



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

Photo Credit: The 111th Group

**Embarcadero Center, San Francisco, California**

**2026**

Product Guide and Price List Americas (USD)

Effective January 1, 2026

**BELIMO**<sup>®</sup>

# Grateful for the Journey, Confident in the Future

Celebrating 50 years in 2025 marked a significant milestone in Belimo's history. It provided an opportunity to celebrate our achievements, honor our past, and recognize the people and partnerships that have shaped our success.

This defining point in our history offered more than company-wide retrospectives; it gave me a chance to pause and reflect on the tremendous privilege it has been to be part of this journey.

Over the past ten years, I've had the opportunity to work alongside a talented, dedicated team and to collaborate with customers who make our work meaningful. Your trust and partnership have helped drive our success, and I'm deeply thankful for the relationships we've built.

I'm proud of what we've accomplished—from navigating change and expanding our capabilities to strengthening our culture and customer focus. As I prepare to step away from my role, I do so with great confidence in what's next.

In 2026, Sarah Bencic will be stepping into the role of President, BELIMO Americas and I have every confidence in her ability to lead the organization forward. She brings deep experience, strong leadership, and a clear vision for the future—along with a steadfast commitment to serving our customers with excellence.

Thank you for being such an important part of my time at Belimo. It's been an honor to serve in this role, and I'm excited to see what the future holds for the company and for all of you.

Sincerely,



James Furlong  
President, BELIMO Americas



# Belimo Sensors, Meters, and Gas Monitors Improve Indoor Air Quality



## Accuracy and Reliability

Proper HVAC system operation is essential for maintaining safe and healthy indoor air quality (IAQ). Belimo's range of sensors, meters, and gas monitors delivers exceptional accuracy, reliability, and ease of installation, while seamlessly integrating with leading Building Management Systems (BMS). Products include field-selectable multi-sensors that measure CO<sub>2</sub>, humidity, temperature, and VOCs, as well as thermal energy meters designed to EN1434 standards for IoT-based billing, ensuring accurate flow and energy measurement. These solutions help guarantee occupant safety, comfort, and productivity in any building.



Discover the advantages  
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**BELIMO**<sup>®</sup>

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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.



## 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 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<sub>2</sub>, VOCs, or flow to create a more efficient and comfortable environment.



Discover the advantages  
[www.belimo.com](http://www.belimo.com)



5-year warranty



**BELIMO**<sup>®</sup>



## **NON FAIL-SAFE DAMPER ACTUATORS**

### **Versatile Performance with Low Power Consumption**

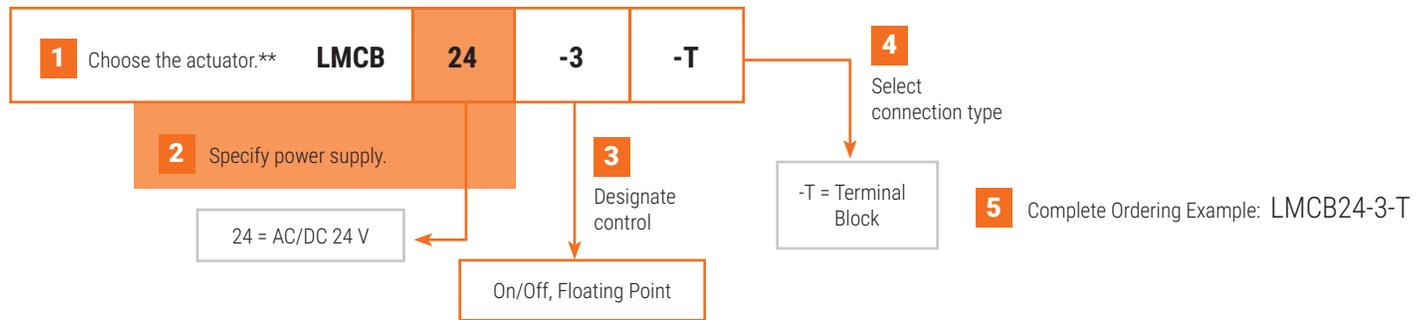
- Comprehensive torque offering 9...1,400 in-lb with direct coupled rotary and linear actuators.
- Patented brushless DC motor technology ensuring long reliable operation beyond our 5-year warranty.
- Minimum torque guaranteed over entire specified operation ranges.

# Non Fail-Safe Damper Actuator Nomenclature

LM	C	B	24	-3	-T	
<b>Torque Rating</b> <b>Non Fail-Safe Rotary</b> 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  <b>Non Fail-Safe Linear</b> AH = 100 lbf LH = 34 lbf UH = 11 lbf	<b>Speed</b> Q <sup>‡</sup> = Quick Running C = Fast Running No Designation = Normal Speed (LMB24-3)	<b>Version</b> B = Basic X = Customized	<b>Power Required</b> 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	<b>Control</b> -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 -MFT = Multi-Function Technology -IP = BACnet/IP, Modbus TCP -MOD = BACnet MS/TP, Modbus RTU -PGB = Piggyback Functionality in Primary Position	<b>Options</b> Blank = Cable Version -T = Terminal Block -S = Switch	.1 = Bulk Pack N4 = NEMA 4/4X  <b>X..N4 Types</b> Y = Heater Option

<sup>‡</sup>Note: Q versions have a slightly lower torque rating.

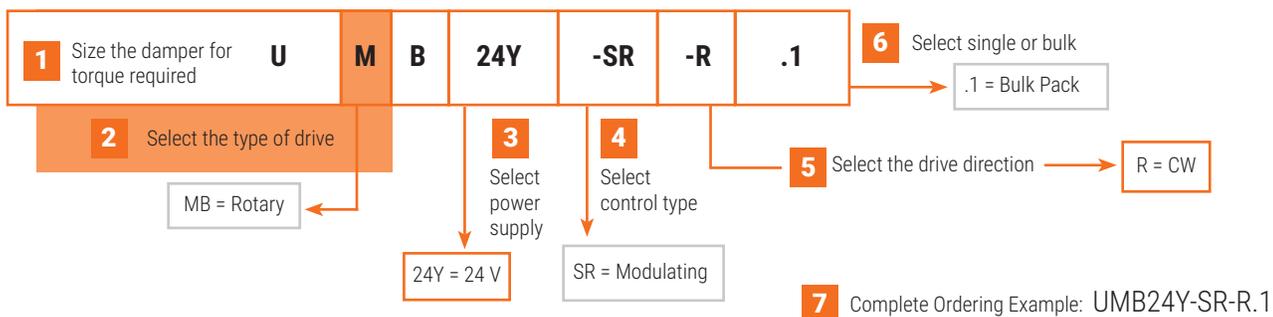
## Ordering Example



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

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

## Ordering Example\*\*

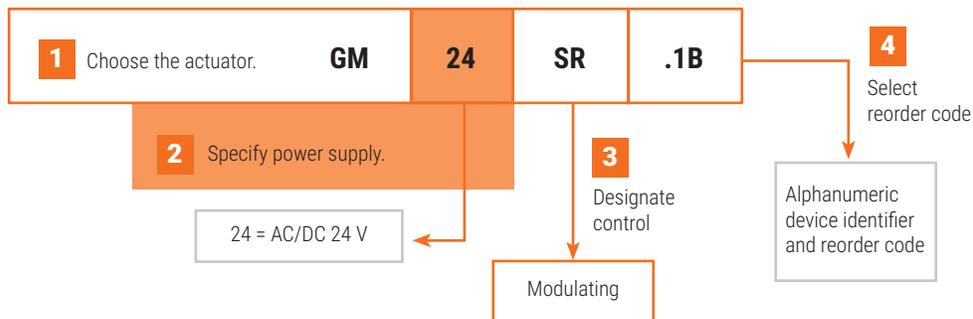


\*\*All functions and packaging are not available with all versions.

# Non Fail-Safe Damper Actuator Nomenclature

<b>GM</b>	<b>24</b>	<b>SR</b>	<b>S</b>	<b>.XX</b>
<b>Torque Rating</b> GM = 360 in-lb	<b>Power Supply</b> 24 = AC/DC 24 V, 50/60 Hz 120 = AC 100...240 V, 50/60 Hz	<b>Control</b> SR = Modulating Blank = On/Off, Floating Point	<b>Options</b> S = Switch	<b>Reorder Code</b>

## Ordering Example



**5** Complete Ordering Example: GM24SR.1B

# PMB, GM(B)(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			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%	VA Rating	Wattage Running (Holding)	Motor Drive (Default) [Seconds]	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing Y = \$650 OPTIONAL Heater**	Rotary "M", Linear "Lx"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	Piggyback Capable	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	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250 V	SPST, 3A (0.1A Inductive) @ 30 V	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P-A GR)					
<b>PMB Series</b> 1400 in-lb [160 Nm]	PMBUP-3-T	●		52	20 (6)	35	4X	●	M		●	●									2					\$3,816				
	PMBUP-MFT-T	●		52	20 (6)	35	4X	●	M		●	●	●	1		●	●	●				2				\$7,308				
<b>GMB Series</b> 360 in-lb [40 Nm] Approx. 90 sq.ft.	GMB24-IP	●		8	5.5 (3)	150	1		M													1		●		\$1,477				
	GM24A-MOD	●		7	3.5 (1.6)	150	2		M				1									1		●		\$1,367				
	GMB24-PGB	●		7	4.5 (1.5)	150	2		M						●	●	●	●	●	●					●		\$1,289			
<b>GMX Series</b> 360 in-lb [40 Nm] Approx. 90 sq.ft.	Customizable*	GM24	●		6	2.0 (0.5)	35...150 (150)	2		M	●	●	●	●													\$872			
		GM24S			8	2.0 (0.5)	35...150 (150)				●	●												●			\$1,065			
		GM24SR	●		6.5	2.0 (0.5)	35...150 (150)	2		M	●	●		●													\$1,162			
		GMX24-3-T N4	●		6	4.0 (2.0)	150	4X	Y	M	●	●	●	●												●		\$1,980		
		GMX24-SR-T N4	●		6.5	4.5 (2.0)	150	4X	Y	M	●	●		●												●		\$2,272		
		GM120			●	5.5	3.0 (0.5)	90...150 (150)	2		M	●	●	●	●													\$952		
		GM120S			●	13	5.5 (1.0)	90...150 (150)	2		M	●	●	●	●										●			\$1,145		
		GMX24-PGB	●		7	4.5 (1.5)	75...300 (150)	2		M	●	●				●	●	●	●	●	●						●		\$1,289	
		GMX24-PGB N4	●		7	4.5 (1.5)	75...300 (150)	4X	Y	M	●	●				●	●	●	●	●	●						●		\$2,445	
		GMX24-PGB-T	●		7	4.5 (1.5)	75...300 (150)	1		M	●	●				●	●	●	●	●	●						●		\$1,248	
GMX24-PGB-T N4	●		7	4.5 (1.5)	75...300 (150)	4X	Y	M	●	●				●	●	●	●	●	●						●		\$2,445			
<b>AMB Series</b> 180 in-lb [20 Nm] Approx. 45 sq.ft.		AMB24-3	●		5.5	2.5 (0.5)	95	2		M		●	●													●		\$617		
		AMB24-3-S	●		5.5	2.5 (0.5)	95	2		M		●	●											1		●		\$810		
		AMB24-SR	●		5	2.5 (0.4)	95	2		M				●												●		\$900		
		AMB24-SR-T	●		5	2.5 (0.4)	95	1		M				●												●		\$856		
		AMB24-IP	●		8	6 (3)	150	1		M					2										1		●		\$1,162	
		SM24A-MOD	●		6	3.5 (1.4)	150	2		M				1											1		●		\$1,056	
		AMB24-MFT	●		6	3.5 (1.4)	150	2		M						●	●	●	●	●							●		\$976	
		AMCB24-MFT	●		26	4 (1.5)	35	2		M						●	●	●	●	●							●		\$1,046	
<b>AMX Series</b> 180 in-lb [20 Nm] Approx. 45 sq.ft.	Customizable*	AMX24-3	●		5.5	2.5 (0.5)	95	2		M	●	●	●	●													●		\$617	
		AMX24-3-T	●		5.5	2.5 (0.5)	95	1		M	●	●	●	●													●		\$575	
		AMX24-3-T N4	●		5.5	2.5 (0.5)	95	4X	Y	M	●	●	●	●													●		\$1,126	
		AMX24-SR	●		5	2.5 (0.4)	95	2		M	●	●		●													●		\$900	
		AMX24-SR-T	●		5	2.5 (0.4)	95	1		M	●	●		●													●		\$856	
		AMX24-SR-T N4	●		5	2.5 (0.4)	95	4X	Y	M	●	●		●													●		\$1,407	
		AMX120-3			●	7	3.0 (0.6)	95	2		M	●	●	●	●												●		\$771	
		AMX120-SR			●	7.5	4.0 (1.0)	95	2		M	●	●		●												●		\$1,058	
		AMX24-MFT	●		6	3.5 (1.4)	90...300 (150)	2		M	●	●				●	●	●	●	●								●		\$976
		AMX24-MFT N4	●		6	3.5 (1.4)	90...300 (150)	4X	Y	M	●	●				●	●	●	●	●							●		\$1,526	
		AMX24-MFT-T N4	●		6	3.5 (1.4)	90...300 (150)	4X	Y	M	●	●				●	●	●	●	●							●		\$1,526	
		AMCX24-MFT	●		26	4 (1.5)	35...120 (35)	2		M	●	●				●	●	●	●	●							●		\$1,046	
AMCX24-MFT-T N4	●		26	3.5 (1.4)	35...120 (35)	4X	Y	M	●	●				●	●	●	●	●							●		\$1,596			

See pages 1-7 through 1-10 for additional generic product series specifications. Visit [www.belimo.com](http://www.belimo.com) 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.

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



		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) [Seconds]	NEMA 1, 2, or 4X ● = Heater Built-in NEMA Housing Y = \$650 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) BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	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		●		●		\$1,034	
		AMQB24-MFT	●	26 15 (1.5)	7 2	M			●	●		\$1,198	
	C*	AMQX24-MFT	●	26 15 (1.5)	7...15 (7)	2	M	● ●	●	●	●	\$1,198	
AHB Series 100 lbf [450 N Force] 4" or 8" stroke		AHB24-3-100	●	4.5 2.0 (0.5)	150 2	L 4"		● ●				\$804	
		AHB24-3-200	●	4.5 2.0 (0.5)	150 2	L 8"		● ●				\$859	
		AHB24-SR-100	●	4.5 2.5 (0.5)	150 2	L 4"			●		●	\$1,112	
		AHB24-SR-200	●	4.5 2.5 (0.5)	150 2	L 8"			●		●	\$1,163	
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"		● ● ●				\$804	
		AHX24-3-200	●	4.5 2.0 (0.5)	150...450 (150) 2	L 8"		● ● ●				\$859	
		AHX24-3-300	●	4.5 2.0 (0.5)	150...450 (150) 2	L 12"		● ● ●				\$892	
		AHX120-3-100	●	4.5 2.5 (0.5)	150...450 (150) 2	L 4"		● ● ●				\$866	
		AHX120-3-200	●	4.5 2.5 (0.5)	150...450 (150) 2	L 8"		● ● ●				\$915	
		AHX120-3-300	●	4.5 2.5 (0.5)	150...450 (150) 2	L 12"		● ● ●				\$1,032	
		AHX24-SR-100	●	4.5 2.5 (0.5)	150...450 (150) 2	L 4"		●	●		●		\$1,112
		AHX24-SR-200	●	4.5 2.5 (0.5)	150...450 (150) 2	L 8"		●	●		●		\$1,163
		AHX24-MFT-100	●	6 3.5 (1.3)	150...450 (150) 2	L 4"		●		● ● ● ● ●			\$1,148
		AHX24-MFT-200	●	6 3.5 (1.3)	150...450 (150) 2	L 8"		●		● ● ● ● ●			\$1,223
AHX24-MFT-300	●	6 3.5 (1.3)	150...450 (150) 2	L 12"		●		● ● ● ● ●			\$1,252		
AHQB(X) 44 lbf [200 N Force]		AHQB24-1-100	●	23 13 (1.5)	7 2	L 4"		●				\$1,324	
		AHQB24-MFT-100	●	23 13 (1.5)	7 2	L 4"			●	●	●	\$1,415	
	C*	AHQX24-MFT-100	●	23 13 (1.5)	7...20 (7)	2	L 4"	●		●	●	\$1,415	

See pages 1-7 through 1-10 for additional generic product series specifications. Visit [www.belimo.com](http://www.belimo.com) 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.



# 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) [Seconds]	NEMA 1, 2, or 4X	• = Heater Built-in NEMA Housing Y = \$650 OPTIONAL Heater**	Rotary "M", Linear "Lx"	Select Mechanical Coupler	Select Electrical Connection	On/Off			Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	BACnet: MS/TP or Modbus RTU (1)	BACnet/IP or Modbus TCP (2)	On/Off
<b>LMB Series</b> 45 in-lb [5 Nm] Approx. 11 sq. ft.	LMB24-3	•		2.5	1.5 (0.2)	95	2	M				•	•					•		\$297				
	LMCB24-3	•		3	1.5 (0.2)	35	2	M				•	•					•		\$369				
	LMB24-3.1	•		2.5	1.5 (0.2)	95	2	M				•	•					•	24	\$6,288				
	LMB24-3-S	•		2.5	1.5 (0.2)	95	2	M				•	•				1	•		\$444				
	LMB24-3-T	•		2.5	1.5 (0.2)	95	1	M				•	•					•		\$254				
	LMCB24-3-T	•		3	1.5 (0.2)	35	1	M				•	•					•		\$336				
	LMB24-3-T.1	•		2.5	1.5 (0.2)	95	1	M				•	•					•	36	\$7,056				
	LMB24-3-P5-T	•		2.5	1.5 (0.2)	95	1	M				•	•				5k Ω	•		\$444				
	LMB24-3-P5-T.1	•		2.5	1.5 (0.2)	95	1	M				•	•				5k Ω	•	36	\$15,192				
	LMB24-3-P10-T	•		2.5	1.5 (0.2)	95	1	M				•	•				10k Ω	•		\$444				
	LMB120-3		•	2.5	1.5 (0.2)	95	2	M				•	•					•		\$377				
	LMB24-SR	•		3	1.5 (0.4)	95	2	M					•					•		\$475				
	LMCB24-SR	•		3	1.5 (0.4)	35	2	M					•					•		\$562				
	LMB24-SR.1	•		3	1.5 (0.4)	95	2	M					•					•	24	\$10,896				
	LMB24-SR-T	•		3	1.5 (0.4)	95	1	M					•					•		\$426				
	LMCB24-SR-T	•		3	1.5 (0.4)	35	1	M					•					•		\$524				
	LMB24-SR-T.1	•		3	1.5 (0.4)	95	1	M					•					•	36	\$14,256				
	LMB24-IP	•		4.5	3 (3)	150	1	M							2			•	1	•	\$805			
	LM24A-MOD	•		5	2.5 (1.3)	150	2	M							1			•	1	•	\$699			
	LMB24-MFT	•		5	2.5 (1.2)	150	2	M					•	•	•	•			•		\$626			
LMB24-HM	•		2	1.5 (0.2)	95	1	M											•		\$401				
LMB24-10P-HM	•		2	1.5 (0.2)	95	1	M									10k Ω	•		\$435					
<b>LMX Series</b> 45 in-lb [5 Nm] Approx. 11 sq. ft.	Customizable*	LMX24-3	•	2.5	1.5 (0.2)	95	2	M	•	•	•	•						•		\$297				
		LMX24-3-T	•	2.5	1.5 (0.2)	95	1	M	•	•	•	•						•		\$264				
		LMX24-SR	•	3	1.5 (0.4)	95	2	M	•	•		•						•		\$475				
		LMX24-SR-T	•	3	1.5 (0.4)	95	1	M	•	•		•						•		\$430				
		LMX120-3		•	2.5	1.5 (0.2)	150	2	M	•	•	•	•						•		\$377			
		LMX120-SR		•	4.5	2.5 (1.0)	150	2	M	•	•		•						•		\$581			
LMX24-MFT	•		5	2.5 (1.2)	35...200 (150)	2	M	•	•		•	•	•	•			•		\$626					
<b>LMQB(X) Series</b> 35 in-lb [4 Nm]	☞	LMQB24-1	•	23	13 (1.5)	2.5	2	M				•						•		\$754				
		LMQB24-MFT	•	23	13 (1.5)	2.5	2	M					•	•	•			•		\$844				
		LMQX24-MFT	•	23	13 (1.5)	2.5...10 (2.5)	2	M	•	•			•	•	•			•		\$843				

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See pages 1-7 through 1-10 for additional generic product series specifications. Visit [www.belimo.com](http://www.belimo.com) 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.



# 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) [Seconds]	NEMA 1, 2, or 4X	Rotary "M", Linear "Lx"		Counter-Clockwise Rotation	Clockwise Rotation				Universal Clamp ¼" ...½" [6...12.7 mm] Form fit (8x8 mm)
<b>UMB Series Universal Clamp</b> 9 in-lb [1 Nm] Approx. 2.25 sq. ft.	UMB24Y-L	●	2	1 (0.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●		\$205	
	UMB24Y-L.1	●	2	1 (0.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●	100	\$20,200	
	UMB24Y-R	●	2	1 (0.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●		\$205	
	UMB24Y-R.1	●	2	1 (0.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●	100	\$20,200	
	UMB230Y-L	●	4.5	2 (1.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●		\$278	
	UMB230Y-L.1	●	4.5	2 (1.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●	100	\$27,500	
	UMB230Y-R	●	4.5	2 (1.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●		\$278	
	UMB230Y-R.1	●	4.5	2 (1.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●	100	\$27,500	
	UMB24Y-SR-L	●	2.5	1.5 (0.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●	●		\$352
	UMB24Y-SR-L.1	●	2.5	1.5 (0.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●	●	100	\$34,800
	UMB24Y-SR-R	●	2.5	1.5 (0.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●	●		\$352
	UMB24Y-SR-R.1	●	2.5	1.5 (0.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●	●	100	\$34,800
<b>UMB Series Form Fit</b> 9 in-lb [1 Nm] Approx. 2.25 sq. ft.	UMB24Y-F-L	●	2	1 (0.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●		\$191	
	UMB24Y-F-R	●	2	1 (0.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●		\$191	
	UMB230Y-F-L	●	4.5	2 (1.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●		\$264	
	UMB230Y-F-R	●	4.5	2 (1.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●		\$264	
	UMB24Y-SR-F-L	●	2.5	1.5 (0.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●		\$338	
	UMB24Y-SR-F-R	●	2.5	1.5 (0.5)	22 / 90°	1	M	●	●	●	●	●	●	●	●	●		\$338	
<b>UHB Series</b> 11 lbf [50 N Force] 2.4" [60 mm] stroke	UHB24Y-L	●	2	1.5 (0.5)	73 / 60 mm	1	L	●	●	●	●	●	●	●	●	●		\$372	
	UHB230Y-L	●	4.5	2 (1.5)	73 / 60 mm	1	L	●	●	●	●	●	●	●	●	●		\$445	
	UHB24Y-SR-L	●	2.5	1.5 (0.5)	73 / 60 mm	1	L	●	●	●	●	●	●	●	●	●		\$524	

See page 1-10 for additional generic product series specifications. Visit [www.belimo.com](http://www.belimo.com) for detailed product specifications and downloadable data sheets.

\* Ordering note: 20 piece purchase option available via web customization.

## UMB Series Accessories

Description		List Price
 <b>Z-ARCM</b> Anti-rotation clip. Multipack 20 pcs.		\$200
 <b>Z-PICM</b> Position indicator. Multipack 20 pcs.		\$340
 <b>Z-ESCM</b> End stop clip, for CM.. / CH.. / CQ.. / CQK.. / KR.. / UM.. / UH.. Multipack 20 pcs. Only for actuators with shaft clamp.		\$180
 <b>Z-MA</b> Magnet for gear train disengagement. Multipack 20 pcs.		\$200

Description		List Price
 <b>Z-PCUM</b> Protection cover UM.. Multipack 20 pcs.		\$280
 <b>Z-C24UM</b> Cable for 24 V actuator (1m FRNC) Multipack 20 pcs.		\$600
 <b>Z-C24UM-SR</b> Cable for 24 V-SR actuator (1m FRNC) Multipack 20 pcs.		\$720
 <b>Z-C230UM</b> Cable for 120/230 V actuator (1m FRNC) Multipack 20 pcs.		\$600

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**PMB, GM, AMB, AMX Series**

Direct Coupled, Non Fail-Safe Damper Actuators

**ACTUATOR SPECIFICATIONS**

<b>PMB Series</b> 1400 in-lb [160 Nm]	
Angle of Rotation ♦ Max Min Mid	95°, with built-in end stops MFT electronically variable Min with MFT 0...67% Max with MFT 33...100%
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

<b>GM Series</b> 360 in-lb [40 Nm] Approx. 90 sq.ft.	
Power Supply	AC/DC 24 V AC 100...240 V
Angle of Rotation	95°, electronically variable end stops
Fits Shaft Diameter	½...1.05" (centers on ¾" shaft with insert and on 1" without insert)
Position Indication	reflective visual indicator (snap-on) with 0/30/60/90° labels
Manual Override	external lever
Direction of Rotation	electronically variable
Electrical Connection	3 ft., 20 GA plenum rated cable, ½" NPT conduit fitting; terminal strip models
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	Optional 2x SPST
Housing N4(X) Type Accessory	NEMA 2/IP54, enclosure Type 2 NEMA 4X low temperature heater
Agency Listings	cULus according to UL 60730-1 A/-2-14, UL2043 compliant, CAN/ CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

<b>AMB / AMX Series</b> 180 in-lb [20 Nm] Approx. 45 sq.ft.	
Power Supply	AC/DC 24 V AC 100...240 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
Electrical Connection	3 ft., 18 GA plenum rated cable, ½" NPT 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 N4(X) 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.

**ACTUATOR SPECIFICATIONS**

<b>AMQB / AMQX Series</b>  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 rated cable, ½" NPT 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

<b>AHB / AHX Series</b>  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 rated cable, ½" NPT 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

<b>AHQB / AHQX Series</b>  44 lbf [200 N Force] 4" stroke	
Power Supply	AC/DC 24 V
Manual Override	external push-button
Direction of Stroke ♦	external switch
Runtime	7 seconds
Electrical Connection	3 ft., 18 GA plenum rated cable, ½" NPT 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

♦ Variable with MFT.

### ACTUATOR SPECIFICATIONS

<b>NMB / NMX Series</b>	
90 in-lb [10 Nm] Approx. 22 sq.ft.	
Power Supply	AC/DC 24 V AC 100...240 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 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" NPT 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	NEMA 2/IP54 (NEMA 1/IP20 for -T models), enclosure Type 2
N4(X) Type Accessory	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

<b>NMQB / NMQX Series</b>	
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 rated cable, ½" NPT 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

<b>LMB / LMX Series</b>	
45 in-lb [5 Nm] Approx. 11 sq.ft.	
Power Supply	AC/DC 24 V AC 100...240 V
Angle of Rotation◆	95°, adjustable with mechanical end stops MFT electronically variable 0...100%
Fits Shaft Diameter	¼ ... 5/8" (self-centers on 5/8" 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" NPT 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.

<b>LMQB / LMQX Series</b>	
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 rated cable, ½" NPT 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

<b>LHB / LHX Series</b>	
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" NPT 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

<b>LHQB / LHQX Series</b>	
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" NPT 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

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**ACTUATOR SPECIFICATIONS**

<b>CMB Series</b> 18 in-lb [2 Nm] Approx. 4.5 sq.ft.	
Power Supply	AC/DC 24 V AC 100...240 V
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 ⅜" 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

<b>CMB Series Integrated Damper Blade</b> 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/IP54
Agency Listings	cULus according to UL 60730-1A, UL2043 compliant

<b>UMB Series</b> 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)
Universal Clamp	¼...½" [6...12.7 mm] (self-centers on ⅜" shaft)
Form Fit	8 x 8 mm (optional 6 x 6 mm, 10 x 10 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" x 2.2" x 1.1" [107 x 56 x 28 mm]
Form Fit	4.2" x 2.2" x 0.98" [107 x 56 x 25 mm]
Weight	
Shaft Clamp	0.26 lb [120 g]
Form Fit	0.20 lb [90 g]

<b>UHB Series</b> 11 lbf [50 N Force] 2.4" stroke	
Linear Force	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" x 2.4" x 1.6" [199 x 60 x 40 mm]
Weight	
w/Linear	0.33 lb [150 g]

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# 6-way Electronic Pressure Independent Valve



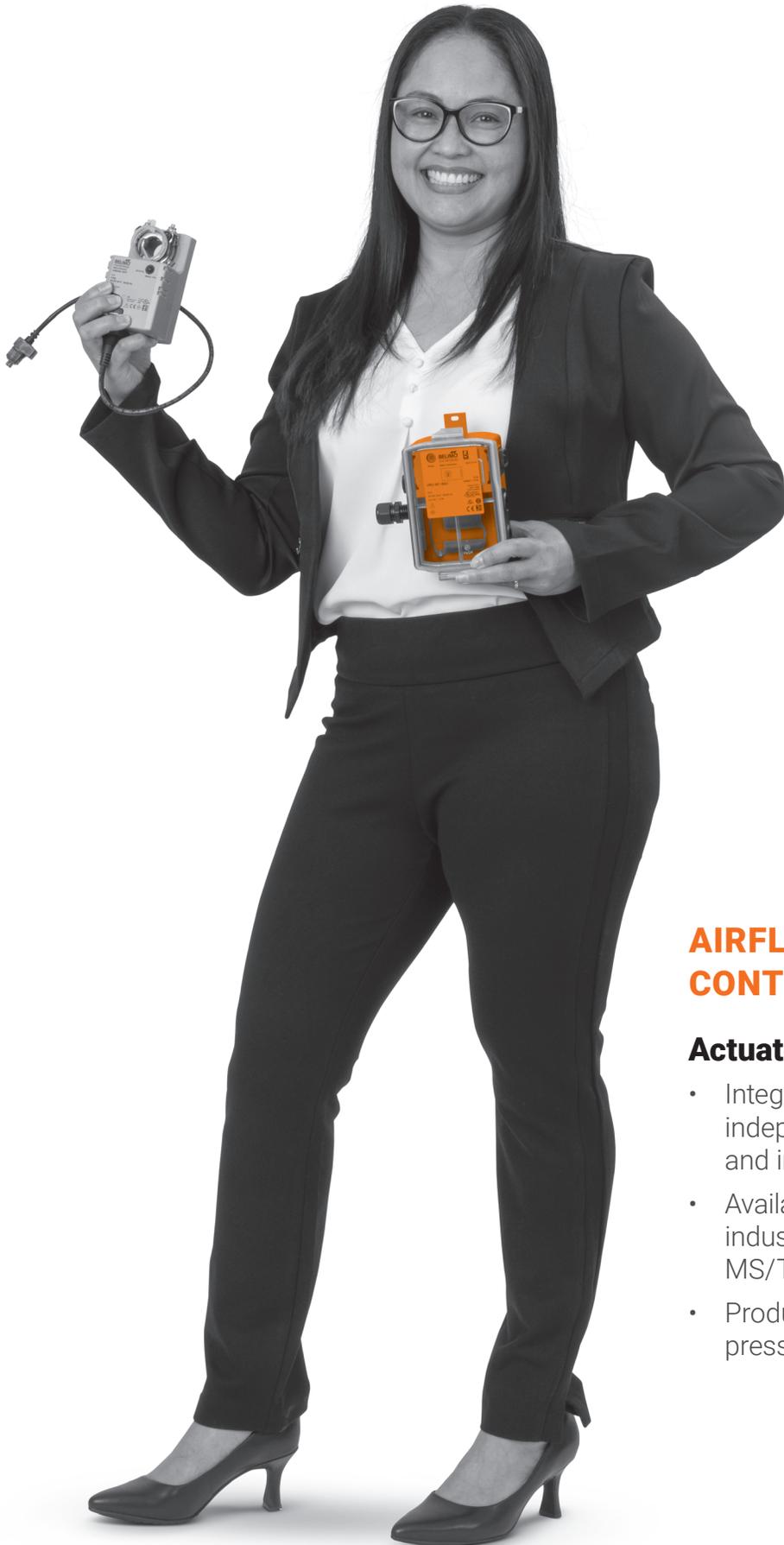
## Precision Control for 4-Pipe Systems with True Flow Measurement

Belimo's 6-way electronic pressure independent valve (EPIV) is the only valve of its kind designed for chilled beams, radiant ceiling panels, and 4-pipe fan coil units. This innovative solution integrates changeover and modulating control for both heating and cooling into a single device, dramatically reducing material requirements and installation time. With true electronic flow measurement and dynamic balancing, it ensures precise flow measurement and optimal system efficiency. Plus, its Condensation Protection Mode safeguards against moisture damage, enhancing reliability and lowering maintenance costs.



Discover the advantages  
[www.belimo.com](http://www.belimo.com)

**BELIMO**<sup>®</sup>



## **AIRFLOW MEASUREMENT & CONTROL DAMPER ACTUATORS**

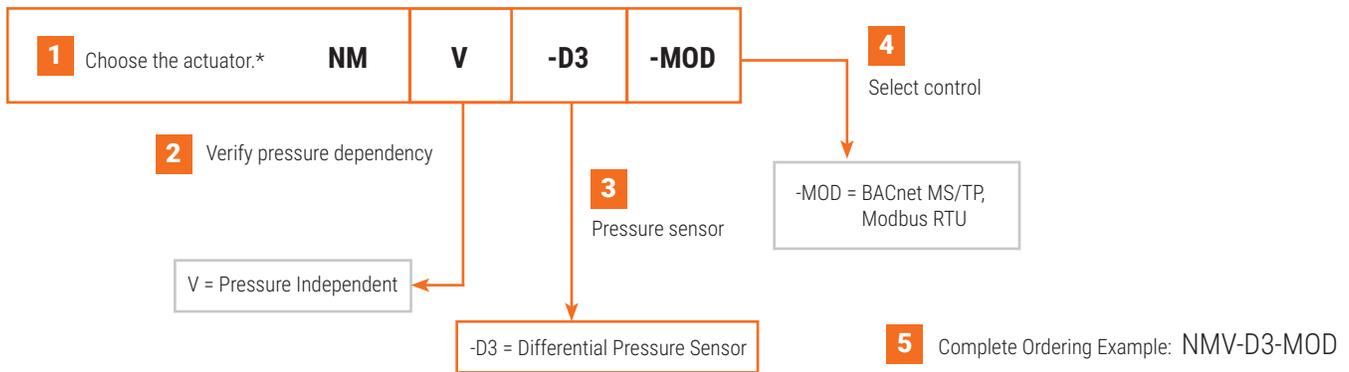
### **Actuators Designed for Zone Comfort**

- 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.

# Airflow Measurement & Control (AFMC) Damper Actuator Nomenclature

NM	V	-D3	-MOD
<b>Torque Rating</b> Non Fail-Safe Rotary NM = 90 in-lb LM = 45 in-lb Non Fail-Safe Linear LH = 34 lbf	V = Pressure Independent	<b>Pressure Sensor</b> -D3 = Differential Pressure Sensor -M1 = Membrane Differential Pressure	<b>Control</b> -MOD = BACnet MS/TP, Modbus RTU -MP = MP-Bus -MFT = Multi-Function Technology

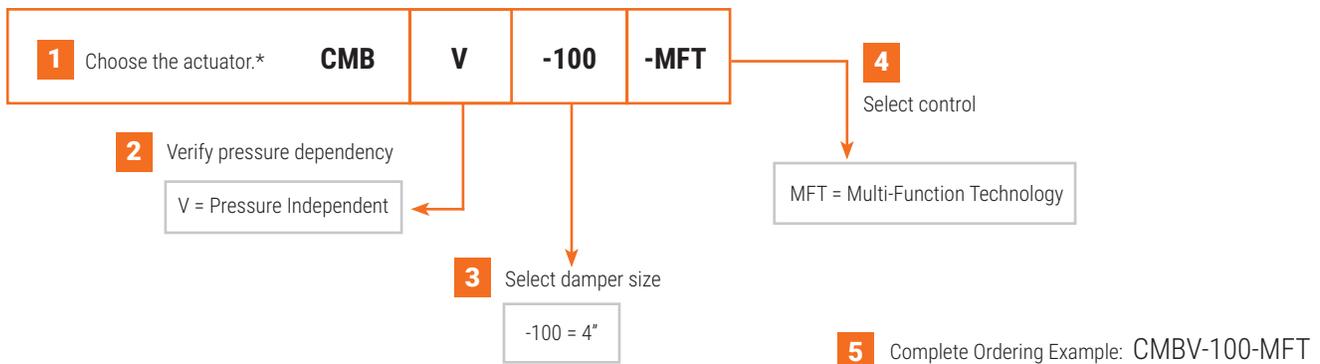
## Ordering Example



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

CMB	V	-100	-MFT
<b>Torque Rating</b> Non Fail-Safe In-Duct CMB = 18 in-lb	V = Pressure Independent	<b>Damper Size</b> -100 = 4" dia. -125 = 5" dia. -150 = 6" dia.	<b>Control</b> -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	
		VA Rating	Wattage Running (Holding)		Motor Drive (Seconds)	CAV (0...3000 fpm)	VAV (0...3000 fpm)	Open Loop (0...3000 fpm)	NFC for iPhone & Android devices			PC-Tool	ZTH	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
<b>NMV Series</b> 90 in-lb [10 Nm]	NMV-D3-MP	●	5	3 (1.5)	150	●	●	●	●	●	2	●	M	●	●	●	●	●	●	●	\$844
	NMV-D3-MOD	●	5	3 (1.5)	150	●	●	●	●	●	2	●	M	●	●	●	●	●	●	●	\$915
	NMV-D3-MFT	●	5	3 (1.5)	150	●	●	●	●	●	2	●	M	●	●	●	●	●	●	●	\$844
	NMV-M1-MP	●	5	3 (1.5)	150	●	●	●	●	●	2	●	M	●	●	●	●	●	●	●	\$973
	NMV-M1-MOD	●	5	3 (1.5)	150	●	●	●	●	●	2	●	M	●	●	●	●	●	●	●	\$1,054
<b>LMV Series</b> 45 in-lb [5 Nm]	LMV-D3-MP	●	3.5	2 (1)	150	●	●	●	●	●	2	●	M	●	●	●	●	●	●	●	\$723
	LMV-D3-MOD	●	4	2 (1)	150	●	●	●	●	●	2	●	M	●	●	●	●	●	●	●	\$792
	LMV-D3-MFT	●	3.5	2 (1)	150	●	●	●	●	●	2	●	M	●	●	●	●	●	●	●	\$723
	LMV-M1-MP	●	3.5	2 (1)	150	●	●	●	●	●	2	●	M	●	●	●	●	●	●	●	\$833
	LMV-M1-MOD	●	4	2 (1)	150	●	●	●	●	●	2	●	M	●	●	●	●	●	●	●	\$914
<b>LHV Series</b> 34 lbf [150 N]	LHV-D3-MP-100	●	4.5	2.5 (1.5)	150	●	●	●	●	●	2	●	L (4")	●	●	●	●	●	●	●	\$924
	LHV-D3-MP-200	●	4.5	2.5 (1.5)	150	●	●	●	●	●	2	●	L (8")	●	●	●	●	●	●	●	\$972
	LHV-D3-MP-300	●	4.5	2.5 (1.5)	150	●	●	●	●	●	2	●	L (12")	●	●	●	●	●	●	●	\$1,014
<b>CMBV Series</b> 18 in-lb [2 Nm]	CMBV-100-MFT	●	2.5	1.5 (1)	70	●	●	●	●	●	1		M 4"	●	●	●					\$790
	CMBV-125-MFT	●	2.5	1.5 (1)	70	●	●	●	●	●	1		M 5"	●	●	●					\$796
	CMBV-150-MFT	●	2.5	1.5 (1)	70	●	●	●	●	●	1		M 6"	●	●	●					\$801

See page 1-15 for additional generic product series specifications. Visit [www.belimo.com](http://www.belimo.com) for detailed product specifications and downloadable data sheets.  
 \*½" NPT conduit connector (TF-CC US) not included in the purchase of this actuator. Please refer to page 5-11 for more information.

# NMV, LMV, LHV, CMBV Series

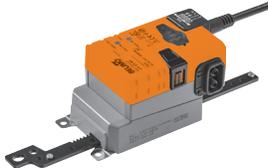
Direct Coupled, Airflow Measurement & Control Damper Actuators



## ACTUATOR SPECIFICATIONS

<b>NMV Series</b> 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 & iPhone 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
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/IP54
Agency Listings	cULus according to UL 60730-1A/-2-14, UL 2043

<b>LMV Series</b> 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 & iPhone 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
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/IP54
Agency Listings	cULus according to UL 60730-1A/-2-14, UL 2043

<b>LHV Series</b> 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 & iPhone 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
Manual Override	external push-button
Overload Protection	electronic throughout stroke
Housing	NEMA 2/IP54
Agency Listings	cULus according to UL 60730-1A/-2-14, UL 2043

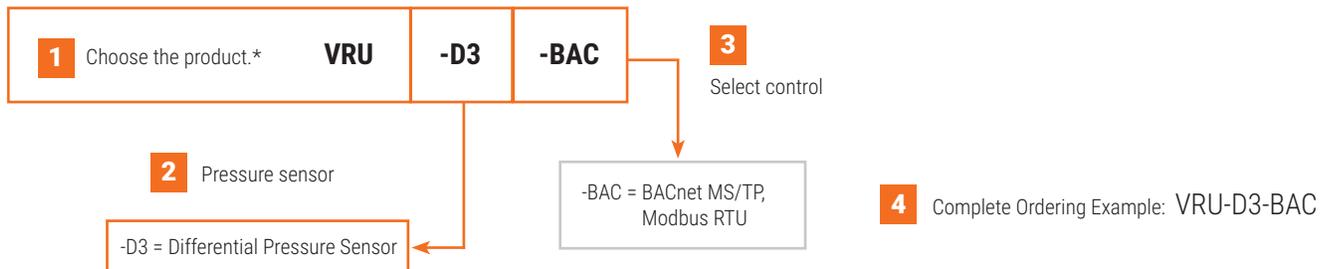
<b>CMBV Series</b> 18 in-lb [2 Nm]	
Angle of Rotation	70° (electronically limited)
Manual Override	engages with magnet
Operation and Service Devices	PC-Tool, ZTH
VAV- Variable Volumetric Flow	V'min ... V'max 2...10 V / 0...10 V / adjustable division / bus operation
CAV - Constant Volumetric Flow	CLOSED / V'min / (V'mid) / V'max / OPEN controlled by switch
Damper Blade Sizes	4", 5", 6" diameter
Housing	NEMA 1/IP00
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
<b>VAV Universal</b> VRU = VAV Universal	<b>Pressure Sensor</b> -D3 = Differential Pressure Sensor -M1 = Membrane Differential Pressure -M1R = Membrane (Room) Differential Pressure	<b>Communications Protocol</b> -BAC = BACnet MS/TP, Modbus RTU

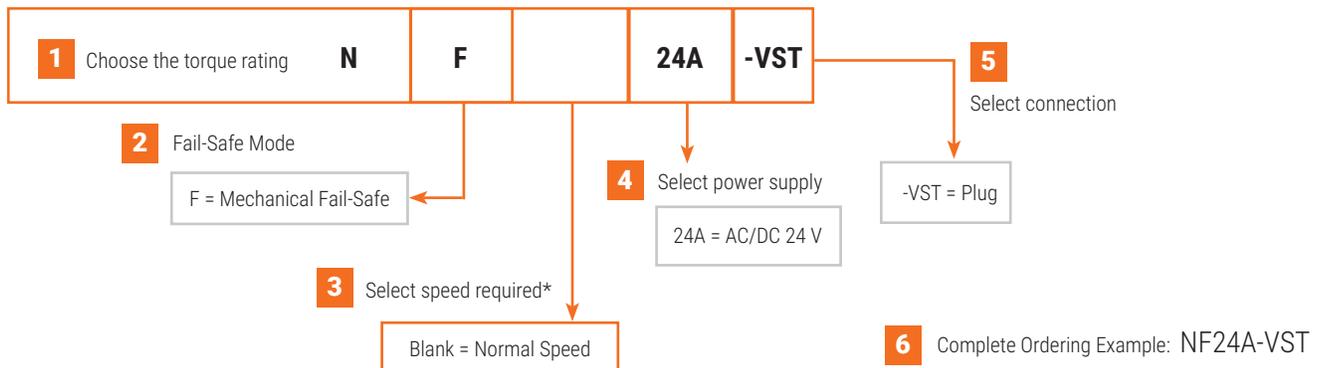
### Ordering Example



## VAV Universal Actuator Nomenclature

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

### Ordering Example



\*Q versions have a slightly lower torque rating.



### SPECIFICATIONS

VAV Universal Sensor/Communications Module	
Operation and Service Devices	NFC for iPhone & Android devices, PC-Tool, ZTH
Control Inputs	0/2...10 V, 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 / IP42
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 / IP54
Agency Listings	IEC/EN 60730-1 and IEC/EN 60730-2-14 UL 2043

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All prices are in US Dollars (USD)

## 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, monitoring, and adjusting the actuators has never been easier due to a diverse suite of tools.



Discover the advantages  
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5-year warranty





## 2 FAIL-SAFE DAMPER ACTUATORS

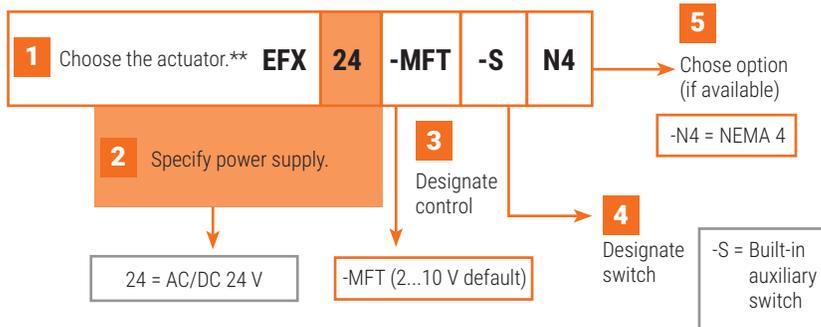
### Reliability and Safety Performance

- Rotary, linear, and quick running offerings for challenging applications.
- Mechanical and Electronic Fail-Safe for all demanding commercial HVAC applications.
- MFT is available, providing the flexibility to customize and adapt a single actuator to various controllers and applications.

## Mechanical Fail-Safe Damper Actuator Nomenclature

EF		X	24	-MFT	-S	N4
<b>Torque Rating</b>	<b>Speed</b>	<b>Options</b>	<b>Power Supply</b>	<b>Control</b>	-S = Built-in Auxiliary Switch	US (LF..) <b>EF.. Series</b> N4 = NEMA 4/4X <b>X..N4 Types</b> Y = Heater Option
EF = 270 in-lb AF = 180 in-lb NF = 90 in-lb LF = 35 in-lb TF = 22 in-lb	C = Fast Running L = Low Noise Blank = Normal Speed	B = Basic X = Customized Blank = None	24 = AC/DC 24 V 120 = AC 120 V* 230 = AC 230 V UP = AC 24...240 V, DC 24...125 V	Blank = On/Off -3 = Floating Point -SR = 2...10 V -ECON-RO3 = 3k $\Omega$ NTC Type 10 Thermistor -MFT = Multi-Function Technology -IP = BACnet/IP, Modbus TCP -MOD = BACnet MS/TP, Modbus RTU		

### Ordering Example



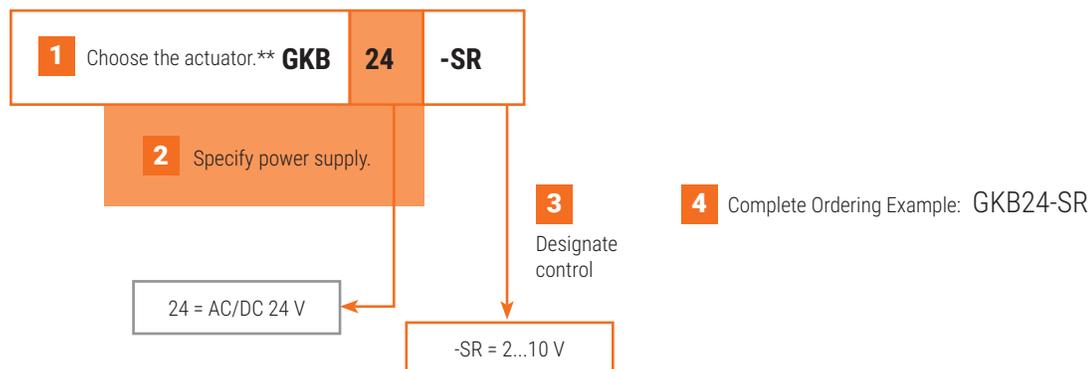
**6** Complete Ordering Example: EFX24-MFT-S N4

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

## Electronic Fail-Safe Damper Actuator Nomenclature

GK		B	24	-SR	
<b>Torque Rating</b>	<b>Speed</b>	<b>Version</b>	<b>Power Supply</b>	<b>Control</b>	-T = Terminal Block N4 = NEMA 4/4X <b>X..N4 Types</b> Y = Heater Option
PK = 1400 in-lb GK = 360 in-lb AK = 180 in-lb NK = 54 in-lb AHK = 100 lbf	Q = Quick Running Blank = Normal Speed	B = Basic X = Customized	24 = AC/DC 24 V UP = AC 24...240 V	-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	**All functions and options are not available with all versions

### Ordering Example



# 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%	VA Rating (Actuator/Heater)	Motor Drive (Default) Seconds	NEMA 1, 2, or 4X	Rotary "M", Linear "L"	Select Mechanical Coupler	On/Off	On/Off	Digital (1), Resistive Feedback		
		AC 24...240 V +10%/-20%, 50/60 Hz	Wattage Running/Heater (Holding)	Fail-Safe (Seconds)	● = Heater Built-in NEMA Housing Y = \$650 OPTIONAL Heater**		Select Electrical Connection	Floating Point	Floating Point	SPDT, 3A (0.5A Inductive) @ 250 V. (1 or 2)		
		DC 24...125 V ± 10%						2...10 V or 4...20 mA (w/500 Ω Resistor)	Start and Span adj., Start 0.5...30 V (2.0)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)		
		AC 120 V ± 10%						3k Ω (1), 10k Ω (2) NTC Thermistor	Span 2.5...32 V (8.0)			
		AC 230 V ± 10%						BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	PWM adj., 0.02...50 Seconds			
									2...10 V (Default) Adjustable with MFT			
<b>PKB Series</b> 1400 in-lb [160 Nm]	PKBUP-MFT-T	●	68 52 (9)	35 30	4X ●	M		1	● ● ●		\$8,995	
<b>GKB Series</b> 360 in-lb [40 Nm] Approx. 90 sq. ft.	GKB24-3	●	21 11 (3)	150 35	2	M			● ●		\$1,944	
	GKB24-SR	●	21 11 (3)	150 35	2	M		●		●	\$2,423	
	GKB24-IP	●	21 11 (3)	150 35	1	M		2		● 1	\$2,682	
	GKB24-MFT	●	21 11 (3)	150 35	2	M			● ● ●	●	\$2,672	
<b>GKX Series</b> 360 in-lb [40 Nm] Approx. 90 sq. ft.	GKX24-3	●	21 11 (3)	150 35	2	M	● ● ● ●				●	\$1,941
	GKX24-3-T N4	●	21/21 11/21 (3)	150 35	4X	Y M	● ● ● ●				●	\$2,879
	GKX24-SR	●	21 11 (3)	150 35	2	M	● ●	●			●	\$2,421
	GKX24-SR-T N4	●	21/21 11/21 (3)	150 35	4X	Y M	● ●	●			●	\$3,358
	GKX24-MFT	●	21 11 (3)	150 35	2	M	● ●		● ● ●	●	●	\$2,672
	GKX24-MFT-T N4	●	21/21 11/21 (3)	150 35	4X	Y M	● ●		● ● ●	●	●	\$3,610
<b>EFB Series</b> 270 in-lb [30 Nm] Approx. 68 sq. ft.	EFB24	●	16 9.5 (4.5)	75 <20	2	M		●				\$1,665
	EFB24 N4	●	16 9.5 (4.5)	75 <20	4	M		●				\$1,933
	EFB24-S	●	16 9.5 (4.5)	75 <20	2	M		●			2	\$1,996
	EFB120	● ●	21 9.5 (4.5)	75 <20	2	M		●				\$1,853
	EFB120-S	● ●	21 9.5 (4.5)	75 <20	2	M		●			2	\$2,190
	EFB120-S N4	● ●	21 9.5 (4.5)	75 <20	4	M		●			2	\$2,489
	EFB120-S	● ●	21 9.5 (4.5)	75 <10	2	M		●			2	\$2,302
	EFB24-SR	●	14 8.0 (4.5)	95 <20	2	M		●			●	\$2,075
	EFB24-SR N4	●	14 8.0 (4.5)	95 <20	4	M		●			●	\$2,375
	EFB24-SR-S	●	14 8.0 (4.5)	95 <20	2	M		●			● 2	\$2,404
	EFB24-MFT	●	16 9.5 (4.5)	60...150 (150) <20	2	M			● ● ● ● ●			\$2,289
	EFB24-MFT-S	●	16 9.5 (4.5)	60...150 (150) <20	2	M			● ● ● ● ●		2	\$2,617

See pages 2-7 and 2-8 for additional generic product series specifications. Visit [www.belimo.com](http://www.belimo.com) 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.











**ACTUATOR SPECIFICATIONS**

<b>PKB Series</b>  1400 in-lb [160 Nm]	
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 49 VA AC 120 V 42 VA AC 230 V 66 VA
Wattage Running/Holding	AC 24 V 47/4 W AC 120 V 38/4 W AC 230 V 38/6 W
Fail-Safe Setting	adjustable with App
Electrical Connection	0...100%, adjustable with Belimo Assistant App (default setting 0%)
Overload Protection	electronic throughout rotation
Ambient Temperature	-22...+122°F [-30...+50°C]
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)
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.

<b>GKB / GKX Series</b>  360 in-lb [40 Nm] Approx. 90 sq.ft.	
Fits Shaft Diameter	½...1.05" (center on ¼" 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	NEMA 2, IP54, UL enclosure Type 2 X..N4 Type Accessory 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

<b>AFB / AFX Series</b>  180 in-lb [20 Nm] Approx. 45 sq.ft.	
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" NPT 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	NEMA 2, IP54, UL enclosure Type 2 X..N4 Type Accessory 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

<b>EFB / EFX Series</b>  270 in-lb [30 Nm] Approx. 66 sq.ft.	
Fits Shaft Diameter	½...1.05" (center on ¼" 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" NPT conduit fitting (default)
Overload Protection	electronic throughout rotation
Ambient Temperature	-22...+122°F [-30...+50°C] <b>N4H models:</b> -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 <b>N4, N4H models:</b> 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

<b>AHKX Series</b>  100 lbf [450 N force] 4" stroke	
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
Overload Protection	electronic throughout full stroke
Ambient Temperature	-22...+122°F [-30...+50°C]
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

### ACTUATOR SPECIFICATIONS

FAIL-SAFE

<b>NFB / NFX Series</b> 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" NPT 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	NEMA 2, IP54, UL enclosure Type 2
X..N4 Type Accessory	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

<b>NKQB / NKQX Series</b> 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
Electrical Connection	0...95° at 10° intervals 0...100% at 10% intervals
Overload Protection	3 ft., 18 GA plenum rated cable, ½" NPT conduit fitting
Ambient Temperature	electronic throughout rotation
Auxiliary Switch(es)	-22...+122°F [-30...+50°C]
Housing	add on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5...85°
Agency Listings	NEMA 2, IP54, UL enclosure Type 2
	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

<b>LF Series</b> 35 in-lb [4 Nm] Approx. 8.5 sq. ft.	
Angle of Rotation◆	95°, adjustable with mechanical end stops
Fits Shaft Diameter	⅜...½" standard (centers on ½"); ½...¾" with K6-1 clamp accessory
Position Indication	visual indicator
Direction of Rotation◆	external switch with -3, -SR
Spring Return Reversible	CW/CCW mounting
Electrical Connection	3 ft., 18 GA plenum rated cable (modulating), 3 ft., 18 GA appliance cable (on/off, -SR, -S types), ½" NPT 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, UL enclosure Type 2
Agency Listings	cULus according to UL 873, UL 2043 (with use of conduit fitting) and CAN/CSA C22.2 No. 24-93

◆ Variable with MFT.

<b>TFB / TFX Series</b> 22 in-lb [2.5 Nm] Approx. 5.5 sq. ft.	
Angle of Rotation	95°, adjustable with mechanical end stops
Fits Shaft Diameter	¼...½" (centers on ½")
Position Indication	visual indicator
Direction of Rotation	external switch with -3 and -SR
Spring Return Reversible	CW/CCW mounting
Electrical Connection	3 ft., 18 GA plenum rated cable (modulating), 3 ft., 18 GA appliance cable (on/off, -S types), ½" NPT 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
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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All prices are in US Dollars (USD)



## **3** FIRE AND SMOKE DAMPER ACTUATORS

### **Technology that Saves Lives**

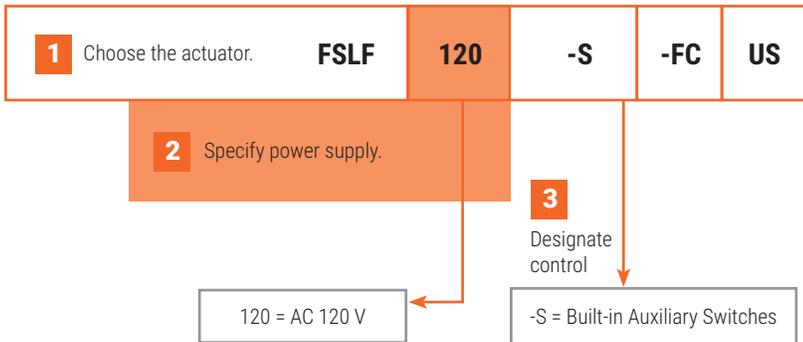
- Lowest power consumption life safety actuators available in the market.
- ISO 9001 Certified Quality Control and a 5-year warranty ensure reliable operation with exceptional customer support.
- Extensive product range offers 18...180 in-lb for 250°F and 350°F elevated temperatures in UL 555 and UL 555S applications.
- All Belimo Fire and Smoke actuators are UL 2043 compliant making them acceptable for plenum applications.

Mark Armon, Product Manager

# Fire and Smoke Damper Actuator Nomenclature

FS	L	F	120			-S	-FC	US
<b>Fire and Smoke</b>	<b>Torque Rating</b>	<b>Actuator Type</b>	<b>Power Supply</b>	<b>Generation</b>	<b>Control</b>	<b>Options</b>		
	A = 180 in-lb N = 70 in-lb L = 30 in-lb T = 18 in-lb	F = Fail-Safe FB = Fail-Safe, Modulating (180 in-lb only)	24 = AC/DC 24 V 120 = AC 120 V 230 = AC 230 V	Blank = Original A = New Generation On/Off	Blank = On/Off -SR = 2...10 V	-S = Built-in Auxiliary Switches	Blank = 1/2" Conduit Connector -FC = 3/8" Flex Connector	

## Ordering Example



**4** Complete Ordering Example: FSLF120-S-FC 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
- New York City OTCR and MEA certified
- 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)
- Save energy and cost with the lowest current draws versus the competition
- Compact solutions for space-constrained locations
- Upgrade your retrofit and enable remote testing with the Industry's first remote testing module, the FSKN

For replacement guidelines, visit [www.belimo.com/safetyretrofit](http://www.belimo.com/safetyretrofit) or contact a Belimo Regional Application Consultant.

→ Discover the advantages  
[www.belimo.com/firesmoke](http://www.belimo.com/firesmoke)



**Problem: Failed MultiProducts motor**



**Solution: Belimo FSLF120 US**



**Problem: Failed motor**



**Solution: Belimo FSTF with linkage**



5-year warranty



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



		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 [Seconds]	Fail-Safe [Seconds]	On/Off	2 SPST	2 SPDT	
<b>FSAF*A Series</b> 180 in-lb [20 Nm] Approx. 18 sq. ft. @ 350°F	FSAF24A	•			32	23 (5)	<25	<15	•			\$1,264
	FSAF24A-S	•			32	23 (5)	<25	<15	•	•		\$1,473
	FSAF120A		•		30	24 (7.5)	<25	<15	•			\$1,388
	FSAF120A-S		•		30	24 (7.5)	<25	<15	•	•		\$1,597
	FSAF230A			•	37	29 (10)	<25	<15	•			\$1,642
	FSAF230A-S			•	37	29 (10)	<25	<15	•	•		\$1,855
<b>FSAFB Series</b> 180 in-lb [20 Nm] Approx. 18 sq. ft. @ 350°F	FSAFB24-SR	•			9.5	6 (3)	<75	<20	2...10 V			\$1,579
	FSAFB24-SR-S	•			9.5	6 (3)	<75	<20	2...10 V		•	\$1,790
<b>FSNF Series</b> 70 in-lb [8 Nm] Approx. 12 sq. ft. @ 350°F	FSNF24 US	•			27	18 (3)	<15	<15	•			\$1,121
	FSNF24-S US	•			27	18 (3)	<15	<15	•		•	\$1,332
	FSNF120 US		•		27	22 (6)	<15	<15	•			\$1,247
	FSNF120-S US		•		27	22 (6)	<15	<15	•		•	\$1,456
	FSNF230 US			•	27	22 (5)	<15	<15	•			\$1,528
	FSNF230-S US			•	27	22 (5)	<15	<15	•		•	\$1,737
<b>FSLF Series</b> 30 in-lb [3.5 Nm] Approx. 4 sq. ft. @ 350°F	FSLF24 US	•			15	12 (2.5)	<15	<15	•			\$946
	FSLF24-S US	•			15	12 (2.5)	<15	<15	•	•		\$1,127
	FSLF120 US		•		18	15 (4)	<15	<15	•			\$1,041
	FSLF120-S US		•		18	15 (4)	<15	<15	•	•		\$1,221
	FSLF230 US			•	17	15 (4)	<15	<15	•			\$1,238
	FSLF230-S US			•	17	15 (4)	<15	<15	•	•		\$1,421
<b>FSTF Series*</b> 18 in-lb [2 Nm] Approx. 1.5 sq. ft. @ 250°F	FSTF24 US	•			3	2 (1.5)	<75	<25	•			\$569
	FSTF24-S US	•			3	2 (1.5)	<75	<25	•	•		\$712
	FSTF120 US		•		3.5	2 (1.5)	<75	<25	•			\$629
	FSTF120-S US		•		3.5	2 (1.5)	<75	<25	•	•		\$772
	FSTF230 US			•	4.5	2.5 (2)	<75	<25	•			\$782
	FSTF230-S US			•	4.5	2.5 (2)	<75	<25	•	•		\$927

**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 on belimo.com for details.



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All prices are in US Dollars (USD)

**ACTUATOR SPECIFICATIONS**

<b>FSAF*A Series</b>  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"). For ¾" Order K7-2
		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	32" [0.9 m], 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 60730-1A/2-14 and CAN/CSA E60730-1. UL 2043 compliant - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC.

<b>FSAFB Series</b>  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	32" [0.9 m], 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 and CAN/CSA E60730-1. UL 2043 compliant - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC.

<b>FSNF Series</b>  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	32" [0.9 m], 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 60730-1A/2-14 and CAN/CSA E60730-1. UL 2043 compliant - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC.

<b>FSLF Series</b>  30 in-lb [3.5 Nm] Approx. 4 sq. ft. @ 350°F*			
		Control	on/off
		Angle of Rotation	95°
		Fits Shaft Diameter	¾...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	32" [0.9 m], 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/IP39
		Agency Listings	cULus listed to UL 60730-1A/2-14 and CAN/CSA E60730-1. UL 2043 compliant - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC.

<b>FSTF Series</b>  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	32" [0.9 m], 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 and CAN/CSA E60730-1. UL 2043 compliant - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC.



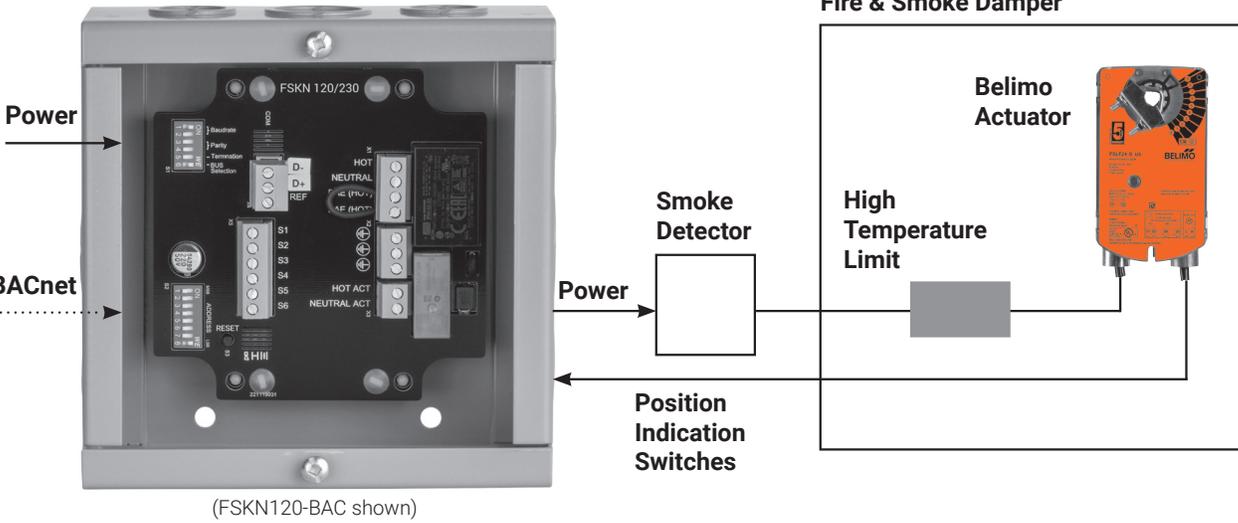
FIRE AND SMOKE

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\*Rated for UL 555 and UL 555S for ½ hour with all damper manufacturers.

# BACnet Life Safety Damper Remote Inspection Module

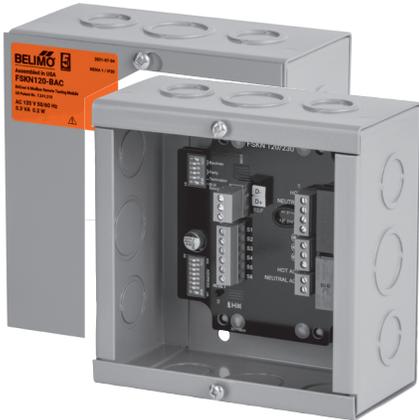
**FSKN24-BAC** AC / DC 24 V  
**FSKN120-BAC** AC 120 / 230 V



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 FSKN:

- 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.



Voltage			Communication	List Price
AC/DC 24 V	AC 120 V	AC 230 V		
•			BACnet/Modbus	\$1,138
	•	•	BACnet/Modbus	\$1,209



5-year warranty



**FSKN Life Safety Damper Inspection Module**

FSKN24-BAC

FSKN120-BAC



## 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 greatest energy savings through advanced economizer logic strategies.

# ZIP Economizer®

ZIP ECONOMIZER,  
DAMPER ACTUATOR ACCESSORIES



## Energy Efficient Indoor Air Quality

The ZIP Economizer® with the ECON-ZIP-COM communication module provides BACnet capability and supports efficiency strategies with easy setup, automatic change over temperatures by ZIP code, 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® complies with energy codes and standards (ASHRAE 90.1, IECC, California Title 24, ASHRAE 189.1).



Discover the advantages  
[www.belimo.com](http://www.belimo.com)



5-year warranty





# 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).



### Select Economizer Base and ZIP-10K



ECON-ZIP-BASE

AND



ECON-ZIP-10K  
(Supply Air  
Temperature 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



ECON-ZIP-10K

DIFFERENTIAL DRY BULB



ECON-ZIP-TH

OR

SINGLE ENTHALPY



ECON-ZIP-TH

DIFFERENTIAL ENTHALPY



ECON-ZIP-TH

### Optional Add-On Modules



**ECON-ZIP-EM**

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



**ECON-ZIP-COM**

- Remote Diagnostic Alarm Notification\*\*
  - 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.com](http://www.belimo.com)

## 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)
Supported Temperature Sensor	6.5 VA base control with Energy Module and Communication Module
	NTC10K2 thermistor sensor auto-detection
Supported Humidity Sensor	0...10 V; sensor auto-detection
Supported CO <sub>2</sub> 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



5-year warranty

Model	List Price
ECON-ZIP-BASE	\$1,394

\*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.

## 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	\$1,128
NFB24-SR	90 in-lb [10 Nm]	2...10 V	2...10 V	AC/DC 24 V	95 seconds	<20 seconds	6	\$970
LF24-SR US	35 in-lb [4 Nm]	2...10 V	2...10 V	AC/DC 24 V	150 seconds	<25 seconds	5	\$794
TFB24-SR	22 in-lb [2.5 Nm]	2...10 V	2...10 V	AC/DC 24 V	95 seconds	<25 seconds	4	\$675

\*\*\* Up to three actuators can be wired in parallel. Visit [www.belimo.com](http://www.belimo.com) for details. Belimo fail-safe actuators must be used to facilitate faster commissioning procedures (-SR required).

## Accessories

	List Price
 <p><b>ECON-ZIP-TH</b> The ECON-ZIP-TH Sensor may be used to measure temperature and humidity in the outdoor and/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.</p> <p>Note: When using the ECON-ZIP-TH it is not necessary to use separate temperature sensor ECON-ZIP-10K for outdoor air (OAT), return air (RAT).</p>	\$306
 <p><b>ECON-ZIP-10K</b> The ECON-ZIP-10K allows for reliable air temperature readings. This temperature 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.</p>	\$74
 <p><b>22DC-51*</b> The 22DC-51 Carbon Dioxide (CO<sub>2</sub>) air quality sensor may be incorporated to further increase energy savings and occupant comfort through Demand Control Ventilation (DCV). By directly measuring CO<sub>2</sub> concentration levels in the served space, the outside air damper position will modulate to accommodate for changes in space occupancy (CO<sub>2</sub>).</p> <p>ECON-ZIP-EM required for Demand Control Ventilation functionality.</p> <p>*22RTM-5800A can be used for a Room/Space CO<sub>2</sub> sensor instead of 22DC-51 Duct Sensor.</p>	\$872

Accessories	List Price																								
<div> </div> <p><b>ECON-ZIP-EM</b> 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.</p> <p><b>Technical Data</b></p> <table border="1"> <thead> <tr> <th>Type</th> <th>Name</th> <th>Description</th> <th>Electrical Specification</th> </tr> </thead> <tbody> <tr> <td>Input</td> <td>CO2 ±</td> <td>CO<sub>2</sub> sensor input for DCV</td> <td>requires CO<sub>2</sub> sensor capable of 0.5...10 V signal representing 0...2000 ppm. (not supplied)</td> </tr> <tr> <td>Output*</td> <td>ALM/IF</td> <td>Remote diagnostic alarm/indoor fan low speed enable</td> <td>AC 24 V output (1.5 A max.) impedance for IF auto detection @ AC 24 V: &lt;600 Ω @ 60 Hz &lt;800 Ω @ 50 Hz</td> </tr> <tr> <td>Output</td> <td>EF</td> <td>Exhaust fan enable</td> <td>AC 24 V output (1.5A max.) impedance for auto detection @ AC 24 V: &lt;600 Ω @ 60 Hz &lt;800 Ω @ 50 Hz</td> </tr> <tr> <td>Input</td> <td>AUX1 ±</td> <td>Preoccupancy purge contact input</td> <td>on/off, AC 24 V, 50/60 Hz current load min. 10 mA</td> </tr> <tr> <td>Input**</td> <td>AUX2 ±</td> <td>Remote damper override input</td> <td>2...10 V signal represents 0...100% damper position</td> </tr> </tbody> </table> <p>*IF output is configured via the Settings menu (default output is remote diagnostic alarm). ** Use remote override potentiometer; Belimo part number SGA24 or SGF24.</p>	Type	Name	Description	Electrical Specification	Input	CO2 ±	CO <sub>2</sub> sensor input for DCV	requires CO <sub>2</sub> 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	<p>\$204</p>
Type	Name	Description	Electrical Specification																						
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Input**	AUX2 ±	Remote damper override input	2...10 V signal represents 0...100% damper position																						
<div> </div> <p><b>ECON-ZIP-COM</b> The ZIP Economizer Communication Module provides remote diagnostic alarm indication with capabilities such as data trending and building automation integration. Required for BACnet MS/TP communication.</p> <p><b>Technical Data</b></p> <table border="1"> <thead> <tr> <th>Type</th> <th>Name</th> <th>Description</th> <th>Electrical Specification</th> </tr> </thead> <tbody> <tr> <td>I/O</td> <td>RS-485</td> <td>Communication interface</td> <td>RS485 Interface Optical isolation max. 1k VDC (for max. 1 min.) Terminal assignments: (+) Data B (-) Data A GND Ground</td> </tr> <tr> <td>Relay</td> <td>ALM</td> <td>Diagnostic alarm</td> <td>Relay contact 24 V Normal current: 0.5 A Inrush current: 1A</td> </tr> </tbody> </table>	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	<p>\$315</p>												
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																						
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ECONOMIZER SOLUTIONS

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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
	<b>ECON-ZIP-ACT</b> Actuator shaft adapter allows easy retrofit from Honeywell® black box motors (M7.) to Belimo fail-safe actuator.	Shaft, M4x8 Screws (4), Locking Nuts (4)	\$123
	<b>ECON-ZIP-LF1</b> Bracket with hole patterns to mount the LF series actuator, horizontal or vertical position to meet space requirements.	ECON-ZIP-ACT, ZG-112, Screws	\$177
	<b>ECON-ZIP-TF1</b> 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	\$176

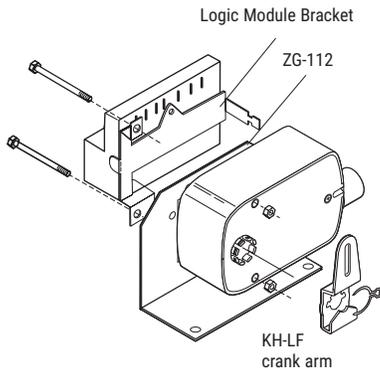
ZIP Packs		Components (# included in kit)	List Price
	<b>ECON-ZIP-SDTF</b> Single Dry Bulb with DCV* capability and TF fail-safe actuator (22 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-COM, ECON-ZIP-10K (2), TFB24-SR, ECON-ZIP-TF1	\$2,428
	<b>ECON-ZIP-DDTF</b> Differential Dry Bulb with DCV* capability and TF fail-safe actuator (22 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-COM, ECON-ZIP-10K (3), TFB24-SR, ECON-ZIP-TF1	\$2,474
	<b>ECON-ZIP-SETF</b> Single Enthalpy with DCV* capability and TF fail-safe actuator (22 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-COM, ECON-ZIP-10K, ECON-ZIP-TH, TFB24-SR, ECON-ZIP-TF1	\$2,620
	<b>ECON-ZIP-DETF</b> Differential Enthalpy with DCV* capability and TF fail-safe actuator (22 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-COM, ECON-ZIP-10K, ECON-ZIP-TH (2), TFB24-SR, ECON-ZIP-TF1	\$2,832
	<b>ECON-ZIP-SDLF</b> Single Dry Bulb with DCV* capability and LF fail-safe actuator (35 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-COM, ECON-ZIP-10K (2), LF24-SR US, ECON-ZIP-LF1	\$2,532
	<b>ECON-ZIP-DDLF</b> Differential Dry Bulb with DCV* capability and LF fail-safe actuator (35 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-COM, ECON-ZIP-10K (3), LF24-SR US, ECON-ZIP-LF1	\$2,578
	<b>ECON-ZIP-SELF</b> Single Enthalpy with DCV* capability and LF fail-safe actuator (35 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-COM, ECON-ZIP-10K, ECON-ZIP-TH, LF24-SR US, ECON-ZIP-LF1	\$2,726
	<b>ECON-ZIP-DELF</b> Differential Enthalpy with DCV* capability and LF fail-safe actuator (35 in-lb)	ECON-ZIP-BASE, ECON-ZIP-EM, ECON-ZIP-COM, ECON-ZIP-10K, ECON-ZIP-TH (2), LF24-SR US, ECON-ZIP-LF1	\$2,934

\* CO<sub>2</sub> sensor not included

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ECONOMIZER SOLUTIONS

### 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

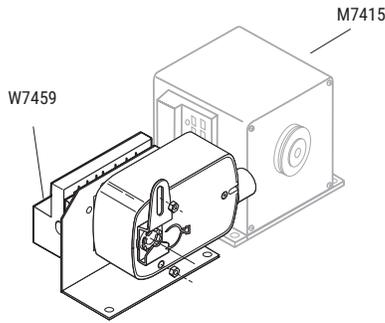
**LF24-SR-E US**  
35 in-lb fail-safe actuator, 2...10 V, AC 24 V with minimum position selection \$858

**ZG-LF112**  
Crank arm adaptor kit - includes KH-LF crank arm and clip, ZG-112 bracket and mounting hardware \$110

**20477-00001**  
Logic module bracket for Honeywell \$112

**KG6**  
Ball joint (if needed) \$24

### Retrofit Replacement Solutions - Honeywell M7415 Actuator List Price



Choose either ZG-ECON1 or ZG-ECON2.

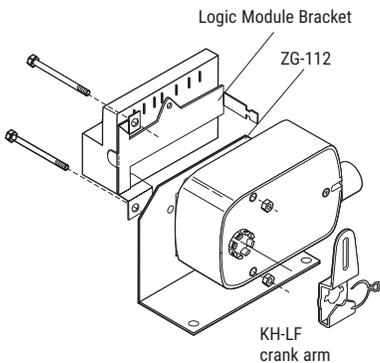
**M7415 Actuator**  
The modulating control of a mixed air set point of the LF24-ECON-R03 US allows direct replacement of a Honeywell M7415 economizer actuator

**LF24-ECON-R03 US**  
35 in-lb fail-safe actuator, AC 24 V, 3K  $\Omega$  thermistor \$903

**ZG-ECON1**  
Includes ZG-112, KH-LF, 20477-00001 (logic module bracket), KG6 (ball joint), and 4 male spade connectors \$186

**ZG-ECON2**  
Includes ZG-112, KH-LF, KG6 (ball joint), and 4 female spade connectors \$148

### Retrofit Replacement Solutions - Honeywell M7215 Actuator List Price



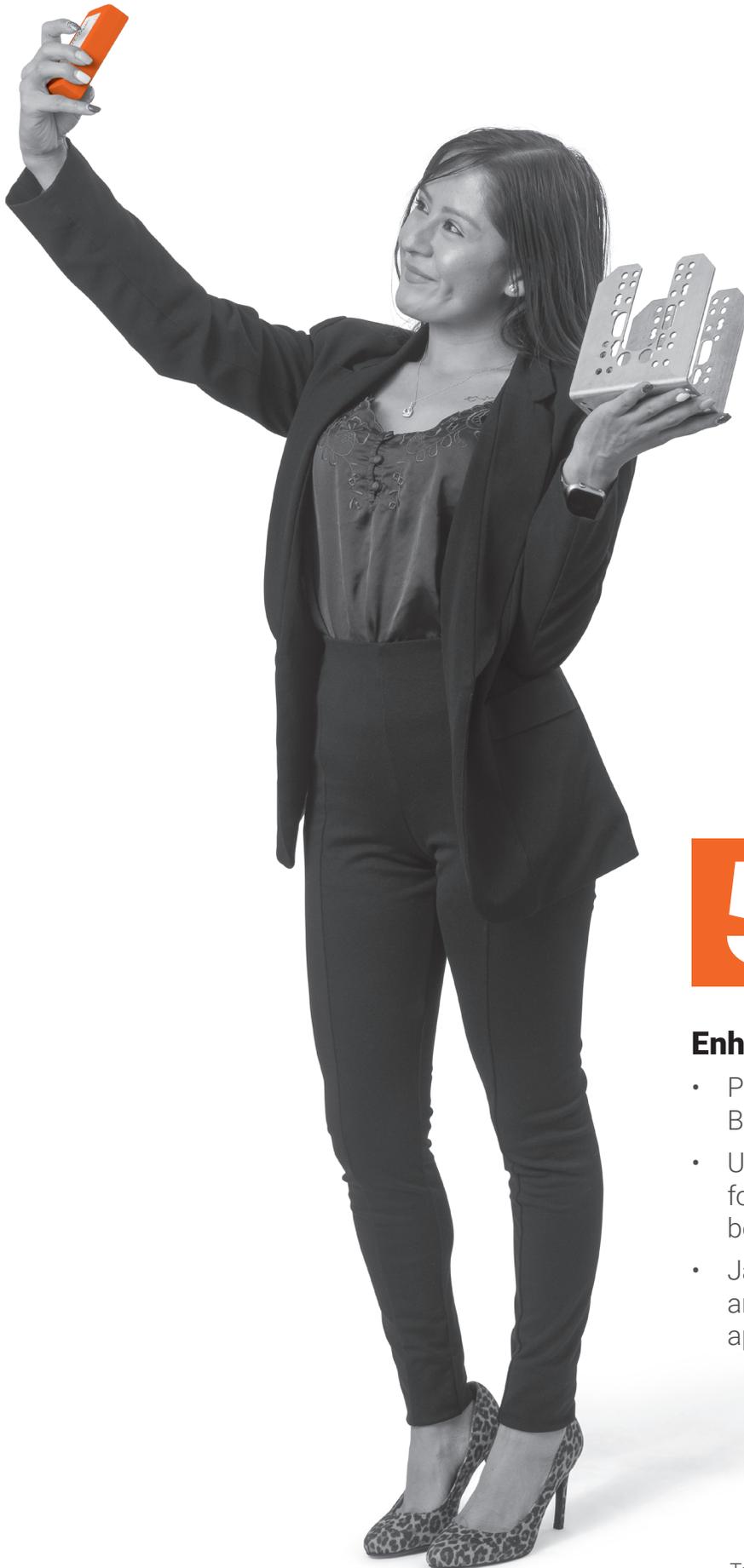
**M7215 Actuator**  
The modulating control of a mixed air set point of the LF24-SR US allows direct replacement of a Honeywell M7215 economizer actuator

**LF24-SR US**  
35 in-lb fail-safe actuator, 2...10 V, AC 24 V \$794

**ZG-ECON1**  
Includes ZG-112, KH-LF, 20477-00001 (logic module bracket), KG6 (ball joint), and 4 male spade connectors \$186

**Note:** For economizer retrofit, please visit [www.belimo.com](http://www.belimo.com).

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# 5

## DAMPER ACTUATOR ACCESSORIES

### Enhance Performance

- Programming of actuators is possible with Belimo tools.
- 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.



## 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  
[www.belimo.com](http://www.belimo.com)

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
	<b>Belimo Assistant 2 App</b> Allows fast programming, commissioning, and troubleshooting even when the actuator is not powered. Available through Google Play and Apple App Store	•	•	•	•	•				•	•	•	•	•	•	No Charge
							•	•	•							
	<b>Belimo Assistant Link</b> The Belimo Assistant Link enables seamless configuration and communication with Belimo devices via Bluetooth or USB, supporting both NFC and MP-Bus connections.	*	*	*	*	*	•	•	•	*	*	*	*	*	*	\$900
	<b>PC-Tool</b> Belimo MFT configuration software. Available in the download center at www.belimo.com	•	•	•	•	•	•	•	•	•	•	•	•	•	•	No Charge
INTERFACES, CABLES		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
	<b>ZTH US</b> Handheld interface module that allows field programming. Includes ZK1-GEN, ZK2-GEN, and ZK6-GEN cables	<i>Available for all -MFT, -MOD, -MP Actuators</i>														\$1,383
	<b>ZK1-GEN</b> Cable for use with ZTH-GEN, ZTH US, or ZIP-USB-MP US to connect to actuator via diagnostic/programming socket	•	•	•	•	•	•	•	•	•	•	•	•	•	•	\$211
	<b>ZK2-GEN</b> Cable for use with ZTH-GEN, ZTH US, or ZIP-USB-MP US to connect to actuators not equipped with diagnostic/programming socket						•	•	•	•	•	•	•	•	•	\$97
	<b>ZK4-GEN</b> Cable for use with ZTH US to connect to UK24.. gateways and VRP-M	<i>Available for all MFT Actuators</i>														\$211
	<b>UK24BAC</b> BACnet gateway that can connect up to 8 MFT actuators	<i>Available for all MFT Actuators</i>														\$1,864
	<b>UK24MOD</b> Modbus gateway that can connect up to 8 MFT actuators	<i>Available for all MFT Actuators</i>														\$1,864

ACTUATOR ACCESSORIES

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\*Optional for Bluetooth/hardwire connectivity.  
 \*For use with laptop or desktop computer.  
 \*\*For use with phone app.



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
	<b>K9-2</b> Standard EFB clamp (½...1.05")	•													\$93
	<b>K7-2</b> Standard AFB/NFB clamp (½...1.05")		•	•											\$59
	<b>K6 US</b> Standard LF clamp (¾...½")				•										\$43
	<b>K6-1</b> Jackshaft clamp (½...¾")				•										\$37
	<b>K8 US</b> Standard TF clamp (¼...½")					•									\$37
	<b>K-GM20</b> Reversible clamp (½...1.05")						•		•						\$70
	<b>K-AM25</b> Standard clamp (½...1.05")							•		•	•				\$45
	<b>K-SA</b> Reversible clamp (½...¾")							•		•					\$59
	<b>K-NA</b> Reversible clamp (½...¾")										•				\$59
	<b>K-LM20</b> Clamp (¾")											•			\$32
	<b>K-LM16</b> Standard clamp (⅝")											•			\$32
	<b>K-LM12</b> Clamp (½")											•			\$32
	<b>K-LM10</b> Clamp (⅜")											•			\$32

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	GM	AMB AMX	NMB NMX	LMB LMX	CM UM	AHB AHX	LHB LHX	List Price
<b>IND-EFB</b> Position indicator	•															\$34
<b>IND-AFB</b> Position indicator		•	•													\$25
<b>IND-LF</b> Position indicator				•												\$25
<b>IND-TF</b> Position indicator					•											\$25
<b>S.MISPI.10</b> Position indicator									•							\$25
<b>Z-PICM</b> Position indicator (product sold in quantities of 20)													•			\$340
<b>ZDB-LF</b> Angle of rotation limiter for LF				•												\$25
<b>ZDB-TF</b> Angle of rotation limiter for TF					•											\$25
<b>Z-ESCM</b> End stop clip, for CM.. / UM.. / UH.. Multipack 20 pcs.													•			\$180

## MOUNTING BRACKETS

<b>ZG-100</b> Right angle (17" H x 11 <sup>1</sup> / <sub>8</sub> " W x 6" base)	•	•	•			•	•	•	•	•	•					\$168
<b>ZG-101</b> Right angle (13" H x 11" W x 7 <sup>1</sup> / <sub>16</sub> " base)		•	•			•	•	•	•	•	•					\$168
<b>ZG-102</b> Multiple actuator mounting bracket		•				•		•	•							\$165
<b>ZG-103*</b> Right angle (7 <sup>1</sup> / <sub>2</sub> " H x 11" W x 2 <sup>3</sup> / <sub>4</sub> " base)						•	•	•	•	•	•					\$124
<b>ZG-104</b> Right angle (13 <sup>3</sup> / <sub>8</sub> " H x 7 <sup>1</sup> / <sub>2</sub> " W x 4" base)						•	•	•		•	•					\$124

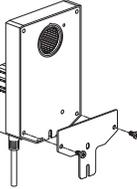
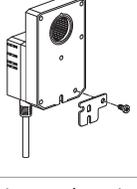
\* Positions crank arm in same relative position as crank arm on electric foot mount-type linkage actuators.

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ACTUATOR ACCESSORIES



5 Year warranty

MOUNTING BRACKETS	EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	GKB GKX	NKQB NKQX	GMB GMX	GM	AMB AMX	NMB NMX	LMB LMX	CM UM	AHB AHX	LHB LHX	List Price
 <b>ZG-105</b> Right angle											•					\$70
 <b>ZG-112*</b> Right angle (4½" H x 5½" W x 2½" base)				•												\$70
 <b>ZG-113*</b> Right angle (4½" H x 5½" W x 2½" base)					•											\$70
 <b>ZG-118*</b> Channel (5⅞" H x 5½" W x 2⅛/32" base)		•	•													\$114
 <b>ZG-120</b> Jackshaft mounting bracket	•	•	•			•	•	•		•	•					\$165
 <b>Z-AF</b> AF/NF to AFB, AFX/ NFB, NFX retrofit mounting bracket		•	•													\$43
 <b>Z-SF</b> 20 piece Z-AF kit		•	•													\$39
 <b>Z-GMA</b> GM to GMB, GMX retrofit mounting bracket (supplied with non fail- safe actuators)						•		•	•							\$37
 <b>Z-SMA</b> AM, SM to AMB, AMX retrofit mounting bracket (supplied with non fail- safe actuators)										•						\$37
 <b>Z-NMA</b> NM to NMB, NMX retrofit mounting bracket (supplied with non fail- safe actuators)							•				•					\$37

\* 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	GM	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	List Price
	<b>KH-EFB</b> Crank arm	•															\$89
	<b>KH-AFB</b> Crank arm for shafts to 3/4"		•	•													\$56
	<b>KH-LF</b> Crank arm for shafts to 1/2"				•												\$53
	<b>KH-LFV</b> V-bolt kit for direct coupling with KH-LF				•												\$25
	<b>KH-TF US</b> Crank arm with 5/16" slot					•											\$64
	<b>KH-TF-1 US</b> Crank arm with 1/4" slot					•											\$64
	<b>AH-GMA</b> GMB, GMX crank arm							•		•	•						\$72
	<b>AH-25</b> NKQ, NMB, NMX and AMB, AMX crank arm								•			•	•				\$64
	<b>ZG-EFB</b> Crank arm adaptor kit	•															\$211
	<b>ZG-AFB</b> Crank arm adaptor kit		•	•													\$172
	<b>ZG-AFB118</b> Crank arm adaptor kit		•	•													\$166
	<b>ZG-LF112</b> Crank arm adaptor kit (includes ZG-112 & KH-LF)				•												\$110
	<b>ZG-LF2</b> Crank arm adaptor kit (includes mounting hardware)				•												\$127
	<b>ZG-LFC114</b> Trane Voyager retrofit kit (includes retrofit bracket)				•												\$206

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ACTUATOR ACCESSORIES



5 Year warranty

CRANK ARM ADAPTOR KITS		EFB	AFB	NFB	LF	TFB	GKB	NKQB	GMB	GM	AMB	NMB	LMB	AHB	LHB	List Price
		EFX	AFX	NFX		TFX	GKX	NKQX	GMX		AMX	NMX	LMX	AHX	LHX	
	<b>ZG-ECON1</b> Honeywell economizer retrofit kit (includes 20477-00001 retrofit bracket)				•											\$186
	<b>ZG-ECON2</b> Honeywell economizer retrofit kit (logic module bracket not included)				•											\$148
	<b>20477-00001</b> Honeywell logic module bracket				•											\$112
	<b>ZG-TF112</b> Crank arm adaptor kit (includes ZG-113 and KH-TF-1)					•										\$114
	<b>ZG-TF2</b> Crank arm adaptor kit (includes mounting hardware)					•										\$97
	<b>ZG-GMA</b> Crank arm adaptor kit						•		•	•						\$186
	<b>ZG-NMA</b> Crank arm adaptor kit							•			•	•				\$124
<b>LINKAGES</b>																
	<b>ZG-JSL</b> Jackshaft linkage Note: LF requires K6-1 clamp Note: EFB, EFX requires ZG-121	•	•	•	•		•	•	•		•	•				\$479
	<b>ZG-JSLA + "Actuator"</b> 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 <a href="http://www.belimo.com">www.belimo.com</a> for Individual List Prices
	<b>ZG-121</b> Support plate for ZG-JSL with EF actuator	•														\$105

ACTUATOR ACCESSORIES

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BALL JOINTS, DAMPER CLIPS, PUSH RODS, CRANK ARMS		EFB	AFB	NFB	LF	TFB	GKB	NKQB	GMB	GM	AMB	NMB	LMB	AHB	LHB	List Price
		EFX	AFX	NFX		TFX	GKX	NKQX	GMX		AMX	NMX	LMX	AHX	LHX	
	<b>KH6</b> Universal crank arm for KG6 ball joint. Slot width 1/4" [6.2 mm]. For damper shafts: 3/8...11/16" diameter [10...18 mm] or 3/8...9/16" sq. [10...14 mm]			•	•	•		•		•		•				\$43
	<b>KH8</b> 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]		•	•	•	•		•		•	•	•				\$43
	<b>KH10</b> Universal crank arm. Slot width 21/64" [8.2 mm]. For damper shafts 9/16...1" diameter [14...25 mm]	•	•	•			•		•	•						\$97
	<b>KH12</b> Universal crank arm. Slot width 21/64" [8.2 mm]. For damper shafts 3/4...1" diameter [20...25 mm]		•	•	•	•		•		•	•	•				\$55
	<b>KG6</b> Ball joint (5/16" diameter rod) zinc plated			•	•	•						•		•	•	\$24
	<b>KG6.2</b> KG6 ball joint multi-pack of 20			•	•	•						•		•	•	\$460
	<b>KG8</b> Ball joint (5/16" diameter rod, 90°) galvanized steel		•	•	•	•		•	•		•	•		•	•	\$31
	<b>KG8.2</b> KG8 ball joint multi-pack of 20		•	•	•	•		•	•		•	•		•	•	\$620
	<b>KG10A</b> Ball joint for KH8 (3/8" diameter rod) zinc plated	•	•	•	•	•	•	•	•		•	•		•	•	\$41
	<b>KG10A.2</b> KG10 ball joint multi-pack of 20	•	•	•	•	•	•	•	•		•	•		•	•	\$800
	<b>SH8</b> Push rod for KG6 & KG8 ball joints (36", 5/16" diameter)		•	•	•	•		•	•	•	•	•		•	•	\$53
	<b>SH10</b> Push rod for KG10 ball joints (36", 3/8" diameter)	•	•	•	•	•		•	•	•	•	•				\$68
	<b>ZG-DC1</b> Damper clip for damper blade, 3 1/2" width	•	•	•	•	•	•	•	•	•	•	•				\$79
	<b>ZG-DC2</b> Damper clip for damper blade, 6" width	•	•	•	•	•	•	•	•	•	•	•				\$90

ACTUATOR ACCESSORIES

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SPECIALIZED AIRFLOW CONTROL DAMPER ACTUATOR ACCESSORIES		LMV	LHV	NMV	List Price
	<b>ZPD-RE2-SET</b> Differential pressure pickup device with seal. For round ducts up to 400 mm (16") in diameter.	•	•	•	\$199
	<b>ZPD-TA</b> Adapter for 1/4" tubing (quantity 10).	•	•	•	\$67



5 Year warranty

HOUSINGS	EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	GKB GKX	NKQB NKQX	GMB GMX	GM	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	List Price
<b>ZS-T</b> Terminal cover for NEMA 2 (-T models)								•		•	•	•	•	•	\$45
<b>ZS-100</b> Weather shield - galvanneal (13" L x 8" W x 6" D)		•	•	•	•	•	•	•	•	•	•	•			\$309
<b>ZS-101</b> Base plate for ZS-100		•	•	•	•	•	•	•	•	•	•	•			\$70
<b>ZS-150</b> Weather shield - polycarbonate with foam seal (16" L x 8 3/8" W x 4" D)		•	•	•	•	•	•	•	•	•	•	•			\$343
<b>ZS-260</b> Explosion proof housing		•	•	•		•	•	•	•	•					\$5,111
<b>ZS-260-E9</b> Hardware kit for ZS-260		•	•	•		•	•	•		•					\$2,785
<b>ZG-109</b> Right angle bracket for ZS-260		•	•	•		•	•	•	•	•					\$243
<b>ZG-110</b> Stand-off bracket for ZS-260		•	•	•		•	•	•	•	•					\$292
<b>ZS-300</b> NEMA 4X, 304 stainless steel enclosure		•	•	•		•	•	•		•					\$4,214
	<b>ZS-300-5</b> NEMA 4X, 316L stainless steel enclosure		•	•	•		•	•	•	•					\$5,098
<b>ZS-300-C1</b> 1/2" Shaft adaptor (standard with ZS-300)		•	•	•		•	•	•	•	•					\$642
<b>ZS-300-C2</b> 3/4" Shaft adaptor		•	•	•		•	•	•	•	•					\$643
<b>ZS-300-C3</b> 1" Shaft adaptor		•	•	•		•	•	•	•	•					\$937

ACTUATOR ACCESSORIES

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SHAFT ADAPTORS		EFB	AFB	NFB	LF	TFB	GKB	NKQB	GMB	GM	AMB	NMB	LMB	CM	AHB	LHB	List
		EFX	AFX	NFX		TFX	GKX	NKQX	GMX		AMX	NMX	LMX	UM	AHX	LHX	Price
	<b>AV6-20</b> 6.7" Shaft extension fits ¼...¾" diameter shafts				•	•		•					•				\$103
	<b>AV8-25*</b> 9.8" Shaft extension fits ⅝...1" diameter shafts	•	•	•	•			•	•	•	•	•	•				\$119
	<b>ZG-JSA-1</b> 1" Jackshaft adaptor [11"]	•	•	•				•	•	•	•	•					\$394
	<b>ZG-JSA-2</b> 1⅝" Jackshaft adaptor [12"]		•	•				•	•	•	•	•					\$869
	<b>ZG-JSA-3</b> 1.05" Jackshaft adaptor [12"]	•	•	•				•	•	•	•	•					\$730
	<b>ZG-NMSA-1</b> Shaft extension for ½" diameter shafts [3" long]							•				•					\$112
	<b>ZG-LMSA</b> Shaft extension for ½" diameter shafts [3" long]												•				\$123
	<b>ZG-LMSA-1</b> Shaft extension for ⅜" diameter shafts [4" long]				•								•				\$124
	<b>ZG-LMSA-½"-5</b> Shaft extension for ½" diameter shafts [5" long]				•								•				\$141
<b>ANTI-ROTATION BRACKETS</b>																	
	<b>EF-P</b> Anti-rotation bracket	•						•	•								\$22
	<b>AF-P</b> Anti-rotation bracket		•	•													\$22
	<b>LF-P</b> Anti-rotation bracket				•												\$21
	<b>TF-P</b> Anti-rotation bracket					•		•			•	•	•				\$16
	<b>Z-ARCM</b> Anti-rotation bracket (product sold in quantities of 20)													•			\$200
<b>MISCELLANEOUS</b>																	
	<b>Z-DS1</b> Rotary support for lateral force compensation														•	•	\$72
	<b>Z-KSA</b> ⅝" Shaft clevis															•	\$92
	<b>Z-KSC</b> ⅜" - 16 Shaft clevis														•		\$92
	<b>ZG-119</b> Bracket for linear actuators														•	•	\$106
	<b>Z-MA</b> Magnet for gear train disengagement (product sold in quantities of 20)													•			\$200
	<b>Tool-06</b> 8 mm and 10 mm wrench		•	•	•	•		•			•	•	•				No Charge
	<b>Tool-07</b> 13 mm wrench	•						•	•	•							No Charge

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



AUXILIARY SWITCH, POTENTIOMETERS, AND CABLES		EFB EFX	AFB AFX	NFB NFX	LF	TFB TFX	GKB GKX	NKQB NKQX	GMB GMX	GM	AMB AMX	NMB NMX	LMB LMX	UM UH	AHB AHX	LHB LHX	List Price
	<b>S1A</b> Auxiliary switch, 1x SPDT, 3A resistive (0.5A inductive) @ AC 250 V						•	•	•		•	•	•				\$170
	<b>S2A</b> Auxiliary switch, 2x SPDT, 3A resistive (0.5A inductive) @ AC 250 V						•	•	•		•	•	•				\$255
	<b>P475</b> Shaft mount, non-Mercury auxiliary switch for ½" diameter shafts	•	•	•	•	•	•	•	•	•	•	•	•				\$337
	<b>P475-1</b> Shaft mount, non-Mercury auxiliary switch for 1" diameter shafts	•	•	•	•	•	•	•	•	•	•	•	•				\$361
	<b>P140A GR</b> Feedback potentiometer 140 Ω						•	•	•		•	•	•				\$280
	<b>P1000A GR</b> Feedback potentiometer 1000 Ω						•	•	•		•	•	•				\$280
	<b>P10000A GR</b> Feedback potentiometer 10000 Ω						•	•	•		•	•	•				\$280
	<b>Z-SPA</b> Adaptor for auxiliary switches and potentiometers						•	•									\$34
	<b>Z-PCUM</b> Protection cover UM.. Multipack 20 pcs.												•				\$300
	<b>Z-C24UM</b> Cable for 24 V actuator (1m FRNC). Multipack 20 pcs.												•				\$620
	<b>Z-C24UM-SR</b> Cable for 24 V -SR actuator (1m FRNC) Multipack 20 pcs.												•				\$740
	<b>Z-C230UM</b> Cable for 120/230 V actuator (1m FRNC) Multipack 20 pcs.												•				\$620
	<b>A.EIST.12</b> Terminal IP65, 24 V, compl. conduit NPT ½"									•							\$90
	<b>A.EIST.15</b> Terminal IP65, 120...230 V, compl. conduit NPT ½"									•							\$90
	<b>A.EISC.12</b> Cable 24 V 4 x 0.5 plenum 1 m, conduit NPT ½"									•							\$242
	<b>A.EISC.15</b> Cable 24 V 3 x 0.5 plenum 1 m, conduit NPT ½"									•							\$159
	<b>A.EISC.18</b> Cable 120...230 V 3 x 0.75 FRNC 1 m, conduit NPT ½"									•							\$159
	<b>S.EISCC.10</b> Conduit NPT ½"									•							\$31
	<b>S.EIST.10</b> Terminal 24 V									•							\$73
	<b>S.EIST.11</b> Terminal line									•							\$73
	<b>S.EISBP.10</b> Blind plug									•							\$31
	<b>S.EISS.10</b> Seal 4...7.5 mm									•							\$14

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	UM UH	AHB AHX	LHB LHX	List Price
	<b>ZG-R01</b> 4...20 mA adaptor, 500 Ω, ¼" W resistor with 6" pigtail wires	•	•	•	•	•	•	•	•	•	•	•		•	•	\$43
	<b>ZG-R02</b> 50% voltage divider	•	•	•	•	•	•	•	•	•	•	•		•	•	\$64
	<b>ZG-R03</b> Resistor kit for -MFT95 actuators in a 0...135 Ω control application		•						•	•	•	•				\$43
	<b>SGA24</b> (surface mount) Positioner for remote control (modulating models)	•	•	•	•	•	•	•	•	•	•	•		•	•	\$304
	<b>SGF24</b> (flush mount) Positioner for remote control (modulating models)	•	•	•	•	•	•	•	•	•	•	•		•	•	\$266
	<b>ZG-SGF</b> Mounting plate for SGF	•	•	•	•	•	•	•	•	•	•	•		•	•	\$50
	<b>IRM-100</b> Input rescaling module (modulating models)	•	•	•	•	•	•	•	•	•	•	•		•	•	\$431

## MISCELLANEOUS

	<b>PS-100</b> Actuator power supply simulator	•	•	•	•	•	•	•	•	•	•	•		•	•	\$2,797
	<b>ZG-X40</b> AC 120...24 V, 40 VA transformer	•	•	•	•	•	•	•	•	•	•	•		•	•	\$183
	<b>TF-CC US</b> Conduit connector	•	•	•		•	•	•	•	•	•	•		•	•	\$31
	<b>43442-00001</b> Cable gland (for NEMA 4 models)		•	•			•		•	•	•					\$30
	<b>11097-00001</b> Gasket for cable gland (for NEMA 4 models)		•	•			•		•	•	•					\$9
	<b>ZG-CBLS</b> Electrical junction box for LF actuators				•											\$183
	<b>10478-00024</b> L type anti-rotation bracket bulk pack (24 pieces)											•				\$50
	<b>10478-00036</b> L type anti-rotation bracket bulk pack (36 pieces)											•				\$65



5 Year warranty

FIRE AND SMOKE ACCESSORIES		FSAFB	FSAF*A	FSNF	FSLF	FSTF	List Price
	<b>BAE165 US</b> 165°F Electric thermal sensor. SPST, NC	•	•	•	•	•	\$413
	<b>IND-AF2</b> Position indicator			•			\$31
	<b>KH-AF</b> Actuator arm			•			\$71
	<b>KH-AF-1 US</b> Crank arm for up to 1.05" shaft			•			\$127
	<b>K4-1 US</b> Jackshaft clamp for up to 1.05"			•			\$70
	<b>SGA24 (with enclosure)</b> Remote positioner 0.5...10 V for FSAF24-SR & FSAFB24-SR	•					\$304
	<b>SGF24 (no enclosure)</b> Remote positioner 0.5...10 V for FSAF24-SR & FSAFB24-SR	•					\$266
	<b>S2A-F US</b> Auxiliary switch, 2x SPDT, 3A resistive (0.5A inductive) @ AC 250 V	•	•	•	•		\$609
	<b>ZDB-AF2 US</b> Angle of rotation limiter			•			\$51
	<b>ZG-AF US</b> Crank arm adaptor kit			•			\$206
	<b>ZG-AF108</b> Crank arm adaptor kit			•			\$218
	<b>ZG-AFA108</b> Mounting bracket, crank arm, and hardware for FSAF*A actuators		•				\$250
	<b>ZG-AFA</b> Leg kit, angle brackets, crank arm, and hardware for FSAF*A actuators		•				\$242

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 accessories 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.

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.

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CUSTOMIZED OPTIONS



Reorder # for a **EFX24-MFT-S N4**

is: **EFKLO100A01**

- 4** No Charge
- 3** No Charge
- 2** No Charge
- 1** \$2,919

\$2,919 Final Price



Reorder # for a **GMX24-MFT**

is: **GM1101C3A01Y**

- 4** No Charge
- 3** \$40
- 2** No Charge
- 1.1** X..N4 Heater Option (+\$650)
- 1** \$1,289

\$1,329 Final Price

# 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-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-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-MFT-T N4	AMPUN0
AMX24-SR	AM030
AMX24-SR-T	AMT40
AMX24-SR-T N4	AMPT40
EFCX120-S N4	EFGH0
EFCX24-S N4	EFGLO
EFX120	EF650
EFX120-S	EF670
EFX120-S N4	EFK20
EFX120-S N4H	EFK30
EFX120-SR N4	EFKR0
EFX120-SR-S N4	EFKT0
EFX24-MFT	EF600
EFX24-MFT-S	EF620
EFX24-MFT-S N4	EFKLO

Model	Base Actuator ID
EFX24-MFT-S N4	EFKLO
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-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-SR	LM030
LMX24-SR-F	LM040
LMX24-SR-T	LMT40
NFX24	NF200
NFX24 N4	NFG200
NFX24-MFT	NF600
NFX24-MFT N4	NFG600
NFX24-MFT-S	NF620

Model	Base Actuator ID
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-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-S	TF210
TFX24-SR	TF400
TFX24-SR-S	TF410

CUSTOMIZED OPTIONS

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

NEMA 4(X) Enclosure with Heater	Non Fail-Safe			Fail-Safe		
	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 1/2"				•								
6	Clamp 3/4"				•								
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	•														

**4** Control Options continued.

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	•														
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												•			
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						•						•	•		

CUSTOMIZED OPTIONS

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## **PRESSURE INDEPENDENT VALVES (ENERGY VALVES, EPIV, 6-WAY EPIV, AND PIQCV)**

### **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.



## Data Center Cooling Solutions

PRESSURE INDEPENDENT VALVES

### Scalable Solutions for Uninterrupted Performance and Enhanced Efficiency

In the fast-paced world of data centers, reliability, scalability and efficiency are paramount. Belimo rises to the challenge with a comprehensive solution designed to ensure uninterrupted performance, optimal flow, standalone systems, and power efficiency.

Our products offer a future-proof design that can be tailored to meet your evolving cooling needs without compromising performance at current loads. By integrating measurement technologies and advanced computational capabilities into standard mechanical valves, Belimo has spearheaded the advancement towards smarter valves, offering functionalities far beyond basic position control.



Learn More  
[www.belimo.com/datacenters](http://www.belimo.com/datacenters)

**BELIMO**<sup>®</sup>



# 6

## ENERGY VALVES

### Measure and Control

- Accurate measurement, monitoring, and control of energy consumption in a heating and cooling system 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.



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) for ½"...2" and from 30% to 100% of Vnom for 2½"...6" 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	NON FAIL-SAFE
Options	Options
Normally Closed/Fail Open	Normally Open
Normally Closed/Fail Closed	Normally Closed

## 4. ADDITIONAL DIFFERENTIAL PRESSURE SENSOR

Used with Differential Pressure Control mode only for sizes ½"...2". If this mode is not used, these sensors are not needed.

Sensor Part Number	Measuring Range [psij]	Differential pressure set point range [psij]
22WDP-511	0...15	1.5...12
22WDP-512	0...30	3...24
22WDP-514	0...50	5...40
22WDP-515	0...100	10...50
22PDP-585	0...100	1.5...50
22PDP-588	0...250	2.5...50

Valve Size	GPM Range
½" [DN 15]	1.65...6.6
¾" [DN 20]	2.7...11
1" [DN 25]	4.5...18.2
1¼" [DN 32]	7.1...28.5
1½" [DN 40]	11...44
2" [DN 50]	16.5...66
2" [DN 50]	25...100

## 3. SELECT CONTROL SIGNAL DDC AND FEEDBACK SIGNAL

CONTROL SIGNAL DDC / INPUT	FEEDBACK SIGNAL
Options	Options
0.5...10 V	0.5...10 V
2...10 V	2...10 V

This section does not affect BACnet or Modbus functions.

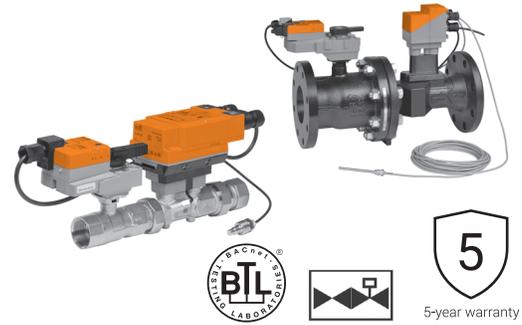
## 5. DOES THIS UNIT REQUIRE TAGGING

Part number for tagging: 99981-00101  
Valves may be tagged per customer specification. (\$17.00 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.

# 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<sub>nom</sub> = Maximum flow for each valve body size.

## 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:** on board logic manages low Delta T optimizing coil, chiller and boiler efficiency reducing pumping cost.

## ACTUATOR SPECIFICATIONS

Control Type	modulating
Manual Override	LR, NR, AR, GR, AKR, GKR
Electrical Connection	3 ft. [1 m] cable with ½" conduit fitting (default) 9.8 ft. [3 m] cable with ½" conduit fitting (EV4 only) 24.6 ft. [7.5 m] cable with ½" conduit fitting (EV4 only)
Communication	BACnet IP, BACnet MS/TP, Modbus TCP, Modbus RTU, Webservice, 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") cast iron-GG25 (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]
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, 2½"...6")
Differential Pressure Range (ΔP)	see page 23-5
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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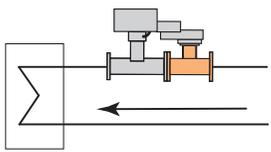
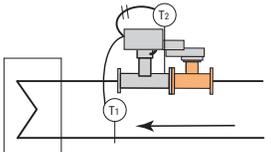
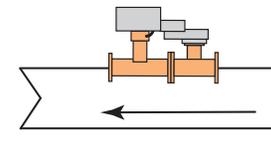
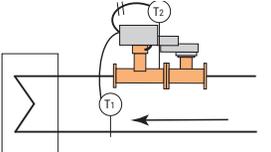
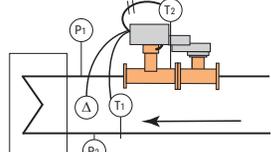
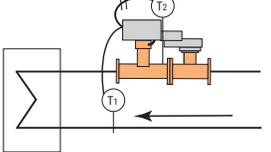
**SET-UP - Specify Upon Ordering**

**2-WAY VALVE**

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

**FUNCTIONALITY**

The Energy Valve offers different operating modes which can be selected using the Webview, Belimo Assistant 2 App, or ZTH US (2½...6" only.)

	<b>Delta T Manager OFF</b>	<b>Delta T Manager ON</b>
<b>Position Control</b>	 <p>Control Signal DDC controls the valve position.</p> <p><b>Position Control</b> The Energy Valve works as a normal pressure dependent valve. The actuator is positioned based on the control signal DDC.</p>	 <p>Control Signal DDC controls the valve position as long as the <math>\Delta T</math> is above the <math>\Delta T</math> setpoint.</p> <p><b>Position Control + Delta T Manager</b> The Energy Valve works as a pressure dependent valve. If the measured <math>\Delta T</math> is lower than the <math>\Delta T</math> setpoint the flow will be reduced by the <math>\Delta T</math> Manager logic to achieve the setpoint, regardless of the control signal DDC. Note: In position control, only <math>\Delta T</math> Manager can be selected, <math>\Delta T</math> Manager Scaling will not be available.</p>
<b>Flow Control</b>	 <p>Control Signal DDC controls the flow.</p> <p><b>Pressure Independent Flow Control</b> 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.</p>	 <p>Control Signal DDC controls the flow as long as the <math>\Delta T</math> is above the <math>\Delta T</math> setpoint.</p> <p><b>Pressure Independent Flow Control + Delta T Manager</b> The Energy Valve works as an EPIV. However, if the measured <math>\Delta T</math> is lower than the <math>\Delta T</math> setpoint, the flow will be reduced by the <math>\Delta T</math> Manager logic to achieve the <math>\Delta T</math> setpoint, regardless of the control signal DDC.</p>
<b>Differential Pressure Control</b>	 <p>Differential pressure sensor controls the valve position.</p> <p><b>Differential Pressure Control</b> The Energy Valve reacts to change in pressure and modulates the actuator to maintain the differential pressure setpoint based on the differential pressure sensor.</p>	 <p>Control Signal DDC controls the thermal power setpoint as long as the <math>\Delta T</math> is above the <math>\Delta T</math> setpoint.</p> <p><b>Power Control + Delta T Manager</b> 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 <math>V_{max}</math> is not exceeded. If the measured <math>\Delta T</math> is lower than the <math>\Delta T</math> setpoint, flow will be reduced by the <math>\Delta T</math> Manager logic and will override the thermal power control setpoint.</p>

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ENERGY VALVE

### INSTALLATION

#### Inlet Length ½...2" [DN15...DN50]

There are no requirements for straight inlet sections prior to the flow sensor. Product has been tested to and fulfills the requirements of EN1434-4:2022.

#### Inlet Length 2½...6" [DN65...DN150]

To ensure accurate sensor readings, The Energy Valve requires an unobstructed, straight pipe section leading to the sensor inlet. This section must have a length equivalent to at least five times the diameter with respect to the size of the valve and should not contain any components like elbows, tee junctions, wells or isolation valves.

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]

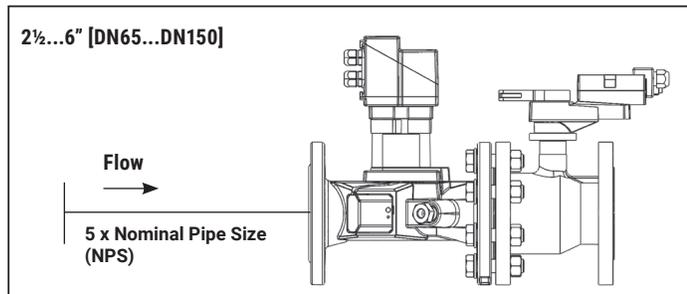
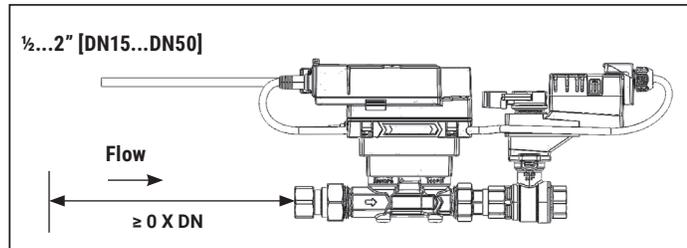
6" [DN150] 5 x nominal pipe size = 30" [762 mm]

#### 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.

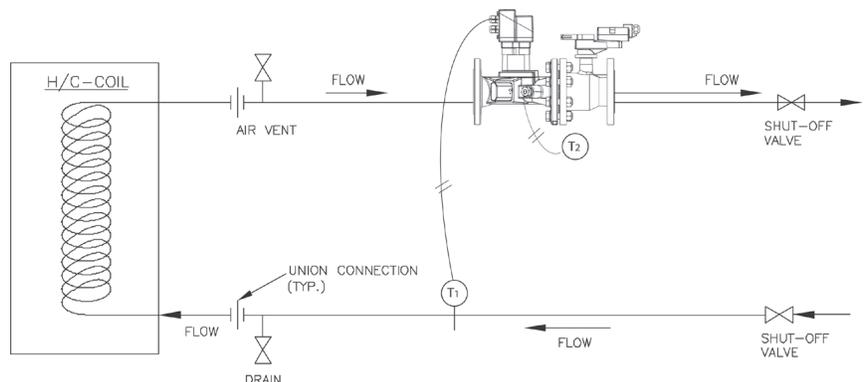
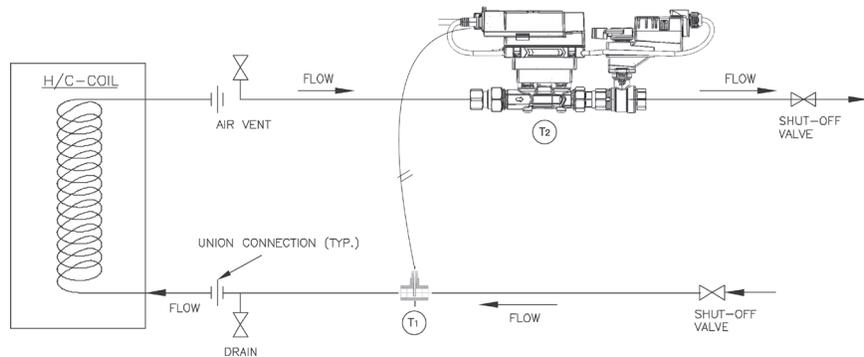


### PIPING

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.



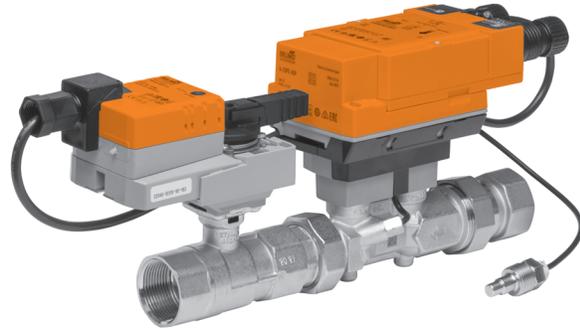
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 5-year warranty

### 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	14...250°F [-10...+120°C]
Diff. Pressure Range 1.65...66 GPM	4...50 psid or 1...50 psid with flow reductions*
Diff. Pressure Range EV200H (100 GPM)	8...50 psid or 1...50 psid with flow reductions*
Leakage	0%
Inlet Length to Meet Specified Measurement Accuracy	≥ to 0 X DN (according to EN1434-4:2022)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Remote Temperature Sensor Length	9.8 ft. [3 m]
Electrical Connection	3 ft. [1 m] cable with ½" conduit fitting (default) 9.8 ft. [3 m] cable with ½" conduit fitting 24.6 ft. [7.5 m] cable with ½" conduit fitting



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				.
Electrical Connection	18 GA plenum rated cable and RJ45 socket (Ethernet with Power over Ethernet)	18 GA plenum rated cable and RJ45 socket (Ethernet with Power over Ethernet)	18 GA plenum rated cable and RJ45 socket (Ethernet with Power over Ethernet)	18 GA plenum rated cable and RJ45 socket (Ethernet with Power over Ethernet)

### 2-WAY

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
EV050	6.6	½" [15]	360	200	\$2,380		\$3,461	
EV075	11	¾" [20]			\$2,459		\$3,628	
EV100	18.2	1" [25]			\$2,615		\$4,056	
EV125	28.5	1¼" [32]				\$3,502	\$4,248	
EV150	44	1½" [40]				\$3,764	\$4,641	
EV200	66	2" [50]					\$4,451	\$5,209
EV200H	100	2" [50]					\$4,451	\$5,209

\* See flow reduction chart on page 23-5.

Also available with Differential Pressure Control, see nomenclature page for ordering.

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ENERGY VALVE

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

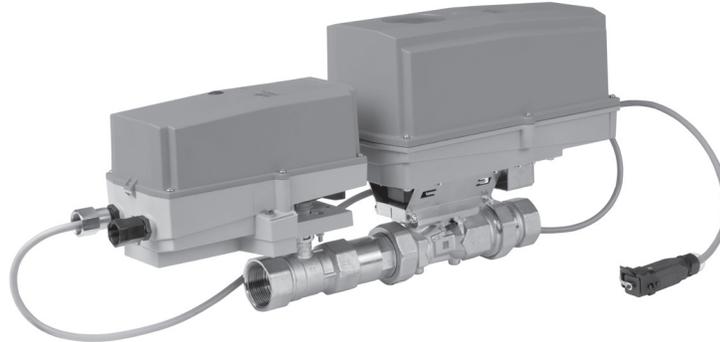
2-way Valves with Stainless Steel Ball and Stem, NPT Female Ends, NEMA 4



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	14...250°F [-10...+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)	8...50 psid or 1...50 psid with flow reductions*
Leakage	0%
Inlet Length to Meet Specified Measurement Accuracy	≥ to 0 X DN (according to EN1434-4:2022)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Remote Temperature Sensor Length	9.8 ft. [3 m]
Electrical Connection	3 ft. [1 m] cable with ½" conduit fitting (default) 9.8 ft. [3 m] cable with ½" conduit fitting 24.6 ft. [7.5 m] cable with ½" conduit fitting



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	18 GA plenum rated cable and RJ45 socket (Ethernet with Power over Ethernet)	18 GA plenum rated cable and RJ45 socket (Ethernet with Power over Ethernet)
Fail-Safe		.

## 2-WAY WITHOUT HEATER

Model #	GPM	Size [mm]	Body Pressure Rating [psij]	Close-Off Pressure [psid]		
EV050	6.6	½" [15]	360	200	\$3,958	\$5,039
EV075	11	¾" [20]			\$4,037	\$5,206
EV100	18.2	1" [25]			\$4,193	\$5,634
EV125	28.5	1¼" [32]			\$5,080	\$5,826
EV150	44	1½" [40]			\$5,342	\$6,219
EV200	66	2" [50]			\$6,029	\$6,787
EV200H	100	2" [50]			\$6,029	\$6,787

## 2-WAY WITH HEATER

Model #	GPM	Size [mm]	Body Pressure Rating [psij]	Close-Off Pressure [psid]	Thermostat Temperature Control (HT)	Humidistat Humidity Control (HH)	Thermostat Temperature Control (HT)	Humidistat Humidity Control (HH)
EV050	6.6	½" [15]	360	200	\$5,886	\$5,886	\$6,967	\$6,967
EV075	11	¾" [20]			\$5,965	\$5,965	\$7,134	\$7,134
EV100	18.2	1" [25]			\$6,121	\$6,121	\$7,562	\$7,562
EV125	28.5	1¼" [32]			\$7,008	\$7,008	\$7,754	\$7,754
EV150	44	1½" [40]			\$7,270	\$7,270	\$8,147	\$8,147
EV200	66	2" [50]			\$7,957	\$7,957	\$8,715	\$8,715
EV200H	100	2" [50]			\$7,957	\$7,957	\$8,715	\$8,715

\* See flow reduction chart on page 23-5.

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5-year warranty

### 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	cast iron - GG25
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. [10 m] optional: 4.9 ft. [1.5 m], 9.8 ft. [3 m], 16.4 ft. [5 m]
Electrical Connection	3 ft. [1 m] cable with ½" conduit fitting (default)



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 [psl]	Close-Off Pressure [psid]			
EV250SU-127	127	2½" [65]	ANSI 125, Standard Class B	175	\$14,859		\$17,407
EV300SU-180	180	3" [80]			\$19,284		\$21,587
EV400SU-317	317	4" [100]			\$22,375		\$25,231
EV500SU-495	495	5" [125]			\$27,687		\$30,543
EV600SU-713	713	6" [150]			\$35,393		\$38,250

\* See flow reduction chart on page 23-5.

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

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



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. [10 m] optional: 4.9 ft. [1.5 m], 9.8 ft. [3 m], 16.4 ft. [5 m]
Electrical Connection	3 ft. [1 m] cable with ½" conduit fitting (default)



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	\$21,466		\$24,186	
EV300SU-180-250	180	3" [80]			\$25,907		\$28,623	
EV400SU-317-250	317	4" [100]				\$29,823		\$32,542
EV500SU-495-250	495	5" [125]				\$37,512		\$40,227
EV600SU-713-250	713	6" [150]				\$44,189		\$46,903

\* See flow reduction chart on page 23-5.

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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 balancing valves.

Chris Tirado, IT Support Representative

# Electronic Pressure Independent Valve (EPIV) Nomenclature

EP	050			+AKRX-E				
<b>Valve Type</b> EP = NPT 2-way (½...2") P6 = Flanged 2-way (2½...6")	<b>Valve Size</b> 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	<b>Flow Rate</b> 1.65...713 GPM Refer to valve pages for full list	<b>Pressure Rating</b> Blank = ANSI 125 -250 = ANSI 250	<b>Actuator Type</b> Non Fail-Safe LRX NRX ARX GRX Electronic Fail-Safe AKRX GKRX	<b>Power Supply</b> 24 = AC/DC 24 V Blank = AC/DC 24 V	<b>Valve Size</b> Blank = ½...2" EP2 = 2½...6"	-MOD = Modbus & BACnet communication*	N4 = NEMA 4 N4HT = NEMA 4 w/ Thermostat N4HH = NEMA 4 w/ Humidistat

\*Modbus & BACnet on -MOD flanged models only. All NPT models 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 30...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. (\$17.00 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...10 V / U 2...10 V

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 maximum design flow (V'max GPM). If V'max is not provided, this value will be entered as the V'nom value.

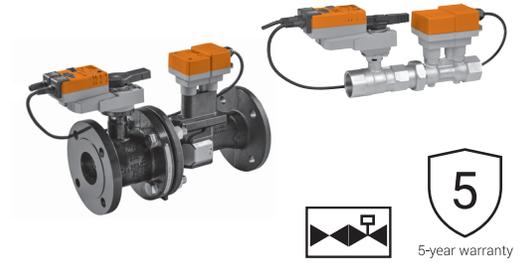
V'nom: Nominal (maximum) flow rating for the valve.

V'max: maximum flow setting. A set value to meet system requirements for maximum flow. V'max cannot exceed V'nom.

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 <sup>nom</sup> [GPM]*	Inches	DN [mm]	2-way	Non Fail-Safe	Electronic Fail-Safe
NPT	6.6	½	15	EP050	LRX-E, ARX-E (N4)	AKRX-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	ARX-E (N4)	
	66	2	50	EP200		
	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		



## 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 MS/TP or Modbus RTU\*\* 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") ANSI 125 or 250 flange (2½"...6")

Materials	
Body	
Valve	forged 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]
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 (2½"...6") (-250)

Differential Pressure Range (ΔP)	see page 23-5
Communication	analog and Belimo MP-Bus, BACnet MS/TP, Modbus RTU**
Leakage	0%
Rangeability	100:1
Flow Control Tolerance	5%
Flow Measurement Tolerance	±2%

\*V<sup>nom</sup> = Maximum flow for each valve body size.

Note: For models ½"...2" flows can be field set to 25% of nominal flow rate and 30% for sizes 2½"...6"

\*\* BACnet MS/TP and Modbus RTU are available on all NPT variants and the -MOD variants of the flanged models.

## SET-UP - Specify Upon Ordering

### 2-WAY VALVE

NON FAIL-SAFE STAYS IN LAST POSITION	<b>LRX...Series</b> <b>NRX...Series</b> <b>ARX...Series</b> <b>GRX...Series</b>	<b>NC:</b> Normally Closed- valve will open as voltage increases.	<b>NO:</b> Normally Open- valve will close as voltage increases.
	<b>ELECTRONIC FAIL-SAFE</b> <b>STAYS IN FAIL-SAFE POSITION</b>	<b>AKRX...Series</b> <b>GKRX...Series</b>	<b>NO/FO Valve:</b> Normally Open- valve will close as voltage increases. Fail Action: Will fail open upon power loss.
		<b>NC/FO Valve:</b> Normally Closed- valve will open as voltage increases. Fail Action: Will fail open upon power loss.	<b>NC/FC Valve:</b> 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, Belimo Assistant 2 App, or Assistant Link (part number: Link 10).

## INSTALLATION

### Inlet Length ½...2" [DN15...DN50]

There are no requirements for straight inlet sections prior to the flow sensor. Product has been tested to and fulfills the requirements of EN1434-4:2022.

### Inlet Length 2½...6" [DN65...DN150]

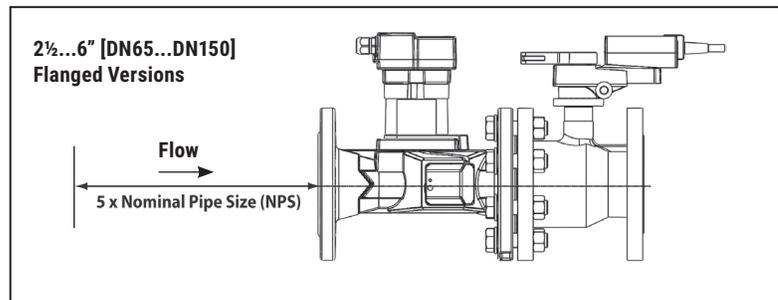
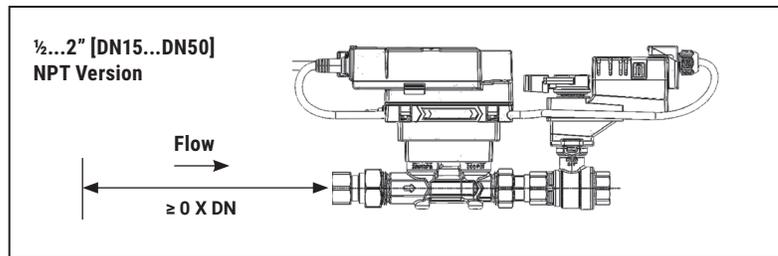
To ensure accurate sensor readings, the EPIV requires an unobstructed, straight pipe section leading to the sensor inlet. This section must have a length equivalent to at least five times the diameter with respect to the size of the valve and should not contain any components like elbows, tee junctions, wells or isolation valves.

- 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.

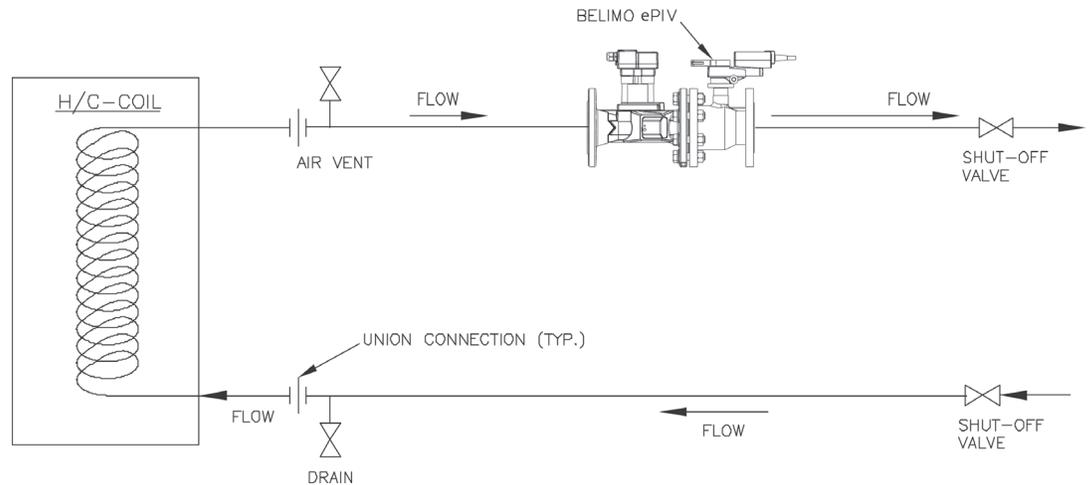
Note: All tolerances on flow measurement/control will be affected if requirements are not followed. The EPIV is not designed for open loop and steam systems.



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## PIPING

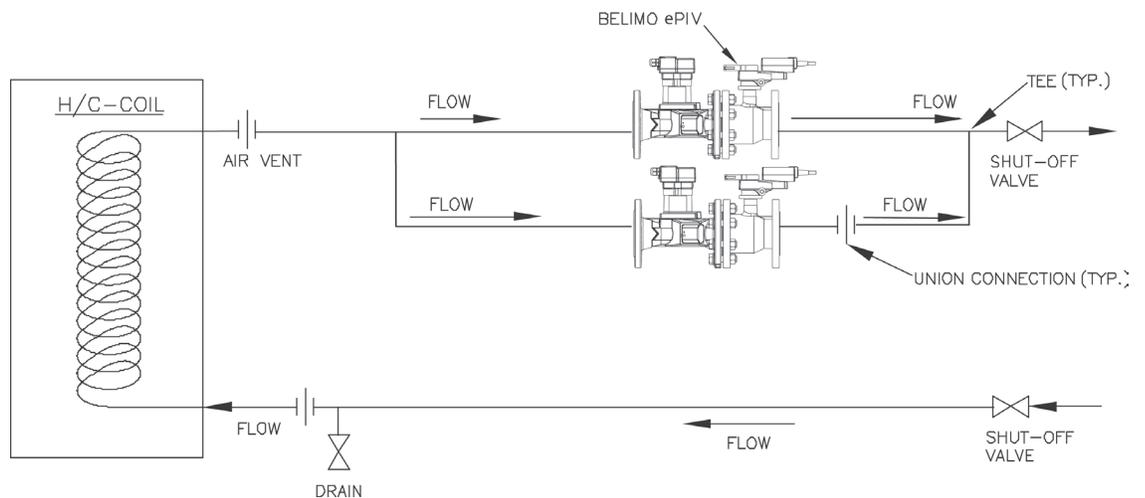
The EPIV can be installed on the supply or return side of the coil - the recommendation is to be installed on the return side. This diagram is for typical applications only. Consult engineering specification and drawings for particular circumstances. Refer to EPIV technical documentation for flow verification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

# Electronic Pressure Independent Valves with Non Fail-Safe and Electronic Fail-Safe Actuators



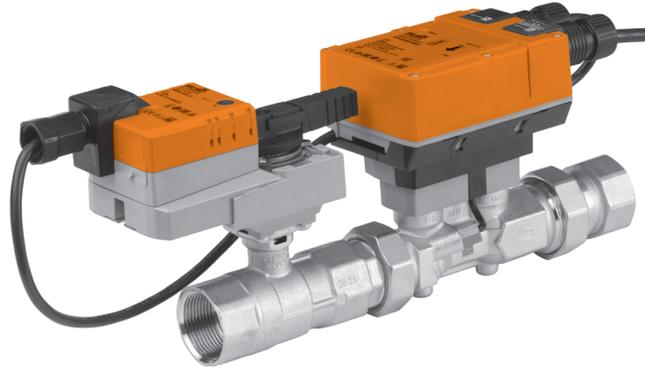
## 2-way Valves with Stainless Steel Ball and Stem, NPT Female Ends

### 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	14...250°F [-10...+120°C]
Diff. Pressure Range 1.65...66 GPM	4...50 psid or 1...50 psid with flow reductions*
Diff. Pressure Range EP200H (100 GPM)	8...50 psid or 1...50 psid with flow reductions*
Leakage	0%
Inlet Length to Meet Specified Measurement Accuracy	≥ to 0 X DN (according to EN1434-4:2022)
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
BACnet MS/TP & Modbus RTU	.	.	.	.
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 <sub>nom</sub> [GPM]	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]			
EP050	6.6	½" [15]	360	200	\$1,866		\$2,538
EP075	11	¾" [20]		200	\$1,941		\$2,549
EP100	18.2	1" [25]		200	\$2,115		\$2,628
EP125	28.5	1¼" [32]		200	\$3,254		\$3,461
EP150	44	1½" [40]		200	\$3,505		\$3,827
EP200	66	2" [50]		200		\$4,099	\$4,270
EP200H**	100			200		\$4,099	\$4,270

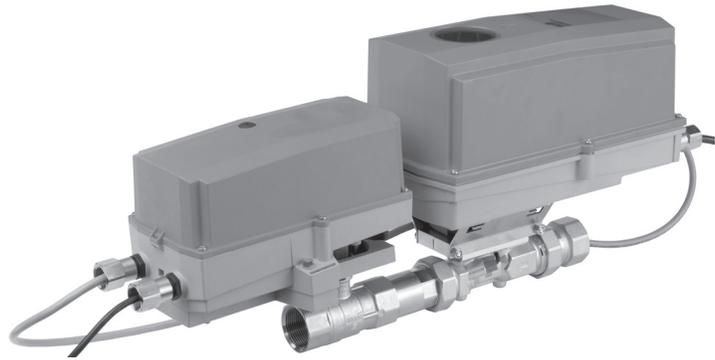
\*See flow reduction chart on page 23-5.

\*\*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	14...250°F [-10...+120°C]
Diff. Pressure Range 1.65...66 GPM	4...50 psid or 1...50 psid with flow reductions*
Diff. Pressure Range EP200H (100 GPM)	8...50 psid or 1...50 psid with flow reductions*
Leakage	0%
Inlet Length to Meet Specified Measurement Accuracy	≥ to 0 X DN (according to EN1434-4:2022)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Remote Temperature Sensor Length	9.8 ft. [3 m]



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
BACnet MS/TP & Modbus RTU	•	•
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 WITHOUT HEATER

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]		
EP050	6.6	½" [15]	360	200	\$3,444	\$4,116
EP075	11	¾" [20]			\$3,519	\$4,127
EP100	18.2	1" [25]			\$3,693	\$4,206
EP125	28.5	1¼" [32]			\$4,832	\$5,039
EP150	44	1½" [40]			\$5,083	\$5,405
EP200	66	2" [50]			\$5,677	\$5,848
EP200H**	100	2" [50]			\$5,677	\$5,848

### 2-WAY WITH HEATER

Model #	GPM	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]	Thermostat Temperature Control (HT)	Humidistat Humidity Control (HH)	Thermostat Temperature Control (HT)	Humidistat Humidity Control (HH)
EP050	6.6	½" [15]	360	200	\$5,372	\$5,372	\$6,044	\$6,044
EP075	11	¾" [20]			\$5,447	\$5,447	\$6,055	\$6,055
EP100	18.2	1" [25]			\$5,621	\$5,621	\$6,134	\$6,134
EP125	28.5	1¼" [32]			\$6,760	\$6,760	\$6,967	\$6,967
EP150	44	1½" [40]			\$7,011	\$7,011	\$7,333	\$7,333
EP200	66	2" [50]			\$7,605	\$7,605	\$7,776	\$7,776
EP200H**	100	2" [50]			\$7,605	\$7,605	\$7,776	\$7,776

\* See flow reduction chart on page 23-5.

\*\* Differential pressure range is 8...50 psid.

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EPIV

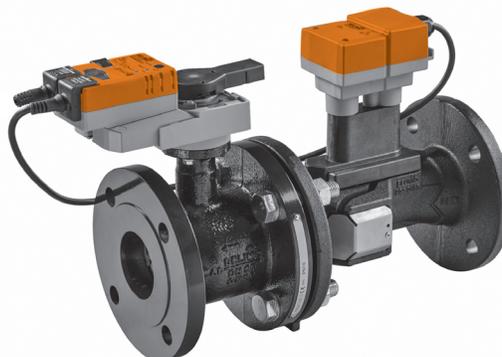
# Electronic Pressure Independent Valves with Non Fail-Safe Actuators and Electronic Fail-Safe Actuators



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

### 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					
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
BACnet MS/TP & Modbus RTU		.		.		
Fail-Safe					.	.

### 2-WAY

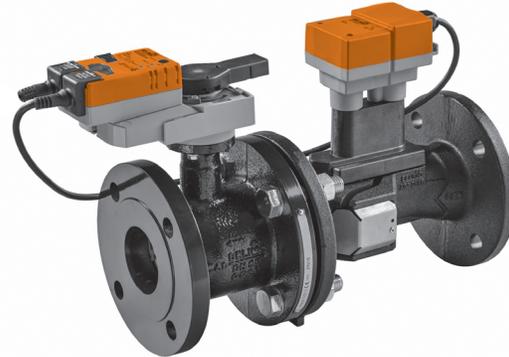
Model #	V'nom [GPM]	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]					
P6250SU-127	127	2½" [65]	ANSI 125, Standard Class B	175	\$13,200	\$14,519		\$14,881	
P6300SU-180	180	3" [80]		175	\$17,123	\$18,837		\$18,979	
P6400SU-317	317	4" [100]		175		\$19,860	\$21,849		\$21,749
P6500SU-495	495	5" [125]		175		\$24,535	\$26,988		\$26,443
P6600SU-713	713	6" [150]		175		\$31,542	\$34,698		\$33,486

\*See flow reduction chart on page 23-5.

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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



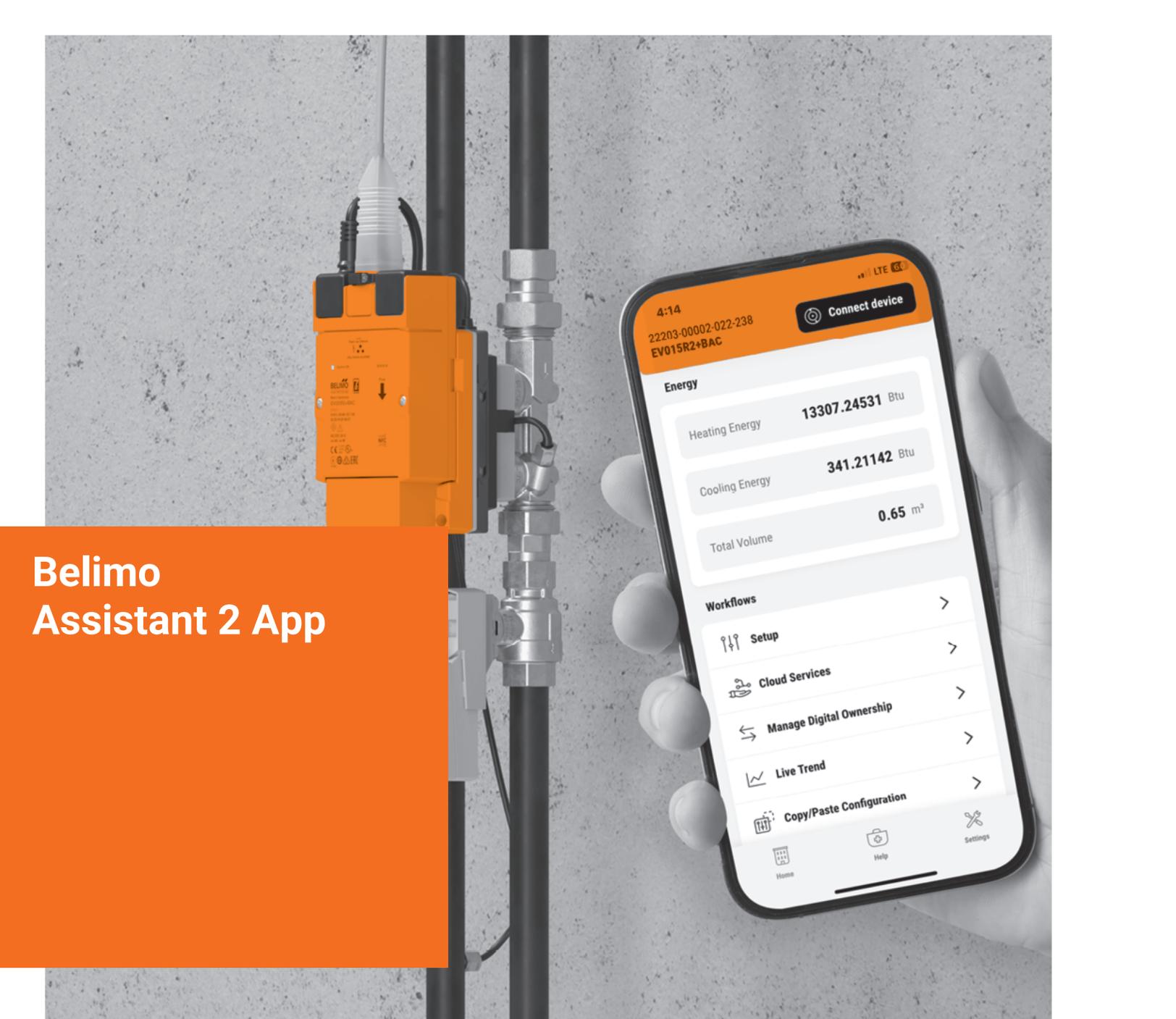
ACTUATOR PART #	ARX24-EP2	ARX24-EP2-MOD	GRX24-EP2	GRX24-EP2-MOD	AKRX24-EP2	GKRX24-EP2
Control	Modulating	Modulating	Modulating	Modulating	Modulating	Modulating
Manual Override	.	.	.	.	.	.
Running Time (Motor)	90 seconds					
Running Time (Fail-Safe)					35 seconds	35 seconds
Electrical Connection	3 ft, 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
BACnet MS/TP & Modbus RTU		.		.		
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	\$17,580	\$19,342		\$19,194
P6300SU-180-250	180	3" [80]		310	\$21,578	\$23,737		\$23,206
P6400SU-317-250	317	4" [100]		310		\$26,124	\$28,736	\$27,773
P6500SU-495-250	495	5" [125]		310		\$34,499	\$37,949	\$36,191
P6600SU-713-250	713	6" [150]		310		\$42,096	\$46,307	\$43,825

\*See flow reduction chart on page 23-5.

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## Belimo Assistant 2 App

### Unified App, Seamless User Experience

The Belimo Assistant 2 is your new app companion for wired and wireless setup, on-site operation, and troubleshooting of Belimo damper actuators, control valves, sensors, and meters. Designed with efficiency and ease of use in mind, this tool ensures you have everything you need at your fingertips!



Discover the advantages  
[www.belimo.com](http://www.belimo.com)



5-year warranty





## 8 6-WAY ELECTRONIC PRESSURE INDEPENDENT CONTROL VALVES (EPIV)

### Compact Control for 4-Pipe Systems

- Combines changeover and modulating control for heating and cooling in a single coil system.
- Condensation Protection Mode automatically closes the valve to prevent condensation damage, reducing maintenance costs and improving system reliability.
- Reduces material requirements and installation time by integrating the functionality of multiple valves.

## 6-Way Electronic Pressure Independent Valve Nomenclature

EP	050	P6	+LRTX-E	HH1
<b>Electronic Pressure Independent</b>	<b>Valve Size</b> 050 = ½" 075 = ¾" 100 = 1"	<b>6-Way Valve</b>	<b>Actuator Type</b> Standard LRX-E NRX-E <b>Condensation Protection</b> LRTX-E* NRTX-E*	<b>Condensation Sensor</b> Blank = No sensor HH1 = Pipe mount condensation switch HH2 = Remote mount condensation switch

\*Condensation protection actuators have an additional terminal and cable to connect to a condensation sensor

### Ordering Example

- 1** Choose the valve, actuator, and sensor combination.

**EP050P6+LRTX-E HH1**

- 2** Specify maximum flow (V'max)

Requested Flow S1  
V'max = 4.2...100% V'nom (nominal flow)

Requested Flow S2  
V'max = 4.2...100% V'nom (nominal flow)

S1 = Sequence 1  
S2 = Sequence 2

- 3** Flow Meter installation

Supply or Return

- 4** Does order require tagging?

Tagging:  
Valves may be tagged per customer specification. (\$17.00 charge per tag)

Example:  
Chilled/Heating Beam Room #1

Part number for tagging: 99981-00101

- 5** Complete Ordering Example: EP050P6+LRTX-E HH1

Requested Flow: S1: 4.0 GPM  
S2: 1.0 GPM  
Sensor: HH1  
Tag: CB-01  
Meter Installation: Return

**Default Settings:**

Flow: S1: 100% of V'nom  
S2: 100% of V'nom  
Sensor: Blank  
Install: Return

NOTE: All models should be entered with the maximum design flow (V'max GPM). If V'max is not provided, the value will be entered as the V'nom value.

# 6-Way Electronic Pressure Independent Valve with Condensation Switch Product Range

Flow V'nom [GPM]	Valve Nominal Size		Type	Suitable Actuators
	Inches	DN [mm]	EPIV 6-way	Non Fail-Safe
5.5	½	15	EP050P6	LRX-E LRTX-E
11	¾	20	EP075P6	
18.2	1	25	EP100P6	NRX-E NRTX-E



6-way EPIV with HH1 sensor displayed



6-way EPIV with HH2 sensor displayed

The HH1 and HH2 are condensation sensors designed to detect moisture on chilled surfaces, such as chilled beams. The HH1 features an internal sensor, while the HH2 has an external sensor with a 6.5 ft. (2 m) cable.

Both models come with a condensation sensor with LED indication and an SPDT switched contact for easy integration with control systems.

They are enclosed in a rugged IP65 / NEMA 4X rated housing, providing reliable performance across various environments.

## SENSOR SPECIFICATIONS - 2 VARIANTS

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

NOTE: Additional analog input on actuator for the sensor versions - HH1 & HH2  
Condensation protection mode feature closes the valve to prevent condensation damage.

## 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.

Condensation Protection Mode, is now available. This advanced feature utilizes our condensation switches, which are connected to our actuators, to automatically close the valve and prevent condensation damage to sensitive components. By incorporating this feature, it aims to reduce maintenance costs and enhance overall system reliability, providing a more efficient and durable solution for customers.

## FLOW METER SPECIFICATIONS

Control Type	modulating
Power Supply	AC/DC 24 V
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
Closed Valve	30...60°
Sequence 2	60...90° angle
Sizes	½", 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
Maximum Operating Differential Pressure	16 psi*
Leakage	air-bubble tight, leakage rate A (EN 12266-1)
Rangeability	100:1
Flow Control Tolerance	5%
Measuring Accuracy	
Water	±2% (of 20...100% V'nom) @ 20°C / glycol 0% vol.
Water/Glycol	±5% (of 20...100% V'nom) @ glycol 0%...60% vol.
Min. Flow Measurement	0.2% of V'nom
Sensor Technology	ultrasonic with glycol & temperature compensation

\*See technical documentation for further information.

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

Chrome Plated Ball and Nickel Plated Stem, NPT Female Ends



## 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]
Leakage	air-bubble tight, leakage rate A (EN 12266-1)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation



5-year warranty



Standard 6-way EPIV without a sensor

ACTUATOR PART #	LRX-E	LRTX-E	NRX-E	NRTX-E
Control	Modulating	Modulating	Modulating	Modulating
Manual Override	•	•	•	•
Running Time (Motor)	90 seconds (default)	90 seconds (default)	90 seconds (default)	90 seconds (default)
BACnet MS/TP & Modbus RTU	•	•	•	•
Electrical Connection	Plenum cable	Plenum cable	Plenum cable	Plenum cable
Additional Terminal for Condensation Sensor		•		•

## 6-WAY EPIV STANDARD

Model #	V'nom [GPM]	Size [mm]	Body Pressure Rating [psig]	Close-Off Pressure [psid]			
EP050P6	5.5	½" [15]	232	50	\$2,717		
EP075P6	11	¾" [20]			\$3,184		
EP100P6	18.2	1" [25]				\$3,710	

## 6-WAY EPIV WITH CONDENSATION SENSOR

Model #	V'nom [GPM]	Size [mm]	Body Pressure Rating [psig]	Close-Off Pressure [psid]			
EP050P6...HH1	5.5	½" [15]	232	50	\$3,067		
EP050P6...HH2	5.5	½" [15]			\$3,126		
EP075P6...HH1	11	¾" [20]			\$3,534		
EP075P6...HH2	11	¾" [20]			\$3,593		
EP100P6...HH1	18.2	1" [25]					\$4,060
EP100P6...HH2	18.2	1" [25]					\$4,119

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9

## **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.

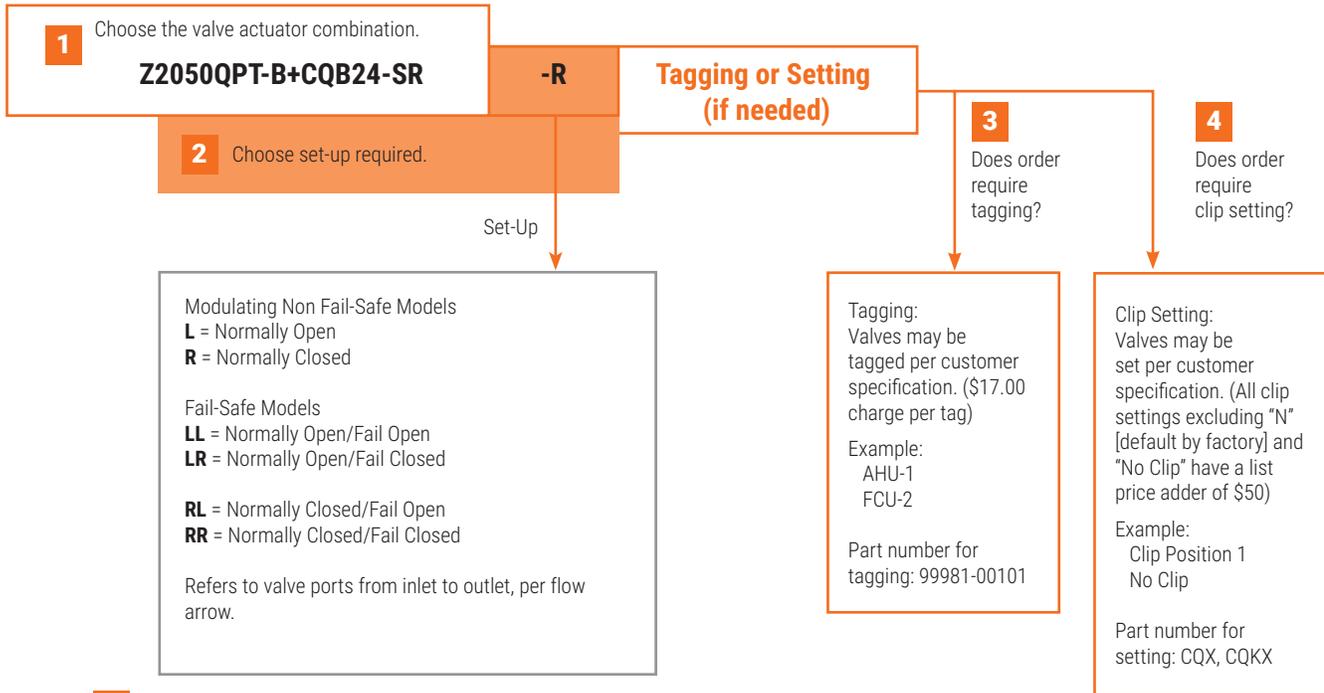
# ZoneTight Pressure Independent Zone Valve (PIQCV) Nomenclature

Z2	050	QPT		-B	+CQB	24	-SR	-R	
<b>Valve Type</b> Z2 = 2-way	<b>Valve Size</b> 050 = 1/2" 075 = 3/4"	Quick Connect Pressure Independent PT Port	Blank = NPT PF = Press Fit	<b>Flow Rate</b> B = 0.9 GPM D = 2.0 GPM F = 4.3 GPM G = 9.0 GPM	<b>Actuator Type</b> Non Fail-Safe CQB CQX Fail-Safe CQKB CQKX	<b>Power Supply</b> 24 = AC/DC 24 V UP = AC 110...240 V	<b>Control</b> -3 = On/Off, Floating Point -SR = Modulating 2...10 V Standard 0.5...10 V Custom*	<b>Direction of Rotation</b> -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 9-4 for factory set clip position options.

\*Configurable on "X" models

## Ordering Example



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.

# 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
<b>NPT</b>	0.9*	½	15	Z2050QPT-B	<b>CQ Series</b>	<b>CQK Series</b>
	2.0*	½	15	Z2050QPT-D		
	4.3*	½	15	Z2050QPT-F		
	9.0*	¾	20	Z2075QPT-G		
<b>Press Fit</b>	0.9*	½	15	Z2050QPTPF-B		
	2.0*	½	15	Z2050QPTPF-D		
	4.3*	½	15	Z2050QPTPF-F		
	9.0*	¾	20	Z2075QPTPF-G		

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



## 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

<b>Control Type</b>	
Blank	on/off
-3	on/off, floating point
-SR	modulating, 2...10 V standard 0.5...10 V custom**
<b>Manual Override</b>	use actuator to turn valve stem
<b>Electrical Connection</b>	3 ft. [1 m] cable with ½" conduit fitting, screw terminals
<b>Power Consumption</b>	
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
<b>Power Supply</b>	AC/DC 24 V (AC 110...240 V, UP)
<b>Power Consumption</b>	
CQ..	0.6 VA
CQK..	5 VA
CQ..UP	2 VA
CQK..UP	7 VA

## VALVE SPECIFICATIONS

<b>Fluid</b>	chilled or hot water, up to 60% glycol max
<b>Flow Characteristic</b>	equal percentage
<b>Controllable Flow Range</b>	75°
<b>Sizes</b>	½", ¾"
<b>End Fitting</b>	NPT female, press fit
<b>Materials</b>	
Body	forged brass
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
O-Rings	EPDM
Spring	stainless steel
<b>Fluid Temp Range</b>	36...212°F [2...100°C]***
<b>Fluid Temp Limit</b>	250°F [120°C]***
<b>Max. Allowable Operating Temperature</b>	212°F [100°C]
<b>PT Ports</b>	2
<b>Body Pressure Rating</b>	360 psi (NPT), 250 psi (press fit)
<b>Close-Off Pressure</b>	200 psid
<b>Differential Pressure (ΔP) Range</b>	5...50 psid
<b>Leakage</b>	0%
<b>Flow Control Tolerance</b>	±5%

\*\*Configurable on "X" models

\*\*\*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.

## CLIP POSITION FOR FLOW ADJUSTMENT (GPM)

	1	1+	2-	2	2+	3-	3	3+	4-	4	4+	5-	5	5+	6-	6	6+	N-	N	No Clip
Z2050QPT(PF)-B (½")	N/A	N/A	0.1	N/A	N/A	N/A	N/A	0.2	N/A	N/A	0.3	N/A	0.4	N/A	0.5	N/A	0.6	0.7	0.8	0.9
Z2050QPT(PF)-D (½")	0.2	N/A	N/A	0.3	N/A	N/A	0.4	0.5	N/A	0.6	0.7	0.8	0.9	1.0	1.2	1.3	1.5	1.6	1.8	2.0
Z2050QPT(PF)-F (½")	N/A	N/A	N/A	0.6	N/A	0.7	0.8	0.9	1.0	1.3	1.5	1.7	1.9	2.2	2.5	2.8	3.1	3.3	3.6	4.3
Z2075QPT(PF)-G (¾")	N/A	N/A	1.6	1.8	2.1	2.4	2.7	3.0	3.3	3.7	4.0	4.4	4.9	5.3	5.8	6.3	6.7	7.2	7.7	9.0
Actuator Runtime	30 s	33 s	35 s	37 s	39 s	41 s	43 s	45 s	47 s	49 s	51 s	53 s	55 s	58 s	60 s	62 s	64 s	66 s	68 s	75 s

## SET-UP- Specify Upon Ordering

### 2-WAY VALVES

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

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

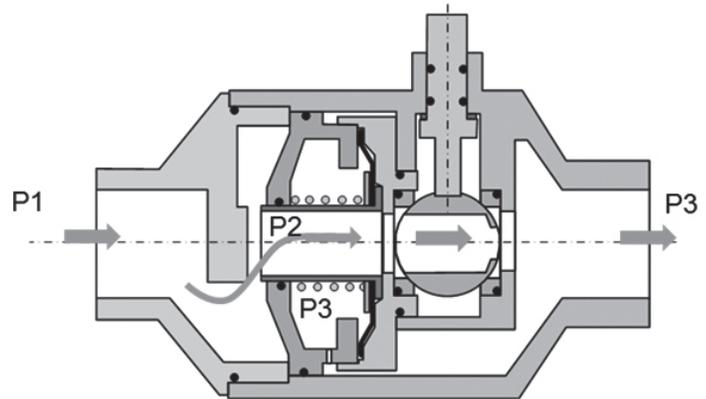
Note: One wire control for CW or CCW rotation.

### 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.

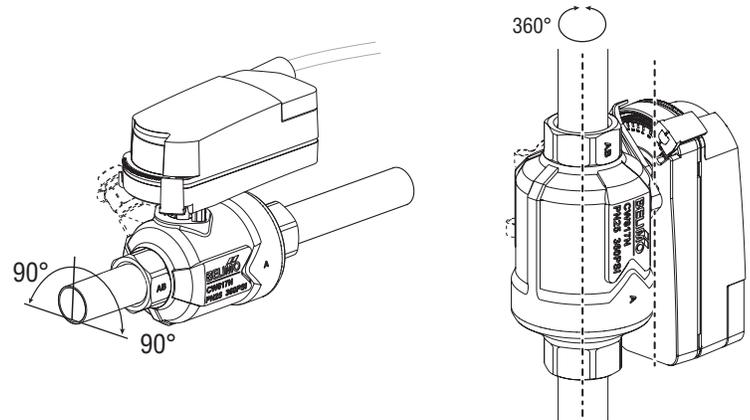
Pressure P1 at the inlet of the PIQCV is high and pressure P3 at the outlet is low. The differential pressure between P1 and P3 must be between 5 and 50 psid to achieve pressure independent flow. When differential pressure increases the regulator opening is reduced. When differential pressure decreases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



### INSTALLATION

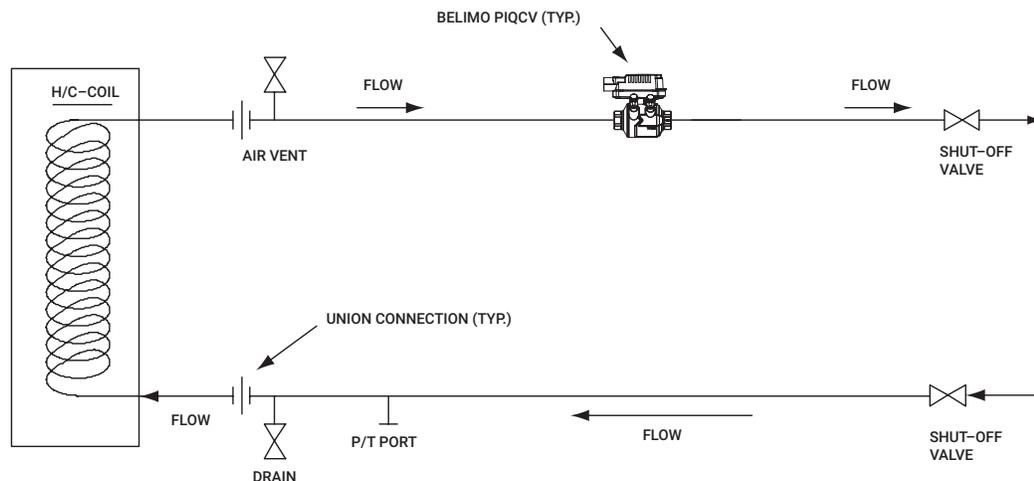
PIQCV should be installed with flow in the direction of the arrow on the valve body. If installed backwards, there could be damage to either the diaphragm or the regulator.

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.



# 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%



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	\$688	\$828	\$828	\$713
Z2050QPT-D	2.0			200	\$688	\$828	\$828	\$713
Z2050QPT-F	4.3			200	\$724	\$868	\$868	\$756
Z2075QPT-G	9			¾" [20]	200	\$978	\$1,059	\$1,059

### 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	\$737	\$886	\$886	\$763
Z2050QPTPF-D	2.0			200	\$737	\$886	\$886	\$763
Z2050QPTPF-F	4.3			200	\$776	\$929	\$929	\$810
Z2075QPTPF-G	9			¾" [20]	200	\$1,050	\$1,134	\$1,134

\*0.5...10 V configurable on "X" models, e.g. CQX24-SR-L.

\*\* 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	+\$50	+\$50	+\$50

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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%


**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°)					
Running Time (Fail-Safe)	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	\$739	\$739	\$780	\$780	\$767	\$767
Z2050QPT-D	2.0			200	\$739	\$739	\$780	\$780	\$767	\$767
Z2050QPT-F	4.3			200	\$781	\$781	\$820	\$820	\$812	\$812
Z2075QPT-G	9			¾" [20]	200	\$1,056	\$1,056	\$1,094	\$1,094	\$1,085

**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	\$792	\$792	\$833	\$833	\$825	\$825
Z2050QPTPF-D	2.0			200	\$792	\$792	\$833	\$833	\$825	\$825
Z2050QPTPF-F	4.3			200	\$837	\$837	\$878	\$878	\$872	\$872
Z2075QPTPF-G	9			¾" [20]	200	\$1,132	\$1,132	\$1,169	\$1,169	\$1,162

\* 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	CQKX24-S	CQKXUP
Add to List Price for Factory Clip Setting	+\$50	+\$50	+\$50

# ZoneTight Pressure Independent Zone Valves (PIQCV) with Electronic 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%



### 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	\$891	\$891	\$891	\$891
Z2050QPT-D	2.0			200	\$891	\$891	\$891	\$891
Z2050QPT-F	4.3			200	\$934	\$934	\$934	\$934
Z2075QPT-G	9			¾" [20]	200	\$1,142	\$1,142	\$1,142

### 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	\$958	\$958	\$958	\$958
Z2050QPTPF-D	2.0			200	\$958	\$958	\$958	\$958
Z2050QPTPF-F	4.3			200	\$1,002	\$1,002	\$1,002	\$1,002
Z2075QPTPF-G	9			¾" [20]	200	\$1,224	\$1,224	\$1,224

\*0.5...10 V configurable on "X" models, e.g. CQKX24-SR-LL.

\*\* 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	+\$50

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# 10 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.
- Available with press fit connections for easy field assembly and installation.

Jamell Scott, Inside Sales Representative

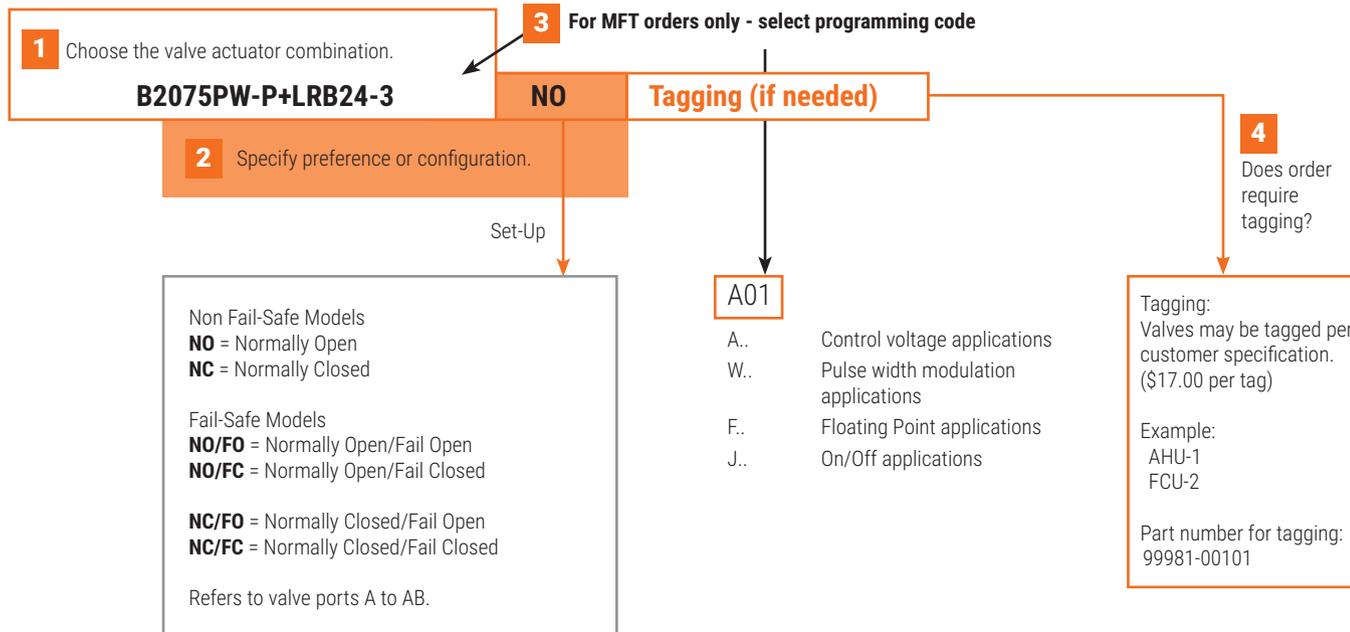
# Potable Water Valve Nomenclature

B2	075	PW	-P		+LRB	24	-3		
<b>Valve</b> B2 = 2-way (½...2") EXT-LD141 = 2-way Flanged (2...10")	<b>Valve Size</b> 50...200 = ½...2" 02...10 = 2...10" (Flanged)	<b>Potable Water</b>	<b>Cv</b> -N = 32 -P = 49 -Q = 81 -Q = 92 -R = 144 -S = 206	<b>Connection</b> Blank = NPT PF = Press Fit	<b>Actuator Type</b> <b>Non Fail-Safe</b> CQB, CQX LRB, LRX GR AMB, AMX AR GMB, GMX PR JR SY <b>Fail-Safe Spring Return</b> AF, LF AFR <b>Electronic Fail-Safe</b> CQKB, CQKX GKX PKR	<b>Power Supply</b> 24 = AC/DC 24 V 120 = AC 120 V 230 = AC 230 V UP = AC 100...240 V	<b>Control</b> -3 = On/Off, Floating Point Blank = On/Off MFT = Multi-Function Technology	<b>Direction of Rotation*</b> -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 15-4 for programming options.

## Ordering Example



# Potable Water Valve Product Range

## BALL VALVES

	Valve Nominal Size			Type	Suitable Actuators			
	C <sub>v</sub>	Inches	DN [mm]	2-way	Non Fail-Safe		Fail-Safe	
NPT	32	½	15	B2050QPW-N	CQ		CQK	
	49	¾	20	B2075PW-P		LR Series		LF Series
	81	1	25	B2100PW-Q				
	92	1¼	32	B2125PW-Q				
	144	1½	40	B2150PW-R			AR Series	
	206	2	50	B2200PW-S				AFR Series
Press Fit	32	½	15	B2050QPW-N PF	CQ		CQK	
	49	¾	20	B2075PW-P PF		LR Series		LF Series
	81	1	25	B2100PW-Q PF				



### 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 - CLD 23  
NSF/ANSI 372 - Lead Free

### ACTUATOR SPECIFICATIONS

Control Type	on/off, floating point
Manual Override	LR, AM, AF, AFR, AR, GM, GR, GK, JR, PR, PK, SY series
Electrical Connection	3 ft. [1 m] cable with ½" conduit fitting, terminal block

## BUTTERFLY VALVES

C <sub>v</sub> @ 90°	C <sub>v</sub> @ 60°	Valve Nominal Size		Type	Suitable Actuators				
		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					
1022	392	5	125	EXT-LD14105BE1AX				JR Series	PKR Series
1579	605	6	150	EXT-LD14106BE1AX					
3136	1202	8	200	EXT-LD14108BE1AX				PR	PK
5340	2047	10	250	EXT-LD14110BE1AX					SY

Note: All valves in this section are certified NSF 61 Cold Water (CLD 23) rated for continuous exposure to ambient water temperatures up to 73.4°F [23°C].

### VALVE SPECIFICATIONS

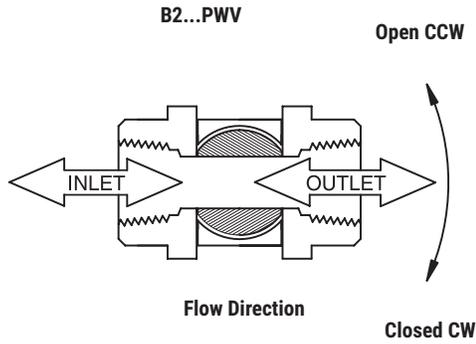
Fluid	potable water
Flow Characteristic	full port
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 5", 6", 8", 10"
End Fittings	
Ball Valve	NPT female, press fit
Butterfly Valve	for ASME/ANSI Class 125/150 flange
Materials - Ball Valve	
Body	lead free DZR brass
Characterizing Ball	chrome plated lead free DZR brass
Stem	lead free DZR 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 Valve	-4...+212°F [-20...+100°C]
Butterfly Valve	-20...+250°F [-32...+120°C]
Body Pressure Rating	
Ball Valve	600 psi (NPT), 250 psi (press fit)
Butterfly Valve	200 psi
Close-Off Pressure	
Ball Valve	200 psid
Butterfly Valve	150 psid
Max. Operating Pressure	
Ball Valve	230 psid
Butterfly Valve	200 psid
Leakage	0%
Dead End Service	
Butterfly Valve	bidirectional approved

# Potable Water Valves

General Information / Typical Installation



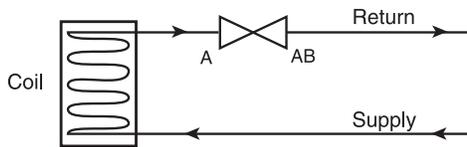
## FLOW PATTERN



## PIPING DIAGRAM

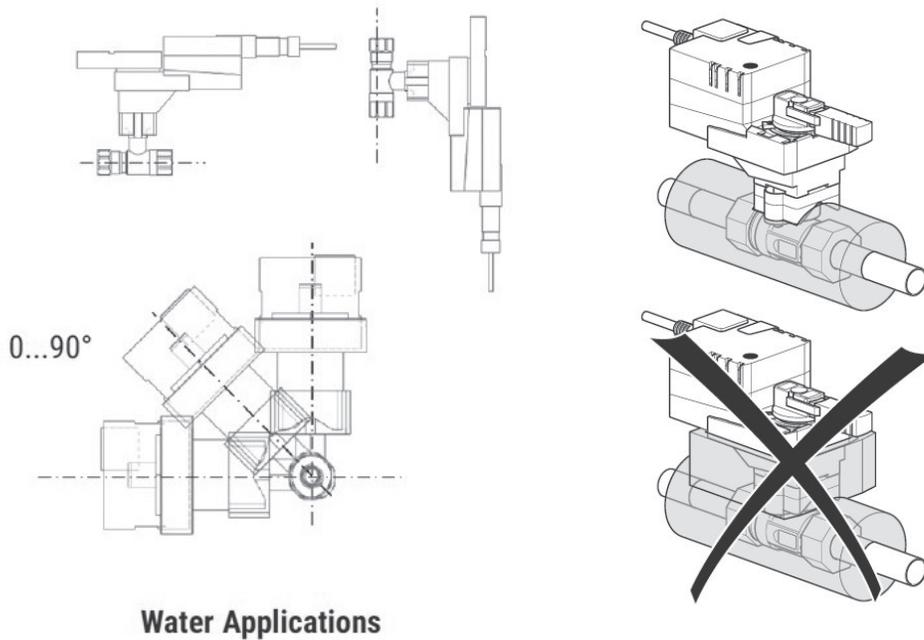
### Water Application

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.



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**SET-UP- Specify Upon Ordering**
**2-WAY VALVES**

<b>NON FAIL-SAFE</b> Stays in Last Position	<b>CQB(X)UP-3</b>	<b>On/Off:</b> 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).	<b>Floating:</b> Power to brown wire (pin 2) will drive valve CW (closed). Power to white wire (pin 3) will drive valve CCW (open).
	<b>CQB(X)24-3</b>	<b>On/Off:</b> 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).	<b>Floating:</b> Power to red wire (pin 2) will drive valve CW (closed). Power to white wire (pin 3) will drive valve CCW (open).
	<b>LRB24-3, AMX24-3-X1, ARB24-3, GMX24-3-X1, GRCX24-3-T</b>	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.	
	<b>PR..3-T, JR..3-T, SY</b>	<b>NC:</b> Normally closed A to AB, valve will open as voltage increases.	<b>NO:</b> Normally open A to AB, valve will close as voltage increases.

<b>FAIL-SAFE</b> Note Fail Position	<b>CQKB(X)24 CQKB(X)24-S CQKB(X)UP</b>	<b>CQKB24-LL, CQKB24-S-LL, CQKBUP-LL:</b> Normally open CCW, valve will drive closed when energized. Fail-Safe Action: Actuator will fail open CCW upon power loss.	<b>CQKB24-RR, CQKB24-S-RR, CQKBUP-RR:</b> Normally closed CW, valve will drive open when energized. Fail-Safe Action: Actuator will fail closed CW upon power loss.
	<b>LF24-3 US, AFX24-X1, AFRB24, GKB24-3-X1, GKRX24-3</b>	<b>NC/FO:</b> Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail open upon power loss.	<b>NC/FC:</b> Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail closed upon power loss.
	<b>PK..MFT-T</b>	<b>NC:</b> Normally closed A to AB, valve will open as voltage increases when directional switch is in the "FO" position.	<b>NO:</b> Normally open A to AB, valve will close as voltage increases when directional switch is in the "FC" position.

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# 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



5-year warranty

## VALVE SPECIFICATIONS

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



ACTUATOR PART #	CQB24-3	LRB24-3	ARB24-3
Control	On/Off, Floating Point	On/Off, Floating Point	On/Off, Floating Point
Power Supply	AC/DC 24 V	AC/DC 24 V	AC/DC 24 V
Running Time (Motor)	70 seconds (0...90°)	90 seconds (0...90°)	90 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

## 2-WAY NPT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]			
B2050QPW-N	32	½" [15]	600	200	\$543		
B2075PW-P	49	¾" [20]		200		\$710	
B2100PW-Q	81	1" [25]		200	\$853		
B2125PW-Q	92	1¼" [32]		200		\$1,248	
B2150PW-R	144	1½" [40]		200		\$1,397	
B2200PW-S	206	2" [50]		200		\$1,789	

## 2-WAY PRESS FIT

B2050QPW-N PF*	32	½" [15]	250	200	\$651		
B2075PW-P PF*	49	¾" [20]		200		\$845	
B2100PW-Q PF*	81	1" [25]		200	\$1,014		

\*Valve with press fit connection.



ACTUATOR PART #	CQKB24-LL	CQKB24-RR	CQKBUP-LL	CQKBUP-RR	LF24-3 US	AFRB24
Control	On/Off	On/Off	On/Off	On/Off	On/Off, Floating Point	On/Off
Power Supply	AC/DC 24 V	AC/DC 24 V	AC 100...240 V	AC 100...240 V	AC/DC 24 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°)	75 seconds (0...90°)
Running Time (Fail-Safe)	60 seconds	60 seconds	60 seconds	60 seconds	<25 seconds	<20 seconds
Electrical Connection	3 ft, 22 GA plenum cable with ½" conduit connector	3 ft, 22 GA plenum cable with ½" conduit connector	3 ft, 19 GA appliance cable with ½" conduit connector	3 ft, 19 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 NPT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B2050QPW-N	32	½" [15]	600	200	\$585	\$585	\$645	\$645
B2075PW-P	49	¾" [20]		200				
B2100PW-Q	81	1" [25]		200	\$1,221			
B2125PW-Q	92	1¼" [32]		200		\$1,556		
B2150PW-R	144	1½" [40]		200		\$1,705		
B2200PW-S	206	2" [50]		200		\$1,779		

## 2-WAY PRESS FIT

B2050QPW-N PF*	32	½" [15]	250	200	\$700	\$700	\$774	\$774
B2075PW-P PF*	49	¾" [20]		200				
B2100PW-Q PF*	81	1" [25]		200	\$1,454			

\*Valve with press fit connection.

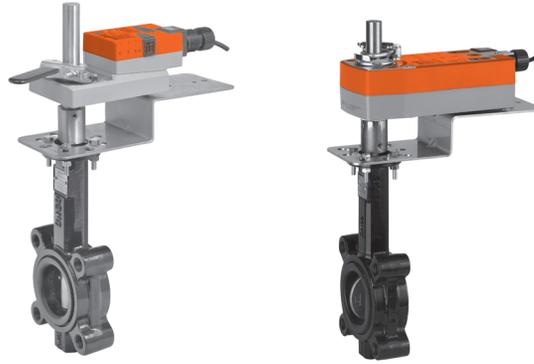
800-543-9038 USA

866-805-7089 CANADA

905-712-3118 LATIN AMERICA/CARIBBEAN

### VALVE SPECIFICATIONS

Fluid	chilled or hot water, potable
Flow Characteristic	F6- modified equal percentage for use with ANSI Class 125/150 flanges
End Fitting	
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



ACTUATOR PART #	AMX24-3-X1	GMX24-3-X1	AFX24-X1	GKB24-3-X1
Control	On/Off, Floating Point	On/Off, Floating Point	On/Off	On/Off, Floating Point
Manual Override	•	•	•	•
Running Time (Motor)	90 seconds	150 seconds	75 seconds	150 seconds
Running Time (Fail-Safe)			20 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	3 ft, 18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector

### 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	\$1,525		\$1,901	
EXT-LD14125BE1AX	196	75	2½" [65]		150	\$1,602		\$1,980	
EXT-LD14103BE1AX	302	116	3" [80]		150		\$2,073		\$2,907

# 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



2-year warranty

ACTUATOR PART #	GRCX24-3-T N4*	JRXUP-3-T	PRBUP-3-T	SY4-24	GKRX24-3 N4*	PKRXUP-MFT-T
Control	On/Off or Floating Point*	On/Off, Floating Point	On/Off, Floating Point	On/Off, Floating Point	On/Off, Floating Point	Modulating/MFT
Manual Override	•	•	•	•	•	•
Running Time (Motor)	35 seconds	35 seconds (default) 20...120 seconds field adjustable	35 seconds	26 seconds	90 seconds	35 seconds
Running Time (Fail-Safe)					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

### 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	\$2,516			\$4,116
EXT-LD14125BE1AX	196	75	2½" [65]		150	\$2,592			\$4,194
EXT-LD14103BE1AX	302	116	3" [80]		150	\$2,837			\$4,431
EXT-LD14104BE1AX	600	230	4" [100]		150	\$5,023	\$5,953		
EXT-LD14105BE1AX	1022	392	5" [125]		150	\$6,097	\$6,506		
EXT-LD14106BE1AX	1579	605	6" [100]		150	\$6,712	\$6,951		\$9,036
EXT-LD14108BE1AX	3136	1202	8" [200]		150		\$7,474		\$12,798
EXT-LD14110BE1AX	5340	2047	10" [250]		150			\$9,188	

\*Heater option for NEMA 4X products has a list price adder of \$650. 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**

### **Efficient in Every Way**

- The ZoneTight range includes QCV and 6-way CCV products.
- Compact design perfect for tight spaces.
- Up to 95% less power consumption than conventional zone valves.
- Ball valve design with zero leakage eliminates energy loss.

## Belimo Variant Configurator Tool



### Unparalleled Flexibility with Customizable Room Sensors

Belimo sensors can be customized through our Variant Configurator (VC) tool. Customizable options include mounting hardware, thermowells, conduit connectors, and electrical and mechanical interfaces. For sensors in high traffic areas, Belimo's VC Customization process provides the ability to modify the sensor housing with company logos and labels. With this tool, we continue our commitment to providing our customers with unparalleled flexibility in selecting the necessary accessories and tailored solutions for their needs.



Discover the advantages  
[www.belimo.com](http://www.belimo.com)



# 11

## **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.

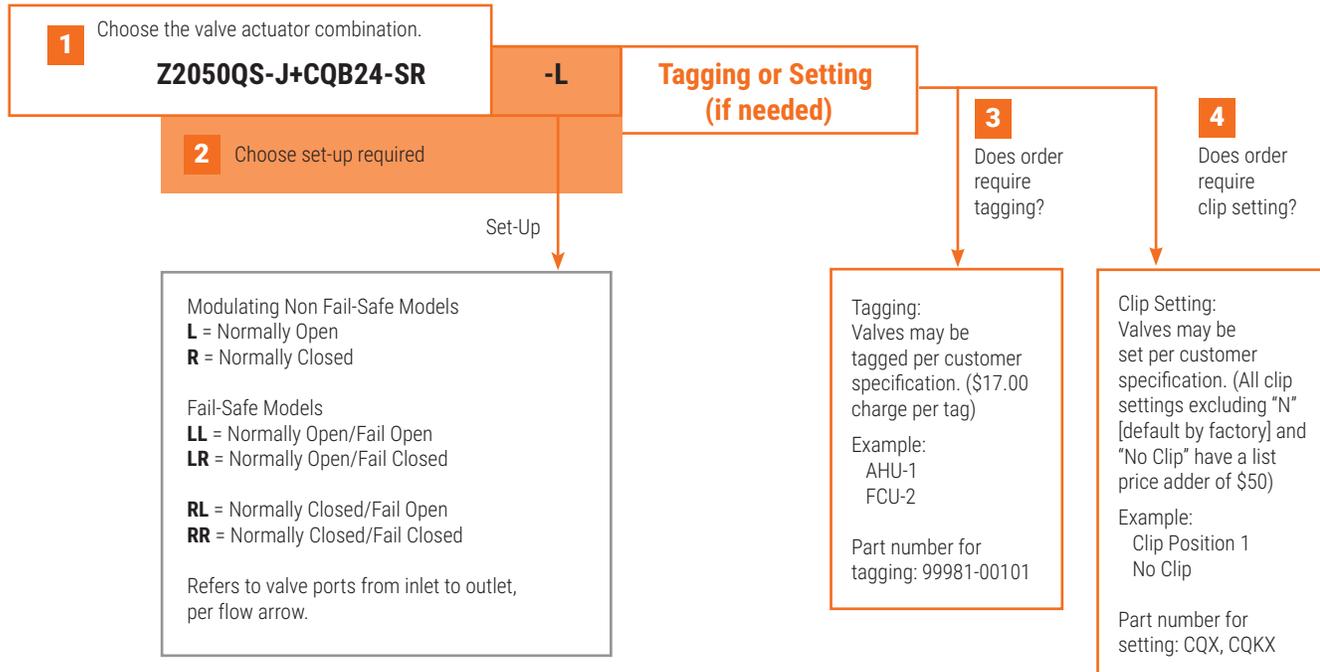
# ZoneTight Zone Valve (QCV) Nomenclature

Z2	050	Q	S	-J	+CQB	24	-SR	-L	
<b>Valve Type</b> Z2 = 2-way Z3 = 3-way ZoneTight Chrome Plated Brass Ball and Brass Stem	<b>Valve Size</b> 050 = ½" 075 = ¾" 100 = 1"	Quick Connect	<b>Connection Type</b> Blank = NPT S = Sweat PF = Press Fit	<b>Cv*</b> 2-way F J K 3-way** E H J	<b>Actuator Type</b> Non Fail-Safe CQB CQX Electronic Fail-Safe CQKB CQKX	<b>Power Supply</b> 24 = AC/DC 24 V UP = AC 100...240 V	<b>Control</b> Blank = On/Off -3 = On/Off, Floating Point -SR = Modulating 2...10 V Standard 0.5...10 V Custom***	<b>Direction of Rotation</b> -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 Auxiliary Switch

\*For Cv rating, see chart on next page.  
\*\*On/off only.  
\*\*\* Configurable on "X" models.  
↓  
"X" models are customizable. Refer to page 11-3 for factory set clip position options.

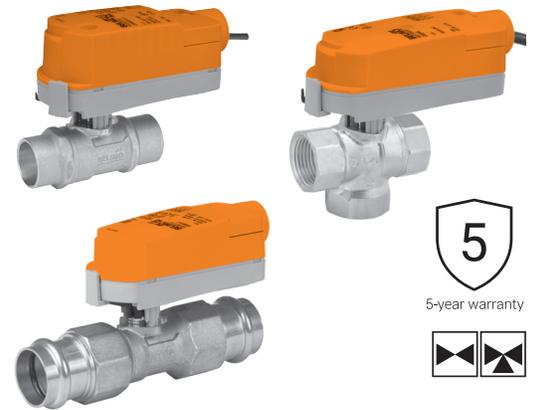
\*For Cv rating, see chart on next page.  
\*\*On/off only.  
\*\*\* Configurable on "X" models.

## Ordering Example



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

# ZoneTight Zone Valve (QCV) Product Range



	Valve Nominal Size			Type		Suitable Actuators	
	C <sub>v</sub>	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

## 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	
Blank	on/off
-3	on/off, floating point
-SR	modulating 2...10 V standard 0.5...10 V custom**
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 or AC 100...240 V
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, sweat), 250 psi (press fit)
Close-Off Pressure	75 psid (2-way), 40 psid (3-way)
Max. Differential Pressure (ΔP)	40 psid
Leakage	0%

Teflon® is a registered trademark of DuPont™

\*\*Configurable on "X" models

\*\*\*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.

# ZoneTight Zone Valves (QCV)

Set-Up



**SET-UP**- Specify Upon Ordering

## 2-WAY AND 3-WAY VALVES

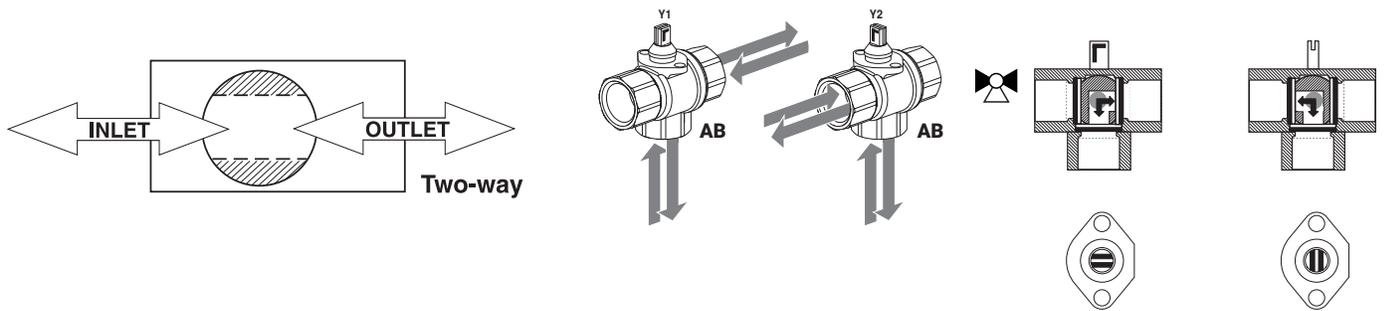
<b>NON FAIL-SAFE</b> Stays in Last Position	<b>CQB(X)UP-3</b>	<p><b>On/Off:</b> Power to brown wire (pin 2) will drive valve CW (closed). Power to brown wire (pin 3) and white wire (pin 3) will drive valve CCW (open).</p> <p><b>Floating:</b> Power to brown wire (pin 2) will drive valve CW (closed). Power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

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

Note: One wire control for CW or CCW rotation.

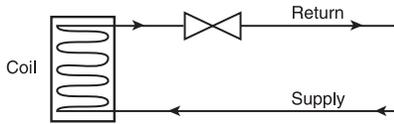
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All prices are in US Dollars (USD)

**FLOW PATTERN**

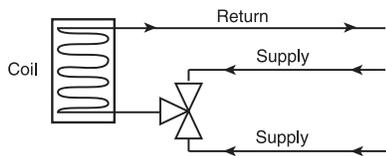


**PIPING DIAGRAMS**

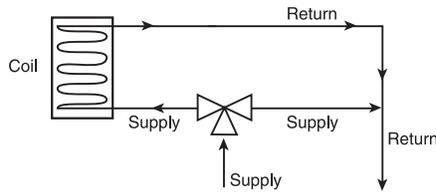
**2-way Valve Piping Diagram**



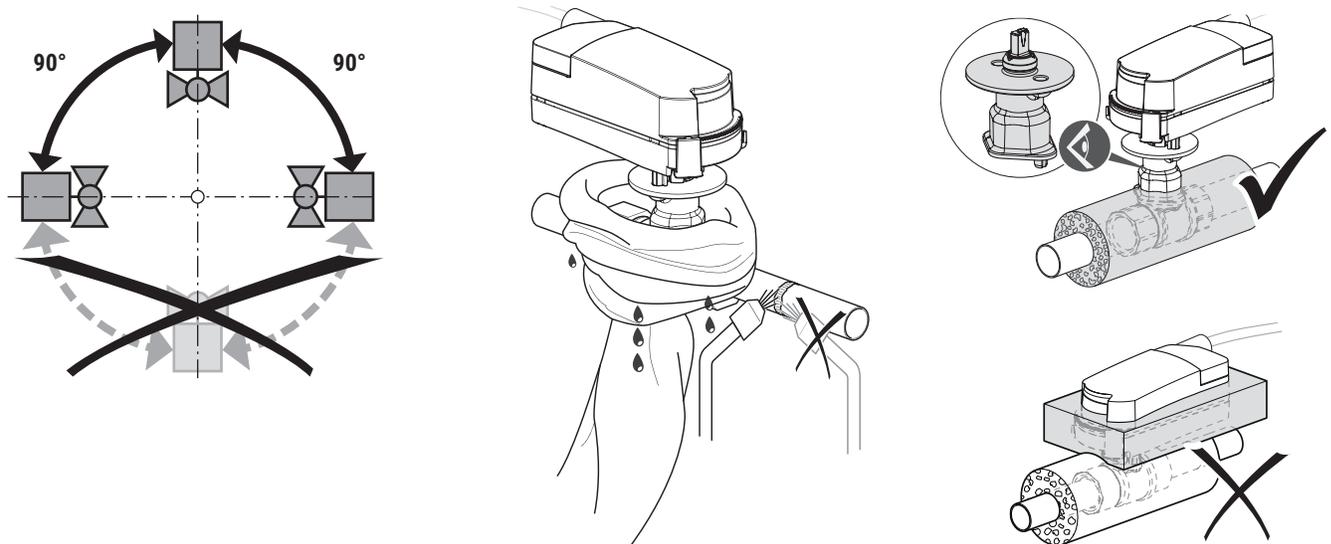
**3-way Switching Valve Piping Diagram**



**3-way Diverting Valve Piping Diagram**



**PIPING/MOUNTING ORIENTATION & INSULATION**



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All prices are in US Dollars (USD)

QCV

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

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



## 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	+\$50	+\$50	+\$50



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...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, 22 GA plenum cable with ½" conduit connector	3 ft, 22 GA plenum cable with ½" conduit connector	3 ft, 19 GA appliance cable with ½" conduit connector

\*\*\* 0.5...10 V configurable on "X" models, e.g. CQX24-SR-L

## 2-WAY NPT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050Q-F**	1.4	½" [15]	360	75	\$322	\$456	\$456	\$350
Z2050Q-J**	5.9				\$322	\$456	\$456	\$350
Z2075Q-K**	9.8	¾" [20]			\$358	\$492	\$492	\$388
Z2100Q-K**	8.2	1" [25]			\$454	\$617	\$617	\$488

## 3-WAY NPT (ON/OFF ONLY)

Z3050Q-E	1	½" [15]	360	40	\$358			\$388
Z3050Q-H	2.7				\$358			\$388
Z3075Q-J	4.6	¾" [20]			\$396			\$425
Z3100Q-J	4.4	1" [25]			\$497			\$534

## 2-WAY SWEAT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050QS-F**	1.4	½" [15]	360	75	\$322	\$456	\$456	\$350
Z2050QS-J**	5.9				\$322	\$456	\$456	\$350
Z2075QS-K**	9.8	¾" [20]			\$358	\$492	\$492	\$388
Z2100QS-K**	8.2	1" [25]			\$454	\$617	\$617	\$488

## 3-WAY SWEAT (ON/OFF ONLY)

Z3050QS-E	1	½" [15]	360	40	\$358			\$388
Z3050QS-H	2.7				\$358			\$388
Z3075QS-J	4.6	¾" [20]			\$396			\$425
Z3100QS-J	4.4	1" [25]			\$497			\$534

## 2-WAY PRESS FIT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050QPF-F**	1.4	½" [15]	250	75	\$345	\$486	\$486	\$375
Z2050QPF-J**	5.9				\$345	\$486	\$486	\$375
Z2075QPF-K**	9.8	¾" [20]			\$382	\$528	\$528	\$416
Z2100QPF-K**	8.2	1" [25]			\$484	\$663	\$663	\$523

## 3-WAY PRESS FIT (ON/OFF ONLY)

Z3050QPF-E	1	½" [15]	250	40	\$382			\$416
Z3050QPF-H	2.7				\$382			\$416
Z3075QPF-J	4.6	¾" [20]			\$424			\$457
Z3100QPF-J	4.4	1" [25]			\$532			\$574

800-543-9038 USA

866-805-7089 CANADA

905-712-3118 LATIN AMERICA/CARIBBEAN



5-year warranty

### 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	+\$50	+\$50	+\$50



### 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°)				
Running Time (Fail-Safe)	60 seconds	60 seconds				
Electrical Connection	3 ft, 22 GA plenum cable with ½" conduit connector	3 ft, 22 GA plenum cable with ½" conduit connector	3 ft, 22 GA plenum cable with ½" conduit connector	3 ft, 22 GA plenum cable with ½" conduit connector	3 ft, 19 GA appliance cable with ½" conduit connector	3 ft, 19 GA appliance cable with ½" conduit connector
Auxiliary Switch			1 SPST	1 SPST		

### 2-WAY NPT

Model #	Cv	Size [mm]	Body Pressure Rating [psid]	Close-Off Pressure [psid]							
Z2050Q-F**	1.4	½" [15]	360	75	\$346	\$346	\$382	\$382	\$382	\$382	
Z2050Q-J**	5.9	¾" [20]			\$346	\$346	\$382	\$382	\$382	\$382	\$382
Z2075Q-K**	9.8				\$387	\$387	\$423	\$423	\$427	\$427	
Z2100Q-K**	8.2				1" [25]	\$488	\$488	\$527	\$527	\$541	\$541

### 3-WAY NPT

Z3050Q-E	1	½" [15]	360	40	\$387	\$387	\$423	\$423	\$427	\$427
Z3050Q-H	2.7	¾" [20]			\$387	\$387	\$423	\$423	\$427	\$427
Z3075Q-J	4.6				\$425	\$425	\$464	\$464	\$472	\$472
Z3100Q-J	4.4				1" [25]	\$535	\$535	\$575	\$575	\$599

### 2-WAY SWEAT

Model #	Cv	Size [mm]	Body Pressure Rating [psid]	Close-Off Pressure [psid]						
Z2050QS-F**	1.4	½" [15]	360	75	\$346	\$346	\$382	\$382	\$382	\$382
Z2050QS-J**	5.9	¾" [20]			\$346	\$346	\$382	\$382	\$382	\$382
Z2075QS-K**	9.8				\$387	\$387	\$423	\$423	\$427	\$427
Z2100QS-K**	8.2				1" [25]	\$488	\$488	\$527	\$527	\$541

### 3-WAY SWEAT

Z3050QS-E	1	½" [15]	360	40	\$387	\$387	\$423	\$423	\$427	\$427
Z3050QS-H	2.7	¾" [20]			\$387	\$387	\$423	\$423	\$427	\$427
Z3075QS-J	4.6				\$425	\$425	\$464	\$464	\$472	\$472
Z3100QS-J	4.4				1" [25]	\$535	\$535	\$575	\$575	\$599

### 2-WAY PRESS FIT

Model #	Cv	Size [mm]	Body Pressure Rating [psid]	Close-Off Pressure [psid]						
Z2050QPF-F**	1.4	½" [15]	250	75	\$372	\$372	\$412	\$412	\$412	\$412
Z2050QPF-J**	5.9	¾" [20]			\$372	\$372	\$412	\$412	\$412	\$412
Z2075QPF-K**	9.8				\$413	\$413	\$454	\$454	\$460	\$460
Z2100QPF-K**	8.2				1" [25]	\$523	\$523	\$564	\$564	\$579

### 3-WAY PRESS FIT

Z3050QPF-E	1	½" [15]	250	40	\$413	\$413	\$454	\$454	\$460	\$460
Z3050QPF-H	2.7	¾" [20]			\$413	\$413	\$454	\$454	\$460	\$460
Z3075QPF-J	4.6				\$457	\$457	\$497	\$497	\$507	\$507
Z3100QPF-J	4.4				1" [25]	\$575	\$575	\$615	\$615	\$639

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

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

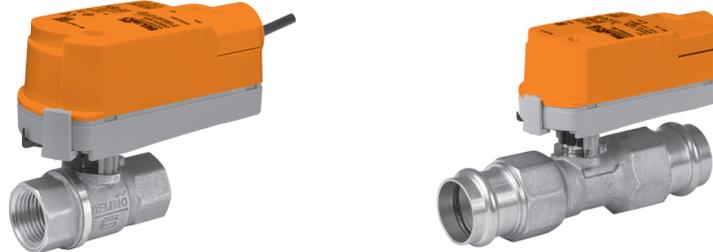


## VALVE SPECIFICATIONS

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%

\* 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.

<b>ACTUATOR PART #</b>	<b>CQKX24-SR</b>
Add to List Price for Factory Clip Setting	+\$50



## 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, 22 GA plenum cable with ½" conduit connector	3 ft, 22 GA plenum cable with ½" conduit connector	3 ft, 22 GA plenum cable with ½" conduit connector	3 ft, 22 GA plenum cable with ½" conduit connector

\*\*\* 0.5...10 V configurable on "X" models, e.g. CQKX24-SR-LL

## 2-WAY NPT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050Q-F**	1.4	½" [15]	360	75	\$529	\$529	\$529	\$529
Z2050Q-J**	5.9				\$529	\$529	\$529	\$529
Z2075Q-K**	9.8				\$570	\$570	\$570	\$570
Z2100Q-K**	8.2				\$720	\$720	\$720	\$720

## 2-WAY SWEAT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050QS-F**	1.4	½" [15]	360	75	\$529	\$529	\$529	\$529
Z2050QS-J**	5.9				\$529	\$529	\$529	\$529
Z2075QS-K**	9.8				\$570	\$570	\$570	\$570
Z2100QS-K**	8.2				\$720	\$720	\$720	\$720

## 2-WAY PRESS FIT

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
Z2050QPF-F**	1.4	½" [15]	250	75	\$565	\$565	\$565	\$565
Z2050QPF-J**	5.9				\$565	\$565	\$565	\$565
Z2075QPF-K**	9.8				\$612	\$612	\$612	\$612
Z2100QPF-K**	8.2				\$769	\$769	\$769	\$769

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All prices are in US Dollars (USD)



## **12** 6-WAY CHARACTERIZED CONTROL VALVES (CCV)

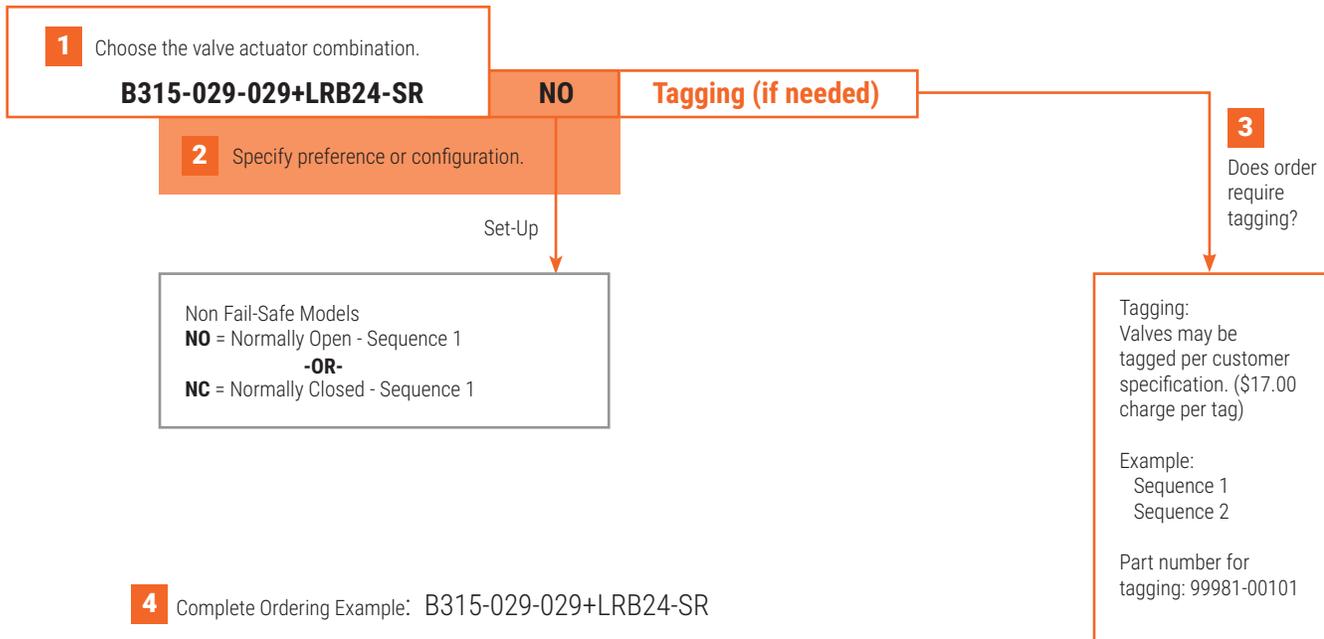
### **Efficient Way to Control Both Heating and Cooling**

- 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.

# 6-Way Characterized Control Valve Nomenclature

B3	15	-029	-	029	+LRB	24	-SR
<b>Valve</b> B3 = 3-way	<b>Valve Size</b> 15 = 1/2" 20 = 3/4" 25 = 1"	<b>Sequence 1</b> 029 = 0.29 C <sub>V</sub> 046 = 0.46 C <sub>V</sub> 073 = 0.73 C <sub>V</sub> 116 = 1.16 C <sub>V</sub> 150 = 1.50 C <sub>V</sub> 175 = 1.75 C <sub>V</sub> 186 = 1.86 C <sub>V</sub> 200 = 2.00 C <sub>V</sub> 290 = 2.90 C <sub>V</sub> 400 = 4.00 C <sub>V</sub> 490 = 4.90 C <sub>V</sub> 740 = 7.40 C <sub>V</sub>	Two 3-way = 6-way	<b>Sequence 2</b> 029 = 0.29 C <sub>V</sub> 046 = 0.46 C <sub>V</sub> 073 = 0.73 C <sub>V</sub> 116 = 1.16 C <sub>V</sub> 150 = 1.50 C <sub>V</sub> 175 = 1.75 C <sub>V</sub> 186 = 1.86 C <sub>V</sub> 200 = 2.00 C <sub>V</sub> 290 = 2.90 C <sub>V</sub> 400 = 4.00 C <sub>V</sub> 470 = 4.70 C <sub>V</sub> 700 = 7.00 C <sub>V</sub>	<b>Actuator Type</b> Non Fail-Safe LRB, LRX NRB, NRX	<b>Power Supply</b> 24 = AC/DC 24 V	<b>Control</b> -SR = Modulating 2...10 V -MFT = Multi-Function Technology

## Ordering Example



# 6-Way Characterized Control Valve Product Range

		Valve Nominal Size		Type	Suitable Actuators
Sequence 1 C <sub>v</sub>	Sequence 2 C <sub>v</sub>	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	



## 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.

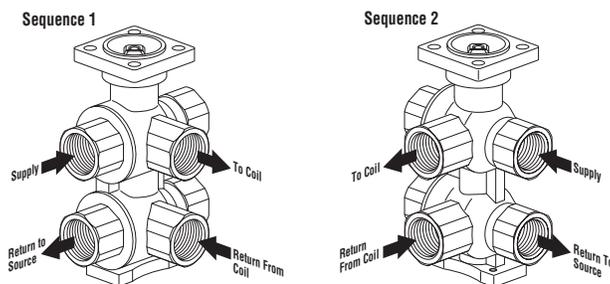
## ACTUATOR SPECIFICATIONS

Control Type	modulating 2...10 V, multi-function technology (MFT)
Manual Override	LR series
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 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
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.



# 6-Way Characterized Control Valve Product Range

		Valve Nominal Size		Type	Suitable Actuators	
Sequence 1 C <sub>v</sub>	Sequence 2 C <sub>v</sub>	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  
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.

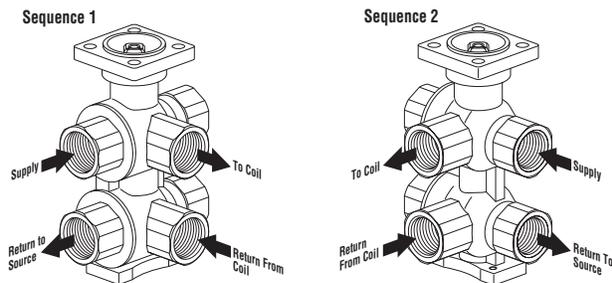
### ACTUATOR SPECIFICATIONS

Control Type	modulating 2...10 V, multi-function technology (MFT)
Manual Override	LR, NR series
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 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
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.



### VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	linear
End Fitting	NPT female
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**
Control	Modulating	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 1/2" conduit connector	3 ft, 18 GA plenum cable with 1/2" 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	1/2" [15]	232	50	\$1,254	\$1,344
B315-029-046		0.46				\$1,254	\$1,344
B315-029-073		0.73				\$1,254	\$1,344
B315-029-116		1.16				\$1,254	\$1,344
B315-029-150		1.5				\$1,254	\$1,344
B315-046-029	0.46	0.29				\$1,254	\$1,344
B315-046-046		0.46				\$1,254	\$1,344
B315-046-073		0.73				\$1,254	\$1,344
B315-046-116		1.16				\$1,254	\$1,344
B315-046-150		1.5				\$1,254	\$1,344
B315-073-029	0.73	0.29				\$1,254	\$1,344
B315-073-046		0.46				\$1,254	\$1,344
B315-073-073		0.73				\$1,254	\$1,344
B315-073-116		1.16				\$1,254	\$1,344
B315-073-150		1.5				\$1,254	\$1,344
B315-116-029	1.16	0.29	\$1,254	\$1,344			
B315-116-046		0.46	\$1,254	\$1,344			
B315-116-073		0.73	\$1,254	\$1,344			
B315-116-116		1.16	\$1,254	\$1,344			
B315-116-150		1.5	\$1,254	\$1,344			
B315-150-029	1.5	0.29	\$1,254	\$1,344			
B315-150-046		0.46	\$1,254	\$1,344			
B315-150-073		0.73	\$1,254	\$1,344			
B315-150-116		1.16	\$1,254	\$1,344			
B315-150-150		1.5	\$1,254	\$1,344			
B315-175-200	1.75	2.0	\$1,254	\$1,344			
B315-200-175	2.0	1.75	\$1,254	\$1,344			
B315-200-200	2.0	2.0	\$1,254	\$1,344			

\*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 CCV

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

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



## VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol
Flow Characteristic	linear
End Fitting	NPT female
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	Modulating	Modulating/MFT	Modulating	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 [psij]	Close-Off Pressure [psid]			
B320-073-073	0.73	0.73	¾" [20]	232	50	\$1,524	\$1,632	
B320-073-290		2.9				\$1,524	\$1,632	
B320-073-186		1.86				\$1,524	\$1,632	
B320-073-116	1.16	1.16				\$1,524	\$1,632	
B320-116-116		0.73				\$1,524	\$1,632	
B320-116-073		2.9				\$1,524	\$1,632	
B320-116-290	1.86	1.86				\$1,524	\$1,632	
B320-116-186		1.16				\$1,524	\$1,632	
B320-186-186		0.73				\$1,524	\$1,632	
B320-186-116	2.9	1.16				\$1,524	\$1,632	
B320-186-073		0.73				\$1,524	\$1,632	
B320-186-290		2.9				\$1,524	\$1,632	
B320-290-290	4.0	4.0	\$1,524	\$1,632				
B320-290-186		1.86	\$1,524	\$1,632				
B320-290-116		1.16	\$1,524	\$1,632				
B320-290-073	4.9	0.73	\$1,524	\$1,632				
B320-290-400		4	\$1,524	\$1,632				
B320-290-470		4.7	\$1,524	\$1,632				
B320-400-290	7.4	2.9	\$1,524	\$1,632				
B320-400-400		4	\$1,524	\$1,632				
B320-400-470		4.7	\$1,524	\$1,632				
B320-490-290	7	2.9	\$1,524	\$1,632				
B320-490-400		4	\$1,524	\$1,632				
B320-490-470		4.7	\$1,524	\$1,632				
B325-740-700			1" [25]				\$1,792	\$1,899

\*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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All prices are in US Dollars (USD)



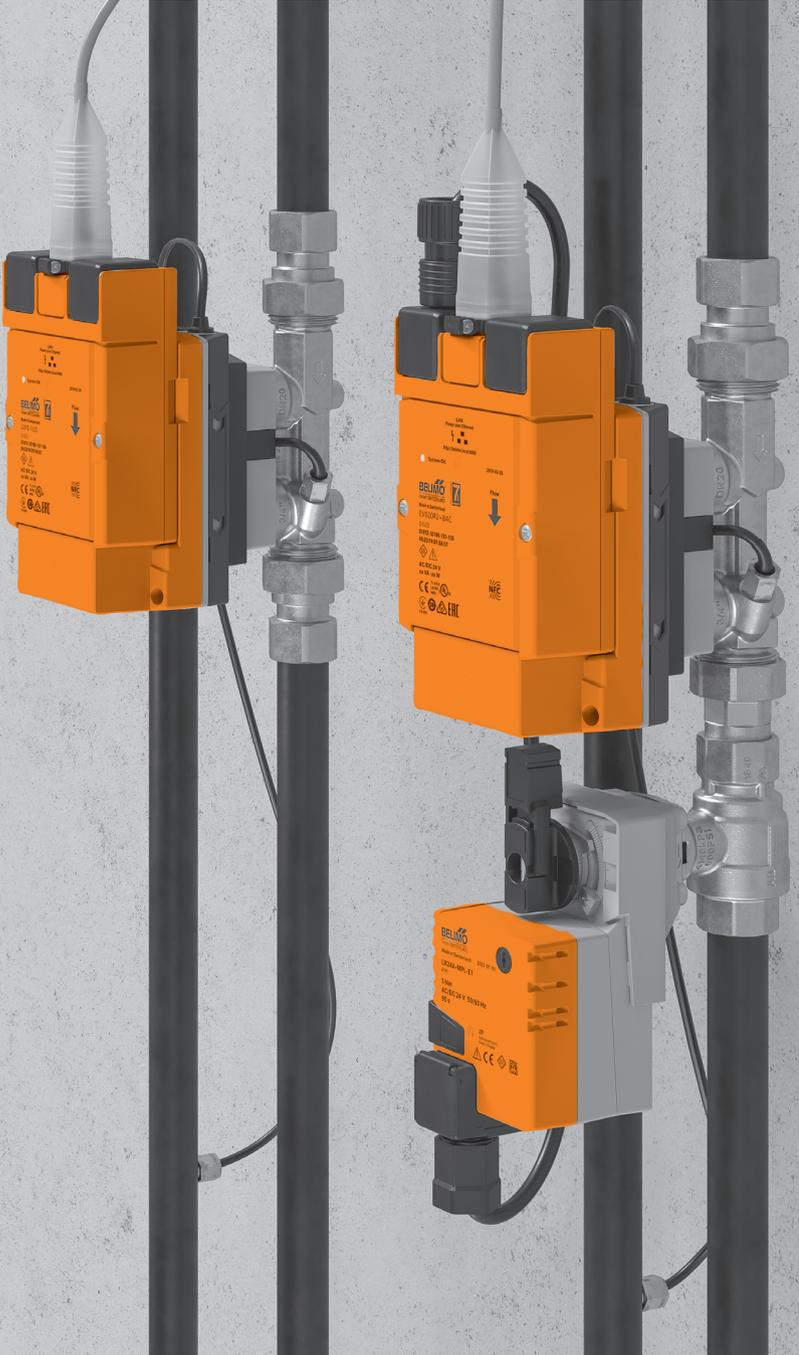
## CHARACTERIZED CONTROL VALVES (CCV & HTCCV)

### 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.

CHARACTERIZED CONTROL VALVES  
CCV, HTCCV, BALL VALVES

# Belimo Energy Valve™ and Thermal Energy Meter



## Energy Management and Billing Made Easy

Belimo's Energy Valve is an IoT cloud-connected pressure independent valve that monitors coil performance and optimizes energy consumption while maintaining Delta T through its patented Power Control and built-in Belimo Delta T Manager™ logic. The integration of our Thermal Energy Meter with the Energy Valve allows for easy energy control and transparent tenant billing. Designed to EN1434/CSA C900 standards, they ensure high accuracy and reliability. Belimo is stepping into a new era of integrated thermal energy management and bringing together what belongs together.

→ Discover the advantages  
[www.belimo.com](http://www.belimo.com)





## **13** 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.

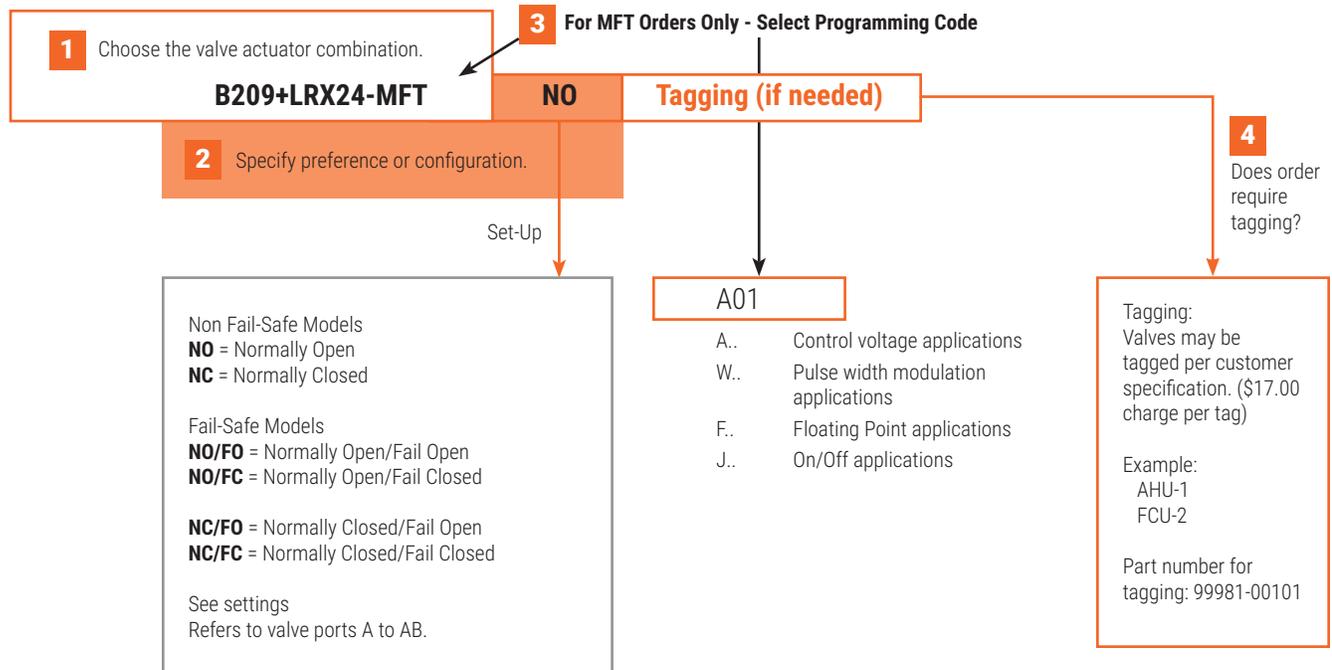
# Characterized Control Valve (CCV) Nomenclature

B2	09		+LRX	24	-MFT	
<b>Valve</b> B2 = 2-way B3 = 3-way	<b>Valve Size</b> 07...80 = 1/2...3"	<b>Trim Material</b> B = Chrome Plated Brass Ball, Nickel Plated Stem Blank = Stainless Steel Ball and Stem	<b>Actuator Type</b> <b>Non Fail-Safe</b> TR LRB, LRX LRQX NRB, NRX NRQX ARB, ARX ARQX <b>Fail-Safe Spring Return</b> TFRB, TFRX LF AFRB, AFRX	<b>Power Supply</b> 24 = AC/DC 24 V 120 = AC 120 V* 230 = AC 230 V UP = AC 24...240 V or DC 24...125 V	<b>Control</b> Blank = On/Off -3 = On/Off, Floating Point -SR = Modulating 2...10 V -MFT = Multi-Function Technology -IP = Internet Protocol	-S = Built-in Auxiliary Switch -T = Terminal Strip N4 = NEMA 4/4X

\*"X" models are customizable.  
Refer to page 13-7 for programming  
and cable options.

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

## Ordering Example



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

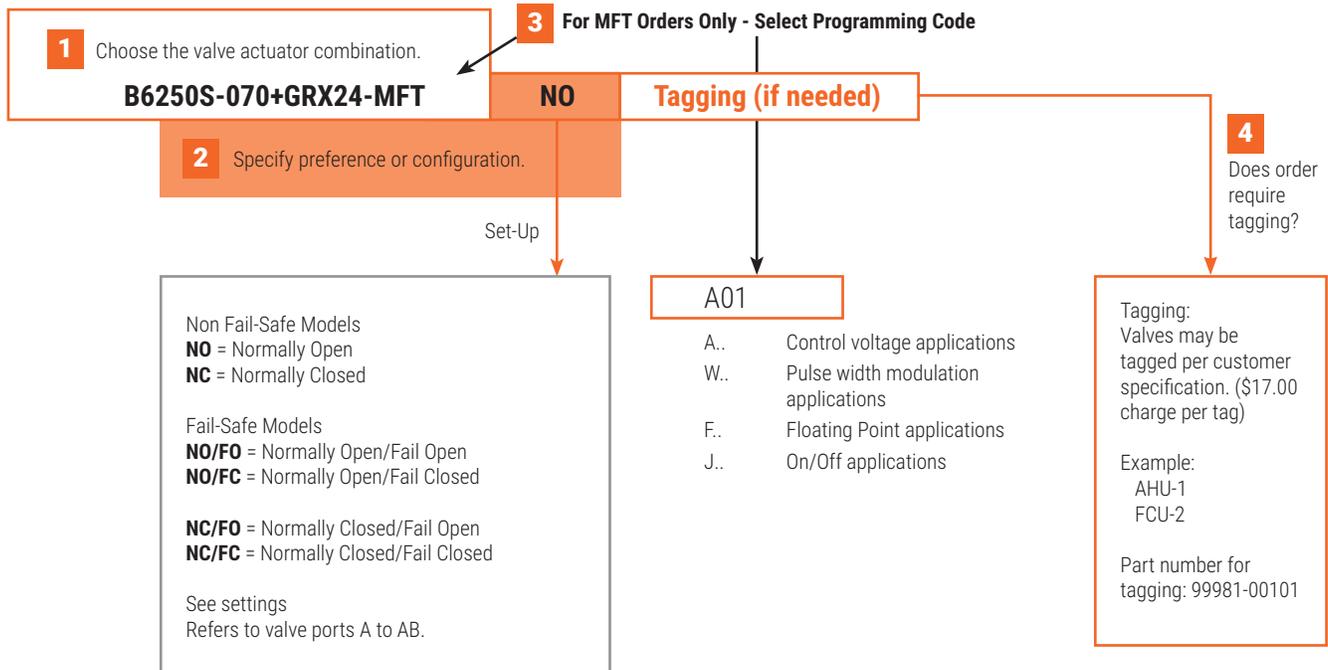
# Characterized Control Valve (CCV) Nomenclature

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

"X" models are customizable. Refer to page 13-7 for programming and cable options.

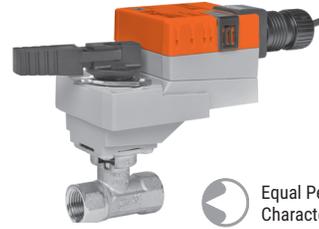
\*AR includes AC 120...240 V

## Ordering Example



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

# Characterized Control Valve (CCV) Product Range



5-year warranty



Equal Percentage Characteristic



Valve Nominal Size			Type		Suitable Actuators					
Cv	In.	DN [mm]	2-way NPT	3-way NPT	Non Fail-Safe	NEMA 4X	Fail-Safe	NEMA 4X	Internet Protocol	
0.3	½	15	B207(B)	B307(B)	TR Series	LR Series	NR Series	TFR Series	LF Series	LR...IP
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*							

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

## 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, modulating 2...10 V, multi-function technology (MFT)
Manual Override	TR, LR, NR, AKR, AR, AFR series
Electrical Connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

## VALVE SPECIFICATIONS

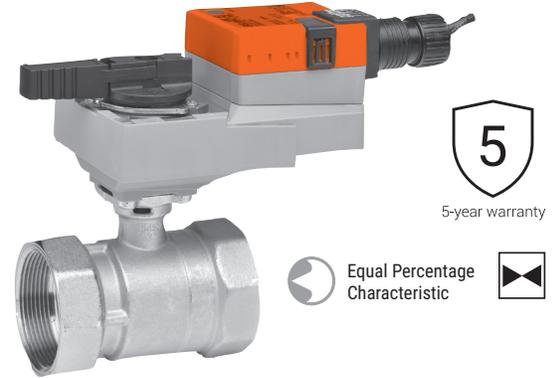
Fluid	chilled or hot water, up to 60% glycol max
Flow Characteristic	A-port equal percentage B-port modified for constant common port flow
Controllable Flow Range	75°
Sizes	½", ¾", 1", 1¼", 1½", 2"
End Fitting	NPT female
Materials	
Body	forged brass, nickel plated
Ball	stainless steel or chrome plated brass
Stem	stainless steel or nickel plated brass
Seats	Teflon® PTFE
Seat O-Rings	EPDM
Characterizing Disc	
½...1½" (2-way)	Tefzel®
½...1" (3-way)	Tefzel®
1¼" (3-way)	Ryton PPS
1½...2" (3-way)	stainless steel
2" (2-way) B248...B249	Tefzel®
2" (2-way) B251...B253	stainless steel
Stem O-Rings	EPDM (lubricated)
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
Tefzel® and Teflon® are registered trademarks of DuPont™	

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# Characterized Control Valve (CCV) Product Range

Valve Nominal Size			Type	Suitable Actuators						
C <sub>v</sub>	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



## 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, modulating 2...10 V, multi-function technology (MFT)
Manual Override	AKR, AR, AFR series
Electrical Connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

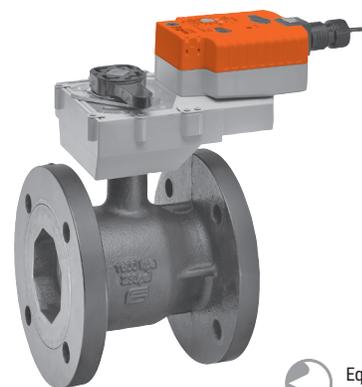
## VALVE SPECIFICATIONS

Fluid	chilled or hot water, up to 60% glycol max
Flow Characteristic	A-port equal percentage
Controllable Flow Range	75°
Sizes	2½", 3"
End Fitting	NPT female
<b>Materials</b>	
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 (lubricated)
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

Tefzel® and Teflon® are registered trademarks of DuPont™

# Characterized Control Valve (CCV) Product Range

Valve Nominal Size			2-way Flanged		Suitable Actuators						
C <sub>v</sub>	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-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, modulating 2...10 V, multi-function technology (MFT)
Manual Override	AKR, AR, AFR, GR, 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
Characterizing Disc	stainless steel
Stem O-Rings	EPDM (lubricated)
Fluid Temp Range	0...250°F [-18...+120°C]
Body Pressure Rating	ANSI 125, Class B, ANSI 250
Close-Off Pressure	175 psid (ANSI 125, Class B), 310 psid (ANSI 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	
<b>NON FAIL-SAFE</b> Stays in Last Position	<b>TR24-3(-T)</b>	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.	
	<b>LRB24-3(-T), ARB24-3(-T), GRB(X)24-3, NRX24-3(-T)</b>	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.	
	<b>TR24-SR(-T), LRB24-SR, LRB(X)24-MFT, ARB24-SR, ARB(X)24-MFT, GRB(X)24-MFT, NRX24-SR(-T), NRX24-MFT(-T)</b>	<b>NC:</b> Normally closed A to AB, valve will open as voltage increases	<b>NO:</b> Normally open A to AB, valve will close as voltage increases	<b>NC:</b> Normally closed A to AB, valve will open as voltage increases	<b>NO:</b> Normally open A to AB, valve will close as voltage increases
<b>SPRING RETURN</b> Note Fail Position	<b>TFRB24, LF24 US, AFRB24</b>	<b>NO/FO:</b> Normally open A to AB, valve will drive closed. Spring Action: Actuator will fail open A to AB upon power loss.	<b>NC/FC:</b> Normally closed A to AB, valve will drive open. Spring Action: Actuator will fail closed A to AB upon power loss.	<b>NO/FO:</b> Normally open A to AB, valve will drive closed. Spring Action: Actuator will fail open A to AB upon power loss.	<b>NC/FC:</b> Normally closed A to AB, valve will drive open. Spring Action: Actuator will fail closed A to AB upon power loss.
	<b>TFRB24-3, TFRB24-SR, LF24-3 US, LF24-SR US, AFRB24-SR, AFRX24-MFT</b>	<b>NC/FO:</b> Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail open upon power loss.	<b>NC/FC:</b> Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail closed upon power loss.	<b>NO/FC:</b> Normally open A to AB, valve will close as voltage increases. Actuator switch on CCW. Spring Action: Will fail closed upon power loss.	<b>NO/FO:</b> Normally open A to AB, valve will close as voltage increases. Actuator switch on CCW. Spring Action: Will fail open upon power loss.
<b>ELECTRONIC FAIL-SAFE</b>	<b>GKRX24-3†</b>	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.	
	<b>GKRX24-MFT†</b>	<b>NC:</b> Normally closed A to AB, will open as voltage increases when directional switch is in the "FO" position.	<b>NO:</b> Normally open A to AB, will close as voltage increases when directional switch is in the "FC" position.	<b>NC:</b> Normally closed A to AB, will open as voltage increases when directional switch is in the "FO" position.	<b>NO:</b> Normally open A to AB, will close as voltage increases when directional switch is in the "FC" position.

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CCV

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

# Characterized Control Valves

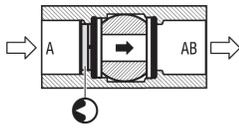
## Flow Pattern and Installation



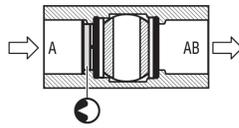
### FLOW PATTERNS

#### 2-way Characterized Control Valves™

(Belimo B2 Series)

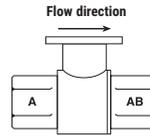


A → AB 100%



A → AB 0%

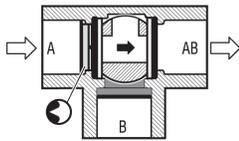
Two-way valves should be installed with the disc upstream.



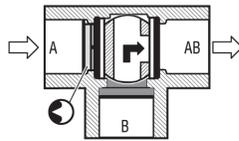
#### 3-way Characterized Control Valves™

##### MIXING

(Belimo B3 Series)



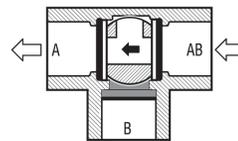
A → AB 100%  
B → AB 0%



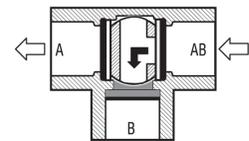
A → AB 0%  
B → AB 70%

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

##### DIVERTING



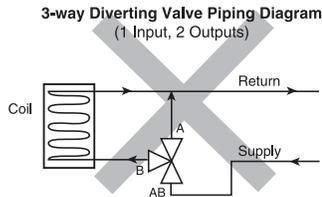
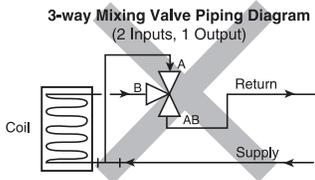
AB → A 100%  
AB → B 0%



AB → A 0%  
AB → B 70%

### INCORRECT PIPING

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



#### WARNING! Do Not Pipe in this manner!

##### Note Valve Porting!

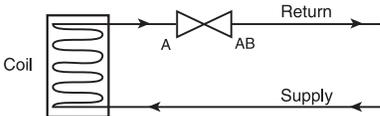
The A-port must be piped to the coil, not the B-port!

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.

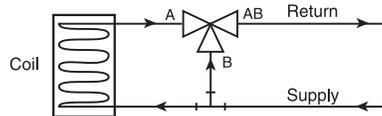
### OPERATION/INSTALLATION – CORRECT PIPING

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.

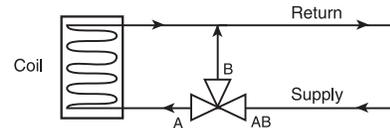
2-way Valve Piping Diagram (1 Input, 1 Output)



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 15.

#### 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 in-existent 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.

**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.

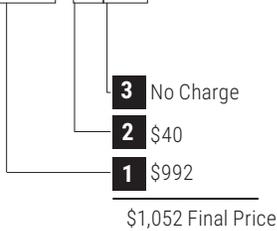
**Typical Lead Time: 3 days or less**

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	\$40
	16 ft.	C5	\$65
120 V Appliance Rated	3 ft.	A1	No Charge
	10 ft.	A3	\$40
	16 ft.	A5	\$65

**3 PROGRAM**

ACTUATOR TYPE	CONFIGURATION DESCRIPTION	CONTROL			List Price
		CONTROL INPUT	FEEDBACK POSITION	RUNNING TIME	
<b>-3 and SR</b>	0	2...10 V (for -SR)	2...10 V (for -SR)	150 seconds	No Charge
	2	2...10 V (for -SR)	2...10 V (for -SR)	90 seconds	No Charge
<b>MFT</b>	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	

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

# 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



## 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 for constant common port 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: 100%
	B-port: 70% of A to AB Cv

Visit [www.belimo.com](http://www.belimo.com) 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
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 [psid]	Close-Off Pressure [psid]								
B207B	0.3	½" [15]	600	200	\$347	\$368	\$511	\$536	\$474	\$706		
B208B	0.46			200	\$347	\$368	\$511	\$536	\$474	\$706		
B209B	0.8			200	\$347	\$368	\$511	\$536	\$474	\$706		
B210B	1.2			200	\$352	\$373	\$515	\$541	\$481	\$711		
B211B	1.9			200	\$352	\$373	\$515	\$541	\$481	\$711		
B212B	3			200	\$358	\$379	\$522	\$552	\$488	\$724		
B213B	4.7			200	\$362	\$381	\$525	\$556	\$495	\$726		
B214B	7.4			200	\$368	\$391	\$534	\$561	\$501	\$732		
B215B	10			200	\$368	\$391	\$534	\$561	\$505	\$737		
B216B*	16			200	\$371	\$395	\$537	\$563	\$511	\$741		
B217B	4.7			¾" [20]	600	200	\$443	\$467	\$611	\$635	\$571	\$803
B218B	7.4					200	\$446	\$473	\$616	\$639	\$575	\$806
B219B	10	200	\$446			\$473	\$616	\$639	\$577	\$809		
B220B*	14	200	\$457			\$483	\$625	\$649	\$579	\$813		
B221B*	24	200							\$588	\$821		

## 3-WAY MIXING/DIVERTING

B307B	0.3	½" [15]	600	200	\$423	\$446	\$630	\$655	\$553	\$788		
B308B	0.46			200	\$423	\$446	\$630	\$655	\$553	\$788		
B309B	0.8			200	\$423	\$446	\$630	\$655	\$553	\$788		
B310B	1.2			200	\$425	\$449	\$634	\$661	\$557	\$791		
B311B	1.9			200	\$425	\$449	\$634	\$661	\$557	\$791		
B312B	3			200	\$437	\$467	\$648	\$673	\$562	\$797		
B313B	4.7			200	\$443	\$472	\$650	\$677	\$571	\$804		
B315B	10			200	\$444	\$473	\$652	\$679	\$579	\$816		
B316B*	16			200	\$460	\$488	\$669	\$695	\$582	\$819		
B317B	4.7			¾" [20]	600	200	\$549	\$575	\$755	\$782	\$624	\$859
B318B	7.4					200	\$546	\$573	\$754	\$780	\$630	\$864
B320B	14					200					\$640	\$877
B321B*	24	200							\$648	\$881		

\*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 for constant common port 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: 100% B-port: 70% of A to AB Cv

Visit [www.belimo.com](http://www.belimo.com) to see additional fail-safe actuator options including 120 V and -S models.



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
Running Time (Motor)	<75 seconds	90 seconds	90 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
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	\$669	\$765	\$821	\$762	\$970	\$998			
B208B	0.46				\$669	\$765	\$821	\$762	\$970	\$998			
B209B	0.8				\$669	\$765	\$821	\$762	\$970	\$998			
B210B	1.2				\$674	\$770	\$826	\$767	\$974	\$1,001			
B211B	1.9				\$674	\$770	\$826	\$767	\$974	\$1,001			
B212B	3				\$684	\$778	\$832	\$778	\$985	\$1,012			
B213B	4.7				\$686	\$782	\$837	\$782	\$991	\$1,016			
B214B	7.4				\$688	\$788	\$844	\$788	\$993	\$1,018			
B215B	10				\$688	\$788	\$844	\$797	\$1,003	\$1,029			
B216B*	16				\$688	\$788	\$844	\$802	\$1,005	\$1,034			
B217B	4.7				¾" [20]	600	200	\$770	\$865	\$923	\$869	\$1,076	\$1,106
B218B	7.4							\$774	\$868	\$927	\$875	\$1,080	\$1,111
B219B	10	\$774	\$868	\$927				\$880	\$1,086	\$1,114			
B220B*	14	\$782	\$877	\$935				\$882	\$1,090	\$1,118			
B221B*	24	\$886						\$886	\$1,095	\$1,124			

### 3-WAY MIXING/DIVERTING

B307B	0.3	½" [15]	600	200	\$792	\$923	\$966	\$906	\$1,113	\$1,151			
B308B	0.46				\$792	\$923	\$966	\$906	\$1,113	\$1,151			
B309B	0.8				\$792	\$923	\$966	\$906	\$1,113	\$1,151			
B310B	1.2				\$794	\$927	\$969	\$909	\$1,116	\$1,153			
B311B	1.9				\$802	\$932	\$974	\$909	\$1,116	\$1,153			
B312B	3				\$806	\$939	\$981	\$928	\$1,134	\$1,172			
B313B	4.7				\$816	\$946	\$992	\$932	\$1,137	\$1,177			
B315B	10				\$816	\$946	\$992	\$936	\$1,143	\$1,182			
B316B*	16				\$816	\$946	\$992	\$939	\$1,147	\$1,184			
B317B	4.7				¾" [20]	600	200	\$882	\$1,016	\$1,058	\$1,003	\$1,209	\$1,246
B318B	7.4							\$880	\$1,012	\$1,056	\$1,005	\$1,215	\$1,253
B320B	14										\$1,013	\$1,223	\$1,259
B321B*	24							\$1,018	\$1,227	\$1,262			

\*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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CCV

# B2 Series Characterized Control Valves with Non Fail-Safe Actuators

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



## 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.com](http://www.belimo.com) for additional non fail-safe actuator options including 120 V and -S models.



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 [psil]	Close-Off Pressure [psid]									
B207	0.3	½" [15]	600	200	\$394	\$424	\$596	\$621	\$501	\$699	\$922		
B208	0.46			200	\$394	\$424	\$596	\$621	\$501	\$699	\$922		
B209	0.8			200	\$394	\$424	\$596	\$621	\$501	\$699	\$922		
B210	1.2			200	\$408	\$436	\$609	\$634	\$507	\$703	\$926		
B211	1.9			200	\$408	\$436	\$609	\$634	\$507	\$703	\$926		
B212	3			200	\$416	\$442	\$617	\$640	\$510	\$711	\$929		
B213	4.7			200	\$421	\$449	\$623	\$650	\$534	\$729	\$955		
B214	7.4			200	\$429	\$464	\$634	\$661	\$545	\$741	\$965		
B215	10			200	\$429	\$464	\$634	\$661	\$563	\$745	\$984		
B216*	16			200	\$514	\$534	\$709	\$729	\$566	\$745	\$987		
B217	4.7			¾" [20]	600	200	\$503	\$534	\$672	\$697	\$589	\$753	\$1,010
B218	7.4					200	\$507	\$537	\$673	\$699	\$592	\$762	\$1,012
B219	10					200	\$507	\$537	\$677	\$700	\$600	\$773	\$1,019
B220*	14					200	\$512	\$545	\$678	\$702	\$604	\$774	\$1,022
B221*	24					200					\$608	\$775	\$1,029
B222	7.4	200							\$621	\$803	\$1,043		
B223	10	1" [25]	600	200				\$634	\$810	\$1,056			
B224	19			200				\$634	\$816	\$1,056			
B225*	30			200				\$638	\$822	\$1,059			
B229	10			200				\$709	\$869	\$1,126			
B230*	19	1¼" [32]	600	200				\$712	\$881	\$1,129			

\*Models without characterizing discs.

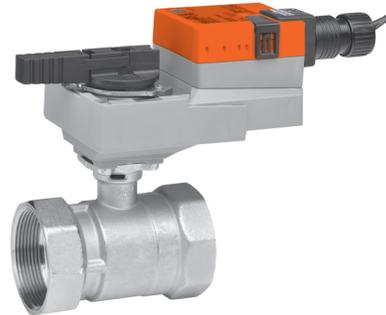
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

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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	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.com](http://www.belimo.com) to see additional non fail-safe actuator options including 120 V and -S models.



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"	400	200	\$820	\$1,090	\$1,188	
B232*	37	[32]		200	\$840	\$1,105	\$1,203	
B238	19	1½"		200	\$840	\$1,105	\$1,203	
B239	29			[40]	200	\$840	\$1,105	\$1,203
B240*	37			200	\$844	\$1,108	\$1,205	
B248	29	2"		200	\$1,086	\$1,353	\$1,453	
B249	46				200	\$1,093	\$1,356	\$1,458
B250*	57				200	\$1,095	\$1,360	\$1,461
B251	65			[50]	200	\$1,579		\$1,973
B252	85				200	\$1,699		\$2,145
B253	120				200	\$1,837		\$2,234
B254*	240			200	\$1,860		\$2,627	
B261	60	2½"		100	\$1,867		\$2,141	
B262	75			[65]	100	\$1,873		\$2,267
B263	110				100	\$1,997		\$2,392
B264	150				100	\$2,130		\$2,524
B265*	210				100	\$2,394		\$2,550
B277	70			3"	100	\$2,156		\$2,551
B278	130	[80]			100	\$2,281		\$2,675
B280*	170				100	\$2,813		\$3,208

\*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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CCV

# B3 Series Characterized Control Valves with 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 for constant common port 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: 100% B-port: 70% of A to AB Cv

Visit [www.belimo.com](http://www.belimo.com) 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 [psil]	Close-Off Pressure [psid]									
B307	0.3	½" [15]	600	200	\$495	\$514	\$714	\$737	\$613	\$821	\$1,043		
B308	0.46			200	\$495	\$514	\$714	\$737	\$613	\$821	\$1,043		
B309	0.8			200	\$495	\$514	\$714	\$737	\$613	\$821	\$1,043		
B310	1.2			200	\$500	\$519	\$717	\$740	\$616	\$826	\$1,047		
B311	1.9			200	\$500	\$519	\$717	\$740	\$616	\$826	\$1,047		
B312	3			200	\$510	\$533	\$727	\$750	\$628	\$845	\$1,060		
B313	4.7			200	\$512	\$536	\$729	\$754	\$638	\$851	\$1,069		
B315	10			200	\$512	\$536	\$729	\$754	\$651	\$861	\$1,083		
B316*	16			200	\$531	\$553	\$748	\$773	\$658	\$866	\$1,088		
B317	4.7			¾" [20]	600	200	\$620	\$640	\$840	\$860	\$758	\$972	\$1,194
B318	7.4	200	\$621			\$641	\$843	\$861	\$767	\$977	\$1,197		
B320	14	200							\$776	\$987	\$1,205		
B321*	24	200							\$782	\$995	\$1,215		
B322	7.4	1" [25]	600			200				\$820	\$1,034	\$1,250	
B323	10					200					\$822	\$1,036	\$1,255
B325*	30					200					\$831	\$1,043	\$1,261

\*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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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 for constant common port 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	Ryton PPS 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: 100% B-port: 70% of A to AB Cv

Visit [www.belimo.com](http://www.belimo.com) for additional non fail-safe actuator options including 120 V and -S models.



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	\$958	\$1,133	\$1,315
B330	19			200	\$969	\$1,138	\$1,329
B331	25			200	\$1,217	\$1,458	\$1,578
B338	19	1½" [40]		200	\$1,235	\$1,472	\$1,594
B339	29			200	\$1,240	\$1,479	\$1,599
B340	37			200	\$1,244	\$1,483	\$1,603
B341	46			200	\$1,250	\$1,489	\$1,611
B347	29			200	\$1,655	\$1,891	\$2,014
B348	37			200	\$1,659	\$1,897	\$2,018
B349	46	2" [50]		200	\$1,659	\$1,897	\$2,018
B350	57			200	\$1,669	\$1,907	\$2,028
B351	68			200	\$1,681	\$1,920	\$2,038
B352	83		200	\$1,712	\$1,936	\$2,106	

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CCV

# B2 Series Characterized Control Valves with Fail-Safe Actuators

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



## 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.com](http://www.belimo.com) for additional fail-safe actuator options including 120 V and -S models.



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
Running Time (Motor)	<75 seconds	90 seconds	90 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
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]								
B207	0.3	½" [15]	600	200	\$679	\$776	\$834	\$784	\$985	\$1,013		
B208	0.46			200	\$679	\$776	\$834	\$784	\$985	\$1,013		
B209	0.8			200	\$679	\$776	\$834	\$784	\$985	\$1,013		
B210	1.2			200	\$687	\$780	\$843	\$792	\$992	\$1,021		
B211	1.9			200	\$687	\$780	\$843	\$792	\$992	\$1,021		
B212	3			200	\$700	\$795	\$852	\$801	\$1,001	\$1,033		
B213	4.7			200	\$703	\$799	\$856	\$803	\$1,004	\$1,035		
B214	7.4			200	\$711	\$802	\$860	\$810	\$1,011	\$1,041		
B215	10			200	\$711	\$802	\$860	\$803	\$1,004	\$1,035		
B216*	16			200	\$712	\$803	\$861	\$810	\$1,011	\$1,041		
B217	4.7			¾" [20]	600	200	\$784	\$879	\$936	\$882	\$1,086	\$1,112
B218	7.4					200	\$791	\$882	\$940	\$890	\$1,093	\$1,118
B219	10					200	\$784	\$879	\$936	\$892	\$1,095	\$1,122
B220*	14					200	\$797	\$892	\$953	\$898	\$1,098	\$1,126
B221*	24	200						\$904	\$1,103	\$1,132		
B222	7.4	200						\$910	\$1,110	\$1,144		
B223	10	1" [25]	600			200				\$922	\$1,122	\$1,151
B224	19					200				\$939	\$1,144	\$1,169
B225*	30			200				\$953	\$1,151	\$1,179		
B229	10			1¼" [32]	600	200				\$969	\$1,169	\$1,199
B230*	19	200						\$972	\$1,171	\$1,202		

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

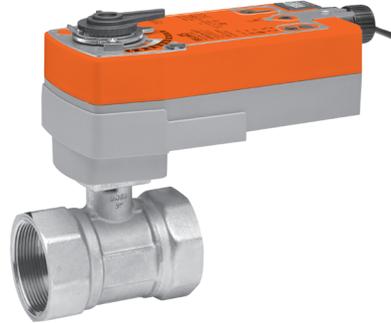
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### VALVE SPECIFICATIONS

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.com](http://www.belimo.com) for additional fail-safe actuator options including 120 V and -S models.



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"	400	200	\$1,121	\$1,412	\$1,610	
B232*	37	[32]		200	\$1,124	\$1,415	\$1,612	
B238	19	1½"		200	\$1,132	\$1,422	\$1,621	
B239	29			200	\$1,134	\$1,425	\$1,623	
B240*	37	[40]		200	\$1,138	\$1,427	\$1,626	
B248	29	2"		200	\$1,579	\$1,869	\$1,968	
B249	46			200	\$1,597	\$1,886	\$1,986	
B250*	57			200	\$1,612	\$1,903	\$2,003	
B251	65			[50]	200	\$1,968	\$2,226	\$2,226
B252	85			200	\$2,094	\$2,356	\$2,356	
B253	120			200	\$2,220	\$2,480	\$2,480	
B254*	240			200	\$2,226	\$2,488	\$2,488	
B261	60			2½"	100	\$2,234	\$2,496	\$2,496
B262	75	100			\$2,336	\$2,596	\$2,596	
B263	110	[65]			100	\$2,453	\$2,717	\$2,717
B264	150	100			\$2,511	\$2,772	\$2,772	
B265*	210	100			\$2,783	\$3,039	\$3,039	
B277	70	3"			100	\$2,540	\$2,799	\$2,799
B278	130			100	\$2,673	\$2,934	\$2,934	
B280*	170			[80]	100	\$3,197	\$3,457	\$3,457

\*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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CCV

# B3 Series Characterized Control Valves with 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 for constant common port 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: 100% B-port: 70% of A to AB Cv

Visit [www.belimo.com](http://www.belimo.com) for additional fail-safe actuator options including 120 V and -S models.



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
Running Time (Motor)	<75 seconds	90 seconds	90 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
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

## 3-WAY MIXING/DIVERTING

Model #	Cv	Size [mm]	Body Pressure Rating [psid]	Close-Off Pressure [psid]										
B307	0.3	½" [15]	600	200	\$820	\$953	\$972	\$917	\$1,124	\$1,171				
B308	0.46			200	\$820	\$953	\$972	\$917	\$1,124	\$1,171				
B309	0.8			200	\$820	\$953	\$972	\$917	\$1,124	\$1,171				
B310	1.2			200	\$822	\$955	\$977	\$922	\$1,127	\$1,177				
B311	1.9			200	\$834	\$961	\$984	\$922	\$1,127	\$1,177				
B312	3			200	\$847	\$977	\$996	\$941	\$1,150	\$1,199				
B313	4.7			200	\$850	\$980	\$999	\$946	\$1,152	\$1,202				
B315	10			200	\$850	\$980	\$999	\$953	\$1,157	\$1,204				
B316*	16			200	\$848	\$978	\$997	\$955	\$1,159	\$1,209				
B317	4.7			¾" [20]	600	200	\$926	\$1,057	\$1,076	\$1,004	\$1,212	\$1,261		
B318	7.4					200	\$926	\$1,057	\$1,076	\$1,025	\$1,230	\$1,278		
B320	14					200				\$1,036	\$1,243	\$1,290		
B321*	24					200				\$1,046	\$1,248	\$1,300		
B322	7.4					1" [25]	600	200				\$1,067	\$1,276	\$1,323
B323	10							200				\$1,083	\$1,287	\$1,337
B325*	30							200				\$1,093	\$1,299	\$1,346

\*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 for constant common port 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	Ryton PPS 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: 100% B-port: 70% of A to AB Cv



Visit [www.belimo.com](http://www.belimo.com) 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	\$1,277	\$1,531	\$1,597
B330	19			200	\$1,287	\$1,558	\$1,620
B331	25			200	\$1,558	\$1,875	\$1,952
B338	19	1½" [40]		200	\$1,581	\$1,898	\$1,975
B339	29			200	\$1,585	\$1,901	\$1,977
B340	37			200	\$1,597	\$1,913	\$1,991
B341	46	2" [50]		200	\$1,903	\$2,220	\$2,297
B347	29			200	\$2,244	\$2,564	\$2,639
B348	37			200	\$2,250	\$2,568	\$2,644
B349	46			200	\$2,252	\$2,571	\$2,647
B350	57			200	\$2,262	\$2,579	\$2,656
B351	68			200	\$2,582	\$2,896	\$2,974
B352	83		200	\$2,696	\$3,011	\$3,089	

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CCV

# B6 Series Characterized Control Valves with 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%

Visit [www.belimo.com](http://www.belimo.com) for additional non fail-safe actuator options including 120 V and -S models.



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	\$3,426	\$3,637	
B6250S-110	110	3" [80]		175	\$3,578	\$3,789	
B6300S-110	110	3" [80]		175	\$3,752	\$4,192	
B6400S-186	186	4" [100]		175			\$4,340
B6500S-290	290	5" [125]		175			\$6,290
B6600S-400	400	6" [150]		175			\$7,866

## 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	\$4,418	\$4,688	
B6250S-110-250	110	3" [80]		310	\$4,612	\$4,885	
B6300S-110-250	110	3" [80]		310	\$4,837	\$5,407	
B6400S-186-250	186	4" [100]		310			\$5,591
B6500S-290-250	290	5" [125]		310			\$8,108
B6600S-400-250	400	6" [150]		310			\$10,296

Add the MFT configuration number to the actuator when ordering, as needed. See page 13-7 for more details.

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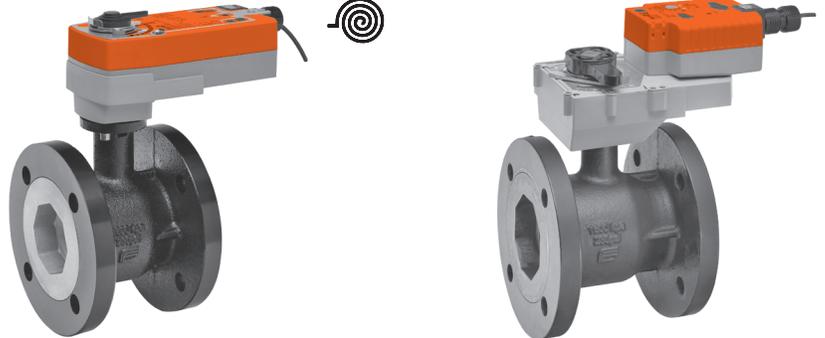
### VALVE SPECIFICATIONS

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%

Visit [www.belimo.com](http://www.belimo.com) 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	\$3,493	\$3,945	
B6250S-110	110			175	\$3,653	\$4,102	
B6300S-110	110	3" [80]		175	\$3,944	\$4,391	
B6400S-186	186	4" [100]		175		\$4,887	\$5,280
B6500S-290	290	5" [125]		175		\$6,964	\$7,238
B6600S-400	400	6" [150]		175		\$8,528	\$8,906

### 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	\$4,418	\$4,688	
B6250S-110-250	110			310	\$4,612	\$4,885	
B6300S-110-250	110	3" [80]		310	\$4,963	\$5,407	
B6400S-186-250	186	4" [100]		310		\$6,296	\$6,811
B6500S-290-250	290	5" [125]		310		\$9,132	\$9,455
B6600S-400-250	400	6" [150]		310		\$11,594	\$11,937

AFRX24 MFT is customizable. Add MFT configuration number to the actuator when ordering, as needed. See page 13-7 for more details.

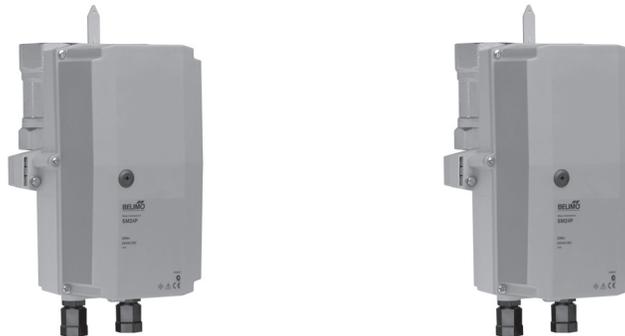
# B2 Series Characterized Control Valves with NEMA 4X Non Fail-Safe Actuators

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



## 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 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 <sup>◇</sup>	NRX24-SR-T N4 <sup>◇</sup>	NRX24-MFT-T N4 <sup>◇</sup>	ARX24-3-T N4 <sup>◇</sup>	ARX24-SR-T N4 <sup>◇</sup>	ARX24-MFT-T N4 <sup>◇</sup>
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	\$1,049	\$1,228	\$1,464				
B208	0.46			200	\$1,049	\$1,228	\$1,464				
B209	0.8			200	\$1,049	\$1,228	\$1,464				
B210	1.2			200	\$1,056	\$1,235	\$1,469				
B211	1.9			200	\$1,056	\$1,235	\$1,469				
B212	3			200	\$1,056	\$1,235	\$1,469				
B213	4.7			200	\$1,060	\$1,240	\$1,476				
B214	7.4			200	\$1,072	\$1,250	\$1,485				
B215	10			200	\$1,083	\$1,261	\$1,498				
B216*	16			200	\$1,083	\$1,261	\$1,498				
B217	4.7			¾" [20]	600	200	\$1,144	\$1,319	\$1,554		
B218	7.4					200	\$1,148	\$1,325	\$1,560		
B219	10					200	\$1,150	\$1,331	\$1,566		
B220*	14	200	\$1,158			\$1,338	\$1,574				
B221*	24	200	\$1,166			\$1,346	\$1,580				
B222	7.4	200	\$1,172			\$1,354	\$1,590				
B223	10	200	\$1,182			\$1,361	\$1,598				
B224	19	1" [25]	600	200	\$1,182	\$1,361	\$1,598				
B225*	30			200	\$1,194	\$1,369	\$1,604				
B229	10			200	\$1,255	\$1,432	\$1,670				
B230*	19	1¼" [32]	600	200	\$1,260	\$1,440	\$1,672				
B231	25			200			\$1,368	\$1,637	\$1,745		
B232*	37	1½" [40]	600	200			\$1,370	\$1,639	\$1,753		
B238	19			200			\$1,386	\$1,657	\$1,765		
B239	29			200			\$1,386	\$1,657	\$1,765		
B240*	37			200			\$1,394	\$1,663	\$1,772		
B248	29			200			\$1,431	\$1,706	\$1,812		
B249	46			200			\$1,630	\$1,899	\$2,013		
B250*	57			200			\$1,635	\$1,903	\$2,016		
B251	65	2" [50]	400	200			\$1,637	\$1,907	\$2,018		
B252	85			200			\$2,130	\$2,397	\$2,509		
B253	120			200			\$2,257	\$2,524	\$2,635		
B254*	240			200			\$2,391	\$2,662	\$2,771		
B261	60			100			\$2,412	\$2,681	\$2,791		
B262	75	2½" [65]	400	100			\$2,415	\$2,684	\$2,795		
B263	110			100			\$2,422	\$2,686	\$2,797		
B264	150			100			\$2,545	\$2,819	\$2,930		
B265*	210			100			\$2,673	\$2,941	\$3,053		
B277	70			100			\$2,703	\$2,972	\$3,080		
B278	130	3" [80]	400	100			\$2,833	\$3,101	\$3,214		
B280*	170			100			\$2,940	\$3,213	\$3,320		

\*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 \$650. 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 for constant common port 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 or Ryton PPS
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: 100% B-port: 70% of A to AB Cv



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	\$1,133	\$1,356	\$1,600					
B308	0.46			200	\$1,133	\$1,356	\$1,600					
B309	0.8			200	\$1,133	\$1,356	\$1,600					
B310	1.2			200	\$1,136	\$1,360	\$1,604					
B311	1.9			200	\$1,136	\$1,360	\$1,604					
B312	3			200	\$1,144	\$1,363	\$1,610					
B313	4.7			200	\$1,144	\$1,363	\$1,610					
B315	10			200	\$1,148	\$1,369	\$1,613					
B316*	16			200	\$1,145	\$1,367	\$1,611					
B317	4.7			¾" [20]	600	200	\$1,289	\$1,448	\$2,003			
B318	7.4					200	\$1,292	\$1,453	\$2,006			
B320	14					200	\$1,301	\$1,459	\$2,014			
B321*	24					200	\$1,305	\$1,464	\$2,018			
B322	7.4					1" [25]	600	200	\$1,333	\$1,566	\$1,823	
B323	10							200	\$1,336	\$1,568	\$1,825	
B325*	30	200	\$1,352					\$1,582	\$1,840			
B329	10	1¼" [32]	400	200			\$1,516	\$1,670	\$1,877			
B330	19			200			\$1,521	\$1,675	\$1,885			
B331	25			200			\$1,771	\$2,019	\$2,140			
B338	19	1½" [40]	400	200			\$1,788	\$2,034	\$2,160			
B339	29			200			\$1,790	\$2,038	\$2,168			
B340	37			200			\$1,792	\$2,043	\$2,173			
B341	46			200			\$1,799	\$2,047	\$2,192			
B347	29			200			\$2,206	\$2,452	\$2,543			
B348	37			200			\$2,211	\$2,456	\$2,545			
B349	46			200			\$2,213	\$2,460	\$2,564			
B350	57	2" [50]	400	200			\$2,221	\$2,465	\$2,569			
B351	68			200			\$2,233	\$2,479	\$2,574			
B352	83			200			\$2,239	\$2,488	\$2,579			

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CCV

\*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 \$650. Please specify when ordering.

# 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



## 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 for constant common port 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 or Ryton PPS
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% for A to AB, <2.0% for B to AB
Cv Flow Rating	A-port: 100% B-port: 70% of A to AB Cv



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"	400	200	\$2,163	\$2,826	
B232*	37	[32]		200	\$2,169	\$2,834	
B238	19	1½"		200	\$2,177	\$2,839	
B239	29			200	\$2,181	\$2,843	
B240*	37	[40]		200	\$2,185	\$2,851	
B248	29			200	\$2,626	\$2,939	
B249	46	2"		200	\$2,643	\$2,963	
B250*	57			200	\$2,657	\$2,978	
B251	65			[50]	200	\$3,009	\$3,332
B252	85			200	\$3,141	\$3,459	
B253	120			200	\$3,269	\$3,590	
B254*	240			200	\$3,660	\$3,983	
B261	60			2½"	100	\$3,174	\$3,496
B262	75				100	\$3,303	\$3,622
B263	110				100	\$3,434	\$3,753
B264	150				100	\$3,556	\$3,877
B265*	210	100			\$3,830	\$4,151	
B277	70	3"			100	\$3,586	\$3,905
B278	130				100	\$3,719	\$4,041
B280*	170				100	\$4,236	\$4,558

## 3-WAY MIXING/DIVERTING

B329	10	1¼"	400	200	\$2,507	\$2,903	
B330	19			200	\$2,519	\$2,918	
B331	25			[32]	200	\$2,786	\$3,181
B338	19	1½"		200	\$2,813	\$3,211	
B339	29			200	\$2,818	\$3,214	
B340	37			[40]	200	\$2,825	\$3,224
B341	46	2"		200	\$3,131	\$3,530	
B347	29			200	\$3,469	\$3,868	
B348	37			200	\$3,476	\$3,871	
B349	46			[50]	200	\$3,479	\$3,873
B350	57			200	\$3,493	\$3,885	
B351	68			200	\$3,809	\$4,208	
B352	83			200	\$3,920	\$4,319	

\*Models without characterizing discs.

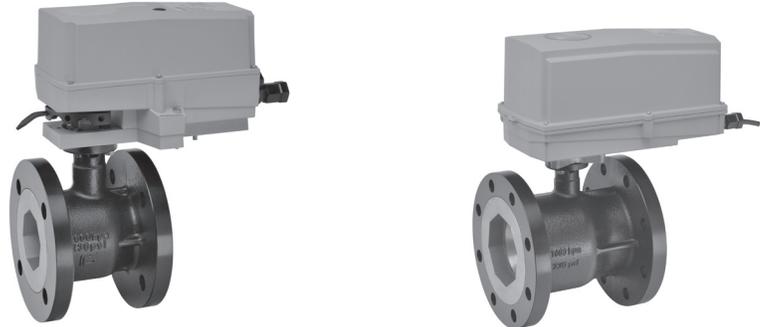
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

\*Heater option for NEMA 4X products has a list price adder of \$650. 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	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%



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	\$4,626	\$5,067		
B6250S-110	110			175	\$4,936	\$5,373		
B6300S-110	110	3" [80]		175	\$4,944	\$5,756		
B6400S-186	186	4" [100]		175			\$5,522	\$6,273
B6500S-290	290	5" [125]		175			\$7,434	\$8,190
B6600S-400	400	6" [150]		175			\$8,210	\$8,963

### 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	\$5,965	\$6,528		
B6250S-110-250	110			310	\$6,361	\$6,929		
B6300S-110-250	110	3" [80]		310	\$6,375	\$7,424		
B6400S-186-250	186	4" [100]		310			\$7,120	\$8,089
B6500S-290-250	290	5" [125]		310			\$9,581	\$10,557
B6600S-400-250	400	6" [150]		310			\$10,583	\$11,557

\* Heater option for NEMA 4X products has a list price adder of \$650. Please specify when ordering.

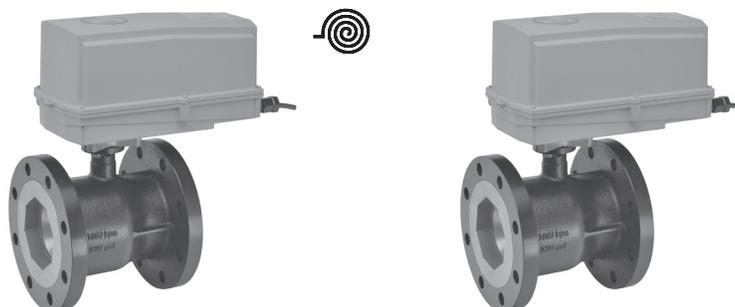
# B6 Series Characterized Control Valves with NEMA 4X Fail-Safe Actuators

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%



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	\$4,700	\$5,434	
B6250S-110	110			175	\$5,119	\$5,743	
B6300S-110	110	3" [80]		175	\$5,128	\$6,129	
B6400S-186	186	4" [100]		175		\$6,075	\$6,832
B6500S-290	290	5" [125]		175		\$7,991	\$8,741
B6600S-400	400	6" [150]		175		\$9,136	\$9,819

## 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	\$6,058	\$7,009	
B6250S-110-250	110			310	\$6,599	\$7,408	
B6300S-110-250	110	3" [80]		310	\$6,613	\$7,901	
B6400S-186-250	186	4" [100]		310		\$7,836	\$8,813
B6500S-290-250	290	5" [125]		310		\$11,352	\$12,234
B6600S-400-250	400	6" [150]		310		\$14,414	\$15,446

❖ Heater option for NEMA 4X products has a list price adder of \$650. 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%



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	\$1,211				
B208	0.46			200	\$1,211				
B209	0.8			200	\$1,211				
B210	1.2			200	\$1,217				
B211	1.9			200	\$1,217				
B212	3			200	\$1,226				
B213	4.7			200	\$1,244				
B214	7.4			200	\$1,255				
B215	10			200	\$1,263				
B216*	16			200	\$1,265				
B217	4.7			¾" [20]	600	200	\$1,289		
B218	7.4					200	\$1,292		
B219	10					200	\$1,299		
B220*	14					200	\$1,301		
B221*	24					200	\$1,305		
B222	7.4	200	\$1,352						
B223	10	200	\$1,360						
B224	19	1" [25]	600	200	\$1,370				
B225*	30			200	\$1,378				
B229	10			200	\$1,415				
B230*	19	1¼" [32]	600	200	\$1,422				
B231	25			200	\$1,479				
B232*	37	200	\$1,516						
B238	19	1½" [40]	400	200	\$1,516		\$1,740		
B239	29			200	\$1,521		\$1,740		
B240*	37			200	\$1,523		\$1,740		
B248	29			200			\$1,740		
B249	46	2" [50]	400	200			\$1,745		
B250*	57			200			\$1,764		
B251	65			200			\$2,224		
B252	85			200			\$2,357		
B253	120			200			\$2,479		
B254*	240			200			\$2,834		

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

# 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 for constant common port 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 or Ryton PPS
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: 100% B-port: 70% of A to AB Cv



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	\$1,354			
B308	0.46			200	\$1,354			
B309	0.8			200	\$1,354			
B310	1.2			200	\$1,356			
B311	1.9			200	\$1,356			
B312	3			200	\$1,360			
B313	4.7			200	\$1,378			
B315	10			200	\$1,380			
B316*	16			200	\$1,379			
B317	4.7			200	\$1,422			
B318	7.4			¾" [20]	600	200	\$1,427	
B320	14					200	\$1,431	
B321*	24	200	\$1,431					
B322	7.4	200	\$1,590					
B323	10	1" [25]	600	200	\$1,594			
B325*	30			200	\$1,599			
B329	10	1¼" [32]	400	200		\$1,622		
B330	19			200		\$1,696		
B331	25			200		\$1,945		
B338	19			200		\$1,964		
B339	29			1½" [40]	400	200		\$1,968
B340	37					200		\$1,971
B341	46			2" [50]	400	200		\$1,977
B347	29					200		\$2,383
B348	37					200		\$2,386
B349	46					200		\$2,389
B350	57	200				\$2,395		
B351	68	200				\$2,409		
B352	83	200				\$2,423		

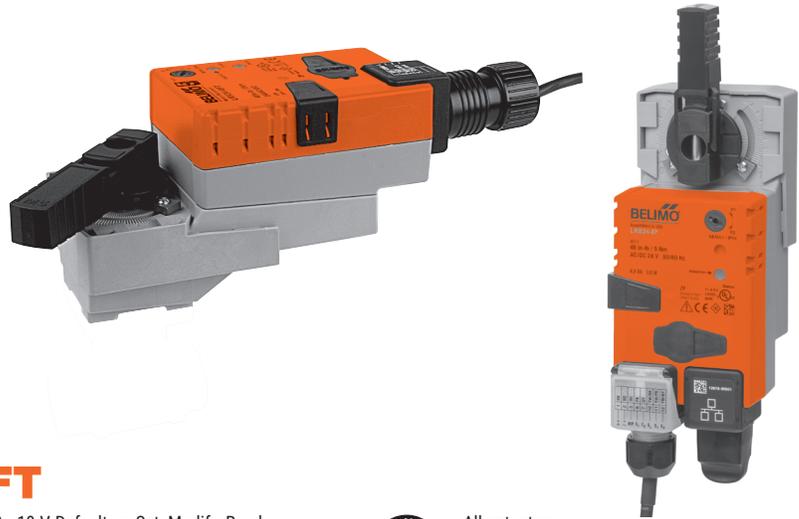
\*Models without characterizing discs.  
For corrected Cvs refer to the pipe reduction factor equation Fp in the Valve Sizing section of the Appendix.

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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



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**	\$365
LRB24-3-S	On/Off, Floating Point	Add on	AC/DC 24 V	90	2	3 ft.	N/A**	\$516
LRB24-3-T	On/Off, Floating Point	Add on	AC/DC 24 V	90	2	N/A	N/A**	\$344
LRB24-SR	2...10 V (4...20 mA*)	2...10 V	AC/DC 24 V	90	4.5	3 ft.	N/A**	\$541
LRB24-SR-T	2...10 V (4...20 mA*)	2...10 V	AC/DC 24 V	90	4.5	N/A	N/A**	\$528

### MFT VERSION

LRB24-MFT	Various	Various	AC/DC 24 V	90	5	3 ft.	N/A**	\$714
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### IOT VERSION

LRB24-IP	2...10 V (4...20 mA*)	Various	AC/DC 24 V	90	5	3 ft.	N/A**	\$993
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See page 13-7 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.

# AR Series Non Fail-Safe Actuators

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



## 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



5-year warranty

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**	\$678
ARB24-3-S	On/Off, Floating Point	Add on	AC/DC 24 V	90	5.5	3 ft.	N/A**	\$876
ARB24-3-T	On/Off, Floating Point	Add on	AC/DC 24 V	90	5.5	N/A	N/A**	\$646
ARB24-SR	2...10 V (4...20 mA*)	2...10 V	AC/DC 24 V	90	5	3 ft.	N/A**	\$992
ARB24-SR-T	2...10 V (4...20 mA*)	2...10 V	AC/DC 24 V	90	5	N/A	N/A**	\$952

## MFT VERSIONS

ARB24-MFT	Various	Various	AC/DC 24 V	90	6	3 ft.	N/A**	\$992
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## IOT VERSION

ARB24-IP	2...10 V (4...20 mA*)	Various	AC/DC 24 V	90	6	3 ft.	N/A**	\$1,208
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See page 13-7 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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### 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



### 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**	\$1,620

### 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**	\$1,510

See page 13-7 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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## **14** 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.

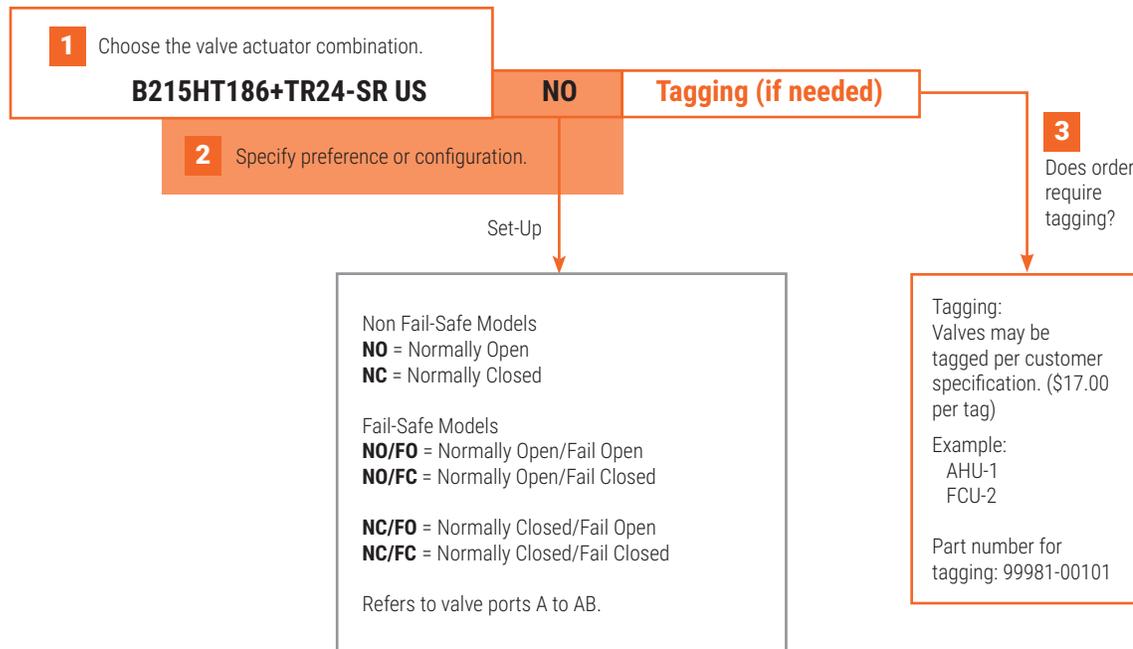
# High Temperature Characterized Control Valve Nomenclature

B2	15	HT	186	+TR	24	-SR	
<b>Valve</b> B2 = 2-way	<b>Valve Size</b> 15 = 1/2" 20 = 3/4" 25 = 1"	High Temperature	<b>C<sub>v</sub></b> 1.86 Refer to Table on Page 13-1	<b>Actuator Type</b> <b>Non Fail-Safe</b> TR LRB, LRX <b>Fail-Safe</b> TFRB, TFRX LF	<b>Power Supply</b> 24 = AC/DC 24 V 120 = AC 120 V*	<b>Control</b> Blank = On/Off -3 = On/Off, Floating Point -SR = Modulating 2...10 V -MFT = Multi-Function Technology	-S = Built-in Auxiliary Switch

\*"X" models are customizable. Refer to page 13-7 for programming and cable options.

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

## Ordering Example



**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 <sub>v</sub>	Inches	DN [mm]	2-way NPT	Non Fail-Safe	Fail-Safe
0.29	½	15	B215HT029	TR 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	LR Series	LF Series
1.86	¾	20	B220HT186		
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, modulating 2...10 V, multi-function technology (MFT)
Manual Override	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	equal percentage flow
Controllable Flow Range	75°
Sizes	½", ¾", 1"
End Fitting	NPT female
<b>Materials</b>	
Body	DZR brass
Ball	stainless steel
Stem	stainless steel
Seat	ETFE
Stem Packing	Viton®
Characterizing Disc	ETFE
Seat O-Rings	EPDM
Body Pressure Rating	600 psi
<b>Fluid Temperature Range</b>	
Steam	250°F [120°C]
Water	60...266°F [16...130°C]
Close-Off Pressure	200 psid
<b>Maximum Differential Pressure (ΔP)</b>	
Steam	15 psid
Water	60 psid partially open ball 116 psid fully open ball
<b>Maximum Inlet Pressure</b>	
Steam	15 psi
Leakage	0%

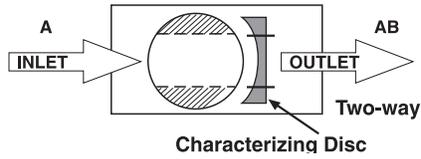
## SET-UP - Specify Upon Ordering

### 2-WAY VALVE

<b>NON FAIL-SAFE</b> Stays in Last Position	<b>TR24-3 US</b> <b>LRB24-3</b>	Power to pin 2 will drive valve CCW. Power to pin 3 will drive valve CW.	
	<b>TR24-SR US</b> <b>LRB24-SR</b>	<b>NC:</b> Closed A to AB, will open as voltage increases.	<b>NO:</b> Open A to AB, will close as voltage increases (Can be chosen with switch inside terminal block of actuator).
	<b>LRB24-3,</b> <b>LRX..</b>	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.	<b>NO:</b> Open A to AB, will close as power is applied.
<b>FAIL-SAFE</b> Note Fail Position	<b>TFRB24</b> <b>LF24 US</b>	<b>NO/FO Valve:</b> Open A to AB will drive closed. Spring Action: Will spring open A to AB upon power loss.	<b>NC/FC Valve:</b> Closed A to AB will drive open. Spring Action: Will spring closed A to AB upon power loss.
	<b>TFRB (-3), -SR</b> <b>LF (-3), -SR</b> Floating or Modulating type actuators	<b>NC/FO Valve:</b> Closed A to AB will drive open upon increase in voltage. Spring Action: Will spring open A to AB upon power loss.	<b>NC/FC Valve:</b> Closed A to AB . Spring Action: Will spring closed A to AB upon power loss.
		<b>NO/FO Valve:</b> Open A to AB will drive closed upon increase in voltage. Spring Action: Will spring open A to AB upon power loss.	<b>NO/FC Valve:</b> Open A to AB. Spring Action: Will spring closed A to AB upon power loss.

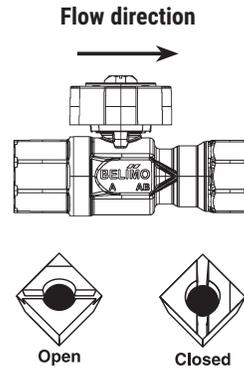
## FLOW PATTERN

### 2-way High Temperature Characterized Control Valves



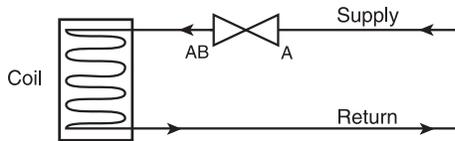
Upstream A  
Downstream AB

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

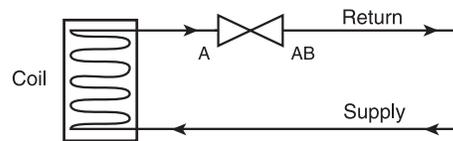


## PIPING DIAGRAMS

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

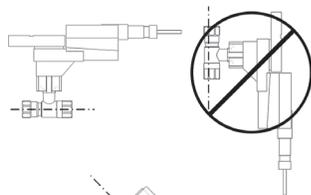


### 2-way Valve Piping Diagram Water (1 Input, 1 Output)



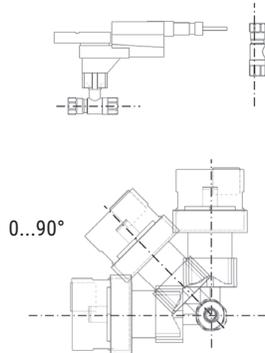
## PIPING/MOUNTING ORIENTATION & INSULATION

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.



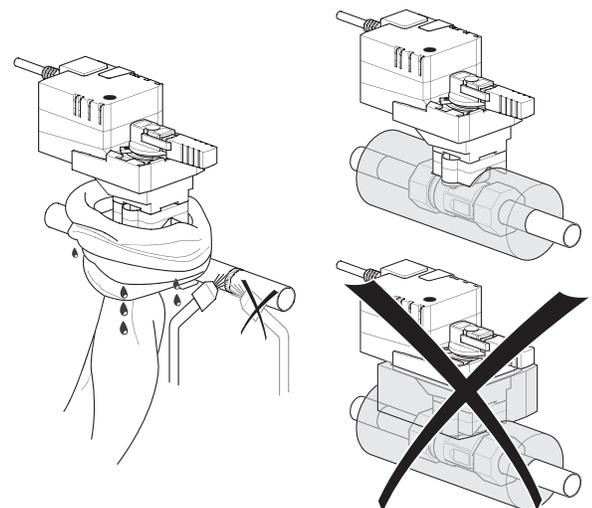
0...45°

Steam Applications



0...90°

Water Applications



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HTCCV

# High Temperature Characterized Control Valves with Non Fail-Safe Actuators

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



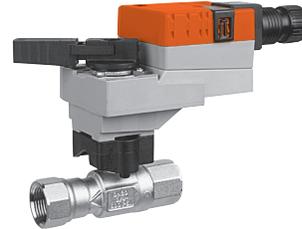
## VALVE SPECIFICATIONS

Fluid	hot water, up to 60% glycol, steam
Flow Characteristic	equal percentage flow
Controllable Flow Range	75°
End Fitting	NPT female
Body	DZR brass
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 fully open ball
Max Inlet Pressure (Steam)	15 psi
Leakage	0%

Visit [www.belimo.com](http://www.belimo.com) to see additional non fail-safe actuator options including 120 V and -S models.



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	\$587	\$843	\$676	\$881	\$1,190
B215HT046	0.46			200	\$587	\$843	\$676	\$881	\$1,190
B215HT073	0.73			200	\$587	\$843	\$676	\$881	\$1,190
B215HT116	1.16			200	\$603	\$853	\$679	\$884	\$1,196
B215HT186	1.86			200	\$603	\$853	\$684	\$892	\$1,200
B215HT290	2.9			200	\$605	\$858	\$691	\$896	\$1,208
B215HT455	4.55	¾" [20]		200	\$611	\$863	\$765	\$971	\$1,284
B220HT186	1.86			200		\$765	\$971	\$1,284	
B220HT290	2.9			200		\$765	\$971	\$1,284	
B220HT464	4.64			200		\$768	\$975	\$1,287	
B220HT731	7.31			200		\$768	\$975	\$1,287	
B220HT928	9.28			200		\$774	\$980	\$1,291	
B220HT1320	13.2	1" [25]		200		\$783	\$987	\$1,301	
B225HT464	4.64			200		\$866	\$1,073	\$1,388	
B225HT731	7.31			200		\$866	\$1,073	\$1,388	
B225HT1160	11.6			200		\$877	\$1,089	\$1,397	
B225HT1856	18.56			200		\$877	\$1,089	\$1,397	
B225HT2800	28			200		\$891	\$1,095	\$1,408	

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

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All prices are in US Dollars (USD)

### VALVE SPECIFICATIONS

Fluid	hot water, up to 60% glycol, steam
Flow Characteristic	equal percentage flow
Controllable Flow Range	75°
End Fitting	NPT female
Body	DZR brass
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 fully open ball
Max Inlet Pressure (Steam)	15 psi
Leakage	0%

Visit [www.belimo.com](http://www.belimo.com) to see additional non fail-safe actuator options including 120 V and -S models.



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

### 2-WAY

Model #	Cv	Size [mm]	Body Pressure Rating [psii]	Close-Off Pressure [psid]				
B215HT029	0.29	½" [15]	600	200	\$852	\$1,004	\$1,090	
B215HT046	0.46			200	\$852	\$1,004	\$1,090	
B215HT073	0.73			200	\$852	\$1,004	\$1,090	
B215HT116	1.16			200	\$854	\$1,011	\$1,094	
B215HT186	1.86			200	\$854	\$1,011	\$1,094	
B215HT290	2.9			200	\$873	\$1,029	\$1,111	
B215HT455	4.55			200	\$881	\$1,035	\$1,119	
B220HT186	1.86	¾" [20]		200			\$1,031	\$1,324
B220HT290	2.9			200			\$1,031	\$1,324
B220HT464	4.64			200			\$1,031	\$1,324
B220HT731	7.31			200			\$1,033	\$1,327
B220HT928	9.28			200			\$1,044	\$1,339
B220HT1320	13.2			200			\$1,049	\$1,346
B225HT464	4.64			1" [25]	200			\$1,199
B225HT731	7.31	200				\$1,199	\$1,496	
B225HT1160	11.6	200				\$1,208	\$1,504	
B225HT1856	18.56	200				\$1,218	\$1,515	
B225HT2800	28	200				\$1,236	\$1,530	

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

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H10CV

# 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.com](http://www.belimo.com)



5-year warranty



**BELIMO**<sup>®</sup>



## 15 INDUSTRIAL BALL VALVES

### **Achieve Control and Reliability**

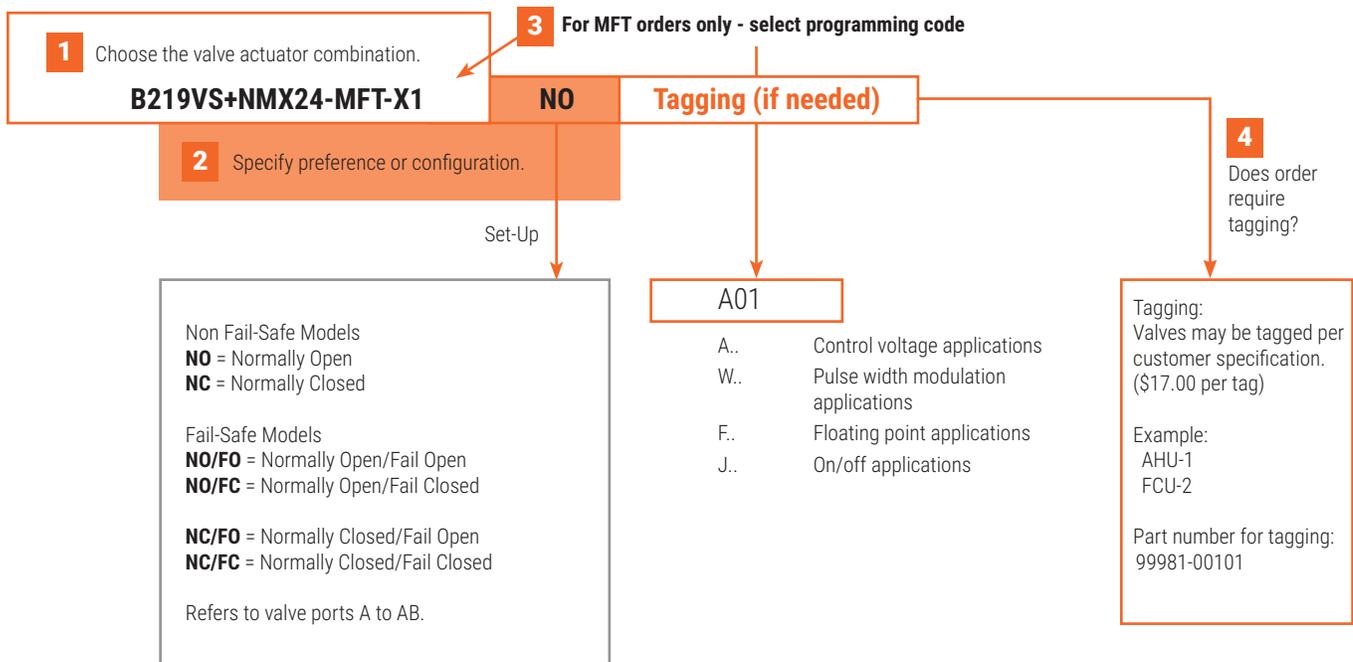
- Bronze, brass, and stainless steel ball valves with NPT connection for low and medium pressure steam applications.
- Range of media temperature ratings suited for chilled, hot water and steam service.
- Fitted with rotary actuators for easy field assembly and installation.

# Industrial Ball Valve Nomenclature

B2	19	VS	+NMX	24	-MFT-X1	
<b>Valve</b> B2 = 2-way B3 = 3-way	<b>Valve Size</b> 15-50 = ½...2"	<b>Industrial Construction/ Material</b> 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	<b>Actuator Type</b> Non Fail-Safe LMB, LMX NMB, NMX AMB, AMX GMB, GMX NRB, NRX ARB, ARX LRB, LRX GRCX PRB, PRX <b>Fail-Safe Spring Return</b> LF NFB, NFX AFB, AFX AFR	<b>Power Supply</b> 24 = AC/DC 24 V 120 = AC 120 V UP = AC 24...240 V or DC 24...125 V	<b>Control</b> -X1 = On/Off -3-X1 = On/Off, Floating Point -MFT-X1 = Multi-Function Technology	-S = Built-in Auxiliary Switch -T = Terminal Strip N4 = NEMA 4/4X

"X" models are customizable.  
Refer to page 15-4 for programming options.

## Ordering Example



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

# Industrial Ball Valve Product Range

Valve Nominal Size			Type		Suitable Actuators		
C <sub>v</sub>	Inches	DN [mm]	2-way NPT	3-way NPT	Non Fail-Safe		Fail-Safe
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	GR Series	NF Series
51	¾	20	B220VS				
43	1	25	B224VS		AM Series	GR Series	AF Series
68	1	25	B225VS				
48	1¼	32	B232VS				
84	1½	40	B239VS		GM Series	PR Series	AF Series
177	1½	40	B240VS				
108	2	50	B249VS				
15	½	15	B2050VSS-15**†		LM Series	GR Series	LF Series
30	¾	20	B219VSS†				
43	1	25	B224VSS†				
108	2	50	B249VSS†				
6.4	½	15		B315L**	LR Series	GR Series	LF Series
12.8	¾	20		B320L**			
11	1	25		B325L**			
34	1¼	32		B332L**	NR	GR Series	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. Suitable for Cold, Domestic Hot, and Commercial Hot applications.

\*\* 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 been 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.

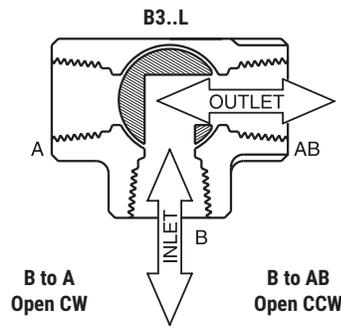
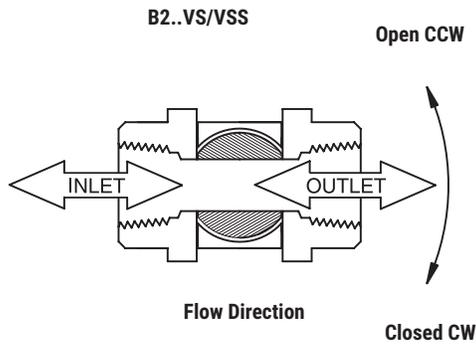
## ACTUATOR SPECIFICATIONS

Control Type	on/off, floating point, modulating 2...10 V, multi-function technology (MFT)
Manual Override	LM, NM, AM, GM, LR, NR, AR, GR, PR, NF, AF series
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	NPT Female
Materials	
Body	bronze (B2..VS) stainless steel (B2..VSS) nickel plated brass (B3..L)
Ball	stainless steel chrome plated brass (B3..L)
Stem	stainless steel, nickel plated brass (B3..L)
Seats	MPTFE, RPTFE (2-way) Teflon® PTFE (3-way)
Stem Packing	MPTFE (2-way)
O-Rings	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)

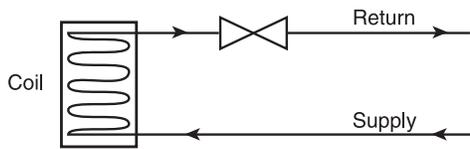
### FLOW PATTERN



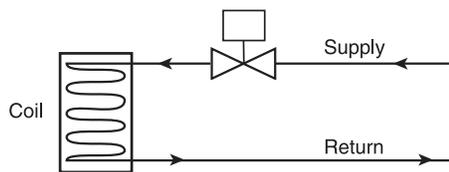
NOTE: B3..L are piped differently than B3 CCV Valves.

### PIPING DIAGRAMS

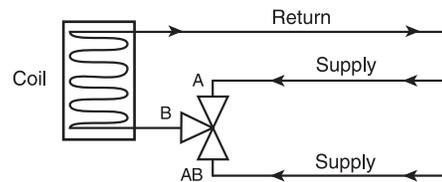
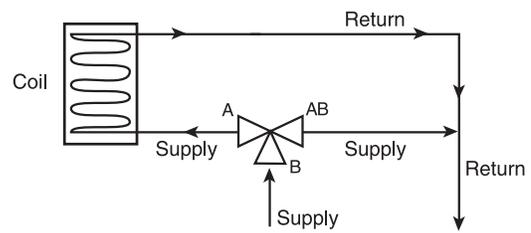
**2-way Valve Piping Diagram Water**



**2-way Valve Piping Diagram Steam**



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

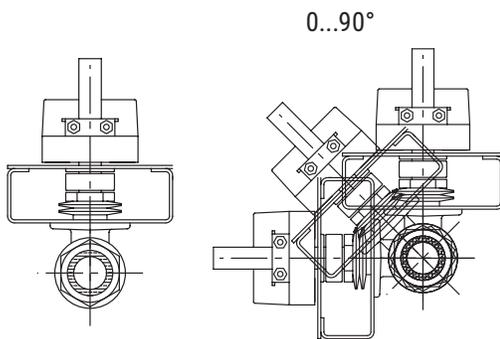


### NOTE:

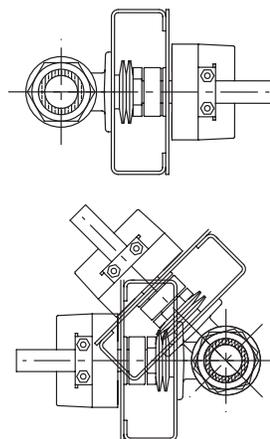
To avoid torque increase during off season shut down or other periods of inactivity longer than 1 month, the valve should be exercised (actuator or manually driven full open-closed cycle) at least once per month. This is necessary to avoid any application problems after an off season shut down. This 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**



**SET-UP - Specify Upon Ordering**

	2-WAY VALVE		3-WAY VALVE		
<b>NON FAIL-SAFE</b> Stays in Last Position	<b>LMB24-3-X1, NMB24-3-X1, AMB24-3-X1, GMB24-3-X1, LRB24-3, NRB24-3, ARB24-3, GRB24-3, PRBUP-3</b>	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.	
	<b>LMX24-MFT-X1, NMX24-MFT-X1, AMX24-MFT-X1, LRX24-MFT, NRX24-MFT, ARX24-MFT, GRX24-MFT</b>	<b>NC:</b> Normally closed A to AB, valve will open as voltage increases	<b>NO:</b> Normally open A to AB, valve will close as voltage increases	<b>NC:</b> Normally closed B to AB, valve will open as voltage increases	<b>NO:</b> Normally open B to AB, valve will close as voltage increases
<b>FAIL-SAFE</b> Note Fail Position	<b>LF24 US, LF120 US, NFB24-X1, AFB24-X1, AFBUP-X1, AFRBUP, NFBUP-X1</b>	<b>NO/FO:</b> Normally open A to AB, valve will drive closed. Spring Action: Actuator will fail open A to AB upon power loss.	<b>NC/FC:</b> Normally closed A to AB, valve will drive open. Spring Action: Actuator will fail closed A to AB upon power loss.	<b>NO/FO:</b> Normally open B to AB, valve will drive closed. Spring Action: Actuator will fail open B to AB upon power loss.	<b>NC/FC:</b> Normally closed B to AB, valve will drive open. Spring Action: Actuator will fail closed B to AB upon power loss.
	<b>NFX24-MFT-X1, AFX24-MFT-X1, AFRX24-MFT</b>	<b>NC/FO:</b> Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail open upon power loss.	<b>NC/FC:</b> Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail closed upon power loss.	<b>NO/FC:</b> Normally open B to AB, valve will close as voltage increases. Actuator switch on CCW. Spring Action: Will fail closed upon power loss.	<b>NO/FO:</b> Normally open B to AB, valve will close as voltage increases. Actuator switch on CCW. Spring Action: Will fail open upon power loss.

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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VS. VSS BALL VALVES

### 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	NPT female
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



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 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

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]				
B2050VS-01	1	½" [15]	600	100	\$1,276			
B2050VS-02	2			100	\$1,276			
B2050VS-04	4			100	\$1,276			
B2050VS-15	15			100	\$1,276			
B219VS	30	¾" [20]		400		\$1,641		
B220VS	51			400		\$1,694		
B224VS	43			400		\$1,881		
B225VS	68	1" [25]		200			\$2,106	
B232VS	48	1¼" [32]		600			\$2,477	
B239VS	84	1½" [40]		600				\$2,976
B240VS	177			600				\$3,067
B249VS	108			2" [50]	600			

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VS, VSS BALL VALVES

# B2..VS Series Ball Valves with 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	NPT female
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



ACTUATOR PART #	LMX24-MFT-X1	NMX24-MFT-X1	AMX24-MFT-X1
Control	Modulating/MFT	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•
Running Time (Motor)	150 seconds (variable)	150 seconds (variable)	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]				
B2050VS-01	1	½" [15]	600	100	\$1,736			
B2050VS-02	2			100	\$1,736			
B2050VS-04	4			100	\$1,736			
B2050VS-15	15			100	\$1,736			
B219VS	30	¾" [20]		400		\$2,378		
B220VS	51			400		\$2,464		
B224VS	43	1" [25]		400		\$2,548		
B225VS	68			200			\$2,772	
B232VS	48	1¼" [32]	600				\$3,067	

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### 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	NPT female
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.com](http://www.belimo.com) for additional fail-safe options.



ACTUATOR PART #	LF24 US	LF120 US	NFB24-X1	NFBUP-X1	NFX24-MFT-X1
Control	On/Off	On/Off	On/Off	On/Off	Modulating/MFT
Manual Override			.	.	.
Running Time (Motor)	75 seconds	75 seconds	<75 seconds	<75 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<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 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]				
B2050VS-01	1	½" [15]	600	100	\$1,375	\$1,461		
B2050VS-02	2			100	\$1,375	\$1,461		
B2050VS-04	4			100	\$1,375	\$1,461		
B2050VS-15	15			100	\$1,375	\$1,461		
B219VS	30	¾" [20]		400		\$1,869	\$1,977	\$2,404
B220VS	51			400		\$1,955	\$2,059	\$2,494

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VS, VSS BALL VALVES

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

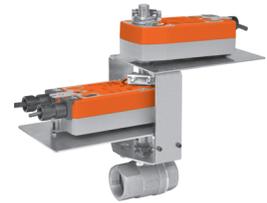
2-way Valve, Bronze Body, NPT Female Ends



### 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	NPT female
Body	B584-C84400 bronze
Ball	316 stainless steel
Seat	MPTFE
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.com](http://www.belimo.com) for additional fail-safe options.



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	600	\$2,109	\$2,251	\$2,630	
B225VS	68			200	\$2,518	\$2,663	\$2,906	
B232VS	48	1¼" [32]		600	\$2,666	\$2,808	\$3,069	
B239VS	84	1½" [40]		600				\$4,674
B240VS	177			600				\$4,707
B249VS	108			2" [50]	600			

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	NPT female
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%



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 appliance 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-WAY DIVERTING

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]					
B315L	6.4	½" [15]	600	200	\$662	\$992			
B320L	12.8	¾" [20]		200	\$710	\$1,041			
B325L	11	1" [25]		200	\$861	\$1,192			
B332L	34	1¼" [32]	400	200		\$1,875	\$1,898		
B340L	57	1½" [40]		200				\$2,173	\$2,465
B350L	87	2" [50]		200				\$2,812	\$3,104

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

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V/S, VSS BALL VALVES

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

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



## VALVE SPECIFICATIONS

Fluid	chilled, hot water, up to 60% glycol
Flow Characteristic	modified linear
End Fitting	NPT female
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.com](http://www.belimo.com) to see additional fail-safe options.



ACTUATOR PART #	LF24-3 US	AFRBUP	AFRX24-MFT
Control	On/Off, Floating Point	On/Off	Modulating/MFT
Manual Override		.	.
Running Time (Motor)	150 seconds	75 seconds	150 seconds (variable)
Running Time (Fail-Safe)	<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-WAY DIVERTING

Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]		
B315L	6.4	½" [15]	600	200	\$991	
B320L	12.8	¾" [20]		200	\$1,038	
B325L	11	1" [25]		200	\$1,190	
B332L	34	1¼" [32]	400	200		\$2,127
B340L	57	1½" [40]		200	\$2,556	\$2,777
B350L	87	2" [50]		200	\$3,195	\$3,414

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

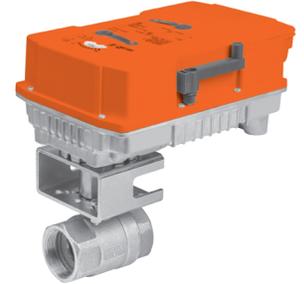
Model #	Cv	Size [mm]	Body Pressure Rating [psi]	Close-Off Pressure [psid]		
B350L	87	2" [50]	400	200	\$4,221	\$4,536

\* Heater option for NEMA 4X products has a list price adder of \$650. Please specify when ordering.

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### 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	NPT female
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



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	600	\$2,691	\$2,824	\$2,865	\$3,011		
B2050VS-02	2			600	\$2,691	\$2,824	\$2,865	\$3,011		
B2050VS-04	4			600	\$2,691	\$2,824	\$2,865	\$3,011		
B2050VS-15	15			600	\$2,691	\$2,824	\$2,865	\$3,011		
B219VS	30	¾" [20]		600	\$2,984	\$3,135	\$3,178	\$3,339		
B220VS	51			600	\$3,021	\$3,176	\$3,221	\$3,382		
B224VS	43	1" [25]		600	\$3,079	\$3,233	\$3,279	\$3,443		
B225VS	68			600	\$3,109	\$3,263	\$3,309	\$3,476		
B232VS	48	1¼" [32]		600	\$3,378	\$3,547	\$3,596	\$3,777		
B239VS	84	1½" [40]		600	\$3,496	\$3,673	\$3,725	\$3,911	\$5,784	\$8,301
B240VS	177			600					\$5,895	\$8,413
B249VS	108			2" [50]	600					\$6,138

\*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 \$650. Please specify when ordering.

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VS, VSS BALL VALVES

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

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



## 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	NPT female
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
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point
Manual Override	•	•	•	•	•	•	•
Running Time (Motor)	90 seconds	150 seconds (variable)	90 seconds	150 seconds (variable)	90 seconds	150 seconds (variable)	150 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 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]						
B2050VSS-15	15	½" [15]	2000	1000	\$1,655	\$2,429				
B219VSS	30	¾" [20]	1500	1000		\$2,297	\$3,067			
B224VSS	43	1" [25]		1000				\$2,584	\$3,247	
B249VSS	108	2" [50]		1000						\$5,020

Note: NSF/ANSI 372 - Lead Free.  
NSF/ANSI/CAN 61 - Water Quality - Suitable for Cold, Domestic Hot, and Commercial Hot applications.

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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	NPT female
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.com](http://www.belimo.com) for additional fail-safe options.



ACTUATOR PART #	LF24 US	NFB24-X1	NFX24-MFT-X1	AFB24-X1	AFX24-MFT-X1	2*AFX24-MFT-X1
Control	On/Off	On/Off	Modulating/MFT	On/Off	Modulating/MFT	Modulating/MFT
Manual Override		•	•	•	•	•
Running Time (Motor)	75 seconds	<75 seconds	150 seconds (variable)	<75 seconds	150 seconds (variable)	150 seconds (variable)
Running Time (Fail-Safe)	<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	18 GA appliance cable with ½" conduit connector	3 ft, 18 GA appliance cable with ½" conduit connector	18 GA appliance cable with ½" conduit connector	18 GA appliance 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	1000	\$1,722				
B219VSS	30	¾" [20]	1500	1000		\$2,615	\$3,366		
B224VSS	43	1" [25]		1000				\$2,811	\$3,485
B249VSS	108	2" [50]		1000					

Note: NSF/ANSI 372 - Lead Free.  
NSF/ANSI/CAN 61 - Water Quality - Suitable for Cold, Domestic Hot, and Commercial Hot applications.

2\* Designates tandem actuators.

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

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



## 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	NPT female
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



ACTUATOR PART #	GRCX24-3-T N4 <sup>◇</sup>	GRCX24-MFT-T N4 <sup>◇</sup>	GRCX120-3 N4 <sup>◇</sup>	GRCX120-SR-T N4 <sup>◇</sup>	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	1000	\$3,094	\$3,233	\$3,297	\$3,434		
B219VSS	30	¾" [20]	1500	1000	\$3,536	\$3,698	\$3,768	\$3,927		
B224VSS	43	1" [25]		1000	\$3,714	\$3,882	\$3,957	\$4,123		
B249VSS	108	2" [50]		1000					\$7,261	\$9,778

Note: NSF/ANSI 372 - Lead Free.

NSF/ANSI/CAN 61 - Water Quality - Suitable for Cold, Domestic Hot, and Commercial Hot applications.

\*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 \$650. Please specify when ordering.

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## **16** INDUSTRIAL BALL VALVES

### **High Performance for Aggressive Applications**

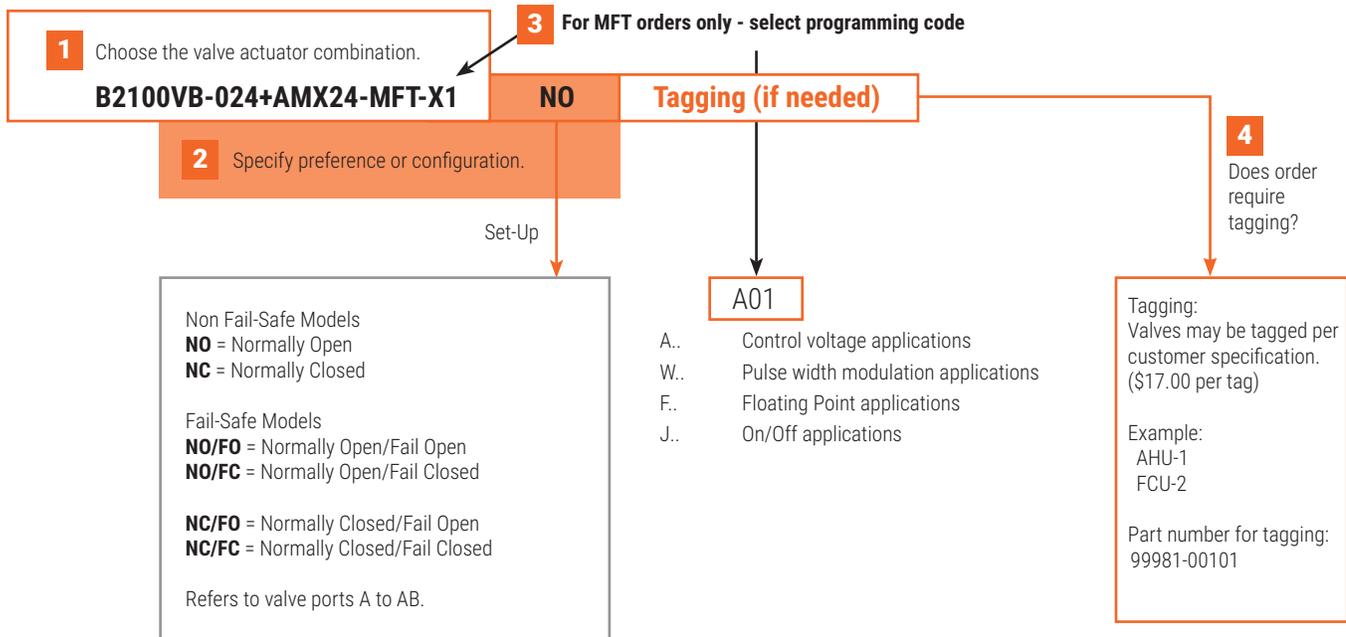
- ANSI Class IV leakage rating prevents energy loss and reduces operating costs.
- Fluid temperature up to 380°F is ideal for chilled, hot water or steam service.
- Fitted with rotary actuators for easy field assembly and installation.

# V Ball Control Valve Nomenclature

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

"X" models are customizable.  
Refer to page 15-4 for programming options.

## Ordering Example



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

# V Ball Control Valve Product Range

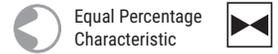
C <sub>v</sub>	Valve Nominal Size		Type		Non Fail-Safe	Fail-Safe	
	Inches	DN [mm]	2-way NPT	2-way Flanged		Spring Return	Electronic
024	1	25	B2100VB-024		AM Series	NF Series	Electronic
055	1½	40	B2150VB-055				
077	2	50	B2200VB-077				
207	3	80		B6300VB-207	PR Series	AF	GK Series
350	4	100		B6400VB-350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

**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 been operated, or as field condition dictates.

<sup>†</sup> Inquire for 285 psi COP if needed



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

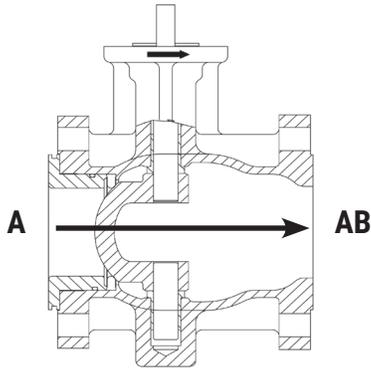
Fluid	chilled or hot water, up to 60% glycol max, steam
Flow Characteristic	equal percentage
Sizes	1", 1½", 2", 3", 4", 6", 8", 10", 12"
End Fitting	NPT female (1...2") ANSI flanged (3...12")
Materials	
Body	carbon steel
Ball	stainless steel
Stem	stainless steel
Seat	Teflon®
O-Rings	Viton
Stem Packing	spring loaded Teflon® V-ring
Bushings	PEEK
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

# V Ball Control Valves

General Information / Typical Installation



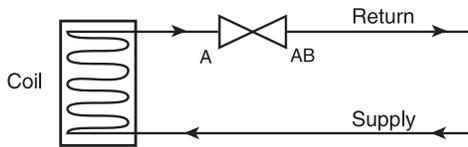
## FLOW PATTERN



## PIPING DIAGRAMS

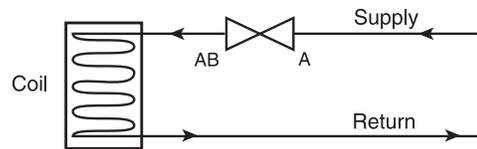
### Water Application

2-way Valve Piping Diagram



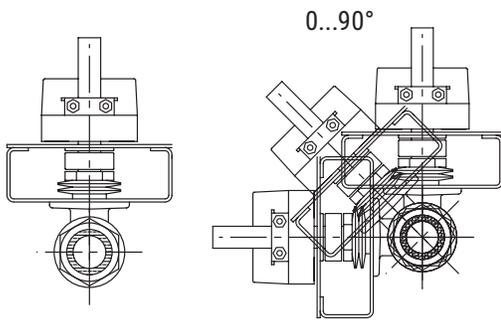
### Steam Application

2-way Valve Piping Diagram

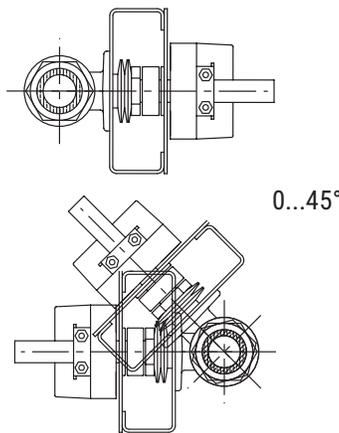


## PIPING/MOUNTING ORIENTATION

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**

<b>NON FAIL-SAFE</b> Stays in Last Position	<b>AMB24-3-X1, PRBUP-3-T</b>	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.	
	<b>AMX24-MFT-X1, PR...MFT-T, SY...MFT</b>	<b>NC:</b> Normally closed A to AB, valve will open as voltage increases	<b>NO:</b> Normally open A to AB, valve will close as voltage increases
<b>SPRING RETURN</b> Note Fail Position	<b>AFB24-X1, AFBUP-X1, NFB24-X1</b>	<b>NO/FO:</b> Normally open A to AB, valve will drive closed. Spring Action: Actuator will fail open A to AB upon power loss.	<b>NC/FC:</b> Normally closed A to AB, valve will drive open. Spring Action: Actuator will fail closed A to AB upon power loss.
	<b>NFX24-MFT-X1, AFX24-MFT-X1</b>	<b>NC/FO:</b> Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail open upon power loss.	<b>NC/FC:</b> Normally closed A to AB, valve will open as voltage increases. Actuator switch on CW. Spring Action: Will fail closed upon power loss.
<b>ELECTRONIC FAIL-SAFE</b>	<b>GKB24-3-X1<sup>†</sup></b>	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.	
	<b>GKX24-MFT-X1<sup>†</sup>, PK...MFT-T<sup>†</sup></b>	<b>NC:</b> Normally closed A to AB, will open as voltage increases when directional switch is in the "FO" position.	<b>NO:</b> Normally open A to AB, will close as voltage increases when directional switch is in the "FC" position.

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

# V Ball Control Valves with Non Fail-Safe Actuators

## 2-way Valve with Stainless Steel Ball and Stem



### 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



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 cable with ½" conduit connector	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]						
				Water	Steam					
B2100VB-024	24	1" [25]	ASME/ANSI Class 150/300	250	150	\$4,835	\$5,246	\$7,959	\$10,386	
B2150VB-055	55	1½" [40]		250	150	\$5,700	\$6,109	\$8,917	\$11,344	
B2200VB-077	77	2" [50]		250	150	\$6,016	\$6,422	\$9,548	\$11,968	
B6300VB-207	207	3" [80]	ASME/ANSI Class 150	250	150	\$9,449	\$9,865	\$12,831	\$15,256	
B6400VB-350	350	4" [100]		250	150			\$17,224	\$19,648	
B6600VB-507	507	6" [150]		250	150			\$22,602	\$25,024	
B6800VB-865†	865	8" [200]		250	150			\$39,531	\$43,283	
B61000VB-1550†	1550	10" [250]		250	150					\$61,283
B61200VB-1905†	1905	12" [300]		250	150					\$91,119

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

†Inquire for 285 psi COP if needed

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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.com](http://www.belimo.com) for additional fail-safe options.



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)	150 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 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 appliance cable with ½" conduit connector	3 ft, 18 GA plenum cable with ½" conduit connector	18 GA plenum 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	\$4,997	\$5,429					\$11,429	
B2150VB-055	55	1½" [40]		250	150	\$5,858	\$6,286						\$12,387
B2200VB-077	77	2" [50]		250	150			\$6,409	\$6,533	\$6,809			\$13,014
B6300VB-207	207	3" [80]	ASME/ANSI Class 150	250	150				\$11,109	\$11,649	\$12,259	\$13,112	\$16,298
B6400VB-350	350	4" [100]		250	150						\$14,505	\$15,355	\$20,693
B6600VB-507	507	6" [150]		250	150								\$26,068
B6800VB-865†	865	8" [200]		250	150								\$45,014

†Inquire for 285 psi COP if needed

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# Belimo Retrofit Smart Forms

## Easily Upgrade HVAC Systems

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 onsite dedicated machine shop will fabricate a solution using only a customer completed Smart Retrofit Form.

If you can dream it, Belimo can build it.





# 17

## GLOBE VALVES

### Greater Force and Flexibility

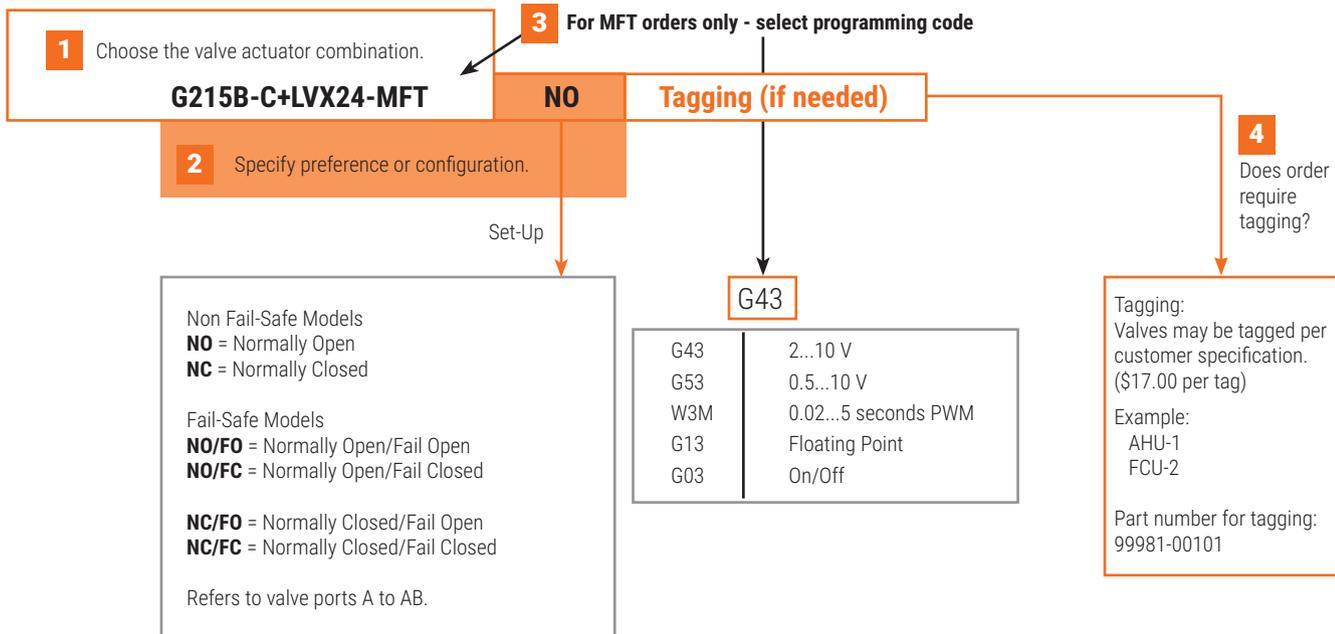
- Accurate modulation at low flow with rangeability specification of 100:1.
- ANSI 250 and ANSI 125 pressure rating to withstand rigorous HVAC applications.
- Soft seat design providing ANSI Class VI leakage rating.

# Globe Valve Nomenclature

G2	15	B	-C	+LVX	24	-MFT
<b>Valve Type</b>	<b>Valve Size</b>	<b>Trim Material</b>	<b>Cv</b>	<b>Actuator Type</b>	<b>Power Supply</b>	<b>Control</b>
G2 = 2-way NPT	NPT	B = Bronze Trim	-C = 0.4	<b>Non Fail-Safe</b>	24 = AC/DC 24 V	Blank = On/Off
G3 = 3-way NPT	15 = 1/2"	S = Stainless Trim	-F = 1.3	LVB, LVX	120 = AC 120 V	-3 = On/Off, Floating Point
G6 = 2-way Flanged	20 = 3/4"	-250 = ANSI 250 Bronze Trim	-G = 2.2	SVB, SVX	UP = AC 24...240 V	-SR = 2...10 V
G7 = 3-way Flanged	25 = 1"	S-250 = ANSI 250 Stainless Trim	-J = 4.4 (1/2")	EVB, EVX	or DC 24...125 V	-MFT or -MFT-X1= Multi-Function Technology
	32 = 1 1/4"		-J = 5.5 (3/4")	RVB, RVX		
	40 = 1 1/2"	C = Bronze Trim Pressure Compensated	-K = 7.5 (3/4")	<b>Fail-Safe Spring Return</b>		
	50 = 2"	CS = Stainless Trim Pressure Compensated	-K = 10 (1")	LF		
	<b>Flanged</b>	LCS = Linear Stainless Trim Pressure Compensated	-L = 14	NFB, NFX		
	65 = 2 1/2"	D = Diverting Bronze Trim	-M = 20	AFB, AFX		
	80 = 3"	DS = Diverting Stainless Trim	-N = 28 (1 1/2")	<b>Electronic</b>		
	100 = 4"		-N = 40 (2")	GKB, GKX		
	125 = 5"			LVKB, LVKX		
	150 = 6"			SVKB, SVKX		
				AVKB, AVKX		

"X" models are customizable. Refer to page 17-6 for programming options.

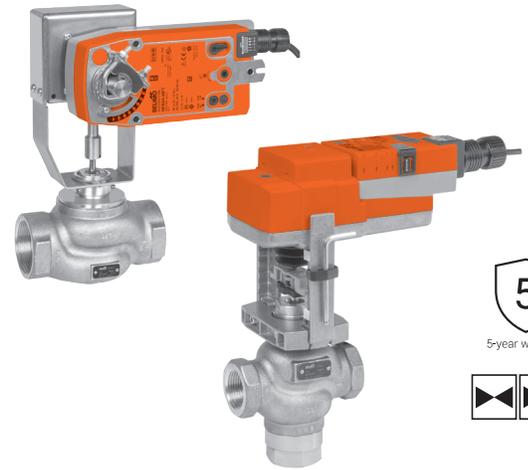
## Ordering Example



**5** Complete Ordering Example: **G215B-C+LVX24-MFT**  
Configuration: +NO  
Programming: +G43

# Globe Valve Product Range

Valve Nominal Size			Type		Suitable Actuators		
C <sub>v</sub>	Inches	DN [mm]	2-way NPT	3-way NPT	Non Fail-Safe	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				
28	1½	40	G240S-N				
40	2	50	G250B-N				
40	2	50	G250S-N				
2.2	½	15		G315B-G	SV Series	NF 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			
40	2	50		G350B-N			
				G350B-N			
					AF Series		



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
<b>Materials</b>	
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
<b>Maximum Inlet Pressure</b>	
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		
C <sub>v</sub>	Inches	DN [mm]	2-way Flanged	Non Fail-Safe	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		
C <sub>v</sub>	Inches	DN [mm]	3-Way Flanged	Non Fail-Safe	Fail-Safe	
					Spring Return	Electronic
68	2½	65	G765	EV / RV Series	AF Series	AVK 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	RV Series	AF Series	GK Series
190	4	100	G7100S-250			
280	5	125	G7125			
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			

## 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

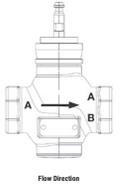
Fluid	chilled or hot water, up to 60% glycol max
Flow Characteristic	linear
Sizes	2½", 3", 4", 5", 6"
End Fitting	ANSI flanged
Materials	
Body	cast iron
Stem	stainless steel
Plug	
G7	bronze
G7S	stainless steel
Seat	stainless steel
Stem Packing	
G7, G7S	NLP (EPDM)
Body Pressure Rating	
G7, 125# ANSI Flange	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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FLOW PATTERN AND VALVE ASSEMBLY SET-UP - Specify Upon Ordering

All valves shown stem down

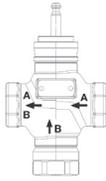
2-WAY VALVE (STEM UP OPEN A TO AB)



G2 2-way Valve

<p><b>ELECTRONIC FAIL-SAFE AND SPRING RETURN</b></p>	<p><b>NON FAIL-SAFE</b></p>	<p><b>LV Series</b></p>	<p><b>NC:</b> Normally closed A to AB, valve will open upon increase in min. signal/power.</p>	<p><b>NO:</b> Normally open A to AB, valve will close upon increase in min. signal/power.</p>		
	<p><b>ELECTRONIC FAIL-SAFE AND SPRING RETURN</b></p>	<p><b>LVK Series</b></p>	<p><b>NC/FO:</b> 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.</p>	<p><b>NO/FO:</b> 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.</p>	<p><b>NC/FC:</b> 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.</p>	<p><b>NO/FC:</b> 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.</p>
		<p><b>LVK, LF, NF Series (on/off)</b></p>	<p><b>NC/FC:</b> 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.</p>	<p><b>NO/FO:</b> 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.</p>		
		<p><b>LF, NF, Series</b></p>	<p><b>NC/FO:</b> 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.</p>	<p><b>NO/FO:</b> 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.</p>	<p><b>NC/FC:</b> 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.</p>	<p><b>NO/FC:</b> 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.</p>

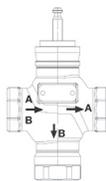
3-WAY MIXING VALVE (STEM UP OPEN B TO AB)



G3 3-way Mixing Valve

<p><b>ELECTRONIC FAIL-SAFE AND SPRING RETURN</b></p>	<p><b>NON FAIL-SAFE</b></p>	<p><b>SV Series</b></p>	<p><b>NC:</b> Normally closed A to AB, valve will open upon increase in min. signal/power.</p>	<p><b>NO:</b> Normally open A to AB, valve will close upon increase in min. signal/power.</p>		
	<p><b>ELECTRONIC FAIL-SAFE AND SPRING RETURN</b></p>	<p><b>SVK Series</b></p>	<p><b>NC/FO:</b> 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.</p>	<p><b>NO/FO:</b> 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.</p>	<p><b>NC/FC:</b> 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.</p>	<p><b>NO/FC:</b> 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.</p>
		<p><b>SVK, NF, AF Series (on/off)</b></p>	<p><b>NC/FC:</b> 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.</p>	<p><b>NO/FO:</b> 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.</p>		
	<p><b>NF, AF Series</b></p>	<p><b>NC/FO:</b> 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.</p>	<p><b>NO/FO:</b> 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.</p>	<p><b>NC/FC:</b> 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.</p>	<p><b>NO/FC:</b> 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.</p>	

3-WAY DIVERTING VALVE (STEM UP OPEN AB TO B)

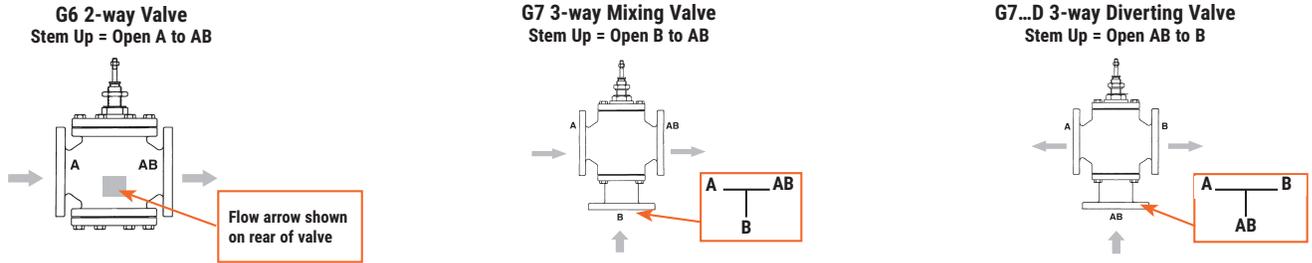


G3 3-way Diverting Valve

<p><b>ELECTRONIC FAIL-SAFE AND SPRING RETURN</b></p>	<p><b>NON FAIL-SAFE</b></p>	<p><b>SV Series</b></p>	<p><b>NC:</b> Normally closed AB to A, valve will open upon increase in min. signal/power.</p>	<p><b>NO:</b> Normally open AB to A, valve will close upon increase in min. signal/power.</p>		
	<p><b>ELECTRONIC FAIL-SAFE AND SPRING RETURN</b></p>	<p><b>SVK Series</b></p>	<p><b>NC/FO:</b> 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.</p>	<p><b>NO/FO:</b> 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.</p>	<p><b>NC/FC:</b> 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.</p>	<p><b>NO/FC:</b> 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.</p>
		<p><b>SVK, NF, AF Series (on/off)</b></p>	<p><b>NC/FC:</b> 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.</p>	<p><b>NO/FO:</b> 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.</p>		
	<p><b>NF, AF Series</b></p>	<p><b>NC/FO:</b> 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.</p>	<p><b>NO/FO:</b> 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.</p>	<p><b>NC/FC:</b> 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.</p>	<p><b>NO/FC:</b> 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.</p>	

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**FLOW PATTERN** – Flow Pattern is Marked on Valve



**VALVE ASSEMBLY SET-UP** - Specify Upon Ordering

**2-WAY VALVE**

NON FAIL-SAFE	EV, RV Series	<b>NC:</b> 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.	<b>NO:</b> 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.
	AFB, AFX Series On/Off	<b>NO/FO:</b> Normally open A to AB valve will drive closed. Spring Action: Will fail open A to AB upon power loss.	<b>NC/FC:</b> Normally closed A to AB valve will drive open. Spring Action: Will fail closed A to AB upon power loss.
	AFB, AFX MFT Series	<b>NC/FO:</b> 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.	<b>NO/FC or NC/FC:</b> 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. <b>NO/FO:</b> 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	<b>NC/FO:</b> 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.	<b>NO/FC or NC/FC:</b> 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. <b>NO/FO:</b> 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	<b>NC:</b> 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.	<b>NO:</b> 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.
	AFB, AFX Series On/Off	<b>NO/FO</b> Normally open A to AB, valve will drive closed. Spring Action: Will fail open A to AB upon power loss.	<b>NC/FC</b> Normally closed A to AB, valve will drive open. Spring Action: Will fail closed A to AB upon power loss.
	AFB, AFX MFT Series	<b>NC/FO</b> 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.	<b>NO/FC or NC/FC</b> 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. <b>NO/FO</b> 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	<b>NC/FO</b> 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.	<b>NO/FC or NC/FC</b> 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 closed, from the factory. Fail position can be set from 0...100%, in 10% increments. <b>NO/FO</b> 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	<b>NC:</b> 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.	<b>NO:</b> 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.
	AFB, AFX Series On/Off	<b>NO/FO</b> Normally open AB to B, valve will drive closed. Spring Action: Will fail open AB to B upon power loss.	<b>NC/FC</b> Normally closed AB to B, valve will drive open. Spring Action: Will fail closed AB to B upon power loss.
	AFB, AFX MFT Series	<b>NC/FO</b> 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.	<b>NO/FC or NC/FC</b> 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. <b>NO/FO</b> 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	<b>NC/FO</b> 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.	<b>NO/FC or NC/FC</b> 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. <b>NO/FO</b> 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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\*A01 is the default configuration for MFT.

\*\*Not available on RV models.

\*\*\* Available only on LV and SV models

		CONTROL			
ACTUATOR TYPE	CONFIGURATION DESCRIPTION	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	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	
	LINEAR ACTUATOR	-3 and -MFT	G01***	On/Off	2...10 V MFT only
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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5-year warranty

**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



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]					
				Mixing	Diverting				
G215B-C	0.4	½" [15]	ANSI 250	250	\$1,444	\$1,606	\$1,710		
G215B-F	1.3			250	\$1,451	\$1,613	\$1,714		
G215B-G	2.2			250	\$1,455	\$1,618	\$1,718		
G215B-J	4.4			250	\$1,461	\$1,623	\$1,721		
G220B-J	5.5	¾" [20]		250	\$1,476	\$1,638	\$1,736		
G220B-K	7.5			250	\$1,485	\$1,649	\$1,747		
G225B-K	10	1" [25]		250	\$1,615	\$1,777	\$1,877		
G225B-L	14			250	\$1,630	\$1,791	\$1,893		
G232B-M	20	1¼" [32]		250	\$1,766	\$1,927	\$2,027		
G240B-N	28	1½" [40]		250	\$2,031	\$2,192	\$2,294		
G250B-N	40	2" [50]		250	\$2,306	\$2,470	\$2,571		

**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			\$1,580	\$1,740	\$1,842
G315B-J	4.4			250	250			\$1,583	\$1,747	\$1,852
G320B-K	6.75	¾" [20]		250	182			\$1,591	\$1,755	\$1,856
G325B-L	14	1" [25]		250	109			\$1,715	\$1,878	\$1,980
G332B-M	20	1¼" [32]		246	82			\$1,880	\$2,043	\$2,147
G340B-N	28	1½" [40]		137	46			\$2,499	\$2,666	\$2,768
G350B-N	41	2" [50]		86	29			\$2,767	\$2,936	\$3,034

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

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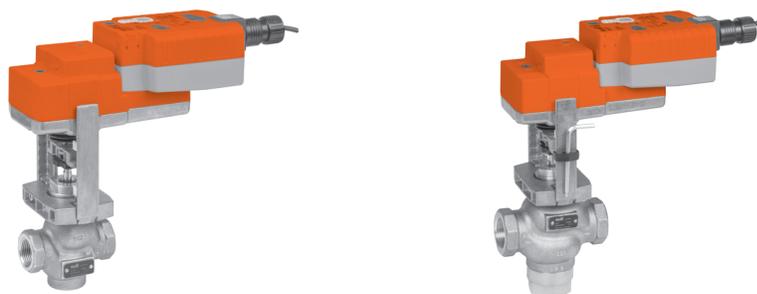
# G2..B/G3..B Series Globe Valves with Electronic Fail-Safe Actuators

2-way and 3-way Valves with Bronze Trim, NPT Female Ends



## 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



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					
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]						
				Mixing	Diverting					
G215B-C	0.4	½" [15]	ANSI 250	250		\$1,729	\$1,869	\$1,973		
G215B-F	1.3			250		\$1,732	\$1,875	\$1,975		
G215B-G	2.2			250		\$1,736	\$1,880	\$1,981		
G215B-J	4.4			250		\$1,741	\$1,886	\$1,987		
G220B-J	5.5	¾" [20]		250		\$1,840	\$1,985	\$2,084		
G220B-K	7.5			250		\$1,853	\$1,994	\$2,099		
G225B-K	10	1" [25]		250		\$2,043	\$2,187	\$2,289		
G225B-L	14			250		\$2,059	\$2,201	\$2,304		
G232B-M	20			250		\$2,272	\$2,414	\$2,513		
G240B-N	28	1½" [40]		250		\$2,417	\$2,557	\$2,663		
G250B-N	40	2" [50]		250		\$2,837	\$2,983	\$3,085		

### 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			\$1,848	\$1,989	\$2,097
G315B-J	4.4			250	250			\$1,855	\$1,994	\$2,101
G320B-K	6.75	¾" [20]		250	182			\$1,943	\$2,085	\$2,189
G325B-L	14	1" [25]		250	109			\$2,171	\$2,312	\$2,418
G332B-M	20	1¼" [32]		246	82			\$2,546	\$2,687	\$2,790
G340B-N	28	1½" [40]		137	46			\$2,954	\$3,093	\$3,202
G350B-N	41	2" [50]		86	29			\$3,404	\$3,548	\$3,657

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) 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



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	\$2,003	\$2,162	\$2,258
G215S-F	1.3			250	\$2,009	\$2,170	\$2,264
G215S-G	2.2			250	\$2,013	\$2,172	\$2,268
G215S-J	4.4			250	\$2,017	\$2,176	\$2,275
G220S-J	5.5	¾" [20]		250	\$2,214	\$2,371	\$2,467
G220S-K	7.5			250	\$2,224	\$2,383	\$2,481
G225S-K	10	1" [25]		250	\$2,523	\$2,681	\$2,781
G225S-L	14			250	\$2,533	\$2,690	\$2,788
G232S-M	20	1¼" [32]		250	\$3,011	\$3,170	\$3,272
G240S-N	28	1½" [40]		250	\$3,577	\$3,734	\$3,833
G250S-N	40	2" [50]		250	\$3,986	\$4,146	\$4,243

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) 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



## 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



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	\$2,280	\$2,420	\$2,521
G215S-F	1.3			250	\$2,285	\$2,427	\$2,526
G215S-G	2.2			250	\$2,293	\$2,435	\$2,531
G215S-J	4.4			250	\$2,300	\$2,436	\$2,537
G220S-J	5.5	¾" [20]		250	\$2,498	\$2,637	\$2,739
G220S-K	7.5			250	\$2,511	\$2,649	\$2,753
G225S-K	10	1" [25]		250	\$2,989	\$3,126	\$3,226
G225S-L	14			250	\$3,089	\$3,231	\$3,326
G232S-M	20			250	\$3,711	\$3,850	\$3,949
G240S-N	28	1½" [40]		250	\$4,322	\$4,468	\$4,571
G250S-N	40	2" [50]		250	\$4,777	\$4,917	\$5,023

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) 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	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



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ACTUATOR PART #	LF24 US	LF24-3 US	LF24-SR US	NFBUP-X1	NFB24-SR-X1	NFX24-MFT-X1
Control	On/Off	On/Off, Floating Point	Modulating	On/Off	Modulating	Modulating/MFT
Manual Override				•	•	•
Running Time (Motor)	75 seconds	150 seconds (variable)	150 seconds	<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 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

### 2-WAY, BRONZE TRIM

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]					
G215B-C	0.4	½" [15]	ANSI 250	160	\$2,043	\$2,183	\$2,238		
G215B-F	1.3			160	\$2,048	\$2,188	\$2,246		
G215B-G	2.2			160	\$2,050	\$2,197	\$2,250		
G215B-J	4.4	160		\$2,055	\$2,202	\$2,256			
G220B-J	5.5	¾" [20]		155	\$2,110	\$2,254	\$2,306		
G220B-K	7.5			155	\$2,113	\$2,257	\$2,313		
G225B-K	10	1" [25]		147	\$2,226	\$2,460	\$2,433		
G225B-L	14			147	\$2,229	\$2,460	\$2,437		
G232B-M	20	1¼" [32]		141	\$2,398	\$2,617	\$2,602		
G240B-N	28	1½" [40]		250				\$3,158	\$3,290
G250B-N	40	2" [50]	250				\$3,275	\$3,528	\$3,649

### 2-WAY, STAINLESS STEEL TRIM

Model #	Cv	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]					
G215S-C	0.4	½" [15]	ANSI 250	160	\$2,555	\$2,628	\$2,755		
G215S-F	1.3			160	\$2,558	\$2,632	\$2,758		
G215S-G	2.2			160	\$2,563	\$2,637	\$2,762		
G215S-J	4.4	160		\$2,567	\$2,640	\$2,764			
G220S-J	5.5	¾" [20]		155	\$2,632	\$2,690	\$3,183		
G220S-K	7.5			155	\$2,637	\$2,694	\$3,186		
G225S-K	10	1" [25]		147	\$3,038	\$3,018	\$3,261		
G225S-L	14			147	\$3,044	\$3,018	\$3,262		
G232S-M	20	1¼" [32]		141	\$3,633	\$3,209	\$3,865		
G240S-N	28	1½" [40]		250				\$4,745	\$4,876
G250S-N	40	2" [50]	250				\$5,120	\$5,256	\$5,374

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

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# G3 Series Globe Valves with Spring Return Actuators

3-way Valve with Bronze Trim, Mixing and Diverting, NPT Female Ends



## 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



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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					
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	\$2,360	\$2,488	\$2,613			
G315B-J	4.4			250	166	\$2,362	\$2,492	\$2,615			
G320B-K	6.75	¾" [20]		250	101	\$2,417	\$2,554	\$2,682			
G325B-L	14	1" [25]		179	60	\$2,451	\$2,660	\$2,961			
G332B-M	20	1¼" [32]		133	44	\$2,613	\$2,827	\$3,150			
G340B-N	28	1½" [40]		167	56				\$3,551	\$3,688	\$3,812
G350B-N	40	2" [50]		105	35				\$3,679	\$3,819	\$3,943

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

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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; (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]



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	\$4,953	\$5,128	\$5,223	
G680C	90	3" [80]		140	\$5,507	\$5,676	\$5,775	
G6100C	170	4" [100]		140	\$6,940	\$7,108	\$7,211	
G6125C	263	5" [125]		140	\$10,296	\$10,480	\$10,570	
G6150C	344	6" [150]		140	\$11,213	\$11,398	\$11,488	

### 3-WAY MIXING

G765	68	2½" [65]	ANSI 125	106	\$5,005	\$5,174	\$6,089	
G765	68			125			\$6,478	\$6,751
G780	85	3" [80]		73	\$5,456	\$5,629	\$6,118	
G780	85			125			\$6,916	\$7,193
G7100	190	4" [100]		40	\$6,778	\$6,948	\$7,052	
G7100	190			75			\$7,969	\$8,245
G7125	280	5" [125]	47			\$11,593	\$11,880	
G7150	340	6" [150]	32			\$12,923	\$13,209	

### 3-WAY DIVERTING

G765D	68	2½" [65]	ANSI 125	140	\$9,608	\$9,782	\$9,883	
G780D	85	3" [80]		140	\$10,832	\$10,993	\$11,102	
G7100D	154	4" [100]		140	\$12,559	\$12,729	\$12,834	
G7125D	195	5" [125]		140	\$16,791	\$16,971	\$16,867	
G7150D	248	6" [150]		140	\$21,117	\$21,277	\$21,378	

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) 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



## 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; (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.com](http://www.belimo.com) 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	65	2½" [65]	ANSI 125	140	\$5,622	\$5,909		
G680C	90	3" [80]		140	\$6,159	\$6,448		
G6100C	170	4" [100]		140			\$7,764	\$7,957
G6125C	263	5" [125]		140			\$10,838	\$11,151
G6150C	344	6" [150]		108			\$11,965	
G6150C	344	6" [150]		140				\$12,073

## 3-WAY MIXING

G765	68	2½" [65]	ANSI 125	40	\$4,749	\$5,005		
G765	68			78			\$6,100	
G765	68			107				\$6,579
G780	85	3" [80]		33	\$5,188	\$5,451		
G780	85			53			\$6,539	
G780	85			73				\$7,065
G7100	190	4" [100]	12			\$8,057		
G7100	190		18				\$8,161	

## 3-WAY DIVERTING

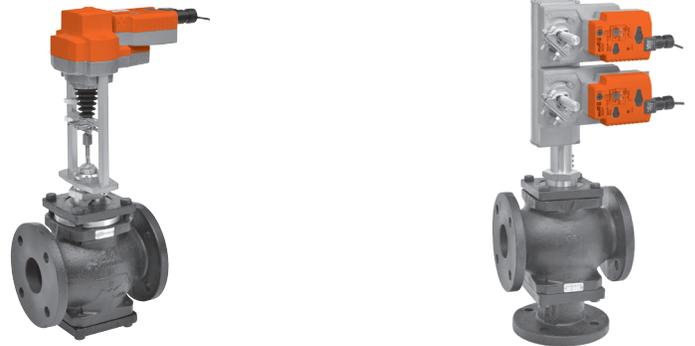
G765D	68	2½" [65]	ANSI 125	140	\$9,557	\$9,848		
G780D	85	3" [80]		140	\$10,749	\$11,011		
G7100D	154	4" [100]		140	\$12,371	\$12,679		
G7125D	195	5" [125]		140			\$17,181	\$17,758
G7150D	248	6" [150]		140			\$22,126	\$22,801

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) 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; (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]



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	\$5,349	\$5,622
G680C	90	3" [80]		140	\$5,916	\$6,192
G6100C	170	4" [100]		140	\$7,553	\$7,827
G6125C	263	5" [125]		140	\$10,119	\$10,404
G6150C	344	6" [150]		140	\$11,719	\$12,009

### 3-WAY MIXING

G765	68	2½" [65]	ANSI 125	84	\$5,070	\$5,344
G765	68			125		
G780	85	3" [80]		57	\$5,183	\$5,451
G780	85			125		
G7100	190	4" [100]		41		\$11,964
G7125	280	5" [125]		26		\$15,609
G7150	340	6" [150]		17		\$16,951

### 3-WAY DIVERTING

G765D	68	2½" [65]	ANSI 125	140	\$9,562	\$9,829
G780D	85	3" [80]		140	\$10,728	\$11,000
G7100D	154	4" [100]		140	\$12,026	\$12,311
G7125D	195	5" [125]		140	\$16,965	\$17,244

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) 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



## 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; (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 #	<b>EVB24-3</b>	<b>EVB24-SR</b>	<b>EVB24-MFT</b>	<b>RVB24-3</b>	<b>RVB24-MFT</b>
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	\$7,076	\$7,248	\$7,347	
G680CS	90	3" [80]		125	\$8,244	\$8,422	\$8,506	
G6100CS	170	4" [100]		125	\$11,054	\$11,222	\$11,312	
G6125CS	263	5" [125]		125	\$14,653	\$14,830	\$14,930	
G6150CS	344	6" [150]		125	\$15,629	\$15,792	\$15,893	

## 3-WAY MIXING

G765S	68	2½" [65]	ANSI 125	106	\$6,376	\$6,537	\$6,632	
G765S	68			125				\$7,231
G780S	85	3" [80]		73	\$7,540	\$7,708	\$7,811	
G780S	85			125				\$8,391
G7100S	190	4" [100]		40	\$9,419	\$9,592	\$9,691	
G7100S	190		75				\$9,860	\$11,009
G7125S	280	5" [125]	47				\$14,780	\$15,969
G7150S	340	6" [150]	32				\$18,200	\$19,279

## 3-WAY DIVERTING

G765DS	68	2½" [65]	ANSI 125	140	\$13,910	\$14,075	\$14,173	
G780DS	85	3" [80]		140	\$15,806	\$15,986	\$16,069	
G7100DS	154	4" [100]		140	\$18,025	\$18,186	\$18,289	
G7125DS	195	5" [125]		140	\$26,036	\$26,200	\$26,323	
G7150DS	248	6" [150]		140	\$29,841	\$30,006	\$30,108	

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) 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; (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.com](http://www.belimo.com) for additional Spring Return options.



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	65	2½" [65]	ANSI 125	125	\$7,735	\$7,984	
G680CS	90	3" [80]		125	\$8,902	\$9,150	
G6100CS	170	4" [100]		125			\$12,310
G6125CS	263	5" [125]		125			\$16,283
G6150CS	344	6" [150]		108			\$17,026
G6150CS	344			125			\$16,637

### 3-WAY MIXING

G765S	68	2½" [65]	ANSI 125	50	\$6,293	\$6,631		
G765S	68			78			\$7,572	
G765S	68			107				\$8,457
G780S	85	3" [80]		33	\$7,413	\$7,785		
G780S	85			53			\$8,739	
G780S	85			73				\$9,418
G7100S	190	4" [100]	12			\$11,011		
G7100S	190		18				\$10,985	

### 3-WAY DIVERTING

G765DS	68	2½" [65]	ANSI 125	140	\$13,824	\$14,164	
G780DS	85	3" [80]		140	\$15,727	\$16,083	
G7100DS	154	4" [100]		140	\$18,277	\$18,636	
G7125DS	195	5" [125]		140			\$26,801
G7150DS	248	6" [150]		140			\$31,098
G7150DS	248			140			\$31,797

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

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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



**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; (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	\$7,388	\$7,565	
G680CS	90	3" [80]		125	\$8,703	\$8,883	
G6100CS	170	4" [100]		125	\$11,376	\$11,561	
G6125CS	263	5" [125]		125	\$15,937	\$16,113	
G6150CS	344	6" [150]		125	\$15,959	\$16,139	

**3-WAY MIXING**

G765S	68	2½" [65]	ANSI 125	84	\$6,374	\$6,638	
G765S	68			125		\$12,209	
G780S	85	3" [80]		57	\$7,511	\$7,792	
G780S	85			125		\$13,167	
G7100S	190	4" [100]		41		\$14,734	
G7125S	280	5" [125]	26		\$19,717		
G7150S	340	6" [150]	17		\$23,043		

**3-WAY DIVERTING**

G765DS	68	2½" [65]	ANSI 125	140	\$13,897	\$14,164	
G780DS	85	3" [80]		140	\$15,804	\$16,067	
G7100DS	154	4" [100]		140	\$17,811	\$18,073	

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

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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]



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	\$7,158	\$7,320	\$7,425
G680LCS	90	3" [80]		125	\$8,424	\$8,597	\$8,689
G6100LCS	170	4" [100]		125	\$11,220	\$11,393	\$11,493
G6125LCS	263	5" [125]		125	\$14,370	\$14,545	\$14,647
G6150LCS	344	6" [150]		125	\$15,530	\$15,709	\$15,792

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

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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



## 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.com](http://www.belimo.com) for additional Spring Return options.



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	\$7,727	\$9,928		
G680LCS	90	3" [80]		125	\$8,896	\$9,278		
G6100LCS	170	4" [100]		125			\$12,298	\$11,894
G6125LCS	263	5" [125]		125			\$16,266	\$16,113
G6150LCS	344	6" [150]		108			\$17,026	
G6150LCS	344			125				\$16,605

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

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5-year warranty

**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]



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	\$7,388	\$7,560
G680LCS	90	3" [80]		125	\$8,473	\$8,656
G6100LCS	170	4" [100]		125	\$11,376	\$11,550
G6125LCS	263	5" [125]		125	\$15,937	\$16,113
G6150LCS	344	6" [150]		125	\$15,959	\$16,139

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

# 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



## 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; (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	\$4,964	\$5,125	\$5,226		
G680C-250	90	3" [80]		310	\$5,802	\$5,964	\$6,064		
G6100C-250	170	4" [100]		310	\$7,643	\$7,811	\$7,906		
G6125C-250	263	5" [125]		310	\$10,838	\$11,000	\$11,104		
G6150C-250	344	6" [150]		310	\$11,329	\$11,491	\$11,589		

### 3-WAY MIXING

G765-250	68	2½" [65]	ANSI 250	106	\$6,579	\$6,743	\$6,845			
G765-250	68			198			\$8,979	\$9,236		
G780-250	85	3" [80]		73	\$7,500	\$7,661	\$7,764			
G780-250	85			136			\$9,129	\$9,391		
G7100-250	190	4" [100]		40	\$11,101	\$11,262	\$11,361			
G7100-250	190			75			\$12,197	\$12,462		
G7125-250	280	5" [125]		47			\$18,053	\$18,318		
G7150-250	340	6" [150]		32			\$20,840	\$21,118		

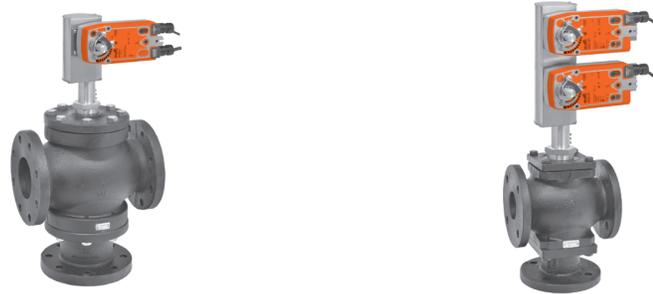
See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

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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; (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.com](http://www.belimo.com) for additional Spring Return options.



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	\$5,735	\$5,992		
G680C-250	90	3" [80]		310	\$6,408	\$6,346		
G6100C-250	170	4" [100]		212		\$8,882		
G6100C-250	170			310			\$9,382	
G6125C-250	263	5" [125]		155		\$10,868		
G6125C-250	263			241			\$11,363	
G6150C-250	344	6" [150]		108		\$14,768		
G6150C-250	344			182			\$15,268	

### 3-WAY MIXING

G765-250	68	2½" [65]	ANSI 250	50	\$6,430	\$6,582		
G765-250	68			78		\$7,817		
G765-250	68			107			\$8,230	
G780-250	85	3" [80]		33	\$7,391	\$7,720		
G780-250	85			53		\$8,728		
G780-250	85			73			\$9,410	
G7100-250	190	4" [100]		18			\$10,404	

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

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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; (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 #	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	\$5,340	\$5,612	
G680C-250	90	3" [80]		310	\$6,045	\$6,307	
G6100C-250	170	4" [100]		310	\$8,836	\$9,111	
G6125C-250	263	5" [125]		300	\$11,103	\$11,363	
G6150C-250	344	6" [150]		232	\$14,559	\$14,839	

### 3-WAY MIXING

G765-250	68	2½" [65]	ANSI 250	84	\$6,766	\$7,031	
G765-250	68			222			\$11,997
G780-250	85	3" [80]		57	\$7,450	\$7,720	
G780-250	85			153			\$13,167
G7100-250	190	4" [100]		41			\$16,188

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

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2-way and 3-way Valves with Stainless Steel Trim – ANSI 250 Flanged



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; (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	\$7,934	\$8,103	\$8,208	
G680CS-250	90	3" [80]		280	\$8,496	\$8,658	\$8,759	
G6100CS-250	170	4" [100]		280	\$11,576	\$11,752	\$11,851	
G6125CS-250	263	5" [125]		280	\$16,247	\$16,398	\$16,495	
G6150CS-250	344	6" [150]		280	\$20,482	\$20,644	\$20,748	

**3-WAY MIXING**

G765S-250	68	2½" [65]	ANSI 250	106	\$7,026	\$7,186	\$7,282	
G765S-250	68			198			\$8,703	\$8,977
G780S-250	85	3" [80]		73	\$8,052	\$8,216	\$8,314	
G780S-250	85			136			\$9,716	\$9,977
G7100S-250	190	4" [100]		40	\$13,021	\$13,181	\$13,295	
G7100S-250	190		75			\$14,095	\$14,382	
G7125S-250	280		5" [125]	47			\$20,451	\$20,720
G7150S-250	340	6" [150]	32			\$21,247	\$21,512	

**3-WAY DIVERTING**

G765DS-250	68	2½" [65]	ANSI 250	310	\$16,360	\$16,525	\$16,626	
G780DS-250	85	3" [80]		310	\$18,593	\$18,757	\$18,858	
G7100DS-250	154	4" [100]		310	\$21,052	\$21,213	\$21,316	
G7125DS-250	195	5" [125]		310	\$30,337	\$30,502	\$30,601	
G7150DS-250	248	6" [150]		310	\$37,147	\$37,309	\$37,410	

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

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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; (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.com](http://www.belimo.com) for additional Spring Return options.



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	\$6,430	\$8,065		
G680CS-250	90	3" [80]		280	\$10,115	\$10,413		

**3-WAY MIXING**

G765S-250	68	2½" [65]	ANSI 250	50	\$6,877	\$7,214		
G765S-250	68			78		\$8,169		
G765S-250	68			107			\$8,831	
G780S-250	85	3" [80]	ANSI 250	33	\$7,912	\$7,778		
G780S-250	85			53		\$9,206		
G780S-250	85			73			\$9,410	
G7100S-250	190	4" [100]		40				\$10,965

**3-WAY DIVERTING**

G765DS-250	68	2½" [65]	ANSI 250	310	\$16,282	\$16,620		
G780DS-250	85	3" [80]		310	\$18,604	\$18,911		
G7100DS-250	154	4" [100]		310	\$21,636	\$21,990		
G7125DS-250	195	5" [125]		310			\$29,685	\$30,358
G7150DS-250	248	6" [150]		310			\$38,439	\$39,110

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

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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; (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	\$8,693	\$8,954	
G680CS-250	90	3" [80]		280	\$10,101	\$10,006	
G6100CS-250	170	4" [100]		280	\$12,660	\$12,937	
G6125CS-250	263	5" [125]		280	\$17,418	\$17,701	
G6150CS-250	344	6" [150]		280	\$23,120	\$23,360	
G6150CS-250	344			280			\$24,782

**3-WAY MIXING**

G765S-250	68	2½" [65]	ANSI 250	84	\$6,953	\$7,214	
G765S-250	68			149			\$11,990
G780S-250	85	3" [80]		57	\$7,511	\$7,778	
G780S-250	85			102			\$12,942
G7100S-250	190	4" [100]		41			\$17,305

**3-WAY DIVERTING**

G765DS-250	68	2½" [65]	ANSI 250	310	\$16,354	\$16,620	
G780DS-250	85	3" [80]		310	\$18,641	\$18,911	
G7100DS-250	154	4" [100]		310	\$21,084	\$21,351	

See page 17-6 for linear actuator MFT codes. Note: All "B" versions available as customizable "X" versions. Please see [www.belimo.com](http://www.belimo.com) for details.

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## Belimo Globe Valves

### Best in Class Internal Leakage

Belimo globe valve assemblies provide the 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  
[www.belimo.com](http://www.belimo.com)



5-year warranty

**BELIMO**<sup>®</sup>



# 18

## 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.

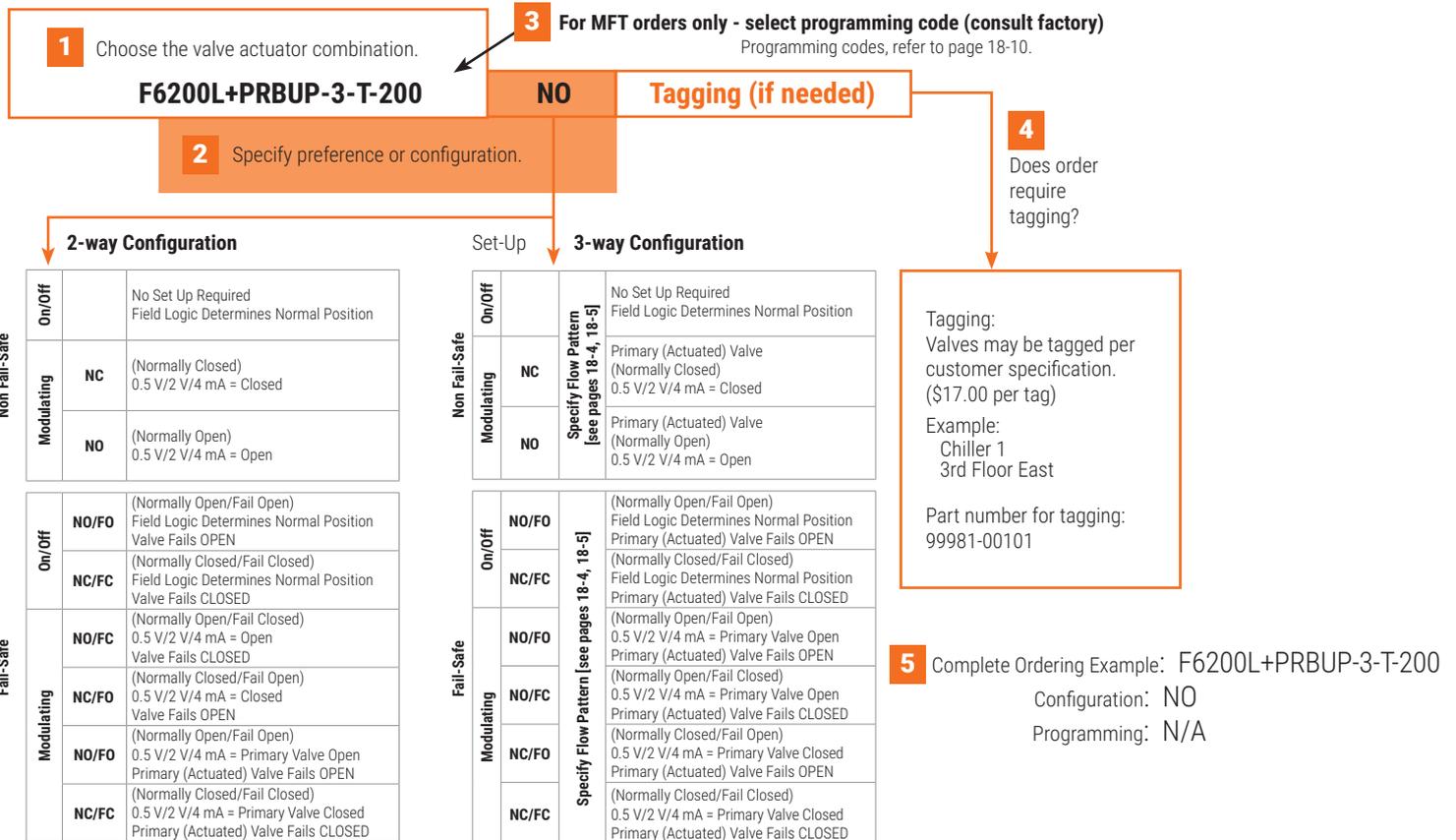
Jose Espinal, Assembler II

# Butterfly Valve Nomenclature

F6	200	L	+PRB	UP	-3	-T	-200
<b>Valve</b> F6 = 2-way F7 = 3-way	<b>Valve Size</b> 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"	<b>Trim Material</b> HD = Stainless Disc, Ductile Iron Body, EPDM Liner, 0% Leakage to 200 psid (2...3"), 150 psid (14"+) L = Stainless Disc, Ductile Iron Body, EPDM Liner, 0% Leakage to 200 psid (4...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	<b>Actuator Type</b> <b>Non Fail-Safe</b> ARB, ARX AMB, AMX GMB, GMX GRB, GRX GR/GM.. N4 PRB, PRX JRB, JRX SY <b>Fail-Safe Electronic</b> GKB, GKX GK..N4 PKRB, PKRX <b>Spring Return</b> AFB, AFX AFRB, AFRX	<b>Power Supply</b> -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	<b>Control</b> -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"

\*X\* models are customizable.  
Refer to page 18-10 for programming options.

## Ordering Example



# Resilient Seat Butterfly Valve Product Range



5-year warranty

2-way				Suitable Actuators							
Valve Nominal Size				Type	Non Fail-Safe				Fail-Safe		
C <sub>v</sub> 90°	C <sub>v</sub> 60°	IN	DN [mm]		2-way	HDU	LU	L	HD	Spring Return	Electronic
									HD	L	HD
115	44	2	50	F650				AR			
196	75	2½	65	F665				GR Series			AF Series
302	116	3	80	F680	AR	GR					GK
798	289	4	100	F6100							
1140	428	5	125	F6125				JR			
2055	647	6	150	F6150							PKR
3136	1202	8	200	F6200							
5340	2047	10	250	F6250		PR		PR			
8250	3162	12	300	F6300							
11917	4568	14	350	F6350							
16388	6282	16	400	F6400							
21705	8320	18	450	F6450							
27908	10698	20	500	F6500							
43116	16528	24	600	F6600							
								SY Series (2 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 & SY)
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...3", 150 psid 14...24"
L Series	200 psid, 4...12"
Maximum Velocity	12 FPS
Leakage	0%

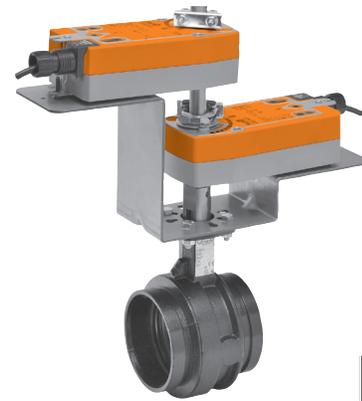
3-way				Suitable Actuators							
Valve Nominal Size				Type	Non Fail-Safe				Fail-Safe		
C <sub>v</sub> 90°	C <sub>v</sub> 60°	IN	DN [mm]		3-way	HDU	L	HD	Spring Return	Electronic	
								HD	L	HD	
115	44	2	50	F750				AM			
196	75	2½	65	F765						AF	
302	116	3	80	F780							
798	289	4	100	F7100	GM Series						
1140	428	5	125	F7125							
2055	647	6	150	F7150							
3136	1202	8	200	F7200							
5340	2047	10	250	F7250		PR					
8250	3162	12	300	F7300							
11917	4568	14	350	F7350							
16388	6282	16	400	F7400							
21705	8320	18	450	F7450							
								SY Series (2 Year Warranty)			

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# Grooved Butterfly Valve Product Range

2-way					Suitable Actuators				
Valve Nominal Size				Type	Non Fail-Safe			Fail-Safe	
C <sub>v</sub> 90°	C <sub>v</sub> 60°	IN	DN [mm]	2-way				Spring Return	Electronic
115	36	2	50	F650VIC	AM Series	GR Series	JR Series	AF Series	GK Series
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		PR			
5800	1800	10	250	F6250VIC					
9000	2790	12	300	F6300VIC					
						SY Series (2 Year Warranty)			

3-way					Suitable Actuators				
Valve Nominal Size				Type	Non Fail-Safe			Fail-Safe	
C <sub>v</sub> 90°	C <sub>v</sub> 60°	IN	DN [mm]	3-way				Spring Return	Electronic
115	36	2	50	F750VIC	GM Series	JR Series	AF	GK Series	PKR Series
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		PR Series			
5800	1800	10	250	F7250VIC					
9000	2790	12	300	F7300VIC					
						SY Series (2 Year Warranty)			



5-year warranty

## 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.

# High Performance Butterfly Valve Product Range



5-year warranty



2-way Valves					Suitable Actuators						
Valve Nominal Size		IN	Type		Non Fail-Safe		Fail-Safe				
C <sub>v</sub> 90°	C <sub>v</sub> 60°		ANSI 150 2-way	ANSI 300 2-way	150	300	Spring Return		Electronic		
							150	300	150	300	
102	56	2	F650-150SHP	F650-300SHP	GM Series	JR	GM Series	PR Series	AF Series	AF Series	GK 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		PR	GM Series	PR Series	AF Series	AF Series	GK Series
2064	1135	8	F6200-150SHP	F6200-300SHP							
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		SY (2 Year Warranty)	GM Series	PR Series	AF Series	AF Series	GK Series	
11400	6270	18*	F6450-150SHP								
14420	7590	20*	F6500-150SHP								
22050	11550	24*	F6600-150SHP								

Note: C<sub>v</sub> values listed for ANSI Class 150 Butterfly Valves. Please consult the technical documentation for ANSI Class 300 C<sub>v</sub> 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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3-way Valves				Suitable Actuators					
Valve Nominal Size		Inches	Type		Non Fail-Safe		Electronic Fail-Safe		
C <sub>v</sub> 90°	C <sub>v</sub> 60°		ANSI 150 3-way	ANSI 300 3-way	150	300	150	300	
102	56	2	F750-150SHP	F750-300SHP	GM Series	JR Series	GM Series	PR Series	GK 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		PR Series	GM Series	PR Series	GK Series
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<sub>v</sub> values listed for ANSI Class 150 Butterfly Valves. Please consult the technical documentation for ANSI Class 300 C<sub>v</sub> values and configurations.

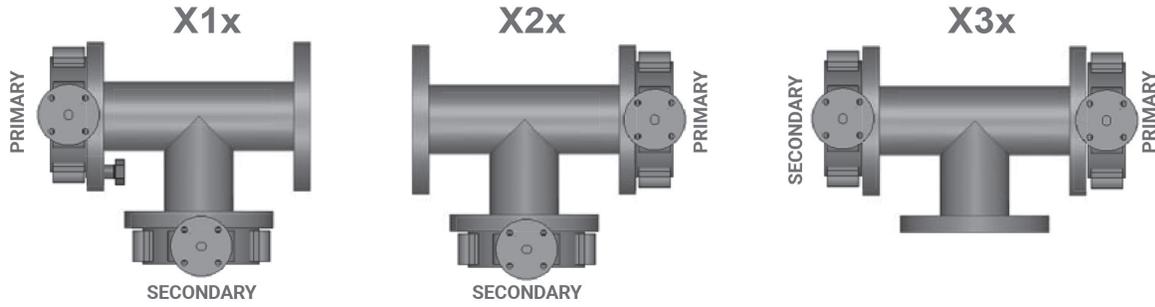
\*Call Customer Service at 1-800-543-9038 for product availability. Longer lead times may apply.

# Butterfly Valve Selection

HD, L, VIC Series Valves, 3-way Configuration



Actuators installed default over Primary Valve.



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 Belimo Assistant 2 app.
6. All 3-way assemblies are designed for 90 degree actuator rotation.

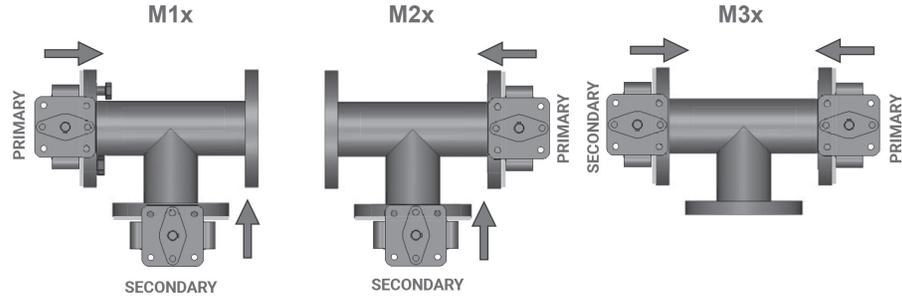
BUTTERFLY VALVES  
MIXING/DIVERTING

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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

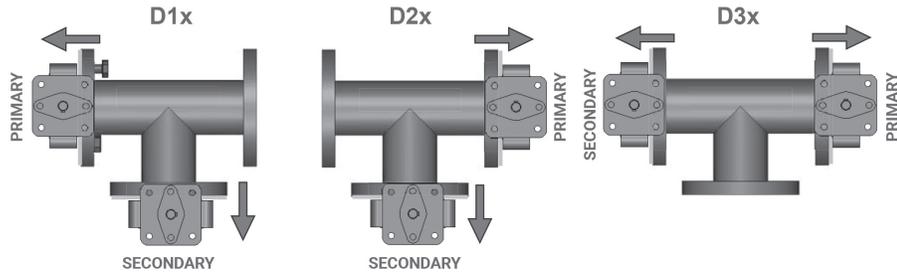
CONFIG CODE	ON/OFF OR MOD@2VDC PRIMARY VALVE IS	PRIMARY VALVE @ FAIL
M20	OPEN	FAIL IN PLACE
M21	OPEN	OPEN
M22	OPEN	CLOSED
M23	CLOSED	FAIL IN PLACE
M24	CLOSED	OPEN
M25	CLOSED	CLOSED

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 Belimo Assistant 2 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 Belimo Assistant 2 app.
6. All 3-way assemblies are designed for 90 degree actuator rotation.

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BUTTERFLY VALVES

### 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
L	4"	78	157	235	313	392	470
L	5"	122	245	367	490	612	734
L	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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SERIES	MODEL #	CONTROL TYPE						
		Power Supply	Duty Cycle	Modulating	3 Point	On/Off	Feedback	List Price
JR	JRBUP-3-T	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%		•	•	none	\$2,850
	JRXUP-3-T	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%		•	•	none	\$2,850
	JRBUP-MFT-T	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%	•	•	•	2...10 V	\$3,221
	JRXUP-MFT-T	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%	•	•	•	2...10 V	\$3,221
PR	PRBUP-3-T*	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%		•	•	none	\$3,923
	PRXUP-3-T*	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%		•	•	none	\$3,923
	PRBUP-MFT-T*	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%	•	•	•	2...10 V	\$7,520
	PRXUP-MFT-T*	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%	•	•	•	2...10 V	\$7,520
PKR	PKRXUP-MFT*	AC 24...240 V/ DC 24...125 V, 50/60 Hz	100%	•	•	•	2...10 V	\$9,232
SY4	SY4-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$5,360
	SY4-24	AC/DC 24 V ±10%, 50/60 Hz	75%		•	•	none	\$5,360
	SY4-220	AC 230 V ±10%, 50/60 Hz	30%		•	•	none	\$5,360
	SY4-24MFT	AC/DC 24 V ±10%, 50/60 Hz	75%	•	•	•	2...10 V	\$9,847
	SY4-120MFT	AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V	\$9,847
	SY4-230MFT	AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V	\$9,847
SY5	SY5-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$6,199
	SY5-24	AC/DC 24 V ±10%, 50/60 Hz	75%		•	•	none	\$6,199
	SY5-24MFT	AC/DC 24 V ±10%, 50/60 Hz	75%	•	•	•	2...10 V	\$10,722
	SY5-120MFT	AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V	\$10,722
SY6	SY6-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$7,514
	SY6-120MFT	AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V	\$12,111
SY7	SY7-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$9,018
	SY7-120MFT	AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V	\$13,510
	SY7-230MFT	AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V	\$13,510
SY8	SY8-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$12,482
	SY8-120MFT	AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V	\$17,073
	SY8-230MFT	AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V	\$17,073
SY9	SY9-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$15,449
	SY9-120MFT	AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V	\$20,076
	SY9-230MFT	AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V	\$20,076
SY10	SY10-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$16,215
	SY10-120MFT	AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V	\$20,848
	SY10-230MFT	AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V	\$20,848
SY11	SY11-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$21,580
	SY11-120MFT	AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V	\$26,238
	SY11-230MFT	AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V	\$26,238
SY12	SY12-110	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$25,101
	SY12-120MFT	AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V	\$27,456
	SY12-230MFT	AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V	\$27,456

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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## Power Supply AC/DC 24 V Single Phase

Model #	Torque	Current Draw (60 Hz)	VA (60 Hz)	Override
JRBUP-3-T	800 in-lb / 90 Nm	0.8 A	20	Manual override crank
JRXUP-3-T	800 in-lb / 90 Nm	0.8 A	20	Manual override crank
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
JRBUP-3-T	800 in-lb / 90 Nm	0.2 A	23	Manual override crank
JRXUP-3-T	800 in-lb / 90 Nm	0.2 A	23	Manual override crank
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	252	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
JRBUP-3-T	800 in-lb / 90 Nm	0.2 A	52	Manual override crank
JRXUP-3-T	800 in-lb / 90 Nm	0.2 A	52	Manual override crank
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
JRBUP-MFT-T	800 in-lb / 90 Nm	0.9 A	20	Manual override crank
JRXUP-MFT-T	800 in-lb / 90 Nm	0.9 A	20	Manual override crank
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
JRBUP-MFT-T	800 in-lb / 90 Nm	0.2 A	23	Manual override crank
JRXUP-MFT-T	800 in-lb / 90 Nm	0.2 A	23	Manual override crank
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
JRBUP-MFT-T	800 in-lb / 90 Nm	0.1 A	52	Manual override crank
JRXUP-MFT-T	800 in-lb / 90 Nm	0.1 A	52	Manual override crank
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.

### CONTROL

ACTUATOR TYPE	CONFIGURATION DESCRIPTION	CODE	CONTROL INPUT	FEEDBACK POSITION	RUNNING TIME**	LIST PRICE		
Standard Actuator Series: AR, AM, GR, GM, GKR, AFR, AF	-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 and JR 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	

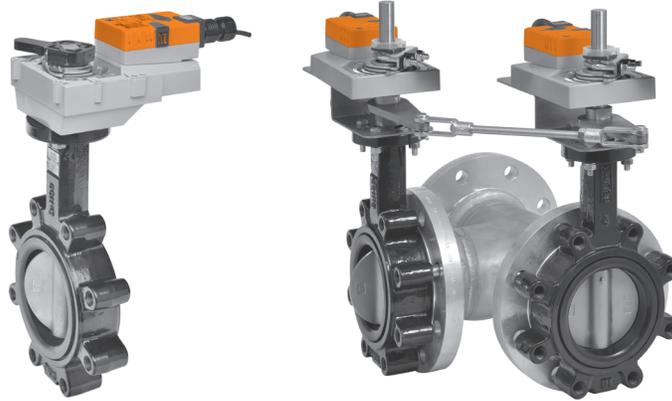
\*Default configuration

\*\*Additional running times available upon request. JR can be selected with a 20 second run time.

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### 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



BUTTERFLY VALVES

ACTUATOR PART #	ARX24-3	ARX24-MFT	GRX24-3	GRCX120-3	GRX24-MFT	JRXUP-3-T	JRXUP-MFT-T
Control	On/Off, Floating Point	Modulating/MFT	On/Off, Floating Point	On/Off, Floating Point	Modulating/MFT	On/Off or Floating Point	Modulating/MFT
Manual Override	.	.	.	.	.	.	.
Running Time (Motor)	90 seconds	150 seconds (variable)	150 seconds	35 seconds	150 seconds (variable)	35 seconds (default), 20...120 field adjustable	35 seconds (default), 20...120 field adjustable
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	terminal block

### 2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
F680HDU	302	116	3" [80]	232 psi CWP	50	\$1,268	\$1,529				
F6100HDU	600	230	4" [100]		50		\$1,648	\$1,624	\$1,806	\$2,385	\$2,578
F6125HDU	1022	392	5" [125]		50		\$1,828	\$1,826	\$1,986	\$2,595	\$2,714
F6150HDU	1579	605	6" [150]		50			\$2,675		\$3,124	\$4,382

### 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	\$1,137	\$1,379		\$1,210		
F665HD	196	75	2½" [65]		200	\$1,188	\$1,437		\$1,257		
F680HD	302	116	3" [80]		200			\$1,429	\$1,498	\$1,614	
F6100L	798	289	4" [100]		200					\$3,180	\$3,437
F6125L	1140	428	5" [125]		200					\$3,460	\$3,618
F6150L	2055	647	6" [150]		200					\$4,164	\$5,844

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 appliance 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		\$2,969	\$3,155	\$3,338	
F7100HDU	600	230	4" [100]		50					\$4,949
F7125HDU	1022	392	5" [125]		50					\$5,401
F7150HDU	1579	605	6" [150]		50					\$5,559

### 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	\$2,389	\$2,713			
F765HD	196	75	2½" [65]		200		\$2,883	\$3,232	\$3,264	
F780HD	302	116	3" [80]		200					\$4,447

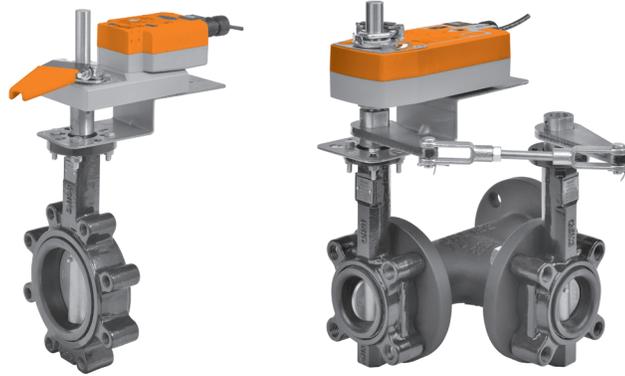
# F6/F7 HD and L Series Butterfly Valves with Fail-Safe Actuators

## 2-way and 3-way Valves



### 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



ACTUATOR PART #	AFRXUP	AFRX24-MFT	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	<20 seconds	35 seconds	35 seconds
Electrical Connection	3 ft, 18 GA appliance cables with ½" conduit connector	18 GA appliance rated cable with ½" conduit connector	18 GA appliance rated cable with ½" conduit connector	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	\$1,630	\$1,777	\$7,908
F665HD	196	75	2½" [65]		200	\$1,675	\$1,997	\$7,930
F680HD	302	116	3" [80]		200		\$3,375	\$7,957
F6100L	798	289	4" [100]		200			\$9,535
F6125L	1140	428	5" [125]		200			\$10,861
F6150L	2055	647	6" [150]		200			\$11,222

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 appliance 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	\$2,812	\$3,290	
F765HD	196	75	2½" [65]		200		\$4,775	
F780HD	302	116	3" [80]		200			\$6,198

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### 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	
HDU Series	420 stainless steel
LU Series	420 stainless steel
Seat	EPDM
O-ring	EPDM
Bushings	
HDU Series	RPTFE
LU Series	bronze, steel, PTFE
Fluid Temperature Range (Water)	-22...+250°F [-30...+120°C]
Maximum Velocity	12 FPS



5-year warranty

BUTTERFLY VALVES

ACTUATOR PART #	GRCX24-3-T N4*	GRX24-MFT-T N4*	JRXUP-3-T	JRXUP-MFT-T	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 (default) 20...120 seconds field programmable	35 seconds (default) 20...120 seconds field programmable	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

### 2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]								
F680HDU	302	116	3" [80]	232 psi CWP	50	\$2,791	\$2,983						
F6100HDU	600	230	4" [100]		50	\$2,945	\$3,137	\$2,385	\$2,578				
F6125HDU	1022	392	5" [125]		50	\$3,064	\$3,254	\$2,595	\$2,714				
F6150HDU	1579	605	6" [150]		50			\$3,124	\$4,382				
F6200LU	3136	1202	8" [200]		50					\$6,448		\$8,793	
F6250LU	5340	2047	10" [250]		50						\$8,217		\$11,805

\*\*Field selectable with Belimo Assistant 2 app.

\*Heater option for NEMA 4X products has a list price adder of \$650. Please specify when ordering.

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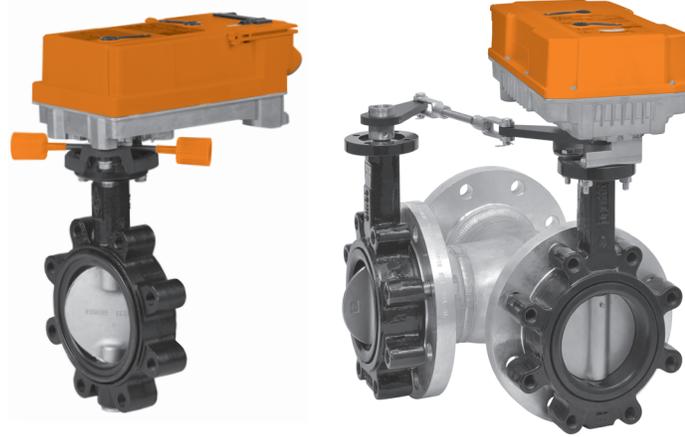
# F6/F7 L Series Butterfly Valves with NEMA 4X Non Fail-Safe Actuators



## 2-way and 3-way Valves

### 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	bronze, steel, PTFE
Fluid Temperature Range (Water)	-22...+250°F [-30...+120°C]
Maximum Velocity	12 FPS



ACTUATOR PART #	JRBUP-3-T	PRBUP-3-T	PRBUP-3-T-200	PRBUP-3-T-250	JRBUP-MFT-T	PRBUP-MFT-T	PRBUP-MFT-T-200	PRBUP-MFT-T-250
Control	On/Off, Floating Point	On/Off, Floating Point	On/Off, Floating Point	On/Off, Floating Point	Modulating/MFT	Modulating/MFT	Modulating/MFT	Modulating/MFT
Manual Override	.	.	.	.	.	.	.	.
Running Time (Motor)	35 seconds (default), 20...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), 20...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	2...10 V NC
Electrical Connection	terminal block							

\*\*Field selectable with Belimo Assistant 2 app.

### 2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]	JRBUP-3-T	PRBUP-3-T	PRBUP-3-T-200	PRBUP-3-T-250	JRBUP-MFT-T	PRBUP-MFT-T	PRBUP-MFT-T-200	PRBUP-MFT-T-250
F6100L	798	289	4" [100]	232 psi CWP	200	\$3,180				\$3,437			
F6125L	1140	428	5" [125]		200	\$3,460				\$3,618			
F6150L	2055	647	6" [150]		200	\$4,164				\$5,844			
F6200L	3136	1202	8" [200]		200			\$8,020				\$10,335	
F6250L	5340	2047	10" [250]		200				\$9,845				\$12,060
F6300L	8250	3162	12" [300]		200			\$12,662				\$15,288	

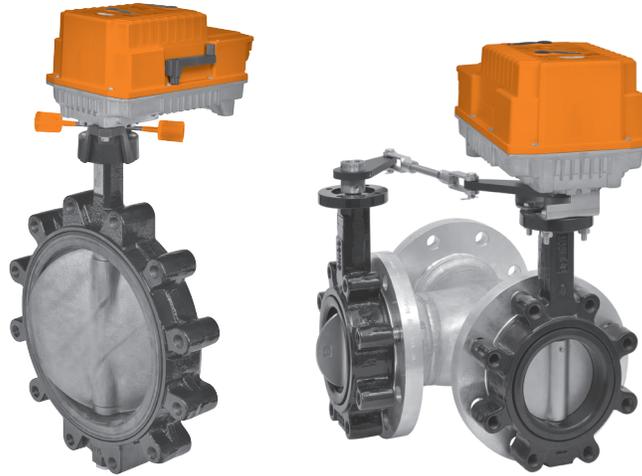
### 3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]	JRBUP-3-T	PRBUP-3-T	PRBUP-3-T-200	PRBUP-3-T-250	JRBUP-MFT-T	PRBUP-MFT-T	PRBUP-MFT-T-200	PRBUP-MFT-T-250
F7100L	798	289	4" [100]	232 psi CWP	200	\$6,553				\$8,167			
F7125L	1140	428	5" [125]		200	\$6,838				\$8,627			
F7150L	2055	647	6" [150]		200	\$7,812				\$9,439			
F7200L	3136	1202	8" [200]		200			\$12,218				\$14,608	
F7250L	5340	2047	10" [250]		200				\$16,426				\$18,604
F7300L	8250	3162	12" [300]		200			\$20,708				\$22,937	

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### 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	420 stainless steel
Seat	EPDM
O-ring	EPDM
Bushings	bronze, steel, PTFE
Fluid Temperature Range (Water)	-22...+250°F [-30...+120°C]
Maximum Velocity	12 FPS



BUTTERFLY VALVES

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]		
F6100L	798	289	4" [100]	232 psi CWP	200	\$9,535	
F6125L	1140	428	5" [125]		200	\$10,861	
F6150L	2055	647	6" [150]		200	\$11,222	
F6200L	3136	1202	8" [200]		200	\$12,234	
F6250L	5340	2047	10" [250]		200		\$14,001
F6300L	8250	3162	12" [300]		200	\$16,796	

### 3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]		
F7100L	798	289	4" [100]	232 psi CWP	200	\$14,715	
F7125L	1140	428	5" [125]		200	\$15,433	
F7150L	2055	647	6" [150]		200	\$16,707	
F7200L	3136	1202	8" [200]		200	\$16,617	
F7250L	5340	2047	10" [250]		200		\$20,701
F7300L	8250	3162	12" [300]		200	\$23,587	

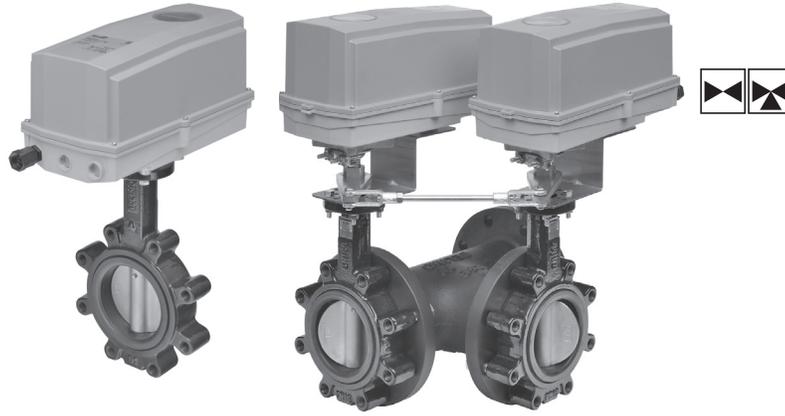
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# F6/F7 HD and L Series Butterfly Valves with NEMA 4X Non Fail-Safe Actuators

## 2-way and 3-way Valves



5-year warranty



### 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	HD Series RPTFE L Series bronze, steel, PTFE
Fluid Temperature Range (Water)	-22...+250°F [-30...+120°C]
Maximum Velocity	12 FPS

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 1/2" 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	\$2,458	\$2,516	\$2,790	\$3,059
F665HD	196	75	2 1/2" [65]		200	\$2,811	\$2,870	\$3,143	\$3,415
F680HD	302	116	3" [80]		200	\$2,884	\$2,940	\$3,187	\$3,493

ACTUATOR PART #	JRBUP-3-T	JRBUP-MFT-T
Control	On/Off or Floating Point	Modulating/MFT
Manual Override	.	.
Running Time (Motor)	35 seconds (default), 20...120 field adjustable	35 seconds (default), 20...120 field adjustable
Electrical Connection	terminal block	terminal block

### 2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]		
F6100L	798	289	4" [100]	232 psi CWP	200	\$3,180	\$3,437
F6125L	1140	428	5" [125]		200	\$3,460	\$3,618
F6150L	2055	647	6" [150]		200	\$4,164	\$5,844

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

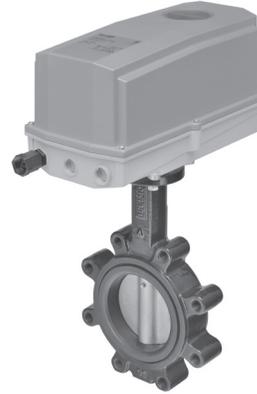
Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]		
F750HD	115	44	2" [50]	232 psi CWP	200	\$3,752	\$4,300
F765HD	196	75	2 1/2" [65]		200	\$4,298	\$4,905
F780HD	302	116	3" [80]		200		\$6,521

\* Heater option for NEMA 4X products has a list price adder of \$650. Please specify when ordering.

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### 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	
HD Series	RPTFE
L Series	bronze, steel, PTFE
Fluid Temperature Range (Water)	-22...+250°F [-30...+120°C]
Maximum Velocity	12 FPS



ACTUATOR PART #	AFRXUP N4 <sup>◇</sup>	AFRX24-MFT N4 <sup>◇</sup>	GKRX24-3 N4 <sup>◇</sup>	GKRX24-MFT N4 <sup>◇</sup>
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 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

### 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	\$2,584	\$2,947	
F665HD	196	75	2½" [65]		200	\$2,939	\$3,375	
F680HD	302	116	3" [80]		200			\$4,917      \$5,679

ACTUATOR PART #	PKRXUP-MFT-T
Control	Modulating/MFT
Manual Override	.
Running Time (Motor)	35 seconds (default), 30...120 field adjustable
Running Time (Fail-Safe)	35 seconds
Electrical Connection	terminal block

### 2-WAY

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]	
F6100L	798	289	4" [100]	232 psi CWP	200	\$9,535
F6125L	1140	428	5" [125]		200	\$10,861
F6150L	2055	647	6" [150]		200	\$11,222

◇ Heater option for NEMA 4X products has a list price adder of \$650. Please specify when ordering.

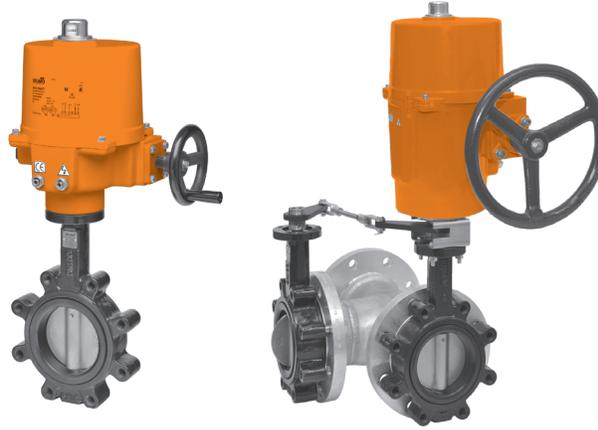
# F6/F7 HD Series Butterfly Valves with NEMA 4X Non Fail-Safe Actuators

2-way and 3-way Valves



## 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



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]						
F6350HD	11917	4568	14" [350]	232 psi CWP	150	\$14,465	\$19,651				
F6400HD	16388	6282	16" [400]		150			\$19,943	\$22,190		
F6450HD	21705	8320	18" [450]		150					\$24,380	\$27,112
F6500HD	27908	10698	20" [500]		150					\$29,450	\$32,796

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 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	\$35,171	\$37,393		
F7400HD	16388	6282	16" [400]		150			\$39,516	\$41,333

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### 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



BUTTERFLY VALVES

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	\$48,661	\$53,049

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	\$62,699	\$68,560

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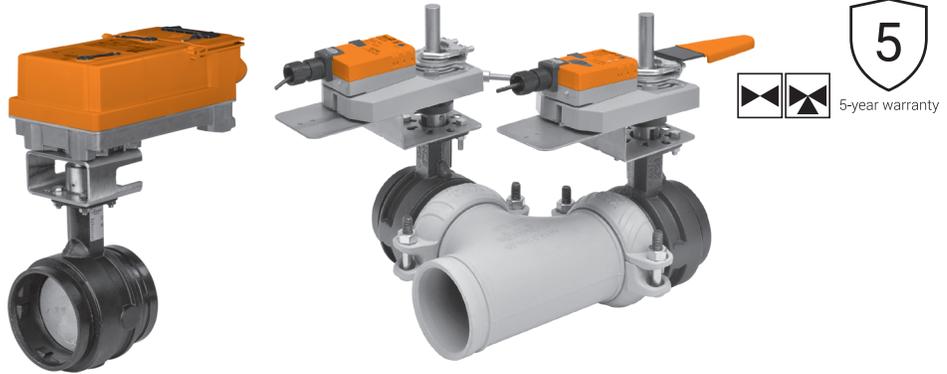
# F6/F7 Grooved Series Butterfly Valves with Non Fail-Safe Actuators

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



ACTUATOR PART #	AMB24-3-X1	AMX24-MFT-X1	GRCX24-3-T	GRCX120-SR-T	GRCX24-MFT-T	JRBUP-3-T	JRBUP-MFT-T
Control	On/Off, Floating Point	Modulating/MFT	On/Off or 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 (default), 20...120 field adjustable	35 seconds (default), 20...120 field adjustable
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	\$2,675	\$2,989			\$4,095	\$4,673	
F665VIC	260	80	2½" [65]		200	\$3,238	\$3,552	\$3,413	\$3,493	\$3,575	\$4,602	\$5,179
F680VIC	440	140	3" [80]		200			\$3,573	\$3,657	\$3,737	\$4,722	\$5,299
F6100VIC	820	250	4" [100]		200						\$5,424	\$6,002
F6125VIC	1200	370	5" [125]		200						\$6,089	\$8,544
F6150VIC	1800	560	6" [150]		50						\$6,484	\$8,959

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	\$6,419	\$6,505	\$6,589	
F765VIC	260	80	2½" [65]		50	\$7,591	\$7,673	\$7,757	
F765VIC	260	80	2½" [65]		200				\$9,243
F780VIC	440	140	3" [80]		50	\$8,088	\$8,331	\$8,453	
F780VIC	440	140	3" [80]		200				\$9,789

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## 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



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	\$3,052	\$3,260			
F665VIC	260	80	2½" [65]		50	\$4,153	\$4,360			
F665VIC	260	80	2½" [65]		200		\$4,702	\$5,111		
F680VIC	440	140	3" [80]		50		\$4,970	\$5,382	\$9,590	
F6100VIC	820	250	4" [100]		200				\$9,790	\$9,797
F6125VIC	1200	370	5" [125]		200					\$11,136
F6150VIC	1800	560	6" [150]		200					\$11,759
F6200VIC	3400	1050	8" [200]		50					\$13,366

### 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	\$6,455	\$6,702			
F750VIC	115	36	2" [50]		200		\$8,988	\$9,473		
F765VIC	260	80	2½" [65]		200				\$10,464	\$14,926
F780VIC	440	140	3" [80]		200				\$11,312	
F7100VIC	820	250	4" [100]		200					\$16,584
F7125VIC	1200	370	5" [125]		200					\$19,901
F7150VIC	1800	560	6" [150]		200					\$22,236

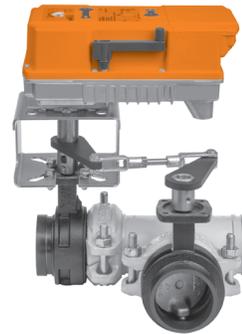
# F6/F7 Grooved Series Butterfly Valves with NEMA 4X Non Fail-Safe Actuators



## 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*	JRBUP-3-T	PRBUP-3-T	JRBUP-MFT-T	PRBUP-MFT-T
Control	On/Off or Floating Point	On/Off, Floating Point	Modulating	Modulating/MFT	On/Off or Floating Point	On/Off, Floating Point	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•	•	•	•	•	•
Running Time (Motor)	35 seconds	35 seconds	35 seconds	35 seconds (variable)	35 seconds (default), 20...120 field adjustable	35 seconds (default), 30...120 field adjustable	35 seconds (default), 20...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
Electrical Connection	terminal block	3 ft, 18 GA appliance cable with ½" conduit connector	terminal block	terminal block	terminal block	terminal block	terminal block	terminal block

### 2-WAY

\*\*Field selectable with Belimo Assistant 2 app.

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]								
F650VIC	115	36	2" [50]	300	200	\$3,014	\$3,181	\$3,366	\$3,550	\$4,095		\$4,673	
F665VIC	260	80	2½" [65]		200	\$3,345	\$3,510	\$3,697	\$3,881	\$4,602		\$5,179	
F680VIC	440	140	3" [80]		200	\$3,560	\$3,725	\$3,863	\$4,005	\$4,722	\$5,540	\$5,299	\$8,030
F6100VIC	820	250	4" [100]		200					\$5,424	\$6,047	\$6,002	\$8,537
F6125VIC	1200	370	5" [125]		200					\$6,089	\$6,442	\$8,544	\$9,705
F6150VIC	1800	560	6" [150]		200					\$6,484	\$6,983	\$8,959	\$10,247
F6200VIC	3400	1050	8" [200]		50						\$8,968		\$12,324

ACTUATOR PART #	GMCX24-3-T-X1 N4*	GMCX120-3-X1 N4*	GMCX120-SR-T-X1 N4*	GMCX24-MFT-T-X1 N4*	JRBUP-3-T	PRBUP-3-T	JRBUP-MFT-T	PRBUP-MFT-T
Control	On/Off or Floating Point	On/Off, Floating Point	Modulating	Modulating/MFT	On/Off, Floating Point	On/Off, Floating Point	Modulating/MFT	Modulating/MFT
Manual Override	•	•	•	•	•	•	•	•
Running Time (Motor)	35 seconds	35 seconds	35 seconds	35 seconds (variable)	35 seconds (default), 20...120 field adjustable	35 seconds (default), 30...120 field adjustable	35 seconds (default), 20...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
Electrical Connection	terminal block	3 ft, 18 GA appliance cable with ½" conduit connector	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]								
F750VIC	115	36	2" [50]	300	200	\$5,493	\$5,659	\$5,823	\$5,988	\$7,073		\$7,558	
F765VIC	260	80	2½" [65]		50	\$7,474	\$7,639	\$7,722	\$7,807	\$7,948	\$8,839	\$8,480	
F780VIC	440	140	3" [80]		50	\$8,569		\$8,901	\$9,024	\$8,291		\$8,869	
F7100VIC	820	250	4" [100]		200					\$10,053	\$10,540	\$10,630	\$13,096
F7125VIC	1200	370	5" [125]		200						\$16,590		\$18,597
F7150VIC	1800	560	6" [150]		200						\$17,792		\$20,719

\*Heater option for NEMA 4X products has a list price adder of \$650. Please specify when ordering.

\*\*Field selectable with Belimo Assistant 2 app.

800-543-9038 USA

866-805-7089 CANADA

905-712-3118 LATIN AMERICA/CARIBBEAN

### 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



BUTTERFLY VALVES

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					
<b>2-WAY</b>									
Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]				
F6250VIC	5800	1800	10" [250]	300	200	\$15,105	\$16,915		
F6300VIC	9000	2790	12" [300]		200			\$16,757	\$18,580

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					
<b>3-WAY MIXING/DIVERTING</b>											
Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]						
F7200VIC	3400	1050	8" [200]	300	50	\$25,721	\$28,930				
F7250VIC	5800	1800	10" [250]		50		\$37,740	\$41,137	\$38,177	\$41,716	
F7300VIC	9000	2790	12" [300]		200				\$45,019	\$48,140	

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# 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



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	\$4,740	\$4,926	
F665-150SHP	146	80	2½" [65]		285	\$4,769	\$4,952	
F680-150SHP	228	125	3" [80]		285	\$4,796	\$4,985	
F6100-150SHP	451	248	4" [100]		150	\$5,804	\$5,986	
F6100-150SHP	451	248	4" [100]		285			\$6,710

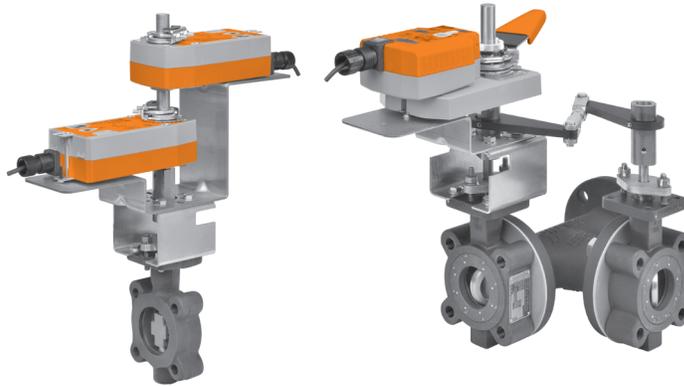
## 3-WAY MIXING/DIVERTING

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	\$9,747	\$9,924	
F750-150SHP	102	56	2" [50]		285			\$10,640
F765-150SHP	146	80	2½" [65]		150	\$9,999	\$10,172	
F765-150SHP	146	80	2½" [65]		285			\$10,895
F780-150SHP	228	125	3" [80]		150	\$10,011	\$10,190	
F780-150SHP	228	125	3" [80]		285			\$10,956

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### 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



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	\$5,202	\$6,309	
F650-150SHP	102	56	2" [50]		285			\$11,850
F665-150SHP	146	80	2½" [65]		150	\$5,233	\$6,340	
F665-150SHP	146	80	2½" [65]		285			\$11,884
F680-150SHP	228	125	3" [80]		150	\$5,261	\$6,368	
F680-150SHP	228	125	3" [80]		285			\$12,379
F6100-150SHP	451	248	4" [100]		150	\$6,266	\$7,367	
F6100-150SHP	451	248	4" [100]		285		\$9,320	\$12,864
F6125-150SHP	714	392	5" [125]		285			\$14,931
F6150-150SHP	1103	607	6" [150]		285			\$14,660
F6200-150SHP	2064	1135	8" [200]		150			\$16,645

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	\$11,249		
F750-150SHP	102	56	2" [50]		285		\$13,291	\$18,934
F765-150SHP	146	80	2½" [65]		150	\$11,499		
F765-150SHP	146	80	2½" [65]		285		\$13,547	\$19,247
F780-150SHP	228	125	3" [80]		150	\$11,513		
F780-150SHP	228	125	3" [80]		285		\$13,608	\$19,505
F7100-150SHP	451	248	4" [100]		285		\$15,698	\$22,990

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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-year warranty



2-year warranty



ACTUATOR PART #	JRBUP-3-T	PRBUP-3-T	JRBUP-MFT-T	PRBUP-MFT-T	SY4-24, SY4-110, SY4-220	SY4-24MFT, SY4-120MFT, SY4-230MFT
Control	On/Off, Floating Point	On/Off, Floating Point	Modulating/MFT	Modulating/MFT	On/Off, Floating Point	Modulating/MFT
Manual Override	.	.	.	.	.	.
Running Time (Motor)	35 seconds (default), 20...120 field adjustable	35 seconds (default), 30...120 field adjustable	35 seconds (default), 20...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	2...10 V NC		
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]					
F650-150SHP	102	56	2" [50]	ASME/ ANSI Class 150	285	\$6,324	\$7,378	\$9,454	\$10,151	
F665-150SHP	146	80	2½" [65]		285	\$6,350	\$7,411	\$9,480	\$10,178	
F680-150SHP	228	125	3" [80]		285	\$6,383	\$7,440	\$9,510	\$10,213	
F6100-150SHP	451	248	4" [100]		285	\$6,465	\$8,754	\$9,593	\$11,189	
F6125-150SHP	714	392	5" [125]		285		\$10,495		\$13,264	
F6150-150SHP	1103	607	6" [150]		285		\$10,550		\$13,326	
F6200-150SHP	2064	1135	8" [200]		150		\$12,726		\$15,515	
F6200-150SHP	2064	1135	8" [200]		285				\$13,837	\$17,116
F6250-150SHP	3517	1934	10" [250]		285				\$18,741	\$22,019
F6300-150SHP	4837	2660	12" [300]		150				\$22,907	\$26,187

## 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	\$11,310	\$12,364	\$14,495	\$15,180		
F765-150SHP	146	80	2½" [65]		285	\$11,563	\$12,618	\$14,746	\$15,431		
F780-150SHP	228	125	3" [80]		285	\$11,580	\$12,634	\$14,759	\$15,443		
F7100-150SHP	451	248	4" [100]		285	\$14,568	\$15,622	\$17,745	\$18,430		
F7125-150SHP	714	392	5" [125]		285		\$18,526		\$22,827	\$20,158	\$23,005
F7150-150SHP	1103	607	6" [150]		150		\$18,653		\$22,388		
F7150-150SHP	1103	607	6" [150]		285				\$20,263	\$23,129	
F7200-150SHP	2064	1135	8" [200]		285				\$26,344	\$29,675	
F7250-150SHP	3517	1934	10" [250]		150				\$38,164	\$41,497	

\*\*Field selectable with Belimo Assistant 2 app.

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### 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



BUTTERFLY VALVES

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	\$23,466	\$26,730						
F6350-150SHP	6857	3592	14" [350]		150	\$29,193	\$32,484						
F6350-150SHP	6857	3592	14" [350]		285			\$31,101	\$34,291				
F6400-150SHP*	9287	4865	16" [400]		150			\$43,108	\$46,302				
F6450-150SHP*	11400	6270	18" [450]		285			\$50,002	\$53,198	\$52,139	\$55,344		
F6500-150SHP*	14420	7590	20" [500]		150					\$63,656	\$66,853		
F6600-150SHP*	22050	11550	24" [600]		150							\$87,891	\$91,087

### 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	\$38,735	\$42,081				
F7300-150SHP	4837	2660	12" [300]		285	\$49,338	\$52,672	\$51,268	\$54,519		
F7350-150SHP*	6857	3592	14" [350]		285			\$68,363	\$71,610		

\*Call Customer Service at 1-800-543-9038 for product availability. Longer lead times may apply.

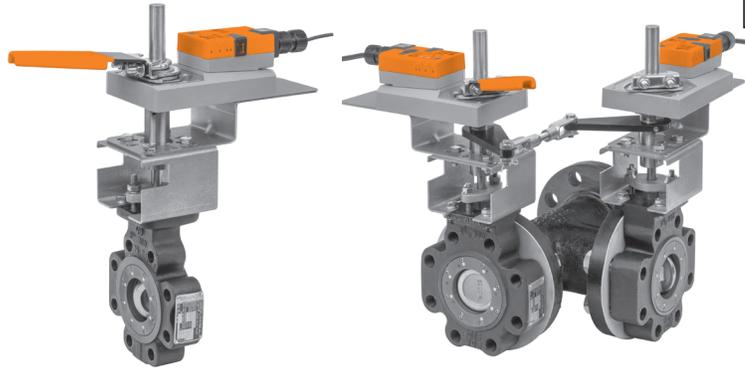
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# F6/F7 ANSI Class 300 Butterfly Valves with Non Fail-Safe Actuators

2-way and 3-way Valves, Reinforced Teflon Seat, 316 Stainless Disc



5-year warranty



## 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

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	\$5,353	\$5,542
F665-300SHP	146	80	2½" [65]		285	\$5,384	\$5,568
F680-300SHP	228	125	3" [80]		285	\$5,462	\$5,647
F6100-300SHP	451	248	4" [100]		150	\$6,278	\$6,462

ACTUATOR PART #	2*GMX24-MFT-X1
Control	Modulating/MFT
Manual Override	.
Running Time (Motor)	150 seconds
Electrical Connection	18 GA appliance rated cable with ½" conduit connector

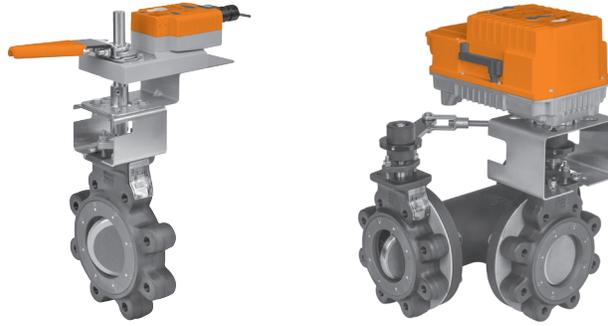
## 3-WAY MIXING/DIVERTING

Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]	
F750-300SHP	102	56	2" [50]	ASME/ ANSI Class 300	285	\$12,701
F765-300SHP	146	80	2½" [65]		285	\$14,687
F780-300SHP	228	125	3" [80]		285	\$15,002
F7100-300SHP	451	248	4" [100]		150	\$18,508

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### 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



BUTTERFLY VALVES

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	\$6,888		
F650-300SHP	102	56	2" [50]		400		\$8,936	\$12,527
F665-300SHP	146	80	2½" [65]		285	\$6,922		
F665-300SHP	146	80	2½" [65]		400		\$8,970	\$12,726
F680-300SHP	228	125	3" [80]		285	\$6,954		
F680-300SHP	228	125	3" [80]		400		\$8,992	\$12,885
F6100-300SHP	451	248	4" [100]		150	\$7,816		
F6100-300SHP	451	248	4" [100]		285		\$9,873	
F6100-300SHP	451	248	4" [100]		600			\$13,426
F6125-300SHP	714	392	5" [125]		285			\$16,582
F6150-300SHP	1103	607	6" [150]		285			\$16,838

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	\$15,357		\$20,456
F765-300SHP	146	80	2½" [65]		285	\$17,345		\$22,658
F780-300SHP	228	125	3" [80]		285	\$17,659		\$26,092
F7100-300SHP	451	248	4" [100]		285	\$21,164		
F7100-300SHP	451	248	4" [100]		400			\$27,213

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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-year warranty



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	\$7,950	\$10,726	
F665-300SHP	146	80	2½" [65]		600	\$7,978	\$10,751	
F680-300SHP	228	125	3" [80]		600	\$8,007	\$10,781	
F6100-300SHP	451	248	4" [100]		600	\$8,845	\$11,618	
F6125-300SHP	714	392	5" [125]		400	\$11,711	\$14,514	
F6150-300SHP	1103	607	6" [150]		285	\$12,017	\$14,755	
F6200-300SHP	2064	1135	8" [200]		600		\$16,584	\$19,963
F6250-300SHP	3517	1934	10" [250]		285		\$24,068	\$27,401
F6300-300SHP	4837	2660	12" [300]		150		\$31,090	\$34,134

### 3-WAY MIXING/DIVERTING

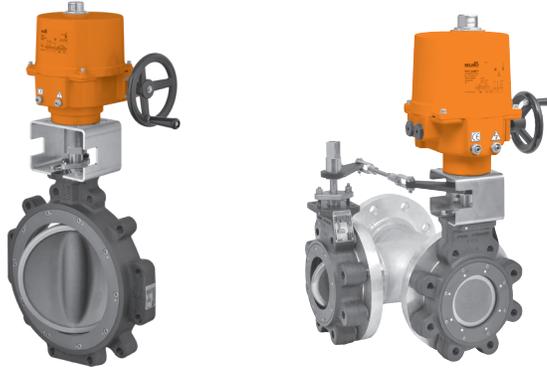
Model #	Cv 90°	Cv 60°	Size [mm]	Body Pressure Rating	Close-Off Pressure [psid]			
F750-300SHP	102	56	2" [50]	ASME/ ANSI Class 300	600	\$15,779	\$18,585	
F765-300SHP	146	80	2½" [65]		600	\$17,964	\$20,771	
F780-300SHP	228	125	3" [80]		600	\$21,373	\$24,177	
F7100-300SHP	451	248	4" [100]		400	\$22,483	\$25,289	
F7125-300SHP	714	392	5" [125]		600		\$31,076	\$34,329
F7150-300SHP	1103	607	6" [150]		600		\$36,288	\$39,636
F7200-300SHP	2064	1135	8" [200]		400		\$43,814	\$47,163
F7250-300SHP	3517	1934	10" [250]		150		\$63,404	\$66,751

\*\*Field selectable with Belimo Assistant 2 app.

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### 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



BUTTERFLY VALVES

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	\$24,634	\$27,967			
F6250-300SHP	3517	1934	10" [250]		600		\$26,555	\$29,807		
F6300-300SHP	4837	2660	12" [300]		285	\$31,373	\$34,707			
F6300-300SHP	4837	2660	12" [300]		600		\$33,297	\$36,539		
F6350-300SHP*	6857	3592	14" [350]		150	\$50,839	\$54,174			
F6350-300SHP*	6857	3592	14" [350]		400		\$52,768	\$54,174		
F6350-300SHP*	6857	3592	14" [350]		600				\$54,938	\$58,186

### 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	\$44,388	\$47,736			
F7250-300SHP	3517	1934	10" [250]		600	\$63,988	\$67,331	\$65,915	\$69,176	
F7300-300SHP*	4837	2660	12" [300]		400			\$87,104	\$90,369	
F7300-300SHP*	4837	2660	12" [300]		600					\$89,275

\*Call Customer Service at 1-800-543-9038 for product availability. Longer lead times may apply.

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# Manual Handles and Gear Operators

For HD or L Series Butterfly Valves



BUTTERFLY VALVES

		VALVE		
MANUAL HANDLES		HD	L	LIST PRICE
	<b>F650HD+HND01</b> 2" HD series valve with manual handle ductile iron, 200 psid close-off, C <sub>v</sub> 115	•		\$397
	<b>F665HD+HND01</b> 2½" HD series valve with manual handle ductile iron, 200 psid close-off, C <sub>v</sub> 196	•		\$425
	<b>F680HD+HND01</b> 3" HD series valve with manual handle ductile iron, 200 psid close-off, C <sub>v</sub> 302	•		\$469
GEAR OPERATORS				
	<b>F650HD+GW01</b> 2" HD series valve with manual gear operator ductile iron, 200 psid close-off, C <sub>v</sub> 115	•		\$638
	<b>F665HD+GW01</b> 2½" HD series valve with manual gear operator ductile iron, 200 psid close-off, C <sub>v</sub> 196	•		\$841
	<b>F680HD+GW01</b> 3" HD series valve with manual gear operator ductile iron, 200 psid close-off, C <sub>v</sub> 302	•		\$917
	<b>F6100L+ZD6N-S100</b> 4" L series valve with manual gear operator ductile iron, 200 psid close-off, C <sub>v</sub> 798		•	\$712
	<b>F6125L+ZD6N-S150</b> 5" L series valve with manual gear operator ductile iron, 200 psid close-off, C <sub>v</sub> 1140		•	\$1,028
	<b>F6150L+ZD6NS150</b> 6" L series valve with manual gear operator ductile iron, 200 psid close-off, C <sub>v</sub> 2055		•	\$1,196
	<b>F6200L+ZD6N-S150</b> 8" L series valve with manual gear operator ductile iron, 200 psid close-off, C <sub>v</sub> 3136		•	\$1,923
	<b>F6250L+ZD6N-S150</b> 10" L series valve with manual gear operator ductile iron, 200 psid close-off, C <sub>v</sub> 5340		•	\$3,100
	<b>F6300L+ZD6N-S150</b> 12" L series valve with manual gear operator ductile iron, 200 psid close-off, C <sub>v</sub> 5340		•	\$3,553
	<b>F6350HD+GW04</b> 14" HD series valve with manual gear operator ductile iron, 150 psid close-off, C <sub>v</sub> 11917	•		\$4,962

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### MANUAL HANDLES



	VALVE	
	150SHP	LIST PRICE
<b>F650-150SHP+HND05</b> 2" SHP series valve with manual handle cast steel, ANSI 150 close-off limitations, C <sub>v</sub> 102	•	\$4,386
<b>F665-150SHP+HND05</b> 2½" SHP series valve with manual handle cast steel, ANSI 150 close-off limitations, C <sub>v</sub> 146	•	\$4,509
<b>F680-150SHP+HND06</b> 3" SHP series valve with manual handle cast steel, ANSI 150 close-off limitations, C <sub>v</sub> 228	•	\$4,603
<b>F6100-150SHP+HND06</b> 4" SHP series valve with manual handle cast steel, ANSI 150 close-off limitations, C <sub>v</sub> 451	•	\$4,908
<b>F6125-150SHP+HND07</b> 5" SHP series valve with manual handle cast steel, ANSI 150 close-off limitations, C <sub>v</sub> 714	•	\$7,878
<b>F6150-150SHP+HND07</b> 6" SHP series valve with manual handle cast steel, ANSI 150 close-off limitations, C <sub>v</sub> 1103	•	\$7,197

### GEAR OPERATORS



<b>F650-150SHP+GW10</b> 2" SHP series valve with manual gear operator cast steel, ANSI 150 close-off limitations, C <sub>v</sub> 102	•	\$6,033
<b>F665-150SHP+GW10</b> 2½" SHP series valve with manual gear operator cast steel, ANSI 150 close-off limitations, C <sub>v</sub> 146	•	\$6,169
<b>F680-150SHP+GW11</b> 3" SHP series valve with manual gear operator cast steel, ANSI 150 close-off limitations, C <sub>v</sub> 228	•	\$6,261
<b>F6100-150SHP+GW11</b> 4" SHP series valve with manual gear operator cast steel, ANSI 150 close-off limitations, C <sub>v</sub> 451	•	\$6,453
<b>F6125-150SHP+GW12</b> 5" SHP series valve with manual gear operator cast steel, ANSI 150 close-off limitations, C <sub>v</sub> 714	•	\$8,886
<b>F6150-150SHP+GW12</b> 6" SHP series valve with manual gear operator cast steel, ANSI 150 close-off limitations, C <sub>v</sub> 1103	•	\$9,019

### MANUAL HANDLES



	VALVE	
	300SHP	LIST PRICE
<b>F650-300SHP+HND05</b> 2" SHP series valve with manual handle cast steel, ANSI 300 close-off limitations, C <sub>v</sub> 100	•	\$5,167
<b>F665-300SHP+HND05</b> 2½" SHP series valve with manual handle cast steel, ANSI 300 close-off limitations, C <sub>v</sub> 143	•	\$5,205
<b>F680-300SHP+HND06</b> 3" SHP series valve with manual handle cast steel, ANSI 300 close-off limitations, C <sub>v</sub> 223	•	\$4,782
<b>F6100-300SHP+HND06</b> 4" SHP series valve with manual handle cast steel, ANSI 300 close-off limitations, C <sub>v</sub> 435	•	\$5,119
<b>F6125-300SHP+HND07</b> 5" SHP series valve with manual handle cast steel, ANSI 300 close-off limitations, C <sub>v</sub> 688	•	\$8,937

### GEAR OPERATORS



<b>F650-300SHP+GW10</b> 2" SHP series valve with manual gear operator cast steel, ANSI 300 close-off limitations, C <sub>v</sub> 100	•	\$6,366
<b>F665-300SHP+GW10</b> 2½" SHP series valve with manual gear operator cast steel, ANSI 300 close-off limitations, C <sub>v</sub> 143	•	\$6,398
<b>F680-300SHP+GW11</b> 3" SHP series valve with manual gear operator cast steel, ANSI 300 close-off limitations, C <sub>v</sub> 223	•	\$5,978
<b>F6100-300SHP+GW11</b> 4" SHP series valve with manual gear operator cast steel, ANSI 300 close-off limitations, C <sub>v</sub> 435	•	\$6,308
<b>F6125-300SHP+GW12</b> 5" SHP series valve with manual gear operator cast steel, ANSI 300 close-off limitations, C <sub>v</sub> 688	•	\$10,105
<b>F6150-300SHP+GW13</b> 6" SHP series valve with manual gear operator cast steel, ANSI 300 close-off limitations, C <sub>v</sub> 1041	•	\$8,401

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## Smooth operation, precise control, and maximum energy efficiency

Whether it's hospitals, pharmaceutical companies, or large campuses, seamless, energy-efficient and cost-optimized heating and cooling systems are crucial for operations. Belimo's new butterfly valves feature NFC for fast commissioning, programming and diagnostics, plus accurate control to ensure efficient operation. Available in nominal sizes of 4...12".

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# 19

## VALVE ASSEMBLY ACCESSORIES

### Added Protection

- Weather shields are designed for additional actuator protection when mounted outdoors.
- Auxiliary switches indicate when the desired position of a valve is reached, or to interface controls for a particular control sequence.
- Feedback potentiometers provide a resistive signal.



## Belimo Room Sensors

### Accurate CO<sub>2</sub> Levels at a Glance

Maintaining CO<sub>2</sub> levels below 1000 ppm in classrooms is critical to the well-being, productivity, and comfort of students. Belimo room sensors provide real-time air quality monitoring with an intuitive CO<sub>2</sub> LED traffic light system, making it easy to verify that the room environment is healthy and comfortable at a glance. Featuring dual channel auto-calibration, altitude and pressure compensation, Belimo room sensors deliver reliable, accurate CO<sub>2</sub> readings without the need for manual tuning. Setup is quick and easy using the Belimo Assistant 2 App, which communicates with the sensors via NFC. Use Belimo room sensors to ensure a safe and healthy learning environment for students of all ages.

*Belimo's room sensors accurately measure temperature, humidity, dew point and CO<sub>2</sub>. Available with or without ePaper touch display.*

→ Discover the advantages  
[www.belimo.com](http://www.belimo.com)

**BELIMO**<sup>®</sup>

WEATHER SHIELDS		VALVES	LR	NR	AR	GR	AKR	GK/GKR	LF	NF	AF/AFR	LM	NM	AM	GM	List Price	
	<b>ZS-EPIV-EV-20-NF**</b> For valve sizes ½...¾" [DN15...DN20] (cover only)	Energy Valves	•													\$1,024	
		EPIV	•														
	<b>ZS-EPIV-EV-50-SCNF**</b> For valve sizes 1...2" [DN25...DN50] on non-fail-safe actuator series (cover only)	Energy Valves	•	•	•		•									\$1,024	
		EPIV	•	•	•		•										
	<b>ZS-EPIV-EV-80U</b> For ANSI 125, valve sizes 2½" [DN65] and 3" [DN80] (cover only). For assemblies with ultrasonic flow sensor only	Energy Valves			•		•									\$2,251	
		EPIV			•		•										
	<b>ZS-EPIV-EV-150U</b> For ANSI 125, valve sizes 4" [DN100], 5" [DN125], and 6" [DN150] (cover only). For assemblies with ultrasonic flow sensor only	Energy Valves				•		•								\$2,251	
		EPIV				•		•									
	<b>ZS-CCV-90*</b> Kit for LF actuator series	CCV							•							\$436	
	<b>ZS-CCV-100*</b> Kit for LR/AR actuator series	CCV	•		•											\$436	
	<b>ZS-CCV-110*</b> Kit for AFR actuator series	CCV									•					\$436	
	<b>ZS-SPBV-10</b> For NM, AM,GM, NF, AF, and GK actuator series	Ball Valves						•		•	•		•	•	•	\$576	
	<b>ZS-SPBV-20</b> For dual mounted GM, AF, and GK actuator series							•			•					•	\$576
	<b>ZS-BVVS-0002</b> For LM actuator series on VS/VSS models												•				\$570
	<b>ZS-BVVS-0003</b> For LF actuator series on VS/VSS models									•							\$570

\*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	
	<b>ZS-SPGV-60</b> For LF actuators on NPT series	Globe Valves				•										\$745	
	<b>ZS-SPGV-10</b> For dual AF series actuators on flanged globe valves								•								\$802
	<b>ZS-SPGV-20</b> For single NF, AF actuator series						•	•									\$783
	<b>ZS-SPGV-40</b> For GM, GK series on flanged globe valves		•								•						\$802
	<b>ZS-SPGV-50</b> For dual GM, GK series on flanged globe valves			•								•					\$783

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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	
  	<b>ZS-GV-001</b> For LV, SV actuators on NPT series	Globe Valves										•		•		\$975	
	<b>ZS-GV-002</b> For EV, RV, AVK actuator on flanged series													•		•	\$1,030
	<b>ZS-BFV-20**</b> For GM, GK actuators on F6, F7, HD, HDU, SHP, and VIC series	Butterfly Valves	•								•						\$587
	<b>ZS-BFV-30**</b> For AF actuators on F6, F7, HD, HDU SHP, and VIC series								•								\$587
	<b>ZS-BFV-60**</b> For dual GM, GK actuators on butterfly valves F6, HD, HDU (4...6"), SHP, and VIC series			•								•					\$1,019
	<b>ZS-BFV-70**</b> For dual AF series on butterfly valves F6, HD, HDU (2½...3"), SHP and VIC series									•							\$1,019
	<b>ZS-BFV-90**</b> For dual AF, single/dual GM, GK on F7 series (2...4"). No holes unless factory mounted			•	•						•	•	•				\$1,044
	<b>ZS-BFV-100**</b> Dual GM/GK series for F7, HD, HDU, SHP (4...6"). <b>Two required</b>				•								•				\$1,019
	<b>ZS-BFV-110</b> GR, GKR series for F6, HD, HDU (4...6")					•											\$1,044

\*\*Cannot be used with direct mount actuators.

EPIV SENSORS		VALVES	LR	NR	AR	GR	AK	GK	List Price	
    	<b>M2450-EP-100</b> 2" ultrasonic flow sensor, 80 to 100 GPM	EPIV Gen 3			•		•		\$2,950	
	<b>M24250-EP</b> 2½" ultrasonic flow sensor - ANSI 125				•		•		\$11,561	
	<b>M24300-EP</b> 3" ultrasonic flow sensor - ANSI 125				•		•		\$12,693	
	<b>M24400-EP</b> 4" ultrasonic flow sensor - ANSI 125						•		•	\$13,667
	<b>M24500-EP</b> 5" ultrasonic flow sensor - ANSI 125						•		•	\$14,892
	<b>M24600-EP</b> 6" ultrasonic flow sensor - ANSI 125						•		•	\$16,048
	<b>M24250-EP-250</b> 2½" ultrasonic flow sensor - ANSI 250					•		•		\$15,029
	<b>M24300-EP-250</b> 3" ultrasonic flow sensor - ANSI 250					•		•		\$16,498
	<b>M24400-EP-250</b> 4" ultrasonic flow sensor - ANSI 250							•	•	\$17,766
	<b>M24500-EP-250</b> 5" ultrasonic flow sensor - ANSI 250							•	•	\$19,360
<b>M24600-EP-250</b> 6" ultrasonic flow sensor - ANSI 250						•	•	\$20,860		

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ENERGY VALVE SENSORS		VALVES	LR	NR	AR	GR	AKR	GKR	List Price	
	<b>EV050S-055</b> ½" Energy unit includes flow sensor, control valve, 2 temperature sensors and 2 fittings for temperature sensors	Energy Valve 3 only	•				•		\$1,881	
	<b>EV075S-103</b> ¾" Energy unit includes flow sensor, control valve, 2 temperature sensors and 2 fittings for temperature sensors		•				•		\$2,114	
	<b>EV100S-182</b> 1" Energy unit includes flow sensor, control valve, 2 temperature sensors and 2 fittings for temperature sensors		•				•		\$2,599	
<b>EV150S-396</b> 1½" Energy unit includes flow sensor, control valve, 2 temperature sensors and 2 fittings for temperature sensors			•				•		\$3,152	
<b>EV200S-761</b> 2" Energy unit includes 76.1 GPM flow sensor, control valve, 2 temperature sensors, and 2 fittings for temperature sensors					•		•		\$3,465	
	<b>M24250-EV</b> 2½" ANSI 125 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 125 ultrasonic sensor					•			•	\$6,361
	<b>M24300-EV</b> 3" ANSI 125 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 125 ultrasonic sensor					•			•	\$6,499
	<b>M24400-EV</b> 4" ANSI 125 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 125 ultrasonic sensor						•		•	\$6,672
	<b>M24500-EV</b> 5" ANSI 125 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 125 ultrasonic sensor						•		•	\$6,882
	<b>M24600-EV</b> 6" ANSI 125 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 125 ultrasonic sensor						•		•	\$7,691
	<b>M24250-EV-250</b> 2½" ANSI 250 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 250 ultrasonic flow sensor					•			•	\$10,638
	<b>M24300-EV-250</b> 3" ANSI 250 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 250 ultrasonic flow sensor					•			•	\$10,878
	<b>M24400-EV-250</b> 4" ANSI 250 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 250 ultrasonic flow sensor						•		•	\$11,155
	<b>M24500-EV-250</b> 5" ANSI 250 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 250 ultrasonic flow sensor						•		•	\$11,754
	<b>M24600-EV-250</b> 6" ANSI 250 Energy Valve flow sensor includes 2 temperature sensors. Replacement for ANSI 250 ultrasonic flow sensor						•		•	\$11,941
	<b>EV FS-60</b> 2½"...6" ANSI 125 Energy Valve electromagnetic flow sensor includes 2 temperature sensors	Energy Valves 1 & 2				•	•	•	•	\$3,876

VALVE ACCESSORIES

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ENERGY VALVE ACCESSORIES		VALVES	LR	NR	AR	GR	AKR	GKR	List Price
	<b>A-22PE-A09</b> Temperature sensor, threaded pipe body 1/2"	Energy Valves	•				•		\$70
	<b>A-22PE-A10</b> Temperature sensor fitting, threaded pipe body 3/4"		•				•		\$81
	<b>A-22PE-A11</b> Temperature sensor fitting, threaded pipe body 1"		•				•		\$97
	<b>A-22PE-A12</b> Temperature sensor fitting, threaded pipe body 1 1/4"			•			•		\$120
	<b>A-22PE-A13</b> Temperature sensor fitting, threaded pipe body 1 1/2"			•			•		\$145
	<b>A-22PE-A14</b> Temperature sensor fitting, threaded pipe body 2"					•	•		\$187
	<b>A-22PE-A15</b> Thermowell (1/2...2") 1" length, EV4		•	•	•		•		\$42
	<b>A-22PE-A16</b> Thermowell (1/2...2") 3" length, EV4		•	•	•		•		\$64
	<b>R-22PE-0UC</b> Sensor module, non MID version, 1/2", EV4		•	•	•		•		\$1,451
	<b>R-22PE-0UD</b> Sensor module, non MID version, 3/4", EV4		•	•	•		•		\$1,521
	<b>R-22PE-0UE</b> Sensor module, non MID version, 1", EV4		•	•	•		•		\$1,665
	<b>R-22PE-0UF</b> Sensor module, non MID version, 1 1/4", EV4		•	•	•		•		\$2,304
	<b>R-22PE-0UG</b> Sensor module, non MID version, 1 1/2", EV4		•	•	•		•		\$2,540
	<b>R-22PE-0UH</b> Sensor module, non MID version, 2", EV4		•	•	•		•		\$3,165
	<b>A-22PEM-A04</b> Silicone grommet with clamp IP 54 protection for Ethernet		•	•	•		•		\$44
<b>G-22PEM-A01</b> Converter for M-BUS	•	•	•		•		\$557		
	<b>22WDP-511</b> Differential pressure sensor water, 0...15 PSI, active, 0...10 V, EV4	•	•	•		•		\$1,340	
	<b>22WDP-512</b> Differential pressure sensor water, 0...30 PSI, active, 0...10 V, EV4	•	•	•		•		\$1,340	
	<b>22WDP-514</b> Differential pressure sensor water, 0...50 PSI, active, 0...10 V, EV4	•	•	•		•		\$1,340	
	<b>22WDP-515</b> Differential pressure sensor water, 0...100 PSI, active, 0...10 V, EV4	•	•	•		•		\$1,340	
	<b>22PDP-585</b> Differential pressure sensor water, 0...100 PSI, active, 0...10 V, EV4	•	•	•		•		\$1,823	
	<b>22PDP-588</b> Differential pressure sensor water, 0...200 PSI, active, 0...10 V, EV4	•	•	•		•		\$1,823	
		<b>A-22WP-A03</b> Pipe connector, brass, pipe 0.24" [6 mm] to 1/4" NPT (external thread), set of 2 pcs.	•	•	•		•		\$55
		<b>A-22WP-A05</b> Pipe connector, stainless steel, pipe 0.24" [6 mm] to 1/4" NPT (external thread), set of 2 pcs.	•	•	•		•		\$240
<b>A-22WP-A07</b> Pipe connector, brass, pipe 0.3" [6 mm] to 1/4" NPT (external thread), set of 2 pcs.		•	•	•		•		\$61	
<b>A-22WP-A09</b> Pipe connector, stainless steel, pipe 0.3" [6 mm] to 1/4" NPT (external thread), set of 2 pcs.		•	•	•		•		\$275	
<b>A-22WP-A11</b> Mounting bracket for 22WPD		•	•	•		•		\$49	
	<b>EAP005</b> Clear Edge device. On-site platform for Energy Valve optimization. 5 valve licenses included	•	•	•	•	•	•	\$9,593	
	<b>EAP020</b> Clear Edge device. On-site platform for Energy Valve optimization. 20 valve licenses included	•	•	•	•	•	•	\$14,511	
	<b>EAP050</b> Clear Edge device. On-site platform for Energy Valve optimization. 50 valve licenses included	•	•	•	•	•	•	\$19,021	

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GLOBE VALVE ACCESSORIES		VALVES	List Price
	<b>ZG-GV60</b> Stem repacking kit for G2B, G2S, G3B series NPT valves	Globe Valves	\$224
	<b>ZG-GV15</b> Stem repacking for G6, G7 series flanged valves		\$413
	<b>GVA-CPL</b> Coupler repair kit for LV, LVK, SV, SVK Globe Valve actuators		\$30
	<b>FGVL-ADPT</b> Stem adapter replacement for EV, RV, AVK Globe Valve actuators		\$607
	<b>FGVA-CPL</b> Coupler repair kit for AVK, EV and RV globe valve actuators.		\$72

BATTERY BACKUP		VALVES	LM/LR	NM/NR	AM	GM	AR	GR	EV	RV	PR/JR	SY	List Price	
	<b>EXT-NSV-B03-120*</b> Battery backup system for SY4...SY6 AC 120 V, on/off actuators	Butterfly Valves										•	\$13,810	
	<b>EXT-NSV-B04-120*</b> Battery backup system for SY4...SY6 AC 120 V, MFT actuators												•	\$15,844
	<b>EXT-NSV-B13-24*</b> Battery backup system for SY4...SY5 AC 24 V, on/off actuators												•	\$17,091
	<b>EXT-NSV-B14-24*</b> Battery backup system for SY4...SY5 AC 24 V, MFT actuators												•	\$16,755

\*All EXT part numbers are not returnable.

JR, PR/PKR TEMPERATURE SENSORS		VALVE TYPE	
		BUTTERFLY	List Price
	<b>01ST-5L3</b> Contact Temperature Sensor, NTC10K2, cable 6.5 ft. [2 m]	•	\$62
	<b>01ST-5B3</b> Contact Temperature Sensor, PT1000, cable 6.5 ft. [2 m]	•	\$80
	<b>01HT-5L</b> Contact Temperature Sensor, NTC10K2	•	\$72
	<b>01HT-5B</b> Contact Temperature Sensor, PT1000	•	\$93
	<b>01DT-5LN</b> Immersion Temperature Sensor, NTC10K2, probe length 6" [150 mm]	•	\$48
	<b>01DT-5LP</b> Immersion Temperature Sensor, NTC10K2, probe length 8" [200 mm]	•	\$48
	<b>01DT-5BN</b> Immersion Temperature Sensor, PT1000, probe length 6" [150 mm]	•	\$74
	<b>01DT-5BP</b> Immersion Temperature Sensor, PT1000, probe length 8" [200 mm]	•	\$74
	<b>A-22P-A09</b> Thermowell (2 part) stainless steel, 6" [150 mm], ½" NPT	•	\$57
	<b>A-22P-A11</b> Thermowell (2 part) stainless steel, 8" [200 mm], ½" NPT	•	\$71

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
	<b>EV-RT-15</b> Remote temperature sensor 4.9 ft. [1.5 m] for valve sizes 2½...6" [DN65...DN150]	Energy Valves 1, 2, & 3			•	•	•	•	•	•	\$1,097
	<b>EV-RT-30</b> Remote temperature sensor 9.8 ft. [3 m] for valve sizes 2½...6" [DN65...DN150]				•	•	•	•	•	•	\$1,097
	<b>EV-RT-50</b> Remote temperature sensor 16.4 ft. [5 m] for valve sizes 2½...6" [DN65...DN150]					•	•	•	•	•	\$1,097
	<b>EV-RT-100</b> Remote temperature sensor 32.8 ft. [10 m] for valve sizes 2½...6" [DN65...DN150]					•	•	•	•	•	\$1,097
	<b>ZM-T15</b> Remote temperature sensor 4.9 ft. [1.5 m] for valve sizes ½...2" [DN15...DN50]			•	•	•			•		\$869
	<b>ZM-T30</b> Remote temperature sensor 9.8 ft. [3 m] for valve sizes ½...2" [DN15...DN50]			•	•	•			•		\$869

ZTH REPLACEMENT CABLES		VALVES	AM	GM	AR	GR	PR/JR	GK	DK	SY	List Price
	<b>ZK1-GEN</b> 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	•	•							\$211
		Butterfly Valves	•	•	•	•	•	•	•		
	<b>ZK2-GEN</b> Cable for use with ZTH US to connect to actuators not equipped with diagnostic/programming socket	<i>Available for all MFT Actuators Only</i>									\$97
	<b>ZK6-GEN</b> Cable for use with ZTH US to connect to SY actuator via RJII port	Ball Valves								•	\$103
		Butterfly Valves								•	

PROGRAMMING TOOLS		List Price
	<b>Belimo Assistant 2 App (NFC)</b> Allows fast programming, commissioning, and troubleshooting even when the actuator is not powered. Available through Google Play and Apple App Store	<i>Available on NFC Labeled Actuators Only</i> No Charge
	<b>Belimo Assistant Link</b> The Belimo Assistant Link enables seamless configuration and communication with Belimo devices via Bluetooth or USB, supporting both NFC and MP-Bus connections.	<i>Available on NFC Labeled Actuators Only</i> \$900
	<b>PC-Tool</b> Belimo MFT configuration software. Available in the download center at www.belimo.com	<i>Available for all MFT Actuators Only</i> No Charge
	<b>ZTH US</b> Handheld interface module that allows field programming. Includes ZK1-GEN, ZK2-GEN, and ZK6-GEN cables	<i>Available for all MFT Actuators Only</i> \$1,383
	<b>ZIP-BT-NFC</b> Bluetooth® to NFC converter for temporary wireless operation of Belimo devices with NFC capabilities	<i>Available for NFC Labeled Actuators Only</i> \$465

AUXILIARY SWITCHES & POTENTIOMETERS		VALVES	LR/LM	NR/NM	AR/AM	GR/GM	AK	GK/GKR	DK	List Price
	<b>S1A</b> Auxiliary switch 1x SPDT, 3A (0.5A inductive) @ AC 250 V	Available for All Valves	•	•	•	•	•	•	•	\$170
	<b>S2A</b> Auxiliary switch 2x SPDT, 3A (0.5A inductive) @ AC 250 V		•	•	•	•	•	•	•	\$255
	<b>P140A GR</b> Feedback potentiometer 140 Ω		•	•	•	•	•	•	•	\$280
	<b>P1000A GR</b> Feedback potentiometer 1000 Ω		•	•	•	•	•	•	•	\$280
	<b>P10000A GR</b> Feedback potentiometer 10000 Ω		•	•	•	•	•	•	•	\$280
		VALVES	LV/SV	EV	RV	LVK/SVK	AVK	List Price		
	<b>S2A-GV</b> Auxiliary switch 2x SPDT, 3A (0.5A inductive) @ AC 250 V for LV, SV, EV, and AVK series actuators	Energy Valves		•			•	\$255		
		EPIV		•			•			
		Globe Valves	•	•		•	•			

EXTENSION BRACKET*		VALVES	LR	NR	AR	AKR	LF	AFR	List Price
	<b>ZR-EXT-01*</b> Linkage extension kit for EPIV, EV, and CCV	EPIV / EV	•	•	•	•			\$365
		CCV	•		•		•	•	

\*ZR-EXT-01 is not compatible with HTCCV, LGCCV, and N4 actuators

ELECTRIC DISCONNECT		VALVES	SY	List Price
	<b>HOA-120V</b> Local electric disconnect for SY4-SY12 110/230 V - 2 position	Ball Valves	•	\$1,628
		Butterfly Valves	•	
	<b>HOA-120VMFT</b> Local electric disconnect for SY4-SY12 110/230 V - modulating	Ball Valves	•	\$1,628
		Butterfly Valves	•	

HAND CRANK		JR	PR/PKR	List Price
	<b>ZG-HND PR</b> Replacement hand crank for PR and PKR actuators		•	\$72
	<b>ZJR20</b> Replacement hand crank for JR actuators	•		\$68

MOUNTING BRACKET		VALVES	List Price
	<b>ZR-004</b> Mounting bracket for 6-way CCV. Includes screw kit M4.	6-Way CCV	\$55
	<b>ZR-005</b> Mounting bracket for 6-way CCV and EPIV DN25. Includes screw kit M4.	6-Way CCV, 6-Way EPIV	\$59

COVERS			List Price
	<b>ZS-T</b> Terminal cover for NEMA 2, -T models	Available for all -T Model Actuators (except TR)	\$45

ZONETIGHT VALVE ACCESSORIES		VALVE TYPE			List Price
		VALVES	Z2 (2-WAY)	Z3 (3-WAY)	
	<b>ZCQB-FL</b> Flow setter	PIQCV	•		\$99
		QCV	•		
	<b>ZCQ-E</b> QCV or PIQCV valve stem extension. Designed for chilled/ hot water service 36...190°F [2...88°C] media temperature	PIQCV	•		\$44
		QCV	•	•	

FLOW ORIFICE					
	<b>FO15010</b> ½" Flow orifice for 1.0 GPM	PIQCV	•		\$188
		QCV	•		
	<b>FO15025</b> ½" Flow orifice for 2.5 GPM	PIQCV	•		\$188
		QCV	•		
	<b>FO15055</b> ½" Flow orifice for 5.5 GPM	PIQCV	•		\$188
		QCV	•		
	<b>FO20100</b> ¾" Flow orifice for 10.0 GPM	QCV	•		\$208
		PIQCV	•		
<b>FO25210</b> 1" Flow orifice for 21.0 GPM	QCV	•		\$228	
	PIQCV	•			

ARCHITECTURAL COVER					
	<b>ZCQB-W</b> Housing cover for CQ actuators (white)	PIQCV	•		\$39
		QCV	•	•	

JR, PR/PKR RETROFIT LINKAGE		VALVES	JR	PR / PKR	List Price
	<b>IND-JR01</b> Valve linkage for 4...6" HDU series 2-way with indicator	Butterfly Valves	•		\$300
	<b>IND-JR05</b> Valve linkage for 4" L series 2-way with indicator		•		\$287
	<b>IND-JR03</b> Valve linkage for 5...6" L series 2-way with indicator		•		\$260
	<b>IND-PR01</b> Valve linkage for 4...6" HDU/HD series 2-way with indicator			•	\$212
	<b>IND-PR02</b> Valve linkage for 4...6" HDU/HD series 2-way without indicator			•	\$219
	<b>IND-PR03</b> Valve linkage for 8...12" L series 2-way with indicator			•	\$219
	<b>IND-PR04</b> Valve linkage for 8...12" L series 2-way without indicator			•	\$219

Butterfly Manual Handle and Gear Operator options located on page 18-32.

**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 screwless snap-on cover with a detachable mounting plate and NEMA 4X/IP65 rating for quick installation and commissioning.

## Room Sensor Nomenclature

### Temperature

<b>P</b>	<b>-</b>	<b>01</b>	<b>R</b>	<b>T</b>	<b>-</b>	<b>5</b>	<b>M</b>	<b>-</b>	<b>0</b>
<b>Adjustment</b> P = Setpoint (Resistive) Blank = Standard		<b>Power</b> 01 = Passive	<b>Application</b> R = Room	<b>Measured Values</b> T = Temperature		<b>Region</b> 5 = Americas	<b>Signal Type</b> B = PT1000 L = NTC10K2 M = NTC10K3 Q = NTC20K		<b>Series</b> 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.. = $\pm 0.5^\circ\text{F}$ @ $32^\circ\text{F}$ [ $\pm 0.3^\circ\text{C}$ @ $0^\circ\text{C}$ ] NTC.. = $\pm 0.35^\circ\text{F}$ @ $77^\circ\text{F}$ [ $\pm 0.2^\circ\text{C}$ @ $25^\circ\text{C}$ ]
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-year warranty

## Room Sensor Nomenclature

### Temperature, Relative Humidity, Dew Point, CO<sub>2</sub>

<b>22</b>	<b>R</b>	<b>T</b>	<b>-</b>	<b>5</b>	<b>8</b>	<b>00</b>	<b>D</b>
<b>Power</b> 22 = Active	<b>Application</b> R = Room	<b>Measured Values</b> T = Temperature TH = Temperature, Relative Humidity, Dew Point TM = Temperature, Relative Humidity, Dew Point, CO <sub>2</sub>		<b>Region</b> 5 = Americas	<b>Signal Type</b> 8 = 4...20 mA and V (Volt) Multi-Range 9 = V (Volt) Multi-Range, MP-Bus U = BACnet/Modbus Communication	<b>Passive Outputs</b> 00 = No Passive Outputs L0 = NTC10K2 M0 = NTC10K3	<b>Display Options</b> 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<sub>2</sub>. The active sensors incorporate Near Field Communication (NFC) for setup, installation, and commissioning using the Belimo Assistant 2 App. A virtual display is available for all active display and non-display room sensors using the Belimo Display App. Belimo room sensors have a dual channel, self-calibrating, CO<sub>2</sub> sensing element, making them ideal for buildings. All CO<sub>2</sub> room sensors come with a customizable traffic-light function (TLF). The red, yellow, and green lights can be programmed anywhere from 0...2000 ppm.

Accuracy	
CO <sub>2</sub>	$\pm 50$ ppm + 2% of value between 0...2000 ppm
Humidity	$\pm 2\%$ between 0...90% r.H @ $77^\circ\text{F}$ [ $25^\circ\text{C}$ ]
Temperature Active	$\pm 0.5^\circ\text{F}$ @ $77^\circ\text{F}$ [ $\pm 0.3^\circ\text{C}$ @ $25^\circ\text{C}$ ]
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-5800A  
Includes mounting screws



22RTM-5800D



5-year warranty

		Measuring Values				Additional Features										List Price		
		Output Signals (default)	Temperature	Humidity (RH and Dew Point)	CO <sub>2</sub>	Setpoint Adjustment	Manual Override	NFC (Belimo Assistant 2 App / Display App)	MP Bus	Customizable Temperature Range	Customizable CO <sub>2</sub> Range	ePaper Display	Max CO <sub>2</sub> Recording	Digital Input (DI)	Selectable AO; 0...5 V, 2...10 V, 0...10 V	Selectable AO; 4...20 mA	Stainless Steel, Flush Mount	
01RT-5B-0	Passive	Pt1000	•				•											\$68
01RT-5L-0		NTC10k2	•				•											\$41
01RT-5M-0		NTC10k3	•				•											\$41
01RT-5Q-0		NTC20k	•				•											\$44
P-01RT-5B-0		Pt1000	•			•	•											\$78
P-01RT-5L-0		NTC10k2	•			•	•											\$53
P-01RT-5M-0		NTC10k3	•			•	•											\$53
P-01RT-5Q-0		NTC20k	•			•	•											\$56
EXT-RT-SS1000		Pt1000	•														•	\$62
EXT-RT-SS10K2		NTC10k2	•														•	\$37
EXT-RT-SS10K3		NTC10k3	•														•	\$37
EXT-RT-SS20K		NTC20k	•														•	\$37
22RTH-58L0A		Active	2 Analog Outputs; NTC10k2	•	•		•	•	•	•	•				•	•		
22RTM-58L0A	2 Analog Outputs; NTC10k2		•	•	•	•	•	•	•	•	•		•		•	•		\$750
22RTH-58M0A	2 Analog Outputs; NTC10k3		•	•		•	•	•	•	•					•	•		\$477
22RTM-58M0A	2 Analog Outputs; NTC10k3		•	•	•	•	•	•	•	•	•		•		•	•		\$750
22RT-5900A	2 Analog Outputs		•			•		•	•	•					•			\$250
22RTH-5800A	3 Analog Outputs		•	•		•		•	•	•			•		•	•		\$477
22RTM-5800A	3 Analog Outputs		•	•	•	•		•	•	•	•		•		•	•		\$750
22RT-5900D	2 Analog Outputs		•			•		•	•	•		•			•			\$508
22RTH-5800D	3 Analog Outputs		•	•		•		•	•	•		•			•	•		\$744
22RTM-5800D	3 Analog Outputs		•	•	•	•		•	•	•	•	•	•		•	•		\$1,095
22RTH-5U00A	Modbus/BACnet		•	•		•		•	•					•				\$498
22RTM-5U00A	Modbus/BACnet		•	•	•	•		•	•					•				\$809
22RTH-5U00D	Modbus/BACnet		•	•		•		•	•			•		•				\$763
22RTM-5U00D	Modbus/BACnet		•	•	•	•		•	•			•		•				\$1,180

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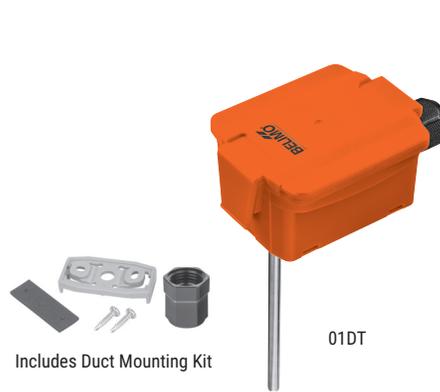
# Duct / Pipe Sensor Nomenclature

## Temperature

01	D	T	-	5	A	H
<b>Power</b> 01 = Passive	<b>Application</b> D = Duct / Pipe	<b>Measured Values</b> T = Temperature		<b>Region</b> 5 = Americas	<b>Signal Type</b> A = Pt100 B = Pt1000 E = Ni1000 L = NTC10k2 M = NTC10k3 Q = NTC20k	<b>Length [mm]</b> 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, which includes a conduit adaptor making them ideal for mounting to HVAC equipment that may or may not require electrical conduit.

Accuracy	Pt.. = $\pm 0.5^{\circ}\text{F}$ @ $32^{\circ}\text{F}$ [ $\pm 0.3^{\circ}\text{C}$ @ $0^{\circ}\text{C}$ ] Ni.. = $\pm 0.7^{\circ}\text{F}$ @ $32^{\circ}\text{F}$ [ $\pm 0.4^{\circ}\text{C}$ @ $0^{\circ}\text{C}$ ] NTC.. = $\pm 0.35^{\circ}\text{F}$ @ $77^{\circ}\text{F}$ [ $\pm 0.2^{\circ}\text{C}$ @ $25^{\circ}\text{C}$ ]
Cable Entry	cable gland with strain relief $\varnothing 6...8$ mm, $\frac{1}{2}$ " conduit adapter included
Ambient Temperature	$-31...+120^{\circ}\text{F}$ [ $-35...+50^{\circ}\text{C}$ ]
Operating Temperature	NTC.. = $-60...+300^{\circ}\text{F}$ [ $-50...+150^{\circ}\text{C}$ ] Pt., Ni.. = $-60...+320^{\circ}\text{F}$ [ $-50...+160^{\circ}\text{C}$ ]
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.  $\frac{1}{2}$ " Thermowell Adaptor available for retrofit applications. See additional accessories on pages 20-28 to 20-30.



5-year warranty

Measuring Values			List Price	
DUCT/PIPE TEMPERATURE		Output Signal Temperature	Probe Length [mm]	
01DT-5AH	Passive	Pt100	2" [50]	\$74
01DT-5AL		Pt100	4" [100]	\$74
01DT-5AN		Pt100	6" [150]	\$74
01DT-5AP		Pt100	8" [200]	\$74
01DT-5AR		Pt100	12" [300]	\$74
01DT-5AT		Pt100	18" [450]	\$83
01DT-5BH		Pt1000	2" [50]	\$74
01DT-5BL		Pt1000	4" [100]	\$74
01DT-5BN		Pt1000	6" [150]	\$74
01DT-5BP		Pt1000	8" [200]	\$74
01DT-5BR		Pt1000	12" [300]	\$74
01DT-5BT		Pt1000	18" [450]	\$83
01DT-5EH		Ni1000	2" [50]	\$59
01DT-5EL		Ni1000	4" [100]	\$59
01DT-5EN		Ni1000	6" [150]	\$59
01DT-5EP		Ni1000	8" [200]	\$59
01DT-5ER		Ni1000	12" [300]	\$59
01DT-5ET		Ni1000	18" [450]	\$83
01DT-5LH		NTC10k2	2" [50]	\$48
01DT-5LL		NTC10k2	4" [100]	\$48
01DT-5LN		NTC10k2	6" [150]	\$48
01DT-5LP		NTC10k2	8" [200]	\$48
01DT-5LR		NTC10k2	12" [300]	\$48
01DT-5LT		NTC10k2	18" [450]	\$74
01DT-5MH		NTC10k3	2" [50]	\$48
01DT-5ML		NTC10k3	4" [100]	\$48
01DT-5MN		NTC10k3	6" [150]	\$48
01DT-5MP		NTC10k3	8" [200]	\$48
01DT-5MR		NTC10k3	12" [300]	\$48
01DT-5MT		NTC10k3	18" [450]	\$74
01DT-5QH	NTC20k	2" [50]	\$48	
01DT-5QL	NTC20k	4" [100]	\$48	
01DT-5QN	NTC20k	6" [150]	\$48	
01DT-5QP	NTC20k	8" [200]	\$48	
01DT-5QR	NTC20k	12" [300]	\$48	
01DT-5QT	NTC20k	18" [450]	\$74	

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
<b>Power</b> 22 = Active	<b>Application</b> D = Duct / Pipe	<b>Measured Values</b> T = Temperature		<b>Region</b> 5 = Americas	<b>Signal Type</b> 2 = V (Volt) Multi-Range 4 = 4...20 mA	<b>Length [mm]</b> 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, which includes a conduit adaptor making them ideal for mounting to HVAC equipment that may or may not require 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 adaptor 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



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 20-22 to 20-30.



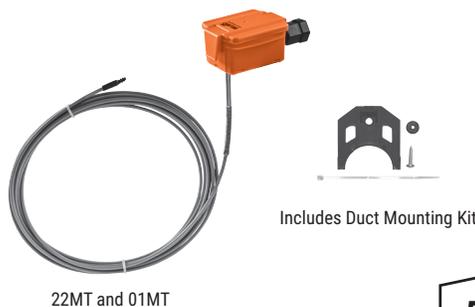
## Duct Averaging Sensor Nomenclature

### Temperature

01	M	T	-	5	B	4
<b>Power</b> 01 = Passive 22 = Active	<b>Application</b> M = Averaging (Duct)	<b>Measured Values</b> T = Temperature		<b>Region</b> 5 = Americas	<b>Signal Type</b> 2 = V (Volt) Multi-Range 4 = 4...20 mA B = Pt1000 E = Ni1000 L = NTC10k2 M = NTC10k3 Q = NTC20k	<b>Length</b> 4 = 10 ft. [3 m] 5 = 20 ft. [6 m] 8 = 50 ft. [15 m]

Duct averaging temperature sensors with 10, 20, or 50 foot [3, 6, 15 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	±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 adaptor included
Ambient Temperature	
Passive	-30...+122°F [-35...+50°C]
Active	-30...+122°F [-35...+50°C]
Operating Temperature	
Passive	
Pt, Ni	-30...+160°F [-35...+70°C]
NTC	-30...+120°F [0...50°C]
Active	-30...+160°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



Measuring Values		Measuring Ranges									Additional Features	List Price
		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]	
<b>DUCT / PIPE TEMPERATURE</b>												
22DT-52H	Active	0...5 V (0...10 V)	8	●	●	●	●	●	●	●	2" [50]	\$258
22DT-52L		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	4" [100]	\$258
22DT-52N		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	6" [150]	\$258
22DT-52P		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	8" [200]	\$258
22DT-52R		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	12" [300]	\$258
22DT-52T		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	18" [450]	\$258
22DT-54H		4...20 mA	8	●	●	●	●	●	●	●	2" [50]	\$258
22DT-54L		4...20 mA	8	●	●	●	●	●	●	●	4" [100]	\$258
22DT-54N		4...20 mA	8	●	●	●	●	●	●	●	6" [150]	\$258
22DT-54P		4...20 mA	8	●	●	●	●	●	●	●	8" [200]	\$258
22DT-54R		4...20 mA	8	●	●	●	●	●	●	●	12" [300]	\$258
22DT-54T		4...20 mA	8	●	●	●	●	●	●	●	18" [450]	\$258

Measuring Values		Measuring Ranges									Additional Features	List Price	
		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]	
<b>DUCT AVERAGING TEMPERATURE</b>													
01MT-5B4	Passive	Pt1000	●									10 ft [3]	\$444
01MT-5B5		Pt1000	●									20 ft [6]	\$508
01MT-5B8		Pt1000	●									50 ft [15]	\$941
01MT-5E4		Ni1000	●									10 ft [3]	\$413
01MT-5E5		Ni1000	●									20 ft [6]	\$508
01MT-5L4		NTC10k2										10 ft [3]	\$316
01MT-5L5		NTC10k2										20 ft [6]	\$391
01MT-5L8		NTC10k2										50 ft [15]	\$941
01MT-5M4		NTC10k3										10 ft [3]	\$316
01MT-5M5		NTC10k3										20 ft [6]	\$391
01MT-5M8		NTC10k3										50 ft [15]	\$941
01MT-5Q4		NTC20k										10 ft [3]	\$316
01MT-5Q5		NTC20k										20 ft [6]	\$391
22MT-524		Active	0...5 V (0...10 V)	8	●	●	●	●	●	●	●	10 ft [3]	\$654
22MT-525	0...5 V (0...10 V)		8	●	●	●	●	●	●	●	20 ft [6]	\$714	
22MT-528	0...5 V (0...10 V)		8	●	●	●	●	●	●	●	50 ft [15]	\$988	
22MT-544	4...20 mA		8	●	●	●	●	●	●	●	10 ft [3]	\$654	
22MT-545	4...20 mA		8	●	●	●	●	●	●	●	20 ft [6]	\$714	
22MT-548	4...20 mA		8	●	●	●	●	●	●	●	50 ft [15]	\$988	

● 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.

# Duct and Pipe Cable Sensor Nomenclature

## Temperature

22	C	T	-	5	2	H	
<b>Power</b> 01 = Passive 22 = Active	<b>Application</b> C = Cable	<b>Measured Values</b> T = Temperature		<b>Region</b> 5 = Americas	<b>Signal Type</b> 2 = V (Volt) Multi-Range 4 = 4...20 mA A = Pt100 B = Pt1000 E = Ni1000 L = NTC10k2 M = NTC10k3 Q = NTC20k	<b>Length [mm]</b> H = 2" [50] L = 4" [100] P = 8" [200]	<b>Cable Length</b> Blank = 6.5 ft. [2 m] 4 = 9.8 ft. [3 m]
<p>Belimo's immersion temperature sensors are for duct and pipe applications. These sensors include a mounting kit, which includes a conduit adaptor making them ideal for mounting to HVAC equipment that may or may not require electrical conduit. For liquid applications, a Thermowell (A-22P-A..) is required.</p>							
<b>Accuracy</b>		±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]					
<b>Power Supply</b>							
22CT		DC 15...24 V (± 10%), AC 24 V (± 10%) DC 15...24 V (± 10%) (4...20 mA)					
<b>Cable Entry</b>							
22CT		cable gland with strain relief Ø6...8 mm, ½" conduit adapter included					
<b>Ambient Temperature</b>							
Passive							
01CT5..		-40...+300°F [-40...+150°C]					
01CT5..1..		-13...+167°F [-25...+75°C]					
Active		-30...+120°F [-35...+50°C]					
<b>Operating Temperature</b>							
Passive							
01CT5..		-40...+300°F [-40...+150°C]					
01CT5..1..		-13...+167°F [-25...+75°C]					
Active		-40...+300°F [-40...+150°C]					
<b>Degree of Protection</b>							
22CT		NEMA 4X, IP65					
01CT		NEMA 4X, IP67					
<b>Agency Listing</b>		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



01CT  
with Mounting Flange Included



# Low Limit Detection Sensor Nomenclature

## Temperature

01	D	TS	-	5	0	4	X
<b>Power</b> 01 = Passive	<b>Application</b> D = Low Limit Detection	<b>Measured Values</b> TS = Temperature & Switch		<b>Region</b> 5 = Americas	<b>Signal Type</b> 0 = Switch	<b>Length</b> 4 = 9.8 ft. [3 m] 5 = 19.7 ft. [6 m]	<b>Details</b> 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.

<b>Accuracy</b>	±0.9°F [±0.5°C]
<b>Cable Entry</b>	cable gland cap nut with strain relief Ø6...8 mm
<b>Ambient Temperature</b>	-30...+160°F [-35...+70°C]
<b>Setpoint Range</b>	15...60°F [-10...+15°C]
<b>Degree of Protection</b>	NEMA 4, IP65



01DTS



Includes Mounting Kit



Measuring Values		Measuring Ranges								Additional Features				List Price	
		Temperature								Probe Length [mm]	Cable Length [m]	Cable Rating	Adjustable Mounting Flange Included		
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]	
		22CT-52H	Active	0...5 V (0...10 V)	8	●	●	●	●	●	●	●	2" [50]	6.5 ft [2]	
22CT-54H	4...20 mA	8		●	●	●	●	●	●	●	2" [50]	6.5 ft [2]	302°F [150°C]		\$265
<b>PROBE ONLY</b>															
01CT-5AH	Passive	Pt100									2" [50]	6.5 ft [2]	302°F [150°C]		\$61
01CT-5BH		Pt1000									2" [50]	6.5 ft [2]	302°F [150°C]		\$61
01CT-5EH		Ni1000									2" [50]	6.5 ft [2]	302°F [150°C]		\$61
01CT-5LH		NTC10k2									2" [50]	6.5 ft [2]	302°F [150°C]		\$47
01CT-5MH		NTC10k3									2" [50]	6.5 ft [2]	302°F [150°C]		\$47
01CT-5QH		NTC20k									2" [50]	6.5 ft [2]	302°F [150°C]		\$47
01CT-5BL		Pt1000									4" [100]	6.5 ft [2]	302°F [150°C]		\$61
01CT-5BP		Pt1000									8" [200]	6.5 ft [2]	302°F [150°C]		\$61
01CT-5LL		NTC10k2									4" [100]	6.5 ft [2]	302°F [150°C]		\$47
01CT-5LP		NTC10k2									8" [200]	6.5 ft [2]	302°F [150°C]		\$47
01CT-5ML		NTC10k3									4" [100]	6.5 ft [2]	302°F [150°C]		\$47
01CT-5MP		NTC10k3									8" [200]	6.5 ft [2]	302°F [150°C]		\$47
01CT-5QL		NTC20k									4" [100]	6.5 ft [2]	302°F [150°C]		\$47
01CT-5QP		NTC20k									8" [200]	6.5 ft [2]	302°F [150°C]		\$47
01CT-5LH01		NTC10k2									2" [50]	6.5 ft [2]	167°F [75°C]		\$31
01CT-5LL01		NTC10k2									4" [100]	6.5 ft [2]	167°F [75°C]		\$32
01CT-5LP01		NTC10k2									8" [200]	6.5 ft [2]	167°F [75°C]		\$39
01CT-5MH01		NTC10k3									2" [50]	6.5 ft [2]	167°F [75°C]		\$31
01CT-5ML01		NTC10k3									4" [100]	6.5 ft [2]	167°F [75°C]		\$32
01CT-5MP01		NTC10k3									8" [200]	6.5 ft [2]	167°F [75°C]		\$39
01CT-5QH01		NTC20k									2" [50]	6.5 ft [2]	167°F [75°C]		\$31
01CT-5QL01		NTC20k									4" [100]	6.5 ft [2]	167°F [75°C]		\$35
01CT-5QP01		NTC20k									8" [200]	6.5 ft [2]	167°F [75°C]		\$39
01CT-5LLF1-4		NTC10k2									4" [100]	9.8 ft [3]	167°F [75°C]	●	\$47
01CT-5LPPF1-4		NTC10k2									8" [200]	9.8 ft [3]	167°F [75°C]	●	\$47
01CT-5MLF1-4		NTC10k3									4" [100]	9.8 ft [3]	167°F [75°C]	●	\$47
01CT-5MPF1-4		NTC10k3									8" [200]	9.8 ft [3]	167°F [75°C]	●	\$47
01CT-5QLF1-4		NTC20k									4" [100]	9.8 ft [3]	167°F [75°C]	●	\$49
01CT-5QPF1-4		NTC20k									8" [200]	9.8 ft [3]	167°F [75°C]	●	\$49

Measuring Values		Output Signal	Reset		Setpoint Range	Additional Features	List Price
			Auto	Manual			
<b>LOW LIMIT DETECTION TEMPERATURE (FROST PROTECTION)</b>	Switch	SPDT			15...60°F [-10...+15°C]	Probe Length [m]	
		●	●		●	9.8 ft [3]	\$392
		●		●	●	9.8 ft [3]	\$428
		●	●		●	19.7 ft [6]	\$438
		●		●	●	19.7 ft [6]	\$483

\* 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.

# Duct Sensor Nomenclature

## Temperature / Humidity

22	D	TH	-	5	1	M	B
<b>Power</b> 22 = Active	<b>Application</b> D = Duct	<b>Measured Values</b> TH = Temperature & Humidity		<b>Region</b> 5 = Americas	<b>Signal Type</b> 1 = V (Volt) Multi-Range 3 = 4...20 mA 5 = Modbus RTU 6 = BACnet MS/TP	<b>Length [mm]</b> M = 5.5" [140]	<b>Details</b> 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 = $\pm 0.54^{\circ}\text{F}$ @ $77^{\circ}\text{F}$ [ $\pm 0.3^{\circ}\text{C}$ @ $25^{\circ}\text{C}$ ] Pt.. = $\pm 0.5^{\circ}\text{F}$ @ $32^{\circ}\text{F}$ [ $\pm 0.3^{\circ}\text{C}$ @ $0^{\circ}\text{C}$ ] Ni.. = $\pm 0.7^{\circ}\text{F}$ @ $32^{\circ}\text{F}$ [ $\pm 0.4^{\circ}\text{C}$ @ $0^{\circ}\text{C}$ ] NTC.. = $\pm 0.35^{\circ}\text{F}$ @ $77^{\circ}\text{F}$ [ $\pm 0.2^{\circ}\text{C}$ @ $25^{\circ}\text{C}$ ]
Humidity	$\pm 2\%$ between 0...80% RH @ $77^{\circ}\text{F}$ [ $25^{\circ}\text{C}$ ]
Power Supply	DC 15...24 V ( $\pm 10\%$ ), AC 24 V ( $\pm 10\%$ ) DC 15...24 V ( $\pm 10\%$ ) (4...20 mA)
Cable Entry	cable gland with strain relief $\varnothing 6...8$ mm, $\frac{1}{2}$ " conduit adapter included
Ambient Temperature	$-30...+120^{\circ}\text{F}$ [ $-35...+50^{\circ}\text{C}$ ]
Operating Temperature	$-30...+120^{\circ}\text{F}$ [ $-35...+50^{\circ}\text{C}$ ]
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  $\frac{1}{2}$ " Conduit Adapter



5-year warranty

Measuring Values				Measuring Ranges								Additional Features		List Price	
				Temperature				Relative Humidity	Absolute Humidity	Dewpoint	Enthalpy				
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]	\$506
22DTH-53M	4...20 mA		4...20 mA	4	●	●	●	●	●	●	●	●	5.5" [140]	\$506	
22DTH-51MB	Passive	Pt1000	0...5 V (0...10 V)					●	●	●	●		5.5" [140]	\$506	
22DTH-51ME		Ni1000	0...5 V (0...10 V)						●	●	●	●		5.5" [140]	\$506
22DTH-51ML		NTC10k2	0...5 V (0...10 V)						●	●	●	●		5.5" [140]	\$506
22DTH-51MM		NTC10k3	0...5 V (0...10 V)						●	●	●	●		5.5" [140]	\$506
22DTH-51MQ		NTC20k	0...5 V (0...10 V)						●	●	●	●		5.5" [140]	\$506
22DTH-53MB		Pt1000	4...20 mA						●	●	●	●		5.5" [140]	\$506
22DTH-53ME	Passive	Ni1000	4...20 mA					●	●	●	●		5.5" [140]	\$506	
22DTH-53ML		NTC10k2	4...20 mA					●	●	●	●		5.5" [140]	\$506	
22DTH-53MM		NTC10k3	4...20 mA						●	●	●	●		5.5" [140]	\$506
22DTH-53MQ		NTC20k	4...20 mA						●	●	●	●		5.5" [140]	\$506
22DTH-55M	Active	0...5 V (0...10 V)	0...5 V (0...10 V)					●	●	●	●	Modbus RTU	5.5" [140]	\$619	
22DTH-56M		0...5 V (0...10 V)	0...5 V (0...10 V)						●	●	●	●	BACnet MS/TP	5.5" [140]	\$619

• 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.

# Duct Sensor Nomenclature

## Air Quality

22	D	TM	-	5	1	0	6
<b>Power</b> 22 = Active	<b>Application</b> D = Duct	<b>Measured Values</b> C = CO <sub>2</sub> CK = CO <sub>2</sub> , VOC, Temperature, CO <sub>2</sub> / VOC Mix CM = CO <sub>2</sub> , VOC, Temperature CV = CO <sub>2</sub> , VOC TC = Temperature, CO <sub>2</sub> TM = Temperature, Humidity, CO <sub>2</sub>		<b>Region</b> 5 = Americas (°F) 1 = Americas (°C)	<b>Signal Type</b> 1 = V (Volt) Multi-Range 3 = 4...20 mA 6 = BACnet MS/TP	<b>Length</b> 0 = 7" [180]	<b>Details</b> 6 = LCD Display

Combined duct mounted air quality sensors for detection of CO<sub>2</sub>, VOC, temperature, and humidity. The dual channel CO<sub>2</sub> 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 <sub>2</sub>	±(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 <sub>2</sub> , 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

Measuring Values		Measuring Ranges								Additional Features			List Price		
		Temperature		Relative Humidity	Absolute Humidity	Dewpoint	Enthalpy	CO <sub>2</sub>	VOC						
CO <sub>2</sub>		Output Signals (default)	40...140°F	0...50°C	0...100% RH non-condensing	0...50 g/m <sup>3</sup> (default) 0...80 g/m <sup>3</sup>	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	Active	0...5 V (0...10 V)							•			6" [150]		\$872	
22DC-53		4...20 mA							•			6" [150]		\$872	

**CO<sub>2</sub> / TEMPERATURE**

22DTC-51	Active	0...5 V (0...10 V)	•						•			7" [180]		\$994	
22DTC-11*		0...5 V (0...10 V)		•					•			7" [180]		\$994	
22DTC-53		4...20 mA	•						•			7" [180]		\$994	
22DTC-13*		4...20 mA		•					•			7" [180]		\$994	
22DTC-5105		0...5 V (0...10 V)	•							•			7" [180]		\$994
22DTC-1105*		0...5 V (0...10 V)		•						•			7" [180]		\$994

**CO<sub>2</sub> / HUMIDITY / TEMPERATURE**

22DTM-51	Active	0...5 V (0...10 V)	•		•	•	•	•	•			7" [180]		\$1,329
22DTM-11*		0...5 V (0...10 V)		•	•	•	•	•	•			7" [180]		\$1,329
22DTM-5106		0...5 V (0...10 V)	•		•	•	•	•	•			7" [180]	LCD	\$1,551
22DTM-1106*		0...5 V (0...10 V)		•	•	•	•	•	•			7" [180]	LCD	\$1,551
22DTM-56		0...5 V (0...10 V)	•		•	•	•	•	•		BACnet MS/TP	7" [180]		\$1,361

**CO<sub>2</sub> / VOC**

22DCV-51	Active	0...5 V (0...10 V)							•		•	6" [150]		\$1,428
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**CO<sub>2</sub> / VOC / MIX CO<sub>2</sub> + VOC / TEMPERATURE**

22DCK-51	Active	0...5 V (0...10 V)	•						•		•	7" [180]		\$1,674
22DCK-11*		0...5 V (0...10 V)		•					•		•	7" [180]		\$1,674

**CO<sub>2</sub> / VOC / TEMPERATURE**

22DCM-51	Active	0...5 V (0...10 V)	•						•		•	7" [180]		\$1,552
22DCM-11*		0...5 V (0...10 V)		•					•		•	7" [180]		\$1,552

\*Temperature range configured for degrees Celsius.

# Duct Switch Nomenclature

## Differential Pressure / Static Pressure

<b>01</b>	<b>A</b>	<b>PS</b>	<b>-</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>.1</b>
<b>Power</b> 01 = Passive	<b>Application</b> A = Air	<b>Measured Values</b> PS = Pressure Switch	<b>Region</b> 5 = Americas	<b>Signal Type</b> 0 = Switch	<b>Range</b> 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]	<b>Option</b> .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
EXT-AFS-460	screw-top terminals with 6-32 cup washers; ⅜" diameter opening accepts ½" conduit.
EXT-AFS-460-136 EXT-AFS-460-137	screw connector, clamp-type terminal blocks suitable for 12-26 AWG with a ⅜" diameter opening that accepts ½" conduit.
Ambient Temperature	-4...+140°F [-20...+60°C]
EXT	-40°F to +180°F [-40°C to +82°C]
Operating Temperature	-4...+140°F [-20...+60°C]
EXT	-40°F to +180°F [-40°C to +82°C]
Degree of Protection	NEMA 13, IP54
EXT	see datasheet
Agency Listing	ETL listed
EXT-AFS-460	UL, CUL, CSA, CE approval
EXT-AFS-460-136 EXT-AFS-460-137	Sensing Switch: UL File MH6213; CSA File LR18754. Timer module: approved by UL, CUL, CS



01APS



5-year warranty



2-year warranty

EXT-AFS does not include tubing

EXT products have a 2-year warranty



Includes 6.5 ft. [2 m] tubing and two 4 in. [100 mm] plastic probes. Note: 01APS-5xx.1 bulk packages do not include tubes or probes. Tubing and probe bulk packages available separately: A-22AP-A05.1

# Duct Sensor Nomenclature

## Differential Pressure / Static Pressure

<b>22</b>	<b>A</b>	<b>DP</b>	<b>-</b>	<b>5</b>	<b>5</b>	<b>Q</b>	<b>A</b>
<b>Power</b> 22 = Active	<b>Application</b> A = Air	<b>Measured Values</b> DP = Differential Pressure / Static Pressure	<b>Region</b> 5 = Americas	<b>Signal Type</b> 5 = Modbus RTU 6 = BACnet MS/TP 8 = 4...20 mA and V (Volt) Multi-Range	<b>Range</b> Q = 1"wc [250 Pa] Selectable 4 = 10"wc [2500 Pa] Selectable 6 = 28"wc [7000 Pa] Selectable	<b>Details</b> 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 or BACnet 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...120°F [-10...+50°C]
Operating Temperature	15...120°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

Measuring Values		Measuring Ranges					Current Rating	Reset	Units	List Price			
		Pressure											
		Output Signals (default)	0.08 ...1.20 inch WC [20...300 Pa]	0.20...2 inch WC [50...500 Pa]	0.40...12.0 inch WC [100...3000 Pa]	0.80...4 inch WC [200...1000 Pa]	2...10 inch WC [500...2500 Pa]	24 V	120 V	Auto	Manual	package of 45	
<b>DIFFERENTIAL / STATIC PRESSURE SWITCH</b>													
01APS-501	Switch	SPDT				●	●	●	●			\$110	
01APS-501.1		SPDT				●	●	●	●			\$4,050	
01APS-504		SPDT					●	●	●			\$110	
01APS-504.1		SPDT					●	●	●			\$4,050	
01APS-50R		SPDT	●				●	●	●			\$110	
01APS-50R.1		SPDT	●				●	●	●			\$4,050	
01APS-50U		SPDT		●			●	●	●			\$110	
01APS-50U.1		SPDT		●			●	●	●			\$4,050	
EXT-AFS-460		SPST-NC			●			●			●		\$171
EXT-AFS-460-136		SPST-NC or DPDT			●				●		●		\$354
EXT-AFS-460-137		SPST-NC or DPDT				●		●			●		\$354

Measuring Values		Measuring Ranges													Additional Features	List Price											
		Pressure																									
		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	Active	0...5 V (0...10 V, 4...20 mA)	8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				\$487			
22ADP-58QA		0...5 V (0...10 V, 4...20 mA)	8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				\$623	
22ADP-58QB		0...5 V (0...10 V, 4...20 mA)	8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		LCD		\$812	
22ADP-58QL		0...5 V (0...10 V, 4...20 mA)	8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			LCD	\$596	
22ADP-55Q		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		Modbus RTU		\$596	
22ADP-56Q		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		BACnet MS/TP		\$596	
22ADP-55QA		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Modbus RTU		\$777	
22ADP-55QB		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Modbus RTU	LCD	\$908	
22ADP-56QB		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	BACnet MS/TP	LCD	\$908	
22ADP-55QL		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Modbus RTU	LCD	\$777	
22ADP-584		0...5 V (0...10 V, 4...20 mA)	8			●					●	●	●	●	●	●	●	●	●	●	●	●				\$487	
22ADP-584A		0...5 V (0...10 V, 4...20 mA)	8			●					●	●	●	●	●	●	●	●	●	●	●	●	●				\$623
22ADP-584B		0...5 V (0...10 V, 4...20 mA)	8			●					●	●	●	●	●	●	●	●	●	●	●	●	●		LCD		\$812
22ADP-584L		0...5 V (0...10 V, 4...20 mA)	8			●					●	●	●	●	●	●	●	●	●	●	●	●	●		LCD		\$596
22ADP-554		0...5 V (0...10 V)	8			●					●	●	●	●	●	●	●	●	●	●	●	●	●	Modbus RTU		\$596	
22ADP-554L		0...5 V (0...10 V)	8			●					●	●	●	●	●	●	●	●	●	●	●	●	●	Modbus RTU	LCD	\$777	
22ADP-564L		0...5 V (0...10 V)	8			●					●	●	●	●	●	●	●	●	●	●	●	●	●	BACnet MS/TP	LCD	\$777	
22ADP-556		0...5 V (0...10 V)	8										●	●	●	●	●	●	●	●	●	●	●	Modbus RTU		\$596	
22ADP-556L		0...5 V (0...10 V)	8										●	●	●	●	●	●	●	●	●	●	●	Modbus RTU	LCD	\$777	
22ADP-566L		0...5 V (0...10 V)	8										●	●	●	●	●	●	●	●	●	●	●	BACnet MS/TP	LCD	\$777	
22ADP-586		0...5 V (0...10 V, 4...20 mA)	8											●	●	●	●	●	●	●	●	●	●				\$487
22ADP-586L		0...5 V (0...10 V, 4...20 mA)	8											●	●	●	●	●	●	●	●	●	●		LCD		\$596

800-543-9038 USA

866-805-7089 CANADA

905-712-3118 LATIN AMERICA/CARIBBEAN

• Factory setting (setting ranges are configurable on the sensor).

# Pipe Sensor Nomenclature

## Temperature

<b>22</b>	<b>H</b>	<b>T</b>	<b>-</b>	<b>5</b>	<b>A</b>	<b>3</b>
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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])



# Pipe Sensor Nomenclature

## Condensation

<b>22</b>	<b>H</b>	<b>H</b>	<b>-</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>X</b>
-----------	----------	----------	----------	----------	----------	----------	----------

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-50



22HH-500X

Includes Mounting Ties



Measuring Values		Measuring Ranges								Additional Features	List Price		
		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 [10...50°C]	0...150°F [0...160°C]	40...240°F [10...100°C]	30...480°F [0...250°C]	Cable Length [m]	
<b>TEMPERATURE</b>													
01ST-5A3	Passive	Pt100										6.5 ft. [2]	\$80
01ST-5B3		Pt1000										6.5 ft. [2]	\$80
01ST-5E3		Ni1000										6.5 ft. [2]	\$80
01ST-5L3		NTC10k2										6.5 ft. [2]	\$62
01ST-5M3		NTC10k3										6.5 ft. [2]	\$62
01ST-5Q3		NTC20k										6.5 ft. [2]	\$62
01HT-5A	Passive	Pt100											\$93
01HT-5B		Pt1000											\$93
01HT-5E		Ni1000											\$93
01HT-5L		NTC10k2											\$72
01HT-5M		NTC10k3											\$72
01HT-5Q		NTC20k											\$72
22HT-52	Active	0...5 V (0...10 V)	8	●	●	●	●	●	●	●	●		\$261
22HT-54		4...20 mA	8	●	●	●	●	●	●	●	●		\$261

\* 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
<b>CONDENSATION</b>				
	Output Signals (default)	Cable Length [m]	Remote Probe	
22HH-50	Switch			\$343
22HH-500X		6.5 ft. [2]	●	\$375

# Pipe Sensor Nomenclature

## Spot/Rope Leak Detection

<b>22</b>	<b>H</b>	<b>L</b>	<b>-</b>	<b>5</b>	<b>0</b>	<b>2</b>
<b>Power</b>	<b>Application</b>	<b>Measured Values</b>		<b>Region</b>	<b>Signal Type</b>	<b>Relays</b>
22 = Active	H = Surface Mount (Housing)	L = Leak		5 = Americas	0 = Switch	Blank = 1 x SPDT 2 = 2 x SPDT 5 = 5 Meter Rope 20 = 20 Meter Rope

Leak detection sensor with LED indication have either SPDT or 2x SPDT switched contacts to prevent leaking of drip pans or floors etc.

Power Supply	DC 15...24 V (±10%), AC 24 V (±10%)
Output Signal Leakage	dry contact
Detector Relay Note	max. switching current 3 A @ 24 V min. switching current 3 mA @ 10 V
Sensor Rope	PVC
Ambient Temperature	4...158°F [-20...+70°C]
Operating Temperature	4...158°F [-20...+70°C]
Degree of Protection	NEMA 4



22HL-50

22HL-502



5-year warranty



22HL-505

Measuring Values		Additional Features	List Price
		Relays	Rope Length [m]
<b>LEAK DETECTION</b>			
22HL-50	<b>Switch</b>	1 x SPDT	\$251
22HL-502		2 x SPDT	\$359
22HL-505		1 x SPDT	16.4 ft. [5] \$418
22HL-520		1 x SPDT	65.6 ft. [20] \$778

# Pipe Sensor Nomenclature

## Pressure

22	W	P	-	5	1	1
<b>Power</b> 22 = Active	<b>Application</b> W = Water	<b>Measured Values</b> P = Pressure		<b>Region</b> 5 = Americas	<b>Signal Type</b> 1 = 0...10 V 3 = 4...20 mA	<b>Range</b> 1 = 0...15 psi 4 = 0...50 psi 6 = 0...100 psi 7 = 0...200 psi G = 0...580 psi

Static pressure sensors measure liquids, steam (15 psi inlet max.), refrigerants, or non-aggressive gases and are used in building management systems (BMS) to maintain adequate liquid or air pressure to critical zones.

Accuracy	±0.5% full scale @ 77°F [25°C]
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%)
Cable Entry	½" NPT conduit connector
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-year warranty

# Pipe Sensor Nomenclature

## Differential Pressure

22	P	DP	-	5	8	5	A
<b>Power</b> 22 = Active	<b>Application</b> W = Water P = Pipe	<b>Measured Values</b> DP = Differential Pressure		<b>Region</b> 5 = Americas	<b>Signal Type</b> 1 = 0...10 V 3 = 4...20 mA 8 = 4...20 mA and V (Volt) Multi-Range	<b>Range</b> 1 = 0...15 psid 2 = 0...30 psid 4 = 0...50 psid 5 = 0...100 psid 8 = 0...250 psid (PDP)	<b>Details</b> A = Armored Cable

Differential pressure sensors measure liquids and are used in building management systems (BMS) to maintain adequate liquid pressure to critical zones.

Accuracy	
PDP	±1.0% FS ...@ 22°C [72°F] ±0.03% FS / K for each pressure transmitter
WDP	±1% of measuring range @ 23...167°F [-5...+75°C]
Power Supply	AC/DC 24 V (±10%)
Cable Entry	
PDP	cable gland with strain relief Ø6...8 mm
WDP	compression fitting for cable max. Ø=8 mm
Ambient Temperature	
PDP	-40°F...+140°F [-40°C...+60°C]
WDP	15...120°F [-10...+50°C]
Operating Temperature	
PDP	32°F...122°F [0°C...50°C]
WDP	15...175°F [-10...+80°C]
Thread/Port Connection	¼" NPT
Degree of Protection	NEMA 4X, IP65
Agency Listing (PDP)	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



22WDP



22PDP-585A



5-year warranty

Measuring Values		Measuring Range					List Price	
		Pressure						
		Output Signals	0...15 psi	0...50 psi	0...100 psi	0...200 psi	0...580 psi	
<b>GAUGE PRESSURE</b>								
22WP-511	Active	0...10 V	•					\$518
22WP-514		0...10 V		•				\$518
22WP-516		0...10 V			•			\$518
22WP-517		0...10 V				•		\$518
22WP-51G		0...10 V					•	\$518
22WP-531		4...20 mA	•					\$518
22WP-534		4...20 mA		•				\$518
22WP-536		4...20 mA			•			\$518
22WP-537		4...20 mA				•		\$518
22WP-53G		4...20 mA					•	\$518

Measuring Values		Measuring Range				List Price	
		Pressure					
		Output Signals	0...15 psid	0...30 psid	0...50 psid	0...100 psid	
<b>DIFFERENTIAL PRESSURE</b>							
22WDP-511	Active	0...10 V	•				\$1,340
22WDP-512		0...10 V		•			\$1,340
22WDP-514		0...10 V			•		\$1,340
22WDP-515		0...10 V				•	\$1,340
22WDP-531		4...20 mA	•				\$1,340
22WDP-532		4...20 mA		•			\$1,340
22WDP-534		4...20 mA			•		\$1,340
22WDP-535		4...20 mA				•	\$1,340

Measuring Values		Measuring Range						Additional Features				List Price			
		Pressure													
		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 [10']	Remote Zeroing	On-Board Zeroing	Armored Cable [10']	
<b>DIFFERENTIAL PRESSURE, REMOTE PROBES, DISPLAY</b>															
22PDP-585	Active	4...20 mA, 0...5 V, 0...10 V	•	•		•	•			•	•	•	•	•	\$1,823
22PDP-588		4...20 mA, 0...5 V, 0...10 V			•	•		•	•	•	•	•	•	•	\$1,823
22PDP-585A		4...20 mA, 0...5 V, 0...10 V	•	•		•	•			•	•	•	•	•	\$2,029
22PDP-588A		4...20 mA, 0...5 V, 0...10 V			•	•		•	•	•	•	•	•	•	\$2,029

AB\_15000 - 01/26 - Subject to change. © BELIMO U.S. Inc. All prices are in US Dollars (USD)

# Pipe Sensor Nomenclature

## Flow

<b>22</b>	<b>P</b>	<b>F</b>	<b>-</b>	<b>5</b>	<b>X</b>	<b>U</b>	<b>C</b>	<b>NH</b>
<b>Power</b> 22 = Power Active	<b>Application</b> P = Pipe	<b>Measurement</b> F = Flow		<b>Region</b> 5 = Americas	<b>Protection</b> Blank = NEMA 2 X = NEMA 4	<b>Communication</b> U = BACnet / Modbus / MP-Bus / NFC	<b>Size</b> C = ½" D = ¾" E = 1" F = 1¼" G = 1½" H = 2", 79.2 GPM HH = 2", 100 GPM	<b>Heater (N4 only)</b> N = No heater NH = Humidistat NT = Thermostat

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 3 ft. [1 m], 18 GA appliance cable
Degree of Protection	NEMA 2/IP54 or NEMA 4
Fluid	chilled or hot water, up to 60% glycol max, condenser water (open loop/steam not allowed)
End Fitting	½" NPT female threads
Sensor Housing	nickel plated brass (forged)
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	≥ to 0 X DN (according to EN1434-4:2022)
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Flow Measurement Tolerance	±2%*
Agency Listing	cULus: UL 94 D5 E108966, UL Enclosure Type 2



PF  
Flow Sensor  
For ½...2" pipe size



PF  
NEMA 4 Flow Sensor  
For ½...2" pipe size



5-year warranty

\*See data sheet for Accuracy information

<b>FM</b>	<b>300</b>	<b>-250</b>
<b>Application</b> FM = Flow Sensor	<b>Size</b> 250 = 2½" 300 = 3" 400 = 4" 500 = 5" 600 = 6"	<b>Pressure Rating</b> Blank = ANSI 125 (2½...6") -250 = ANSI 250 (2½...6")

Power Supply	AC/DC 24 V
Cable Connection	cable connection with 3 ft. [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	ANSI 125 or 250 Flanged
Sensor Housing	cast iron
Sensor Housing Pressure Rating	ANSI 125, or ANSI 250
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	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



FM  
Flow Sensor  
For 2½...6" pipe size



5-year warranty



\*See data sheet for Accuracy information

Measuring Values		Flow (GPM)											Body Pressure Rating (psi)		Valve Size		Additional Features		List Price						
FLOW SENSORS		Degree of Protection	Output Signals	0.07...7.9	0.13...13.2	0.18...18.5	0.31...31.7	0.52...52.8	0.79...79.2	1.00...120	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	BA Cnet / Modbus / MP-Bus / NFC*	Belimo Assistant App			
NPT	22PF-5UC	NEMA 2, IP54	0...10 V, 0.5...10 V, 2...10 V	•											•			½" [15]	•	•	•	\$1,276			
	22PF-5UD		0...10 V, 0.5...10 V, 2...10 V		•											•			¾" [20]	•	•	•	\$1,341		
	22PF-5UE		0...10 V, 0.5...10 V, 2...10 V			•										•			1" [25]	•	•	•	\$1,638		
	22PF-5UF		0...10 V, 0.5...10 V, 2...10 V				•									•			1¼" [32]	•	•	•	\$2,367		
	22PF-5UG		0...10 V, 0.5...10 V, 2...10 V					•								•			1½" [40]	•	•	•	\$2,669		
	22PF-5UH		0...10 V, 0.5...10 V, 2...10 V						•							•			2" [50]	•	•	•	\$3,034		
	22PF-5UHH		0...10 V, 0.5...10 V, 2...10 V							•						•			2" [50]	•	•	•	\$3,034		
	22PF-5XUCN		Active	NEMA 4	0...10 V, 0.5...10 V, 2...10 V	•											•			½" [15]	•	•	•	\$2,140	
	22PF-5XUDN				0...10 V, 0.5...10 V, 2...10 V		•											•			¾" [20]	•	•	•	\$2,205
	22PF-5XUEN				0...10 V, 0.5...10 V, 2...10 V			•										•			1" [25]	•	•	•	\$2,502
	22PF-5XUFN				0...10 V, 0.5...10 V, 2...10 V				•									•			1¼" [32]	•	•	•	\$3,231
	22PF-5XUGN				0...10 V, 0.5...10 V, 2...10 V					•								•			1½" [40]	•	•	•	\$3,533
	22PF-5XUHN				0...10 V, 0.5...10 V, 2...10 V						•							•			2" [50]	•	•	•	\$3,898
	22PF-5XUHK				0...10 V, 0.5...10 V, 2...10 V							•						•			2" [50]	•	•	•	\$3,898
Flanged	FM250	NEMA 2, IP54	0.5...10 V								•				•			2½" [65]				\$9,671			
	FM250-250		0.5...10 V								•					•			2½" [65]				\$12,573		
	FM300		0.5...10 V										•			•			3" [80]				\$10,616		
	FM300-250		0.5...10 V									•				•			3" [80]				\$13,800		
	FM400		0.5...10 V										•			•			4" [100]				\$11,434		
	FM400-250		0.5...10 V										•			•			4" [100]				\$14,862		
	FM500		0.5...10 V											•		•			5" [125]				\$12,454		
	FM500-250		0.5...10 V											•		•			5" [125]				\$16,194		
	FM600		0.5...10 V												•	•			6" [150]				\$13,423		
	FM600-250		0.5...10 V												•	•			6" [150]				\$17,450		

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Optional heater model with thermostat temperature control for NEMA 4 models: Additional list price of \$970, add T to end of part number i.e. 22PF-5XUCNT  
Optional heater model with humidistat humidity control for NEMA 4 models: Additional list price of \$970, add H to end of part number i.e. 22PF-5XUCNH

\*See interface manuals for full list of points i.e. glycol percentage.

# Thermal Energy Meter Nomenclature

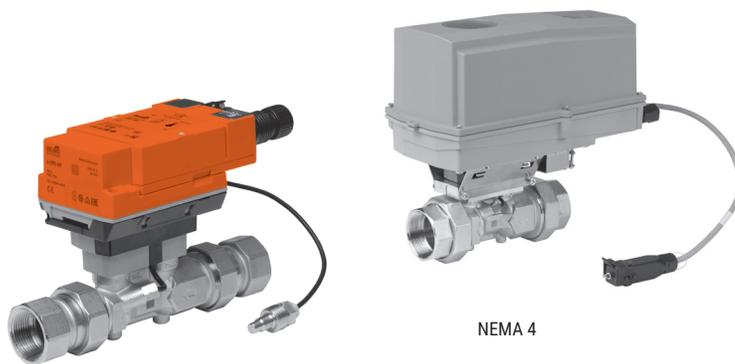
## BTU Measurement with Glycol Measurement

<b>22</b>	<b>P</b>	<b>E</b>	<b>-</b>	<b>5</b>	<b>X</b>	<b>U</b>	<b>C</b>	<b>N</b>
<b>Power</b> 22 = Active	<b>Application</b> P = Pipe	<b>Energy</b> E = Water		<b>Region</b> 5 = Americas	<b>Protection</b> Blank = NEMA 2 X = NEMA 4	<b>Signal Type</b> U = Modbus, BACnet, MP-Bus, NFC	<b>Size</b> C = ½" D = ¾" E = 1" F = 1¼" G = 1½" H = 2", 66 GPM HH = 2", 100 GPM	<b>Heater (N4 only)</b> N = No heater NH = Humidistat NT = Thermostat

Belimo Thermal Energy Meters provide precise measurement of thermal energy even if there is glycol in the system. Utilizing integrated glycol compensation, the 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 3 ft. [1 m] 18 Ga appliance cable
Degree of Protection	NEMA 2/IP54 or NEMA 4
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	≥ to 0 X DN (according to EN1434-4:2022)
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. [3 m]

\*See technical documentation



Thermal Energy Meter



5-year warranty

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				
			0.066...6.6	0.110...11	0.154...15.4	0.264...26.4	0.440...44	0.660...66	1.00...100								
NPT	Active	NEMA 2/IP54	22PE-5UC	0...10 V, 0.5...10 V (2...10 V)	•						•	½" [15]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$2,180		
			22PE-5UD	0...10 V, 0.5...10 V (2...10 V)		•						•	¾" [20]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$2,253	
			22PE-5UE	0...10 V, 0.5...10 V (2...10 V)			•						•	1" [25]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$2,409
			22PE-5UF	0...10 V, 0.5...10 V (2...10 V)				•					•	1¼" [32]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$2,928
			22PE-5UG	0...10 V, 0.5...10 V (2...10 V)					•				•	1½" [40]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$3,165
			22PE-5UH	0...10 V, 0.5...10 V (2...10 V)						•			•	2" [50]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$3,798
			22PE-5UHH	0...10 V, 0.5...10 V (2...10 V)							•		•	2" [50]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$3,798
			22PE-5UCN	0...10 V, 0.5...10 V (2...10 V)	•								•	½" [15]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$3,043
	NEMA 4	22PE-5XUDN	0...10 V, 0.5...10 V (2...10 V)		•							•	¾" [20]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$3,117	
		22PE-5XUEN	0...10 V, 0.5...10 V (2...10 V)			•						•	1" [25]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$3,273	
		22PE-5XUFN	0...10 V, 0.5...10 V (2...10 V)				•					•	1¼" [32]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$3,791	
		22PE-5XUGN	0...10 V, 0.5...10 V (2...10 V)					•				•	1½" [40]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$4,029	
		22PE-5XUHN	0...10 V, 0.5...10 V (2...10 V)						•			•	2" [50]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$4,661	
		22PE-5XUHK	0...10 V, 0.5...10 V (2...10 V)							•		•	2" [50]	BACnet MS/TP, BACnet IP, Modbus RTU, Modbus IP	•	\$4,661	

Optional heater model with thermostat temperature control for NEMA 4 models:  
Additional list price of \$970, add T to end of part number i.e. 22PE-5XCNT

Optional heater model with humidistat humidity control for NEMA 4 models:  
Additional list price of \$970, add H to end of part number i.e. 22PE-5XCNH

\*See interface manuals for full list of points i.e. glycol percentage.

# Outdoor Air Sensor Nomenclature

## Temperature

22	U	T	-	5	A
<b>Power</b> 01 = Passive 22 = Active	<b>Application</b> U = Outside	<b>Measured Values</b> T = Temperature		<b>Region</b> 5 = Americas	<b>Signal Type</b> 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.. = $\pm 0.5^{\circ}\text{F}$ @ $32^{\circ}\text{F}$ [ $\pm 0.3^{\circ}\text{C}$ @ $0^{\circ}\text{C}$ ] Ni.. = $\pm 0.7^{\circ}\text{F}$ @ $32^{\circ}\text{F}$ [ $\pm 0.4^{\circ}\text{C}$ @ $0^{\circ}\text{C}$ ] NTC.. = $\pm 0.35^{\circ}\text{F}$ @ $77^{\circ}\text{F}$ [ $\pm 0.2^{\circ}\text{C}$ @ $25^{\circ}\text{C}$ ]
22UT	$\pm 1\%$ of the selected measuring range
Power Supply	DC 15...24 V ( $\pm 10\%$ ), AC 24 V ( $\pm 10\%$ ) DC 15...24 V ( $\pm 10\%$ ), (4...20 mA)
Cable Entry	cable gland with strain relief $\varnothing 6...8$ mm, $\frac{1}{2}$ " conduit adapter included
Ambient Temperature	
Passive (01UT)	$-30...+120^{\circ}\text{F}$ [ $-35...+50^{\circ}\text{C}$ ]
Active (22UT)	$-30...+120^{\circ}\text{F}$ [ $-35...+50^{\circ}\text{C}$ ]
Operating Temperature	
Passive (01UT)	$-30...+120^{\circ}\text{F}$ [ $-35...+50^{\circ}\text{C}$ ]
Active (22UT)	$-30...+120^{\circ}\text{F}$ [ $-35...+50^{\circ}\text{C}$ ]
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

Measuring Values		Measuring Ranges										Additional Features	List Price
		Temperature											
<b>OUTDOOR AIR</b>	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									\$117	
	01UT-5B	Pt1000										\$117	
	01UT-5E	Ni1000										\$107	
	01UT-5L	NTC10k2										\$74	
	01UT-5M	NTC10k3										\$74	
	01UT-5Q	NTC20k										\$74	
	22UT-52	Active	0...5 V (0...10 V)	8	●	●	●	●	●	●	●	1" [25]	\$279
	22UT-54	4...20 mA	8	●	●	●	●	●	●	●	●	1" [25]	\$279

• 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.

# Outdoor Air Sensor Nomenclature

## Temperature / Humidity

<b>22</b>	<b>U</b>	<b>TH</b>	<b>-</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>X</b>
<b>Power</b> 22 = Active	<b>Application</b> U = Outside	<b>Measured Values</b> TH = Temperature & Humidity		<b>Region</b> 5 = Americas	<b>Signal Type</b> 1 = V (Volt) 3 = 4...20 mA 5 = Modbus 6 = BACnet	<b>Length</b> 0 = N/A	<b>Details</b> 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  
Includes Rain Protector and  
Mounting Plate. This product  
also has a conduit adapter.



5-year warranty

Measuring Values				Measuring Ranges								Additional Features		List Price		
				Temperature				Relative Humidity	Absolute Humidity	Dewpoint	Enthalpy					
<b>OUTDOOR AIR</b>	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	<b>Active</b>	0...5 V (0...10 V)	0...5 V (0...10 V)	4	●	●	●	●	●	●	●	●			\$659	
22UTH-53		4...20 mA	4...20 mA	4	●	●	●	●	●	●	●	●			\$659	
22UTH-510B	<b>Passive</b>	Pt1000	0...5 V (0...10 V)						●	●	●	●			\$659	
22UTH-510E		Ni1000	0...5 V (0...10 V)						●	●	●	●			\$659	
22UTH-510L		NTC10k2	0...5 V (0...10 V)						●	●	●	●			\$659	
22UTH-510M		NTC10k3	0...5 V (0...10 V)						●	●	●	●			\$659	
22UTH-510Q		NTC20k	0...5 V (0...10 V)						●	●	●	●			\$659	
22UTH-530B		Pt1000	4...20 mA						●	●	●	●			\$659	
22UTH-530E		Ni1000	4...20 mA						●	●	●	●			\$659	
22UTH-530L		NTC10k2	4...20 mA						●	●	●	●			\$659	
22UTH-530M		NTC10k3	4...20 mA						●	●	●	●			\$659	
22UTH-530Q		NTC20k	4...20 mA						●	●	●	●			\$659	
22UTH-510X	<b>Active</b>	0...5 V (0...10 V)	0...5 V (0...10 V)	4	●	●	●	●	●	●	●	●		●	\$773	
22UTH-530X		4...20 mA	4...20 mA	4	●	●	●	●	●	●	●	●		●	\$773	
22UTH-550X		0...5 V (0...10 V)	0...5 V (0...10 V)						●	●	●	●	Modbus RTU		●	\$966
22UTH-560X		0...5 V (0...10 V)	0...5 V (0...10 V)						●	●	●	●	BACnet MS/TP		●	\$966

• 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.



Type:	22ADP-5..	22DTH-55.. 22DTH-56..	22DC-53 22DC-.. 22DTM-..	22DCV-.. 22DCM-.. 22DCK-..	22UTH-550X 22UTH-560X
<b>A-22G-A05</b> Bluetooth USB Dongle	■	■	■	■	■



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		
 <b>A-22AP-A01</b> Metal duct connectors, L = 1.5" [40 mm]																				•	•	\$22	
 <b>A-22AP-A03</b> Metal duct connectors, L = 4" [100 mm]																					•	•	\$37
 <b>A-22AP-A05.1</b> PVC tube 6.5 ft. [2 m] and 2 plastic duct probes 4" [100 mm] for 01APS/22ADP pressure switch/sensor (multipack- 50 pcs)																					•	•	\$1,250
 <b>A-22AP-A08</b> PVC tube 6.5 ft. [2 m] and 2 plastic duct probes 4" [100 mm] for 01APS/22ADP pressure switch/sensor																					•	•	\$36
 <b>A-22D-A03</b> Mounting flange for duct temperature sensors Ø ¼" [6 mm]	•		•			•					•												\$15
 <b>A-22D-A03.1</b> Bulk pack of 50 pieces for A-22D-A03 mounting flange for duct temperature sensors Ø ¼" [6 mm]	•		•			•					•												\$350
 <b>A-22D-A05</b> Brass mounting flange for duct temperature sensors, up to 500°F [260°C]	•		•			•					•												\$37
 <b>A-22D-A06</b> Replacement filter for humidity sensors										•		•	•	•				•	•				\$36
 <b>A-22D-A08</b> Mounting kit for duct averaging and low temp limit detection			•		•	•																	\$25
 <b>A-22D-A09</b> Mounting plate for sensors with small housing	•			•	•	•		•	•		•												\$10
 <b>A-22D-A10</b> Mounting plate for sensors with large housing										•			•	•	•	•	•	•			•		\$13
 <b>A-22D-A11</b> Mounting clip for duct temperature	•					•		•	•		•												\$3
 <b>A-22D-A34</b> Mounting flange for duct humidity and CO <sub>2</sub> sensor													•	•	•	•	•	•					\$22
 <b>A-22G-A04.1</b> ½" NPT conduit adaptor (Pack of 10)	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	\$90
 <b>EXT-RP-SSRPV</b> Room pressure pickup plate used with 22ADP products																					•		\$50
 <b>A-22AP-A06</b> L-shape metal mounting bracket for 01APS..																					•		\$10

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Model Number	01DT	22DT	01CT	22CT	01ST	01HT	22WP	22WDP	List Price										
	<b>A-22P-A05*</b> Thermowell (2 part) stainless steel 2" [50 mm] ½" NPT									•	•	•	•						\$46
	<b>A-22P-A07*</b> Thermowell (2 part) stainless steel 4" [100 mm] ½" NPT									•	•	•	•						\$48
	<b>A-22P-A09*</b> Thermowell (2 part) stainless steel 6" [150 mm] ½" NPT									•	•	•	•						\$57
	<b>A-22P-A11*</b> Thermowell (2 part) stainless steel 8" [200 mm] ½" NPT									•	•	•	•						\$71
	<b>A-22P-A13*</b> Thermowell (2 part) stainless steel 12" [300 mm] ½" NPT									•	•	•	•						\$109
	<b>A-22P-A15*</b> Thermowell (2 part) stainless steel 18" [450 mm] ½" NPT									•	•	•	•						\$147
	<b>A-22P-A17*</b> Thermowell (2 part) brass 2" [50 mm] ½" NPT									•	•	•	•						\$34
	<b>A-22P-A19*</b> Thermowell (2 part) brass 4" [100 mm] ½" NPT									•	•	•	•						\$40
	<b>A-22P-A21*</b> Thermowell (2 part) brass 6" [150 mm] ½" NPT									•	•	•	•						\$47
	<b>A-22P-A23*</b> Thermowell (2 part) brass 8" [200 mm] ½" NPT									•	•	•	•						\$57
	<b>A-22P-A25*</b> Thermowell (2 part) brass 12" [300 mm] ½" NPT									•	•	•	•						\$86
	<b>A-22P-A27*</b> Thermowell (2 part) brass 18" [450 mm] ½" NPT									•	•	•	•						\$105
	<b>A-22P-A36*</b> Thermowell (machined) stainless steel 2" [50 mm] ½" NPT									•	•	•	•						\$152
	<b>A-22P-A37*</b> Thermowell (machined) stainless steel 4" [100 mm] ½" NPT									•	•	•	•						\$203
	<b>A-22P-A38*</b> Thermowell (machined) stainless steel 6" [150 mm] ½" NPT									•	•	•	•						\$208
	<b>A-22P-A39*</b> Thermowell (machined) stainless steel 8" [200 mm] ½" NPT									•	•	•	•						\$239
	<b>A-22P-A51</b> 2" (50 mm) condensation barrier to isolate the sensor housing from the sensor probe (recommended for chilled water applications)									•	•	•	•						\$39
	<b>A-22P-A40</b> Fixing strap with thermal paste for pipes up to Ø 0.8...4.3" [20...110 mm]											•	•	•	•				\$17
	<b>A-22P-A42</b> Fixing strap with thermal paste for pipes up to Ø 0.8...9.8" [20...250 mm]											•	•	•	•				\$34
	<b>A-22P-A44</b> Thermal contact fluid 0.04 oz [1.2 ml]									•	•	•	•	•	•				\$10
	<b>A-22WP-A01</b> Adapter ¼" NPT to ½" NPT															•			\$37

\*See data sheet for actual insertion length

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Model Number	01DT	01DTS	22DT	01CT	22CT	01ST	01HT	22WP	22WDP	22PDP	List Price		
	<b>A-22WP-A03</b> Adapter connection set 6 mm 1/4" NPT brass (2x)											•	\$55
	<b>A-22WP-A05</b> Adapter connection set 6 mm 1/4" NPT stainless steel (2x)											•	\$240
	<b>A-22WP-A07</b> Adapter connection set 8 mm 1/4" NPT brass (2x)											•	\$61
	<b>A-22WP-A09</b> Adapter connection set 8 mm 1/4" NPT stainless steel (2x)											•	\$275
	<b>A-22G-A04.1</b> 1/2" NPT conduit adaptor (Pack of 10)											•	\$90
	<b>EXT-TTS-M1612</b> 1/2" NPT conduit adaptor for 22WDP products											•	\$30
	<b>43423-00001</b> 1/2" NPT conduit adaptor for 22WP products											•	\$30
	<b>A-22P-A60</b> Brass compression fitting 1/4...1/2" NPT adapter for competitor retrofit applications of a thermowell with 1/2" NPT internal thread, includes brass compression sleeve and optional nylon sleeve											•	\$17
	<b>EXT-GS-3WM</b> 3-way valve manifold for installing and isolating pipe differential sensors											•	\$766
	<b>A-22PDP-A01</b> PDP 20' armored cable extensions (2)											•	\$875
	<b>A-22PDP-A02</b> PDP 20' PVC cable extensions (2)											•	\$475
	<b>A-22P-A54</b> Replacement thermowell nut and o-ring (2)											•	\$3

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## 21 GAS MONITORING

### Ventilation on Demand

- Single or dual gas monitors provide direct control through analog outputs and relays.
- CAN bus and BACnet MS/TP communications allow for complete standalone operation or integration into a Building Management System (BMS).
- Field replaceable sensor modules are factory calibrated and hot swappable.
- NEMA 2, IP44 rated enclosures feature an electronic display, programmable interface, and a horn and strobe alarm.

Brett Kavanagh, Product Specialist

# Vehicle Emissions Nomenclature

## Carbon Monoxide / Nitrogen Dioxide

22	G	0214	-5	A
<b>Power</b> 22 = Active	<b>Gas Monitoring</b>	<b>Measured Values</b> 02 = Carbon Monoxide (CO) 14 = Nitrogen Dioxide (NO <sub>2</sub> ) 0214 = Carbon Monoxide (CO) and Nitrogen Dioxide (NO <sub>2</sub> )	<b>Region</b> -5 = Americas	<b>Signal Type</b> A = CAN bus, BACnet MS/TP, 1 Relay, 2 Analog Outputs, 1 Binary Input B = CAN bus, BACnet MS/TP, 2 Relays, 1 Binary Input C = CAN bus

Belimo gas monitors are factory calibrated and can monitor up to two different gases in one device. All monitors feature an internal horn and strobe alarm and CAN bus communication, that allows for standalone operation. Select models provide direct control through analog outputs and relays, and integration into a Building Management System (BMS) through BACnet MS/TP. Belimo gas monitors are wired daisy chain for up to 32 devices and can be easily programmed to zone ventilation on the same network. All Belimo branded gas monitoring products come with a five-year warranty, with the exception of all sensor modules, which come with a one-year warranty.



22G0214-5A

Range	
Carbon Monoxide (CO)	0...250 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	0...10 ppm
Power Supply	AC/DC 24 V
Sensing Technology	
Carbon Monoxide (CO)	electrochemical
Nitrogen Dioxide (NO <sub>2</sub> )	electrochemical
Cable Entry	five ½" conduit knockouts (2 on top, 2 on the bottom, 1 on back)
Operating Temperature	-4...+122°F [-20...+50°C]
Degree of Protection	NEMA 2, IP44
Agency Listing	cULus listed to UL2075, ULC-S588 BTL listed to No.BTL-30001

Belimo gas monitors are factory calibrated using NIST traceable gas bottle mixtures in a typical operational environment. Under normal conditions, all monitors must be calibrated annually from the date they leave Belimo. If installed over 2000 ft. [610 m] above sea level, they must be calibrated upon installation.

All vehicle emissions gas monitors are certified to UL 2075 and ULC-S588. Belimo is helping lead the gas monitoring industry by being the first company to receive UL 2075 and ULC-S588 on NO<sub>2</sub> and combo CO and NO<sub>2</sub> gas monitors.



Measuring Values			Measuring Ranges		Additional Features			List Price	
			CO	NO <sub>2</sub>					
			0...250 ppm	0...10 ppm	CAN bus	BACnet MS/TP	Binary Input		
<b>CO</b>		Relays (SPDT)	Analog Outputs (2...10 V or 4...20 mA) *Customizable						
22G02-5A	Active	1	2	•		•	•	•	\$1,407
22G02-5B		2		•		•	•	•	\$1,325
22G02-5C					•		•		\$979
<b>NO<sub>2</sub></b>									
22G14-5A	Active	1	2		•	•	•	•	\$1,488
22G14-5B		2			•	•	•	•	\$1,407
22G14-5C						•	•		\$1,040
<b>CO / NO<sub>2</sub></b>									
22G0214-5A	Active	1	2	•	•	•	•	•	\$2,067
22G0214-5B		2		•	•	•	•	•	\$1,986
22G0214-5C					•	•	•		\$1,449

# Indoor Air Quality Nomenclature

## Carbon Dioxide

22	G	15	-5	A	3
<b>Power</b> 22 = Active	<b>Gas Monitoring</b>	<b>Measured Values</b> 15 = Carbon Dioxide (CO <sub>2</sub> )	<b>Region</b> -5 = Americas	<b>Signal Type</b> A = CAN bus, BACnet MS/TP, 1 Relay, 2 Analog Outputs, 1 Binary Input B = CAN bus, BACnet MS/TP, 2 Relays, 1 Binary Input C = CAN bus	<b>Measuring Range</b> 3 = 0...2000 ppm 5 = 0...5000 ppm 6 = 0...10000 ppm

Belimo gas monitors are factory calibrated and can monitor up to two different gases in one device. All monitors feature an internal horn and strobe alarm and CAN bus communication, that allows for standalone operation. Select models provide direct control through analog outputs and relays, and integration into a building management system (BMS) through BACnet MS/TP. Belimo gas monitors are wired daisy chain for up to 32 devices and can be easily programmed to zone ventilation on the same network. All Belimo branded gas monitoring products come with a five-year warranty, with the exception of all sensor modules, which come with a one-year warranty.



22G15-5A3

Range	
Carbon Dioxide (CO <sub>2</sub> )	0...2000 ppm 0...5000 ppm 0...10000 ppm
Power Supply	AC/DC 24 V
Sensing Technology	
0...2000 ppm	non-dispersive infrared (NDIR), ABC logic
0...5000 ppm	non-dispersive infrared (NDIR), dual channel
0...10000 ppm	non-dispersive infrared (NDIR), dual channel
Cable Entry	five ½" conduit knockouts (2 on top, 2 on the bottom, 1 on back)
Operating Temperature	
0...2000 ppm	32...122°F [0...50°C]
0...5000 ppm	-4...+122°F [-20...+50°C]
0...10000 ppm	-4...+122°F [-20...+50°C]
Degree of Protection	IP20
Agency Listing	ETL acc. to UL 61010-1/-2-201, CSA C22.2#61010-1-12/-2-201 BTL listed to No.BTL-30001



5-year warranty

Belimo gas monitors are factory calibrated using NIST traceable gas bottle mixtures in a typical operational environment. Under normal conditions, all monitors must be calibrated annually from the date they leave Belimo. If installed over 2000 ft [610 m] above sea level, they must be calibrated upon installation.

Measuring Values			Measuring Ranges			Additional Features			List Price	
			CO <sub>2</sub>							
			0 ... 2000 ppm	0 ... 5000 ppm	0 ... 10000 ppm	CAN bus	BACnet MS/TP	Binary Input		
<b>CO<sub>2</sub></b>	Relays (SPDT)	Analog Outputs (2...10 V or 4...20 mA) Customizable								
22G15-5A3	<b>Active</b>	1	2	•			•	•	•	\$1,546
22G15-5B3		2		•			•	•	•	\$1,501
22G15-5A5		1	2		•		•	•	•	\$2,229
22G15-5B5		2			•		•	•	•	\$2,184
22G15-5B6		2				•	•	•	•	\$2,348
22G15-5C6						•	•			\$2,184

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# Refrigerant Gases Nomenclature

## Various Refrigerants

22	G	21	-5	C
<b>Power</b> 22 = Active	<b>Gas Monitoring</b>	<b>Measured Values</b> 21 = Refrigerant Selectable R11, R22, R23, R32, R125, *R134a (default), R404A, R407A, R407C, R407F, R410A, R448A, R449A, R452A, R454B, R455A, R507, R513A, R1233zd, R1234yf, R1234ze	<b>Region</b> -5 = Americas	<b>Signal Type</b> C = CAN bus

Belimo refrigerant gas monitors are factory calibrated and monitor one user selectable refrigerant. They feature an audible and visual alarm and CAN bus communication, allowing for standalone operation and networking of up to 32 devices. Belimo refrigerant gas monitors are used in conjunction with a communication module (C-22G-5A/B/C) and / or a relay unit (C-22G-50) to control external equipment directly. All refrigerant gas monitors are wired via a daisy chain and are backed by a five-year warranty.



22G21-5C

### List of Selectable Refrigerants

	R11
	R22
	R23
	R32
	R123
	R134a (Default)
	R404A
	R407A
	R407C
	R407F
User Selectable	R410A
	R448A
	R449A
	R452A
	R454B
	R455A
	R507
	R513A
	R1233zd
	R1234yf
	R1234ze
Range	0...2000 ppm
Power Supply	AC/DC 24 V
Sensing Technology	non-dispersive infrared (NDIR) broadband
Cable Entry	five ½" conduit knockouts (2 on top, 2 on the bottom, 1 on back)
Operating Temperature	-4...+104°F [-20...+40°C]
Degree of Protection	IP20
Agency Listing	ETL acc. to UL 61010-1/-2-201, CSA C22.2#61010-1-12/-2-201



5032181



5-year warranty

Belimo gas monitors are factory calibrated using NIST traceable gas bottle mixtures in a typical operational environment. Under normal conditions, all monitors must be calibrated annually from the date they leave Belimo. If installed over 2000 ft [610 m] above sea level, they must be calibrated upon installation.



VEHICLE EMISSIONS SENSOR MODULES*		22G02-5..	22G0214-5..	22G14-5..	22G15-5..3	22G15-5..5	22G15-5..6	List Price
	<b>R-G02</b> Carbon monoxide (CO) replacement sensor module 0...250 ppm	•	•					\$525
	<b>R-G14</b> Nitrogen dioxide (NO <sub>2</sub> ) replacement sensor module 0...10 ppm		•	•				\$657
INDOOR AIR QUALITY SENSOR MODULES*								
	<b>R-G15-003</b> Carbon dioxide (CO <sub>2</sub> ) replacement sensor module 0...2000 ppm				•			\$684
	<b>R-G15-005</b> Carbon dioxide (CO <sub>2</sub> ) replacement sensor module 0...5000 ppm					•		\$1,365
	<b>R-G15-006</b> Carbon dioxide (CO <sub>2</sub> ) replacement sensor module 0...10000 ppm						•	\$1,409
COMMUNICATION MODULES								
	<b>C-22G-5A</b> Communication module, features CAN bus, BACnet MS/TP, 1 relay, 2 analog outputs, 1 binary input	•	•	•	•	•	•	\$968
	<b>C-22G-5B</b> Communication module, features CAN bus, BACnet MS/TP, 2 relays, 1 binary input	•	•	•	•	•	•	\$891
	<b>C-22G-5C</b> Communication module, features CAN bus	•	•	•	•	•	•	\$735
RELAY UNIT								
	<b>C-22G-50</b> Relay unit, features CAN bus, 4 relays	•	•	•	•	•	•	\$630

\*All sensor modules have a 1-year warranty.

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MISCELLANEOUS ACCESSORIES		22G02-5..	22G0214-5..	22G14-5..	22G15-5..3	22G15-5..5	22G15-5..6	22G21-5C	List Price
	<b>A-22G-A08</b> Refrigerant calibration kit: regulator (0.5 LPM), hose, and cap							•	\$1,221
	<b>A-22G-A09</b> Refrigerant replacement calibration hose and cap							•	\$78
	<b>A-22G-A12</b> Splash proof enclosure	•	•	•	•	•	•	•	\$449
	<b>A-22G-A13</b> Duct mount enclosure	•	•	•	•	•	•	•	\$575
	<b>A-22G-A14</b> Remote enclosure that allows one gas monitor to sense two gases at various elevations, of up to 7 feet [2 meters] apart. Includes: remote enclosure, 7 ft. [2 m] CAT5E cable, and interface connector. Note: this product is used on the bottom sensor port only	•	•	•	•	•	•		\$425
	<b>A-22G-A15</b> External visual alarm	•	•	•	•	•	•	•	\$498
	<b>A-22G-A16</b> External audible alarm	•	•	•	•	•	•	•	\$1,087
	<b>A-22G-A22</b> Calibration kit: regulator (0.5 LPM), hose, and cap	•	•	•	•	•	•		\$1,151
	<b>A-22G-A23</b> Replacement calibration hose and cap	•	•	•	•	•	•		\$54
	<b>A-22G-A24</b> Security screw kit: includes 20 security torx captive screws, 1 allen key (security torx, T20)	•	•	•	•	•	•	•	\$201
	<b>A-22G-A50</b> Transformer, 50 VA	•	•	•	•	•	•	•	\$257
	<b>A-22G-A100</b> Transformer, 100 VA	•	•	•	•	•	•	•	\$276

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GAS MONITORING



# 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 management system (BMS) using BACnet MS/TP.



Discover the advantages  
[www.belimo.com](http://www.belimo.com)



5-year warranty



5032181



Gas Monitor





## 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.

Dan Rock, Product Specialist

# Retrofit Solutions Nomenclature

U	F	L	K	XXXX	AFB	24	-MFT
<b>Series</b>	<b>Valve Type</b>	<b>Retrofit Type</b>	<b>Packaging</b>	<b>Actuator Type</b>	<b>Power Supply</b>	<b>Control</b>	
U = Universal S = Schneider W = Warren F = Flanged	F = Butterfly G = Globe B = Ball	L = Linkage V = Valve SP = Special Order S = Short Stroke	K = Kit L = Linkage Blank with SP	Dependent upon valve you are selecting to retrofit	<b>Non Fail-Safe</b> LVB, LVX SVB, SVX EVB, EVX RVB, RVX PRB/PRX SY <b>Fail-Safe</b> Spring Return LF NFB, NFX AFB, AFX <b>Electronic</b> LVKB, LVKX SVKB, SVKX AVKB, AVKX GKB, GKX PKRB, PKRX	24 = AC/DC 24 V 120 = AC 120 V	Blank = On/Off -3-X1 = On/Off, Floating Point -SR = 2...10 V -MFT or MFT-X1 = Multi-Function Technology

**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 22-44 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, 1 1/4" 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	1 1/4"	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 **1 1/4" valve**.

#### 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-MFT	2...10 V (4...20 mA)	2...10 V	AC/DC 24 V	150 seconds	<20 s	10	-
AFB24-MFVS	2...10 V (4...20 mA)	2...10 V	AC/DC 24 V	150 seconds	<20 s	10	Built-In

**3** Select actuator based on needed control type. Decide between **AFB24, AFB24-MFT** or **SVKX24-3, SVKB24-MFT**.

**4** Complete Ordering Example Option One:  
 Item 1: **UGLK1208**  
 Item 2: **AFB24-MFT**

Complete Ordering Example Option Two:  
**4** 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
	Fail-Safe	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)
<b>GVL LINKAGES</b>						
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-MFT-S US	AFB24-MFT-S
AF24-PWM US	AFX24-MFT + W □□
AF24-S US	AFB24-S
AF24-SR US	AFB24-SR**
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
FS24	AFB24
FS24-S	AFB24-S
FSAF120 US	FSAF120A
FSAF120-S US	FSAF120A-S
FSAF230 US	FSAF230A
FSAF230-S US	FSAF230A-S
FSAF24 US	FSAF24A
FSAF24-BAL US	FSAFB24-SR + SGA24 or SGF24

\* Purchased before May 2003.

\*\* Not piggy back capable.

**FAIL-SAFE ACTUATORS**

DISCONTINUED MODEL	REPLACEMENT MODEL
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-SR US
LF24-SR-S-MP US	LF24-SR-S 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-SR
TF24-MFT-S US	TFB24-SR-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 US	AMX24-MFT + # AM100 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	GM24
GM24-MFT US	GM24SR
GM24-SR US	GM24SR
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
LM24-SR-T US	LMB24-SR-T

\* Purchased before May 2003.

\*\* Not piggy back capable.

□ Placeholder for custom options.

**NON FAIL-SAFE ACTUATORS**

DISCONTINUED MODEL	REPLACEMENT MODEL
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	NMQ24-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-SRS US	AMX24-MFT + # AM100 1C1 A □□

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RETROFIT SOLUTIONS

# 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-SR-S US	AFB24-SR-S
LF24-SR-MP US	LF24-SR US
LF24-SR-S-MP US	LF24-SR-S 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 6' [2 m] long cable and the replacement is a 10' [3 m] 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

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

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
MAR800-30	10,000	SY7-110*	9,790
MAR800-30P	10,000	SY8-110*	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

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-3-T	1,400
SY2-24MFT*	800	PRBUP-MFT-T	1,400
SY3-24MFT*	1,335	PRBUP-MFT-T	1,400

\*New linkage required.

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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 [www.belimo.com/firesmoke](http://www.belimo.com/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 DC 24 V and a filtered and regulated power supply is used.**

Notes	MODEL		BELIMO REPLACEMENT MODEL				
	HONEYWELL	BELIMO	Power	Torque (in-lb)			
Go to <a href="http://www.belimo.com/firesmoke">www.belimo.com/firesmoke</a> for Installation Instructions.	ML4105A1000	FSLF120 US	AC 120 V	30			
	ML4105B1009						
	ML4105C1008						
At velocities <2,000fpm	ML4105D1007	FSLF230 US	AC 230 V	30			
	ML4115A1009	FSLF120 US	AC 120 V				
FSTF may be used on dampers <1.5 sq.ft.	ML4115A1017						
Use FSLF for dampers < 4 sq.ft.	ML4115B1008						
Use FSNF for dampers between 4 sq.ft. and 12 sq.ft.	ML4115B1016	FSLF230 US	AC 230 V	30			
	ML4115C1007						
Use FSAF*A for dampers up to 16 sq.ft.	ML4115C1015						
Multi-section dampers should be investigated for number of actuators required.	ML4115D	FSLF120 US	AC 120 V	30			
	ML4115D1006						
	ML4115H						
See data sheets for linkages. FSLF is direct couple only.	ML4115H1002	FSLF230 US	AC 230 V	30			
	ML4115J						
	ML4202						
	ML4202F1000						
	ML4302F1008						
	ML4702						
	ML4802						
	ML8105A1006				FSLF24 US	AC 24 V	30
	ML8105B1005						
	ML8115A1005						
ML8115A1013							
ML8115B1004							
ML8115B1012							
ML8115H							
ML8115J							
ML8202							
ML8302							
	MS4104F1010	FSLF120 US	AC 120 V	70			
	MS4104F1210	FSLF120-S US					
	MS4109F1010	FSNF120 US					
	MS4109F1210	FSNF120-S US					
	MS4120F1006	FSAF120A					
	MS4120F1204	FSAF120A-S					
	MS4209F	FSNF120 US			70		
	MS4209F1007						
	MS4309F						
	MS4309F1005						
	MS4604F1010	FSLF230 US	AC 230 V	30			
	MS4604F1210	FSLF230-S US					

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RETROFIT SOLUTIONS

Notes	MODEL		BELIMO REPLACEMENT MODEL		
	HONEYWELL	BELIMO	Power	Torque (in-lb)	
Go to <a href="http://www.belimo.com/firesmoke">www.belimo.com/firesmoke</a> 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			180	
	MS4809F1012				
Use FSNF for dampers between 4 sq.ft. and 12 sq.ft.	MS7520A2015	FSAFB24-SR		180	
	MS8104F1010	FSLF24 US		30	
Use FSAF*A for dampers up to 16 sq.ft.	MS8104F1210		FSNF24 US	70	
	MS8109F1010	FSNF24-S US		180	
Multi-section dampers should be investigated for number of actuators required.	MS8109F1210		FSAF24A	70	
	MS8120F1002				
See data sheets for linkages. FSLF is direct couple only.	MS8120F1200	FSAF24A-S	AC 24 V	180	
	MS8209F	FSNF24 US			
	MS8209F1003			70	
	MS8309F				
	MS8309F1001			FSLF24 US	30
	MS8103F10XX				
	MS8103F12XX	FSLF24-S US		AC 120 V	
	MS4103F10XX	FSLF120 US			AC 120 V
	MS4103F12XX	FSAF230A		AC 230 V	180
	S20230-F	FSAF230A-S			
S20230-F-SW2	FSAF24A	AC 24 V			
S2024-F	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 22-5
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.

Notes	MODEL		BELIMO REPLACEMENT MODEL	
	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			FSLF120 US
	H-2000B/3 Low	FSNF120 US		
> 4 sq.ft. use FSNF Series.	H-2000B/6 Medium			FSLF24 US
	H-2000B/8 High	FSNF24 US		
H-2024A/3 Low	FSLF24 US		AC 24 V	30
		H-2024A/6 Medium		FSNF24 US
H-2024A/8 High	FSLF24 US	AC 230 V	30	
H-2024B/3 Low			FSNF24 US	70
H-2024B/6 Medium	FSLF230 US	AC 230 V		
H-2024B/8 High			FSNF230 US	70
H-2230A/3 Low	FSLF230 US	AC 24 V		
H-2230A/6 Medium			FSNF230 US	AC 120 V
H-2230A/8 High	FSAFB24-SR	AC 24 V		
H-2230B/3 Low			FSNF24 US	AC 120 V
H-2230B/6 Medium	FSNF24-S US	AC 24 V		
H-2230B/8 High			FSNF120 US	AC 120 V
RH-24	FSNF120-S US	AC 24 V		
RH-24-S			FSNF120-S US	AC 24 V
RH-120	FSAFB24-SR	AC 120 V		
RH-120-S			FSAFB24-SR	AC 24 V
RH-24-MOD				

Notes - PHILLIPS P150	MODEL		BELIMO REPLACEMENT MODEL	
	RUSKIN	BELIMO	Power	Torque (in-lb)
Shaft spring must be disabled. See Ruskin with Phillips P150 at <a href="http://www.belimo.com/firesmoke">www.belimo.com/firesmoke</a>  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 FSAF*A for dampers up to 16 sq.ft.	Phillips P150	See notes on left	On/Off	See notes on left.

Notes	MODEL		BELIMO REPLACEMENT MODEL		
	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				
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		AC 120 V		
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				

- 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.
- 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.
- 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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RETROFIT SOLUTIONS

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.

Notes	MODEL		BELIMO REPLACEMENT MODEL	
	SIEBE	BELIMO	Power	Torque (in-lb)
Where linkages are needed, use FSNF. Timing is a function of damper spring.	MA220	FSLF120 US	AC 120 V	"For <4 sq. ft. dampers use FSLF Series For >4 sq. ft. use FSNF Series"
	MA221	FSLF230 US		
	MA223	FSLF24 US	AC 24 V	
When replacing the actuator, remove the old spring from the damper.	MA230	FSNF120 US	AC 240 V	
	MA231	FSNF230 US		
	MA233	FSNF24 US		
If the damper has one spring, add a new electric thermal sensor. (Belimo BAE 165)	MA240	CALL BELIMO		
	MA250	FSNF120 US		
	MA251	FSNF230 US		
A -500 part number indicates an auxiliary switch. Replace with a Belimo "-S" version.	MA253	FSNF24 US		
	MA-318	FSNF24 US		
	MA-318-500	FSNF24 -S US		
	MA-418	FSNF120 US		
	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.com/firesmoke](http://www.belimo.com/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**

**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**.

**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	<b>UGLK1208</b>
		Yes		AF	<b>UGLK1208</b>
		No	236	SV	<b>UGVL</b>
		Yes		SVK	<b>UGVL</b>
		Yes	110	NF	<b>UGLK1208</b>

- 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**

**BASIC PRODUCTS**

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switch
				M	⊕		
AFB24	On/Off	-	AC/DC 24V	<75 seconds	20 s	7.5	-
AFB24-S	On/Off	-	AC/DC 24V	<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 24V	95 seconds	<20 s	8.5	-
AFB24-SR-S	2...10 V (4...20mA)	2...10 V	AC/DC 24V	95 seconds	<20 s	8.5	Built-In
AFB24-MFT	2...10 V (4...20mA)	2...10 V	AC/DC 24V	150 seconds	<20 s	10	-
AFB24-MFT-S	2...10 V (4...20mA)	2...10 V	AC/DC 24V	150 seconds	<20 s	10	Built-In

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
	Fail-Safe	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)
<b>GVL LINKAGES</b>						
UGVL	Universal Adjustable for 1/2" ... 2"	\$	\$	\$	\$	\$
SGVL	Schnieder VB7... VB9...	\$	\$	\$	\$	\$

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RETROFIT SOLUTIONS

# Retrofit and Replacement, Siemens 599 MT/MZ

## UGSL1200 Short-Stroke Valve Retrofit Kit for CM and TF Series Actuators



**Linkage List Price: \$173** 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: <ul style="list-style-type: none"> <li>• Danfoss      • HW Braukman</li> <li>• Oventrop    • JCI</li> <li>• Cazzaniga   • Taco</li> <li>• Spartan</li> </ul>

### Mounting Configurations



360°



360°

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

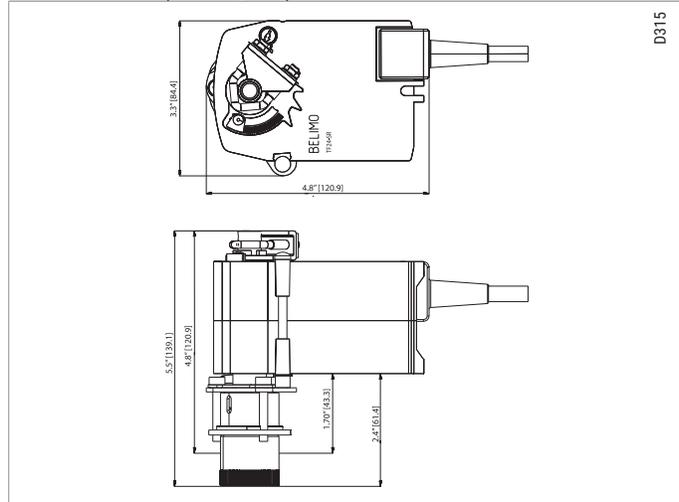
The UGSL1200 linkage provides 6 mm of downward stroke with 95° CW rotation on the actuator. This allows the valve to extend fully open or closed based on signal. The slot located on the housing provides indication when the maximum stroke has been reached. For troubleshooting when using a CM actuator, 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.

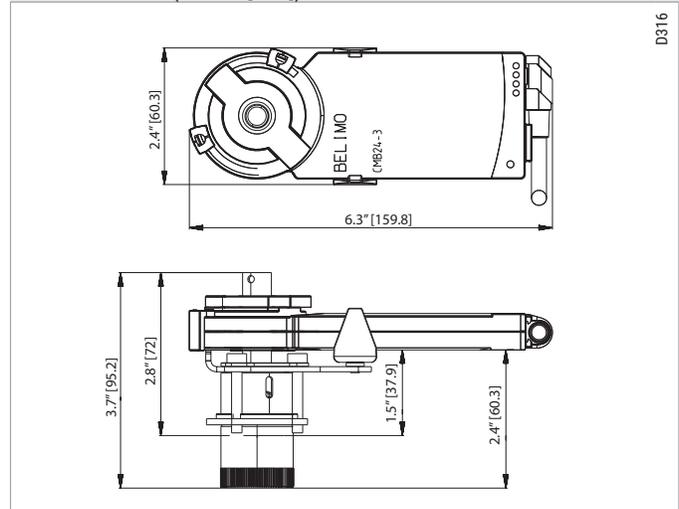
\*\* CMB24-SR-R for 2V stem down, CMB24-SR-L for 2V stem up.

### TF Dimensions (Inches [mm])



D315

### CM Dimensions (Inches [mm])



D316

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**Linkage List Price\*: \$169** 5-year warranty

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

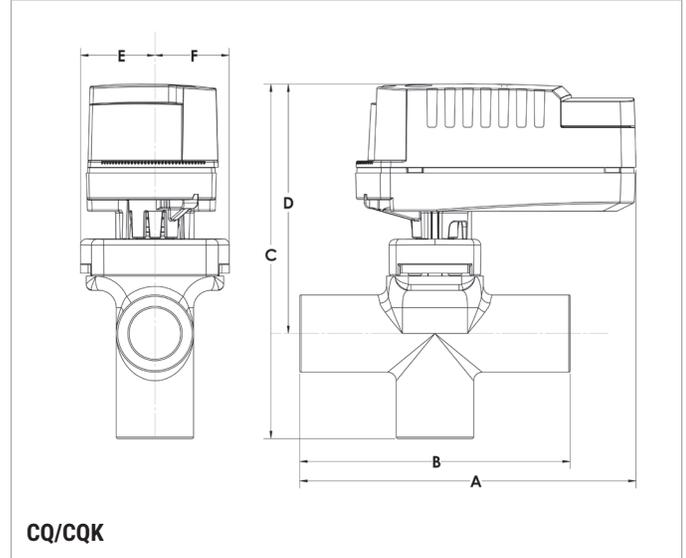
### Application

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])



A	B	C	D	E	F
4.6" [118]	3.7" [95]	4.9" [124]	3.4" [87]	1" [25]	1" [26]

# Retrofit and Replacement, Erie VM/VT Zone Valves

UBLK1100 Retrofit Kit for CQ and CQK Series Actuators



**Linkage List Price\*: \$169** 5-year warranty

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

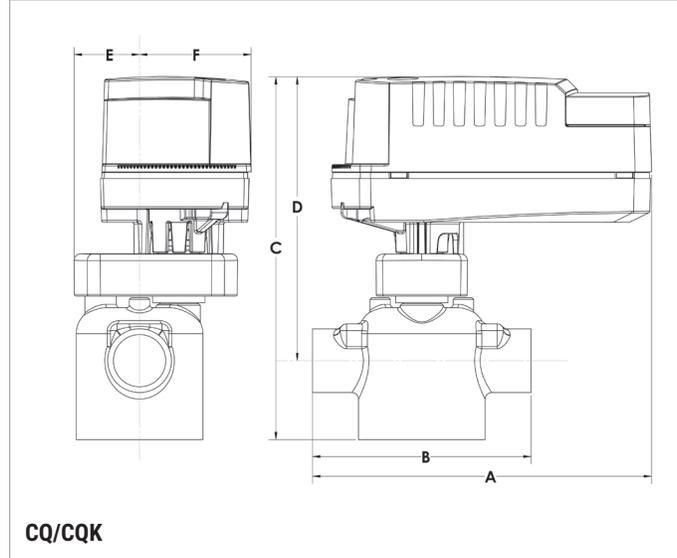
## Application

The UBLK1100 retrofit kit is designed to easily attach to the Erie VM/VT 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]

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RETROFIT SOLUTIONS



**Linkage List Price\*: \$169** 5-year warranty

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

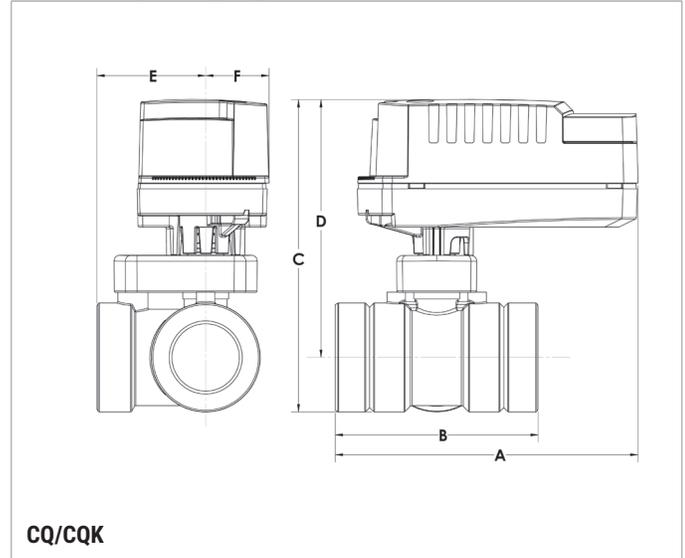
### Application

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)

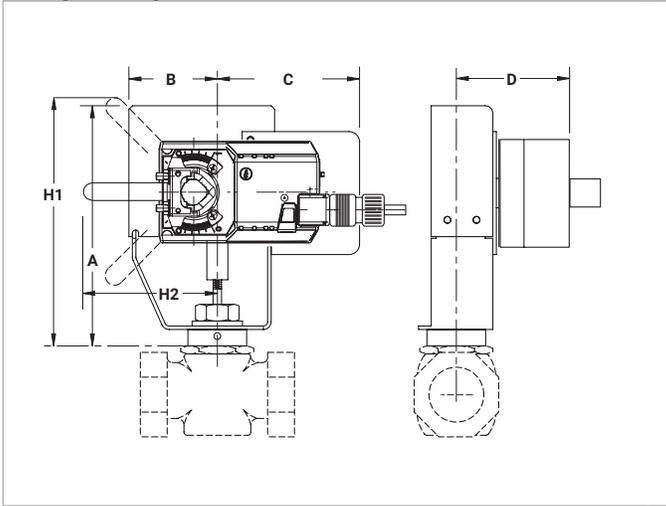
### Dimensions (Inches [mm])



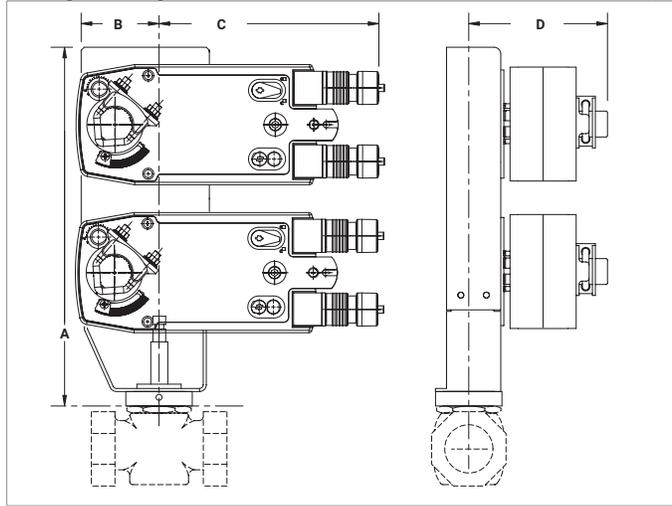
A	B	C	D	E	F
4.2" [106]	2.8" [70]	4.3" [108]	3.5" [89]	1.5" [39]	0.9" [24]

## MAXIMUM DIMENSIONS – UGLK Linkages with Rotary Actuators

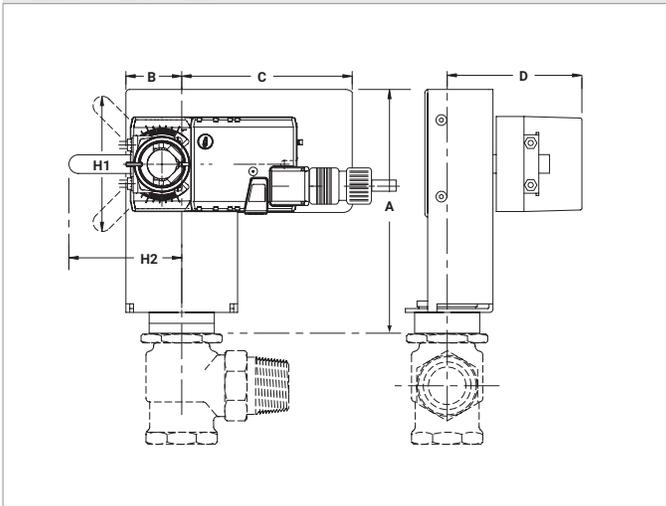
### Linkages Taking 1 Actuator



### 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" [241]

### Linkages Taking 2 Actuators

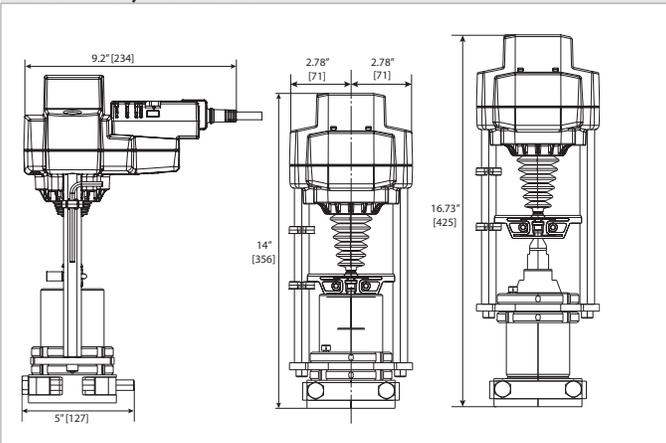
A	19" [483]	D	5" [127]
B	3" [76]		
C	9" [229]		

### UGLK1150 and UGLK1550

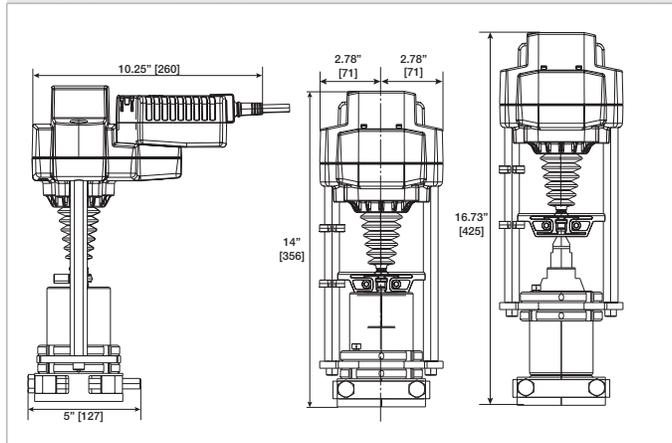
A	6½" [165]	D	4.0" [102]
B	1½" [33]	H1	4.0" [102]
C	5.0" [127]	H2	3½" [89]

## MAXIMUM DIMENSIONS – GVL Linkages with New Generation Linear Series Actuators

### FGVL with EV, RV Actuators



### FGVL with AVK Actuators

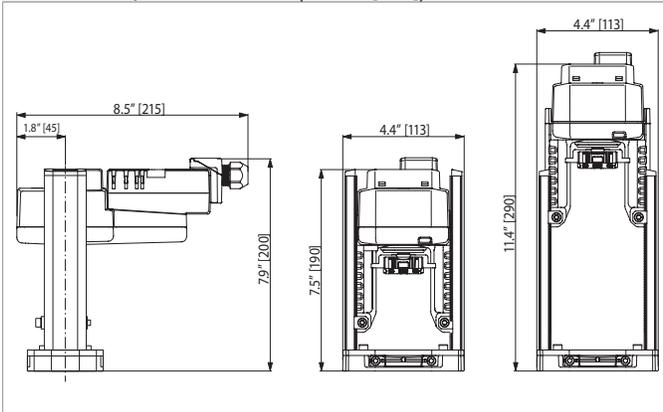


## MAXIMUM DIMENSIONS – GVL Linkages with New Generation Linear Series Actuators

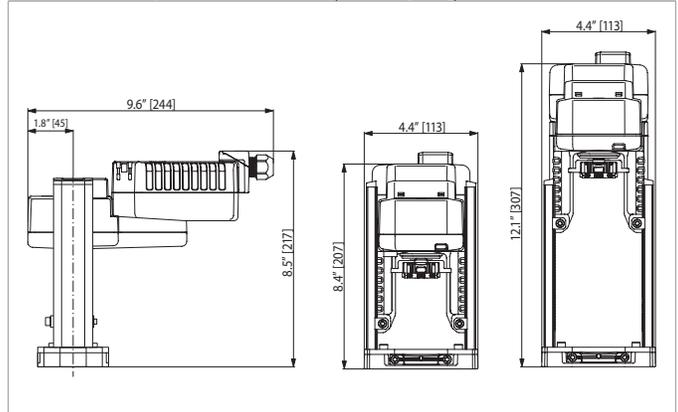
### Self Adapting Stroke

The “V” Series actuators, which are used with the UGVL, SGVL, FGVL, and WGPL 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.

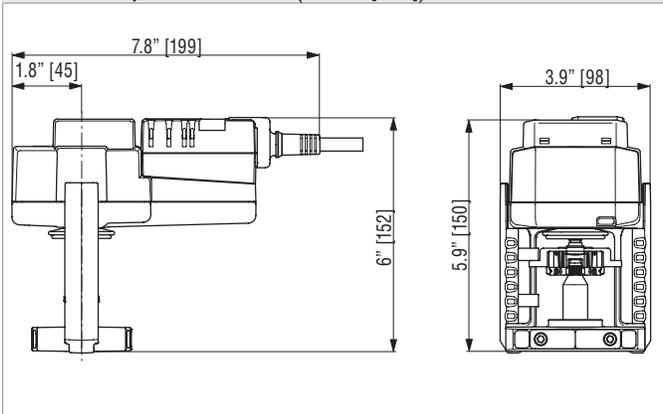
**UGVL with LV, SV Dimensions (Inches [mm])**



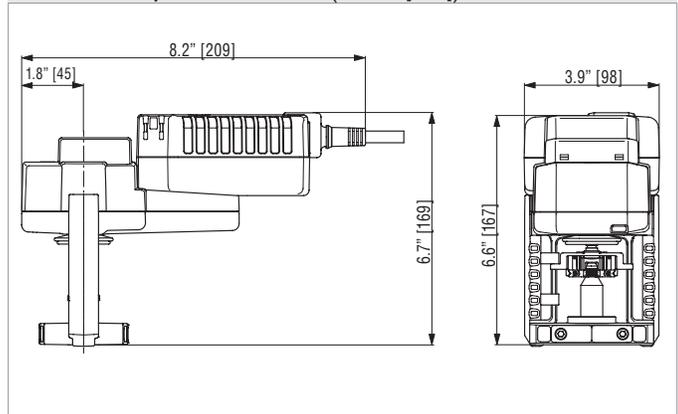
**UGVL with LVK, SVK Dimensions (Inches [mm])**



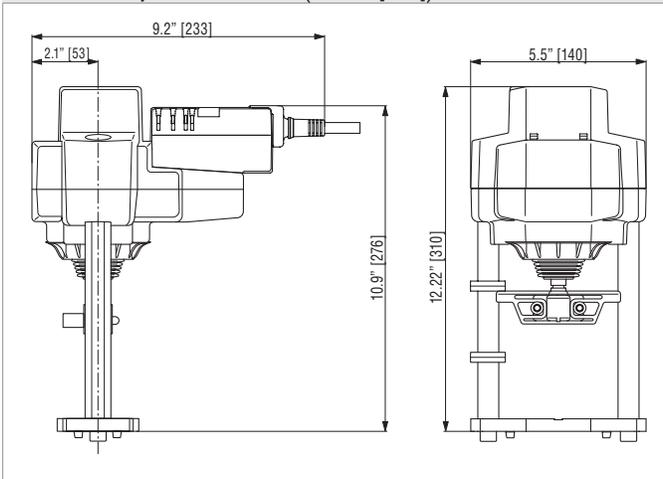
**SGVL with LV, SV Dimensions (Inches [mm])**



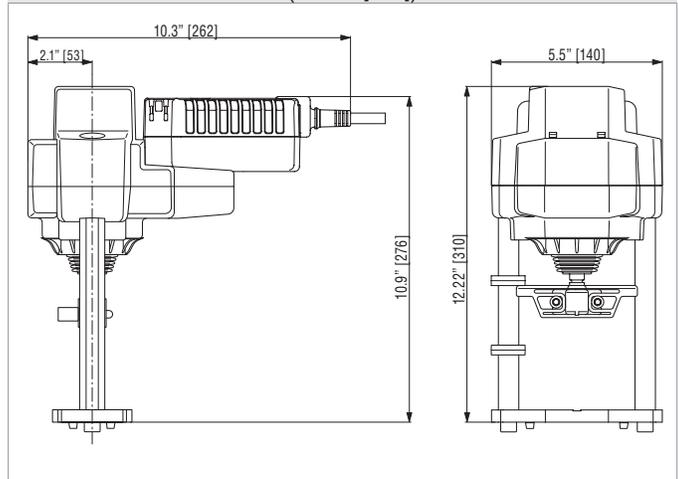
**SGVL with LVK, SVK Dimensions (Inches [mm])**



**WGPL with EV, RV Dimensions (Inches [mm])**



**WGPL with AVK Dimensions (Inches [mm])**



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RETROFIT SOLUTIONS

# UGVL, SGVL, FGVL, and WGVL Series Linkages with Non Fail-Safe Actuators

Retrofit Linkages for NPT and Flanged Globe Valves



## 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	3 ft., 18 GA plenum rated cable, ½" conduit fitting
24 V	
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 #	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)	
<b>GVL LINKAGES</b>									
UGVL	Universal adjustable for ½...2"	\$1,118	\$1,173	\$1,227	\$1,347**	\$1,308	\$1,361	\$1,416	\$1,539**
SGVL	Schneider VB7000 (½...2"), VB9000 (½...1½")	\$1,025	\$1,080	\$1,129	\$1,238**	\$1,152	\$1,299	\$1,265	\$1,379**

◆ 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)	
<b>GVL LINKAGES</b>							
FGVL	Flanged valves adjustable for 2½...6"	\$2,756	\$2,911	\$2,851	\$2,871**	\$3,108	\$3,245**
WGVL	Warren Controls Type 20, 22, 30, 32	\$1,582	\$2,100	\$1,674	\$1,799**	\$1,776	\$1,992**

\* 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.com for details.

### 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 Position	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	3 ft., 18 GA plenum rated cable, ½" conduit fitting
24 V	
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	90 seconds (variable)
	Fail-Safe	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"	\$1,629	\$1,693	\$1,725	\$1,866**	\$1,829	\$1,897	\$1,925	\$2,063**
SGVL	Schneider VB7000 (½...2"), VB9000 (½...1¼")	\$1,413	\$1,476	\$1,508	\$1,688**	\$1,556	\$1,617	\$1,661	\$1,783**

♦ 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 (variable)
	Fail-Safe	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"	\$3,499	\$3,300	\$3,657**
WGVL	Warren Controls Type 20, 22, 30, 32	\$1,944	\$2,797	\$2,147**

\* 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.com for details.

### 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	\$581
		LF24-SR US	•			Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V		\$794
NF Series*	90 in-lb [10 Nm]	NFBUP-X1	•			On/Off	-	AC 24...240 V		\$817
		NFX24-MFT-X1	•			(AC/DC 24 V) Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V		\$1,074
AF Series*	180 in-lb [20 Nm]	AFBUP-X1	•		•	On/Off	-	AC 24...240 V		\$1,028
		AFX24-MFT-X1	•		•	Variable with MFT (V, PWM, Floating Pt., On/Off)	variable V	AC/DC 24 V		\$1,259
LM Series*	45 in-lb [5 Nm]	LMB24-3-X1				Floating Point, On/Off	-	AC/DC 24 V		\$338
		LMX24-MFT-X1				Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V		\$677
NM Series*	90 in-lb [10 Nm]	NMB24-3-X1				Floating Point, On/Off	-	AC/DC 24 V		\$476
		NMX24-MFT-X1				Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V		\$816
AM Series*	180 in-lb [20 Nm]	AMB24-3-X1				Floating Point, On/Off	-	AC/DC 24 V		\$668
		AMX24-MFT-X1				Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V		\$1,031
GM Series*	360 in-lb [40 Nm]	GMB24-3-X1				Floating Point, On/Off	-	AC/DC 24 V	\$907	
		GMX24-MFT-X1			•	Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V	\$1,328	
GK Series*	360 in-lb [40 Nm]	GKB24-3-X1		•		Floating Point, On/Off	-	AC 24 V	\$1,931	
		GKX24-MFT-X1		•	•	Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V	\$2,654	

\*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

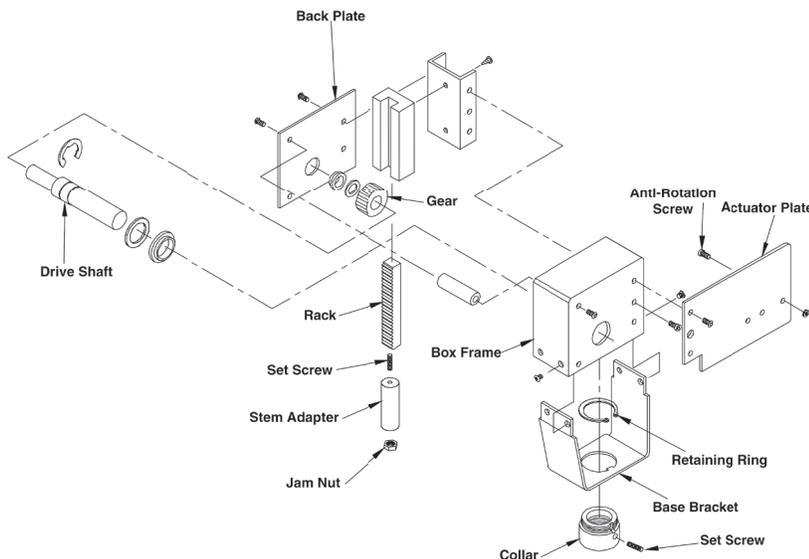
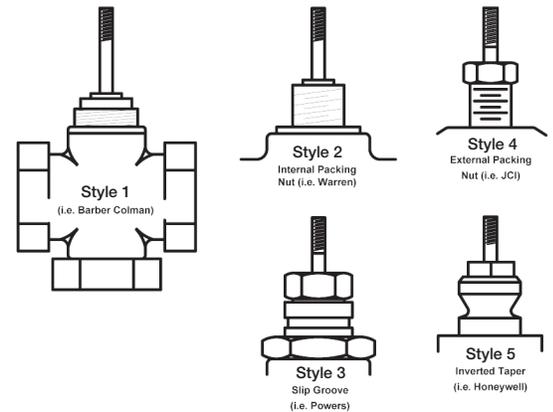
	PROGRAMMING CODE	Control Input	Running Time	Built-in Feedback
ROTARY ACTUATOR	A01	2...10 V	150 seconds	2...10 V
	A02	0.5...10 V	150 seconds	0.5...10 V
	A28	0.5...10 V	100 seconds	0.5...10 V
	A63	0.5...4.5 V	150 seconds	0.5...4.5 V
	A64	5.5...10 V	150 seconds	5.5...10 V
	W02	0.02...5 seconds PWM	150 seconds	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
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					List Price
Part Number	Inside Diameter	Description	Style 1	Style 2	Style 3	Style 4	Style 5	
UGLK-COL-1005	1.000"	3 setscrews, for frame type		•				\$328
UGLK-COL-1063	1.063"	3 setscrews, for frame type		•				\$328
UGLK-COL-1100	1.100"	3 setscrews, for frame type, counterbored top				•		\$328
UGLK-COL-1255	1.250"	3 setscrews, for frame type		•				\$328
UGLK-COL-1315	1.315"	3 setscrews, for frame type, can be used with VB7 with shim			•			\$328
UGLK-COL-1375	1.375"	3 setscrews, for frame type		•				\$328
UGLK-COL-BC10	1.250"- 16 Thd.	Fits Siebe VB7/VB9. Use on frame type only	•					\$328
UGLK-COL-HY02	1.370"	1 setscrew, for frame type					•	\$328
UGLK-COL-LG02	1.740"	1 setscrew, for frame type			•			\$328
UGLK-COL-LG04	1.740"	1 setscrew, for frame type			•			\$328
UGLK-COL-JC05	1.070"	3 setscrews, for frame type		•				\$328
UGLK-COL-JC06	1.562"- 14 Thd.	Threaded, brass		•				\$328
UGLK-COL-JC08	0.760"	3 setscrews, for frame type, counterbored top				•		\$328
UGLK-COL-0880	0.880"	3 setscrews, for frame type, counterbored top				•		\$328
UGLK-COL-WNUT	1.375"- 20 Thd.	Replacement Warren nut. Will not go over damaged threads		•				\$328
UGLK-COL-AD01	1.250"- 16 Thd.	Fits Siebe VB7/VB9. For VB7 frame only	•					\$328
UGLK-COL-UNIV	Custom	3 setscrews, for frame type. Must be machined		•	•	•	•	\$575
UGSL-ADPT	Custom	Custom collar for UGSL1200. Must be machined						\$141

\* Must reuse retaining clip and set screws.

UGLK STEM ADAPTERS			MOST COMMONLY USED VALVE STYLE					List Price
Part Number	Inside Diameter	Description	1	2	3	4	5	
UGLK-STM-1800	1/4" 28 Stem Thd.	Stem adapter for 1/4" 28 valve stems	•	•	•	•	•	\$181
UGLK-STM-1801	3/8" 24 Stem Thd.	Stem adapter for 3/8" 24 valve stems	•	•	•	•	•	\$181
UGLK-STM-1802	1/2" 20 Stem Thd.	Stem adapter for 1/2" 20 valve stems	•			•	•	\$181
UGLK-STM-1803	7/16" 20 Stem Thd.	Stem adapter for 7/16" 20 valve stems					•	\$181
UGLK-STM-1501	3/8" 24 Stem Thd.	For Warren FLG valves with UGLK		•				\$181
UGLK-STM-1805	3/8" OD Grooved	Landis 2.5...3" 599 Series			•			\$181
UGLK-STM-2305	1/2" OD Grooved	Landis 4...6" 599 Series			•			\$181
UGLK-STM-UNIV	Custom	Must be machined	•	•	•	•	•	\$265

**UGLK Stem Adapters**

**UGLK Collars**


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RETROFIT SOLUTIONS



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	\$778
		Yes		TF	UGLK1808	\$778
VP531 Series		No	70	CM	UGLK1808	\$778
		Yes		TF	UGLK1808	\$778
VP531 Series	7/8"	No		CM	UGLK1808	\$778
		Yes		TF	UGLK1808	\$778
V5011 Series	1/2"	No	236	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
LF				UGLK1806	\$1,080	
NF				UGLK1800	\$1,081	
LF				UGLK1806	\$1,080	
NF				UGLK1800	\$1,081	
LF				UGLK1806	\$1,080	
NF				UGLK1800	\$1,081	
LF			UGLK1806	\$1,080		
V5013 Series		No	110	LV	UGVL	Pg # 22-14
		Yes		LVK	UGVL	Pg # 22-15
V5013F (1004, 1012, 1079)		No	Yes	NF	UGLK1800	\$1,081
				LF	UGLK1806	\$1,080
V5013N Series		Yes	No	LV	UGVL	Pg # 22-14
				LVK	UGVL	Pg # 22-15
V5045		No	Yes	LF	UGLK1806	\$1,080
	AM			UGLK1804	\$893	
VP525 Series	No	Yes	NF	UGLK1804	\$893	
			CM	UGLK1808	\$778	
VP526 Series	Yes	No	TF	UGLK1808	\$778	
			CM	UGLK1808	\$778	
VP527 Series	No	Yes	TF	UGLK1808	\$778	
			CM	UGLK1808	\$778	
VP531 Series	Yes	No	TF	UGLK1808	\$778	
			CM	UGLK1808	\$778	
V5011 (H1028, G1194, J1023)	No	Yes	TF	UGLK1808	\$778	
			NF	UGLK1800	\$1,081	
V5011 Series	No	Yes	LF	UGLK1806	\$1,080	
			LV	UGVL	Pg # 22-14	
V5011F (1055, 1147)	Yes	No	LVK	UGVL	Pg # 22-15	
			LF	UGLK1806	\$1,080	
V5013 Series	No	Yes	NF	UGLK1800	\$1,081	
			LF	UGLK1806	\$1,080	
V5013F (1020, 1087)	Yes	No	LV	UGVL	Pg # 22-14	
			LVK	UGVL	Pg # 22-15	
V5013N Series	Yes	No	LF	UGLK1806	\$1,080	
			NF	UGLK1804	\$893	
V5045	No	Yes	CM	UGLK1808	\$778	
			TF	UGLK1808	\$778	
VP525 Series	Yes	No	CM	UGLK1808	\$778	
			TF	UGLK1808	\$778	
VP531 Series	No	Yes	CM	UGLK1808	\$778	
			TF	UGLK1808	\$778	
V5011 (F1063, F1154, H1028, G1194)	Yes	No	AF	UGLK1800	\$1,081	
			LF	UGLK1806	\$1,080	
V5011 Series	No	Yes	SV	UGVL	Pg # 22-14	
			SVK	UGVL	Pg # 22-15	
V5011 Series	Yes	No	AF	UGLK1800	\$1,081	
			LV	UGVL	Pg # 22-14	
V5013 Series	No	Yes	LVK	UGVL	Pg # 22-15	
			LF	UGLK1806	\$1,080	
V5013 Series	Yes	No	SV	UGVL	Pg # 22-14	
			SVK	UGVL	Pg # 22-15	
V5013F (1038, 1095)	No	Yes	LV	UGVL	Pg # 22-14	
			LVK	UGVL	Pg # 22-15	
V5013F (1038, 1095)	Yes	No	AF	UGLK1800	\$1,081	
			LF	UGLK1806	\$1,080	

All close-off pressures listed are approximate and actual close-off pressures are based on valve condition and application.

RETROFIT SOLUTIONS



5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V5013N Series	1"	No	236	SV	UGVL	Pg # 22-14
		Yes		SVK	UGVL	Pg # 22-15
		No	93	AF	UGLK1800	\$1,081
		Yes		LV	UGVL	Pg # 22-14
V5045	1 1/4"	No	65	LVK	UGVL	Pg # 22-15
V5011 (H1044, G1210, J1049)		Yes	236	LF	UGLK1806	\$1,080
				AM	UGLK1804	\$893
V5011 Series		No	236	NF	UGLK1804	\$893
				AF	UGLK1800	\$1,081
V5011F (1071, 1162)		Yes	40	LF	UGLK1806	\$1,080
				AF	UGLK1800	\$1,081
V5013 Series		No	236	SV	UGVL	Pg # 22-14
				SVK	UGVL	Pg # 22-15
V5013F (1046, 1103)		Yes	40	AF	UGLK1800	\$1,081
				LF	UGLK1806	\$1,080
V5013N Series		No	236	AF	UGLK1800	\$1,081
				SV	UGVL	Pg # 22-14
V5045		Yes	40	SVK	UGVL	Pg # 22-15
				LF	UGLK1806	\$1,080
V5011 (F1089, F1178, G1228)		No	236	AM	UGLK1804	\$893
				NF	UGLK1804	\$893
V5011 Series		Yes	160	AF	UGLK1800	\$1,081
	LF			UGLK1806	\$1,080	
V5013 Series	No	160	SV	UGVL	Pg # 22-14	
			SVK	UGVL	Pg # 22-15	
V5013F (1053, 1111)	Yes	153	AF	UGLK1800	\$1,081	
			LF	UGLK1806	\$1,080	
V5013N Series	No	160	SV	UGVL	Pg # 22-14	
			SVK	UGVL	Pg # 22-15	
V5045	Yes	26	AF	UGLK1800	\$1,081	
			LF	UGLK1806	\$1,080	
V5011 (F1097, F1188, G1103)	No	211	SV	UGVL	Pg # 22-14	
			SVK	UGVL	Pg # 22-15	
V5011 Series	Yes	14	AF	UGLK1800	\$1,081	
			LF	UGLK1806	\$1,080	
V5013 Series	No	85	SV	UGVL	Pg # 22-14	
			SVK	UGVL	Pg # 22-15	
V5013F (1061, 1129)	Yes	14	LF	UGLK1806	\$1,080	
			SV	UGVL	Pg # 22-14	
V5013N Series	No	85	SVK	UGVL	Pg # 22-15	
			GK	UGLK1800	\$1,081	
V5045	Yes	40	AF	UGLK1800	\$1,081	
			NF	UGLK1800	\$1,081	
V3350 (A2009, A2017, B2007, C2013, D2003)	No	110	LF	UGLK1806	\$1,080	
			GK	UGLK1800	\$1,081	
V5013 Series	Yes	85	AF	UGLK1800	\$1,081	
			SV	UGVL	Pg # 22-14	
V5045	No	120	SVK	UGVL	Pg # 22-15	
			LF	UGLK1806	\$1,080	
V5013 Series	Yes	211	AM	UGLK1804	\$893	
			AF	UGLK1804	\$893	
V5013 Series	No	55	2*GK	UGLK1870	\$1,367	
			2*AF	UGLK1870	\$1,367	
V5013 Series	Yes	55	SV	UGVL	Pg # 22-14	
			SVK	UGVL	Pg # 22-15	

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RETROFIT SOLUTIONS

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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	\$1,367	
			110	2*AF	UGLK1870	\$1,367	
No		55	SV	UGVL	Pg # 22-14		
			SVK	UGVL	Pg # 22-15		
V3360E2008, V3361E2007		Yes	211	2*GK	UGLK1870	\$1,367	
			110	2*AF	UGLK1870	\$1,367	
No		55	SV	UGVL	Pg # 22-14		
			SVK	UGVL	Pg # 22-15		
V3450 (A2008, A2016, B2006, C2012, D2002)		Yes	52	AF	UGLK1800	\$1,081	
			211	2*GK	UGLK1870	\$1,367	
			110	2*AF	UGLK1870	\$1,367	
			No	55	SV	UGVL	Pg # 22-14
V3451 (A2007, C2003, C2004)		Yes	52	AF	UGLK1800	\$1,081	
			211	2*GK	UGLK1870	\$1,367	
	110		2*AF	UGLK1870	\$1,367		
	No		77	SV	UGVL	Pg # 22-14	
V3460E2007, V3461E2006	Yes	52	AF	UGLK1800	\$1,081		
		211	2*GK	UGLK1870	\$1,367		
		110	2*AF	UGLK1870	\$1,367		
		No	55	SV	UGVL	Pg # 22-14	
V5011 (A1734, F1105, F1196, G1111)	Yes	52	AF	UGLK1800	\$1,081		
		211	2*GK	UGLK1870	\$1,367		
V5011 Series	No	52	SV	UGVL	Pg # 22-14		
V5013 (B1003, C1001)	Yes	211	2*GK	UGLK1870	\$1,367		
		52	AF	UGLK1800	\$1,081		
V5013 Series	No	52	SV	UGVL	Pg # 22-14		
V3350 (A3007, A3015, B3005, C3011, D3001)	3"	Yes	136	2*GK	UGLK1870	\$1,367	
			77	2*AF	UGLK1870	\$1,367	
		No	38	SV	UGVL	Pg # 22-14	
				SVK	UGVL	Pg # 22-15	
V3351 (A3006, C3002, C3003)		Yes	136	2*GK	UGLK1870	\$1,367	
			77	2*AF	UGLK1870	\$1,367	
No		38	SV	UGVL	Pg # 22-14		
			SVK	UGVL	Pg # 22-15		
V3360E3006, V3361E3005		Yes	136	2*GK	UGLK1870	\$1,367	
			77	2*AF	UGLK1870	\$1,367	
			No	38	SV	UGVL	Pg # 22-14
					SVK	UGVL	Pg # 22-15
V3450 (A3006, A3014, B3004, C3010, D3000)		Yes	136	2*GK	UGLK1870	\$1,367	
			77	2*AF	UGLK1870	\$1,367	
	No		38	SV	UGVL	Pg # 22-14	
				SVK	UGVL	Pg # 22-15	
V3451 (A3005, C3001, C3002)	Yes	136	2*GK	UGLK1870	\$1,367		
		77	2*AF	UGLK1870	\$1,367		
		No	38	SV	UGVL	Pg # 22-14	
				SVK	UGVL	Pg # 22-15	
V3460E3005, V3461E3004	Yes	136	2*GK	UGLK1870	\$1,367		
		77	2*AF	UGLK1870	\$1,367		
		No	38	SV	UGVL	Pg # 22-14	
				SVK	UGVL	Pg # 22-15	
V5011 (A1767, F1113, F1204, G1129)	Yes	136	2*GK	UGLK1870	\$1,367		
		38	AF	UGLK1800	\$1,081		
V5011 Series	No	40	SV	UGVL	Pg # 22-14		
V5013 (B1011, C1019)	Yes	136	2*GK	UGLK1870	\$1,367		
		77	GK	UGLK1800	\$1,081		
V5013 Series	No	40	SV	UGVL	Pg # 22-14		
	Yes	40	SVK	UGVL	Pg # 22-15		

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RETROFIT SOLUTIONS



5-year warranty

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	40	RV	FGVL	Pg # 22-14			
		Yes		2*GK	UGLK1872	\$1,356			
		No	22	EV	FGVL	Pg # 22-14			
		Yes		2*AF	UGLK1872	\$1,356			
V3351 (A4004, C4000, C4001)		4"	No	10	AF	UGLK1802	\$1,080		
			Yes		2*GK	UGLK1872	\$1,356		
			No	22	EV	FGVL	Pg # 22-14		
			Yes		2*AF	UGLK1872	\$1,356		
V3360E4004, V3361E4003			4"	No	40	RV	FGVL	Pg # 22-14	
				Yes		2*GK	UGLK1872	\$1,356	
				No	22	EV	FGVL	Pg # 22-14	
				Yes		2*AF	UGLK1872	\$1,356	
V3450 (A4004, A4012, B4002, C4018, D4008)				4"	No	10	AF	UGLK1802	\$1,080
					Yes		2*GK	UGLK1872	\$1,356
					No	40	RV	FGVL	Pg # 22-14
					Yes		2*GK	UGLK1872	\$1,356
V3451 (A4003, C4000, C4009)	4"				No	22	EV	FGVL	Pg # 22-14
					Yes		2*AF	UGLK1872	\$1,356
					No	10	AF	UGLK1802	\$1,080
					Yes		2*GK	UGLK1872	\$1,356
V3460E4003, V3461E4002		4"			No	40	RV	FGVL	Pg # 22-14
					Yes		2*GK	UGLK1872	\$1,356
					No	22	EV	FGVL	Pg # 22-14
					Yes		2*AF	UGLK1872	\$1,356
V5011 (A1858, B1013)			4"		No	10	AF	UGLK1802	\$1,080
					Yes		2*GK	UGLK1872	\$1,356
					No	40	RV	FGVL	Pg # 22-14
					Yes		2*GK	UGLK1872	\$1,356
V5013 (B1029, C1027)				4"	No	22	EV	FGVL	Pg # 22-14
					Yes		GK	UGLK1802	\$1,080
					No	14	RV	FGVL	Pg # 22-14
					Yes		2*GK	UGLK1872	\$1,356
V3350 (A5002, A5010, B5000, C5016, D5006)	5"				No	14	EV	FGVL	Pg # 22-14
					Yes		GK	UGLK1802	\$1,080
					No	10	2*AF	UGLK1872	\$1,356
					Yes		AF	UGLK1802	\$1,080
V3351 (A5001, C5008, D5005)		5"			No	22	RV	FGVL	Pg # 22-14
					Yes		2*GK	UGLK1872	\$1,356
					No	14	EV	FGVL	Pg # 22-14
					Yes		GK	UGLK1802	\$1,080
V3360E5001, V3361E5000			5"		No	10	2*AF	UGLK1872	\$1,356
					Yes		AF	UGLK1802	\$1,080
					No	22	RV	FGVL	Pg # 22-14
					Yes		2*GK	UGLK1872	\$1,356
V3450 (A5001, A5019, B5009, C5015, D5005)				5"	No	14	EV	FGVL	Pg # 22-14
					Yes		GK	UGLK1802	\$1,080
					No	10	2*AF	UGLK1872	\$1,356
					Yes		AF	UGLK1802	\$1,080
V3451 (A5000, C5006, C5007)	5"				No	22	RV	FGVL	Pg # 22-14
					Yes		2*GK	UGLK1872	\$1,356
					No	14	EV	FGVL	Pg # 22-14
					Yes		GK	UGLK1802	\$1,080
		5"			No	10	2*AF	UGLK1872	\$1,356
					Yes		AF	UGLK1802	\$1,080

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RETROFIT SOLUTIONS

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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	\$1,356			
		No	14	EV	FGVL	Pg # 22-14			
		Yes		GK	UGLK1802	\$1,080			
				2*AF	UGLK1872	\$1,356			
				AF	UGLK1802	\$1,080			
V5011 (A1882, B1047)		5"	No	22	RV	FGVL	Pg # 22-14		
			Yes		2*GK	UGLK1872	\$1,356		
				GK	UGLK1802	\$1,080			
				2*AF	UGLK1872	\$1,356			
			V5013 (B1037, C1035)	5"	No	22	RV	FGVL	Pg # 22-14
							2*GK	UGLK1872	\$1,356
Yes	14					EV	FGVL	Pg # 22-14	
					GK	UGLK1802	\$1,080		
	2*AF				UGLK1872	\$1,356			
V3350 (A6000, A6008, A6018, C6014, D6004)	5"				No	22	RV	FGVL	Pg # 22-14
			2*GK				UGLK1872	\$1,356	
			Yes			10	GK	UGLK1802	\$1,080
		2*AF			UGLK1872		\$1,356		
		V3351 (A6009, C6005, C6006)			5"	No	22	RV	FGVL
			2*GK					UGLK1872	\$1,356
Yes			10				GK	UGLK1802	\$1,080
				2*AF		UGLK1872	\$1,356		
			V3360E6009, V3361E6008	5"		No	22	RV	FGVL
2*GK								UGLK1872	\$1,356
Yes		10					GK	UGLK1802	\$1,080
						2*AF	UGLK1872	\$1,356	
	V3450 (A6009, A6007, A6017, C6013, D6003)	6"				No	22	RV	FGVL
2*GK								UGLK1872	\$1,356
Yes			10				GK	UGLK1802	\$1,080
						2*AF	UGLK1872	\$1,356	
			V3451 (A6008, C6004, C6005)		6"	No	22	RV	FGVL
2*GK								UGLK1872	\$1,356
Yes	10						GK	UGLK1802	\$1,080
						2*AF	UGLK1872	\$1,356	
	V3460E6008, V3461E6007			6"		No	22	RV	FGVL
2*GK								UGLK1872	\$1,356
Yes			10				GK	UGLK1802	\$1,080
						2*AF	UGLK1872	\$1,356	
		V5011 (A1916, B1078)	6"			No	22	RV	FGVL
2*GK								UGLK1872	\$1,356
Yes	10						GK	UGLK1802	\$1,080
						2*AF	UGLK1872	\$1,356	
	V5013 (B1045, C1043)				6"	No	22	RV	FGVL
2*GK								UGLK1872	\$1,356
Yes		10					GK	UGLK1802	\$1,080
						2*AF	UGLK1872	\$1,356	
		VGF2.. Series		2½"		No	52	EV	FGVL
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			
				EV	FGVL	Pg # 22-14			
VGF3.. Series	5"			RV	FGVL	Pg # 22-14			
				RV	FGVL	Pg # 22-14			
VGF2.. Series	5"	No	40	RV	FGVL	Pg # 22-14			
				RV	FGVL	Pg # 22-14			
VGF3.. Series	6"			RV	FGVL	Pg # 22-14			
				RV	FGVL	Pg # 22-14			

All close-off pressures listed are approximate and actual close-off pressures are based on valve condition and application.



5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price		
V-3766	½"	No	236	LM	UGLK1552	\$688		
		Yes		LF	UGLK1552	\$688		
V-3854-5		No		LM	UGLK1554	\$688		
		Yes		LF	UGLK1554	\$688		
V-3966		No		LM	UGLK1552	\$688		
		Yes		LF	UGLK1552	\$688		
V-4332		No		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-(C, E, GT) *Threaded Stem Only		No		LF	UGLK1416	\$901		
		Yes		LM	UGLK1550	\$688		
VTM-TN-(007, 019, 047) *Threaded Stem Only		No		LF	UGLK1550	\$688		
		Yes		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		LV	UGVL		Pg # 22-14		
	Yes		LVK	UGVL		Pg # 22-15		
V(B)-4324 Series, Bronze Trim	No		LV	UGVL		Pg # 22-14		
	Yes		LVK	UGVL		Pg # 22-15		
V(B)-5844 Series	No		LV	UGVL		Pg # 22-14		
	Yes		LVK	UGVL		Pg # 22-15		
V-3754-(4, 1008, 1022, 1026)	No		LF	UGLK1550		\$688		
V-3974-(4, 1004, 1010)	Yes		LF	UGLK1550		\$688		
V-4324-(4, 1005, 1006, 1013)	No		LF	UGLK1550		\$688		
	Yes		LV	UGVL		Pg # 22-14		
V-4332	No		LVK	UGVL		Pg # 22-15		
	Yes		LV	UGVL		Pg # 22-14		
VG7000 Series	No		LVK	UGVL		Pg # 22-15		
	Yes		LV	UGVL		Pg # 22-14		
VG7XXX-LT *Threaded Stem Only	Yes		LVK	UGVL		Pg # 22-15		
	Yes		LF	UGLK1416		\$901		
V(B)-3754 Series, Bronze Trim	1"		No	236		SV	UGVL	Pg # 22-14
			Yes			SVK	UGVL	Pg # 22-15
			No			LV	UGVL	Pg # 22-14
			Yes			LVK	UGVL	Pg # 22-15
V(B)-3974 Series, Bronze Trim			No			SV	UGVL	Pg # 22-14
			Yes			SVK	UGVL	Pg # 22-15
		No	LV		UGVL	Pg # 22-14		
		Yes	LVK		UGVL	Pg # 22-15		
V(B)-4324 Series, Bronze Trim		No	LV		UGVL	Pg # 22-14		
		Yes	LVK		UGVL	Pg # 22-15		
V(B)-4324 Series, Bronze Trim		No	SV		UGVL	Pg # 22-14		
		Yes	SVK		UGVL	Pg # 22-15		
		No	SV		UGVL	Pg # 22-14		
		Yes	SVK		UGVL	Pg # 22-15		
V(B)-5844 Series		No	LV		UGVL	Pg # 22-14		
		Yes	LVK		UGVL	Pg # 22-15		
V-3754-(5, 1010, 1023, 1027)		No	AF		UGLK1402	\$992		
		Yes	NF		UGLK1402	\$992		
V-3974-(5, 1005, 1011)		No	AF		UGLK1402	\$992		
		Yes	NF		UGLK1402	\$992		
V-4324-(5, 1007, 1008, 1014)		No	AF		UGLK1402	\$992		
		Yes	NF		UGLK1402	\$992		
V-4332		No	SV		UGVL	Pg # 22-14		
		Yes	SVK		UGVL	Pg # 22-15		
	No	LV	UGVL	Pg # 22-14				
	Yes	LVK	UGVL	Pg # 22-15				
VG7000 Series	No	SV	UGVL	Pg # 22-14				
	Yes	SVK	UGVL	Pg # 22-15				
	No	LV	UGVL	Pg # 22-14				
	Yes	LVK	UGVL	Pg # 22-15				
VG7XXX-NT *Threaded Stem Only	Yes	LF	UGLK1418	\$901				
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		SV	UGVL	Pg # 22-14		
		Yes		SVK	UGVL	Pg # 22-15		
V(B)-4324 Series, Bronze Trim		No		SV	UGVL	Pg # 22-14		
		Yes		SVK	UGVL	Pg # 22-15		
V(B)-5844 Series		No		SV	UGVL	Pg # 22-14		
		Yes		SVK	UGVL	Pg # 22-15		

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RETROFIT SOLUTIONS

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V-3754-8	1 1/4"	Yes	221	AF	UGLK1402	\$992
V-4324-8			110	NF	UGLK1402	\$992
			221	AF	UGLK1402	\$992
V-4332			110	NF	UGLK1402	\$992
		No	236	SV	UGVL	Pg # 22-14
Yes				SVK	UGVL	Pg # 22-15
No		SV		UGVL	Pg # 22-14	
Yes		SVK		UGVL	Pg # 22-15	
VG7000 Series		Yes	65	LF	UGLK1418	\$901
VG7XXX-PT *Threaded Stem Only			No	SV	UGVL	Pg # 22-14
V(B)-3754 Series, Bronze Trim		1 1/2"	Yes	SVK	UGVL	Pg # 22-15
V(B)-3974 Series, Bronze Trim			No	SV	UGVL	Pg # 22-14
	Yes		SVK	UGVL	Pg # 22-15	
V(B)-4324 Series, Bronze Trim	No		SV	UGVL	Pg # 22-14	
	Yes		SVK	UGVL	Pg # 22-15	
V(B)-5844 Series	No		SV	UGVL	Pg # 22-14	
	Yes		SVK	UGVL	Pg # 22-15	
V-3754-(6, 1028, 1029, 1030)	Yes		236	GK	UGLK1402	\$992
			211	2*AF	UGLK1478	\$1,371
			153	AF	UGLK1402	\$992
			77	NF	UGLK1402	\$992
V-3974-(6, 1012, 1013)	Yes		236	GK	UGLK1402	\$992
		211	2*AF	UGLK1478	\$1,371	
		153	AF	UGLK1402	\$992	
		77	NF	UGLK1402	\$992	
V-4324-(6,1015, 1016, 1017)	Yes	236	GK	UGLK1402	\$992	
		211	2*AF	UGLK1478	\$1,371	
		153	AF	UGLK1402	\$992	
		77	NF	UGLK1402	\$992	
V-4332	No	SV	UGVL	Pg # 22-14		
	Yes	SVK	UGVL	Pg # 22-15		
V-5254-(1, 2, 3, 11)	No	236	GM	UGLK1404	\$991	
			2*GM	UGLK1472	\$1,379	
		153	AM	UGLK1404	\$991	
			AF	UGLK1404	\$991	
V-5254-(1, 2, 3, 11)	Yes	77	NF	UGLK1404	\$991	
			GK	UGLK1404	\$991	
		236	2*AF	UGLK1472	\$1,379	
			2*GK	UGLK1472	\$1,379	
V-5464-(1, 2, 11)	No	236	GM	UGLK1404	\$991	
			2*GM	UGLK1472	\$1,379	
	Yes	236	GK	UGLK1404	\$991	
			2*AF	UGLK1472	\$1,379	
	No	153	2*GK	UGLK1472	\$1,379	
			AM	UGLK1404	\$991	
Yes	77	AF	UGLK1404	\$991		
		NF	UGLK1404	\$991		
V-5844-(1, 2, 3, 11)	No	236	2*GM	UGLK1472	\$1,379	
			GK	UGLK1404	\$991	
		Yes	236	2*AF	UGLK1472	\$1,379
				2*GK	UGLK1472	\$1,379
VG7000 Series	No	160	SV	UGVL	Pg # 22-14	
			Yes	SVK	UGVL	Pg # 22-15
	Yes	236	GM	UGLK1422	\$992	
			GK	UGLK1422	\$992	
VG7XXX-RT *Threaded Stem Only	No	153	AF	UGLK1422	\$992	
			77	NF	UGLK1422	\$992
		Yes	26	LF	UGLK1420	\$901
				SV	UGVL	Pg # 22-14
V(B)-3754 Series, Bronze Trim	Yes	85	SVK	UGVL	Pg # 22-15	
			SV	UGVL	Pg # 22-14	
V(B)-3974 Series, Bronze Trim	Yes	85	SVK	UGVL	Pg # 22-15	
			SV	UGVL	Pg # 22-14	
V(B)-4324 Series, Bronze Trim	Yes	85	SVK	UGVL	Pg # 22-15	
			SV	UGVL	Pg # 22-14	
V(B)-5844 Series	Yes	85	SVK	UGVL	Pg # 22-15	
			SV	UGVL	Pg # 22-14	

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5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
<b>V-3754-7</b>	2"	No	236	2*GM	UGLK1474	\$1,370
		Yes		2*GK	UGLK1474	\$1,370
		No	173	GM	UGLK1406	\$991
		Yes		GK	UGLK1406	\$991
				2*AF	UGLK1474	\$1,370
				AF	UGLK1406	\$991
NF				UGLK1406	\$991	
<b>V-3974-7</b>		No		236	2*GM	UGLK1474
		Yes	2*GK		UGLK1474	\$1,370
		No	173	GM	UGLK1406	\$991
		Yes		GK	UGLK1406	\$991
				2*AF	UGLK1474	\$1,370
	AF			UGLK1406	\$991	
NF	UGLK1406			\$991		
<b>V-4324-7</b>	No	236		2*GM	UGLK1474	\$1,370
	Yes		2*GK	UGLK1474	\$1,370	
	No	173	GM	UGLK1406	\$991	
	Yes		GK	UGLK1406	\$991	
			2*AF	UGLK1474	\$1,370	
			AF	UGLK1406	\$991	
NF			UGLK1406	\$991		
<b>V-4332</b>	No		85	SV	UGVL	Pg # 22-14
	Yes	SVK		UGVL	Pg # 22-15	
<b>V-5254-(4, 5, 6, 12)</b>	No	236	2*GM	UGLK1474	\$1,370	
	Yes		2*GK	UGLK1474	\$1,370	
	No		AF	UGLK1406	\$991	
	Yes	173	GM	UGLK1406	\$991	
			GK	UGLK1406	\$991	
			2*AF	UGLK1474	\$1,370	
<b>V-5464-(3, 4, 12)</b>	No	86	AM	UGLK1406	\$991	
	Yes		40	NF	UGLK1406	\$991
	Yes	236	2*GM	UGLK1474	\$1,370	
			2*GK	UGLK1474	\$1,370	
			GM	UGLK1406	\$991	
			GK	UGLK1406	\$991	
<b>V-5844-(4, 5, 6, 12)</b>	2 1/2"	No	86	AM	UGLK1406	\$991
				AF	UGLK1406	\$991
				NF	UGLK1406	\$991
		Yes	173	2*GM	UGLK1474	\$1,370
				2*GK	UGLK1474	\$1,370
				GM	UGLK1406	\$991
<b>VG7000 Series</b>	2 1/2"	No	85	SV	UGVL	Pg # 22-14
				SVK	UGVL	Pg # 22-15
				GM	UGLK1422	\$992
		Yes	173	GK	UGLK1422	\$992
				AF	UGLK1422	\$992
				NF	UGLK1422	\$992
<b>V-5210-4595</b>	2 1/2"	No	136	RV	FGVL	Pg # 22-14
				2*GK	UGLK1478	\$1,371
		Yes	75	RV	FGVL	Pg # 22-14
				AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	\$1,371
				AF	UGLK1412	\$991
<b>V-5252-(2, 4, 5, 6, 7, 8, 32, 33)</b>	2 1/2"	No	110	RV	FGVL	Pg # 22-14
				AVK	FGVL	Pg # 22-15
		Yes	52	EV	FGVL	Pg # 22-14
				AF	UGLK1404	\$991
				2*GK	UGLK1472	\$1,379
				2*AF	UGLK1472	\$1,379

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RETROFIT SOLUTIONS

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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-5410-4595	2½"	No	136	RV	FGVL	Pg # 22-14	
		Yes		2*GK	UGLK1478	\$1,371	
		No	75	RV	FGVL	Pg # 22-14	
		Yes		AVK	FGVL	Pg # 22-15	
				2*AF	UGLK1478	\$1,371	
				AF	UGLK1412	\$991	
V-5462-(6, 7, 34)		2½"	No	211	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1472	\$1,379
			No	110	RV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
					2*AF	UGLK1472	\$1,379
					EV	FGVL	Pg # 22-14
V-5842-(7, 8, 31)	2½"		No	211	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1472	\$1,379
			No	110	RV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
					2*AF	UGLK1472	\$1,379
					EV	FGVL	Pg # 22-14
VB-3752-19		2½"	No	211	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1472	\$1,379
			No	110	RV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
					2*AF	UGLK1472	\$1,379
					EV	FGVL	\$1,952
VB-3970-11	2½"		No	211	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1472	\$1,379
			No	110	RV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
					2*AF	UGLK1472	\$1,379
					EV	FGVL	Pg # 22-14
VB-4322-9		2½"	No	110	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1472	\$1,379
			No	52	RV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
					2*AF	UGLK1472	\$1,379
					EV	FGVL	Pg # 22-14
VG2231 TM	2½"		No	211	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1472	\$1,379
			No	110	RV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
					2*AF	UGLK1472	\$1,379
					EV	FGVL	Pg # 22-14
VG2431 TM		2½"	No	211	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1472	\$1,379
			No	110	RV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
					2*AF	UGLK1472	\$1,379
					AF	UGLK1404	\$991
VG2831 TM	2½"		No	211	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1472	\$1,379
			No	110	RV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
					2*AF	UGLK1472	\$1,379
					AF	UGLK1404	\$991
V-5210-4596		3"	No	93	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1478	\$1,371
			No	52	EV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
					2*AF	UGLK1478	\$1,371
					AF	UGLK1412	\$991
V-5252-(12, 13, 35)	3"		No	93	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1476	\$1,371
			No	52	EV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
					2*AF	UGLK1476	\$1,371
					AF	UGLK1410	\$991

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RETROFIT SOLUTIONS



5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V-5252-(9, 10, 11, 34)	3"	Yes	136	2*GK	UGLK1472	\$1,379
		No	93	RV	FGVL	Pg # 22-14
		Yes	77	2*AF	UGLK1472	\$1,379
		No	52	EV	FGVL	Pg # 22-14
Yes		38	AVK	FGVL	Pg # 22-15	
			AF	UGLK1404	\$991	
V-5410-4596		No	93	RV	FGVL	Pg # 22-14
		Yes	93	2*GK	UGLK1478	\$1,371
		No	52	EV	FGVL	Pg # 22-14
		AVK		FGVL	Pg # 22-15	
Yes		26	2*AF	UGLK1478	\$1,371	
			AF	UGLK1412	\$991	
V-5462-10		No	93	RV	FGVL	Pg # 22-14
		Yes	93	2*GK	UGLK1478	\$1,371
		No	52	EV	FGVL	Pg # 22-14
		AVK		FGVL	Pg # 22-15	
Yes	26	2*AF	UGLK1478	\$1,371		
		AF	UGLK1412	\$991		
V-5462-35	No	93	RV	FGVL	Pg # 22-14	
	Yes	93	2*GK	UGLK1476	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	AVK		FGVL	Pg # 22-15		
Yes	26	2*AF	UGLK1476	\$1,371		
		AF	UGLK1410	\$991		
V-5462-36	No	93	RV	FGVL	Pg # 22-14	
	Yes	93	2*GK	UGLK1478	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	AVK		FGVL	Pg # 22-15		
Yes	26	2*AF	UGLK1478	\$1,371		
		AF	UGLK1412	\$991		
V-5462-8	No	93	RV	FGVL	Pg # 22-14	
	Yes	93	2*GK	UGLK1476	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	AVK		FGVL	Pg # 22-15		
Yes	26	2*AF	UGLK1476	\$1,371		
		AF	UGLK1410	\$991		
V-5462-9	No	93	RV	FGVL	Pg # 22-14	
	Yes	93	2*GK	UGLK1476	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	AVK		FGVL	Pg # 22-15		
Yes	26	2*AF	UGLK1476	\$1,371		
		AF	UGLK1410	\$991		
V-5842-10	No	93	RV	FGVL	Pg # 22-14	
	Yes	93	2*GK	UGLK1476	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	AVK		FGVL	Pg # 22-15		
Yes	26	2*AF	UGLK1476	\$1,371		
		AF	UGLK1410	\$991		
V-5842-17	No	93	RV	FGVL	Pg # 22-14	
	Yes	93	2*GK	UGLK1478	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	AVK		FGVL	Pg # 22-15		
Yes	26	2*AF	UGLK1478	\$1,371		
		AF	UGLK1412	\$991		
V-5842-18	No	93	RV	FGVL	Pg # 22-14	
	Yes	93	2*GK	UGLK1478	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	AVK		FGVL	Pg # 22-15		
Yes	26	2*AF	UGLK1478	\$1,371		
		AF	UGLK1412	\$991		
V-5842-32	No	93	RV	FGVL	Pg # 22-14	
	Yes	93	2*GK	UGLK1476	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	AVK		FGVL	Pg # 22-15		
Yes	26	2*AF	UGLK1476	\$1,371		
		AF	UGLK1410	\$991		

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RETROFIT SOLUTIONS

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V-5842-33	3"	No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	\$1,371
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	\$1,371
				AF	UGLK1412	\$991
V-5842-9		No	93	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	\$1,371
		No	52	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	\$1,371
				AF	UGLK1410	\$991
VB-3752-22	No	93	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1476	\$1,371	
	No	70	EV	FGVL	Pg # 22-14	
	Yes		60	AVK	FGVL	Pg # 22-15
			52	2*AF	UGLK1476	\$1,371
			26	AF	UGLK1410	\$991
VB-3970-14	No	93	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1476	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	Yes		AVK	FGVL	Pg # 22-15	
			2*AF	UGLK1476	\$1,371	
			26	AF	UGLK1410	\$991
VB-4322-11	No	93	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1476	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	Yes		AVK	FGVL	Pg # 22-15	
			2*AF	UGLK1476	\$1,371	
			26	AF	UGLK1410	\$991
VG2231 UM	No	93	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1476	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	Yes		2*AF	UGLK1476	\$1,371	
			AVK	FGVL	Pg # 22-15	
			26	AF	UGLK1410	\$991
VG2231 UN	No	93	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1478	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	Yes		AVK	FGVL	Pg # 22-15	
			2*AF	UGLK1478	\$1,371	
			26	AF	UGLK1412	\$991
VG2431 UM	No	93	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1476	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	Yes		AVK	FGVL	Pg # 22-15	
			2*AF	UGLK1476	\$1,371	
			26	AF	UGLK1410	\$991
VG2431 UN	No	93	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1478	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	Yes		AVK	FGVL	Pg # 22-15	
			2*AF	UGLK1478	\$1,371	
			26	AF	UGLK1412	\$991
VG2831 UM	No	93	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1476	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	Yes		AVK	FGVL	Pg # 22-15	
			2*AF	UGLK1476	\$1,371	
			26	AF	UGLK1410	\$991
VG2831 UN	No	93	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1478	\$1,371	
	No	52	EV	FGVL	Pg # 22-14	
	Yes		AVK	FGVL	Pg # 22-15	
			2*AF	UGLK1478	\$1,371	
			26	AF	UGLK1412	\$991

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RETROFIT SOLUTIONS



5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V-5210-4597	4"	No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	\$1,371
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes		2*AF	UGLK1478	\$1,371
				AF	UGLK1412	\$991
V-5252-(14, 36)	4"	No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	\$1,371
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes		2*AF	UGLK1476	\$1,371
				AF	UGLK1410	\$991
V-5252-(15, 16, 37)	4"	No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	\$1,371
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes		2*AF	UGLK1478	\$1,371
				AF	UGLK1412	\$991
V-5410-4597	4"	No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	\$1,371
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes		2*AF	UGLK1478	\$1,371
				AF	UGLK1412	\$991
V-5462-11	4"	No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	\$1,371
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes		2*AF	UGLK1476	\$1,371
				AF	UGLK1410	\$991
V-5462-12	4"	No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	\$1,371
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes		2*AF	UGLK1476	\$1,371
				AF	UGLK1410	\$991
V-5462-13	4"	No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	\$1,371
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes		2*AF	UGLK1478	\$1,371
				AF	UGLK1412	\$991
V-5462-14	4"	No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	\$1,371
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes		2*AF	UGLK1478	\$1,371
				AF	UGLK1412	\$991
V-5462-37	4"	No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1476	\$1,371
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes		2*AF	UGLK1476	\$1,371
				AF	UGLK1410	\$991
V-5462-38	4"	No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	\$1,371
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes		2*AF	UGLK1478	\$1,371
				AF	UGLK1412	\$991
V-5842-11	4"	No	52	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1478	\$1,371
		No	26	EV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		Yes		2*AF	UGLK1478	\$1,371
				AF	UGLK1412	\$991

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RETROFIT SOLUTIONS

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price	
V-5842-12	4"	No	52	RV	FGVL	Pg # 22-14	
		Yes		2*GK	UGLK1478	\$1,371	
		No	26	EV	FGVL	Pg # 22-14	
		Yes		AVK	FGVL	Pg # 22-15	
				2*AF	UGLK1478	\$1,371	
				AF	UGLK1412	\$991	
No		52	RV	FGVL	Pg # 22-14		
Yes			2*GK	UGLK1478	\$1,371		
V-5842-34		4"	No	26	EV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	\$1,371	
				AF	UGLK1412	\$991	
	No		52	RV	FGVL	Pg # 22-14	
	Yes			2*GK	UGLK1478	\$1,371	
VB-3752-25	4"		No	40	EV	FGVL	Pg # 22-14
			Yes		30	AVK	FGVL
				26	2*AF	UGLK1476	\$1,371
				14	AF	UGLK1410	\$991
				No	52	RV	FGVL
			Yes	2*GK		UGLK1476	\$1,371
VB-3970-17		4"	No	26	EV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	\$1,371	
				AF	UGLK1410	\$991	
			No	52	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1476	\$1,371
VB-4322-13	4"		No	26	EV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	\$1,371	
				AF	UGLK1410	\$991	
			No	52	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1476	\$1,371
VG2231 VM		4"	No	26	EV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	\$1,371	
				AF	UGLK1410	\$991	
			No	52	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1478	\$1,371
VG2231 VN	4"		No	26	EV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	\$1,371	
				AF	UGLK1412	\$991	
			No	52	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1476	\$1,371
VG2431 VM		4"	No	26	EV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	\$1,371	
				AF	UGLK1410	\$991	
			No	52	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1478	\$1,371
VG2431 VN	4"		No	26	EV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	\$1,371	
				AF	UGLK1412	\$991	
			No	52	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1476	\$1,371
VG2831 VM		4"	No	26	EV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1476	\$1,371	
				AF	UGLK1410	\$991	
			No	52	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1478	\$1,371
VG2831 VN	4"		No	26	EV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
				2*AF	UGLK1478	\$1,371	
				AF	UGLK1412	\$991	

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RETROFIT SOLUTIONS



5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
V-5252-17	5"	No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	\$1,380
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	\$999
				2*AF	UGLK1480	\$1,380
				AF	UGLK1414	\$999
V-5252-18		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	\$1,380
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	\$999
				2*AF	UGLK1480	\$1,380
				AF	UGLK1414	\$999
V-5252-38	No	22	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	14	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			AF	UGLK1414	\$999	
V-5462-15	No	22	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	14	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			AF	UGLK1414	\$999	
V-5462-16	No	22	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	14	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			AF	UGLK1414	\$999	
V-5462-39	No	22	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	14	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			AF	UGLK1414	\$999	
V-5842-13	No	22	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	14	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			AF	UGLK1414	\$999	
V-5842-14	No	22	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	14	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			AF	UGLK1414	\$999	
V-5842-35	No	22	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	14	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			AF	UGLK1414	\$999	
VB-3752-28	No	22	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	14	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			AF	UGLK1414	\$999	
VB-3970-20	No	22	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	14	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			AF	UGLK1414	\$999	

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RETROFIT SOLUTIONS

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
VB-4322-19	5"	No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	\$1,380
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	\$999
				2*AF	UGLK1480	\$1,380
				AF	UGLK1414	\$999
VG2231 WN		No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	\$1,380
		No	14	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	\$999
				2*AF	UGLK1480	\$1,380
				AF	UGLK1414	\$999
VG2431 WN	No	22	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	14	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			AF	UGLK1414	\$999	
VG2831 WN	No	22	RV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	14	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			AF	UGLK1414	\$999	
V-5252-19	6"	No	22	RV	FGVL	Pg # 22-14
		Yes		2*GK	UGLK1480	\$1,380
		No	10	EV	FGVL	Pg # 22-14
		Yes		GK	UGLK1414	\$999
				2*AF	UGLK1480	\$1,380
				RV	FGVL	Pg # 22-14
V-5252-39		No	22	2*GK	UGLK1480	\$1,380
		Yes		EV	FGVL	Pg # 22-14
		No	10	GK	UGLK1414	\$999
		Yes		2*AF	UGLK1480	\$1,380
				RV	FGVL	Pg # 22-14
				2*GK	UGLK1480	\$1,380
V-5462-17	No	22	EV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	10	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			RV	FGVL	Pg # 22-14	
V-5462-18	No	22	2*GK	UGLK1480	\$1,380	
	Yes		EV	FGVL	Pg # 22-14	
	No	10	GK	UGLK1414	\$999	
	Yes		2*AF	UGLK1480	\$1,380	
			RV	FGVL	Pg # 22-14	
			2*GK	UGLK1480	\$1,380	
V-5462-40	No	22	EV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	10	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			RV	FGVL	Pg # 22-14	
V-5842-15	No	22	2*GK	UGLK1480	\$1,380	
	Yes		EV	FGVL	Pg # 22-14	
	No	10	GK	UGLK1414	\$999	
	Yes		2*AF	UGLK1480	\$1,380	
			RV	FGVL	Pg # 22-14	
			2*GK	UGLK1480	\$1,380	
V-5842-16	No	22	EV	FGVL	Pg # 22-14	
	Yes		2*GK	UGLK1480	\$1,380	
	No	10	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			RV	FGVL	Pg # 22-14	
V-5842-36	No	22	2*GK	UGLK1480	\$1,380	
	Yes		EV	FGVL	Pg # 22-14	
	No	10	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			RV	FGVL	Pg # 22-14	
VB-3752-31	No	22	2*GK	UGLK1480	\$1,380	
	Yes		EV	FGVL	Pg # 22-14	
	No	10	EV	FGVL	Pg # 22-14	
	Yes		GK	UGLK1414	\$999	
			2*AF	UGLK1480	\$1,380	
			RV	FGVL	Pg # 22-14	

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RETROFIT SOLUTIONS



Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price	
VB-3970-23	6"	No	22	RV	FGVL	Pg # 22-14	
		Yes		2*GK	UGLK1480	\$1,380	
		No	10	EV	FGVL	Pg # 22-14	
		Yes		GK	UGLK1414	\$999	
VB-4322-18		6"	No	22	2*AF	UGLK1480	\$1,380
			Yes		RV	FGVL	Pg # 22-14
			No	10	2*GK	UGLK1480	\$1,380
			Yes		EV	FGVL	Pg # 22-14
VG2231 YN	6"		No	22	GK	UGLK1414	\$999
			Yes		2*AF	UGLK1480	\$1,380
			No	10	RV	FGVL	Pg # 22-14
			Yes		2*GK	UGLK1480	\$1,380
VG2431 YN		6"	No	22	EV	FGVL	Pg # 22-14
			Yes		GK	UGLK1414	\$999
			No	10	2*AF	UGLK1480	\$1,380
			Yes		RV	FGVL	Pg # 22-14
VG2831 YN	6"		No	22	2*GK	UGLK1480	\$1,380
			Yes		EV	FGVL	Pg # 22-14
			No	10	GK	UGLK1414	\$999
			Yes		2*AF	UGLK1480	\$1,380
<b>ROBERTSHAW</b>							
V6600		1/2"	No	236	LV	UGVL	Pg # 22-14
			Yes		LVK	UGVL	Pg # 22-15
V6700			No		211	LV	UGVL
	Yes		LVK			UGVL	Pg # 22-15
V6600	3/4"	No	236	LV	UGVL	Pg # 22-14	
		Yes		LVK	UGVL	Pg # 22-15	
V6700, V6800		No		93	SV	UGVL	Pg # 22-14
		Yes			SVK	UGVL	Pg # 22-15
V6600	1"	No	236	LV	UGVL	Pg # 22-14	
		Yes		LVK	UGVL	Pg # 22-15	
V6700		No		93	SV	UGVL	Pg # 22-14
		Yes			SVK	UGVL	Pg # 22-15
V6600	1 1/4"	No	236	LV	UGVL	Pg # 22-14	
		Yes		LVK	UGVL	Pg # 22-15	
V6700		No		160	SV	UGVL	Pg # 22-14
		Yes			SVK	UGVL	Pg # 22-15
V6600	1 1/2"	No	85	SV	UGVL	Pg # 22-14	
		Yes		SVK	UGVL	Pg # 22-15	
V6700		No		236	LV	UGVL	Pg # 22-14
		Yes			LVK	UGVL	Pg # 22-15
<b>SIEBE\INVENSYS\BARBER COLMAN\SCHNEIDER</b>							
Belimo USA G2/G2S Series (OLD = pre April 2018)	1/2"	Yes	250	LF	UGLK1150**	\$663	
		No		LV	SGVL	Pg # 22-14	
Yes		LVK		SGVL	Pg # 22-15		
Yes		LF		UGLK1150**	\$663		
Belimo USA G3 Series (OLD = pre April 2018)		No	236	LV	SGVL	Pg # 22-14	
		Yes		LVK	SGVL	Pg # 22-15	
VB304X-0-1-4		No	236	LM	UGLK1002	\$889	
		Yes		LF	UGLK1002	\$889	
VB7000 Series	No	236	AF	UGLK1004	\$983		
	Yes		LV	SGVL	Pg # 22-14		
				LVK	SGVL	Pg # 22-15	

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RETROFIT SOLUTIONS

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price		
VB7XXX-0-4-1	½"	Yes	236	LF	UGLK1150**	\$663		
VB7XXX-0-4-2				LF	UGLK1150**	\$663		
VB7XXX-0-4-3				LF	UGLK1150**	\$663		
VB7XXX-0-4-4				LF	UGLK1150**	\$663		
VB804X-0-1-4		No		LM	UGLK1002	\$889		
		Yes		LF	UGLK1002	\$889		
VB9000 Series		No		AF	UGLK1004	\$983		
		Yes		LV	SGVL	Pg # 22-14		
				LVK	SGVL	Pg # 22-15		
VB9XXX-0-4-1		Yes		LF	UGLK1150**	\$663		
VB9XXX-0-4-2				LF	UGLK1150**	\$663		
VB9XXX-0-4-3				LF	UGLK1150**	\$663		
VB9XXX-0-4-4	LF		UGLK1150**	\$663				
Belimo USA G2/G2S Series (OLD = pre April 2018)	No		LV	SGVL	Pg # 22-14			
	Yes		LF	UGLK1150**	\$663			
Belimo USA G3 Series (OLD = pre April 2018)	No	LVK	SGVL	Pg # 22-15				
	Yes	LV	SGVL	Pg # 22-14				
VB304X-0-1-7	No	LVK	SGVL	Pg # 22-15				
	Yes	LF	UGLK1150**	\$663				
VB7000 Series	No	NM	UGLK1002	\$889				
	Yes	LF	UGLK1002	\$889				
		LV	SGVL	Pg # 22-14				
VB7XXX-0-4-5	¾"	Yes	211	LVK	SGVL	Pg # 22-15		
VB7XXX-0-4-6				LF	UGLK1150**	\$663		
VB804X-0-1-7				LF	UGLK1150**	\$663		
		No		NM	UGLK1002	\$889		
VB9000 Series		Yes		LF	UGLK1002	\$889		
		No		LV	SGVL	Pg # 22-14		
				LVK	SGVL	Pg # 22-15		
VB9XXX-0-4-5		Yes		LF	UGLK1150**	\$663		
VB9XXX-0-4-6				LF	UGLK1150**	\$663		
Belimo USA G2/G2S Series (OLD = pre April 2018)				No	AF	UGLK1000**	\$992	
				Yes	SV	SGVL	Pg # 22-14	
Belimo USA G3 Series (OLD = pre April 2018)				No	SVK	SGVL	Pg # 22-15	
	Yes		LF	UGLK1150**	\$663			
VB304X-0-1-8	No	AF	UGLK1000**	\$992				
	Yes	SV	SGVL	Pg # 22-14				
VB7000 Series	Yes	SVK	SGVL	Pg # 22-15				
	No	LF	UGLK1150**	\$663				
	No	SV	SGVL	Pg # 22-14				
VB7XXX-0-4-(7, 8)	1"	Yes	236	SVK	SGVL	Pg # 22-15		
VB7XXX-0-4-7				SV	SGVL	Pg # 22-14		
VB7XXX-0-4-8				SVK	SGVL	Pg # 22-15		
VB804X-0-1-8		No		AF	UGLK1000**	\$992		
		Yes		LF	UGLK1150**	\$663		
		No		LF	UGLK1150**	\$663		
VB9000 Series		No		AM	UGLK1004	\$983		
		Yes		AF	UGLK1004	\$983		
		No		NM	UGLK1002	\$889		
VB9XXX-0-4-(7, 8)		Yes		Yes	65	LF	UGLK1002	\$889
VB9XXX-0-4-7				No	236	SV	SGVL	Pg # 22-14
VB9XXX-0-4-8				Yes	236	SVK	SGVL	Pg # 22-15
VB804X-0-1-8	No		93	SV	SGVL	Pg # 22-14		
	Yes		93	LVK	SGVL	Pg # 22-15		
VB9XXX-0-4-7	No		236	AF	UGLK1000**	\$992		
VB9XXX-0-4-8	Yes	93	LF	UGLK1150**	\$663			
				LF	UGLK1150**	\$663		

\*\*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.

RETROFIT SOLUTIONS



5-year warranty

**Siebe\Invensys\Barber Colman\Schneider**  
**VB80..., VB9..., Belimo USA G2, Belimo USA G3, VB30..., VB7.. Series Valves**  
**Linkage/Actuator Selection Guide**

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)	1 1/4"	Yes	250	AF	UGLK1000**	\$992
			236	SVK	SGVL	Pg # 22-15
		No	235	SV	SGVL	Pg # 22-14
			61	LF	UGLK1150**	\$663
Belimo USA G3 Series (OLD = pre April 2018)		Yes	250	AF	UGLK1000**	\$992
			236	SVK	SGVL	Pg # 22-15
		No	235	SV	SGVL	Pg # 22-14
			61	LF	UGLK1150**	\$663
VB304X-0-1-9		No	221	AM	UGLK1004	\$983
			221	AF	UGLK1004	\$983
		Yes	110	NM	UGLK1002	\$889
			40	LF	UGLK1002	\$889
VB7000 Series	No	236	SV	SGVL	Pg # 22-14	
		236	SVK	SGVL	Pg # 22-15	
VB7XXX-0-4-9	Yes	65	LF	UGLK1150**	\$663	
		65	LF	UGLK1150**	\$663	
VB804X-0-1-9	No	221	AM	UGLK1004	\$983	
		221	AF	UGLK1004	\$983	
	Yes	110	NM	UGLK1002	\$889	
		40	LF	UGLK1002	\$889	
VB9000 Series	No	236	SV	SGVL	Pg # 22-14	
		236	SVK	SGVL	Pg # 22-15	
VB9XXX-0-4-9	Yes	65	LF	UGLK1150**	\$663	
		217	AF	UGLK1000**	\$992	
Belimo USA G2/G2S Series (OLD = pre April 2018)	1 1/2"	No	160	SV	SGVL	Pg # 22-14
			160	SVK	SGVL	Pg # 22-15
Yes		217	AF	UGLK1000**	\$992	
		160	SV	SGVL	Pg # 22-14	
VB304X-0-1-10		No	236	GM	UGLK1004	\$983
			236	GK	UGLK1004	\$983
		Yes	153	AM	UGLK1004	\$983
			153	AF	UGLK1004	\$983
VB7000 Series		No	77	NM	UGLK1002	\$889
			26	LF	UGLK1002	\$889
		Yes	160	SV	SGVL	Pg # 22-14
			160	SVK	SGVL	Pg # 22-15
VB7XXX-0-4-10	No	211	AF	UGLK1000**	\$992	
		211	AF	UGLK1000**	\$992	
	Yes	236	GM	UGLK1004	\$983	
		236	GK	UGLK1004	\$983	
VB804X-0-1-10	No	153	AM	UGLK1004	\$983	
		153	AF	UGLK1004	\$983	
	Yes	77	NM	UGLK1002	\$889	
		26	LF	UGLK1002	\$889	
VB9XXX-0-4-10 (Post '94)*	No	236	2*GM	UGLK1066	\$1,355	
		236	2*GK	UGLK1066	\$1,355	
	Yes	211	2*AF	UGLK1066	\$1,355	
		160	GM	UGLK1016	\$983	
VB9XXX-0-4-10 (Pre '94)	No	79	GK	UGLK1016	\$983	
		79	AF	UGLK1016	\$983	
	Yes	236	2*GM	UGLK1064	\$1,355	
		236	2*GK	UGLK1064	\$1,355	
Belimo USA G2/G2S Series (OLD = pre April 2018)	2"	No	211	GM	UGLK1008	\$984
			211	GK	UGLK1008	\$984
		Yes	110	2*AF	UGLK1064	\$1,355
			110	AF	UGLK1008	\$984
Belimo USA G3 Series (OLD = pre April 2018)		No	122	SV	UGVL	Pg # 22-14
			122	SVK	UGVL	Pg # 22-15
		Yes	90	AF	UGLK1000**	\$992
			90	SV	SGVL	Pg # 22-14
Belimo USA G2/G2S Series (OLD = pre April 2018)		No	85	SVK	SGVL	Pg # 22-15
			85	SVK	SGVL	Pg # 22-15
		Yes	122	AF	UGLK1000**	\$992
			90	SV	SGVL	Pg # 22-14
Belimo USA G3 Series (OLD = pre April 2018)	No	85	SVK	SGVL	Pg # 22-15	
		85	SVK	SGVL	Pg # 22-15	

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RETROFIT SOLUTIONS

\*\*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.



Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
VB304X-0-1-11	2"	No	173	GM	UGLK1004	\$983
		Yes		GK	UGLK1004	\$983
		No	86	AM	UGLK1004	\$983
		Yes		AF	UGLK1004	\$983
		No	40	NM	UGLK1002	\$889
		Yes		LF	UGLK1002	\$889
VB7000 Series		No	85	SV	SGVL	Pg # 22-14
VB7XXX-0-4-11		Yes		SVK	SGVL	Pg # 22-15
VB804X-0-1-11		No	120	AF	UGLK1000**	\$992
		Yes		GM	UGLK1004	\$983
		No	86	GK	UGLK1004	\$983
		Yes		AM	UGLK1004	\$983
	No	40	AF	UGLK1004	\$983	
	Yes		NM	UGLK1002	\$889	
VB9XXX-0-4-11 (Post '94)*	No	211	2*GM	UGLK1066	\$1,355	
	Yes		2*GK	UGLK1066	\$1,355	
	No	110	2*AF	UGLK1066	\$1,355	
	Yes		GM	UGLK1016	\$983	
	No	89	GK	UGLK1016	\$983	
	Yes		AF	UGLK1016	\$983	
VB9XXX-0-4-11 (Pre '94)	No	211	2*GM	UGLK1064	\$1,355	
	Yes		2*GK	UGLK1064	\$1,355	
	No	110	GM	UGLK1008	\$984	
	Yes		GK	UGLK1008	\$984	
	No	40	2*AF	UGLK1064	\$1,355	
	Yes		SVK	UGVL	Pg # 22-14	
VB304X-0-2-12	2½"	No	136	SV	UGVL	Pg # 22-15
		Yes		AF	UGLK1008	\$984
		No	75	2*GM	UGLK1072	\$1,355
		Yes		2*GK	UGLK1072	\$1,355
		No	38	2*AF	UGLK1072	\$1,355
		Yes		AF	UGLK1006	\$983
VB804X-0-2-12		No	90	RV	FGVL	Pg # 22-14
		Yes		AVK	FGVL	Pg # 22-15
		No	45	EV	FGVL	Pg # 22-14
		Yes		2*GM	UGLK1072	\$1,355
		No	136	2*GK	UGLK1072	\$1,355
		Yes		RV	FGVL	Pg # 22-14
VB9XXX-0-4-12	No	85	AVK	FGVL	Pg # 22-15	
	Yes		2*AF	UGLK1072	\$1,355	
	No	38	AF	UGLK1006	\$983	
	Yes		EV	FGVL	Pg # 22-14	
	No	136	2*GM	UGLK1070	\$1,367	
	Yes		2*GK	UGLK1070	\$1,367	
VB9XXX-0-5-12	No	75	GM	UGLK1010	\$984	
	Yes		GK	UGLK1010	\$984	
	No	38	2*AF	UGLK1070	\$1,367	
	Yes		AM	UGLK1010	\$984	
	No	150	AF	UGLK1010	\$984	
	Yes		RV	FGVL	Pg # 22-14	
VB304X-0-2-13	3"	No	136	2*GK	UGLK1070	\$1,367
		Yes		EV	FGVL	\$1,952
		No	80	AVK	FGVL	\$1,952
		Yes		2*AF	UGLK1070	\$1,367
		No	70	AF	UGLK1010	\$984
		Yes		2*GM	UGLK1072	\$1,355
VB304X-0-2-13		No	93	2*GK	UGLK1072	\$1,355
		Yes		RV	FGVL	Pg # 22-14
		No	60	AVK	FGVL	Pg # 22-15
		Yes		2*AF	UGLK1072	\$1,355
		No	35	EV	FGVL	Pg # 22-14
		Yes		26	AF	UGLK1006

\*Will also work with UGVL+SV+SGVL kit

\*\*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.



5-year warranty

Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price	
VB804X-0-2-13	3"	No	93	2*GM	UGLK1072	\$1,355	
		Yes		2*GK	UGLK1072	\$1,355	
		No	65	RV	FGVL	Pg # 22-14	
		Yes		AVK	FGVL	Pg # 22-15	
		No	30	2*AF	UGLK1072	\$1,355	
		Yes		EV	FGVL	Pg # 22-14	
VB9XXX-0-4-13		3"	No	93	2*GM	UGLK1070	\$1,367
			Yes		2*GK	UGLK1070	\$1,367
			No	52	GM	UGLK1010	\$984
			Yes		GK	UGLK1010	\$984
			No	26	2*AF	UGLK1070	\$1,367
			Yes		AM	UGLK1010	\$984
VB9XXX-0-5-13	3"		No	93	2*GM	UGLK1070	\$1,367
			Yes		2*GK	UGLK1070	\$1,367
			No	90	RV	FGVL	Pg # 22-14
			Yes		2*AF	UGLK1070	\$1,367
			No	40	EV	FGVL	Pg # 22-14
			Yes		AVK	FGVL	Pg # 22-15
VB304X-0-2-14		4"	No	52	2*GM	UGLK1072	\$1,355
			Yes		2*GK	UGLK1072	\$1,355
			No	35	RV	FGVL	Pg # 22-14
			Yes		30	AVK	FGVL
			No	26	2*AF	UGLK1072	\$1,355
			Yes		20	EV	FGVL
VB804X-0-2-14	4"		No	52	2*GM	UGLK1072	\$1,355
			Yes		2*GK	UGLK1072	\$1,355
			No	45	RV	FGVL	Pg # 22-14
			Yes		30	AVK	FGVL
			No	26	2*AF	UGLK1072	\$1,355
			Yes		20	EV	FGVL
VB9XXX-0-5-14		4"	No	40	2*GM	UGLK1074	\$1,355
			Yes		2*GK	UGLK1074	\$1,355
			No	30	RV	FGVL	Pg # 22-14
			Yes		25	AVK	FGVL
			No	15	2*AF	UGLK1074	\$1,355
			Yes		10	EV	FGVL
VB304X-0-2-15	5"		No	24	2*GM	UGLK1076	\$1,355
			Yes		2*GK	UGLK1076	\$1,355
			No	15	RV	FGVL	Pg # 22-14
			Yes		14	2*AF	UGLK1076
			No	20	EV	FGVL	Pg # 22-14
			Yes		15	2*GK	UGLK1076
VB804X-0-2-15		5"	No	22	2*GM	UGLK1076	\$1,355
			Yes		2*GK	UGLK1076	\$1,355
			No	14	RV	FGVL	Pg # 22-14
			Yes		14	2*AF	UGLK1076
			No	20	EV	FGVL	Pg # 22-14
			Yes		15	2*GK	UGLK1076
VB9XXX-0-5-15	5"		No	22	2*GM	UGLK1076	\$1,355
			Yes		2*GK	UGLK1076	\$1,355
			No	15	RV	FGVL	Pg # 22-14
			Yes		13	EV	FGVL
			No	10	2*AF	UGLK1076	\$1,355
			Yes		10	2*GK	UGLK1076
VB304X-0-2-16		6"	No	22	2*GM	UGLK1076	\$1,355
			Yes		2*GK	UGLK1076	\$1,355
			No	15	RV	FGVL	Pg # 22-14
			Yes		13	EV	FGVL
			No	10	2*AF	UGLK1076	\$1,355
			Yes		10	2*GK	UGLK1076
VB804X-0-2-16	6"		No	22	2*GM	UGLK1076	\$1,355
			Yes		2*GK	UGLK1076	\$1,355
			No	15	RV	FGVL	Pg # 22-14
			Yes		13	EV	FGVL
			No	10	2*AF	UGLK1076	\$1,355
			Yes		10	2*GK	UGLK1076
VB9XXX-0-5-16		6"	No	15	RV	FGVL	Pg # 22-14
			Yes		15	EV	FGVL

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RETROFIT SOLUTIONS

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Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price	
591 Series	1/2"	Yes	236	LV	UGVL	Pg # 22-14	
				LVK	UGVL	Pg # 22-15	
		No		NF	UGLK1200	\$992	
LV				UGVL	Pg # 22-14		
599 Flowrite		Yes		LVK	UGVL	Pg # 22-15	
				NF	UGLK1208	\$992	
599 MZ/MT Series	No	CM	UGSL1200	\$173			
		TF	UGSL1200	\$173			
656, 658 Series	Yes	LF	UGLK1350	\$657			
		NF	UGLK1200	\$992			
591 Series	3/4"	No	211	LV	UGVL	Pg # 22-14	
				LVK	UGVL	Pg # 22-15	
Yes		236		AM	UGLK1208	\$992	
				AF	UGLK1208	\$992	
599 Flowrite		No		211	LV	UGVL	Pg # 22-14
					LVK	UGVL	Pg # 22-15
599 MZ/MT Series	No	10-120	CM	UGSL1200	\$173		
			TF	UGSL1200	\$173		
656, 658 Series	Yes	211	LF	UGLK1350	\$657		
			NF	UGLK1200	\$992		
591 Series	1"	No	236	SV	UGVL	Pg # 22-14	
				AM	UGLK1200	\$992	
		Yes		173	SVK	UGVL	Pg # 22-15
AF					UGLK1200	\$992	
599 Flowrite		No		236	NF	UGLK1208	\$992
					SV	UGVL	Pg # 22-14
	AM		UGLK1208		\$992		
599 MZ/MT Series	Yes	10-120	SVK	UGVL	Pg # 22-15		
			AF	UGLK1208	\$992		
			CM	UGSL1200	\$173		
656, 658 Series	No	93	TF	UGSL1200	\$173		
			LF	UGLK1350	\$657		
			SV	UGVL	Pg # 22-14		
658 Series	Yes	236	SVK	UGVL	Pg # 22-15		
			LV	UGVL	Pg # 22-14		
			LVK	UGVL	Pg # 22-15		
591 Series	1 1/4"	No	236	SV	UGVL	Pg # 22-14	
				AM	UGLK1200	\$992	
		Yes		160	SVK	UGVL	Pg # 22-15
AF					UGLK1200	\$992	
599 Flowrite		No		236	NF	UGLK1200	\$992
					SV	UGVL	Pg # 22-14
	SVK		UGVL		Pg # 22-15		
599 MZ/MT Series	Yes	221	AM	UGLK1208	\$992		
			AF	UGLK1208	\$992		
			NF	UGLK1208	\$992		
656, 658 Series	No	10-120	CM	UGSL1200	\$173		
			TF	UGSL1200	\$173		
			LF	UGLK1350	\$657		
658 Series	Yes	65	SV	UGVL	Pg # 22-14		
			SVK	UGVL	Pg # 22-15		
			GM	UGLK1200	\$992		
591 Series	1 1/2"	No	211	GK	UGLK1200	\$992	
				SV	UGVL	Pg # 22-14	
		Yes		209	AM	UGLK1200	\$992
SVK					UGVL	Pg # 22-15	
599 Flowrite		No		104	AF	UGLK1200	\$992
					GM	UGLK1202	\$991
	GK		UGLK1202		\$991		
599 Flowrite	Yes	77	AM	UGLK1202	\$991		
			AF	UGLK1202	\$991		
			NF	UGLK1208	\$992		
591 Series	1 1/2"	No	153	SV	UGVL	Pg # 22-14	
				AM	UGLK1208	\$992	
		Yes		236	SVK	UGVL	Pg # 22-15
AF					UGLK1208	\$992	
599 Flowrite		No		153	GM	UGLK1208	\$992
					GK	UGLK1208	\$992
	SV		UGVL		Pg # 22-14		

All close-off pressures listed are approximate and actual close-off pressures are based on valve condition and application.

RETROFIT SOLUTIONS



Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price		
599 MZ/MT Series	1½"	No	10-120	CM	UGSL1200	\$173		
		Yes		TF	UGSL1200	\$173		
591 Series	2"	No	236	GM	UGLK1200	\$992		
		Yes		GK	UGLK1200	\$992		
		No	120	AM	UGLK1200	\$992		
		Yes		AF	UGLK1200	\$992		
		No	85	SV	UGVL	Pg # 22-14		
		Yes		SVK	UGVL	Pg # 22-15		
		No	52	LV	UGVL	Pg # 22-14		
		Yes		LVK	UGVL	Pg # 22-15		
599 Flowrite	2"	No	173	GM	UGLK1208	\$992		
		Yes		GK	UGLK1208	\$992		
		No	86	AM	UGLK1208	\$992		
		Yes		AF	UGLK1208	\$992		
		No	85	SV	UGVL	Pg # 22-14		
		Yes		SVK	UGVL	Pg # 22-15		
		No	40	NF	UGLK1208	\$992		
		Yes		RV	FGVL	Pg # 22-14		
591 Series	2½"	No	211	2*GK	UGLK1270	\$1,379		
		Yes		EV	FGVL	Pg # 22-14		
		No	110	AVK	FGVL	Pg # 22-15		
		Yes		2*AF	UGLK1270	\$1,379		
599 Flowrite	2½"	No	211	2*GK	UGLK1272	\$1,380		
		Yes		110	2*AF	UGLK1272	\$1,380	
591 Series	3"	No	136	RV	FGVL	Pg # 22-14		
		Yes		2*GK	UGLK1270	\$1,379		
		No	90	EV	FGVL	Pg # 22-14		
		Yes		77	AVK	FGVL	Pg # 22-15	
599 Flowrite	3"	No	136	2*GK	UGLK1272	\$1,380		
		Yes		77	2*AF	UGLK1272	\$1,380	
		No	40	RV	FGVL	Pg # 22-14		
		Yes		30	2*GK	UGLK1274	\$1,379	
591 Series	4"	No	22	EV	FGVL	Pg # 22-14		
		Yes		GK	UGLK1206	\$991		
		No	10	2*AF	UGLK1274	\$1,379		
		Yes		40	AF	UGLK1206	\$991	
		599 Flowrite	4"	No	40	2*GK	UGLK1276	\$1,379
				Yes		22	GK	UGLK1212
				No	10	2*AF	UGLK1276	\$1,379
				Yes		10	AF	UGLK1212
591 Series	5"	No	25	RV	FGVL	Pg # 22-14		
		Yes		22	2*GK	UGLK1274	\$1,379	
		No	20	EV	FGVL	Pg # 22-14		
		Yes		14	GK	UGLK1206	\$991	
599 Flowrite	5"	No	14	2*AF	UGLK1274	\$1,379		
		Yes		22	2*GK	UGLK1276	\$1,379	
		No	14	GK	UGLK1212	\$991		
		Yes		14	2*AF	UGLK1276	\$1,379	
591 Series	6"	No	22	RV	FGVL	Pg # 22-14		
		Yes		10	2*GK	UGLK1274	\$1,379	
<b>WARREN CONTROLS</b>								
100 SGL SEAT	2½"	Yes	110	2*GK	UGLK2272	\$1,355		
		No		RV	WGVL	Pg # 22-14		
		Yes		52	AVK	WGVL	Pg # 22-15	
1800 3-Way	2½"	No	26	EV	WGVL	Pg # 22-14		
		Yes		110	2*GM	UGLK2272	\$1,355	
		No		52	2*GK	UGLK2272	\$1,355	
1800 BAL	2½"	Yes	110	EV	WGVL	Pg # 22-14		
		No		52	2*GM	UGLK2272	\$1,355	
		Yes		110	2*GK	UGLK2272	\$1,355	
Type 20-22	2½"	No	185	EV	WGVL	Pg # 22-14		
		Yes		93	RV	WGVL	Pg # 22-14	
		No		71	AVK	WGVL	Pg # 22-15	
Type 23	2½"	No	211	EV	WGVL	Pg # 22-14		
		Yes		211	AVK	WGVL	Pg # 22-15	

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RETROFIT SOLUTIONS

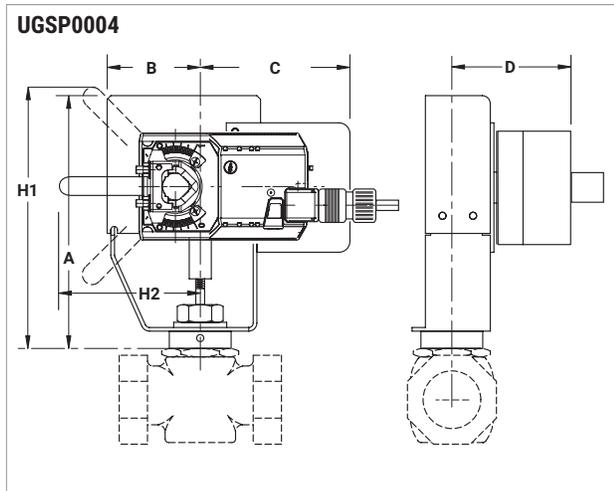
All close-off pressures listed are approximate and actual close-off pressures are based on valve condition and application.



Valve Body Model	Size	Fail-Safe	Close-Off (psid)	Belimo Actuator Series	Belimo Linkage	Linkage List Price
Type 30-32	2½"	No	185	RV	WGVL	Pg # 22-14
			93	EV	WGVL	Pg # 22-14
100 SGL SEAT	2½"	Yes	71	AVK	WGVL	Pg # 22-15
			70	2*GK	UGLK2272	\$1,355
1800 3-Way	2½"	No	40	RV	WGVL	Pg # 22-14
			40	AVK	WGVL	Pg # 22-15
1800 BAL	2½"	Yes	22	EV	WGVL	Pg # 22-14
			70	2*GM	UGLK2272	\$1,355
Type 20-22	2½"	No	40	EV	WGVL	Pg # 22-14
			70	2*GK	UGLK2272	\$1,355
Type 23	2½"	Yes	40	AVK	WGVL	Pg # 22-15
			70	2*GM	UGLK2272	\$1,355
Type 30-32	2½"	No	126	RV	WGVL	Pg # 22-14
			65	EV	WGVL	Pg # 22-14
100 SGL SEAT	3"	Yes	40	AVK	WGVL	Pg # 22-15
			40	2*GK	UGLK2272	\$1,355
1800 3-Way	3"	No	40	EV	WGVL	Pg # 22-14
			70	2*GM	UGLK2272	\$1,355
1800 BAL	3"	Yes	40	AVK	WGVL	Pg # 22-15
			40	2*GK	UGLK2272	\$1,355
Type 20-22	3"	No	126	RV	WGVL	Pg # 22-14
			65	EV	WGVL	Pg # 22-14
Type 23	3"	Yes	40	AVK	WGVL	Pg # 22-15
			160	EV	WGVL	Pg # 22-14
Type 30-32	3"	No	126	RV	WGVL	Pg # 22-14
			65	EV	WGVL	Pg # 22-14
100 SGL SEAT	3"	Yes	40	AVK	WGVL	Pg # 22-15
			40	2*GK	UGLK2272	\$1,355
1800 3-Way	3"	No	22	RV	WGVL	Pg # 22-14
			22	AVK	WGVL	Pg # 22-15
1800 BAL	3"	Yes	10	EV	WGVL	Pg # 22-14
			40	AF	UGLK2202	\$1,006
Type 20-22	3"	No	40	2*GM	UGLK2272	\$1,355
			40	2*GK	UGLK2272	\$1,355
Type 23	3"	Yes	22	EV	WGVL	Pg # 22-14
			22	AVK	WGVL	Pg # 22-15
Type 30-32	3"	No	22	RV	WGVL	Pg # 22-14
			22	EV	WGVL	Pg # 22-14
100 SGL SEAT	4"	Yes	236	AVK	WGVL	Pg # 22-15
			22	2*GM	UGLK2272	\$1,355
1800 3-Way	4"	No	65	RV	WGVL	Pg # 22-14
			65	EV	WGVL	Pg # 22-14
1800 BAL	4"	Yes	22	AVK	WGVL	Pg # 22-15
			40	2*GM	UGLK2272	\$1,355
Type 20-22	4"	No	22	RV	WGVL	Pg # 22-14
			22	EV	WGVL	Pg # 22-14
Type 23	4"	Yes	22	AVK	WGVL	Pg # 22-15
			22	2*GM	UGLK2272	\$1,355
Type 30-32	4"	No	22	RV	WGVL	Pg # 22-14
			22	EV	WGVL	Pg # 22-14
100 SGL SEAT	4"	Yes	22	AVK	WGVL	Pg # 22-15
			22	2*GM	UGLK2272	\$1,355
1800 3-Way	4"	No	14	RV	WGVL	Pg # 22-14
			14	AVK	WGVL	Pg # 22-15
1800 BAL	4"	Yes	10	AF	UGLK2202	\$1,006
			22	2*GM	UGLK2272	\$1,355
Type 20-22	4"	No	14	EV	WGVL	Pg # 22-14
			14	2*GM	UGLK2272	\$1,355
Type 23	4"	Yes	22	2*GK	UGLK2272	\$1,355
			22	EV	WGVL	Pg # 22-14
Type 30-32	4"	No	14	RV	WGVL	Pg # 22-14
			14	AVK	WGVL	Pg # 22-15
100 SGL SEAT	5"	Yes	14	EV	WGVL	Pg # 22-14
			22	2*GM	UGLK2272	\$1,355
1800 3-Way	5"	No	22	RV	WGVL	Pg # 22-14
			22	EV	WGVL	Pg # 22-14
1800 BAL	5"	Yes	14	AVK	WGVL	Pg # 22-15
			14	2*GM	UGLK2272	\$1,355
Type 20-22	5"	No	40	RV	WGVL	Pg # 22-14
			40	EV	WGVL	Pg # 22-14
Type 23	5"	Yes	236	AVK	WGVL	Pg # 22-15
			236	AVK	WGVL	Pg # 22-15
Type 30-32	5"	No	40	RV	WGVL	Pg # 22-14
			40	EV	WGVL	Pg # 22-14
100 SGL SEAT	5"	Yes	22	2*GK	UGLK2272	\$1,355
			22	RV	WGVL	Pg # 22-14
1800 3-Way	5"	No	10	AF	UGLK2202	\$1,006
			10	AVK	WGVL	Pg # 22-15
1800 BAL	5"	Yes	22	2*GM	UGLK2272	\$1,355
			22	2*GK	UGLK2272	\$1,355
Type 20-22	5"	No	10	EV	WGVL	Pg # 22-14
			10	2*GM	UGLK2272	\$1,355
Type 23	5"	Yes	22	2*GK	UGLK2272	\$1,355
			22	EV	WGVL	Pg # 22-14
Type 30-32	5"	No	10	RV	WGVL	Pg # 22-14
			10	AVK	WGVL	Pg # 22-15
100 SGL SEAT	6"	Yes	22	2*GK	UGLK2272	\$1,355
			22	RV	WGVL	Pg # 22-14
1800 3-Way	6"	No	10	AF	UGLK2202	\$1,006
			10	AVK	WGVL	Pg # 22-15
1800 BAL	6"	Yes	22	2*GM	UGLK2272	\$1,355
			22	2*GK	UGLK2272	\$1,355
Type 20-22	6"	No	10	EV	WGVL	Pg # 22-14
			22	2*GK	UGLK2272	\$1,355
Type 30	6"	Yes	10	2*AF	UGLK2272	\$1,355
			22	2*GK	UGLK2272	\$1,355
Type 32	6"	Yes	10	2*AF	UGLK2272	\$1,355
			22	2*GK	UGLK2272	\$1,355

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.

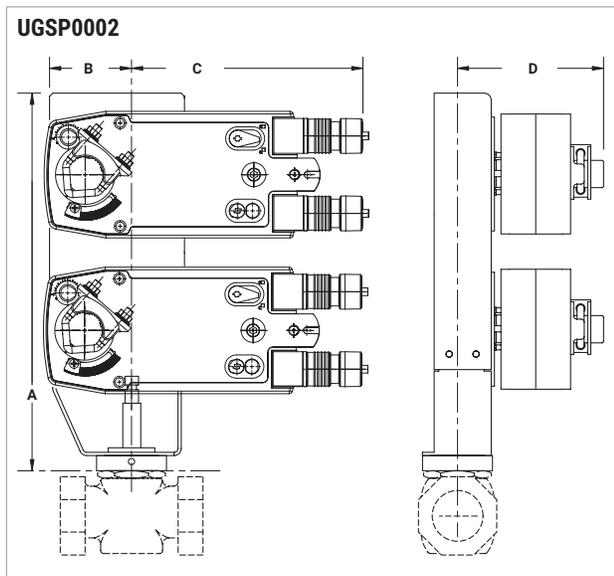


The single actuated globe retrofit linkage (shown left) depicts dimensional data for use in determining the envelope space required to mount the linkage. These dimensions do NOT include VALVE dimensions which will affect combined height requirements.

**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.

<b>Dim A</b>	7½ [190]...14" [356]	<b>Dim H1</b>	9½" [241]
<b>Dim B</b>	3" [76]	<b>Dim H2</b>	9½" [241]
<b>Dim C</b>	9" [229]		
<b>Dim D</b>	5" [127]		

**List Price for UGSP0004 \$1,369**



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.

<b>Dim A</b>	9½ [241]...19" [483]
<b>Dim B</b>	3" [76]
<b>Dim C</b>	9" [229]
<b>Dim D</b>	5" [127]

**List Price for UGSP0002 \$1,982**



5-year warranty

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All prices are in US Dollars (USD)

RETROFIT SOLUTIONS

**Custom kits are designed to your unique specifications and are not returnable.**

**Smart retrofit forms for butterfly valves, globe valves, and ball valves can be found on [www.belimo.com](http://www.belimo.com).**

**Legacy paper forms will no longer be accepted.**

# 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 UFLK1300**  
**Item 2 1pc GMB24-MFT-X1**



5-year warranty

**1** Select linkage solution based on the **Valve Number, Configuration, and Size**; select the proper **Linkage Solution** for your valve.

### Centerline

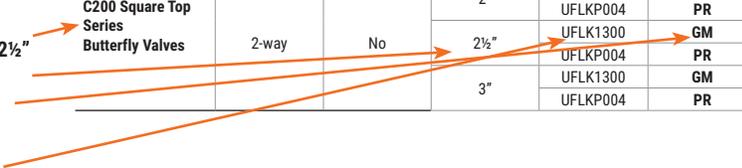
C200 Square Top Series Butterfly Valves  
Linkage/Actuator Selection Guide

Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series
C200 Square Top Series Butterfly Valves	2-way	No	2"	UFLK1300	AM
				UFLKP004	PR
			2½"	UFLK1300	GM
				UFLKP004	PR
			3"	UFLK1300	GM
				UFLKP004	PR

### UFLK1300

Example: **Centerline C200 Series, 2½"** valve using a **non fail-safe** Belimo actuation.

Choose correct linkage **UFLK1300**.



- 2** Select actuator based on needed control type. Decide between **GMB24-3-X1** and **GMB24-MFT-X1**.
- 3** 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

Complete Ordering Example:

- 4** Item 1: **UFLK1300**  
Item 2: **GMB24-MFT-X1**

### SY ACTUATORS

SERIES	MODEL	Run Time(s) 90°@60 Hz	Torque	Power Supply	Duty Cycle	CONTROL TYPE				List Price
						Modulating	Floating Point	On/Off	Feedback	
SY4	SY4-110	19 seconds	3540 in-lb [400 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$5,360
	SY4-24	20 seconds		AC/DC 24 V ±10%, 50/60 Hz	30%		•	•	none	\$5,360
	SY4-220	20 seconds		AC 230 V ±10%, 50/60 Hz	30%		•	•	none	\$5,360
	SY4-24MFT	20 seconds		AC/DC 24 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	\$9,847
	SY4-120MFT	24 seconds		AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	\$9,847
	SY4-230MFT	22 seconds		AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	\$9,847
SY5	SY5-110	26 seconds	4450 in-lb [500 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$6,199
	SY5-24	26 seconds		AC/DC 24 V ±10%, 50/60 Hz	30%		•	•	none	\$6,199
	SY5-24MFT	26 seconds		AC/DC 24 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	\$10,722
	SY5-120MFT	28 seconds		AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	\$10,722
	SY5-230MFT	28 seconds		AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	\$10,722
SY6	SY6-110	34 seconds	5785 in-lb [650 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$7,514
	SY6-120MFT	38 seconds		AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	\$12,111
	SY6-230MFT	35 seconds		AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	\$12,111
SY7	SY7-110	50 seconds	8900 in-lb [1000 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$9,018
	SY7-120MFT	59 seconds		AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	\$13,510
	SY7-230MFT	59 seconds		AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	\$13,510
SY8	SY8-110	51 seconds	13350 in-lb [1500 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$12,482
	SY8-120MFT	79 seconds		AC 120 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	\$17,073
	SY8-230MFT	79 seconds		AC 230 V ±10%, 50/60 Hz	75%	•			2...10 V/4...20 mA	\$17,073
SY9	SY9-110	62 seconds	17800 in-lb [2000 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$15,449
	SY9-120MFT	65 seconds		AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	\$20,076
	SY9-230MFT	72 seconds		AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	\$20,076
SY10	SY10-110	62 seconds	22250 in-lb [2500 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$16,215
	SY10-120MFT	76 seconds		AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	\$20,848
	SY10-230MFT	85 seconds		AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	\$20,848
SY11	SY11-110	62 seconds	26700 in-lb [3000 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$21,580
	SY11-120MFT	71 seconds		AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	\$26,238
	SY11-230MFT	61 seconds		AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	\$26,238
SY12	SY12-110	62 seconds	31150 in-lb [3500 Nm]	AC 120 V ±10%, 50/60 Hz	30%		•	•	none	\$25,101
	SY12-120MFT	76 seconds		AC 120 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	\$27,456
	SY12-230MFT	65 seconds		AC 230 V ±10%, 50/60 Hz	50%	•			2...10 V/4...20 mA	\$27,456

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.

### 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	\$1,028
		AFX24-MFT-X1	•		•	Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V	\$1,259
AM Series*	180 in-lb [20 Nm]	AMB24-3-X1				Floating Point, On/Off	-	AC/DC 24 V	\$668
		AMX24-MFT-X1				Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V	\$1,031
GM Series*	360 in-lb [40 Nm]	GMB24-3-X1				Floating Point, On/Off	-	AC/DC 24 V	\$907
		GMX24-MFT-X1			•	Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V	\$1,328
GK Series*	360 in-lb [40 Nm]	GKB24-3-X1		•		Floating Point, On/Off	-	AC 24 V	\$1,931
		GKX24-MFT-X1		•	•	Variable with MFT (V, PWM, Floating Point, On/Off)	variable V	AC/DC 24 V	\$2,654
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	\$3,923
		PRBUP-MFT-T				Variable with MFT (V, PWM, Floating Point, On/Off)	variable V		\$7,520
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	\$9,232

\*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.

\*PWM not available for TF or LF series.

### 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).



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	\$688	
				UFLKP004	PR	\$1,256	
			2½"	UFLK1100	GM	\$688	
				UFLKP004	PR	\$1,256	
			3"	UFLK1102	2*GM	\$874	
				UFLKP004	PR	\$1,256	
			4"	UFLK1108	2*GM	\$889	
				UFLKP008	PR	\$1,256	
			5"	UFLKP014	PR	\$1,256	
			6"	UFLKP014	PR	\$1,256	
			8"	UFLK1138	SY4	\$1,256	
			10"	UFLK1140	SY4	\$1,256	
			12"	UFLK1142	SY6	\$1,256	
			14"	UFLK1144	SY7	\$1,449	
			16"	UFLK1144	SY8	\$1,449	
			Yes	2"	UFLK1102	2*AF	\$874
					UFLKP004	PKR	\$1,256
				2½"	UFLK1102	2*AF	\$874
	UFLK1100	GK			\$688		
	3"	UFLKP004		PKR	\$1,256		
		UFLK1102		2*GK	\$874		
	4"	UFLKP004		PKR	\$1,256		
		UFLK1108		2*GK	\$889		
	5"	UFLKP014		PKR	\$1,256		
	6"	UFLKP014		PKR	\$1,256		
	3-way	No		2"	UFLKP104	PR	\$2,293
				2½"	UFLKP104	PR	\$2,293
			3"	UFLKP104	PR	\$2,293	
			4"	UFLKP108	PR	\$1,826	
			5"	UFLK4136	SY4	\$1,826	
6"			UFLK4136	SY4	\$1,826		
Yes	No	8"	UFLK4138	SY5	\$1,826		
		10"	UFLK4140	SY6	\$2,293		
		2"	UFLKP104	PKR	\$2,293		
		2½"	UFLKP104	PKR	\$2,293		
		3"	UFLKP104	PKR	\$2,293		
		4"	UFLKP108	PKR	\$1,826		
40/41 Series Butterfly Valves	2-way	No	2½"	UFLKP008	PR	\$1,256	
			3"	UFLKP008	PR	\$1,256	
			4"	UFLKP008	PR	\$1,256	
			5"	UFLKP014	PR	\$1,256	
			6"	UFLK1228	SY4	\$1,247	
			8"	UFLK1230	SY4	\$1,247	
		Yes	No	10"	UFLK1232	SY6	\$1,247
				2½"	UFLK1200	2*GK	\$869
				UFLKP008	PKR	\$1,256	
				3"	UFLK1200	2*GK	\$869
				UFLKP008	PKR	\$1,256	
				4"	UFLK1200	2*GK	\$869
3-way	No	UFLKP008	PKR	\$1,256			
		5"	UFLKP014	PKR	\$1,256		
		2½"	UFLKP108	PR	\$1,826		
		3"	UFLKP108	PR	\$1,826		
		4"	UFLKP108	PR	\$1,826		
		Yes	No	2½"	UFLKP108	PKR	\$1,826
3"	UFLKP108			PKR	\$1,826		
4"	UFLKP108			PKR	\$1,826		

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RETROFIT SOLUTIONS



5-year warranty

Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series	Linkage List Price
C200 Round Top Series Butterfly Valves	2-way	No	2"	UFLK3500	AM	\$695
				UFLKP030	PR	\$1,225
			2½"	UFLKP030	PR	\$1,225
			3"	UFLKP030	PR	\$1,225
			4"	UFLKP031	PR	\$1,225
			5"	UFLKP032	PR	\$1,225
			6"	UFLKP032	PR	\$1,225
		8"	UFLK3546	SY4	\$1,347	
		10"	UFLK3548	SY4	\$1,458	
		Yes	2"	UFLK3500	AF	\$695
				UFLKP030	PKR	\$1,225
			2½"	UFLK3500	GK	\$695
				UFLKP030	PKR	\$1,225
			3"	UFLK3500	GK	\$695
			UFLKP030	PKR	\$1,225	
	4"		UFLK3508	2*GK	\$874	
		UFLKP031	PKR	\$1,225		
	5"	UFLKP032	PKR	\$1,225		
	6"	UFLKP032	PKR	\$1,225		
	3-way	No	2"	UFLKP130	PR	\$2,234
			2½"	UFLKP130	PR	\$2,234
			3"	UFLKP130	PR	\$2,234
			4"	UFLKP131	PR	\$2,234
			5"	UFLKP132	PR	\$2,234
			6"	UFLK6544	SY4	\$2,293
			8"	UFLK6546	SY4	\$2,293
		10"	UFLK6548	SY5	\$2,293	
		Yes	2"	UFLKP130	PKR	\$2,234
2½"			UFLKP130	PKR	\$2,234	
3"			UFLKP130	PKR	\$2,234	
4"			UFLKP131	PKR	\$2,234	
5"			UFLKP132	PKR	\$2,234	
C200 Square Top Series Butterfly Valves	2-way	No	2"	UFLK1300	AM	\$695
				UFLKP004	PR	\$1,256
			2½"	UFLK1300	GM	\$695
				UFLKP004	PR	\$1,256
			3"	UFLK1300	GM	\$695
				UFLKP004	PR	\$1,256
			4"	UFLK1308	2*GM	\$874
				UFLKP011	PR	\$1,256
			5"	UFLKP016	PR	\$1,256
		6"	UFLKP016	PR	\$1,256	
		8"	UFLK1346	SY4	\$1,256	
		10"	UFLK1348	SY4	\$1,256	
		12"	UFLK1350	SY5	\$1,256	
		14"	UFLK1350	SY5	\$1,256	
		Yes	2"	UFLK1300	AF	\$695
				UFLKP004	PKR	\$1,256
			2½"	UFLK1300	GK	\$695
				UFLKP004	PKR	\$1,256
	3"		UFLK1300	GK	\$695	
			UFLKP004	PKR	\$1,256	
	4"		UFLK1308	2*GK	\$874	
			UFLKP011	PKR	\$1,256	
	5"		UFLKP016	PKR	\$1,256	
	6"	UFLKP016	PKR	\$1,256		
	3-way	No	2"	UFLKP104	PR	\$2,293
			2½"	UFLKP104	PR	\$2,293
			3"	UFLKP104	PR	\$2,293
			4"	UFLKP111	PR	\$2,293
			5"	UFLKP116	PR	\$1,826
			6"	UFLK4346	SY4	\$1,866
			8"	UFLK4348	SY4	\$1,826
		Yes	2"	UFLKP104	PKR	\$2,293
2½"			UFLKP104	PKR	\$2,293	
3"			UFLKP104	PKR	\$2,293	
4"			UFLKP111	PKR	\$2,293	
5"			UFLKP116	PKR	\$1,826	

RETROFIT SOLUTIONS

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Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series	Linkage List Price
<b>C225 Square Top Series Butterfly Valves</b>	2-way	No	2"	UFLKP004	PR	\$1,256
			2½"	UFLKP004	PR	\$1,256
			3"	UFLKP004	PR	\$1,256
			4"	UFLKP011	PR	\$1,256
			5"	UFLKP016	PR	\$1,256
		Yes	2"	UFLKP004	PKR	\$1,256
			2½"	UFLKP004	PKR	\$1,256
			3"	UFLKP004	PKR	\$1,256
			4"	UFLKP011	PKR	\$1,256
			5"	UFLKP016	PKR	\$1,256
	3-way	No	2"	UFLKP104	PR	\$2,293
			2½"	UFLKP104	PR	\$2,293
			3"	UFLKP104	PR	\$2,293
			4"	UFLKP111	PR	\$2,293
			5"	UFLKP116	PR	\$1,826
		Yes	6"	UFLK4444	SY4	\$1,826
			8"	UFLK4446	SY5	\$2,293
			2"	UFLK4400	GK	\$1,256
			2½"	UFLKP104	PKR	\$2,293
				UFLK4400	GK	\$1,256
3"	UFLKP104	PKR	\$2,293			
4"	UFLKP111	PKR	\$2,293			
5"	UFLKP116	PKR	\$1,826			
<b>JOHNSON CONTROLS</b>						
<b>VF.. (H) Series Butterfly Valves</b>	2-way	No	2"	UFLK2100	GM	\$687
			2½"	UFLK2100	GM	\$687
				UFLKP007	PR	\$1,347
			3"	UFLK2100	GM	\$687
				UFLKP007	PR	\$1,347
			4"	UFLK2108	2*GM	\$874
		Yes	UFLKP009	PR	\$1,347	
			5"	UFLKP015	PR	\$1,347
			6"	UFLK2144	SY4	\$1,347
			8"	UFLK2158	SY4	\$1,347
			2"	UFLK2102	2*AF	\$874
				UFLK2100	GK	\$687
	3"	UFLK2102	2*AF	\$874		
		UFLK2100	GK	\$687		
		UFLKP007	PKR	\$1,347		
		4"	UFLK2102	2*AF	\$874	
			UFLK2100	GK	\$687	
		UFLKP007	PKR	\$1,347		
	3-way	No	4"	UFLK2108	2*GK	\$874
			UFLKP009	PKR	\$1,347	
			5"	UFLKP015	PKR	\$1,347
			2½"	UFLK5102	2*GM	\$1,449
			3"	UFLK5102	2*GM	\$1,449
			4"	UFLKP109	PR	\$1,826
Yes		5"	UFLK5136	SY4	\$2,293	
		6"	UFLK5136	SY4	\$2,293	
		8"	UFLK5138	SY5	\$2,293	
		2"	UFLK5102	2*AF	\$1,449	
		2½"	UFLK5102	2*GK	\$1,449	
		3"	UFLK5102	2*GK	\$1,449	
4"	UFLKP109	PKR	\$1,826			

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RETROFIT SOLUTIONS



Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series	Linkage List Price	
360/362 Series Butterfly Valves, K-LOK	2-way	No	4"	UFLKP013	PR	\$1,348	
			5"	UFLKP013	PR	\$1,348	
			10"	UFLK2452	SY4	\$1,347	
		Yes	4"	UFLKP013	PKR	\$1,348	
			5"	UFLKP013	PKR	\$1,348	
			10"	UFLK2452	SY4	\$1,347	
AR1/AR2 Series Butterfly Valves	2-way	No	2"	UFLK2300	GM	\$802	
			2½"	UFLK2300	GM	\$802	
			3"	UFLK2300	GM	\$802	
			4"	UFLK2308	2*GM	\$871	
			4"	UFLKP009	PR	\$1,347	
			5"	UFLKP013	PR	\$1,348	
			6"	UFLK2356	SY4	\$1,247	
			8"	UFLK2342	SY4	\$1,256	
			10"	UFLK2344	SY5	\$1,328	
			12"	UFLK2346	SY7	\$1,620	
			Yes	2"	UFLK2300	GK	\$802
				2½"	UFLK2300	GK	\$802
	3"	UFLK2300		GK	\$802		
	4"	UFLK2308		2*GK	\$871		
	4"	UFLKP009		PKR	\$1,347		
	5"	UFLKP013		PKR	\$1,348		
	3-way	No	4"	UFLKP109	PR	\$1,826	
			5"	UFLK5338	SY4	\$2,293	
			6"	UFLK5338	SY4	\$2,293	
			8"	UFLK5340	SY5	\$2,293	
			4"	UFLKP109	PKR	\$1,826	
			Yes	4"	UFLKP109	PKR	\$1,826
	Figure 222/221 Series Butterfly Valves	2-way	No	2"	UFLK2200	GM	\$688
				2"	UFLKP003	PR	\$1,347
2½"				UFLK2200	GM	\$688	
2½"				UFLKP003	PR	\$1,347	
3"				UFLK2200	GM	\$688	
3"				UFLKP003	PR	\$1,347	
4"				UFLK2208	2*GM	\$874	
4"				UFLKP009	PR	\$1,347	
5"				UFLKP013	PR	\$1,348	
Yes			6"	UFLK2232	SY4	\$1,256	
			8"	UFLK2234	SY4	\$1,256	
			10"	UFLK2236	SY5	\$1,256	
			12"	UFLK2238	SY7	\$1,631	
			2"	UFLK2200	GK	\$688	
			2"	UFLKP003	PKR	\$1,347	
			2½"	UFLK2200	GK	\$688	
			2½"	UFLKP003	PKR	\$1,347	
			3"	UFLK2200	GK	\$688	
3-way		No	3"	UFLKP003	PKR	\$1,347	
			4"	UFLK2208	2*GK	\$874	
			4"	UFLKP009	PKR	\$1,347	
			5"	UFLKP013	PKR	\$1,348	
			2"	UFLKP103	PR	\$2,293	
			2½"	UFLKP103	PR	\$2,293	
			3"	UFLKP103	PR	\$2,293	
			4"	UFLKP109	PR	\$1,826	
			5"	UFLK5228	SY4	\$2,293	
		Yes	6"	UFLK5228	SY4	\$2,293	
			8"	UFLK5230	SY5	\$2,293	
			10"	UFLK5232	SY7	\$2,469	
			2"	UFLK5202	2*AF	\$1,449	
			2"	UFLKP103	PKR	\$2,293	
			2½"	UFLK5202	2*AF	\$1,449	
			2½"	UFLKP103	PKR	\$2,293	
			3"	UFLK5202	2*GK	\$1,449	
			3"	UFLKP103	PKR	\$2,293	
4"	UFLKP109	PKR	\$1,826				

RETROFIT SOLUTIONS

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**Milwaukee**

CL, ML Series Butterfly Valves

Linkage/Actuator Selection Guide

**Nibco**

LD1/WD1, LD(C)2/WD(C)2, LD(C)3 Series Butterfly Valves

Linkage/Actuator Selection Guide

Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series	Linkage List Price			
CL Series Butterfly Valves	2-way	No	2"	UFLK2600	AM	\$874			
			2½"	UFLK2600	AM	\$874			
			3"	UFLK2600	GM	\$874			
			4"	UFLK2608	2*GM	\$1,078			
				UFLKP005	PR	\$1,347			
			5"	UFLK2608	2*GM	\$1,078			
				UFLKP005	PR	\$1,347			
			6"	UFLKP010	PR	\$1,256			
			8"	UFLK2634	SY4	\$1,256			
			10"	UFLK2636	SY4	\$1,256			
			12"	UFLK2636	SY5	\$1,256			
			Yes	2"	UFLK2600	AF	\$874		
		2½"		UFLK2600	AF	\$874			
		3"		UFLK2600	GK	\$874			
		4"		UFLK2608	2*GK	\$1,078			
				UFLKP005	PKR	\$1,347			
		5"		UFLK2608	2*GK	\$1,078			
				UFLKP005	PKR	\$1,347			
		6"		UFLKP010	PKR	\$1,256			
		ML Series Butterfly Valves	2-way	No	2"	UFLK2700	AM	\$687	
2½"	UFLK2700				AM	\$687			
3"	UFLK2700				GM	\$687			
4"	UFLK2708				2*GM	\$856			
	UFLKP005				PR	\$1,347			
5"	UFLK2708				2*GM	\$856			
	UFLKP005				PR	\$1,347			
6"	UFLKP010				PR	\$1,256			
8"	UFLK2740				SY4	\$1,347			
10"	UFLK2742				SY4	\$1,347			
12"	UFLK2742				SY5	\$1,347			
Yes	2"				UFLK2700	AF	\$687		
	2½"			UFLK2700	AF	\$687			
	3"			UFLK2700	GK	\$687			
	4"			UFLK2708	2*GK	\$856			
				UFLKP005	PKR	\$1,347			
	5"			UFLK2708	2*GK	\$856			
				UFLKP005	PKR	\$1,347			
	6"			UFLKP010	PKR	\$1,256			
	<b>NIBCO</b>								
	LD1/WD1 Series Butterfly Valves			2-way	No	14"	UFLK2960	SY7	\$1,620
						16"	UFLK2968	SY8	\$1,620
	LD(C)2/WD(C)2, LD(C)3 Series Butterfly Valves			2-way	No	2"	UFLK2900	GM	\$752
2½"						UFLK2908	GM	\$688	
		UFLKP002	PR			\$1,347			
3"		UFLK2910	2*GM			\$983			
		UFLKP002	PR			\$1,347			
4"		UFLK2916	2*GM			\$983			
		UFLKP006	PR			\$1,347			
5"		UFLKP012	PR			\$1,179			
6"		UFLKP012	PR			\$1,179			
8"		UFLK2954	SY4			\$1,256			
10"		UFLK2956	SY4			\$1,265			
12"		UFLK2958	SY6			\$1,467			
Yes		2"	UFLK2900		GK	\$752			
		2½"	UFLK2910		2*AF	\$983			
			UFLK2908		GK	\$688			
		UFLKP002	PKR		\$1,347				
		3"	UFLK2910		2*GK	\$983			
			UFLKP002		PKR	\$1,347			
		4"	UFLK2916		2*GK	\$983			
			UFLKP006		PKR	\$1,347			
		5"	UFLKP012		PKR	\$1,179			
		6"	UFLKP012		PKR	\$1,179			
		3-way	No		4"	UFLKP106	PR	\$1,826	
					5"	UFLK5948	SY4	\$2,293	
6"	UFLK5948			SY4	\$2,293				
8"	UFLK5950			SY6	\$2,293				
Yes	4"			UFLKP106	PKR	\$1,826			

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RETROFIT SOLUTIONS



Valve Body Model	Valve Configuration	Fail-Safe	Size	Belimo Linkage	Belimo Actuator Series	Linkage List Price	
<b>Masterseal (New Style) Series Butterfly Valves</b>	2-way	No	2"	UFLK8172	AM	\$642	
				UFLKP001	PR	\$1,265	
			2½"	UFLK8172	GM	\$642	
				UFLKP001	PR	\$1,265	
			3"	UFLK8172	GM	\$642	
				UFLKP001	PR	\$1,265	
			4"	UFLK8176	2*GM	\$863	
		UFLKP008		PR	\$1,256		
		5"	UFLKP013	PR	\$1,348		
			UFLKP013	PR	\$1,348		
		6"	UFLK8188	SY4	\$1,283		
			UFLK8190	SY5	\$1,283		
		8"	UFLK8190	SY6	\$1,283		
			UFLK8190	SY6	\$1,283		
	Yes	2"	UFLKP001	PKR	\$1,265		
			UFLK8172	GK	\$642		
		2½"	UFLKP001	PKR	\$1,265		
			UFLK8172	GK	\$642		
		3"	UFLKP001	PKR	\$1,265		
			UFLK8176	2*GK	\$863		
		4"	UFLKP008	PKR	\$1,256		
			UFLKP013	PKR	\$1,348		
		5"	UFLKP013	PKR	\$1,348		
			UFLK8190	SY6	\$1,283		
		6"	UFLK8190	SY6	\$1,283		
			UFLK8190	SY6	\$1,283		
		3-way	No	2"	UFLKP101	PR	\$2,574
					UFLK7412	SY4	\$1,842
2½"	UFLKP101			PR	\$2,574		
	UFLK7416			SY6	\$2,336		
3"	UFLKP101			PR	\$2,574		
	UFLK7418			SY7	\$2,946		
4"	UFLKP108			PR	\$1,826		
	UFLK7418		SY7	\$2,946			
Yes	2"		UFLKP101	PKR	\$2,574		
			UFLK7418	SY7	\$2,946		
	2½"		UFLKP101	PKR	\$2,574		
			UFLK7418	SY7	\$2,946		
	3"		UFLKP101	PKR	\$2,574		
			UFLK7418	SY7	\$2,946		
	4"	UFLKP108	PKR	\$1,826			
UFLK7418		SY7	\$2,946				
5"	UFLKP113	PKR	\$1,842				
	UFLK7418	SY7	\$2,946				
<b>Vic300 (Old Style) Series Butterfly Valves</b>	2-way	No	2½"	UFLK3308	AM	\$815	
				UFLK3308	GM	\$815	
			4"	UFLK3316	2*GM	\$901	
				UFLK3352	SY4	\$1,367	
			8"	UFLK3354	SY4	\$1,379	
		UFLK3356		SY4	\$1,267		
		Yes	2½"	UFLK3308	AF	\$815	
				UFLK3308	GK	\$815	
			4"	UFLK3316	2*GK	\$901	
				UFLK3352	SY4	\$1,367	
	3-way		No	2"	UFLK6300	GM	\$1,730
		UFLK6308			GM	\$1,730	
		6"		UFLK6348	SY4	\$2,290	
				UFLK6350	SY4	\$2,311	
		10"		UFLK6352	SY5	\$2,428	
				UFLK6354	SY6	\$2,428	
		Yes	2"	UFLK6300	AF	\$1,730	
				UFLK6300	GK	\$1,730	
			2½"	UFLK6308	GK	\$1,730	
				UFLK6308	GK	\$1,730	

RETROFIT SOLUTIONS

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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
Keystone	K-LOK	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.

**Smart retrofit forms for butterfly valves, globe valves, and ball valves can be found on [www.belimo.com](http://www.belimo.com).**

**Legacy paper forms will no longer be accepted.**



<b>2-way Single Actuator</b> <b>Generic – Retrofit Form Required</b>	<b>2-way Dual Actuator</b> <b>Generic – Retrofit Form Required</b>	<b>2-way SY / PR / PKR Actuator</b> <b>Generic – Retrofit Form Required</b>
<p><b>UFSP0000 \$1,341</b></p>	<p><b>UFSP0008 \$1,767</b></p>	<p><b>UFSP0020* PR, PKR, SY4...SY8 \$1,595</b>  <b>UFSP0022* SY9...SY12 \$2,699</b></p>
<b>3-way Single Actuator</b> <b>Generic – Retrofit Form Required</b>	<b>3-way Dual Actuator</b> <b>Generic – Retrofit Form Required</b>	<b>3-way SY / PR / PKR Actuator</b> <b>Generic – Retrofit Form Required</b>
<p><b>UFSP0002 \$1,767</b></p>	<p><b>UFSP0010 \$1,926</b></p>	<p><b>UFSP0024* PR, PKR, SY4...SY8 \$2,812</b>  <b>UFSP0026* SY9...SY12 \$4,001</b></p>

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.

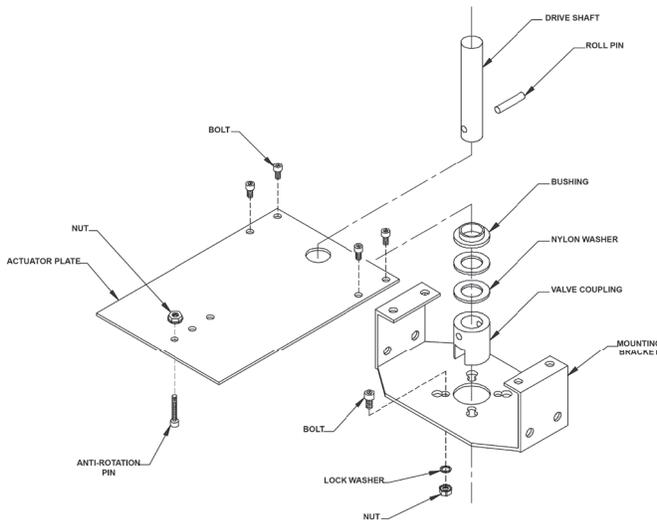
\*Reference page 22-48 Keystone AR1/AR2 for approximate actuator sizing.



5-year warranty

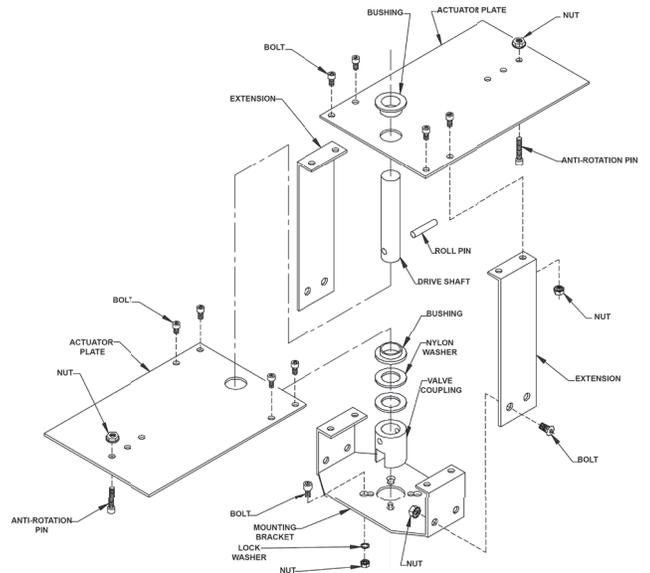
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**2-way/3-way Single Actuator**  
Generic – Retrofit Form Required



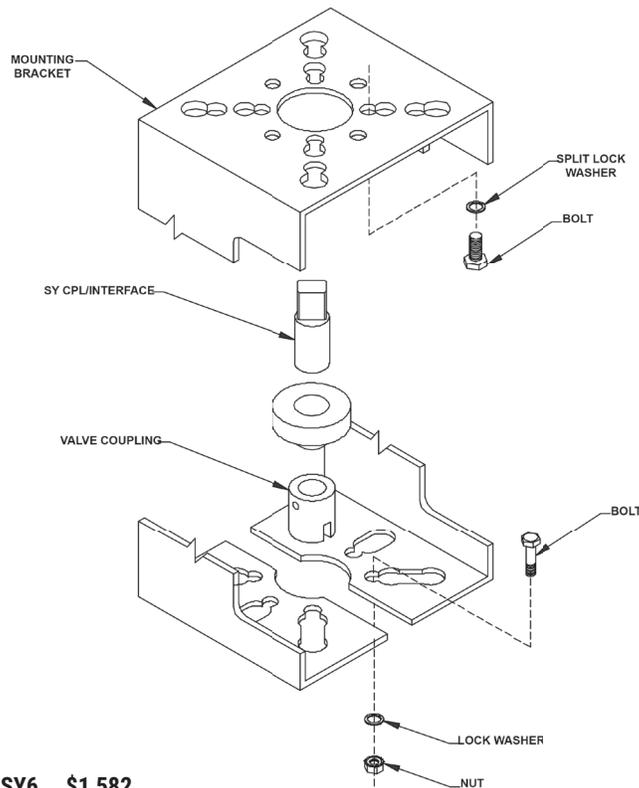
**UBSP0004 \$1,276**

**2-way/3-way Dual Actuator**  
Generic – Retrofit Form Required



**UBSP0006 \$1,732**

**Industrial Electronic 2-way/3-way**  
Generic – Retrofit Form Required



**UBSP0008 PR, PKR, SY4...SY6 \$1,582**

**UBSP0012 SY7...SY9 \$2,658**

Custom kits are designed to your unique specification and are not returnable.

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All prices are in US Dollars (USD)

Smart retrofit forms for butterfly valves, globe valves, and ball valves can be found on [www.belimo.com](http://www.belimo.com).

Legacy paper forms will no longer be accepted.



5-year warranty



## Belimo RetroFIT+

### Enhanced carbon reduction, comfort, and safety through field device retrofits

HVAC renovation projects have the potential to significantly improve occupant comfort and indoor air quality while delivering substantial energy savings. At Belimo, our decades of retrofit experience along with the reliability and performance of our products make us the ideal partner for customers ready to make simple adjustments to realize immediate results, upgrade with today's technology, or replace their entire HVAC system.

With both standard and custom offerings, we help you find the retrofit solution that's right for you.



Discover the advantages  
[www.belimo.com](http://www.belimo.com)

**BELIMO**<sup>®</sup>



## 23 APPENDIX

### **Quality, Reliability, Ease of Doing Business**

- Damper actuator and valve sizing.
- Terms and conditions.
- Minimum Advertised Price policy.
- Belimo platinum distributors.



## 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
<b>CALCULATIONS</b>		
Damper Area (sq. inches)	24" x 12" = 288 in <sup>2</sup>	$\pi r^2 = 113.04 \text{ in}^2$
Damper Area (sq. feet)*	288 in <sup>2</sup> / 144 in-ft <sup>2</sup> = 2 ft <sup>2</sup>	113.04 in <sup>2</sup> / 144 in-ft <sup>2</sup> = 0.785 ft <sup>2</sup>
Velocity	1800 ft <sup>3</sup> /min / 2 ft <sup>2</sup> = 900 ft/min	700 ft <sup>3</sup> /min / .785 ft <sup>2</sup> = 892 ft/min
	See chart under <1000 FPM (ft/min)	See chart under <1000 FPM (ft/min)
Rated Torque Loading (in-lb/ft <sup>2</sup> )**	Select 5 in-lb/ft <sup>2</sup> for Opposed Blade/Edge Seals	Select 10 in-lb/ft <sup>2</sup> for Round Damper
<b>EXAMPLE EQUATION</b>		
	<b>*Damper Area (ft<sup>2</sup>) x **Rated Torque Loading of Damper (in-lb/ft<sup>2</sup>) = Total in-lb Required</b>	
	2 ft <sup>2</sup> x 5 in-lb/ft <sup>2</sup> = 10 in-lb Belimo TFB24-SR @ 22 in-lb	0.785 ft <sup>2</sup> x 10 in-lb/ft <sup>2</sup> = 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.

**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.

**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.

## 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
- media type
- fail-safe or non fail-safe
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

### EQUATIONS USED

$$C_v = \frac{Q \cdot \sqrt{G}}{\sqrt{\Delta P}} \quad \Delta P = \left[ \frac{Q \cdot \sqrt{G}}{C_v} \right]^2 \quad F_p = \frac{1}{\sqrt{1 + \frac{1.5 \left(1 - \frac{d^2}{D^2}\right)^2 \left[\left(\frac{C_v}{d^2}\right)^2\right]}}$$

- $C_v$  = 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
- F<sub>p</sub> = Piping correction factor
- $C_v C$  = Published  $C_v$  \* F<sub>p</sub>
- 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 up unless maximum ΔP for project is exceeded)
  - a. Refer to section 11 for QCV
  - b. Refer to section 13 for CCV (F<sub>p</sub> correction required)
  - c. Refer to section 14 for HTCCV
  - d. Refer to sections 15 and 16 for Ball valves (F<sub>p</sub> correction required)
  - e. Refer to section 17 for Globe valves

NOTE: If valve selection requires piping correction factor (F<sub>p</sub>), calculate  $C_v C$  based on F<sub>p</sub> 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

$$C_v = 50 \text{ GPM} \cdot \sqrt{\text{SG}} / \sqrt{\Delta P} = 50$$

$$C_v = 50 \text{ GPM} / 1 = 50$$

## PRESSURE DEPENDENT, MODULATING APPLICATION

### APPLICABLE PRODUCTS

CCV, HTCCV, GLOBE, BALL, QCV

### REQUIRED INFORMATION

#### FOR SIZING:

- flow in GPM
- ΔP (if none given, utilize 4...5 psi)

#### FOR SELECTION:

- 2-way or 3-way valve
- pipe size
- media temperature
- media type
- fail-safe or non fail-safe
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

### EQUATIONS USED

$$C_v = \frac{Q \cdot \sqrt{G}}{\sqrt{\Delta P}} \quad \Delta P = \left[ \frac{Q \cdot \sqrt{G}}{C_v} \right]^2 \quad F_p = \frac{1}{\sqrt{1 + \frac{1.5 \left(1 - \frac{d^2}{D^2}\right)^2 \left[\left(\frac{C_v}{d^2}\right)^2\right]}}$$

- $C_v$  = 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
- F<sub>p</sub> = Piping correction factor
- $C_v C$  = Published  $C_v$  \* F<sub>p</sub>
- 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 11 for QCV
  - b. Refer to section 13 for CCV (F<sub>p</sub> correction required)
  - c. Refer to section 14 for HTCCV
  - d. Refer to sections 15 and 16 for Ball valves (F<sub>p</sub> correction required)
  - e. Refer to section 17 for Globe valves

NOTE: If valve selection requires piping correction factor (F<sub>p</sub>), calculate  $C_v C$  based on F<sub>p</sub> 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

$$C_v = 50 \text{ GPM} \cdot \sqrt{\text{SG}} / \sqrt{\Delta P} = 25$$

$$C_v = 50 \text{ GPM} / 2 = 25$$

$$C_v = \frac{50 \cdot \sqrt{1}}{\sqrt{4}} = 25$$

## PRESSURE INDEPENDENT, ON/OFF, FLOATING, MODULATING APPLICATION

### APPLICABLE PRODUCTS

ENERGY VALVE, EPIV, 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 9 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

## ENERGY VALVE / ELECTRONIC PRESSURE INDEPENDENT VALVE (EPIV) FLOW REDUCTION CHART

SIZE							
Inches	DN/Millimeters	8 psi	5 psi *	4 psi	3 psi	2 psi	1 psi
½"	15	6.6 GPM	6.6 GPM	6.6 GPM	6.4 GPM	5.1 GPM	3.6 GPM
¾"	20	11 GPM	11 GPM	11 GPM	10.6 GPM	8.7 GPM	6.1 GPM
1"	25	18.2 GPM	18.2 GPM	18.2 GPM	17.5 GPM	14.3 GPM	10.1 GPM
1¼"	32	28.5 GPM	28.5 GPM	28.5 GPM	28.2 GPM	23 GPM	16.3 GPM
1½"	40	44 GPM	44 GPM	44 GPM	38.4 GPM	31.3 GPM	22.1 GPM
2"	50	100 GPM**	66 GPM	66 GPM	60.1 GPM	49.7 GPM	35.2 GPM
2½"	65	127 GPM	127 GPM	93 GPM	81 GPM	66 GPM	47 GPM
3"	80	180 GPM	180 GPM	138 GPM	120 GPM	97 GPM	69 GPM
4"	100	317 GPM	317 GPM	235 GPM	203 GPM	166 GPM	117 GPM
5"	125	495 GPM	495 GPM	367 GPM	318 GPM	260 GPM	183 GPM
6"	150	713 GPM	713 GPM	550 GPM	476 GPM	389 GPM	275 GPM

\*Select valve based on a minimum of 5 PSI differential.

\*\*Applies to 2" EP200H EPIV model only.

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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

$$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}} \quad F_p = \frac{1}{\sqrt{1 + \frac{1.5 \left(1 - \frac{d^2}{D^2}\right)^2 \left[\left(\frac{C_v}{d}\right)^2\right]}}}{890} \quad h = \left(\frac{Q}{3C_v}\right)^2 \div P_o$$

$C_v$  = Valve coefficient of flow  
 $Q$  = #/hr steam  
 $h$  = Pressure drop across open valve  
 – use 10% inlet pressure for on/off applications  
 $P_o$  = Outlet pressure in psia =  $P_1 - h$   
 $F_p$  = Piping correction factor<sup>†</sup>  
 $C_v C$  = Published  $C_v$  \*  $F_p$   
 $d$  = Valve diameter  
 $D$  = Pipe diameter

<sup>†</sup>If the valve is more than 1 line size reduction  $F_p$  should be considered.

#### 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  $\Delta P$  for project is exceeded)
    - a. Refer to section 14 for HTCCV
    - b. Refer to sections 15 and 16 for Ball valves ( $F_p$  correction required)
    - c. Refer to section 17 for Globe valves
    - d. Refer to section 18 for Butterfly valves
- NOTE: If valve selection requires piping correction factor ( $F_p$ ), calculate  $C_v$  based on  $F_p$  Equation. In general, do not select a valve less than ½ of the line size
- 5) Calculate actual  $\Delta P$  based upon  $C_v$  of valve selected
  - 6) If calculated  $\Delta P$  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)                       $h = 0.10 (15) = 1.5$   
 $P_o = (\text{inlet psi} + 14.7) - h$                        $P_o = (15 + 14.7) - 1.5 = 28.2$

$C_v = 1000 / (3 \cdot \sqrt{1.5 \cdot 28.2})$   
 $C_v = 1000 / (3 \cdot 6.50)$   
 $C_v = 1000 / 19.51$                        $C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}} = 51.25$

Required  $C_v = 51.25$

### 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

$$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}} \quad F_p = \frac{1}{\sqrt{1 + \left[ \frac{1.5 \left(1 - \frac{d^2}{D^2}\right)^2 \left[ \left(\frac{C_v}{d^2}\right)^2 \right]}{890} \right]}} \quad h = \left( \frac{Q}{3C_v} \right)^2 \div P_o$$

- C<sub>v</sub> = Valve coefficient of flow
- Q = #/hr steam
- h = Pressure drop across open valve  
– use 80% inlet pressure for Modulating applications
- P<sub>o</sub> = Outlet pressure in psia = P<sub>1</sub>-h
- F<sub>p</sub> = Piping correction factor†
- C<sub>v</sub>C = Published C<sub>v</sub> \* F<sub>p</sub>
- d = Valve diameter
- D = Pipe diameter

†If the valve is more than 1 line size reduction F<sub>p</sub> should be considered.

#### PROCEDURE

- 1) Calculate C<sub>v</sub> 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<sub>v</sub> rating) and the second valve will be rated for 2/3 of the total flow (2/3 of required C<sub>v</sub> rating).
  - 3) Choose valve type (Ball, Globe, HTCCV, SHP Butterfly, etc)
  - 4) Choose valve model number that has closest C<sub>v</sub> rating (normally round down unless maximum ΔP for project is exceeded)
    - a. Refer to section 14 for HTCCV
    - b. Refer to sections 15 and 16 for Ball valves
    - c. Refer to section 17 for Globe valves
    - d. Refer to section 18 for Butterfly valves
- NOTE: If valve selection requires piping correction factor (F<sub>p</sub>), calculate C<sub>v</sub> based on F<sub>p</sub> Equation. In general, do not select a valve less than ½ of the line size
- 5) Calculate actual ΔP based upon C<sub>v</sub> 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<sub>v</sub>
  - 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<sub>v</sub> CALCULATION

- Q = FLOW RATE                      Q = 1000 lb/h
  - Inlet psi = 15 psi
  - h = 80% (inlet psi)                h = 0.80 (15) = 12
  - P<sub>o</sub> = (inlet psi + 14.7) – h        P<sub>o</sub> = (15 + 14.7) – 12 = 17.7
  - C<sub>v</sub> = 1000/(3\*sqrt[12\*17.7])
  - C<sub>v</sub> = 1000/(3\*14.6)
  - C<sub>v</sub> = 1000/43.7
  - Required C<sub>v</sub> = 22.9
- $$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}} = 22.9$$

### 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

$$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}} \quad F_p = \frac{1}{\sqrt{1 + \frac{1.5 \left(1 - \frac{d^2}{D^2}\right)^2 \left(\frac{C_v}{d}\right)^2}{890}}} \quad h = \left(\frac{Q}{3C_v}\right)^2 \div P_o$$

- C<sub>v</sub> = Valve coefficient of flow
- Q = #/hr steam
- h = Pressure drop across open valve  
– use 10% inlet pressure for on/off applications
- P<sub>o</sub> = Outlet pressure in psia = P1-h
- F<sub>p</sub> = Piping correction factor\*
- C<sub>v</sub>C = Published C<sub>v</sub> \* F<sub>p</sub>
- d = Valve diameter
- D = Pipe diameter

\*If the valve is more than 1 line size reduction F<sub>p</sub> should be considered.

#### PROCEDURE

- 1) Calculate C<sub>v</sub> 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<sub>v</sub> rating) and the second valve will be rated for 2/3 of the total flow (2/3 of required C<sub>v</sub> rating)
  - 3) Choose valve type (Ball, Globe, etc)
  - 4) Choose valve model number that has closest C<sub>v</sub> rating (normally round down unless maximum ΔP for project is exceeded)
    - a. Refer to sections 15 and 16 for Ball valves
    - b. Refer to section 17 for Globe valves
    - b. Refer to section 18 for Butterfly valves
- NOTE: If valve selection requires piping correction factor (F<sub>p</sub>), calculate C<sub>v</sub> based on F<sub>p</sub> Equation. In general, do not select a valve less than ½ of the line size
- 5) Calculate actual ΔP based upon C<sub>v</sub> 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<sub>v</sub>
  - 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<sub>v</sub> CALCULATION

- Q = FLOW RATE                      Q = 1000 lb/h
  - Inlet psi = 40 psi
  - h = 10% (inlet psi)                h = 0.10 (40) = 4
  - P<sub>o</sub> = (inlet psi + 14.7) – h        P<sub>o</sub> = (40 + 14.7) – 4 = 50.7
  - C<sub>v</sub> = 1000/(3\*sqrt[4\*50.7])
  - C<sub>v</sub> = 1000/(3\*14.3)
  - C<sub>v</sub> = 1000/42.7
  - Required C<sub>v</sub> = 23.41
- $$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}} = 23.41$$

### 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

$$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}} \quad F_p = \frac{1}{\sqrt{1 + \left[ \frac{1.5 \left(1 - \frac{d^2}{D^2}\right)^2 \left[\left(\frac{C_v}{d}\right)^2\right]}{890} \right]}} \quad h = \left( \frac{Q}{3C_v} \right)^2 \div P_o$$

- $C_v$  = Valve coefficient of flow
- $Q$  = #/hr steam
- $h$  = Pressure drop across open valve – use 42% of absolute inlet pressure for modulating applications  
 $h = 0.42(P_i + 14.7)$
- $P_o$  = Outlet pressure in psia =  $P_1 - h$
- $F_p$  = Piping correction factor<sup>†</sup>
- $C_v C$  = Published  $C_v$  \*  $F_p$
- $d$  = Valve diameter
- $D$  = Pipe diameter

<sup>†</sup>If the valve is more than 1 line size reduction  $F_p$  should be considered.

#### 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 15 and 16 for Ball valves
    - b. Refer to section 17 for Globe valves
    - b. Refer to section 18 for Butterfly valves
- NOTE: If valve selection requires piping correction factor ( $F_p$ ), calculate  $C_v$  based on  $F_p$  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
  - $P_i$  = inlet psi                          $P_i = 40$  psi
  - $h$  = pressure drop across open valve – use 42% of absolute inlet pressure for modulating applications  
 $h = 0.42(40 + 14.7) = 22.97$
  - $P_o = (\text{inlet pressure in psia} + 14.7) - h$   
 $P_o = (40 + 14.7) - 22.97 = 31.73$
  - $C_v = 1000 / (3 \cdot \sqrt{22.97 \cdot 31.73})$
  - $C_v = 1000 / (3 \cdot 26.99)$
  - $C_v = 1000 / 80.97$
  - Required  $C_v = 12.35$
- $$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}} = 12.35$$

### 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 18-6 of the Butterfly Valve section.

#### PROCEDURE

- 1) Choose valve model number that has closest Cv rating at 90° open (normally round down unless maximum  $\Delta P$  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 18-6 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.

### 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

$$C_v = \frac{Q \cdot \sqrt{G}}{\sqrt{\Delta P}} \quad \Delta P = \left[ \frac{Q \cdot \sqrt{G}}{C_v} \right]^2$$

$C_v$  = required  $C_v$   
 $Q$  = flow in Gallons per Minute  
 $G$  = Specific gravity of fluid (estimated as 1 for water systems)  
 $\Delta P$  = 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.)
- 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.
- 3) Verify valve selection is not too large or small for the pipe size. Reference page 18-6 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

$$C_v = 400 \text{ GPM} \cdot \sqrt{\text{SG}} / \sqrt{\Delta P} = 400 \cdot \sqrt{1} / \sqrt{4} = 200$$

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 controllability.

MODELS OF VALVES/APPLICATIONS

FLOW MEDIUM	PRESSURE INDEPENDENT				PRESSURE DEPENDENT				
	ENERGY VALVE	EPIV	PIQCV	QCV	CCV	HTCCV	BALL	GLOBE	BUTTERFLY
Chilled / Hot Water / Glycol	EV	P2, P6	Z2QP	Z2Q	B2(B), B3(B), B6	B2..HT *Not for use in chilled water systems*	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	
Potable Water							B2		EXT-LD

WATER QUALITY RECOMMENDED PARAMETERS

Chilled Water, Closed Loops, and Hot Water Systems up to 212°F (100°C)

	8.0		<	<b>pH</b>	<	10.3
				<b>Conductivity</b>	<	3000 MMHS
				<b>Iron</b>	<	0.5 ppm
				<b>Copper</b>	<	0.5 ppm
Chilled Systems	→	100 ppm	<	<b>Molybdenum</b> (Mild Steel Corrosion Inhibitor)	<	150 ppm
Hot Systems	→	200 ppm	<	<b>Molybdenum</b> (Mild Steel Corrosion Inhibitor)	<	250 ppm
		400 ppm	<	<b>Nitrite</b> (Mild Steel Corrosion Inhibitor)	<	1000 ppm
				<b>Azole</b> (Yellow Metal Inhibitor)	>	5 ppm free and available
				<b>Total Aerobic Bacteria</b>	<	1000 cells/ml
				<b>Anaerobic Bacteria</b>	<	50 cells/ml
				<b>Ammonia</b>	<	2 ppm
				<b>Turbidity</b> (in systems not containing a dye)	<	20 FTU's
				<b>Particles</b> (0.5 micron particles/ml with no particles above 20 microns)	<	200,000
				<b>Polymer</b>	<	10 ppm
Type I Ultra Pure Water	<b>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.</b>					
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)**

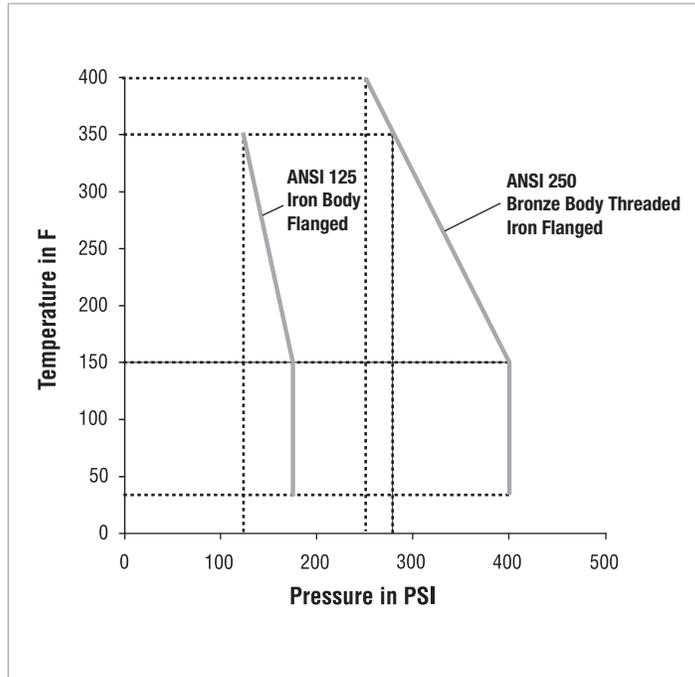
Leakage Class Designation	Maximum Leakage Allowable	Test Medium	Test Pressure	Testing Procedures Required for Establishing Rating
I	-	-	-	No test required provided user and supplier so agree
II	0.5% of rated capacity	Air or water at 50...125°F (10...52°C)	45...60 psig or max. operating differential whichever 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 the values in the table below 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)**

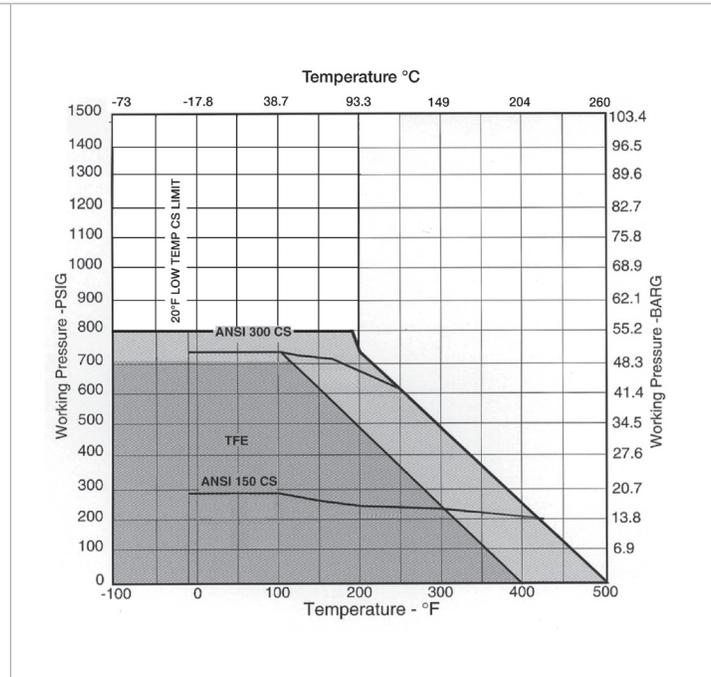
NOMINAL SEAT DIAMETER		LEAK RATE	
Inches	DN/Millimeters	mL per minute	Bubbles per minute
1	25	0.15	1
1½	40	0.3	2
2	50	0.45	3
2½	65	0.6	4
3	80	0.9	6
4	100	1.7	11
6	150	4	27
8	200	6.75	45

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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	
	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	
<b>0.29</b>	1.6	4.3	2.7	6.9	4.2	10.1	5.7	12.7													
<b>0.4</b>	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	
<b>0.46</b>	2.5	6.8	4.3	10.9	6.7	16.0	9.0	20.1													
<b>0.73</b>	4.0	10.8	6.8	17.4	10.7	25.3	14.2	31.9													
<b>1.16</b>	6.3	17.1	10.8	27.6	16.9	40.2	22.6	50.7													
<b>1.3</b>	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	
<b>1.86</b>	10.1	27.4	17.3	44.2	27.2	64.5	36.3	81.3													
<b>2.2</b>	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	
<b>2.9</b>	15.8	42.8	27.0	68.9	42.4	101	56.6	127													
<b>4.4</b>	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	
<b>4.64</b>	25.3	68.4	43.1	110	67.8	161	90.5	203													
<b>5.5</b>	30.0	81.1	51.1	131	80.3	191	107	240	133	245	159	289	235	416	285	500	410	706	534	912	
<b>7.31</b>	39.8	108	67.9	174	107	253	143	320													
<b>7.5</b>	40.9	111	69.7	178	110	260	146	328	182	334	217	394	320	568	389	682	559	963	728	1243	
<b>9.28</b>	50.6	137	86.3	221	136	322	181	406													
<b>10</b>	54.5	147	93.0	238	146	347	195	437	243	446	289	525	427	757	518	909	745	1285	971	1658	
<b>11.6</b>	63.2	171	108	276	169	402	226	507													
<b>13.2</b>	71.9	195	123	314	193	458	258	577													
<b>14</b>	76.3	206	130	333	204	485	273	612	340	624	405	735	598	1060	726	1272	1043	1798	1359	2321	
<b>18.56</b>	101	274	173	441	271	644	362	811													
<b>20</b>	109	295	186	475	292	694	390	874	485	892	579	1051	854	1514	1037	1818	1490	2569	1941	3315	
<b>28</b>	153	413	260	666	409	971	546	1224	679	1249	810	1471	1196	2120	1451	2545	2086	3597	2718	4642	
<b>40</b>	218	590	372	951	584	1387	780	1749	970	1784	1157	2101	1709	3028	2073	3635	2980	5138	3883	6631	
<b>65</b>	354	958	604	1545	949	2254	1268	2842	1577	2898	1881	3414	2777	4920	3369	5907	4842	8349	6310	10775	
<b>90</b>	490	1327	837	2140	1314	3121	1756	3935	2183	4013	2604	4728	3845	6813	4665	8179	6704	11561	8736	14920	
<b>170</b>	926	2507	1580	4042	2483	5895	3317	7433	4124	7580	4918	8930	7263	12869	8811	15450	12663	21837	16502	28181	
<b>263</b>	1433	3878	12472	6253	3841	9120	5132	11499	6381	11727	7609	13815	11236	19909	13632	23902	19590	33783	25530	43598	
<b>344</b>	1875	5073	3198	8178	5024	11928	6712	15040	8346	15339	9952	18070	14696	26041	17830	31263	25624	44187	33393	57026	

## 1. Scope

These General Terms and Conditions are applicable to the purchase and sale of BELIMO U.S. Inc., (hereinafter "BELIMO") products and services by the Client. As used herein, Client refers to the individual or entity that purchases BELIMO products or services directly from BELIMO. If the Client requests a delivery or service abroad, the contract will be concluded with the local BELIMO company in that country or with a BELIMO company named by BELIMO in the order confirmation. In such case, the General Terms and Conditions of the BELIMO company appointed in the order confirmation will be applicable. In case our delivery includes software and accompanying documentation, the terms of the license agreement are applicable in addition to these General Terms and Conditions. However, in case of any conflict between the two documents, the license agreement shall prevail.

Client's order of any BELIMO product, or BELIMO providing any service to Client, is expressly conditioned on Client's acceptance of these General Terms and Conditions, and the parties agree that Client's order of any BELIMO product, or BELIMO's performing of any service to Client, constitutes Client's acceptance of these General Terms and Conditions. No additional or different terms or conditions delivered to BELIMO from Client apply. BELIMO deems such additional or different terms or conditions material alterations to these General Terms and Conditions, and BELIMO hereby notifies Client of its objection to and rejection of such additional or different terms or conditions.

## 2. Conclusion of the contract

The contract is deemed to be concluded upon receipt of an order confirmation by the Client or, upon absence of such confirmation, upon the segregation of the ordered products by BELIMO. All catalogs, brochures and publications on the Internet are considered to be an offer from BELIMO to Client, which acceptance is expressly limited to these General Terms and Conditions.

Modifications or additions to these General Terms and Conditions or to the contract are not valid without written approval by BELIMO. Orders that deviate from the specifications published by BELIMO or contain additions or modifications made by the Client will only be effective if they have been expressly approved by BELIMO with a written order confirmation.

## 3. Cancellation of the contract

Orders of products according to catalog (standard products) may be cancelled by the Client until the segregation of the ordered products by BELIMO provided that BELIMO has received the statement of cancellation prior to the time of segregation.

Orders of customers' products (special designs etc.) may be cancelled only up to 4 hours after receipt of the order by BELIMO. In that case, a service charge of 10% of the net order amount will be invoiced to the Client. In case of customized products or configured actuators, a service charge of 20% of the net order amount will be invoiced to the Client.

## 4. Prices

If not expressly specified otherwise, all price information is net, excluding VAT.

The standard packaging of the ordered products is included in the net price. All other costs, such as for transport, insurance, taxes, customs duties as well as export, import or other necessary approvals will be invoiced as additional charges. The net price does not include any additional services performed by BELIMO, such as installation, commissioning and compilation of diagrams etc.

BELIMO reserves the right to change prices at any time until the conclusion of the contract.

## 5. Delivery conditions

All times, dates and delivery deadlines are considered non-binding, unless their binding nature has been expressly agreed in writing. Binding delivery deadlines and dates that have been agreed upon in writing are met when the product is made available in the distributing warehouse before the corresponding dates have passed. If BELIMO has a delay in delivery, it is assumed that the Client continues to demand the delivery. Compensation for late delivery or for replacement is excluded.

If not otherwise indicated on the order confirmation, delivery of the Goods shall be made in accordance with Incoterms® 2020 DAP Goods recipient (DAP = Delivered At Place, delivery address ship-to-party)

BELIMO reserves the right not to deliver the ordered products if they are unavailable; in this case, BELIMO will promptly notify the Client of the non-availability and, if necessary, reimburse any payment already made.

## 6. Payment conditions

BELIMO invoices must be paid in full within 30 days after the date of invoice. If the Client is in delay, BELIMO reserves the right to withhold further deliveries.

The Client is not entitled to offset outstanding accounts from BELIMO with any counterclaims.

## 7. Application, installation and use of BELIMO products

BELIMO products are intended for professional use only. BELIMO products may only be installed and replaced by skilled qualified personnel.

BELIMO products must be used in accordance with the specifications of the respective currently valid data and assembly sheet. The use of Belimo Cloud Services is subject to the "Terms of Use for Belimo Cloud Services" as amended from time to time ([https://www.belimo.com/mam/corporate-communications/privacy/BELIMO-Cloud-Terms-of-use\\_EN.pdf](https://www.belimo.com/mam/corporate-communications/privacy/BELIMO-Cloud-Terms-of-use_EN.pdf)).

## 8. Specifications

Except as provided in section 13, the non-technical specifications or technical specifications that are not part of the data sheets as provided for a particular product at the time of order, published by BELIMO in text or picture form (e.g. illustrations or drawings) in catalogs, brochures, websites, data and assembly sheets or other publications are only to be regarded as a guideline. The specific characteristics of the delivered products can deviate from that of images or samples in respect to material, color or shape. BELIMO reserves the right to change the communicated product specifications or to deliver corresponding products from third-party suppliers in place of the ordered products.

## 9. Reservation of title

The title of supplied products remains with BELIMO until the Client has fully paid all invoices.

## 10. Passing of risk

Benefit and risk with regard to the products purchased pass to the Client in accordance with agreed Incoterms® 2020.

## 11. Redemption of products

BELIMO may, upon prior agreement, redeem products according to catalog (standard products) provided that these products are still contained in the product range, virgin, i.e. not older than max. 6 months, unused, and originally packed at the time of return. BELIMO does not have any duty of redemption. Redemption of customers' products (special designs, Designed to Order, configured actuators), Openline-products or products that have been procured on Client's specific demand is excluded.

The return of products according to catalog shall be made enclosing a copy of the invoice, stating the reason for the return, and be free of all charges to BELIMO. Redemption shipments are to be made to BELIMO U.S. Inc., 33 Turner Road, attn. Returns Dept., Danbury, CT 06810 for the east coast of USA and to BELIMO U.S. Inc., 1049 Fortunato Loop, attn. Returns Dept., Sparks, NV, 89436-8310 for the west coast of USA.

## 12. Duty of examination/Acceptance

The Client shall examine all products for defects within 5 working days of receipt. Any defects are to be reported to BELIMO within 5 working days of receipt in writing; the product will otherwise be deemed to be accepted. Hidden defects must be reported in writing within 5 working days after they are discovered.

## 13. Warranty

With its warranty, BELIMO guarantees during the warranty period in accordance with this section 13, that the delivered products meet the technical specifications that are explicitly listed on the corresponding data sheets as at the time of order.

However, the applicable warranty for a Belimo product is null and void in the event of damage resulting from or partly caused by the Client or by third parties acting within the scope of responsibility of the Client when:

- a) Products are used in areas that are not specified in the data and assembly sheets, especially in aircraft and any other airborne means of transport;
- b) Products are used contrary to applicable laws, official regulations or the instructions of BELIMO (especially regarding installation, commissioning, operating regulations and information on the data and assembly sheets);
- c) Products are used under special conditions, especially under the continuous influence of aggressive chemicals, gases or liquids or outside of the permissible operating parameters or conditions for use;
- d) Products are assembled, handled or installed incorrectly or without due care or not according to the respective authoritative state-of-the-art or are not used or installed by skilled qualified personnel;
- e) Products are modified or repaired without prior written approval of BELIMO;
- f) Products become worn out as a result of inappropriate or unintended use or excessive stress;
- g) Products are stored inappropriately; or
- h) The Client or third parties are responsible for damage.
- i) Belimo also provides no warranty for normal wear and tear, including all types of corrosion, operational or environmental wear and tear and the like, as long as this is not due to defects in materials or workmanship.

For Openline-products further limitations of liability according to the applicable framework agreement, concluded between BELIMO and the Client, will apply.

The Client is liable for actions or omissions of auxiliary personnel as if these were his own actions.

BELIMO products are covered by a warranty period of five years, starting from the date of manufacture. OpenLine products carry a warranty period of two years, beginning from the date of delivery. For trade products, those not manufactured by BELIMO, the warranty period is generally one year from the date of delivery, though in exceptional cases it may extend to two years. The specific warranty duration for trade products is indicated in the order confirmation, and such products are clearly identified by the manufacturer's name and/or logo.

The warranty period begins automatically on the date of manufacture or delivery, as applicable, and does not require acceptance or testing by the Client. Upon discovering a defect, the Client is obligated to promptly take all reasonable measures to minimize any resulting damage. Provided that the defect is reported in a timely manner in accordance with Section 12 above, BELIMO retains sole discretion to determine the appropriate remedy. This may include repairing the product, replacing it with one of equal or equivalent value, or refunding the net purchase price through account credit or other means. Repairs may be carried out either by BELIMO or by authorized third parties at BELIMO's expense. The Client does not have the right to choose between repair, replacement, or refund; the decision rests entirely with BELIMO.

The replacement of a defective product does not restart the warranty period for that product. BELIMO can require the Client to replace particular defective products or parts of products in a system to prevent damage, whereby reasonable Client expenditures in this context that are approved in advance in writing by BELIMO will be reimbursed by BELIMO.

**WARRANTY DISCLAIMER: EXCEPT FOR THE WARRANTY SET FORTH IN THIS SECTION, BELIMO MAKES NO CONDITION OR WARRANTY, AND DISCLAIMS ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY (A) CONDITION OR IMPLIED WARRANTY OF MERCHANTABILITY; (B) CONDITION OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE; (C) CONDITION OR WARRANTY OF TITLE; OR (D) WARRANTY AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS OF A THIRD PARTY; WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE.**

## 14. Indemnification

CLIENT AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS BELIMO, ITS OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, REPRESENTATIVES, ASSIGNS, AFFILIATES, PARENT, AND SUCCESSORS ("BELIMO INDEMNIFIED PARTIES") FROM AND AGAINST ALL CAUSES OF ACTION, COMPLAINTS, CLAIMS, DEMANDS, JUDGMENTS, SUITS, LOSSES, LIABILITIES, LIENS, DAMAGES, FINES, PENALTIES, ASSESSMENTS, COSTS, ATTORNEYS FEES, AND EXPENSES THAT ARISE OUT OF, RELATE TO, OR ARE CONNECTED WITH ANY THIRD-PARTY CLAIM, SUIT, ACTION, OR PROCEEDING, RELATING TO (I) CLIENT'S ADVERTISING, MARKETING, PURCHASE, SALE, OR USE OF BELIMO PRODUCTS AND SERVICES, (II) CLIENT'S ACTUAL OR ALLEGED BREACH OF ANY REPRESENTATION, WARRANTY, COVENANT, OR OBLIGATION UNDER THESE GENERAL TERMS AND CONDITIONS, AND (III) BELIMO OR THE BELIMO INDEMNIFIED PARTIES' NEGLIGENCE. AT ITS OPTION, BELIMO WILL HAVE THE RIGHT TO CONTROL THE DEFENSE OF ANY LEGAL PROCEEDING, AND CLIENT SHALL NOT ENTER INTO ANY SETTLEMENT WITHOUT THE PRIOR WRITTEN CONSENT OF BELIMO OR THE BELIMO INDEMNIFIED PARTIES, WHICH SHALL NOT BE REASONABLY WITHHELD.

## 15. LIMITATION OF LIABILITY

IN NO EVENT SHALL BELIMO AND THE BELIMO INDEMNIFIED PARTIES, HAVE ANY LIABILITY TO CLIENT OR ANY THIRD PARTY FOR ANY (I) LOST PROFITS, LOST REVENUE, DIMINUTION IN VALUE, COSTS OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, INDIRECT, INCIDENTAL, SPECIAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES, OR (II) ANY DAMAGES WHATSOEVER (INCLUDING BUT NOT LIMITED TO CONSEQUENTIAL AND PUNITIVE DAMAGES) RESULTING FROM THE PERFORMANCE OF A PRODUCT, A TEMPORARY OR PERMANENT LOSS OF USE OF A PRODUCT, OR ARISING OUT OF ANY SERVICE PROVIDED TO CLIENT OR A THIRD PARTY, HOWEVER CAUSED UNDER ANY THEORY OF LIABILITY, AND WHETHER BASED IN CONTRACT, TORT (INCLUDING BELIMO OR THE BELIMO INDEMNIFIED PARTIES' NEGLIGENCE), STATUTE, OR OTHERWISE. BELIMO'S MAXIMUM AGGREGATE LIABILITY UNDER, ARISING FROM, OR IN CONNECTION WITH THE SALE OF ITS PRODUCTS AND PROVIDING SERVICES TO CLIENT SHALL BE LIMITED TO THE AMOUNT PAID BY CLIENT FOR THE PRODUCT OR SERVICE DEEMED RESPONSIBLE FOR THE LOSS OR DAMAGE.

THE FOREGOING LIMITATION SHALL APPLY EVEN IF BELIMO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND NOTWITHSTANDING THE FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY STATED HEREIN.

## 16. Force majeure

Neither BELIMO nor the Client shall have any liability to the other party for damages of any kind that result from the failure or delay in the performance of its obligations under these General Terms and Conditions, if such failure or delay is due to obstacles that are beyond either party's reasonable control irrespective of whether these occur at BELIMO, the Client or a third party. Such obstacles are, for example, epidemics, pandemics, mobilization, war, revolts, severe interruptions of operations, accidents, labor disputes, delayed or faulty delivery of the required raw materials, semi-finished or finished goods, non-availability of important work pieces, magisterial injunctions or omissions, embargos, export or import restrictions, acts of God or any other circumstances which are, to a large extent, beyond the control of BELIMO or the Client. In such cases, both parties shall, without delay, undertake all effective measures which can be expected of them to

prevent damage, or if damage occurs, to minimize the degree of this damage as far as possible.  
However, in no event shall payment of any money due to BELIMO be excused or delayed by reason of the foregoing.

## 17. Resale

If the product is resold, the Client must impose at least the same limitations of warranty restrictions upon the buyer.

## 18. Privacy policy

BELIMO places great value on the implementation of lawful data processing to protect your personal data. BELIMO is obliged to process your personal data in accordance with current legislation. We are dependent on the services of third parties for the provision of our services. These third parties will only process your data in connection with the services agreed with BELIMO, will ensure the same level of data protection as BELIMO, and will not pass on your data to other third parties without your agreement. When processing your data and transferring your data to third parties, BELIMO will ensure that an appropriate level of data protection is guaranteed and that appropriate organizational and technical measures are implemented to protect your data. More detailed information on our data protection guidelines is available from the following Internet address: [www.belimo.com/privacy](http://www.belimo.com/privacy).

## 19. Modifications

BELIMO reserves the right to modify these General Terms and Conditions at any time.

## 20. Severability clause

The provisions of these General Terms and Conditions are severable, and if any provision is found to be illegal, invalid, or unenforceable, the validity of the remaining provisions shall not be affected, and the illegal, invalid, or unenforceable provisions shall be replaced by such valid provisions that reflect the purpose and intent of these General Terms and Conditions.

## 21. Applicable law and jurisdiction

Any matter or dispute (whether in contract, tort, or statute) based upon, arising out of, or relating to these General Terms and Conditions or BELIMO products, shall be governed by the laws of the State of Delaware, including its laws regarding the statute of limitations, without regard to the State of Delaware's conflicts of law principles. BELIMO 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.

**WAIVER OF JURY TRIAL: BELIMO AND CLIENT HEREBY WAIVE ALL RIGHTS TO A JURY TRIAL IN CONNECTION WITH ANY ACTION, PROCEEDING, OR CLAIM RELATING TO THESE GENERAL TERMS AND CONDITIONS OR BELIMO PRODUCTS.** All causes of action arising out of or connected to the sales of Products under these General Terms and Conditions shall be resolved individually, with no right by Client to participate in a representative capacity, or as a member of any class action.

The UN Convention on the International Sale of Goods of 11 April 1980 (CISG) shall not apply to Client's purchase of BELIMO products.

## 22. Waiver

The failure of either party to enforce at any time any of the provisions of these General Terms and Conditions, or the failure to require, at any time, performance by the other party of any of the provisions of these General Terms and Conditions, will in no way be construed to be a present or future waiver of such provisions, nor in any way affect the validity of either party to enforce each and every such provision thereafter.

## 23. Intellectual Property

All intellectual property, included but not limited to, inventions, patents, copyrights, trade secrets, know-how, test results, tooling, jigs and fixtures, or other industrial property, associated with, discovered in, or used in or for, the manufacturing of the Products shall be identified herein as "Property." All Property owned by BELIMO prior to selling products or providing services to Client shall remain owned by BELIMO and nor rights, title or interest to such shall pass or be assigned to the Client at the time of the sale and/or delivery and any Property and intellectual property rights created by BELIMO or contributed by Client in connection with the customization or the sale of products and performing services for Client shall remain owned by BELIMO and the Client hereby assigns any and all rights, title or interest to such to BELIMO, including a waiver of moral rights if applicable, and shall not be considered a work for hire.

## 24. Entire Agreement

These General Terms and Conditions, including the applicable BELIMO documents referenced herein, plus any accompanying BELIMO documentation relevant to Client's order for BELIMO products or BELIMO providing services to Client, constitutes the entire agreement between the parties with respect to the BELIMO products ordered by Client, or services provided by BELIMO. These General Terms and Conditions and applicable BELIMO documents supersede all of the parties prior and contemporaneous agreements, understandings, negotiations, inducements, representations, or conditions, whether oral or written, whether express or implied, with respect to the purchase and sale of BELIMO products and services.

## 25. California Proposition 65

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.com](http://www.belimo.com) for details. For more information see [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

## BELIMO U.S. 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 U.S. 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 in-store 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.



## Belimo University

### Efficiency Through Training

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

For more information or to schedule training, please contact your Belimo sales representative or email us at [training@us.belimo.com](mailto:training@us.belimo.com).

To access self-paced online training, click or scan the code below to set up an account.



Discover the advantages  
[www.belimo.com](http://www.belimo.com)

**BELIMO**<sup>®</sup>

# 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, MN, 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**

### **Daiken Comfort Technologies Northeast**

275 Wagaraw Road  
Hawthorne, NJ 07506  
Phone: 973-427-3320

**With branches in: CT, MA, NJ, NY, PA, RI**

### **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, TN**

### **G & O Thermal Supply**

5435 N. Northwest Highway  
Chicago, IL 60630  
Phone: 773-763-1300

**With branches in IL, WI**

### **HVAC & Industrial Controls**

633 Central Avenue  
Charleston, WV 25302  
Phone: 304-345-0481

### **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**

### **Power-Flo Technologies**

270 Park Avenue  
New Hyde Park, NY 11040  
Phone: 800-794-3188

**With branches in NY**

### **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**

## Canada

For a complete list of distributors in Canada, please visit our website: [www.belimo.com](http://www.belimo.com) or call toll free: 866-805-7089

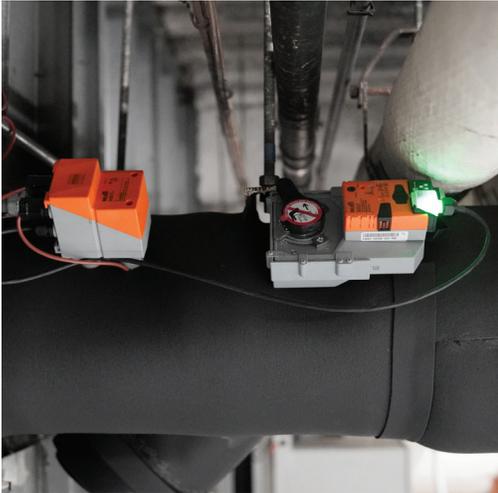
## Brazil

For a complete list of distributors in Brazil, please visit our website: [www.belimo.com](http://www.belimo.com) 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.com](http://www.belimo.com) or call: +1 905-712-3118

# Embarcadero Center Improves Efficiency with the Belimo Energy Valve™



Steven Travis, Chief Engineer for Four Embarcadero Center



The Belimo Energy Valve played a central role in BXP's ongoing commitment to sustainability and energy efficiency at Four Embarcadero Center, a 48-story tower in downtown San Francisco. The building's 40-year-old pressure dependent system was upgraded by retrofitting each of its six air handlers with the Energy Valve. Originally operating with Delta T values across the coils as low as 3°F, the system is now projected to reach 10...13°F or higher, with performance tracking underway during peak cooling months. Also, thanks to the Energy Valve's onboard diagnostics, a faulty bypass valve that had been overloading the chillers was identified. Once corrected, the system-wide Delta T improved significantly, chiller load dropped, and further efficiency gains were realized. The project showed how targeted retrofits using Delta T Management and real-time system insights can deliver measurable hydronic system improvements. BXP has since expanded Energy Valve use throughout Embarcadero Center and its San Francisco portfolio.

→ To read the full story, go to [www.belimo.com](http://www.belimo.com)

## **BELIMO Americas**

### **USA Locations**

33 Turner Road, Danbury, CT 06810  
1049 Fortunato Loop, Sparks, NV 89436

Tel. 800-543-9038, [customerservice@us.belimo.com](mailto:customerservice@us.belimo.com)

### **BELIMO Canada**

2495 Meadowpine Blvd., Unit #2 Mississauga, Ontario L5N 6C3  
Tel. 866-805-7089, [orders.ca@ca.belimo.com](mailto:orders.ca@ca.belimo.com)

### **BELIMO Brasil Comércio de Automação Ltda.**

Rua Barbalha, 251, São Paulo/SP, Brazil  
Tel: 55 11 3643-5656, [atendimentoaocliente@br.belimo.com](mailto:atendimentoaocliente@br.belimo.com)

### **BELIMO Mexico**

Av. Insurgentes Sur 1602, Col. Credito Constructor, Del. Benito Juarez, Mexico City 03940  
Tel: 55 4125 7890, [servicioalcliente@mx.belimo.com](mailto:servicioalcliente@mx.belimo.com)

### **Latin America and the Caribbean Customer Service**

Tel. +1 905-712-3118, [Orders.LatAm@us.belimo.com](mailto:Orders.LatAm@us.belimo.com)

[www.belimo.com](http://www.belimo.com)

"At Four Embarcadero Center, the Energy Valve modernized a 40-year-old system. It gave us control over flow and BTUs, improved Delta T, and substantially cut energy use. Now we're using the Energy Valve throughout Embarcadero Center and our other San Francisco properties."

**Daniel G. Murtagh, Vice President of Engineering, BXP (left)**

#### **Also featured:**

**Don Colquhoun, Regional Engineer, BXP (center)**

#### **Controls Contractor:**

**Derek Eggers, Chief Executive Officer, Syserco (right)**

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All prices are in US Dollars (USD)

**BELIMO**<sup>®</sup>