 1022, 1030, 1048, 1121, 1139)		Yes	236	NF	UGLK1800	$860
				LF	UGLK1806	$859
V5011G (1137, 1145, 1152, 1160, 1178, 1186)		Yes	236	NF	UGLK1800	$860
				LF	UGLK1806	$859
V5011H (1002, 1010)		Yes	236	NF	UGLK1800	$860
				LF	UGLK1806	$859
V5011J (1012, 1079)		Yes	236	NF	UGLK1800	$860
				LF	UGLK1806	$859
V5013 Series		No	236	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
V5013F (1004, 1012, 1079)		Yes	236	NF	UGLK1800	$860
				LF	UGLK1806	$859
V5013N Series		No	236	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
				LF	UGLK1806	$859
V5045		No	236	AM	UGLK1804	$711
		Yes		NF	UGLK1804	$711
VP525 Series		No	110	CM	UGLK1808	$619
		Yes		TF	UGLK1808	$619
VP526 Series		No	50	CM	UGLK1808	$619
		Yes		TF	UGLK1808	$619
VP527 Series		No	45	CM	UGLK1808	$619
		Yes		TF	UGLK1808	$619
VP531 Series		No	70	CM	UGLK1808	$619
		Yes		TF	UGLK1808	$619
V5011 (H1028, G1194, J1023)	¾"	Yes	236	NF	UGLK1800	$860
		Yes	110	LF	UGLK1806	$859
V5011 Series		No	211	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
		Yes	110	LF	UGLK1806	$859
V5011F (1055, 1147)		Yes	236	NF	UGLK1800	$860
		Yes	110	LF	UGLK1806	$859
V5013 Series		No	211	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
V5013F (1020, 1087)		Yes	236	NF	UGLK1800	$860
		Yes	110	LF	UGLK1806	$859
V5013N Series		No	211	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
		Yes	110	LF	UGLK1806	$859
V5045		Yes	236	NF	UGLK1804	$711
VP525 Series		No	55	CM	UGLK1808	$619
		Yes		TF	UGLK1808	$619
VP531 Series		No	70	CM	UGLK1808	$619
		Yes		TF	UGLK1808	$619
V5011 (F1063, F1154, H1028, G1194)	1"	Yes	236	AF	UGLK1800	$860
		Yes	65	LF	UGLK1806	$859
V5011 Series		No	93	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
				AF	UGLK1800	$860
		Yes	65	LF	UGLK1806	$859
V5013 Series		No	93	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V5013F (1038, 1095)		Yes	236	AF	UGLK1800	$860
		Yes	65	LF	UGLK1806	$859

All close-off pressures listed are approximate and actual close-off pressures are based on valve condition and application.

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V5013N Series	1"	No	93	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
				AF	UGLK1800	$860
		Yes	65	LF	UGLK1806	$859
V5045		No	236	AM	UGLK1804	$711
		Yes		NF	UGLK1804	$711
V5011 (H1044, G1210, J1049)	1¼"	Yes	221	AF	UGLK1800	$860
		Yes	40	LF	UGLK1806	$859
V5011 Series		Yes	221	AF	UGLK1800	$860
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		Yes	40	LF	UGLK1806	$859
V5011F (1071, 1162)		Yes	221	AF	UGLK1800	$860
		Yes	40	LF	UGLK1806	$859
V5013 Series		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V5013F (1046, 1103)		Yes	221	AF	UGLK1800	$860
		Yes	40	LF	UGLK1806	$859
V5013N Series		Yes	221	AF	UGLK1800	$860
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		Yes	40	LF	UGLK1806	$859
V5045		No	236	AM	UGLK1804	$711
		Yes	160	NF	UGLK1804	$711
V5011 (F1089, F1178, G1228)	1½"	Yes	153	AF	UGLK1800	$860
		Yes	26	LF	UGLK1806	$859
V5011 Series		Yes	153	AF	UGLK1800	$860
		No	160	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		Yes	26	LF	UGLK1806	$859
V5013 Series		No	160	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V5013F (1053, 1111)		Yes	153	AF	UGLK1800	$860
		Yes	26	LF	UGLK1806	$859
V5013N Series		Yes	153	AF	UGLK1800	$860
		No	160	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		Yes	26	LF	UGLK1806	$859
V5045		No	211	AM	UGLK1804	$711
		Yes		AF	UGLK1804	$711
V5011 (F1097, F1188, G1103)	2"	Yes	86	AF	UGLK1800	$860
		Yes	173	GK	UGLK1800	$860
		Yes	40	NF	UGLK1800	$860
		Yes	14	LF	UGLK1806	$859
V5011 Series		Yes	86	AF	UGLK1800	$860
		Yes	173	GK	UGLK1800	$860
		No	85	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		Yes	14	LF	UGLK1806	$859
V5013 Series		No	85	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V5013F (1061, 1129)		Yes	86	AF	UGLK1800	$860
		Yes	173	GK	UGLK1800	$860
		Yes	40	NF	UGLK1800	$860
		Yes	14	LF	UGLK1806	$859
V5013N Series		Yes	86	AF	UGLK1800	$860
		Yes	173	GK	UGLK1800	$860
		No	85	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		Yes	14	LF	UGLK1806	$859
V5045		No	120	AM	UGLK1804	$711
		Yes		AF	UGLK1804	$711
V3350 (A2009, A2017, B2007, C2013, D2003)	2½"	Yes	211	2*GK	UGLK1870	$1,087
		Yes	110	2*AF	UGLK1870	$1,087
		No	55	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V3351 (A2008, C2005, D2002)	2½"	Yes	211	2*GK	UGLK1870	$1,087
		Yes	110	2*AF	UGLK1870	$1,087
		No	55	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V3360E2008, V3361E2007		Yes	211	2*GK	UGLK1870	$1,087
		Yes	110	2*AF	UGLK1870	$1,087
		No	55	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		Yes	52	AF	UGLK1800	$860
V3450 (A2008, A2016, B2006, C2012, D2002)		Yes	211	2*GK	UGLK1870	$1,087
		Yes	110	2*AF	UGLK1870	$1,087
		No	55	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		Yes	52	AF	UGLK1800	$860
V3451 (A2007, C2003, C2004)		Yes	211	2*GK	UGLK1870	$1,087
		Yes	110	2*AF	UGLK1870	$1,087
		No	77	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		Yes	52	AF	UGLK1800	$860
V3460E2007, V3461E2006		Yes	211	2*GK	UGLK1870	$1,087
		Yes	110	2*AF	UGLK1870	$1,087
		No	55	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		Yes	52	AF	UGLK1800	$860
V5011 (A1734, F1105, F1196, G1111)		Yes	211	2*GK	UGLK1870	$1,087
V5011 Series		No	52	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V5013 (B1003, C1001)		Yes	211	2*GK	UGLK1870	$1,087
		Yes	52	AF	UGLK1800	$860
V5013 Series		No	52	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V3350 (A3007, A3015, B3005, C3011, D3001)	3"	Yes	77	2*AF	UGLK1870	$1,087
		Yes	38	AF	UGLK1800	$860
		Yes	136	2*GK	UGLK1870	$1,087
		No	38	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V3351 (A3006, C3002, C3003)		Yes	77	2*AF	UGLK1870	$1,087
		Yes	38	AF	UGLK1800	$860
		Yes	136	2*GK	UGLK1870	$1,087
		No	38	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V3360E3006, V3361E3005		Yes	77	2*AF	UGLK1870	$1,087
		Yes	38	AF	UGLK1800	$860
		Yes	136	2*GK	UGLK1870	$1,087
		No	38	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V3450 (A3006, A3014, B3004, C3010, D3000)		Yes	77	2*AF	UGLK1870	$1,087
		Yes	38	AF	UGLK1800	$860
		Yes	136	2*GK	UGLK1870	$1,087
		No	38	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V3451 (A3005, C3001, C3002)		Yes	77	2*AF	UGLK1870	$1,087
		Yes	38	AF	UGLK1800	$860
		Yes	136	2*GK	UGLK1870	$1,087
		No	38	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V3460E3005, V3461E3004		Yes	77	2*AF	UGLK1870	$1,087
		Yes	38	AF	UGLK1800	$860
		Yes	136	2*GK	UGLK1870	$1,087
		No	38	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V5011 (A1767, F1113, F1204, G1129)		Yes	38	AF	UGLK1800	$860
		Yes	136	2*GK	UGLK1870	$1,087
V5011 Series		No	40	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V5013 (B1011, C1019)		Yes	77	GK	UGLK1800	$860
		Yes	136	2*GK	UGLK1870	$1,087
V5013 Series		No	40	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V3350 (A4005, A4013, B4003, C4019, D4009)	4"	No	22	EV	FGVL	Pg # 22-14
		Yes		2*AF	UGLK1872	$1,080
		No	40	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V3351 (A4004, C4000, C4001)		No	22	EV	FGVL	Pg # 22-14
		Yes		2*AF	UGLK1872	$1,080
		No	40	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V3360E4004, V3361E4003		No	22	EV	FGVL	Pg # 22-14
		Yes		2*AF	UGLK1872	$1,080
		No	40	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V3450 (A4004, A4012, B4002, C4018, D4008)		No	22	EV	FGVL	Pg # 22-14
		Yes		2*AF	UGLK1872	$1,080
		No	40	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V3451 (A4003, C4000, C4009)		No	22	EV	FGVL	Pg # 22-14
		Yes		2*AF	UGLK1872	$1,080
		No	40	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V3460E4003, V3461E4002		No	22	EV	FGVL	Pg # 22-14
		Yes		2*AF	UGLK1872	$1,080
		No	40	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V5011 (A1858, B1013)		No	22	EV	FGVL	Pg # 22-14
		No	40	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V5013 (B1029, C1027)		No	22	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1802	$859
		No	40	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
V3350 (A5002, A5010, B5000, C5016, D5006)	5"	No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V3351 (A5001, C5008, D5005)		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V3360E5001, V3361E5000		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V3450 (A5001, A5019, B5009, C5015, D5005)		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V3451 (A5000, C5006, C5007)		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V3460E5000, V3461E5009	5"	No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V5011 (A1882, B1047)		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	14	GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V5013 (B1037, C1035)		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
		Yes	10	AF	UGLK1802	$859
V3350 (A6000, A6008, A6018, C6014, D6004)	6"	No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
V3351 (A6009, C6005, C6006)		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
V3360E6009, V3361E6008		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
V3450 (A6009, A6007, A6017, C6013, D6003)		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
V3451 (A6008, C6004, C6005)		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
V3460E6008, V3461E6007		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
V5011 (A1916, B1078)		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
V5013 (B1045, C1043)	6"	No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1872	$1,080
		Yes	10	GK	UGLK1802	$859
				2*AF	UGLK1872	$1,080
VGF2.. Series	2½"	No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
VGF3.. Series		No		EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
VGF2.. Series	3"	No	40	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
VGF3.. Series		No		EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
VGF2.. Series	4"	No	50	EV	FGVL	Pg # 22-14
VGF3.. Series		No	50	EV	FGVL	Pg # 22-14
VGF2.. Series	5"	No	40	RV	FGVL	Pg # 22-14
VGF3.. Series		No	40	RV	FGVL	Pg # 22-14
VGF2.. Series	6"	No	30	RV	FGVL	Pg # 22-14
VGF3.. Series		No	30	RV	FGVL	Pg # 22-14

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V-3766	½"	No	236	LM	UGLK1552	$548
		Yes		LF	UGLK1552	$548
V-3854-5		No	236	LM	UGLK1554	$548
		Yes		LF	UGLK1554	$548
V-3966		No	236	LM	UGLK1552	$548
		Yes		LF	UGLK1552	$548
V-4332		No	236	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
VG7000 Series	½"	No	236	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
VG7XXX-(C, E, GT) *Threaded Stem Only		Yes	236	LF	UGLK1416	$717
VTM-TN-(007, 019, 047) *Threaded Stem Only		No	236	LM	UGLK1550	$548
		Yes		LF	UGLK1550	$548
		No		LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
V(B)-3754 Series, Bronze Trim	¾"	No	211	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
V(B)-3974 Series, Bronze Trim		No	211	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
V(B)-4324 Series, Bronze Trim		No	211	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
V(B)-5844 Series		No	211	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
V-3754-(4, 1008, 1022, 1026)		Yes	211	LF	UGLK1550	$548
V-3974-(4, 1004, 1010)		Yes	211	LF	UGLK1550	$548
V-4324-(4, 1005, 1006, 1013)		Yes	211	LF	UGLK1550	$548
V-4332		No	211	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
VG7000 Series		No		LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
VG7XXX-LT *Threaded Stem Only		Yes	169	LF	UGLK1416	$717
V(B)-3754 Series, Bronze Trim	1"	No	93	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V(B)-3974 Series, Bronze Trim		No	93	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V(B)-4324 Series, Bronze Trim		No	93	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
V(B)-4324 Series, Bronze Trim		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V(B)-5844 Series		No	93	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V-3754-(5, 1010, 1023, 1027)		Yes	173	NF	UGLK1402	$789
		Yes	236	AF	UGLK1402	$789
V-3974-(5, 1005, 1011)		Yes	173	NF	UGLK1402	$789
		Yes	236	AF	UGLK1402	$789
V-4324-(5, 1007, 1008, 1014)		Yes	173	NF	UGLK1402	$789
		Yes	236	AF	UGLK1402	$789
V-4332		No	93	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
VG7000 Series		No	93	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
VG7XXX-NT *Threaded Stem Only		Yes	93	LF	UGLK1418	$717
V(B)-3754 Series, Bronze Trim	1¼"	No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V(B)-3974 Series, Bronze Trim		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V(B)-4324 Series, Bronze Trim		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V(B)-5844 Series		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15

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Johnson Controls

V(B)-58, V-37, V-39, V-43, VG7, V(B)-37, V(B)-39, V(B)-43, V-58, V-52, V-54 Series Valves

Linkage/Actuator Selection Guide

5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V-3754-8	1¼"	Yes	221	AF	UGLK1402	$789
		Yes	110	NF	UGLK1402	$789
V-4324-8		Yes	221	AF	UGLK1402	$789
		Yes	110	NF	UGLK1402	$789
V-4332		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
VG7000 Series		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
VG7XXX-PT *Threaded Stem Only		Yes	65	LF	UGLK1418	$717
V(B)-3754 Series, Bronze Trim	1½"	No	160	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V(B)-3974 Series, Bronze Trim		No	160	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V(B)-4324 Series, Bronze Trim		No	160	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V(B)-5844 Series		No	160	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V-3754-(6, 1028, 1029, 1030)		Yes	77	NF	UGLK1402	$789
		Yes	153	AF	UGLK1402	$789
		Yes	236	GK	UGLK1402	$789
		Yes	211	2*AF	UGLK1478	$1,091
V-3974-(6, 1012, 1013)		Yes	77	NF	UGLK1402	$789
		Yes	153	AF	UGLK1402	$789
		Yes	236	GK	UGLK1402	$789
		Yes	211	2*AF	UGLK1478	$1,091
V-4324-(6,1015, 1016, 1017)		Yes	77	NF	UGLK1402	$789
		Yes	153	AF	UGLK1402	$789
		Yes	236	GK	UGLK1402	$789
		Yes	211	2*AF	UGLK1478	$1,091
V-4332		No	160	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V-5254-(1, 2, 3, 11)		Yes	77	NF	UGLK1404	$788
		No	153	AM	UGLK1404	$788
		Yes		AF	UGLK1404	$788
		No	236	GM	UGLK1404	$788
				2*GM	UGLK1472	$1,098
V-5254-(1, 2, 3, 11)		Yes	236	GK	UGLK1404	$788
				2*AF	UGLK1472	$1,098
				2*GK	UGLK1472	$1,098
V-5464-(1, 2, 11)		Yes	77	NF	UGLK1404	$788
		No	153	AM	UGLK1404	$788
		Yes		AF	UGLK1404	$788
		No	236	GM	UGLK1404	$788
				2*GM	UGLK1472	$1,098
		Yes		GK	UGLK1404	$788
				2*AF	UGLK1472	$1,098
				2*GK		$1,098
V-5844-(1, 2, 3, 11)		Yes	77	NF	UGLK1404	$788
		Yes	153	AF	UGLK1404	$788
		No	236	2*GM	UGLK1472	$1,098
		Yes		GK	UGLK1404	$788
				2*AF	UGLK1472	$1,098
				2*GK		$1,098
VG7000 Series		No	160	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
VG7XXX-RT *Threaded Stem Only		Yes	77	NF	UGLK1422	$789
		Yes	153	AF	UGLK1422	$789
		No	236	GM	UGLK1422	$789
		Yes		GK	UGLK1422	$789
		Yes	26	LF	UGLK1420	$717

RETROFIT SOLUTIONS

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V(B)-3754 Series, Bronze Trim	2"	No	85	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V(B)-3974 Series, Bronze Trim		No	85	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V(B)-4324 Series, Bronze Trim		No	85	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V(B)-5844 Series		No	85	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V-3754-7		Yes	86	AF	UGLK1406	$788
		No	173	GM	UGLK1406	$788
		Yes		GK	UGLK1406	$788
				2*AF	UGLK1474	$1,090
		No	236	2*GM	UGLK1474	$1,090
		Yes		2*GK	UGLK1474	$1,090
		Yes	40	NF	UGLK1406	$788
V-3974-7		Yes	86	AF	UGLK1406	$788
		No	173	GM	UGLK1406	$788
		Yes		GK	UGLK1406	$788
				2*AF	UGLK1474	$1,090
		No	236	2*GM	UGLK1474	$1,090
		Yes		2*GK	UGLK1474	$1,090
		Yes	40	NF	UGLK1406	$788
V-4324-7		Yes	86	AF	UGLK1406	$788
		No	173	GM	UGLK1406	$788
		Yes		GK	UGLK1406	$788
				2*AF	UGLK1474	$1,090
		No	236	2*GM	UGLK1474	$1,090
		Yes		2*GK	UGLK1474	$1,090
		Yes	40	NF	UGLK1406	$788
V-4332		No	85	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V-5254-(4, 5, 6, 12)		No	86	AM	UGLK1406	$788
		Yes		AF	UGLK1406	$788
		No	173	GM	UGLK1406	$788
		Yes		GK	UGLK1406	$788
				2*AF	UGLK1474	$1,090
		No	236	2*GM	UGLK1474	$1,090
		Yes		2*GK	UGLK1474	$1,090
		Yes	40	NF	UGLK1406	$788
V-5464-(3, 4, 12)		No	86	AM	UGLK1406	$788
		Yes		AF	UGLK1406	$788
		No	173	GM	UGLK1406	$788
		Yes		GK	UGLK1406	$788
				2*AF	UGLK1474	$1,090
		No	236	2*GM	UGLK1474	$1,090
		Yes		2*GK	UGLK1474	$1,090
		Yes	40	NF	UGLK1406	$788
V-5844-(4, 5, 6, 12)		Yes	86	AF	UGLK1406	$788
		No	173	GM	UGLK1406	$788
		Yes		GK	UGLK1406	$788
				2*AF	UGLK1474	$1,090
		No	236	2*GM	UGLK1474	$1,090
		Yes		2*GK	UGLK1474	$1,090
		Yes	40	NF	UGLK1406	$788
VG7000 Series		No	85	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
VG7XXX-ST *Threaded Stem Only		Yes	86	AF	UGLK1422	$789
		No	173	GM	UGLK1422	$789
		Yes		GK	UGLK1422	$789
		Yes	153	AF	UGLK1422	$789
		Yes	40	NF	UGLK1422	$789
		Yes	14	LF	UGLK1420	$717

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V-5210-4595	2½"	No	75	RV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	38	AF	UGLK1412	$788
		No	136	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
V-5252-(2, 4, 5, 6, 7, 8, 32, 33)		No	110	RV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		No	52	EV	FGVL	Pg # 22-14
		Yes		AF	UGLK1404	$788
V-5252-(4, 5, 6, 7, 8, 32, 33)		Yes	211	2*GK	UGLK1472	$1,098
		Yes	110	2*AF	UGLK1472	$1,098
V-5410-4595		No	75	RV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	38	AF	UGLK1412	$788
		No	136	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
V-5462-(6, 7, 34)		No	211	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1472	$1,098
		No	110	RV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1472	$1,098
		No	52	EV	FGVL	Pg # 22-14
		Yes		AF	UGLK1404	$788
V-5842-(7, 8, 31)		No	211	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1472	$1,098
		No	110	RV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1472	$1,098
		No	52	EV	FGVL	Pg # 22-14
		Yes		AF	UGLK1404	$788
VB-3752-19		Yes	211	2*GK	UGLK1472	$1,098
		No	200	RV	FGVL	Pg # 22-14
		Yes	120	AVK	FGVL	Pg # 22-15
		Yes	110	2*AF	UGLK1472	$1,098
		No	75	EV	FGVL	Pg # 22-14
		Yes	52	AF	UGLK1404	$788
VB-3970-11		Yes	211	2*GK	UGLK1472	$1,098
		No	110	RV	FGVL	Pg # 22-14
		Yes	110	AVK	FGVL	Pg # 22-15
				2*AF	UGLK1472	$1,098
		No	52	EV	FGVL	Pg # 22-14
		Yes		AF	UGLK1404	$788
VB-4322-9		Yes	211	2*GK	UGLK1472	$1,098
		No	110	RV	FGVL	Pg # 22-14
VB-4322-9		Yes	110	AVK	FGVL	Pg # 22-15
				2*AF	UGLK1472	$1,098
		No	52	EV	FGVL	Pg # 22-14
		Yes		AF	UGLK1404	$788
VG2231 TM		No	211	RV	FGVL	Pg # 22-14
		No	110	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	211	2*GK	UGLK1472	$1,098
		Yes	110	2*AF	UGLK1472	$1,098
		Yes	52	AF	UGLK1404	$788
VG2431 TM		No	211	RV	FGVL	Pg # 22-14
		No	110	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	211	2*GK	UGLK1472	$1,098
		Yes	110	2*AF	UGLK1472	$1,098
		Yes	52	AF	UGLK1404	$788
VG2831 TM		No	211	RV	FGVL	Pg # 22-14
		No	110	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	211	2*GK	UGLK1472	$1,098
		Yes	110	2*AF	UGLK1472	$1,098
		Yes	52	AF	UGLK1404	$788

RETROFIT SOLUTIONS

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V-5210-4596	3"	No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	26	AF	UGLK1412	$788
V-5252-(12, 13, 35)		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	26	AF	UGLK1410	$788
V-5252-(9, 10, 11, 34)		Yes	77	2*AF	UGLK1472	$1,098
		Yes	38	AF	UGLK1404	$788
		Yes	136	2*GK	UGLK1472	$1,098
		No	93	RV	FGVL	Pg # 22-14
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
V-5410-4596		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	26	AF	UGLK1412	$788
V-5462-10		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	26	AF	UGLK1412	$788
V-5462-35		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	26	AF	UGLK1410	$788
V-5462-36		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	26	AF	UGLK1412	$788
V-5462-8		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	26	AF	UGLK1410	$788
V-5462-9		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	26	AF	UGLK1410	$788
V-5842-10		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	26	AF	UGLK1410	$788
V-5842-17		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	26	AF	UGLK1412	$788

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5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V-5842-18	3"	No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	26	AF	UGLK1412	$788
V-5842-32		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	26	AF	UGLK1410	$788
V-5842-33		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	26	AF	UGLK1412	$788
V-5842-9		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	26	AF	UGLK1410	$788
VB-3752-22		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	70	EV	FGVL	Pg # 22-14
		Yes	60	AVK	FGVL	Pg # 22-15
		Yes	52	2*AF	UGLK1476	$1,091
		Yes	26	AF	UGLK1410	$788
VB-3970-14		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	26	AF	UGLK1410	$788
VB-4322-11		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	26	AF	UGLK1410	$788
VG2231 UM		No	93	RV	FGVL	Pg # 22-14
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	93	2*GK	UGLK1476	$1,091
		Yes	52	2*AF	UGLK1476	$1,091
		Yes	26	AF	UGLK1410	$788
VG2231 UN		No	93	RV	FGVL	Pg # 22-14
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	93	2*GK	UGLK1478	$1,091
		Yes	52	2*AF	UGLK1478	$1,091
		Yes	26	AF	UGLK1412	$788
VG2431 UM		No	93	RV	FGVL	Pg # 22-14
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	93	2*GK	UGLK1476	$1,091
		Yes	52	2*AF	UGLK1476	$1,091
		Yes	26	AF	UGLK1410	$788
VG2431 UN		No	93	RV	FGVL	Pg # 22-14
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	93	2*GK	UGLK1478	$1,091
		Yes	52	2*AF	UGLK1478	$1,091
		Yes	26	AF	UGLK1412	$788

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
VG2831 UM	3"	No	93	RV	FGVL	Pg # 22-14
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	93	2*GK	UGLK1476	$1,091
		Yes	52	2*AF	UGLK1476	$1,091
		Yes	26	AF	UGLK1410	$788
VG2831 UN		No	93	RV	FGVL	Pg # 22-14
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	93	2*GK	UGLK1478	$1,091
		Yes	52	2*AF	UGLK1478	$1,091
		Yes	26	AF	UGLK1412	$788
V-5210-4597	4"	No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	14	AF	UGLK1412	$788
V-5252-(14, 36)		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	14	AF	UGLK1410	$788
V-5252-(15, 16, 37)		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	14	AF	UGLK1412	$788
V-5410-4597		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	14	AF	UGLK1412	$788
V-5462-11		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	14	AF	UGLK1410	$788
V-5462-12		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	14	AF	UGLK1410	$788
V-5462-13		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	14	AF	UGLK1412	$788
V-5462-14		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	14	AF	UGLK1412	$788
V-5462-37		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	14	AF	UGLK1410	$788

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5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V-5462-38	4"	No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	14	AF	UGLK1412	$788
V-5842-11		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	14	AF	UGLK1412	$788
V-5842-12		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	14	AF	UGLK1412	$788
V-5842-34		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	$1,091
		Yes	14	AF	UGLK1412	$788
VB-3752-25		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	40	EV	FGVL	Pg # 22-14
		Yes	30	AVK	FGVL	Pg # 22-15
		Yes	26	2*AF	UGLK1476	$1,091
		Yes	14	AF	UGLK1410	$788
VB-3970-17		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	14	AF	UGLK1410	$788
VB-4322-13		No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	$1,091
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	$1,091
		Yes	14	AF	UGLK1410	$788
VG2231 VM		No	52	RV	FGVL	Pg # 22-14
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	52	2*GK	UGLK1476	$1,091
		Yes	26	2*AF	UGLK1476	$1,091
		Yes	14	AF	UGLK1410	$788
VG2231 VN		No	52	RV	FGVL	Pg # 22-14
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	52	2*GK	UGLK1478	$1,091
		Yes	26	2*AF	UGLK1478	$1,091
		Yes	14	AF	UGLK1412	$788
VG2431 VM		No	52	RV	FGVL	Pg # 22-14
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	52	2*GK	UGLK1476	$1,091
		Yes	26	2*AF	UGLK1476	$1,091
		Yes	14	AF	UGLK1410	$788
VG2431 VN		No	52	RV	FGVL	Pg # 22-14
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	52	2*GK	UGLK1478	$1,091
		Yes	26	2*AF	UGLK1478	$1,091
		Yes	14	AF	UGLK1412	$788

RETROFIT SOLUTIONS

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
VG2831 VM	4”	No	52	RV	FGVL	Pg # 22-14
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	52	2*GK	UGLK1476	$1,091
		Yes	26	2*AF	UGLK1476	$1,091
		Yes	14	AF	UGLK1410	$788
VG2831 VN		No	52	RV	FGVL	Pg # 22-14
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	52	2*GK	UGLK1478	$1,091
		Yes	26	2*AF	UGLK1478	$1,091
		Yes	14	AF	UGLK1412	$788
V-5252-17	5”	No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
V-5252-18		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
V-5252-38		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
V-5462-15		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
V-5462-16		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
V-5462-39		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
V-5842-13		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
V-5842-14		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
V-5842-35		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
VB-3752-28	5"	No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
VB-3970-20		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
VB-4322-19		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
VG2231 WN		No	22	RV	FGVL	Pg # 22-14
		No	14	EV	FGVL	Pg # 22-14
		Yes	22	2*GK	UGLK1480	$1,099
		Yes	14	GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
VG2431 WN		No	22	RV	FGVL	Pg # 22-14
		No	14	EV	FGVL	Pg # 22-14
		Yes	22	2*GK	UGLK1480	$1,099
		Yes	14	GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
VG2831 WN		No	22	RV	FGVL	Pg # 22-14
		No	14	EV	FGVL	Pg # 22-14
		Yes	22	2*GK	UGLK1480	$1,099
		Yes	14	GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
		Yes	10	AF	UGLK1414	$795
V-5252-19	6"	No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	10	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
V-5252-39		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	10	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
V-5462-17		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	10	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
V-5462-18		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	10	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
V-5462-40		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	10	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
V-5842-15		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	10	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
V-5842-16		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	10	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V-5842-36	6″	No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	10	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
VB-3752-31		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	10	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
VB-3970-23		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	10	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
VB-4322-18		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	$1,099
		No	10	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
VG2231 YN		No	22	RV	FGVL	Pg # 22-14
		No	10	EV	FGVL	Pg # 22-14
		Yes	22	2*GK	UGLK1480	$1,099
		Yes	10	GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
VG2431 YN		No	22	RV	FGVL	Pg # 22-14
		No	10	EV	FGVL	Pg # 22-14
		Yes	22	2*GK	UGLK1480	$1,099
		Yes	10	GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
VG2831 YN		No	22	RV	FGVL	Pg # 22-14
		No	10	EV	FGVL	Pg # 22-14
		Yes	22	2*GK	UGLK1480	$1,099
		Yes	10	GK	UGLK1414	$795
				2*AF	UGLK1480	$1,099
ROBERTSHAW						
V6600	½″	No	236	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
V6700		No	236	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
V6600	¾″	No	211	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
V6700, V6800		No	211	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
V6600	1″	No	93	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V6700		No	93	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V6600	1¼″	No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V6700		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V6600	1½″	No	160	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V6700		No	160	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V6600	2″	No	85	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
V6700		No	85	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15

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Siebe\Invensys\Barber Colman\Schneider

Belimo USA G2, Belimo USA G3, VB30.., VB7.., VB80.., VB9.. Series Valves

Linkage/Actuator Selection Guide

5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
Belimo USA G2/G2S Series (OLD = pre April 2018)	½"	Yes	250	LF	UGLK1150**	$527
		No	250	LV	SGVL	Pg # 22-14
		Yes		LVK	SGVL	Pg # 22-15
Belimo USA G3 Series (OLD = pre April 2018)		Yes	250	LF	UGLK1150**	$527
		No	250	LV	SGVL	Pg # 22-14
		Yes		LVK	SGVL	Pg # 22-15
VB304X-0-1-4		No	236	LM	UGLK1002	$707
		Yes		LF	UGLK1002	$707
				AF	UGLK1004	$782
VB7000 Series		No	236	LV	SGVL	Pg # 22-14
		Yes		LVK	SGVL	Pg # 22-15
VB7XXX-0-4-1		Yes	236	LF	UGLK1150**	$527
VB7XXX-0-4-2		Yes	236	LF	UGLK1150**	$527
VB7XXX-0-4-3		Yes	236	LF	UGLK1150**	$527
VB7XXX-0-4-4		Yes	236	LF	UGLK1150**	$527
VB804X-0-1-4		No	236	LM	UGLK1002	$707
		Yes		LF	UGLK1002	$707
				AF	UGLK1004	$782
VB9000 Series		No	236	LV	SGVL	Pg # 22-14
		Yes		LVK	SGVL	Pg # 22-15
VB9XXX-0-4-1		Yes	236	LF	UGLK1150**	$527
VB9XXX-0-4-2		Yes	236	LF	UGLK1150**	$527
VB9XXX-0-4-3		Yes	236	LF	UGLK1150**	$527
VB9XXX-0-4-4		Yes	236	LF	UGLK1150**	$527
Belimo USA G2/G2S Series (OLD = pre April 2018)	¾"	Yes	215	LF	UGLK1150**	$527
		No	250	LV	SGVL	Pg # 22-14
		Yes		LVK	SGVL	Pg # 22-15
Belimo USA G3 Series (OLD = pre April 2018)		Yes	215	LF	UGLK1150**	$527
		No	250	LV	SGVL	Pg # 22-14
		Yes		LVK	SGVL	Pg # 22-15
VB304X-0-1-7		No	236	NM	UGLK1002	$707
		Yes	110	LF	UGLK1002	$707
VB7000 Series		No	211	LV	SGVL	Pg # 22-14
		Yes		LVK	SGVL	Pg # 22-15
VB7XXX-0-4-5		Yes	211	LF	UGLK1150**	$527
VB7XXX-0-4-6		Yes	211	LF	UGLK1150**	$527
VB804X-0-1-7		No	236	NM	UGLK1002	$707
		Yes	110	LF	UGLK1002	$707
VB9000 Series		No	211	LV	SGVL	Pg # 22-14
		Yes		LVK	SGVL	Pg # 22-15
VB9XXX-0-4-5		Yes	211	LF	UGLK1150**	$527
VB9XXX-0-4-6		Yes	211	LF	UGLK1150**	$527
Belimo USA G2/G2S Series (OLD = pre April 2018)	1"	Yes	95	LF	UGLK1150**	$527
		Yes	250	AF	UGLK1000**	$789
		No	250	SV	SGVL	Pg # 22-14
		Yes	236	SVK	SGVL	Pg # 22-15
Belimo USA G3 Series (OLD = pre April 2018)		Yes	95	LF	UGLK1150**	$527
		Yes	250	AF	UGLK1000**	$789
		No	250	SV	SGVL	Pg # 22-14
		Yes	236	SVK	SGVL	Pg # 22-15
VB304X-0-1-8		No	173	NM	UGLK1002	$707
		No	236	AM	UGLK1004	$782
		Yes		AF	UGLK1004	$782
		Yes	65	LF	UGLK1002	$707
VB7000 Series		No	93	SV	SGVL	Pg # 22-14
		Yes		SVK	SGVL	Pg # 22-15
		No	236	SV	SGVL	Pg # 22-14
		Yes		SVK	SGVL	Pg # 22-15
VB7XXX-0-4-(7, 8)		Yes	236	AF	UGLK1000**	$789
VB7XXX-0-4-7		Yes	93	LF	UGLK1150**	$527
VB7XXX-0-4-8		Yes	93	LF	UGLK1150**	$527
VB804X-0-1-8		No	173	NM	UGLK1002	$707
		No	236	AM	UGLK1004	$782
		Yes		AF	UGLK1004	$782
		Yes	65	LF	UGLK1002	$707
VB9000 Series		No	93	SV	SGVL	Pg # 22-14
		Yes		LVK	SGVL	Pg # 22-15
		No	236	SV	SGVL	Pg # 22-14
		Yes		SVK	SGVL	Pg # 22-15

**Not compatible with the new Belimo G2..B-x, G2..S-x, and G3..B-x globe valves.

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
VB9XXX-0-4-(7, 8)	1"	Yes	236	AF	UGLK1000**	$789
VB9XXX-0-4-7		Yes	93	LF	UGLK1150**	$527
VB9XXX-0-4-8		Yes	93	LF	UGLK1150**	$527
Belimo USA G2/G2S Series (OLD = pre April 2018)	1¼"	Yes	61	LF	UGLK1150**	$527
		Yes	250	AF	UGLK1000**	$789
		Yes	236	SVK	SGVL	Pg # 22-15
		No	235	SV	SGVL	Pg # 22-14
Belimo USA G3 Series (OLD = pre April 2018)		Yes	61	LF	UGLK1150**	$527
		Yes	250	AF	UGLK1000**	$789
		Yes	236	SVK	SGVL	Pg # 22-15
		No	235	SV	SGVL	Pg # 22-14
VB304X-0-1-9		No	221	AM	UGLK1004	$782
		Yes		AF	UGLK1004	$782
		No	110	NM	UGLK1002	$707
		Yes	40	LF	UGLK1002	$707
VB7000 Series		No	236	SV	SGVL	Pg # 22-14
		Yes		SVK	SGVL	Pg # 22-15
VB7XXX-0-4-9		Yes	236	AF	UGLK1000**	$789
		Yes	65	LF	UGLK1150**	$527
VB804X-0-1-9		No	221	AM	UGLK1004	$782
		Yes		AF	UGLK1004	$782
		No	110	NM	UGLK1002	$707
		Yes	40	LF	UGLK1002	$707
VB9000 Series		No	236	SV	SGVL	Pg # 22-14
		Yes		SVK	SGVL	Pg # 22-15
VB9XXX-0-4-9		Yes	236	AF	UGLK1000**	$789
		Yes	65	LF	UGLK1150**	$527
Belimo USA G2/G2S Series (OLD = pre April 2018)	1½"	Yes	217	AF	UGLK1000**	$789
		No	160	SV	SGVL	Pg # 22-14
		Yes		SVK	SGVL	Pg # 22-15
Belimo USA G3 Series (OLD = pre April 2018)		Yes	217	AF	UGLK1000**	$789
		No	160	SV	SGVL	Pg # 22-14
		Yes		SVK	SGVL	Pg # 22-15
VB304X-0-1-10		No	77	NM	UGLK1002	$707
		No	153	AM	UGLK1004	$782
		Yes		AF	UGLK1004	$782
		No	236	GM	UGLK1004	$782
		Yes		GK	UGLK1004	$782
		Yes	26	LF	UGLK1002	$707
VB7000 Series		No	160	SV	SGVL	Pg # 22-14
		Yes		SVK	SGVL	Pg # 22-15
VB7XXX-0-4-10		Yes	211	AF	UGLK1000**	$789
VB804X-0-1-10		No	77	NM	UGLK1002	$707
		No	153	AM	UGLK1004	$782
		Yes		AF	UGLK1004	$782
		No	236	GM	UGLK1004	$782
		Yes		GK	UGLK1004	$782
		Yes	26	LF	UGLK1002	$707
VB9XXX-0-4-10 (Post '94)*		Yes	79	AF	UGLK1016	$782
		No	236	2*GM	UGLK1066	$1,079
		Yes		2*GK	UGLK1066	$1,079
		Yes	211	2*AF	UGLK1066	$1,079
		No	160	GM	UGLK1016	$782
		Yes		GK	UGLK1016	$782
VB9XXX-0-4-10 (Pre '94)		No	236	2*GM	UGLK1064	$1,079
		Yes		2*GK	UGLK1064	$1,079
		No	211	GM	UGLK1008	$783
		Yes		GK	UGLK1008	$783
				2*AF	UGLK1064	$1,079
		Yes	110	AF	UGLK1008	$783
				SV	UGVL	Pg # 22-14
		No		SVK	UGVL	Pg # 22-15

All close-off pressures listed are approximate and actual close-off pressures are based on valve condition and application.

**Not compatible with the new Belimo G2..B-x, G2..S-x, and G3..B-x globe valves.

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Siebe\Invensys\Barber Colman\Schneider

VB30.., VB7.. VB80.., VB9.., Belimo USA G2, Belimo USA G3 Series Series Valves

Linkage/Actuator Selection Guide

5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
Belimo USA G2/G2S Series (OLD = pre April 2018)	2"	Yes	122	AF	UGLK1000**	$789
		No	90	SV	SGVL	Pg # 22-14
		Yes	85	SVK	SGVL	Pg # 22-15
Belimo USA G3 Series (OLD = pre April 2018)		Yes	122	AF	UGLK1000**	$789
		No	90	SV	SGVL	Pg # 22-14
		Yes	85	SVK	SGVL	Pg # 22-15
VB304X-0-1-11		No	86	AM	UGLK1004	$782
		Yes		AF	UGLK1004	$782
		No	173	GM	UGLK1004	$782
		Yes		GK	UGLK1004	$782
		No	40	NM	UGLK1002	$707
		Yes	14	LF	UGLK1002	$707
VB7000 Series		No	85	SV	SGVL	Pg # 22-14
		Yes		SVK	SGVL	Pg # 22-15
VB7XXX-0-4-11		Yes	120	AF	UGLK1000**	$789
VB804X-0-1-11		No	86	AM	UGLK1004	$782
		Yes		AF	UGLK1004	$782
		No	173	GM	UGLK1004	$782
		Yes		GK	UGLK1004	$782
		No	40	NM	UGLK1002	$707
		Yes	14	LF	UGLK1002	$707
VB9XXX-0-4-11 (Post '94)*		No	89	GM	UGLK1016	$782
		Yes		GK	UGLK1016	$782
		No	211	2*GM	UGLK1066	$1,079
		Yes		2*GK	UGLK1066	$1,079
		Yes	110	2*AF	UGLK1066	$1,079
		Yes	40	AF	UGLK1016	$782
VB9XXX-0-4-11 (Pre '94)		No	211	2*GM	UGLK1064	$1,079
		Yes		2*GK	UGLK1064	$1,079
		No	110	GM	UGLK1008	$783
		Yes		GK	UGLK1008	$783
				2*AF	UGLK1064	$1,079
		Yes	52	AF	UGLK1008	$783
			110	SVK	UGVL	Pg # 22-15
		No		SV	UGVL	Pg # 22-14
VB304X-0-2-12	2½"	Yes	75	2*AF	UGLK1072	$1,079
		Yes	38	AF	UGLK1006	$782
		No	136	2*GM	UGLK1072	$1,079
		Yes		2*GK	UGLK1072	$1,079
VB304X-0-2-12		No	90	RV	FGVL	Pg # 22-14
		Yes	80	AVK	FGVL	Pg # 22-15
		No	45	EV	FGVL	Pg # 22-14
VB804X-0-2-12		Yes	75	2*AF	UGLK1072	$1,079
		Yes	38	AF	UGLK1006	$782
		No	136	2*GM	UGLK1072	$1,079
		Yes		2*GK	UGLK1072	$1,079
		No	90	RV	FGVL	Pg # 22-14
		Yes	85	AVK	FGVL	Pg # 22-15
		No	40	EV	FGVL	Pg # 22-14
VB9XXX-0-4-12		No	75	GM	UGLK1010	$783
		Yes		GK	UGLK1010	$783
				2*AF	UGLK1070	$1,087
		No	38	AM	UGLK1010	$783
		Yes		AF	UGLK1010	$783
		No	136	2*GM	UGLK1070	$1,087
		Yes		2*GK	UGLK1070	$1,087
VB9XXX-0-5-12		Yes	75	2*AF	UGLK1070	$1,087
		Yes	38	AF	UGLK1010	$783
		Yes	136	2*GK	UGLK1070	$1,087
		No	150	RV	FGVL	Pg # 22-14
		No	80	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15

**Not compatible with the new Belimo G2..B-x, G2..S-x, and G3..B-x globe valves.

All close-off pressures listed are approximate and actual close-off pressures are based on valve condition and application.*Will also work with UGVL+SV+SGVL kit

RETROFIT SOLUTIONS

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All prices are in US Dollars (USD)

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
VB304X-0-2-13	3"	No	93	2*GM	UGLK1072	$1,079
		Yes		2*GK	UGLK1072	$1,079
		No	70	RV	FGVL	Pg # 22-14
		Yes	60	AVK	FGVL	Pg # 22-15
		Yes	52	2*AF	UGLK1072	$1,079
		No	35	EV	FGVL	Pg # 22-14
		Yes	26	AF	UGLK1006	$782
VB804X-0-2-13		No	93	2*GM	UGLK1072	$1,079
		Yes		2*GK	UGLK1072	$1,079
		No	65	RV	FGVL	Pg # 22-14
		Yes	60	AVK	FGVL	Pg # 22-15
		Yes	52	2*AF	UGLK1072	$1,079
		No	30	EV	FGVL	Pg # 22-14
		Yes	26	AF	UGLK1006	$782
VB9XXX-0-4-13		No	93	2*GM	UGLK1070	$1,087
		Yes		2*GK	UGLK1070	$1,087
		No	52	GM	UGLK1010	$783
		Yes		GK	UGLK1010	$783
				2*AF	UGLK1070	$1,087
		No	26	AM	UGLK1010	$783
		Yes		AF	UGLK1010	$783
VB9XXX-0-5-13		Yes	93	2*GK	UGLK1070	$1,087
		No	90	RV	FGVL	Pg # 22-14
		Yes	52	2*AF	UGLK1070	$1,087
		No	40	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes	26	AF	UGLK1010	$783
VB304X-0-2-14	4"	No	52	2*GM	UGLK1072	$1,079
		Yes		2*GK	UGLK1072	$1,079
		No	35	RV	FGVL	Pg # 22-14
		Yes	30	AVK	FGVL	Pg # 22-15
		Yes	26	2*AF	UGLK1072	$1,079
		No	20	EV	FGVL	Pg # 22-14
		Yes	14	AF	UGLK1006	$782
VB804X-0-2-14		No	52	2*GM	UGLK1072	$1,079
		Yes		2*GK	UGLK1072	$1,079
		No	45	RV	FGVL	Pg # 22-14
		Yes	30	AVK	FGVL	Pg # 22-15
VB804X-0-2-14		Yes	26	2*AF	UGLK1072	$1,079
		No	20	EV	FGVL	Pg # 22-14
		Yes	14	AF	UGLK1006	$782
VB9XXX-0-5-14		Yes	22	2*AF	UGLK1074	$1,079
		No	40	2*GM	UGLK1074	$1,079
		Yes	40	2*GK	UGLK1074	$1,079
		No	30	RV	FGVL	Pg # 22-14
		Yes	25	AVK	FGVL	Pg # 22-15
		No	15	EV	FGVL	Pg # 22-14
		Yes	10	AF	UGLK1012	$782
VB304X-0-2-15	5"	No	22	2*GM	UGLK1076	$1,079
		Yes		2*GK	UGLK1076	$1,079
		No	24	RV	FGVL	Pg # 22-14
		No	15	EV	FGVL	Pg # 22-14
		Yes	14	2*AF	UGLK1076	$1,079
		Yes	10	AF	UGLK1014	$782
VB804X-0-2-15		Yes	22	2*GK	UGLK1076	$1,079
		No	20	RV	FGVL	Pg # 22-14
		No	15	EV	FGVL	Pg # 22-14
		Yes	14	GK	UGLK1014	$782
				2*AF	UGLK1076	$1,079
		Yes	10	AF	UGLK1014	$782
VB9XXX-0-5-15		No	20	RV	FGVL	Pg # 22-14

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Siebe\Invensys\Barber Colman\Schneider

VB9.., VB30.., VB80.. Series Valves

Linkage/Actuator Selection Guide

Siemens\Landis\Powers

591, 599, 656, 658 Series Valves

Linkage/Actuator Selection Guide

5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
VB304X-0-2-16	6″	No	22	2*GM	UGLK1076	$1,079
		Yes		2*GK	UGLK1076	$1,079
		No	15	RV	FGVL	Pg # 22-14
		No	13	EV	FGVL	Pg # 22-14
		Yes	10	AF	UGLK1014	$782
				2*AF	UGLK1076	$1,079
VB804X-0-2-16		Yes	22	2*GK	UGLK1076	$1,079
		No	22	RV	FGVL	Pg # 22-14
		No	13	EV	FGVL	Pg # 22-14
		Yes	10	AF	UGLK1014	$782
				GK		
				2*AF	UGLK1076	$1,079
VB9XXX-0-5-16		No	15	RV	FGVL	Pg # 22-14
SIEMENS\LANDIS\POWERS						
591 Series	½″	No	236	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
				NF	UGLK1200	$789
599 Flowrite		No	236	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
				NF	UGLK1208	$789
599 MZ/MT Series		No	10-120	CM	UGSL1200	$137
		Yes		TF	UGSL1200	$137
656, 658 Series		Yes	236	LF	UGLK1350	$522
591 Series	¾″	Yes	236	NF	UGLK1200	$789
		No	211	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
599 Flowrite		No	236	AM	UGLK1208	$789
		Yes		AF	UGLK1208	$789
		No	211	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
599 MZ/MT Series		No	10-120	CM	UGSL1200	$137
		Yes		TF	UGSL1200	$137
656, 658 Series		Yes	211	LF	UGLK1350	$522
591 Series	1″	No	236	SV	UGVL	Pg # 22-14
				AM	UGLK1200	$789
		Yes		SVK	UGVL	Pg # 22-15
				AF	UGLK1200	$789
599 Flowrite		Yes	173	NF	UGLK1208	$789
		No	236	SV	UGVL	Pg # 22-14
				AM	UGLK1208	$789
		Yes		SVK	UGVL	Pg # 22-15
				AF	UGLK1208	$789
599 MZ/MT Series		No	10-120	CM	UGSL1200	$137
		Yes		TF	UGSL1200	$137
656, 658 Series		Yes	93	LF	UGLK1350	$522
658 Series		No	93	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
591 Series	1¼″	No	236	SV	UGVL	Pg # 22-14
				AM	UGLK1200	$789
		Yes		SVK	UGVL	Pg # 22-15
				AF	UGLK1200	$789
		Yes	160	NF	UGLK1200	$789
599 Flowrite		No	221	AM	UGLK1208	$789
		Yes		AF	UGLK1208	$789
		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		Yes	110	NF	UGLK1208	$789
599 MZ/MT Series		No	10-120	CM	UGSL1200	$137
		Yes		TF	UGSL1200	$137
656, 658 Series		Yes	65	LF	UGLK1350	$522
658 Series		No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
591 Series	1½"	No	236	GM	UGLK1200	$789
		Yes		GK	UGLK1200	$789
		No	211	SV	UGVL	Pg # 22-14
				AM	UGLK1200	$789
		Yes		SVK	UGVL	Pg # 22-15
				AF	UGLK1200	$789
		No	209	GM	UGLK1202	$788
		Yes		GK	UGLK1202	$788
		No	104	AM	UGLK1202	$788
		Yes		AF	UGLK1202	$788
599 Flowrite		Yes	77	NF	UGLK1208	$789
		No	153	SV	UGVL	Pg # 22-14
				AM	UGLK1208	$789
		Yes		SVK	UGVL	Pg # 22-15
				AF	UGLK1208	$789
		No	236	GM	UGLK1208	$789
		Yes		GK	UGLK1208	$789
		No	153	SV	UGVL	Pg # 22-14
599 MZ/MT Series		No	10-120	CM	UGSL1200	$137
		Yes		TF	UGSL1200	$137
591 Series	2"	No	236	GM	UGLK1200	$789
		Yes		GK	UGLK1200	$789
		No	120	AM	UGLK1200	$789
		Yes		AF	UGLK1200	$789
		No	85	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		No	52	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
599 Flowrite		No	86	AM	UGLK1208	$789
		Yes		AF	UGLK1208	$789
		No	173	GM	UGLK1208	$789
		Yes		GK	UGLK1208	$789
		No	85	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		Yes	40	NF	UGLK1208	$789
591 Series	2½"	No	211	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1270	$1,098
591 Series		No	110	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1270	$1,098
599 Flowrite		Yes	211	2*GK	UGLK1272	$1,099
		Yes	110	2*AF	UGLK1272	$1,099
591 Series	3"	Yes	77	AVK	FGVL	Pg # 22-15
				2*AF	UGLK1270	$1,098
		No	136	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1270	$1,098
		No	90	EV	FGVL	Pg # 22-14
599 Flowrite		Yes	77	2*AF	UGLK1272	$1,099
		Yes	136	2*GK	UGLK1272	$1,099
591 Series	4"	Yes	22	GK	UGLK1206	$788
				2*AF	UGLK1274	$1,098
		No	40	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1274	$1,098
		No	30	EV	FGVL	Pg # 22-14
		Yes	10	AF	UGLK1206	$788
599 Flowrite		Yes	22	GK	UGLK1212	$788
				2*AF	UGLK1276	$1,098
		Yes	40	2*GK	UGLK1276	$1,098
		Yes	10	AF	UGLK1212	$788
591 Series	5"	Yes	22	2*GK	UGLK1274	$1,098
		No	25	RV	FGVL	Pg # 22-14
		No	20	EV	FGVL	Pg # 22-14
		Yes	14	GK	UGLK1206	$788
				2*AF	UGLK1274	$1,098
599 Flowrite		Yes	22	2*GK	UGLK1276	$1,098
		Yes	14	GK	UGLK1212	$788
				2*AF	UGLK1276	$1,098
591 Series	6"	No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1274	$1,098
		Yes	10	2*AF	UGLK1274	$1,098

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5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
100 SGL SEAT	2½"	Yes	110	2*GK	UGLK2272	$1,079
		No	52	RV	WGVL	Pg # 22-14
		Yes		AVK	WGVL	Pg # 22-15
		No	26	EV	WGVL	Pg # 22-14
1800 3-Way		No	110	2*GM	UGLK2272	$1,079
		Yes		2*GK	UGLK2272	$1,079
		No	52	EV	WGVL	Pg # 22-14
1800 BAL		No	110	2*GM	UGLK2272	$1,079
		Yes		2*GK	UGLK2272	$1,079
		No	52	EV	WGVL	Pg # 22-14
Type 20-22		No	93	EV	WGVL	Pg # 22-14
		No	185	RV	WGVL	Pg # 22-14
		Yes	71	AVK	WGVL	Pg # 22-15
Type 23		No	211	EV	WGVL	Pg # 22-14
		Yes		AVK	WGVL	Pg # 22-15
Type 30-32		No	93	EV	WGVL	Pg # 22-14
		No	185	RV	WGVL	Pg # 22-14
		Yes	71	AVK	WGVL	Pg # 22-15
100 SGL SEAT	3"	Yes	70	2*GK	UGLK2272	$1,079
		No	22	EV	WGVL	Pg # 22-14
		No	40	RV	WGVL	Pg # 22-14
		Yes		AVK	WGVL	Pg # 22-15
1800 3-Way		No	70	2*GM	UGLK2272	$1,079
		Yes		2*GK	UGLK2272	$1,079
		No	40	EV	WGVL	Pg # 22-14
1800 BAL		No	70	2*GM	UGLK2272	$1,079
		Yes		2*GK	UGLK2272	$1,079
		No	40	EV	WGVL	Pg # 22-14
Type 20-22		No	126	RV	WGVL	Pg # 22-14
		No	65	EV	WGVL	Pg # 22-14
		Yes	40	AVK	WGVL	Pg # 22-15
Type 23		No	160	EV	WGVL	Pg # 22-14
		Yes		AVK	WGVL	Pg # 22-15
Type 30-32		No	126	RV	WGVL	Pg # 22-14
		No	65	EV	WGVL	Pg # 22-14
		Yes	40	AVK	WGVL	Pg # 22-15
100 SGL SEAT	4"	No	22	RV	WGVL	Pg # 22-14
		Yes		AVK	WGVL	Pg # 22-15
		Yes	40	2*GK	UGLK2272	$1,079
		No	10	EV	WGVL	Pg # 22-14
		Yes		AF	UGLK2202	$800
1800 3-Way		No	22	EV	WGVL	Pg # 22-14
		No	40	2*GM	UGLK2272	$1,079
		Yes		2*GK	UGLK2272	$1,079
1800 BAL		No	22	EV	WGVL	Pg # 22-14
		No	40	2*GM	UGLK2272	$1,079
		Yes		2*GK	UGLK2272	$1,079
Type 20-22		No	65	RV	WGVL	Pg # 22-14
Type 23		No	236	EV	WGVL	Pg # 22-14
		Yes		AVK	WGVL	Pg # 22-15
Type 30-32		No	65	RV	WGVL	Pg # 22-14
100 SGL SEAT	5"	Yes	22	2*GK	UGLK2272	$1,079
		No	14	RV	WGVL	Pg # 22-14
		Yes		AVK	WGVL	Pg # 22-15
		Yes	10	AF	UGLK2202	$800
1800 3-Way		No	22	2*GM	UGLK2272	$1,079
		Yes		2*GK	UGLK2272	$1,079
		No	14	EV	WGVL	Pg # 22-14
1800 BAL		No	22	2*GM	UGLK2272	$1,079
		Yes		2*GK	UGLK2272	$1,079
		No	14	EV	WGVL	Pg # 22-14
		Yes		AVK	WGVL	Pg # 22-15
Type 20-22		No	40	RV	WGVL	Pg # 22-14
Type 23		No	236	EV	WGVL	Pg # 22-14
		Yes		AVK	WGVL	Pg # 22-15
Type 30-32		No	40	RV	WGVL	Pg # 22-14
100 SGL SEAT	6"	Yes	22	2*GK	UGLK2272	$1,079
		No	10	RV	WGVL	Pg # 22-14
		Yes		AF	UGLK2202	$800
				AVK	WGVL	Pg # 22-15

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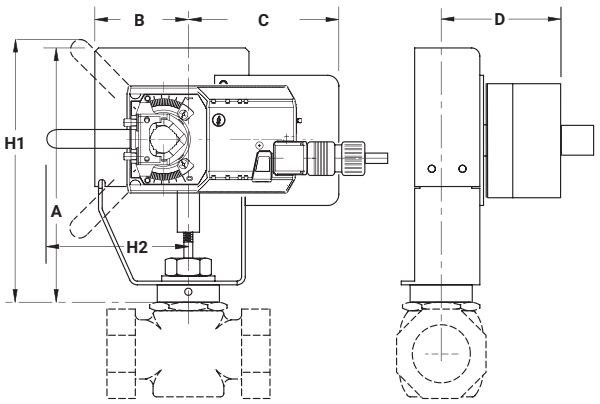
Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
1800 3-Way	6”	No	22	2*GM	UGLK2272	$1,079
		Yes		2*GK	UGLK2272	$1,079
		No	10	EV	WGVL	Pg # 22-14
1800 BAL		No	22	2*GM	UGLK2272	$1,079
		Yes		2*GK	UGLK2272	$1,079
		No	10	EV	WGVL	Pg # 22-14
Type 20-22		Yes	22	2*GK	UGLK2272	$1,079
		Yes	10	2*AF	UGLK2272	$1,079
Type 30		Yes	22	2*GK	UGLK2272	$1,079
		Yes	10	2*AF	UGLK2272	$1,079
Type 32		Yes	22	2*GK	UGLK2272	$1,079
		Yes	10	2*AF	UGLK2272	$1,079

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All close-off pressures listed are approximate and actual close-off pressures are based on valve condition and application.

Globe valve retrofits that cannot be matched to one of the Belimo UGLK part numbers; please use part number UGSP0000 for valves requiring single actuation and UGSP0002 for valves requiring dual actuation. These part numbers have no Bill of Materials (BOM) associated with them, therefore cannot be produced and shipped. When these two part numbers are quoted, sold and orders processed, the "Globe Valve Retrofit" form must be completed and accompany the order. Belimo's engineering department will establish the correct UGSP linkage number for production. UGSP0000 and UGSP0002 will NOT show up on final paperwork. The correct UGSP part number will be stated.

UGSP0000



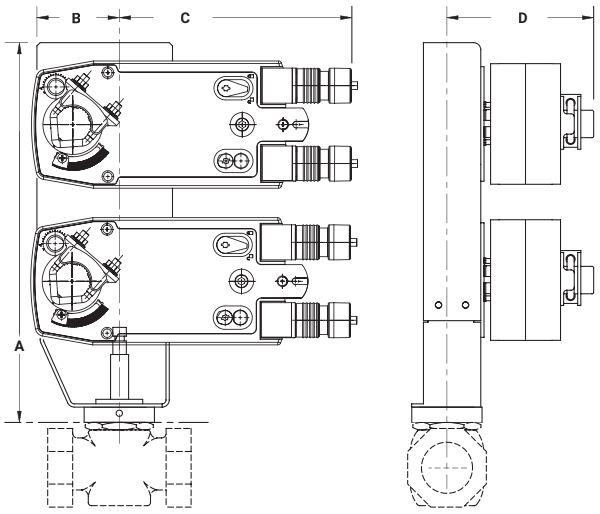
The single actuated globe retrofit linkage (shown left) depicts dimensional data for use in determining the envelope space required to mount the linkage. These dimensions do NOT include VALVE dimensions which will affect combined height requirements.

Dims H1 & **H2** are used only when override handles are utilized on the linkage system, and are not required for proper operation of the linkage system.

Dim A	7½ [190]...14" [356]	**Dim H1**	9½" [242]
Dim B	3" [76]	**Dim H2**	9½" [242]
Dim C	9" [229]		
Dim D	5" [127]		

List Price for UGSP0000 $1,089

UGSP0002



The dual actuated globe retrofit linkage (shown left) depicts dimensional data for use in determining the envelope space required to mount the linkage. These dimensions do NOT include VALVE dimensions which will affect combined height requirements.

Dim A	9½ [241]...19" [483]
Dim B	3" [76]
Dim C	9" [229]
Dim D	5" [127]

List Price for UGSP0002 $1,577

5
5-year warranty

Custom kits are designed to your unique specifications and are not returnable.

New smart retrofit forms for butterfly valves, globe valves, and ball valves can be found on www.belimo.us.

Legacy paper forms will no longer be accepted.

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How to Select a Butterfly Valve Retrofit Solution

Follow the four steps listed below when ordering a butterfly valve retrofit kit.

Example: Centerline C200 Series, **2½"** valve, using a **Non Fail-Safe** Belimo actuator.

1 Identify the **Valve Manufacturer, Valve Series** and **Valve Size.**

2 Determine the type of actuator you require: Belimo non fail-safe, spring return, or electronic fail-safe. Belimo non fail-safe and fail-safe actuators are typically only available on smaller sizes.

3 Use the actuator listings to make your final actuator selection. Decide between **GMB24-3-X1** and **GMB24-MFT-X1.**

ACTUATOR NOT INCLUDED IN THE LIST PRICE OF THE LINKAGE.

4 HOW TO ORDER: **Item 1 1pc UFLK3500**
Item 2 1pc GMB24-MFT-X1

5
5-year warranty

1 Select linkage solution based on the **Valve Number**, **Configuration**, and **Size**; select the proper **Linkage Solution** for your valve.

Centerline

C200 Round Top Series Butterfly Valves
Linkage/Actuator Selection Guide

Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series
C200 Round Top Series Butterfly Valves	2-way	No	2"	UFLK3500	AM
				UFLKP030	PR
			2½"	UFLK3500	GM
				UFLKP030	PR
			3"	UFLK3500	GM
				UFLKP030	PR

UFLK3500
Example: **Centerline C200 Series, 2½"** valve using a **non fail-safe** Belimo actuation.

Choose correct linkage **UFLK3500**.

2 Select actuator based on needed control type.
3 Decide between **GMB24-3-X1** and **GMB24-MFT-X1**. Consult actuator overview section for full details.

BASIC PRODUCTS

Model	Control Input	Feedback	Power Supply	Running Time(s) [Default]	VA Rating	Auxiliary Switch	Cable Length
GMB24-3-X1	On/Off, Floating Point	Add-on	AC/DC 24 V	150 seconds	6	Add-on	3 ft.
GMB24-SR	2...10 V (4...20 mA*)	2...10 V	AC/DC 24 V	150 seconds	6.5	Add-on	3 ft.
GMB24-MFT-X1	2...10 V	2...10 V	AC/DC 24 V	150 seconds	7	Add-on	3 ft.

♦ Variable with MFT

4 Complete Ordering Example:
Item 1: **UFLK3500**
Item 2: **GMB24-MFT-X1**

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SY ACTUATORS

SERIES	MODEL	Run Time(s) 90°@60 Hz	Torque	Power Supply	Duty Cycle	CONTROL TYPE			Feedback	List Price
						Modulating	Floating Point	On/Off		
SY4	SY4-110	19 seconds	3540 in-lb [400 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$4,245
	SY4-24	20 seconds		AC/DC 24 V ±10%, 50/60 Hz	30%		•	•	none	$4,245
	SY4-220	20 seconds		AC 230 V ±10%, 50/60 Hz	30%		•	•	none	$4,245
	SY4-24MFT	20 seconds		AC/DC 24 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	$7,797
	SY4-120MFT	24 seconds		AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	$7,797
	SY4-230MFT	22 seconds		AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	$7,797
SY5	SY5-110	26 seconds	4450 in-lb [500 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$4,908
	SY5-24	26 seconds		AC/DC 24 V ±10%, 50/60 Hz	30%		•	•	none	$4,908
	SY5-24MFT	26 seconds		AC/DC 24 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	$8,490
	SY5-120MFT	28 seconds		AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	$8,490
	SY5-230MFT	28 seconds		AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	$8,490
SY6	SY6-110	34 seconds	5785 in-lb [650 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$5,949
	SY6-120MFT	38 seconds		AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	$9,589
	SY6-230MFT	35 seconds		AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	$9,589
SY7	SY7-110	50 seconds	8900 in-lb [1000 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$7,141
	SY7-120MFT	59 seconds		AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	$10,698
	SY7-230MFT	59 seconds		AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	$10,698
SY8	SY8-110	51 seconds	13350 in-lb [1500 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$9,883
	SY8-120MFT	79 seconds		AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	$13,519
	SY8-230MFT	79 seconds		AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	$13,519
SY9	SY9-110	62 seconds	17800 in-lb [2000 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$12,233
	SY9-120MFT	65 seconds		AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	$15,897
	SY9-230MFT	72 seconds		AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	$15,897
SY10	SY10-110	62 seconds	22250 in-lb [2500 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$12,839
	SY10-120MFT	76 seconds		AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	$16,508
	SY10-230MFT	85 seconds		AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	$16,508
SY11	SY11-110	62 seconds	26700 in-lb [3000 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$17,087
	SY11-120MFT	71 seconds		AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	$20,775
	SY11-230MFT	61 seconds		AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	$20,775
SY12	SY12-110	62 seconds	31150 in-lb [3500 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	$18,290
	SY12-120MFT	76 seconds		AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	$21,740
	SY12-230MFT	65 seconds		AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	$21,740

Modulating actuators will accept 0.5...10 V, 2...10 V, or 4...20 mA control signals as standard.
All SY-MFT actuators are 0.5 V start. Below this will be considered a loss of signal.
All SY actuators are non fail-safe, but can be used with NSV-SY back up systems for spring return applications.
These products carry a two year warranty when sold as part of an assembly or with a UFLK retrofit kit.

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ROTARY ACTUATORS

SERIES	TORQUE	MODEL	Spring Return	Electronic Fail-Safe	Tandem Mounting Available	Control Input	Feedback Position	Power Supply	List Price
AF Series*	180 in-lb [20 Nm]	AFBUP-X1	•		•	On/Off	-	AC 24...240 V	$833
		AFX24-MFT-X1	•		•	Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V	$1,020
AM Series*	180 in-lb [20 Nm]	AMB24-3-X1				Floating Point, On/Off	-	AC/DC 24 V	$542
		AMX24-MFT-X1				Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V	$837
GM Series*	360 in-lb [40 Nm]	GMB24-3-X1				Floating Point, On/Off	-	AC/DC 24 V	$736
		GMX24-MFT-X1			•	Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V	$1,078
GK Series*	360 in-lb [40 Nm]	GKB24-3-X1		•		Floating Point, On/Off	-	AC 24 V	$1,633
		GKX24-MFT-X1		•	•	Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V	$2,246
PR Series	1400 in-lb [160 Nm]	PRBUP-3-T				Floating Point, On/Off	-	AC 24...240 V/ DC 24...125 V, 50/60 Hz	$3,174
		PRBUP-MFT-T				Variable with MFT (V, PWM, Floating Point, On/Off)	variable V		$6,082
PKR Series		PKRBUP-MFT-T		•		Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC 24...240 V/ DC 24...125 V, 50/60 Hz	$7,453

***Please consult the Damper sections for a full list of product offerings. Standard run times should be considered in the selection. All air side products are applicable for retrofit kits. Select "X1" actuators come with a handle.**

MULTI-FUNCTION TECHNOLOGY

	MFT CODE	Control Input	Running Time	Built-in Feedback
ROTARY ACTUATOR CODES	A01	2...10 V	150 seconds	2...10 V
	A02	0.5...10 V	150 seconds	0.5...10 V
	A28	0.5...10 V	150 seconds	0.5...10 V
	A63	0.5...4.5 V	150 seconds	0.5...4.5 V
	A64	5.5...10 V	150 seconds	5.5...10 V
	W02	0.02...5 seconds PWM	150 seconds	2...10 V
	W03	0.10...25.5 seconds PWM	150 seconds	2...10 V
	F01	Floating Point	150 seconds	2...10 V
	J02	On/Off	150 seconds	2...10 V

Consult Belimo for programming code, if not shown on chart.

SY MULTI-FUNCTION TECHNOLOGY

Description	MFT CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time
MFT	ACE	2...10 V	2...10 V	stop	actuator(s) constant
MFT	ACF	0.5...10 V	0.5...10 V	stop	actuator(s) constant
MFT	ACG	4...20 mA	4...20 mA	stop	actuator(s) constant
MFT	ACH	4...20 mA	2...10 V	stop	actuator(s) constant
MFT	ACJ	2...10 V	2...10 V	open	actuator(s) constant
MFT	ACK	0.5...10 V	0.5...10 V	open	actuator(s) constant
MFT	ACL	4...20 mA	4...20 mA	open	actuator(s) constant
MFT	ACM	4...20 mA	2...10 V	open	actuator(s) constant
MFT	ACN	2...10 V	2...10 V	close	actuator(s) constant
MFT	ACP	0.5...10 V	0.5...10 V	close	actuator(s) constant
MFT	ACR	4...20 mA	4...20 mA	close	actuator(s) constant
MFT	ACS	4...20 mA	2...10 V	close	actuator(s) constant

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

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5-year warranty

Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series	Linkage List Price
30/31 Series Butterfly Valves	2-way	No	2"	UFLK1100	AM	$548
				UFLKP004	PR	$1,000
			2½"	UFLK1100	GM	$548
				UFLKP004	PR	$1,000
			3"	UFLK1102	2*GM	$696
				UFLKP004	PR	$1,000
			4"	UFLK1108	2*GM	$707
				UFLKP008	PR	$1,000
			5"	UFLKP014	PR	$1,000
			6"	UFLKP014	PR	$1,000
			8"	UFLK1138	SY4	$1,000
			10"	UFLK1140	SY4	$1,000
			12"	UFLK1142	SY6	$1,000
			14"	UFLK1144	SY7	$1,154
			16"	UFLK1144	SY8	$1,154
			18"	UFLK1146	SY9	$1,256
			20"	UFLK1146	SY10	$1,256
		Yes	2"	UFLK1102	2*AF	$696
			2½"	UFLK1102	2*AF	$696
				UFLK1100	GK	$548
			3"	UFLK1102	2*GK	$696
			4"	UFLK1108	2*GK	$707
			5"	UFLKP014	PKR	$1,000
			6"	UFLKP014	PKR	$1,000
	3-way	No	2"	UFLKP104	PR	$1,825
			2½"	UFLK4102	2*GM	$1,154
				UFLKP104	PR	$1,825
			3"	UFLK4102	2*GM	$1,154
				UFLKP104	PR	$1,825
			4"	UFLKP108	PR	$1,453
			5"	UFLK4136	SY4	$1,453
			6"	UFLK4136	SY4	$1,453
			8"	UFLK4138	SY5	$1,453
			10"	UFLK4140	SY6	$1,825
			12"	UFLK4142	SY7	$1,825
			14"	UFLK4144	SY8	$1,964
			16"	UFLK4146	SY9	$2,961
			18"	UFLK4148	SY11	$2,961
			20"	UFLK4148	SY12	$2,961
		Yes	2"	UFLK4102	2*AF	$1,154
			2½"	UFLK4102	2*GK	$1,154
			3"	UFLK4102	2*GK	$1,154
40/41 Series Butterfly Valves	2-way	No	2½"	UFLK1200	2*GM	$691
				UFLKP008	PR	$1,000
			3"	UFLK1200	2*GM	$691
				UFLKP008	PR	$1,000
			4"	UFLK1200	2*GM	$691
				UFLKP008	PR	$1,000
			5"	UFLKP014	PR	$1,000
			6"	UFLK1228	SY4	$992
			8"	UFLK1230	SY4	$992
			10"	UFLK1232	SY6	$992
			12"	UFLK1234	SY7	$992
			14"	UFLK1236	SY8	$1,255
			16"	UFLK1238	SY9	$1,410
			18"	UFLK1240	SY11	$1,410
			20"	UFLK1242	SY12	$1,410
		Yes	2½"	UFLK1200	2*GK	$691
			3"	UFLK1200	2*GK	$691
			4"	UFLK1200	2*GK	$691

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Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series	Linkage List Price
40/41 Series Butterfly Valves	3-way	No	2½"	UFLK4200	2*GM	$1,154
				UFLKP108	PR	$1,453
			3"	UFLK4200	2*GM	$1,154
				UFLKP108	PR	$1,453
			4"	UFLKP108	PR	$1,453
			5"	UFLK4224	SY4	$1,453
			6"	UFLK4224	SY4	$1,453
			8"	UFLK4226	SY5	$1,453
			10"	UFLK4228	SY7	$1,825
			12"	UFLK4230	SY8	$1,825
			14"	UFLK4232	SY10	$3,738
			16"	UFLK4234	SY12	$3,738
		Yes	2½"	UFLK4200	2*GK	$1,154
			3"	UFLK4200	2*GK	$1,154
CENTERLINE						
C200 Round Top Series Butterfly Valves	2-way	No	2"	UFLK3500	AM	$553
				UFLKP030	PR	$974
			2½"	UFLK3500	GM	$553
				UFLKP030	PR	$974
			3"	UFLK3500	GM	$553
				UFLKP030	PR	$974
			4"	UFLK3508	2*GM	$696
				UFLKP031	PR	$974
			5"	UFLKP032	PR	$974
			6"	UFLKP032	PR	$974
			8"	UFLK3546	SY4	$1,072
			10"	UFLK3548	SY4	$1,159
			12"	UFLK3550	SY5	$1,059
			14"	UFLK3550	SY5	$1,059
			16"	UFLK3552	SY7	$1,211
			18"	UFLK3554	SY8	$1,211
			20"	UFLK3556	SY8	$1,211
			24"	UFLK3558	SY10	$1,858
		Yes	2"	UFLK3500	AF	$553
			2½"	UFLK3502	2*AF	$858
				UFLK3500	GK	$553
			3"	UFLK3502	2*AF	$858
				UFLK3500	GK	$553
			4"	UFLK3508	2*GK	$696
			5"	UFLKP032	PKR	$974
			6"	UFLKP032	PKR	$974
	3-way	No	2"	UFLKP130	PR	$1,777
			2½"	UFLK6500	GM	$1,000
				UFLKP130	PR	$1,777
			3"	UFLKP130	PR	$1,777
			4"	UFLKP131	PR	$1,777
			5"	UFLKP132	PR	$1,777
			6"	UFLK6544	SY4	$1,825
			8"	UFLK6546	SY4	$1,825
			10"	UFLK6548	SY5	$1,825
			12"	UFLK6550	SY7	$1,937
			14"	UFLK6550	SY7	$1,937
			16"	UFLK6552	SY8	$2,826
			18"	UFLK6554	SY9	$3,738
			20"	UFLK6556	SY10	$3,738
		Yes	2"	UFLK6502	2*AF	$1,085
			2½"	UFLK6502	2*AF	$1,085
				UFLK6500	GK	$1,000
			3"	UFLK6502	2*GK	$1,085
			4"	UFLK6508	2*GK	$1,085

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5
5-year warranty

Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series	Linkage List Price
C200 Square Top Series Butterfly Valves	2-way	No	2″	UFLK1300	AM	$553
				UFLKP004	PR	$1,000
			2½″	UFLK1300	GM	$553
				UFLKP004	PR	$1,000
			3″	UFLK1300	GM	$553
				UFLKP004	PR	$1,000
			4″	UFLK1308	2*GM	$696
				UFLKP011	PR	$1,000
			5″	UFLKP016	PR	$1,000
			6″	UFLKP016	PR	$1,000
			8″	UFLK1346	SY4	$1,000
			10″	UFLK1348	SY4	$1,000
			12″	UFLK1350	SY5	$1,000
			14″	UFLK1350	SY5	$1,000
			16″	UFLK1352	SY7	$1,000
			18″	UFLK1354	SY8	$1,000
			20″	UFLK1356	SY8	$1,000
			24″	UFLK1358	SY10	$1,072
		Yes	2″	UFLK1300	AF	$553
			2½″	UFLK1302	2*AF	$696
				UFLK1300	GK	$553
			3″	UFLK1302	2*AF	$696
				UFLK1300	GK	$553
			4″	UFLK1308	2*GK	$696
			5″	UFLKP016	PKR	$1,000
			6″	UFLKP016	PKR	$1,000
	3-way	No	2″	UFLK4300	AM	$1,000
				UFLKP104	PR	$1,825
			2½″	UFLK4300	GM	$1,000
				UFLKP104	PR	$1,825
			3″	UFLK4302	2*GM	$1,072
				UFLKP104	PR	$1,825
			4″	UFLK4308	2*GM	$1,072
				UFLKP111	PR	$1,825
			5″	UFLKP116	PR	$1,453
			6″	UFLK4346	SY4	$1,484
			8″	UFLK4348	SY4	$1,453
			10″	UFLK4350	SY5	$1,523
			12″	UFLK4352	SY7	$1,875
			14″	UFLK4352	SY7	$1,875
			16″	UFLK4354	SY8	$2,907
			18″	UFLK4356	SY9	$3,738
			20″	UFLK4358	SY10	$3,738
		Yes	2″	UFLK4302	2*AF	$1,072
			2½″	UFLK4302	2*AF	$1,072
				UFLK4300	GK	$1,000
			3″	UFLK4302	2*GK	$1,072
			4″	UFLK4308	2*GK	$1,072

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Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series	Linkage List Price
C225 Square Top Series Butterfly Valves	2-way	No	2″	UFLK1400	GM	$626
				UFLKP004	PR	$1,000
			2½″	UFLK1400	GM	$626
				UFLKP004	PR	$1,000
			3″	UFLK1400	GM	$626
				UFLKP004	PR	$1,000
			4″	UFLK1408	2*GM	$696
				UFLKP011	PR	$1,000
			5″	UFLKP016	PR	$1,000
			6″	UFLK1444	SY4	$1,072
			8″	UFLK1446	SY4	$1,000
			10″	UFLK1448	SY5	$1,000
			12″	UFLK1450	SY6	$1,000
			14″	UFLK1452	SY7	$1,000
			16″	UFLK1454	SY9	$1,376
			18″	UFLK1456	SY10	$1,376
			20″	UFLK1458	SY10	$1,072
		Yes	2″	UFLK1402	2*AF	$842
				UFLK1400	GK	$626
			2½″	UFLK1402	2*AF	$842
				UFLK1400	GK	$626
			3″	UFLK1402	2*AF	$842
				UFLK1400	GK	$626
			4″	UFLK1408	2*GK	$696
				UFLKP011	PKR	$1,000
			5″	UFLKP016	PKR	$1,000
	3-way	No	2″	UFLK4400	GM	$1,000
				UFLKP104	PR	$1,825
			2½″	UFLK4400	GM	$1,000
				UFLKP104	PR	$1,825
			3″	UFLK4402	2*GM	$1,072
				UFLKP104	PR	$1,825
			4″	UFLKP111	PR	$1,825
			5″	UFLKP116	PR	$1,453
			6″	UFLK4444	SY4	$1,453
			8″	UFLK4446	SY5	$1,825
			10″	UFLK4448	SY7	$1,825
			12″	UFLK4450	SY8	$1,825
			14″	UFLK4452	SY8	$1,825
			16″	UFLK4454	SY12	$3,738
		Yes	2″	UFLK4400	GK	$1,000
			2½″	UFLK4400	GK	$1,000
			3″	UFLK4402	2*GK	$1,072
				UFLKP104	PKR	$1,825
			4″	UFLKP111	PKR	$1,825
			5″	UFLKP116	PKR	$1,453
JOHNSON CONTROLS						
VF.. (H) Series Butterfly Valves	2-way	No	2″	UFLK2100	GM	$547
			2½″	UFLK2100	GM	$547
				UFLKP007	PR	$1,072
			3″	UFLK2100	GM	$547
				UFLKP007	PR	$1,072
			4″	UFLK2108	2*GM	$696
				UFLKP009	PR	$1,072
			5″	UFLKP015	PR	$1,072
			6″	UFLK2144	SY4	$1,072
			8″	UFLK2158	SY4	$1,072
		Yes	2″	UFLK2102	2*AF	$696
				UFLK2100	GK	$547
			2½″	UFLK2102	2*AF	$696
				UFLK2100	GK	$547
			3″	UFLK2102	2*AF	$696
				UFLK2100	GK	$547
			4″	UFLK2108	2*GK	$696

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Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series	Linkage List Price
VF.. (H) Series Butterfly Valves	3-way	No	2″	UFLK5100	GM	$1,072
			2½″	UFLK5102	2*GM	$1,154
			3″	UFLK5102	2*GM	$1,154
			4″	UFLKP109	PR	$1,453
			5″	UFLK5136	SY4	$1,825
			6″	UFLK5136	SY4	$1,825
			8″	UFLK5138	SY5	$1,825
			12″	UFLK5142	SY7	$1,825
			14″	UFLK5144	SY8	$1,825
			16″	UFLK5146	SY9	$3,738
			18″	UFLK5148	SY11	$3,738
			20″	UFLK5150	SY12	$3,738
		Yes	2″	UFLK5102	2*AF	$1,154
				UFLK5100	GK	$1,072
			2½″	UFLK5102	2*GK	$1,154
			3″	UFLK5102	2*GK	$1,154
KEYSTONE						
360/362 Series Butterfly Valves, K-LOK	2-way	No	4″	UFLKP013	PR	$1,073
			5″	UFLKP013	PR	$1,073
			10″	UFLK2452	SY4	$1,072
	3-way	No	2½″	UFLK5400	GM	$1,000
			4″	UFLK5414	2*GM	$1,154
			10″	UFLK5450	SY4	$1,825
			14″	UFLK5454	SY7	$2,907
			16″	UFLK5456	SY8	$2,907
			18″	UFLK5458	SY9	$3,738
			20″	UFLK5460	SY11	$3,738
			24″	UFLK5462	SY12	$3,738
		Yes	2½″	UFLK5402	2*AF	$1,154
				UFLK5400	GK	$1,000
			3″	UFLK5408	2*GK	$1,154
			4″	UFLK5414	2*GK	$1,154
370/372 Series Butterfly Valves, K-LOK	2-way	No	4″	UFLK2530	SY4	$1,072
			5″	UFLK2530	SY4	$1,072
	3-way	No	4″	UFLK5530	SY4	$1,825
			5″	UFLK5530	SY4	$1,825
			8″	UFLK5534	SY8	$1,825
			14″	UFLK5540	SY12	$3,738
AR1/AR2 Series Butterfly Valves	2-way	No	2″	UFLK2300	GM	$638
			2½″	UFLK2300	GM	$638
			3″	UFLK2300	GM	$638
			4″	UFLK2308	2*GM	$693
				UFLKP009	PR	$1,072
			5″	UFLKP013	PR	$1,073
			6″	UFLK2356	SY4	$992
			8″	UFLK2342	SY4	$1,000
			10″	UFLK2344	SY5	$1,057
			12″	UFLK2346	SY7	$1,289
			24″	UFLK2354	SY12	$1,401
		Yes	2″	UFLK2300	GK	$638
			2½″	UFLK2300	GK	$638
			3″	UFLK2300	GK	$638
			4″	UFLK2308	2*GK	$693
	3-way	No	2″	UFLK5300	GM	$1,000
			2½″	UFLK5300	GM	$1,000
			4″	UFLKP109	PR	$1,453
			5″	UFLK5338	SY4	$1,825
			6″	UFLK5338	SY4	$1,825
			8″	UFLK5340	SY5	$1,825
			12″	UFLK5344	SY8	$1,964
			16″	UFLK5348	SY10	$3,738
			18″	UFLK5350	SY12	$3,738
		Yes	2″	UFLK5302	2*AF	$1,154
				UFLK5300	GK	$1,000
			2½″	UFLK5302	2*AF	$1,154
				UFLK5300	GK	$1,000
			3″	UFLK5302	2*GK	$1,154

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Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series	Linkage List Price
Figure 222/221 Series Butterfly Valves	2-way	No	2″	UFLK2200	GM	$548
				UFLKP003	PR	$1,072
			2½″	UFLK2200	GM	$548
				UFLKP003	PR	$1,072
			3″	UFLK2200	GM	$548
				UFLKP003	PR	$1,072
			4″	UFLK2208	2*GM	$696
				UFLKP009	PR	$1,072
			5″	UFLKP013	PR	$1,073
			6″	UFLK2232	SY4	$1,000
			8″	UFLK2234	SY4	$1,000
			10″	UFLK2236	SY5	$1,000
			12″	UFLK2238	SY7	$1,299
		Yes	2″	UFLK2202	2*AF	$696
				UFLK2200	GK	$548
			2½″	UFLK2202	2*AF	$696
				UFLK2200	GK	$548
			3″	UFLK2202	2*AF	$696
				UFLK2200	GK	$548
			4″	UFLK2208	2*GK	$696
	3-way	No	2″	UFLK5200	GM	$872
				UFLKP103	PR	$1,825
			2½″	UFLK5200	GM	$872
				UFLKP103	PR	$1,825
			3″	UFLK5202	2*GM	$1,154
				UFLKP103	PR	$1,825
			4″	UFLKP109	PR	$1,453
			5″	UFLK5228	SY4	$1,825
			6″	UFLK5228	SY4	$1,825
			8″	UFLK5230	SY5	$1,825
			10″	UFLK5232	SY7	$1,964
			12″	UFLK5234	SY8	$1,964
		Yes	2″	UFLK5202	2*AF	$1,154
				UFLK5200	GK	$872
			2½″	UFLK5202	2*AF	$1,154
				UFLK5200	GK	$872
			3″	UFLK5202	2*GK	$1,154
MILWAUKEE						
CL Series Butterfly Valves	2-way	No	2″	UFLK2600	AM	$696
			2½″	UFLK2600	AM	$696
			3″	UFLK2600	GM	$696
			4″	UFLK2608	2*GM	$858
				UFLKP005	PR	$1,072
			5″	UFLK2608	2*GM	$858
				UFLKP005	PR	$1,072
			6″	UFLKP010	PR	$1,000
			8″	UFLK2634	SY4	$1,000
			10″	UFLK2636	SY4	$1,000
			12″	UFLK2636	SY5	$1,000
		Yes	2″	UFLK2600	AF	$696
			2½″	UFLK2600	AF	$696
			3″	UFLK2600	GK	$696
			4″	UFLK2608	2*GK	$858
			5″	UFLK2608	2*GK	$858
	3-way	No	2″	UFLK5600	AM	$1,146
			2½″	UFLK5600	GM	$1,146
			3″	UFLK5600	GM	$1,146
			4″	UFLK5608	2*GM	$1,146
			6″	UFLK5628	SY4	$1,825
			8″	UFLK5630	SY4	$1,825
			10″	UFLK5632	SY6	$1,825
		Yes	2½″	UFLK5602	2*AF	$1,146
				UFLK5600	GK	$1,146
			3″	UFLK5602	2*AF	$1,146
				UFLK5600	GK	$1,146
ML Series Butterfly Valves	2-way	No	2″	UFLK2700	AM	$547
			2½″	UFLK2700	AM	$547
			3″	UFLK2700	GM	$547
			4″	UFLK2708	2*GM	$681
				UFLKP005	PR	$1,072

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Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series	Linkage List Price
ML Series Butterfly Valves	2-way	No	5″	UFLK2708	2*GM	$681
				UFLKP005	PR	$1,072
			6″	UFLKP010	PR	$1,000
			8″	UFLK2740	SY4	$1,072
			10″	UFLK2742	SY4	$1,072
			12″	UFLK2742	SY5	$1,072
			14″	UFLK2744	SY7	$1,072
			16″	UFLK2744	SY7	$1,072
		Yes	2″	UFLK2700	AF	$547
			2½″	UFLK2700	AF	$547
			3″	UFLK2700	GK	$547
			4″	UFLK2708	2*GK	$681
			5″	UFLK2708	2*GK	$681
	3-way	No	2″	UFLK5700	AM	$872
			3″	UFLK5700	GM	$872
			4″	UFLK5708	2*GM	$1,146
			8″	UFLK5740	SY4	$1,825
			10″	UFLK5742	SY6	$1,825
			12″	UFLK5744	SY7	$1,825
			14″	UFLK5746	SY8	$1,825
			16″	UFLK5748	SY9	$3,738
			20″	UFLK5750	SY11	$3,738
	2-way	Yes	2″	UFLK5702	2*AF	$1,146
			2½″	UFLK5702	2*AF	$1,146
			3″	UFLK5702	2*AF	$1,146
				UFLK5700	GK	$872
			4″	UFLK5708	2*GK	$1,146
NIBCO						
LD1/WD1 Series Butterfly Valves	2-way	No	14″	UFLK2960	SY7	$1,289
			16″	UFLK2968	SY8	$1,289
	3-way	No	14″	UFLK5956	SY8	$2,907
			16″	UFLK5958	SY9	$2,907
			18″	UFLK5960	SY10	$2,907
			20″	UFLK5962	SY12	$2,907
LD(C)2/WD(C)2, LD(C)3 Series Butterfly Valves	2-way	No	2″	UFLK2900	GM	$598
			2½″	UFLK2908	GM	$548
				UFLKP002	PR	$1,072
			3″	UFLK2910	2*GM	$782
				UFLKP002	PR	$1,072
			4″	UFLK2916	2*GM	$782
				UFLKP006	PR	$1,072
			5″	UFLKP012	PR	$938
			6″	UFLKP012	PR	$938
			8″	UFLK2954	SY4	$1,000
			10″	UFLK2956	SY4	$1,006
			12″	UFLK2958	SY6	$1,168
		Yes	2″	UFLK2902	2*AF	$696
				UFLK2900	GK	$598
			2½″	UFLK2910	2*AF	$782
				UFLK2908	GK	$548
			3″	UFLK2910	2*GK	$782
			4″	UFLK2916	2*GK	$782
			5″	UFLKP012	PKR	$938
			6″	UFLKP012	PKR	$938
	3-way	No	2″	UFLK5900	GM	$931
			2½″	UFLK5910	2*GM	$1,154
			3″	UFLK5910	2*GM	$1,154
			4″	UFLKP106	PR	$1,453
			5″	UFLK5948	SY4	$1,825
			6″	UFLK5948	SY4	$1,825
			8″	UFLK5950	SY6	$1,825
			12″	UFLK5954	SY8	$1,919
		Yes	2″	UFLK5902	2*AF	$1,154
				UFLK5900	GK	$931
			2½″	UFLK5910	2*GK	$1,154
			3″	UFLK5910	2*GK	$1,154

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Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series	Linkage List Price
Masterseal (New Style) Series Butterfly Valves	2-way	No	2″	UFLK8172	AM	$511
				UFLKP001	PR	$1,006
			2½″	UFLK8172	GM	$511
				UFLKP001	PR	$1,006
			3″	UFLK8172	GM	$511
				UFLKP001	PR	$1,006
			4″	UFLK8176	2*GM	$687
				UFLKP008	PR	$1,000
			5″	UFLKP013	PR	$1,073
			6″	UFLKP013	PR	$1,073
			8″	UFLK8188	SY4	$1,021
			10″	UFLK8190	SY5	$1,021
			12″	UFLK8190	SY6	$1,021
		Yes	2″	UFLK8174	2*AF	$593
			2½″	UFLK8174	2*AF	$593
				UFLK8172	GK	$511
			3″	UFLK8172	GK	$511
			4″	UFLK8176	2*GK	$687
			4″	UFLKP008	PKR	$1,000
			5″	UFLKP013	PKR	$1,073
			6″	UFLKP013	PKR	$1,073
	3-way	No	2″	UFLK7400	GM	$1,000
				UFLKP101	PR	$2,048
			2½″	UFLK7402	2*GM	$1,058
				UFLKP101	PR	$2,048
			3″	UFLKP101	PR	$2,048
			4″	UFLKP108	PR	$1,453
			5″	UFLKP113	PR	$1,465
			6″	UFLK7412	SY4	$1,465
			8″	UFLK7414	SY4	$2,366
			10″	UFLK7416	SY6	$1,859
			12″	UFLK7418	SY7	$2,344
		Yes	2″	UFLK7402	2*AF	$1,058
				UFLK7400	GK	$1,000
			2½″	UFLK7402	2*GK	$1,058
			2½″	UFLKP101	PKR	$2,048
			3″	UFLKP101	PKR	$2,048
			4″	UFLKP108	PKR	$1,453
			5″	UFLKP113	PKR	$1,465
Vic300 (Old Style) Series Butterfly Valves	2-way	No	2″	UFLK3300	AM	$735
			2½″	UFLK3308	AM	$648
			3″	UFLK3308	GM	$648
			4″	UFLK3316	2*GM	$717
			8″	UFLK3352	SY4	$1,087
			10″	UFLK3354	SY4	$1,098
			12″	UFLK3356	SY4	$1,008
		Yes	2″	UFLK3300	AF	$735
			2½″	UFLK3308	AF	$648
			3″	UFLK3310	2*AF	$626
				UFLK3308	GK	$648
			4″	UFLK3316	2*GK	$717
	3-way	No	2″	UFLK6300	GM	$1,376
			2½″	UFLK6308	GM	$1,376
			6″	UFLK6348	SY4	$1,822
			8″	UFLK6350	SY4	$1,839
			10″	UFLK6352	SY5	$1,932
			12″	UFLK6354	SY6	$1,932
		Yes	2″	UFLK6300	AF	$1,376
				UFLK6300	GK	$1,376
			2½″	UFLK6310	2*AF	$1,299
				UFLK6308	GK	$1,376

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Specialty Retrofit Solutions for Valve Manufacturers

Belimo offers specialty linkage solutions for the manufacturers in the chart below.
Please contact technical support for a quotation.

Valve Company	Butterfly Valve Series	Valve Configuration
Apollo	141/143 Series	2-way
		3-way
Belimo	HS, HSU, HD, HDU Series	2-way
		3-way
Challenger	CH100 Series	2-way
		3-way
Chemtrol	PVC Model C Series	2-way
		3-way
Dezurik	BRS Series	2-way
		3-way
Flowseal	1 L/W Series	2-way
		3-way
	3 L/W Series	2-way
		3-way
FNW	Figure 1000/2000 Series	2-way
		3-way
Gruvlok	Figure 7700 (Double D Shaft 2003 and Newer) Series	2-way
		3-way
	Figure 7700 (Sheared Pin Shaft Pre 2003) Series	2-way
		3-way
Hammond	61/62 Series	2-way
		3-way
Jamesbury	815 L/W Series	2-way
		3-way
	830 L/W Series	2-way
		3-way
Jenkins	22XXEXJ Series	2-way
		3-way
Metraflex	200 WOG Series	2-way
		3-way
Mueller	65/66 Series	2-way
		3-way
PDC	27 Series	2-way
		3-way
Quartermaster	42/44 Series	2-way
		3-way
Watts	DBF Series (pre 2009)	2-way
		3-way

Considerations:

- Every retrofit solution is available in 2-way and 3-way configurations.
- Kits do not require completed retrofit form; only the make, model, and size of the competitor valve are required.
- Pricing and delivery vary with complexity.

New smart retrofit forms for butterfly valves, globe valves, and ball valves can be found on www.belimo.us.

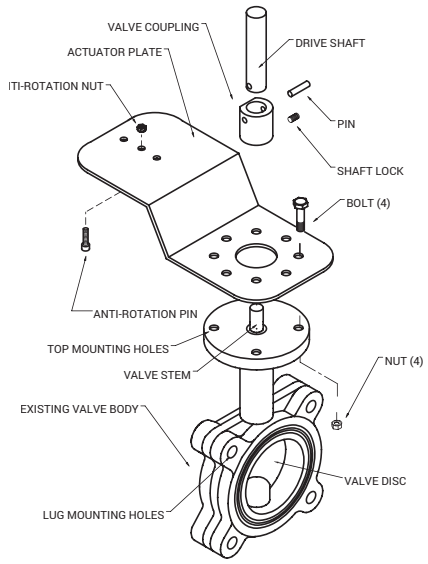
Legacy paper forms will no longer be accepted.



RETROFIT SOLUTIONS

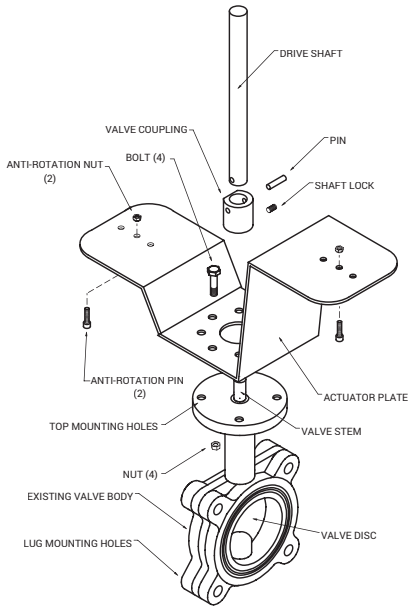
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2-way Single Actuator
Generic – Retrofit Form Required



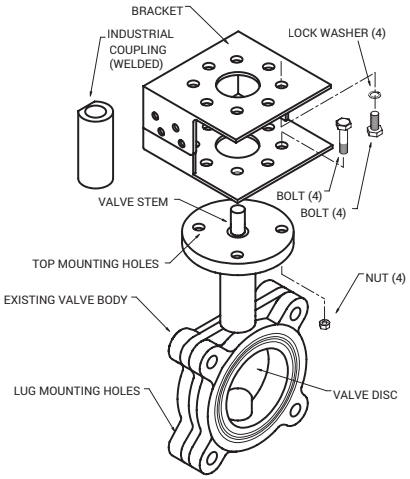
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2-way Dual Actuator
Generic – Retrofit Form Required



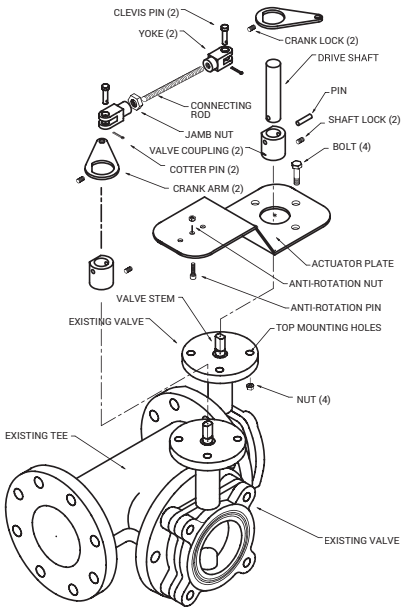
UFSP0008 $1,407

2-way SY / PR / PKR Actuator
Generic – Retrofit Form Required



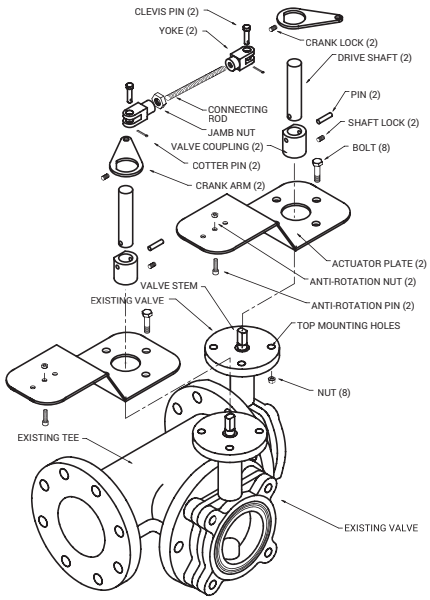
UFSP0020* PR, PKR, SY4...SY8 $1,247
UFSP0022* SY9...SY12 $2,147

3-way Single Actuator
Generic – Retrofit Form Required



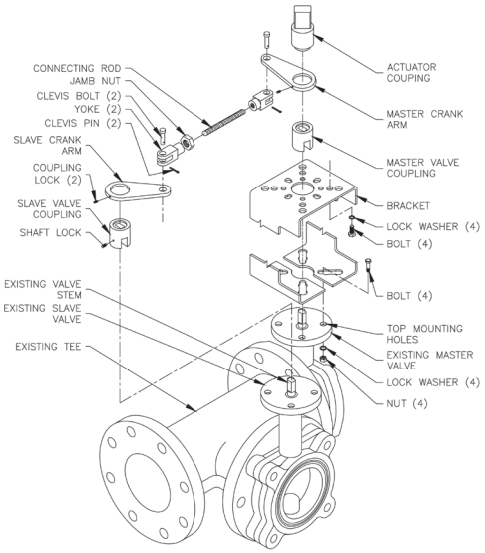
UFSP0002 $1,407

3-way Dual Actuator
Generic – Retrofit Form Required



UFSP0010 $1,533

3-way SY / PR / PKR Actuator
Generic – Retrofit Form Required



UFSP0024* PR, PKR, SY4...SY8 $2,238
UFSP0026* SY9...SY12 $3,184

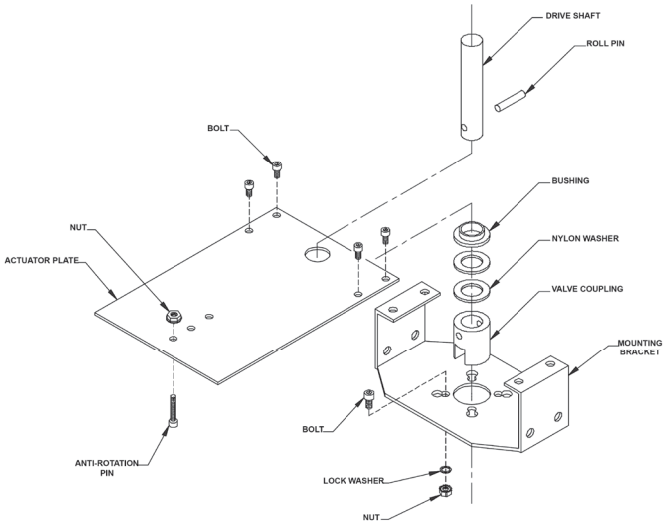
NOTE: 3-way bracket configuration shown is only one of many possible arrangements. Custom kits are designed to your unique specification and are not returnable.

*Reference page 22-50 Keystone AR1/AR2 for approximate actuator sizing.

5
5-year warranty

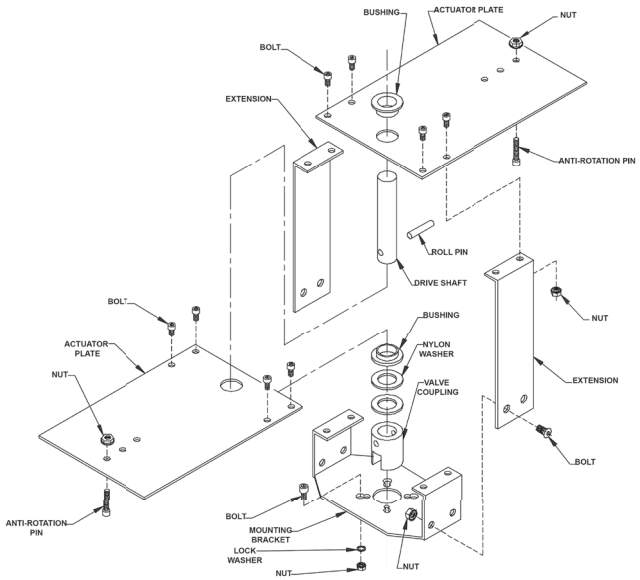
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2-way/3-way Single Actuator
Generic – Retrofit Form Required



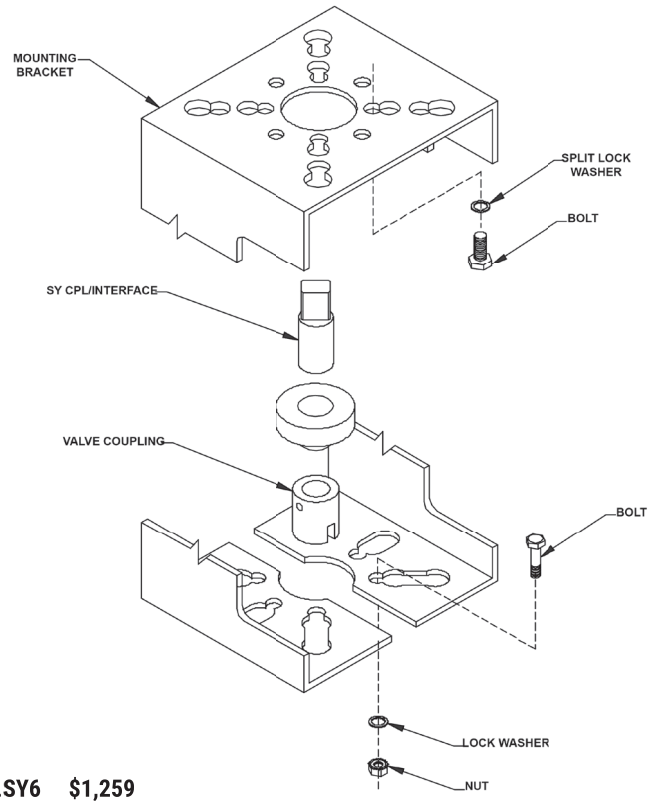
UBSP0004 $1,015

2-way/3-way Dual Actuator
Generic – Retrofit Form Required



UBSP0006 $1,378

Industrial Electronic 2-way/3-way
Generic – Retrofit Form Required



UBSP0008 PR, PKR, SY4...SY6 $1,259

UBSP0012 SY7...SY9 $2,115

Custom kits are designed to your unique specification and are not returnable.

New smart retrofit forms for butterfly valves, globe valves, and ball valves can be found on www.belimo.us.

Legacy paper forms will no longer be accepted.

5-year warranty

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23 APPENDIX

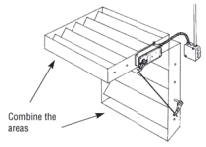
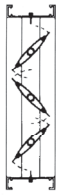
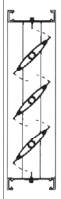
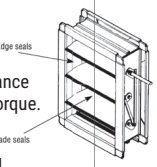
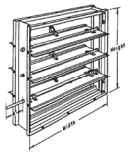
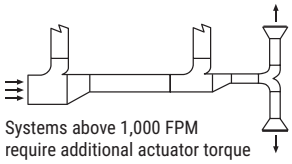
Quality, Reliability, Ease of Doing Business

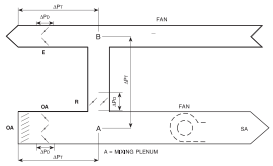
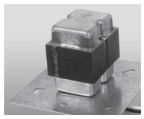
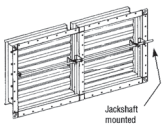
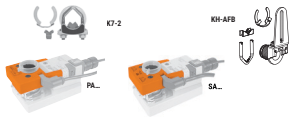
- Damper actuator and valve sizing.
- Valve quotation form.
- Terms and conditions.
- Actuator and valve specifications.
- Belimo platinum distributors.

Roberto Perculeza, Quality Assurance Engineer

How to Select a Damper Actuator

The "10 questions" method for sizing and selection shown below is recommended as the best method for your actuation requirements. Use the "Application Data" column in this chart as a worksheet to help in the selection process.

APPLICATION INFO			APPLICATION DATA
1	**What is the total area of the damper?**		_____ **sq.ft.**
2	**Opposed blade or Parallel blade construction?**	L" x W" = Total sq. inches/144 = total sq. feet **Opposed Blade w/o seals 3 in-lb/sq. feet*** **Opposed Blade w/ seals 5 in-lb/sq. feet** **Parallel Blade w/o seals 4 in-lb/sq. feet** **Parallel Blade w/ seals 7 in-lb/sq. feet** ***Less than 1,000 feet per minute**  	☐ **Opposed Blade** ☐ **Parallel Blade**
3	**Are there blade and edge seals on the damper?**	This will impact the proper selection as the seals add resistance requiring more torque. If unknown, use a worst case scenario, parallel blade with seals. 	☐ **Yes** ☐ **No**
4	**For the damper in question, what does the manufacturer specify as the torque rating?**	 If this information is not available refer to the "typical damper requirements and sizing" chart below.	_____ **in-lb/sq.ft.**
5	**What is the air velocity, static pressure, or design CFM?**	 Systems above 1,000 FPM require additional actuator torque	_____**W.G.** _____**CFM** _____**FPM**

ACTUATOR REQUIREMENTS			APPLICATION DATA
6	**Is fail-safe actuation required?**	 Consider the application. Is the actuator and/or damper exposed to outside air? If yes, use fail-safe actuator.	☐ **Yes** ☐ **No**
7	**What is the supply voltage to the actuator?** • AC/DC 24 V • AC 120 V • AC 230 V single phase	Do you need a step down transformer?  If replacing an oil immersed gear train actuator, is the transformer in the defective actuator? You may need to purchase one.	☐ **AC 24 V** ☐ **AC 120 V** ☐ **AC 230 V**
8	**What is the control signal to the actuator?**	 • 2 position • Floating point • Modulating • Sequencing • "Non-standard" voltage signals This will be a critical component to the selection of an actuator. Consider the ..MFT actuator product range and the flexibility of its application.	☐ **On/Off** ☐ **Floating Point** ☐ **2...10 V** ☐ **0.5...10 V** ☐ **4...20 mA** ☐ **PWM____ range** ☐ **Other (MFT)**
9	**Can you direct couple to a damper shaft?**	 Direct-coupling has become the industry standard. Some retrofit applications do not allow direct coupling. Refer to the Belimo "Mounting & Methods Guide" for application details.	☐ **Yes** ☐ **No, see accessories page**
10	**Are there additional accessories required?**	 For example, some applications require the addition of an auxiliary switch for proof of position; a retrofit application may require an additional mounting bracket and linkage kit. We advise that you identify these needs prior to leaving the job site or ordering products.	☐ **No** ☐ **Yes, see accessories section or actuator series for details**

TYPICAL DAMPER REQUIREMENTS AND SIZING

Calculate the Area (ft^2) of Rectangular or Square Damper: ft^2 = h x w /144; (h = height, w = width, in inches)

EXAMPLE: Damper Area (8 ft^2) x Rated Torque Loading of Damper (4 in-lb/ft^2) = Total in-lb Required (32 in-lb) **Belimo LF 35 in-lb/ LM 45 in-lb actuators**

SQUARE

	Torque Loading in-lb/ft^2		
Damper Blade Type	**< 1000 FPM**	**1000-2500 FPM**	**2500-3500 FPM**
Parallel blade/edge seals	**7 (Typical)**	10.5	14
Opposed blade/edge seals	**5 (Typical)**	7.5	10
Parallel blade/no edge seals	4	6	8
Opposed blade/no edge seals	3	4.5	6
Round	10	14	20

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APPENDIX

TYPICAL DAMPER REQUIREMENTS AND SIZING EXAMPLE:

APPLICATION REQUIREMENTS	RECTANGULAR (OR SQUARE) DAMPER	ROUND DAMPER
Damper Length	24"	
Damper Width	12"	
Damper (Round)		12"
Blade Type	Opposed	Round
Edge Seals	Edge Seals	
Design CFM	1800 CFM	700 CFM
Fail-Safe	Yes	Yes
Supply Voltage	24 V	24 V
Control Signal	2...10 V	2...10 V
CALCULATIONS		
Damper Area (sq. inches)	24" x 12" = 288 in^2	πr^2 =113.04 in^2
Damper Area (sq. feet)*	288 in^2 / 144 $in\text{-}ft^2$ = 2 ft^2	113.04 in^2 / 144 $in\text{-}ft^2$ = 0.785 ft^2
Velocity	1800 ft^3/min / 2 ft^2 = 900 ft/min	700 ft^3/min / .785 ft^2 = 892 ft/min
	See chart under <1000 FPM (ft/min)	See chart under <1000 FPM (ft/min)
Rated Torque Loading (in-lb/ft^2)**	Select 5 in-lb/ft^2 for Opposed Blade/Edge Seals	Select 10 in-lb/ft^2 for Round Damper
EXAMPLE EQUATION	***Damper Area (ft^2) x **Rated Torque Loading of Damper (in-lb/ft^2) = Total in-lb Required**	
	2 ft^2 x 5 in-lb/ft^2 = 10 in-lb Belimo TFB24-SR @ 22 in-lb	0.785 ft^2 x 10 in-lb/ft^2 = 7.85 in-lb Belimo TFB24-SR @ 22 in-lb

CONTROL SIGNAL OVERVIEW

Belimo actuators are compatible with many control inputs and all direct digital control (DDC) systems. There are many signals to select from with today's controllers.

On/Off (or open / close): The actuator is able to drive either to its full clockwise (CW) position, or to its full counter-clockwise (CCW) position.

Floating Point (or 3-point, Tri-State): The actuator has both clockwise (CW) and counter-clockwise (CCW) control inputs. One drives the actuator to its CW, the other to its CCW position. If there is no signal (Null point) on either input the actuator simply stays in its last position.

Modulating (Proportional) Control: The actuator drives to its control signal input throughout its angle of rotation. This control type is usually a variation of VDC with typical ranges of 0.5...10 V and 2...10 V.

It is common to also have a 4...20 mA output from a controller. This can be very easily converted to 2...10 V with a 500 Ω resistor.

Pulse Width Modulation (PWM): The actuator drives to a specified position according to a pulse duration, the "length" of signal. The pulse can originate from a dry contact closure or a triac sink or source controller. An example of PWM control:

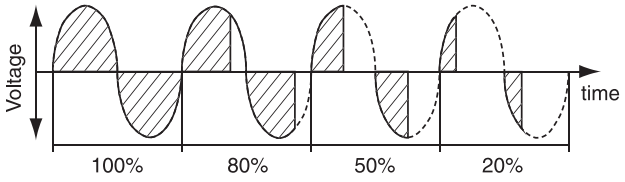
Time base: 0...10 seconds

Output pulse: 5 seconds

Actuator position: 50%

See -MFT model actuators.

Phasecut: An actuator drives depending on the power result of a remaining wave. This signal type cuts a portion of an AC sine wave and the actuator recognizes this signal as a modulating movement. See actuator model AFB24-PC.



Multi-Functional Technology (MFT): This technology was developed by Belimo for incorporation into our damper and valve actuators. MFT provides the ability to program certain characteristics of the actuators. Some of the key characteristics to change are:

CONTROL INPUT
Selectable on/off, V, PWM or floating point

MOTION VALUES
Selectable running time adjustment

FEEDBACK
Selectable feedback values

0-135 Ω: The actuator drives to a modulating position proportional to the ohm signal of the controller. See actuator model AFB24-MFT95.

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PRESSURE DEPENDENT, ON/OFF APPLICATION

APPLICABLE PRODUCTS

CCV, HTCCV, GLOBE, BALL, QCV

REQUIRED INFORMATION

FOR SIZING:
- flow in GPM
- ΔP (if none given, utilize 1 psi)

FOR SELECTION:
- 2-way or 3-way valve
- pipe size
- media temperature
- fail-safe or non fail-safe
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

EQUATIONS USED

$$C_V = \frac{Q^* \sqrt{G}}{\sqrt{\Delta P}} \qquad \Delta P = \left[\frac{Q^* \sqrt{G}}{C_V}\right]^2 \qquad Fp = \frac{1}{\sqrt{1 + \left\{\left[1.5\left(1 - \frac{d^2}{D^2}\right)^2\right]\left[\left(\frac{Cv}{d^2}\right)^2\right]\right\}}}$$

C_V = Required C_V
Q = Flow in Gallons per Minute
G = Specific gravity of fluid (estimated as 1 for water systems)
ΔP = Differential pressure over valve (deltaP) – stated in psi
Fp = Piping correction factor
C_VC = Published C_V * Fp
d = Valve diameter
D = Pipe diameter

PROCEDURE

1) Calculate C_V
2) Choose valve type (CCV, Globe, etc)
3) Choose valve model number that has closest C_V rating (normally round down unless maximum ΔP for project is exceeded)
   a. Refer to section 10 for QCV
   b. Refer to section 12 for CCV (F_p correction required)
   c. Refer to section 13 for HTCCV
   d. Refer to sections 14 and 15 for Ball valves (F_p correction required)
   e. Refer to section 16 for Globe valves

NOTE: If valve selection requires piping correction factor (F_p), calculate C_VC based on Fp Equation.

4) Calculate actual ΔP based upon C_V of valve selected
5) If calculated ΔP is within project specified limits, proceed with actuator selection
6) If #5 is no, need to select a valve with a higher C_V
7) Select actuator based upon selection parameters above
8) Based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

EXAMPLE OF C_V CALCULATION

i.e. GPM is 50
i.e. SG is 1
i.e. ΔP = 1 psi

C_V = 50 GPM * sqrt of SG1/sqrt of 1 psi
C_V = 50 GPM/1 = 50

$$C_V = \frac{50^* \sqrt{1}}{\sqrt{1}} = 50$$

PRESSURE DEPENDENT, MODULATING APPLICATION

APPLICABLE PRODUCTS

CCV, HTCCV, GLOBE, BALL, QCV

REQUIRED INFORMATION

FOR SIZING:
- flow in GPM
- ΔP (if none given, utilize 3...5 psi)

FOR SELECTION:
- 2-way or 3-way valve
- pipe size
- media temperature
- fail-safe or non fail-safe
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

EQUATIONS USED

$$C_V = \frac{Q^* \sqrt{G}}{\sqrt{\Delta P}} \qquad \Delta P = \left[\frac{Q^* \sqrt{G}}{C_V}\right]^2 \qquad Fp = \frac{1}{\sqrt{1 + \left\{\left[1.5\left(1 - \frac{d^2}{D^2}\right)^2\right]\left[\left(\frac{Cv}{d^2}\right)^2\right]\right\}}}$$

C_V = Required C_V
Q = Flow in Gallons per Minute
G = Specific gravity of fluid (estimated as 1 for water systems)
ΔP = Differential pressure over valve (deltaP) – stated in psi
Fp = Piping correction factor
C_VC = Published C_V * Fp
d = Valve diameter
D = Pipe diameter

PROCEDURE

1) Calculate C_V
2) Choose valve type (CCV, Globe, etc)
3) Choose valve model number that has closest C_V rating (normally round down unless maximum ΔP for project is exceeded)
   a. Refer to section 10 for QCV
   b. Refer to section 12 for CCV (F_p correction required)
   c. Refer to section 13 for HTCCV
   d. Refer to sections 14 and 15 for Ball valves (F_p correction required)
   e. Refer to section 16 for Globe valves

NOTE: If valve selection requires piping correction factor (F_p), calculate C_VC based on Fp Equation.

4) Calculate actual ΔP based upon C_V of valve selected
5) If calculated ΔP is within project specified limits, proceed with actuator selection
6) If #5 is no, need to select a valve with a higher C_V
7) Select actuator based upon selection parameters above
8) Based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

EXAMPLE OF C_V CALCULATION

i.e. Pressure drop through the coil is 3 psi, then the pressure drop across the valve should be approximately 3 psi. Let us use 4 psi for example.
i.e. GPM is 50
i.e. SG is 1
i.e. ΔP = 4 psi

C_V = 50 GPM * sqrt of SG1/sqrt of 4 psi
C_V = 50 GPM/2 = 25

$$C_V = \frac{50^* \sqrt{1}}{\sqrt{4}} = 25$$

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PRESSURE INDEPENDENT, ON/OFF, FLOATING APPLICATION

APPLICABLE PRODUCTS

EPIV, ENERGY VALVE, PIQCV

REQUIRED INFORMATION

FOR SIZING:
- flow in GPM
- line size

FOR SELECTION:
- 2-way valves only
- pipe size
- media temperature
- fail-safe or non fail-safe
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

EQUATIONS USED

No equations are required. Choose the valve that has the closest GPM to the requirement and round up to next available flow.

PROCEDURE

1) Obtain required GPM
2) Choose valve model number that has closest GPM rating (round up)
   - Refer to section 6 for Energy Valve
   - Refer to section 7 for EPIV
   - Refer to section 8 for PIQCV
3) In general, do not select a valve less than ½ of the line size but, it's recommended to keep the valve within a two pipe size reduction
4) Select actuator based upon selection parameters above
5) Based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

EXAMPLE OF SELECTION

87 GPM is needed – choose 100 GPM valve P2200SU-1000
The design flow can be adjusted in the field or ordered by factory

PRESSURE INDEPENDENT, MODULATING APPLICATION

APPLICABLE PRODUCTS

EPIV, ENERGY VALVE, PIQCV

REQUIRED INFORMATION

FOR SIZING:
- flow in GPM
- line size

FOR SELECTION:
- 2-way valves only
- pipe size
- media temperature
- fail-safe or non fail-safe
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

EQUATIONS USED

No equations are required. Choose the valve that has the closest GPM to the requirement and round up to next available flow.

PROCEDURE

1) Obtain required GPM
2) Choose valve model number that has closest GPM rating (round up)
   - Refer to section 6 for Energy Valve
   - Refer to section 7 for EPIV
   - Refer to section 8 for PIQCV
3) In general, do not select a valve less than ½ of the line size but, it's recommended to keep the valve within a two pipe size reduction
4) Select actuator based upon selection parameters above
5) Based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

EXAMPLE OF SELECTION

87 GPM is needed – choose 100 GPM valve P2200SU-1000
The design flow can be adjusted in the field or ordered by factory.

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LOW PRESSURE STEAM (15 PSI AND UNDER), ON/OFF APPLICATION

APPLICABLE PRODUCTS

HTCCV, GLOBE, VS/VSS/V BALL, SHP BUTTERFLY

REQUIRED INFORMATION

FOR SIZING:
- flow in lb/hr
- ΔP (if none given, 10% psi or line size valve)
- Is it a 1/3 – 2/3 application?

FOR SELECTION:
- 2-way valve only
- pipe size
- media temperature
- fail-safe or non fail-safe actuation
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

EQUATIONS USED

$$C_v = \frac{Q}{3 * \sqrt{h * P_o}}$$

$$Fp = \frac{1}{\sqrt{1 + \left\{\left[1.5\left(1 - \frac{d^2}{D^2}\right)^2\right]\left[\left(\frac{Cv}{d^2}\right)^2\right]\right\}}}{890}$$

$$h = \left(\frac{Q}{3C_v}\right)^2 \div P_o$$

C_v = Valve coefficient of flow
Q = #/hr steam
h = Pressure drop across open valve
– use 10% inlet pressure for on/off applications
Po = Outlet pressure in psia = P1-h
Fp = Piping correction factor
C_vC = Published C_v * Fp
d = Valve diameter
D = Pipe diameter

PROCEDURE

1) Calculate C_v using 10% inlet gauge pressure as h (differential pressure)
2) If this is a 1/3 – 2/3 application, you will select 2 valves. The first valve will be rated for 1/3 of the total flow (1/3 of required C_v rating) and the second valve will be rated for 2/3 of the total flow (2/3 of required C_v rating).
3) Choose valve type (Ball, Globe, HTCCV, etc)
4) Choose valve model number that has closest C_v rating (normally round down unless maximum ΔP for project is exceeded)
   a. Refer to section 13 for HTCCV
   b. Refer to sections 14 and 15 for Ball valves (Fp correction required)
   c. Refer to section 16 for Globe valves
   d. Refer to section 17 for Butterfly valves

NOTE: If valve selection requires piping correction factor (Fp), calculate C_v based on Fp Equation. In general, do not select a valve less than ½ of the line size

5) Calculate actual ΔP based upon C_v of valve selected
6) If calculated ΔP is within project specified limits, proceed with actuator selection
7) If #6 is no, need to select a valve with a higher/lower C_v
8) Select actuator based upon selection parameters above
9) Based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

EXAMPLE OF C_v CALCULATION

Q = FLOW RATE Q = 1000 lb/h

Inlet psi = 15 psi

h = 10% (inlet psi) h = 0.10 (15) = 1.5

Po = (inlet psi + 14.7) – h Po = (15 + 14.7) – 1.5 = 28.2

C_v = 1000/(3*sqrt[1.5*28.2])
C_v = 1000/(3*6.50)
C_v = 1000/19.51

$$C_v = \frac{Q}{3 * \sqrt{h * P_o}} = 51.25$$

Required Cv = 51.25

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LOW PRESSURE STEAM, (15 PSI AND UNDER) MODULATING APPLICATION

APPLICABLE PRODUCTS

HTCCV, GLOBE, VS/VSS/V BALL, SHP BUTTERFLY

REQUIRED INFORMATION

FOR SIZING:
- flow in lb/hr
- ΔP (if none given, 80% psi of inlet pressure)
- Is it a 1/3 – 2/3 application?

FOR SELECTION:
- 2-way valve only
- pipe size
- media temperature
- fail-safe or non fail-safe actuation
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

EQUATIONS USED

$$C_v = \frac{Q}{3 * \sqrt{h * P_o}} \qquad Fp = \frac{1}{\sqrt{1 + \left\{ \left[1.5\left(1 - \frac{d^2}{D^2}\right)^2 \right] \left[\left(\frac{Cv}{d^2}\right)^2 \right] \right\}}} \qquad h = \left(\frac{Q}{3C_v}\right)^2 \div P_o$$

C_v = Valve coefficient of flow
Q = #/hr steam
h = Pressure drop across open valve
– use 10% inlet pressure for on/off applications
Po = Outlet pressure in psia = P1-h
Fp = Piping correction factor
C_vC = Published C_v * Fp
d = Valve diameter
D = Pipe diameter

PROCEDURE

1) Calculate C_v using 80% inlet gauge pressure as h (differential pressure)
2) If this is a 1/3 – 2/3 application, you will select 2 valves. The first valve will be rated for 1/3 of the total flow (1/3 of required C_v rating) and the second valve will be rated for 2/3 of the total flow (2/3 of required C_v rating).
3) Choose valve type (Ball, Globe, HTCCV, SHP Butterfly, etc)
4) Choose valve model number that has closest C_v rating (normally round down unless maximum ΔP for project is exceeded)
   a. Refer to section 13 for HTCCV
   b. Refer to sections 14 and 15 for Ball valves
   c. Refer to section 16 for Globe valves
   d. Refer to section 17 for Butterfly valves

NOTE: If valve selection requires piping correction factor (Fp), calculate C_v based on Fp Equation. In general, do not select a valve less than ½ of the line size

5) Calculate actual ΔP based upon C_v of valve selected
6) If calculated ΔP is within project specified limits, proceed with actuator selection
7) If #6 is no, need to select a valve with a higher/lower C_v
8) Select actuator based upon selection parameters above
9) Based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

EXAMPLE OF C_v CALCULATION

Q = FLOW RATE Q = 1000 lb/h

Inlet psi = 15 psi

h = 80% (inlet psi) h = 0.80 (15) = 12

Po = (inlet psi + 14.7) – h Po = (15 + 14.7) – 12 = 17.7

C_v = 1000/(3*sqrt[12*17.7])
C_v = 1000/(3*14.6)
C_v = 1000/43.7

$$C_v = \frac{Q}{3 * \sqrt{h * P_o}} = 22.9$$

Required C_v = 22.9

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MEDIUM/HIGH PRESSURE STEAM, (ABOVE 15 PSI), ON/OFF APPLICATION

APPLICABLE PRODUCTS

GLOBE, VS/VSS/V BALL, SHP BUTTERFLY

REQUIRED INFORMATION

FOR SIZING:
- flow in lb/hr
- ΔP (if none given, 10% psi or line size valve)
- Is it a 1/3 – 2/3 application?

FOR SELECTION:
- 2-way valve only
- pipe size
- media temperature
- fail-safe or non fail-safe actuation
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

EQUATIONS USED

$$C_v = \frac{Q}{3 * \sqrt{h * P_o}} \qquad Fp = \frac{1}{\sqrt{1 + \left\{\frac{\left[1.5\left(1 - \frac{d^2}{D^2}\right)^2\right]\left[\left(\frac{Cv}{d^2}\right)^2\right]}{890}\right\}}} \qquad h = \left(\frac{Q}{3C_V}\right)^2 \div P_o$$

C_v = Valve coefficient of flow
Q = #/hr steam
h = Pressure drop across open valve
– use 10% inlet pressure for on/off applications
Po = Outlet pressure in psia = P1-h
Fp = Piping correction factor
C_vC = Published C_v * Fp
d = Valve diameter
D = Pipe diameter

PROCEDURE

1) Calculate C_v using 10% inlet pressure as h (differential pressure)
2) If this is a 1/3 – 2/3 application, you will select 2 valves. The first valve will be rated for 1/3 of the total flow (1/3 of required C_v rating) and the second valve will be rated for 2/3 of the total flow (2/3 of required C_v rating)
3) Choose valve type (Ball, Globe, etc)
4) Choose valve model number that has closest C_v rating (normally round down unless maximum ΔP for project is exceeded)
   a. Refer to sections 14 and 15 for Ball valves
   b. Refer to section 16 for Globe valves
   b. Refer to section 17 for Butterfly valves

NOTE: If valve selection requires piping correction factor (Fp), calculate C_v based on Fp Equation. In general, do not select a valve less than ½ of the line size

5) Calculate actual ΔP based upon C_v of valve selected
6) If calculated ΔP is within project specified limits, proceed with actuator selection
7) If #6 is no, need to select a valve with a higher/lower C_v
8) Select actuator based upon selection parameters above
9) Based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

EXAMPLE OF C_v CALCULATION

Q = FLOW RATE — Q = 1000 lb/h

Inlet psi = 40 psi

h = 10% (inlet psi) — h = 0.10 (40) = 4

Po = (inlet psi + 14.7) – h — Po = (40 + 14.7) – 4 = 50.7

C_v = 1000/(3*sqrt[4*50.7])
C_v = 1000/(3*14.3)
C_v = 1000/42.7

$$C_v = \frac{Q}{3 * \sqrt{h * P_o}} = 23.41$$

Required C_v = 23.42

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MEDIUM/HIGH PRESSURE STEAM, (ABOVE 15 PSI), MODULATING APPLICATION

APPLICABLE PRODUCTS

GLOBE, VS/VSS/V BALL, SHP BUTTERFLY

REQUIRED INFORMATION

FOR SIZING:
- flow in lb/hr
- ΔP (if none given, 42% psi of absolute inlet pressure)
- Is it a 1/3 – 2/3 application?

FOR SELECTION:
- 2-way valve only
- pipe size
- media temperature
- fail-safe or non fail-safe actuation
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

EQUATIONS USED

$$C_v = \frac{Q}{3 * \sqrt{h * P_o}} \qquad Fp = \frac{1}{\sqrt{1 + \left\{\left[1.5\left(1 - \frac{d^2}{D^2}\right)^2\right]\left[\left(\frac{Cv}{d^2}\right)^2\right]\right\}}} \qquad h = \left(\frac{Q}{3C_v}\right)^2 \div P_o$$

C_v = Valve coefficient of flow
Q = #/hr steam
h = Pressure drop across open valve – use 42% of absolute inlet pressure for modulating applications
h= 0.42(Pi+14.7)
Po = Outlet pressure in psia = P1-h
Fp = Piping correction factor
C_vC = Published C_v * Fp
d = Valve diameter
D = Pipe diameter

PROCEDURE

1) Calculate C_v using 42% absolute inlet pressure as h (differential pressure)
2) If this is a 1/3 – 2/3 application, you will select 2 valves. The first valve will be rated for 1/3 of the total flow (1/3 of required C_v rating) and the second valve will be rated for 2/3 of the total flow (2/3 of required C_v rating)
3) Choose valve type (Ball, Globe, etc)
4) Choose valve model number that has closest C_v rating (normally round down unless maximum ΔP for project is exceeded)
   a. Refer to sections 14 and 15 for Ball valves
   b. Refer to section 16 for Globe valves
   b. Refer to section 17 for Butterfly valves

NOTE: If valve selection requires piping correction factor (Fp), calculate C_v based on Fp Equation. In general, do not select a valve less than ½ of the line size

5) Calculate actual ΔP based upon C_v of valve selected
6) If calculated ΔP is within project specified limits, proceed with actuator selection
7) If #6 is no, need to select a valve with a higher/lower C_v
8) Select actuator based upon selection parameters above
9) Based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

EXAMPLE OF C_v CALCULATION

Q = FLOW RATE Q = 1000 lb/h

Pi = inlet psi Pi = 40 psi

h = pressure drop across open valve – use 42% of absolute inlet pressure for modulating applications
h = 0.42 (40 + 14.7) = 22.97

Po = (inlet pressure in psia + 14.7) – h
Po = (40 + 14.7) – 22.97 = 31.73

C_v = 1000/(3*sqrt[22.97*31.73])
C_v = 1000/(3*26.99)
C_v = 1000/80.97

$$C_v = \frac{Q}{3 * \sqrt{h * P_o}} = 12.35$$

Required C_v = 12.35

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PRESSURE DEPENDENT, ON/OFF APPLICATION

APPLICABLE PRODUCTS

Butterfly Valve - HD/L Series
Butterfly Valve Grooved - VIC Series
Butterfly Valve High Performance - SHP Series

REQUIRED INFORMATION

FOR SIZING:
- flow in GPM
- pipe size
- velocity

FOR SELECTION:
- 2-way or 3-way valve
- pipe size
- media temperature
- fail-safe or non fail-safe
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

EQUATIONS USED

No equations are used. Use Velocity Chart on page 17-6 of the Butterfly Valve section.

PROCEDURE

1) Choose valve model number that has closest Cv rating at 90° open (normally round down unless maximum ΔP for project is exceeded.)
2) To select the proper valve, find required GPM on the velocity chart on page 16-6. (Verify pipe velocity. HVAC design is typically from 4 ft/sec to 10 ft/sec.)
3) Choose valve that does not exceed 12 ft/sec for the HD/L series, 20 ft/sec for the VIC series or 32 ft/sec for the SHP series.
4) Verify valve selection is not too large or small for the pipe size. Reference page 17-6 in the Butterfly Valve section for chart listing limits.
5) Verify Close-off Pressure (COP) is sufficient for the application.

NOTES

1) Most Butterfly valves are line size and piping geometry is not considered. If valve size must be reduced, a recommendation is to select a valve only one size less than the pipe. Do not exceed valve type fluid velocity limits.
2) For a two-position Butterfly valve, the maximum opening for flow should be at 90° open.
3) Determine the close-off rating. Full rated valves have a close-off rating equivalent to the valve body rating (most are 200 psi), with the exception of 150 psi close-off for the 14" Butterfly valves and above. Refer to Butterfly models for ratings.
4) Determine the type of actuation for your application involved.
5) Consult Belimo Customer Service for Butterfly applications involving steam, high velocity requirements, etc.

EXAMPLE

Application requires a 2-way, 400 GPM Butterfly valve, a valve of 4" minimum would be selected. The 4" HD valve at 12 ft/second would be able to withstand a capacity of 470 GPM, without damage to the liner.

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PRESSURE DEPENDENT, MODULATING APPLICATION

APPLICABLE PRODUCTS

Butterfly Valve - HD/L Series
Butterfly Valve Grooved - VIC Series
Butterfly Valve High Performance - SHP Series

REQUIRED INFORMATION

FOR SIZING:
- flow in GPM
- ΔP (if none given, utilize 4-5 psi)
- pipe size
- velocity

FOR SELECTION:
- 2-way or 3-way valve
- pipe size
- media temperature
- fail-safe or non fail-safe
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

EQUATIONS USED

$$C_V = \frac{Q * \sqrt{G}}{\sqrt{\Delta P}} \qquad \Delta P = \left[\frac{Q * \sqrt{G}}{C_V}\right]^2$$

C_V = required C_V
Q = flow in Gallons per Minute
G = Specific gravity of fluid (estimated as 1 for water systems)
ΔP = differential pressure over valve (deltaP) – stated in psi

PROCEDURE

1) Calculate C_V.
2) Choose valve model number that has closest C_V rating at 60° open (normally round down unless maximum ΔP for project is exceeded.)
2) Choose valve that does not exceed 12 ft/sec for the HD/L series, 20 ft/sec for the VIC series or 32 ft/sec for the SHP series.
3) Verify valve selection is not too large or small for the pipe size. Reference page 17-6 in the Butterfly Valve section for chart listing limits.
4) Verify Close-off Pressure (COP) is sufficient for the application.

NOTES

1) Most Butterfly valves are line size and piping geometry is not considered. If valve size must be reduced, a recommendation is to select a valve only two sizes less than the pipe. Do not exceed valve type fluid velocity limits.
2) For a modulating 2-way Butterfly valve, the maximum opening for flow should be at 60° open.
3) Determine the close-off rating. Full rated valves have a close-off rating equivalent to the valve body rating (most are 200 psi), with the exception of 150 psi close-off for the 14" Butterfly valves and above. Refer to Butterfly models for ratings.
4) Determine the type of actuation for your application involved.
5) Consult Belimo Customer Service for Butterfly applications involving steam, high velocity requirements, etc.

EXAMPLE OF C_V CALCULATION

i.e. Pressure drop through the coil is 4 psi, then the pressure drop across the valve should be approximately 4 psi. Let us use 4 psi for example.
i.e. GPM is 400
i.e SG is 1
i.e. ΔP = 4 psi

C_V = 400 GPM * sqrt of SG1/sqrt of 4 psi
C_V = 400 GPM/2 = 200

$$C_V = \frac{400 * \sqrt{1}}{\sqrt{4}} = 200$$

Application requires a modulating 2-way, 400 GPM Butterfly valve. A valve of 4" minimum would be selected. The 4" HD valve at 12 ft/second would be able to withstand a capacity of 470 GPM without damage to the liner. The C_V of the 4" HD valve at 60° open is 230, making it the best choice for controlability.

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MODELS OF VALVES/APPLICATIONS

FLOW MEDIUM	ENERGY VALVE	EPIV	QCV	PIQCV	CCV	HTCCV	BALL	GLOBE	BUTTERFLY
Chilled / Hot Water / Glycol	EV	P2, P6	Z2Q	Z2QP	B2(B), B3(B), B6	B2..HT	B2VS, B2VSS B3..L	G2, G3, G7(D), G6C Series	F6, F7.. HD, L, VIC, SHP
3-Way Mixing					B3(B)			G3, G7	F7, HD/L, VIC, SHP
3-Way Diverting			Z3Q		B3(B)		B3..L	G3, G7D	F7, HD/L, VIC, SHP
Low Pressure Steam (up to 15 inlet psi)						B2..HT	B2VS	G2, G6C	F6 ..SHP
Medium Pressure Steam (15...50 inlet psi)							B2VS (up to 35 psi only) B2VSS, B2VB, B6VB	G2B up to (35 inlet psi only) G2S, G6C (35 psi only), G6CS	F6 ..SHP
High Pressure Steam (50...100 inlet psi)							B2VB, B6VB	G2S, G6CS	

WATER QUALITY RECOMMENDED PARAMETERS

Chilled Water, Closed Loops, and Hot Water Systems up to 212°F (100°C)

8.0			<	**pH**	<	10.3
				Conductivity	<	3000 MMHS
				Iron	<	0.5 ppm
				Copper	<	0.5 ppm
Chilled Systems	➡	100 ppm	<	**Molybdenum** (Mild Steel Corrosion Inhibitor)	<	150 ppm
Hot Systems	➡	200 ppm	<	**Molybdenum** (Mild Steel Corrosion Inhibitor)	<	250 ppm
		400 ppm	<	**Nitrite** (Mild Steel Corrosion Inhibitor)	<	1000 ppm
				Azole (Yellow Metal Inhibitor)	>	5 ppm free and available
				Total Aerobic Bacteria	<	1000 cells/ml
				Anaerobic Bacteria	<	50 cells/ml
				Ammonia	<	2 ppm
				Turbidity (in systems not containing a dye)	<	20 FTU's
				Particles (0.5 micron particles/ml with no particles above 20 microns)	<	200,000
				Polymer	<	10 ppm
Type I Ultra Pure Water	**EXCEPTIONS for Belimo valve and fittings if either type of media is considered. An assessment should be made by qualified personnel to assure compatibility and risk factors.**					
Deionized Water						

Use water with low levels of chloride and sulfate, less than 25 ppm. Water hardness should be less than 50 ppm of hard water ions (Ca, Mg).
When water hardness is at unacceptable levels, a water softener expert should be consulted.

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CONTROL VALVE SEAT LEAKAGE CLASSIFICATIONS (IN ACCORDANCE WITH ANSI/FCI 70-2)

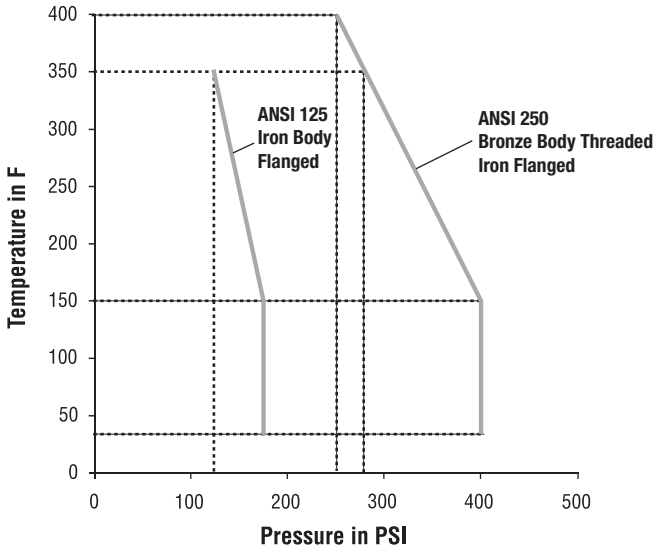
Leakage Class Designation	Maximum Leakage Allowable	Test Medium	Test Pressure	Testing Procedures Required for Establishing Rating
I	-	-	-	No test required provided user and supplier so agree
II	0.5% of rated capacity	Air or water at 50...125°F (10...52°C)	45...60 psig or max. operating differential whichever is lower.	Pressure applied to valve inlet with outlet open to atmosphere or connected to a low head loss measuring device full normal closing thrust provided by actuator
III	0.1% of rated capacity	As above	As above	As above
IV	0.01% of rated capacity	As above	As above	As above
V	0.0005 ml per minute of water per inch of seat diameter per psi differential.	Water at 50...125°F (10...52°C)	Max service pressure drop across valve plug, not to exceed ANSI body rating (100 psi pressure drop minimum).	Pressure applied to valve inlet after filling entire body cavity and connected piping with water and stroking valve plug closed. Use net specified max actuator thrust, but no more, even if available during test. Allow time for leakage flow to stabilize.
VI	Not to exceed in following table based on seat diameter.	Air or nitrogen at 50...125°F (10...52°C)	50 psig or max rated amounts across valve plug shown whichever is lower.	Actuator should be adjusted to operating differential pressure conditions specified with full normal closing thrust applied to valve plug seat. Allow time for leakage flow to stabilize and use suitable measuring device.

CONTROL VALVE SEAT LEAKAGE CLASSIFICATIONS (FOR CLASS VI ONLY) (IN ACCORDANCE WITH ANSI/FCI 70-2-2006)

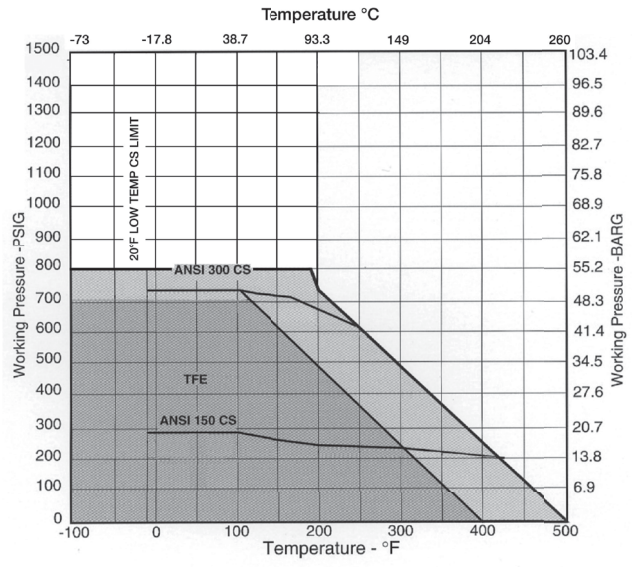
NOMINAL SEAT DIAMETER		LEAK RATE	
Inches	DN/Millimeters	mL per minute	Bubbles per minute
1	25	0.15	1
1½	40	0.3	2
2	50	0.45	3
2½	65	0.6	4
3	80	0.9	6
4	100	1.7	11
6	150	4	27
8	200	6.75	45

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MAXIMUM TEMPERATURE AND PRESSURE RATINGS FOR GLOBE VALVE BODIES



PRESSURE/TEMPERATURE CHART FOR ANSI CLASS 150/300 BUTTERFLY VALVES



SATURATED STEAM TEMPERATURE

Pressure (PSIG)	Temp (°F)	Pressure (PSIG)	Temp (°F)
0	212	**55**	302.6
2	218.5	**60**	307.3
4	224.4	**65**	311.8
6	229.8	**70**	316.0
8	234.6	**75**	320.0
10	239.0	**80**	323.9
15	249.7	**85**	327.6
20	258.8	**90**	331.1
25	266.8	**95**	334.6
30	274.0	**100**	337.9
35	280.6	**105**	341.1
40	286.7	**110**	344.1
45	292.4	**115**	347.1
50	297.7	**120**	350.0

Table provided complements of Warren Controls.

BODY PRESSURE-TEMPERATURE RATINGS (PSIG)

Temp (°F)	Bronze Body Thread	Iron Body 125 Flange	Iron Body Thread/250 Flange
20...100°F	400	175	400
150°F	400	175	400
175°F	392	170	385
200°F	385	165	370
225°F	375	155	355
250°F	365	150	340
275°F	350	145	325
300°F	335	140	310
350°F	300	125	280

Table provided complements of Warren Controls.

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STEAM CAPACITY IN POUNDS PER HOUR

NOTE: Table is based on saturated steam.

Inlet Pressure PSIG	2		5		10		15		20		25		40		50		75		100	
ΔP / Cv	0.2	1.6	0.5	4	1	8	1.5	12	2	8.4	2.5	10.5	4	16.8	5	21	7.5	31.5	10	42
0.29	1.6	4.3	2.7	6.9	4.2	10.1	5.7	12.7												
0.4	2.2	5.9	3.7	9.5	5.8	13.9	7.8	17.5	9.7	17.8	11.6	21.0	17.1	30.3	20.7	36.4	29.8	51.4	38.8	66.3
0.46	2.5	6.8	4.3	10.9	6.7	16.0	9.0	20.1												
0.73	4.0	10.8	6.8	17.4	10.7	25.3	14.2	31.9												
1.16	6.3	17.1	10.8	27.6	16.9	40.2	22.6	50.7												
1.3	7.1	19.2	12.1	30.9	19.0	45.1	25.4	56.8	31.5	58.0	37.6	68.3	55.5	98.4	67.4	118	96.8	167	126	216
1.86	10.1	27.4	17.3	44.2	27.2	64.5	36.3	81.3												
2.2	12.0	32.4	20.4	52.3	32.1	76.3	42.9	96.2	53.4	98.1	63.6	116	94.0	167	114	200	164	283	214	365
2.9	15.8	42.8	27.0	68.9	42.4	101	56.6	127												
4.4	24.0	64.9	40.9	105	64.3	153	85.9	192	107	196	127	231	188	333	228	400	328	565	427	729
4.64	25.3	68.4	43.1	110	67.8	161	90.5	203												
5.5	30.0	81.1	51.1	131	80.3	191	107	240	133	245	159	289	235	416	285	500	410	706	534	912
7.31	39.8	108	67.9	174	107	253	143	320												
7.5	40.9	111	69.7	178	110	260	146	328	182	334	217	394	320	568	389	682	559	963	728	1243
9.28	50.6	137	86.3	221	136	322	181	406												
10	54.5	147	93.0	238	146	347	195	437	243	446	289	525	427	757	518	909	745	1285	971	1658
11.6	63.2	171	108	276	169	402	226	507												
13.2	71.9	195	123	314	193	458	258	577												
14	76.3	206	130	333	204	485	273	612	340	624	405	735	598	1060	726	1272	1043	1798	1359	2321
18.56	101	274	173	441	271	644	362	811												
20	109	295	186	475	292	694	390	874	485	892	579	1051	854	1514	1037	1818	1490	2569	1941	3315
28	153	413	260	666	409	971	546	1224	679	1249	810	1471	1196	2120	1451	2545	2086	3597	2718	4642
40	218	590	372	951	584	1387	780	1749	970	1784	1157	2101	1709	3028	2073	3635	2980	5138	3883	6631
65	354	958	604	1545	949	2254	1268	2842	1577	2898	1881	3414	2777	4920	3369	5907	4842	8349	6310	10775
90	490	1327	837	2140	1314	3121	1756	3935	2183	4013	2604	4728	3845	6813	4665	8179	6704	11561	8736	14920
170	926	2507	1580	4042	2483	5895	3317	7433	4124	7580	4918	8930	7263	12869	8811	15450	12663	21837	16502	28181
263	1433	3878	12472	6253	3841	9120	5132	11499	6381	11727	7609	13815	11236	19909	13632	23902	19590	33783	25530	43598
344	1875	5073	3198	8178	5024	11928	6712	15040	8346	15339	9952	18070	14696	26041	17830	31263	25624	44187	33393	57026

Terms and Conditions of Sale and Warranty

I. General

1.1. The following Terms and Conditions of Sale and Warranty ("Terms") apply to the sale of products described in this Product Guide and products sold by Seller as an original equipment manufacturer ("OEM") which may not be included in this Product Guide ("Product" or "Products"). As used herein, "Seller" or "Belimo" refers to Belimo Aircontrols (USA), Inc., or Belimo Aircontrols (CAN), Inc., or Belimo Automation AG, or Belimo Brasil – Comércio de Automação Ltda., or Belimo Sensors, Inc. ("BSI") as applicable, and "Client" refers to the individual or business entity that purchases the Products directly from Seller. "Product" or "Products" include products sold by BSI, however "BSIP" shall refer specifically to the subset of Products sold by BSI. These Terms shall apply unless the Seller and Client mutually agree to different terms and memorialize such agreement in writing signed by both Client and Seller or (ii) unless Seller changes these Terms and publishes the Terms on its Website to be found at: www.belimo.us, in which case the most recent Terms published on the Website will prevail. In case Seller's delivery includes software and/or application software and accompanying documentation, the terms of the license agreement for such software and/or application software are applicable in addition to these Terms. However, in case of conflicts between the terms and conditions of the license agreement and the Terms, the terms and conditions of the license agreement shall prevail.

1.2. Client's order of any Product, or Seller's providing of any service or calibration is expressly conditioned upon Client's assent of these Terms, and Client's order of any Product, or Seller's performing of any service or calibration constitutes Client's acceptance of these Terms. No additional or different terms or conditions in any form delivered to Seller from Client apply. Such additional or different terms or conditions are hereby deemed material alterations to these Terms, and Seller hereby notifies Client of its objection to and rejection of such additional or different terms or conditions.

II. Price

2.1. The Seller's price for Products (the "Price") is net, F.O.B. Point of Origin, and is calculated in US currency for sales made by Belimo Aircontrols (USA), Inc., and calculated in Canadian currency for sales made by Belimo Aircontrols (CAN) Inc., and Brazilian currency for sales made by Belimo Automation AG or Belimo Brasil – Comércio de Automação Ltda. to Clients in Brazil.

2.2. The Price, unless otherwise agreed upon, does not include freight and packaging (wooden crates, pallets, etc.), the costs of which will be charged to Client at cost for each shipment and shall be payable with payment of the Price.

2.3. Orders for Products where the total order has a net value of less than US $300 (CAN $300) will be subject to a US $20 (CAN $20) handling fee (the "Handling Fee"). The Handling Fee will not be charged for orders of Products with a net value equal to or greater than US $300 (CAN $300) or for Products ordered through Seller's e-commerce ordering system at: www.belimo.us.
2.4. Seller reserves the right to make partial deliveries of orders of Products, each of which deliveries may be invoiced separately by Seller.

2.4. The Price does not include charges for wiring diagrams, installation, and commissioning, which will be charged to Client separately and will be payable on demand.

III. Payment

3.1. Invoices are payable in US currency for sales made by Belimo Aircontrols (USA), Inc., and in Canadian currency for sales made by Belimo Aircontrols (CAN) Inc., and in Brazilian currency for sales made by Belimo Automation AG on behalf of Brazil or Belimo Brasil – Comércio de Automação Ltda. Payments on invoices are due no later than 30 days from the date of invoice, without any deductions.

3.2. If Client maintains an outstanding balance for 45 days or more after the date of invoice, Client may be subject to restricted shipments of Products. A Client may also be required to pay for all future deliveries of Products on a cash-on-delivery only basis.

IV. Title and Risk

4.1. Title to Products will pass to Client from the Seller based upon the agreed Incoterms as stated on the Order Confirmation. The Seller retains the right to a return of the Product when payment is not received.

V. Damage or Loss in Transit

5.1. Seller assumes no liability for damage or loss of shipment of Products, which risk shall at all times remain with the carrier. All shipments must be unpacked and examined by Client immediately upon receipt. Any external evidence of loss or damage must be noted on the freight bill accompanying the shipment of Products or carrier's receipt and signed by the carrier's agent at the time of delivery. Failure to do so will result in the carrier's refusal to honor any claim relating to damage of Products. Client must also notify Seller within 5 days of such damage by providing Seller with a copy of the freight bill or damage report so that Seller can file a claim for loss or damage in transit with the carrier. If the damage does not become apparent until the shipment is unpacked, Client must make a request for inspection by the carrier's agent and file with the carrier within 15 days after receipt of product and notify Seller of the same.

VI. Delivery

6.1. Seller undertakes to make every attempt to adhere to its stated delivery parameters and to make a timely delivery of the Products but does not guarantee any delivery specifications. Each contract entered into for the purchase of Products is not cancelable nor is Seller liable for any direct or indirect losses that may arise, for any reason whatsoever, due to Seller's failure to meet any stated or assumed delivery schedules.

VII. Inventory Overstock

7.1. If Client has an overstock of Product inventory, such Products received by Client cannot be returned unless and until: (i) Client alerts Seller that it intends to return some overstock of Products, (ii) Seller agrees to accept such return, (iii) Client obtains a Return Material Authorization ("RMA") number from Seller for such return of such Products, and (iv) Client follows all return instructions provided by the Seller. The RMA number must be clearly written on the outside of all packaging for any returned overstock of Products.

7.2. Only such Products returned in original packaging and shipped to Seller at Client's cost may be accepted for return under this Section. Client is also responsible for payment of a restocking charge for all returned overstocked Products in an amount no less than 20% of the invoice value of the Products ("Restocking Charges"). Any piping package or custom order returns carry a minimum restocking charge of 75% of the invoice value. Returns that result from Seller errors and not overstocking will be credited in full and will not be subject to Restocking Charges.

7.3. Any Product received damaged or showing evidence of having been installed will be refused or assessed a higher restocking charge.

7.4. If Client requests product to be returned to Client, the Client will be responsible for return shipping charges. See specific product literature for exclusions or exceptions.

7.5. Any products that are designed to a Client's unique specifications (e.g. retrofit) are not returnable.

VIII. Handling, Installation and Use of Products

8.1. Products are only intended for installation and commissioning by trained technicians.

8.2. The installation and exchange of Products may only be carried out by trained technicians. Products may only be handled by trained technicians and only in accordance with the most current valid data and installation sheets.

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IX. Limited Warranty

A. 5-year Limited Warranty / 7-year Extended Warranty

9.1. Products that are designated by Seller as carrying a 5-year warranty to a location in the United States, Canada, or Latin America shall carry a 5-year warranty. Products that are granted an extended 7-year warranty by Seller (due to a Belimo IoT connection) to a location in the United States, Canada, or Latin America shall carry a 7-year warranty. Seller warrants that the Products carrying either a 5 or 7-year warranty shall be (a) new, (b) free from defects and free from nonconformity in design, specifications, or material, (c) will perform as expected when installed in the correct and proper manner in a proper application, and (d) free of any lien, encumbrance, or claim. The 5 or 7-year warranty is unconditional for the first two years from the date of sale of the Products to Client, subject to the Limitation On Warranty in Section 9E. After the first two years from the date of sale, the warranty coverage shall not apply to damage to Products not resulting from normal wear and tear (e.g. negligence, misuse, or failure to maintain). Product specific terms of warranty with regard to warranty period or conditions of warranty may apply to certain specified Products as stated in the documentation for those Products.

B. 2-year Conditional Warranty

9.2. Products that are designated by Seller as carrying a 2-year warranty to a location in the United States, Canada, or Latin America shall carry a 2-year warranty. Seller warrants that the Products carrying a 2-year warranty shall be (a) new, (b) free from defects and free from nonconformity in design, specifications, or material, (c) will perform as expected when installed in the correct and proper manner in a proper application, and (d) free of any claims, encumbrances, or liens. The 2-year warranty is conditional from the date of sale of the Products to Client, and the warranty coverage shall not apply to damage to Products not resulting from normal wear and tear (e.g. negligence, misuse, or failure to maintain). Product specific terms of warranty with regard to warranty period or conditions of warranty may apply to certain specified Products as stated in the documentation for those Products.

C. 1-year Conditional Warranty

9.3 Products that are designated by Seller as carrying a 1-year warranty to a location in the United States, Canada, or Latin America shall carry a 1-year warranty. Seller warrants that the Products carrying a 1-year warranty shall be (a) new, (b) free from defects and free from nonconformity in design, specifications, or material, (c) will perform as expected when installed in the correct and proper manner in a proper application, and (d) free of any claims, encumbrances, or liens. The 1-year warranty is conditional from the date of sale of the Products to Client, and the warranty coverage shall not apply to damage to Products not resulting from normal wear and tear (e.g. negligence, misuse, or failure to maintain). Product specific terms of warranty with regard to warranty period or conditions of warranty may apply to certain specified Products as stated in the documentation for those Products.

D. Service and Calibration Warranty

9.4 Seller warrants that repair service provided by Seller will (a) be performed in a workmanlike manner and (b) will be free of defects in material replaced. Seller's service warranty period shall be 90 days from the date of the service performed, and covers all labor and parts Seller has replaced which are necessary to return the Product to good operating condition. For calibration provided by Seller, Seller warrants that (a) calibration will be performed in a workmanlike manner, (b) the certificate of calibration accurately reflects the calibration service performed, and (c) if applicable, the calibration will be provided in accordance with the appropriate standards. Seller's calibration warranty period shall be 90 days from the date of the calibration performed, and if Seller's calibration fails to meet the warranty stated within that 90-day period, Seller will perform the same calibration, to the same extent and on the same conditions as the original calibration. Seller does not warrant the calibration interval. If no interval is specified by Client, the Product documentation may indicate Seller's recommended interval of calibration. Notwithstanding anything to the contrary herein, Seller does not warrant or represent that all defects can and will be corrected.

E. Limitation On Warranty; Warranty Disclaimer

9.5. Seller's warranties hereunder shall be null and void in the event of any:

(a) modification or unauthorized repairs of Products by Client;
(b) unauthorized incorporation or integration of Products into or with Client's equipment;
(c) use of Products in an unauthorized manner;
(d) damage to Products not caused by Seller;
(e) failure of Client to follow operating instructions, installation instructions, calibration instructions and recommended calibration intervals, or any other instructions in the operation manual or other product documentation provided by Seller;
(f) continued use of a product once a defect or fault occurs; or
(g) any other condition not caused by a defect in design, specifications, material or workmanship;

9.6. These Terms constitute the entire understanding and agreement between Seller and Client regarding the warranties that cover Products and supersedes all previous understandings, agreements, communications and representations. All Seller warranties are extended only to Client and are non-transferrable. All Seller warranties shall extend only to HVAC use of the Products originating from Belimo Aircontrols (USA), Inc., or Belimo Aircontrols (CAN), Inc., or Belimo Automation AG, or Belimo Brasil – Comércio de Automação Ltda. All BSI warranties shall extend only to gas monitoring and gas detecting use of BSIP. If Products originating from Belimo Aircontrols (USA), Inc., or Belimo Aircontrols (CAN), Inc., or Belimo Automation AG, or Belimo Brasil – Comércio de Automação Ltda. are used in non-HVAC applications (e.g., aircraft, industrial processes, etc.), Seller's warranties will not cover such Products. Client will be solely responsible for any damage to or malfunction of Products or for any damage resulting from such use of Products. Representations and warranties made by any person, including dealers and representatives of Seller, which are inconsistent or in conflict with these Terms, shall not be binding unless presented in writing and signed by a duly authorized representative of Seller.

9.7. Both the conditional and unconditional warranties with respect to the Products cover the Products only, and do NOT cover labor associated with the troubleshooting, removal, or replacement of such Products. Client is solely responsible for purchasing any gas, regulators, components, or any other materials required for calibration.

9.8. EXCEPT FOR THE EXPRESS WARRANTIES SPECIFIED IN SECTION IX SELLER MAKES NO OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, AND DISCLAIMS ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND IMPLIED WARRANTY OF MERCHANTABILITY.

F. Remedies

9.9. If a defect arises in the Product and an RMA is issued as provided in Section 9.10, Seller will, at its option and to the extent permitted by law, either (1) repair the Product at no charge, using new or refurbished replacement parts or (2) replace the Product with a new Product. In the event of such a defect, to the extent permitted by law, these are Client's sole and exclusive remedies.

9.10. Client cannot return Products to Seller unless: (i) Client notifies Seller that it intends to return such Products, (ii) Seller agrees to accept the return of such Products, (iii) Client obtains a RMA number from Seller for the return of such Products, and (iv) Client follows all return instructions provided by the Seller. Client shall promptly notify Seller of Products' alleged defect and provide Seller with other evidence and documentation reasonably requested by Seller. The RMA number must be clearly written on the outside of all packaging for any returned Products. Only Products returned to the proper location as instructed by Seller and identified with an RMA number will be considered for credit.

9.11. Returns that result from Seller's breach of these Terms will be credited in full and will not be subject to Restocking Charges.

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9.12. Seller-authorized support technicians are available for troubleshooting before any shipments to Seller. The contact information for Belimo customer service is listed on the back page of Belimo's Product Guide and Price List ("PGPL") or may be found at www.belimo.us.

9.13. If Seller determines that a problem cannot be resolved without Product replacement, an RMA number will be issued by Seller for return of the Products. Prior to returning any Products under a warranty, Client must obtain an RMA number from Seller, along with shipping instructions for the return. The RMA number must be clearly written on the outside of the box containing the returned Products. Only Products returned to the proper location and identified with an RMA number will be accepted by the Seller.

9.14. All returned Products should be packaged appropriately to prevent further damage. Seller reserves the right to refuse any returned Product if improperly packaged or labeled (e.g. without an RMA number on the outside of packaging). Products returned without proper RMA documentation will void Seller's warranty. Seller is not responsible for charges that Client may incur as a result of the removal or replacement of Products.

9.15. Repaired or replacement Products are shipped from Seller via ground shipment. Other shipping methods are available at the sole expense of the Client.

9.16. Repaired, replaced, or exchanged Products will carry a warranty for a period of time equal to the greater of: (i) the remainder of the original, specified warranty that was applicable to the repaired, replaced or exchanged Products, or (ii) six months, effective from the date the repaired, exchanged or replaced Products are shipped by Seller (the "Replacement Warranty Period").

9.17. If Seller determines that Product under warranty is to be replaced, Seller may elect to send a replacement in advance of receiving the returned item. For valve products 2½" in diameter or greater, a purchase order is required. An invoice will be issued and shall be due and payable if the returned Products are not received by Seller within 60 days from the date that the replacement Products are shipped. Additional charges may apply if the nature of the problem has been misrepresented by Client.

9.18. New Products ordered in an attempt to circumvent the warranty process may NOT be reimbursed if, upon receipt of returned Products, it is determined that the defect in the returned Products is actually field related, or the Products have been returned for cosmetic reasons only.

X. Liability; Indemnification

A. LIABILITY DISCLAIMER

10.1. IN NO EVENT SHALL SELLER HAVE ANY LIABILITY TO CLIENT OR ANY THIRD PARTY FOR ANY (a) LOST PROFITS OR COSTS OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, OR FOR ANY INDIRECT, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OR (b) ANY DAMAGES WHATSOEVER RESULTING FROM THE PERFORMANCE OF A PRODUCT, OR A TEMPORARY OR PERMANENT LOSS OF USE OF A PRODUCT, OR ARISING OUT OF ANY SERVICES OR CALIBRATION PROVIDED HEREUNDER, HOWEVER CAUSED UNDER ANY THEORY OF LIABILITY AND WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STATUTE, OR OTHERWISE. THE FOREGOING LIMITATIONS SHALL APPLY EVEN IF SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND NOTWITHSTANDING THE FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY STATED HEREIN. SELLERS MAXIMUM AGGREGATE LIABILITY UNDER, ARISING FROM, OR IN CONNECTION WITH THE SALE OF ITS PRODUCTS TO CLIENT OR SERVICE OR CALIBRATION PROVIDED TO CLIENT, SHALL BE LIMITED TO THE AMOUNT PAID BY CLIENT FOR THE PRODUCT DEEMED RESPONSIBLE FOR THE LOSS OR DAMAGE, OR AMOUNT PAID BY CLIENT FOR SELLER'S SERVICE OR CALIBRATION.

10.2. Client releases Seller in full from any possible third-party claims resulting in connection with the circumstances listed above. This also applies to claims in connection with products liability.

10.3. If Client becomes aware that any third party has made or appears likely to make any claim regarding Products (including, without limitation, regarding Product defects or rights infringed by Products), then Client shall immediately inform Seller and afford to Seller all assistance that Seller may require to enforce its rights and defend such claim.

B. INDEMNIFICATION

10.4 CLIENT SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS SELLER, ITS EMPLOYEES, AGENTS, REPRESENTATIVES, AND ASSIGNS, ITS AFFILIATES, AND THEIR AFILLIATES' EMPLOYEES, AGENTS, AND REPRESENTATIVES AND ASSIGNS FROM AND AGAINST ALL CAUSES OF ACTION, COMPLAINTS, CLAIMS, DEMANDS, SUITS, LOSSES, LIABILITIES, LIENS, DAMAGES, FINES, PENALTIES, ASSESSMENTS, COSTS (INCLUDING WITHOUT LIMITATION, COSTS OF INVESTIGATION, LITIGATION, AND COURT COSTS), AND EXPENSES (INCLUDING, WITHOUT LIMITATION, REASONABLE ATTORNEYS' FEES), (COLLECTIVELY "CLAIMS"), THAT ARE BROUGHT BY OR ON BEHALF OF ANY PERSON OR ENTITY, THAT ARISE OUT OF, RELATE TO, OR ARE CONNECTED WITH THE SALE AND USE OF THE PRODUCTS, OR SELLER'S SERVICE OR CALIBRATION PROVIDED RELATED TO THE PRODUCTS, INCLUDING WITHOUT LIMITATION, CLAIMS ALLEGING (A) THE PERSONAL INJURY, ILLNESS, OR DEATH OF ANY PERSON; (B) DAMAGE TO OR LOSS OF USE OF PROPERTY; (C) VIOLATION OF ANY GOVERNMENTAL LAW, ORDINANCE, OR REGULATION; (D) INFRINGEMENT, MISAPPROPRIATION, OR OTHER VIOLATION OF COPYRIGHT, TRADE SECRET, PATENT, OR ANY OTHER PROPRIETARY RIGHT; (E) CLIENT'S NEGLIGENCE, WILLFUL MISCONDUCT, OR TORT; (F) CLIENT'S NON-COMPLIANCE WITH ITS OBLIGATIONS UNDER SECTION 11; OR (G) SELLER'S BREACH OF THESE TERMS.

XI. Client Obligations

11.1 Client agrees to comply with all applicable laws, codes, and any other applicable rules and regulations regarding the use and installation of the Products. Client agrees to maintain in effect all the necessary permissions, authorizations, consent, and permits that it needs to carry out its obligations under these Terms. Client agrees and acknowledges that Seller has no responsibility or liability for complying or failing to comply with such applicable laws, codes, and any other applicable rules and regulations relevant to Client or Client's end users, regardless of whether Seller has reason to know, has been advised or such laws, codes, rules, and regulations, or is otherwise in fact aware of the applicable laws, codes, rules, and regulations.

11.2 Client is solely responsible for determining the suitability of any Products for its use, resale, or incorporation into a system. Client acknowledges BSIP are not suitable for and will not be utilized in any application, installation, or location which is a hazardous location, in life safety applications, or as a component of a life safety system.

11.3 Client is responsible for maintaining its own liability and property insurance at commercially reasonable levels wherever a Product is installed.

11.4 If Seller is providing services or calibration in connection with a Product, it is the responsibility of Client to maintain a safe worksite at any location where a Seller employee, contractor, or agent is performing onsite services or work. Seller's employee, contractor, or agent may, in its reasonable determination, refuse to perform onsite services, calibration, work under unsafe conditions and, Seller has no liability to Client relating to the non-completing of the services, calibration, or work as a result of Seller's employee, contractor, or agent refusing to perform onsite services, calibration, or work under such unsafe conditions.

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11.5 Client agrees to comply with all Seller recommended calibration intervals and installation instructions for the Products.

A. Client's Acknowledgement of BSIP Limitations

11.6 Seller believes that the BSIP and services and calibration provided in connection therewith conform to industry standards. However, Client acknowledges that no form of monitor or monitoring system is guaranteed to operate uninterrupted, error-free, or to deter, detect, or prevent those occurrences that said monitor or monitoring system is designed to deter, detect, or prevent. Client agrees and acknowledges that Seller makes no representations and warranties that the access to and use of BSIP will be uninterrupted, error-free, or free from defects, except as may otherwise be warranted in Section 9.

B. Hazmat Shipment Fees

11.7 Certain orders may require shipment of hazardous materials. A hazardous material fee will be added to all orders when applicable and must be paid by Client. All hazardous material fees are nonrefundable.

XII. Proper Law and Jurisdiction

12.1. All sales of Products under these Terms described herein shall be governed by the laws of the State of Connecticut, without regard to its conflicts of law principles, and Seller and Client agree to submit to the exclusive jurisdiction of the federal and state courts located in the State of Connecticut with respect to any dispute arising from the subject matter hereof. The Seller and Client hereby waive all rights to a jury trial in connection with any claims relating to the subject matter hereof. All causes of action arising out of or connected to the sales of Products under these Terms shall be resolved individually, with no right by Seller or Client to participate in a representative capacity, or as a member of any class action.

XIII. Privacy and Data; Intellectual Property

A. Data Policy

13.1 Seller places great value on the implementation of lawful data processing to protect Client's personal data. Seller is obliged to process Client's personal data in accordance with applicable law. Seller is dependent on the services of a third party for the provision of its services. Seller has obligated the third party to process Client's data only in connection with the services agreed with Seller, to ensure the same level of data protection as Seller, and to not pass on Client's data to other third parties without Client's consent. When processing Client's data and transferring Client's data to third parties, Seller will use reasonable commercial efforts to provide an appropriate level of data protection and that appropriate organizational and technical measures are implemented to protect Client's personal data. More detailed information on Seller's data protection guidelines is available from the following Internet address: www.belimo.com/privacy.

B. Intellectual Property

13.2 All inventions, patents, copyrights, trade secrets, logo, trademarks, trade name, service marks, technical information, instructions, discoveries, know-how, test results, tooling, jigs, and fixtures, or other industrial or intellectual property, associated with, or used in or for, the manufacturing and sale of the Products, or services and calibration provided in connection with the Products shall be identified herein as "Property." Seller shall retain all right, title, and interest it may have with respect to the Property. Any Property created by Seller in connection with the sale of Products to Client shall belong to Seller and shall not be considered a work for hire.

XIV. California Proposition 65

⚠ 14.1 WARNING: Some Belimo Products can expose you to chemicals which are known to the State of California to cause cancer, birth defects, or other reproductive harm. Please refer to the Product specific Technical Data sheet at www.belimo.us for details.

For more information see www.p65warnings.ca.gov

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Minimum Advertised Price (MAP) Policy

Belimo Aircontrols, (USA) Inc.

Minimum Advertised Price (MAP) Policy

In order to preserve its reputation for providing customers with high-value, quality products and after- sales support, to protect and maintain the value of the Belimo brand, and to help assure that valued pre-sales and post-sales support and service can be provided by authorized resellers, Belimo Aircontrols (USA), Inc. ("Belimo"), has unilaterally adopted this Minimum Advertised Price (MAP) Policy effective April 1st, 2021.

Covered Advertising

This Policy applies to all forms of advertising via any media including, without limitation, each of the following:

- Websites of any reseller, including any site or entity owned by a Belimo reseller
- Online/Internet marketplaces and auction sites
- Other forms of Internet promotion, including banner ads, broadcast emails and other social media communications
- Print media including newspapers, magazines, brochures, newsletters, flyers, inserts, direct mailers, but excluding instore point-of-sale signage, price tags, or other displays that are not distributed for customers to take away
- Other electronic media including radio, television

Covered Products

All Belimo-branded products including units, components, and parts available for resale are covered by this Policy. Products may be added or dropped from this Policy at Belimo's sole discretion.

Advertised Price

The advertised price of a product covered by this Policy cannot be below 55% off the current published list price. Current list prices are available at Belimo.com. Belimo may change its MAP price at any time in its discretion.

This Policy only affects advertising of prices, not the prices at which a reseller actually sells a covered product. Resellers remain free to establish their own independent resale prices for Belimo's products.

For avoidance of doubt, the following types of advertising comply with this Policy: offering free shipping, advertising that a customer can "call for a price," or responding orally or by phone, fax, mail or email to inquiries as to the actual selling price of a product. However, the following practices will be deemed violations:

- Advertising that a price is "too low to publish"
- Offering promotional discounts/rebates or non-proprietary promo codes or similar statements that effectively lower the advertised price below the MAP price
- Bundling other products with the covered products to effectively lower the advertised price below the MAP price

Policy Enforcement

In the event of a violation of this Policy, Belimo will address the violation as follows:

1. First violation – The multiplier that establishes the reseller's purchase price for the covered product(s) will increase by 0.100 for a period of 30 days.
2. Second violation –A second violation occurring within 12 months of the first violation will result in the multiplier that establishes the reseller's purchase price for the covered product(s) increasing by 0.200 for a period of 45 days.
3. Third violation – A third violation occurring within 12 months of the first violation will result in the multiplier which establishes the reseller's purchase price for the covered product(s) increasing by 0.300 for a period of 60 days.
4. Fourth violation – A fourth violation occurring within 12 months of the first violation will result in Belimo terminating the reseller's ability to purchase the affected covered product(s).

Notwithstanding the foregoing, Belimo may excuse a violation if, after investigation of the facts, Belimo determines in its reasonable judgment that the violation was not knowing or intentional by the reseller.

Reseller Responsibilities for its Customer's Actions (Indirect Resellers)

It shall be deemed a violation of this Policy to sell to any other reseller (a) known to engage in any practice prohibited under this Policy, or (b) on a list of disallowed resellers communicated by Belimo from time to time.

This Policy will be applied equally to all covered resellers, including if multiple resellers are supplying the same customer in violation of the preceding paragraph. However, a reseller will not be deemed in violation where it (a) was not in violation of the preceding paragraph at the time of sale to the customer, and (b) the reseller reports any suspected violation by its customer immediately upon becoming aware of the problem.

Upon request, any reseller must confirm whether it is selling or has sold any covered product to any party identified by Belimo as advertising covered products below the applicable MAP pricing. Failure to respond truthfully also shall be deemed a violation of this Policy.

Policy Administration

Belimo has adopted this Policy unilaterally in furtherance of its independent business strategy for the Belimo brand. The Policy shall be effective in the U.S. and Canada.

Belimo will not invite, accept, or respond to any complaint or report from, act at the behest of, nor negotiate with any Reseller, in connection with a claim of an alleged violation of this policy by another Reseller.

Belimo does not seek consultation with any reseller nor will Belimo accept an agreement with any reseller regarding this policy.

Belimo reserves the right to modify, suspend or discontinue this MAP Policy at any time in whole or in part.

All inquiries regarding this Policy must be directed to Belimo's Credit and Collections Team. No other Belimo employees are authorized to discuss this Policy.

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Consultants and Specifiers

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Visit www.Belimo.us
or Call Your Local Representative

800-543-9038 USA | **866-805-7089** CANADA | **203-791-8396** LATIN AMERICA/CARIBBEAN

Belimo Americas Platinum Distributors

USA

ACR Supply Company Inc.
4040 S. Alston Avenue
Durham, NC 27713
Phone: 919-765-8081
With branches in NC

Aireco Supply
8860 Gorman Road
Laurel, MD 20723
Phone: 301-953-8800
With branches in MD, VA, DE

Boston Aircontrols, Inc.
8 A Street
Burlington, MA 01803
Phone: 781-272-5800

Broudy Precision
9 Union Hill Road
West Conshohocken, PA 19428
Phone: 610-825-7200
With a branch in NJ

Building Control & Solutions
2241 Valwood Parkway, Suite 200
Farmers Branch, TX 75234
Phone: 214-390-6900
With branches in TX, LA, NM, CA, AZ, UT, MA, NY, NJ, PA, ME, OH, NC, WI

Charles D. Jones Co.
621 East 14th Avenue
North Kansas City, Missouri 64116
Phone: 800-444-2761
With branches in CO, MO, KS, NE

Cochrane Supply and Engineering, Inc.
30303 Stephenson Highway
Madison Heights, MI 48071-1633
Phone: 800-482-4894
With branches in MI, IN, OH, KY, TX

Columbus Temperature Control
1053 E. 5th Avenue
Columbus, OH 43201
Phone: 800-837-1837

Controlco
3451 Vincent Road
Pleasant Hill, CA 94523
Phone: 916-927-5599
With branches in CA, TN

Control Depot
10703 J Street, Suite 200
Omaha, NE 68127
Phone: 866-809-7408
With branches in NE, MO, KS

Control Stop
3416 Carolina Avenue, Suite C
Charlotte, NC 28208
Phone: 704-248-2376

Energy Control Technologies
10220 West State Road 84, Suite 9
Davie, FL 33324
Phone: 954-739-8400

Engineered Control Systems
5627 NW 74th Avenue
Miami, FL 33166
Phone: 305-885-8804
With branches in FL

G & O Thermal Supply
5435 N. Northwest Highway
Chicago, IL 60630
Phone: 773-763-1300
With branches in IL, WI

Jackson Control
1640 W. Carroll Avenue
Chicago, Illinois 60612
Phone: 800-772-9859
With branches in IN, OH, PA, TN, AL

M & M Controls
9E West Aylesbury Road
Timonium, MD 21093
Phone: 410-252-1221
With branches in VA

Meier Supply
275 Broome Corporate Pwky
Conklin, NY 13748
Phone: 607-797-7700
With branches in NY, PA

Minvalco, Inc.
3340 Gorham Avenue
Minneapolis, MN 55426-4267
Phone: 952-920-0131
With branches in MN, WI

RSD / Refrigeration Supplies Distributor
26021 Atlantic Ocean Drive
Lake Forest, CA 92630
Phone: 949-380-7878
With branches in CA, NV, OR, AK, AZ, ID, UT, WA, MT, CO

Saint Louis Boiler Supply, Co.
617 Hanley Industrial Court
St. Louis, MO 63144
Phone: 800-264-5377

South Side Control Supply, Co.
488 N. Milwaukee Avenue
Chicago, IL 60654
Phone: 312-226-4900
With branches in IL, IN

Stromquist and Company
4620 Atlanta Road
Smyrna, GA 30080
Phone: 404-794-3440
With a branch in Orlando, FL

T.F. Campbell Company
1203 Edgebrook Avenue
Pittsburgh, PA 15226
Phone: 412-881-8006

Tower Equipment Co., Inc.
1320 West Broad Street
Stratford, CT 06615
Phone: 800-346-4647
With branches in CT

Twinco Supply
270 Park Avenue
New Hyde Park, NY 11040
Phone: 800-794-3188
With branches in NY

Canada

For a complete list of distributors in Canada, please visit our website: *www.belimo.ca* or call toll free: 866-805-7089

Brazil

For a complete list of distributors in Brazil, please visit our website: *www.belimo.com.br* or call: 55 11 3643-5656

Latin America & the Caribbean

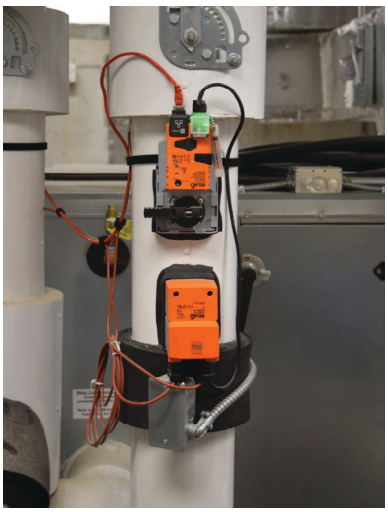
For a complete list of distributors in Latin America and the Caribbean, please visit our website: *www.belimo.us* or call: 203-791-8396

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BELIMO

Retrofit Helps Providence College Save Millions







Reducing the demand for chilled water on the lower campus would effectively create spare capacity in the chiller plant and reduce water flow through the main line. As a result, Providence would not need to install a fourth chiller (the plant already has three 1000-ton chillers running parallel). The plan was to isolate the lower campus sections where chilled water demand was highest. Some of the technology in these buildings were outdated and due for an upgrade.

Installing all 20 Energy Valves reduced peak flow rates through the main line. The corresponding reduction in pumping led to decreased electricity usage, which aligns with the college's commitment to increasing energy efficiency and improving environmental, social, and governance (ESG) performance. By meeting cooling needs with the current chiller plant configuration, an estimated $500,000 - $1,000,000 (approximate cost of installing a new chiller) was saved, excluding the millions of additional funds and the months of work required to resize/replace the existing main chilled water line.

→ To read the full story, go to www.belimo.us

"Every Energy Valve connected to the cloud and the campus central building management system (BMS) provides us transparency to the individual air handlers, crucial for troubleshooting and identifying opportunities for efficiency gains."

Matt Basile, Lead Design Engineer, Arden Engineering (right)

Paul Carter, General Manager, Earthwise Energy Technologies (left)

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33 Turner Road, Danbury, CT 06810
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