

EXPERIENCE  
EFFICIENCY



Belimo Americas Headquarters, Danbury, Connecticut

# 2015 Product Range Overview

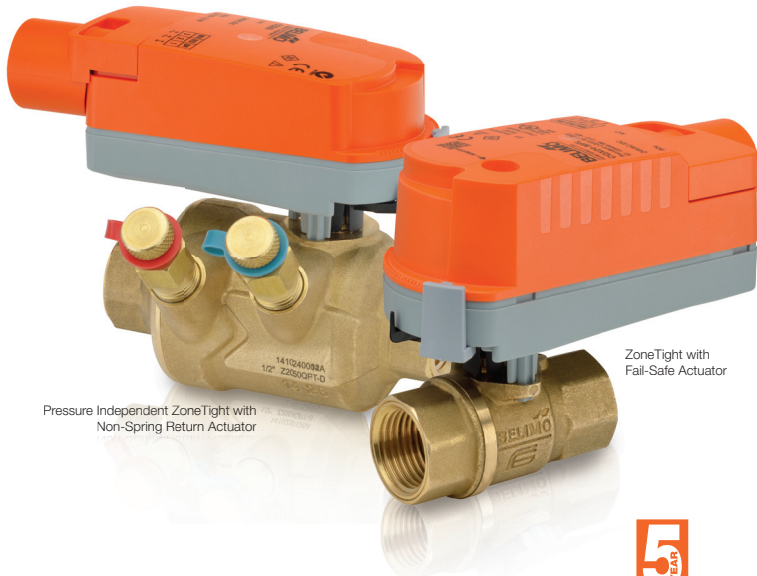
Effective April 1, 2015



# Innovations in Comfort, Energy Efficiency, and Safety for Your Buildings.

More Than a Standard Zone Valve

Introducing Belimo ZoneTight™



Pressure Independent ZoneTight with Non-Spring Return Actuator

ZoneTight with Fail-Safe Actuator

Efficient in Every Way



Compact Size

Low Power Consumption

Zero Leakage

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- Superior functionality in products designed for today's intelligent systems.
- Highly developed product technology that allows for reduced energy consumption.
- Extended product life with added comfort, safety, and energy efficiency.
- ISO 9001 and ISO 14001 Quality Control.

**EXPERIENCE EFFICIENCY**



Fire and Smoke Damper Actuators  
Technology that Saves Lives



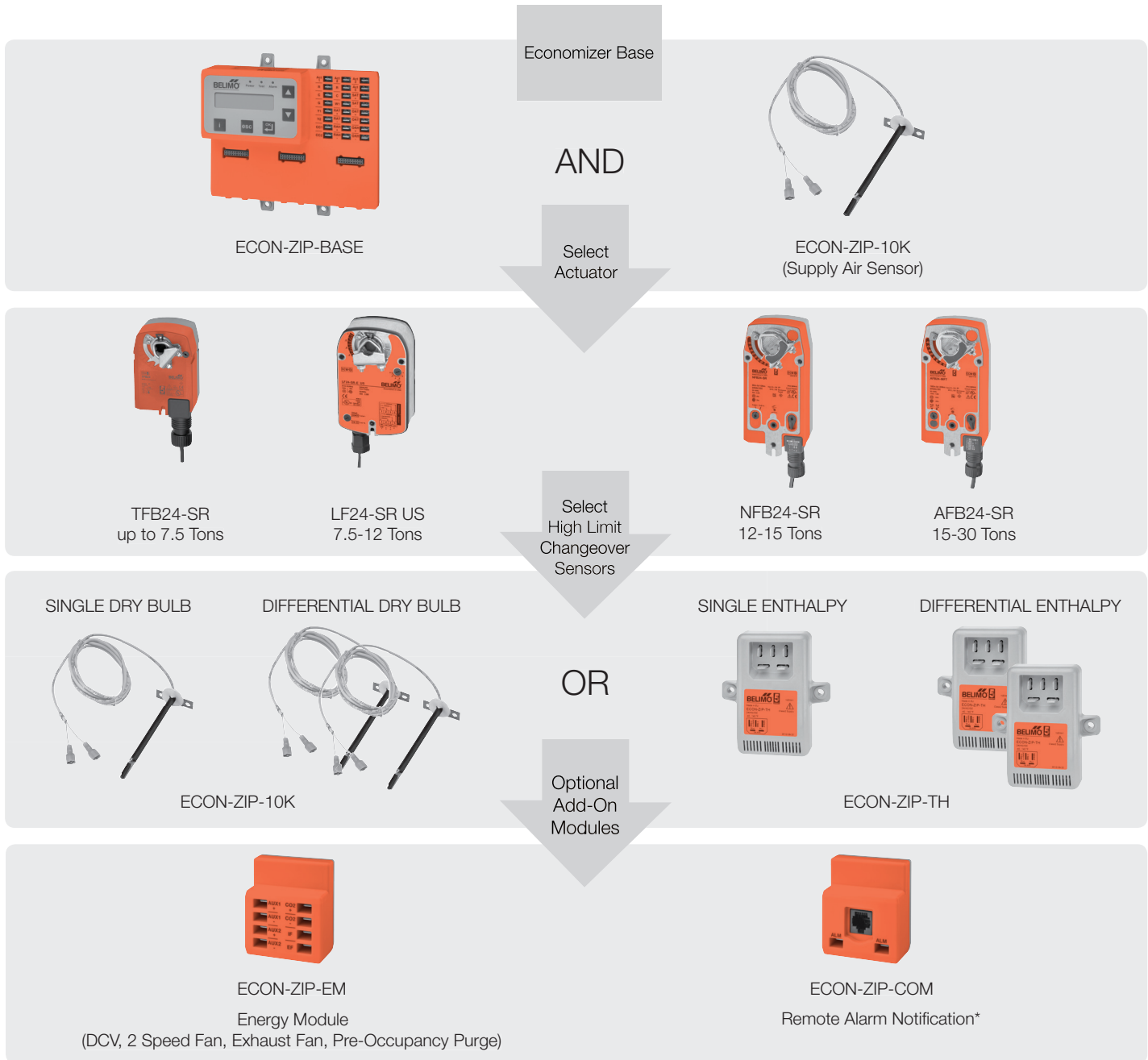
**New and Improved**  
SELECTPRO™ – Sizing and Selection Made Simple.



New Retrofit Application putting HVAC replacement solutions at your fingertips.

# Selection Guide

## ZIP Economizer



\* May be required by local codes

### ZIP Packs - Packaged Solutions for Quick Drop-in Economizer Replacement




ECON-ZIP	-SE	TF
<b>ZIP Economizer Solution with Energy Module</b>	<b>High Limit Changeover Strategy (Temperature)</b>	<b>Actuator</b>
	SD = Single Dry Bulb	TF** = 22 in-lbs, 7.5 Tons***
	DD = Differential Dry Bulb	LF** = 35 in-lbs, 12 Tons***
	SE = Single Enthalpy	**With corresponding retrofit kit
DE = Differential Enthalpy	***Recommended max RTU tonnage	

#### Pack Components May Include:

- ECON-ZIP-10K:** 10K Sensor for Supply Air
  - ECON-ZIP-LF1 or ECON-ZIP-TF1:** Retrofit Kit for Actuator Replacement
  - ECON-ZIP-TH:** Temperature and Humidity Sensor, Outside Air
- See Product flyer for more details.

# EF, AF, NF Spring Return Damper Actuator Product Range



		Power Supply		Power Consumption		Running Time(s)		Control Input		Control Input MFT		Position Feedback		Auxiliary Switches										
		24 VAC +/- 20%, 50/60 Hz, VDC +/- 10%	24 to 240 VAC +10%/- 20%, 50/60 Hz 24 to 125 VDC +/- 10%	120 VAC +/- 10%	230 VAC +/- 10%	VA Rating, Actuator/Heater	Wattage Running/Heater (Holding)	Motor Drive (Default)	Spring Return	On/Off	2-10 VDC (Default) 4-20 mA (w/500 Ω Resistor)	0-10 V Phasecut	Honeywell Series 90, 0-135 Ω	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default)	VDC Variable, Start 0.5 to 8, Span 2-10 VDC	2 SPDT, 3 A (0.5 A inductive) @ 250V				
<b>EFB Series</b> 270 in-lbs [30 Nm] Approx. 66 sq. ft.		EFB24	●			16	9.5 (4.5)	75	<20♦	●														
		EFB24 N4	●			16	9.5 (4.5)	75	<20♦	●														
		EFB24-S	●			16	9.5 (4.5)	75	<20♦	●												●		
		EFB120			●	●	21	9.5 (4.5)	75	<20♦	●													
		EFB120-S			●	●	21	9.5 (4.5)	75	<20♦	●											●		
		EFB120-S N4			●	●	21	9.5 (4.5)	75	<20♦	●											●		
		EFB24-SR	●				14	8 (4.5)	95	<20♦	●								●					
		EFB24-SR N4	●				14	8 (4.5)	95	<20♦	●								●					
		EFB24-SR-S	●				14	8 (4.5)	95	<20♦	●								●			●		
		EFB24-MFT	●				16	9.5 (4.5)	60...150 (150)	<20♦	●			●	●	●	●	●	●	●	●	●		
		EFB24-MFT-S	●				16	9.5 (4.5)	60...150 (150)	<20♦	●			●	●	●	●	●	●	●	●	●		
<b>AFB Series</b> 180 in-lbs [20 Nm] Approx. 45 sq. ft.		AFB24	●			7.5	5 (2.5)	<75	20♦	●														
		AFB24-S	●			7.5	5 (2.5)	<75	20♦	●												●		
		AFBUP		●			8.5*	7 (3.5)	<75	20♦	●													
		AFBUP-S		●			8.5*	7 (3.5)	<75	20♦	●												●	
		AFB24-SR	●				8.5	5.5 (3)	95	<20♦	●								●					
		AFB24-SR-S	●				8.5	5.5 (3)	95	<20♦	●								●				●	
		AFB24-PC	●				10	7.5 (3)	150	<20♦		●							●					
		AFB24-MFT	●				10	7.5 (3)	70...220 (150)	<20♦	●			●	●	●	●	●	●	●	●	●	●	
		AFB24-MFT-S	●				10	7.5 (3)	70...220 (150)	<20♦	●			●	●	●	●	●	●	●	●	●	●	
		AFB24-MFT95	●				10	7.5 (3)	70...220 (150)	<20♦			●						●	●				
		AFB24 N4H	●				7.5/25	5/25(3)	<75	20♦	●												●	
		AFB24-S N4H	●				7.5/25	5/25(3)	<75	20♦	●												●	
		AFBUP N4H		●			8.5*/25	7/25 (3)	<75	20♦	●												●	
		AFBUP-S N4H		●			8.5*/25	7/25 (3)	<75	20♦	●												●	
		AFB24-SR N4H	●				8.5/25	5.5/25 (3)	95	<20♦	●								●				●	
		AFB24-SR-S N4H	●				8.5/25	5.5/25 (3)	95	<20♦	●								●				●	
		AFB24-MFT N4H	●				10/25	7.5/25 (3)	70...220 (150)	<20♦	●			●	●	●	●	●	●	●	●	●	●	
	AFB24-MFT-S N4H	●				10/25	7.5/25 (3)	70...220 (150)	<20♦	●			●	●	●	●	●	●	●	●	●	●		
	AFB24-MFT95 N4H	●				10/25	7.5/25 (3)	70...220 (150)	<20♦			●						●	●			●		
<b>NFB Series</b> 90 in-lbs [10 Nm] Approx. 22 sq. ft.		NFB24	●			8.5	6 (2.5)	<75	<20♦	●														
		NFB24-S	●			8.5	6 (2.5)	<75	20♦	●													●	
		NFBUP		●			6.5**	6 (2.5)	<75	20♦	●													
		NFBUP-S		●			6.5**	6 (2.5)	<75	20♦	●													●
		NFB24-SR	●				6	3.5 (2.5)	95	<20♦	●								●					
		NFB24-SR-S	●				6	3.5 (2.5)	95	<20♦	●								●					
		NFB24-MFT	●				9	6.5 (3)	40...220 (150)	<20♦	●			●	●	●	●	●	●	●	●	●	●	
		NFB24-MFT-S	●				9	6.5 (3)	40...220 (150)	<20♦	●			●	●	●	●	●	●	●	●	●	●	
		NFB24 N4H	●				8.5/25	6/25 (2.5)	<75	<20♦	●													●
		NFB24-S N4H	●				8.5/25	6/25 (2.5)	<75	20♦	●													●
		NFBUP N4H		●			6.5*/25	6/25 (2.5)	<75	20♦	●													●
		NFBUP-S N4H		●			6.5*/25	6/25 (2.5)	<75	20♦	●													●
		NFB24-SR N4H	●				6/25	3.5/25 (2.5)	95	<20♦	●								●					●
		NFB24-SR-S N4H	●				6/25	3.5/25 (2.5)	95	<20♦	●								●					●
	NFB24-MFT N4H	●				9/25	6.5/25 (3)	40...220 (150)	<20♦	●			●	●	●	●	●	●	●	●	●	●	●	
	NFB24-MFT-S N4H	●				9/25	6.5/25 (3)	40...220 (150)	<20♦	●			●	●	●	●	●	●	●	●	●	●	●	

♦ <60 seconds @ -22°F [-30°C]. \* 8.5 VA for 120 VAC; 7 VA for 24 VAC, 18 VA for 240 VAC. \*\* 6.5 VA for 120 VAC; 6 VA for 24 VAC; 9.5 VA for 240 VAC.  
**NEMA 4 Heater: add "H" to the end of select "N4", for example NFB24-MFT N4H. All AF/NF NEMA 4 models are configured for a CCW spring return rotation.**  
 NEMA 4 actuators without heater option are listed on page 4.

R\_10008 - 04/15 - Subject to change. © Belimo Aircontrols (USA), Inc.

# LF, TF Spring Return Damper Actuator Product Range



**LF Series**  
35 in-lbs [4 Nm]  
Approx. 8.5 sq. ft.



**TFB Series**  
22 in-lbs [2.5 Nm]  
Approx. 5.5 sq. ft.

	Power Supply		Power Consumption		Running Time(s)		Control Input		Control Input MFT		Position Feedback	Auxiliary Switches								
	24 VAC +/- 20%, 50/60 Hz, VDC +/- 10%	120 VAC +/- 10%	230 VAC +/- 10%	VA Rating, Transformer Sizing	Wattage Running (Holding)	Motor Drive (Default)	Spring Return	On/Off	Floating Point	2-10 VDC (Default) 4-20 mA (w/500 Ω Resistor)	3 kΩ NTC Type 10 Thermistor	6 - 9 VDC, 20 VDC Output Voltage	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default)	VDC Variable, Start 0.5 to 8, Span 2-10 VDC	1 SPDT, 3 A (0.5 A inductive) @ 250V	
LF24 US	●			7	5 (2.5)	<40 to 75	<25♦	●												
LF24-S US	●			7	5 (2.5)	<40 to 75	<25♦	●												●
LF120 US		●		7.5	5.5 (3.5)	<40 to 75	<25♦	●												●
LF120-S US		●		7.5	5.5 (3.5)	<40 to 75	<25♦	●												●
LF230 US			●	7	5 (3)	<40 to 75	<25♦	●												●
LF230-S US			●	7	5 (3)	<40 to 75	<25♦	●												●
LF24-SR US	●			5	2.5 (1)	150	<25♦			●							●			●
LF24-SR-S US	●			5	2.5 (1)	150	<25♦			●							●			●
LF24-SR-E US	●			5	2.5 (1)	150	<25♦			●							●			●
LF24-3 US	●			5	2.5 (1)	150	<25♦		●											●
LF24-3-S US	●			5	2.5 (1)	150	<25♦		●											●
LF24-ECON-R03 US	●			5	2.5 (1)	95	<25♦				●						●			●
LF24-MFT US	●			5	2.5 (1)	75...300 (150)	<25♦			●			●	●	●	●	●	●	●	●
LF24-MFT-S US	●			5	2.5 (1)	75...300 (150)	<25♦			●			●	●	●	●	●	●	●	●
LF24-MFT-20 US	●			6	3.5 (1.5)	150	<25♦					●	●	●	●	●	●	●	●	●
LF24-MFT-S-20 US	●			6	3.5 (1.5)	150	<25♦					●	●	●	●	●	●	●	●	●
LFC24-3-R US	●			5	2.5 (1)	90	<25♦		●											●
LFC24-3-S US	●			5	2.5 (1)	90	<25♦		●											●
TFB24	●			5	2 (1.3)	<75	<25♦	●												●
TFB24-S	●			5	2 (1.3)	<75	<25♦	●												●
TFLB24	●			5	2 (1.3)	<75	<75	●												●
TFB120		●	●	5	2.5 (1.3)	<75	<25♦	●												●
TFB120-S		●	●	5	2.5 (1.3)	<75	<25♦	●												●
TFLB120		●	●	5	2.5 (1.3)	<75	<75	●												●
TFB120-S		●	●	6	3 (1.5)	<30	<25♦	●												●
TFB24-SR	●			4	2 (1)	95	<25♦			●							●			●
TFB24-SR-S	●			4	2 (1)	95	<25♦			●							●			●
TFB120-SR		●	●	5.5	2.5 (2)	95	<25♦			●							●			●
TFB24-3	●			4	2.5 (1)	95	<25♦		●											●
TFB24-3-S	●			4	2.5 (1)	95	<25♦		●											●
TFB24-MFT	●			4	2.5 (1)	75...300 (150)	<25♦			●			●	●	●	●	●	●	●	●
TFB24-MFT-S	●			4	2.5 (1)	75...300 (150)	<25♦			●			●	●	●	●	●	●	●	●

♦ <60 seconds @ -22°F [-30°C].

# Custom Spring Return Damper Actuator Product Range



	Power Supply		Power Consumption		Running Time(s)		Control Input		Control Input MFT		Position Feedback	Auxiliary Switches	Cable Options		
	24 VAC +/- 20%, 50/60 Hz, VDC +/- 10%	24 to 240 VAC +10%/- 20%, 50/60 Hz 24 to 125 VDC +/- 10%	120 VAC +/- 10%	230 VAC +/- 10%	VA Rating, Actuator/Heater	Wattage Running/Heater (Holding)	Motor Drive (Default)	Spring Return	On/Off	2-10 VDC (Default) 4-20 mA (w/500 Ω Resistor) Honeywell Series 90, 0-135 Ω	Floating Point	Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) VDC Variable, Start 0.5 to 8, Span 2-10 VDC	2 SPDT, 3 A (0.5 A inductive) @ 250V

## EFX Series

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



EFX24	●				16	9.5 (4.5)	75	<20♦	●							●
EFX24-S	●				16	9.5 (4.5)	75	<20♦	●						●	●
EFX120			●	●	21	9.5 (4.5)	75	<20♦	●							●
EFX120-S			●	●	21	9.5 (4.5)	75	<20♦	●						●	●
EFX24-SR	●				14	8 (4.5)	95	<20♦	●				●			●
EFX24-SR-S	●				14	8 (4.5)	95	<20♦	●				●			●
EFX24-MFT	●				16	9.5 (4.5)	60...150 (150)	<20♦	●		●	●	●	●	●	●
EFX24-MFT-S	●				16	9.5 (4.5)	60...150 (150)	<20♦	●		●	●	●	●	●	●
EFX24-S N4	●				16	9.5 (4.5)	75	<20♦	●						●	
EFCX24-S N4	●				16	9.5 (4.5)	75	<10♦♦	●						●	
EFX24-S N4H	●				16/21	9.5/21 (4.5)	75	<20♦	●						●	
EFX120-S N4			●	●	21	9.5 (4.5)	75	<20♦	●						●	
EFCX120-S N4			●	●	21	9.5 (4.5)	75	<10♦♦	●						●	
EFX120-S N4H			●	●	21/22	9.5/22 (4.5)	75	<20♦	●						●	
EFX120-SR N4			●	●	21	9(5.5)	95	<20♦	●				●			
EFX120-SR-S N4			●	●	21	9(5.5)	95	<20♦	●				●			
EFX24-SR-S N4	●				14	8 (4.5)	95	<20♦	●				●			●
EFX24-SR-S N4H	●				14/21	8/21 (4.5)	95	<20♦	●				●			●
EFX24-MFT-S N4	●				16	9.5 (4.5)	60...150 (150)	<20♦	●		●	●	●	●	●	●
EFX24-MFT-S N4H	●				16/21	9.5/21 (4.5)	60...150 (150)	<20♦	●		●	●	●	●	●	●

## AFX Series

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



AFX24	●				7.5	5 (2.5)	<75	20♦	●							●
AFX24-S	●				7.5	5 (2.5)	<75	20♦	●						●	●
AFXUP		●			8.5*	7 (3.5)	<75	20♦	●							●
AFXUP-S		●			8.5*	7 (3.5)	<75	20♦	●						●	●
AFX24-SR	●				8.5	5.5 (3)	95	<20♦	●				●			●
AFX24-SR-S	●				8.5	5.5 (3)	95	<20♦	●				●			●
AFX24-MFT	●				10	7.5 (3)	70...220 (150)	<20♦	●		●	●	●	●	●	●
AFX24-MFT-S	●				10	7.5 (3)	70...220 (150)	<20♦	●		●	●	●	●	●	●
AFX24-MFT95	●				10	7.5 (3)	70...220 (150)	<20♦	●		●		●	●	●	●
AFX24 N4	●				7.5	5 (2.5)	<75	20♦	●						●	
AFX24-S N4	●				7.5	5 (2.5)	<75	20♦	●						●	●
AFXUP N4		●			8.5*	7 (3.5)	<75	20♦	●						●	●
AFXUP-S N4		●			8.5*	7 (3.5)	<75	20♦	●						●	●
AFX24-SR N4	●				8.5	5.5 (3)	95	<20♦	●				●			●
AFX24-SR-S N4	●				8.5	5.5 (3)	95	<20♦	●				●			●
AFX24-MFT N4	●				10	7.5 (3)	70...220 (150)	<20♦	●		●	●	●	●	●	●
AFX24-MFT-S N4	●				10	7.5 (3)	70...220 (150)	<20♦	●		●	●	●	●	●	●
AFX24-MFT95 N4	●				10	7.5 (3)	70...220 (150)	<20♦	●		●		●	●	●	●

## NFX Series

90 in-lbs [10 Nm]  
Approx. 22 sq. ft.



NFX24	●				8.5	6 (2.5)	<75	20♦	●							●
NFX24-S	●				8.5	6 (2.5)	<75	20♦	●						●	●
NFXUP		●			6.5**	6 (2.5)	<75	20♦	●							●
NFXUP-S		●			6.5**	6 (2.5)	<75	20♦	●						●	●
NFX24-SR	●				6	3.5 (2.5)	95	<20♦	●				●			●
NFX24-SR-S	●				6	3.5 (2.5)	95	<20♦	●				●			●
NFX24-MFT	●				9	6.5 (3)	40...220 (150)	<20♦	●		●	●	●	●	●	●
NFX24-MFT-S	●				9	6.5 (3)	40...220 (150)	<20♦	●		●	●	●	●	●	●
NFX24 N4	●				8.5	6 (2.5)	<75	20♦	●						●	●
NFX24-S N4	●				8.5	6 (2.5)	<75	20♦	●						●	●
NFXUP N4		●			6.5**	6 (2.5)	<75	20♦	●						●	●
NFXUP-S N4		●			6.5**	6 (2.5)	<75	20♦	●						●	●
NFX24-SR N4	●				6	3.5 (2.5)	95	<20♦	●				●			●
NFX24-SR-S N4	●				6	3.5 (2.5)	95	<20♦	●				●			●
NFX24-MFT N4	●				9	6.5 (3)	40...220 (150)	<20♦	●		●	●	●	●	●	●
NFX24-MFT-S N4	●				9	6.5 (3)	40...220 (150)	<20♦	●		●	●	●	●	●	●

♦ <60 seconds @ -22°F [-30°C]. ♦♦ <15 seconds @ -22°F [-30°C]. \* 8.5 VA for 120 VAC; 7 VA for 24 VAC, 18 VA for 240 VAC. \*\* 6.5 VA for 120 VAC; 6 VA for 24 VAC; 9.5 VA for 240 VAC

# Custom Spring Return Damper Actuator Product Range



**TFX Series**  
22 in-lbs [2.5 Nm]  
Approx. 5.5 sq. ft.



	Power Supply			Power Consumption		Running Time(s)		Control Input		Control Input <b>MFT</b>			Position Feedback	Auxiliary Switches	Cable Options			
	24 VAC +/- 20%, 50/60 Hz, VDC +/- 10%	120 VAC +/- 10%	230 VAC +/- 10%	VA Rating, Transformer Sizing	Wattage Running (Holding)	Motor Drive (Default)	Spring Return	On/Off	Floating Point	2-10 VDC (Default) 4-20 mA (w/500 Ω Resistor)	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default)	VDC Variable, Start 0.5 to 8, Span 2-10 VDC	1 SPDT, 3 A (0.5 A inductive) @ 250V	10 ft. (3 m) or 16 ft. (5 m) cable
TFX24	●			5	2 (1.3)	<75	<25♦	●										●
TFX24-S	●			5	2 (1.3)	<75	<25♦	●									●	●
TFX120		●	●	5	2.5 (1.3)	<75	<25♦	●										●
TFX120-S		●	●	5	2 (1.3)	<75	<25♦	●										●
TFCX120-S		●	●	6	3 (1.5)	<30	<25♦	●										●
TFX24-SR	●			4	2 (1)	95	<25♦			●				●				●
TFX24-SR-S	●			4	2 (1)	95	<25♦			●				●				●
TFX24-3	●			4	2.5 (1)	95	<25♦		●									●
TFX24-3-S	●			4	2.5 (1)	95	<25♦		●									●
TFX24-MFT	●			4	2.5 (1)	75...300 (150)	<25♦			●	●	●	●	●	●	●		●
TFX24-MFT-S	●			4	2.5 (1)	75...300 (150)	<25♦			●	●	●	●	●	●	●		●

♦ <60 seconds @ -22°F [-30°C]

# GKB, NKQB Electronic Fail-Safe Damper Actuator Product Range



**GKB Series**  
360 in-lbs [40 Nm]  
Approx. 90 sq. ft.



**NKQB Series**  
54 in-lbs [6 Nm]  
Approx. 12 sq. ft.



	Power Supply	Power Consumption		Running Time		Control Input			Position Feedback	Add-On Accessory	
		VA Rating, Actuator/Heater	Wattage Running/Heater (Holding)	Motor Drive	Fail-Safe	On/Off	Floating Point	2-10 VDC (Default) 4-20 mA (w/500 Ω Resistor)		2-10 VDC (Default)	S1A or S2A (with Z-SPA for NKQ)
	24 VAC +/- 20%, 50/60 Hz, VDC +/- 10										
GKB24-3	●	21	12 (3)	150	35	●	●			●	●
GKB24-SR	●	21	12 (3)	150	35			●	●	●	●
GKB24-3-T N4H	●	21/21	12/21 (3)	150	35	●	●			●	●
GKB24-SR-T N4H	●	21/21	12/21 (3)	150	35			●	●	●	●
GKB24-MFT-T N4H*	●	21/21	12/21 (3)	150	35			●	●	●	●
NKQB24-1	●	22	11 (3)	4	4	●				●	●
NKQB24-SR	●	22	11 (3)	4	4			●	●	●	●

\*Piggy back mounting on a single shaft for -MFT wired master slave, 720 in-lbs maximum load, and 1" minimum diameter shaft.

# Custom Electronic Fail-Safe Damper Actuator Product Range



**GKX Series**  
360 in-lbs [40 Nm]  
Approx. 90 sq. ft.



**NKQX Series**  
54 in-lbs [6 Nm]  
Approx. 12 sq. ft.



**AHKX Series**  
101 lbf [450 N Force]  
Approx. 4" stroke



	Power Supply	Power Consumption		Running Time(s)		Control Input		Control Input <b>MFT</b>			Position Feedback	Cable Options	Add-On Accessory			
		VA Rating, Transformer Sizing	Wattage Running (Holding)	Motor Drive (Default)	Fail-Safe	On/Off	Floating Point	2-10 VDC (Default) 4-20 mA (w/500 Ω Resistor)	On/Off	Floating Point			Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default)	VDC Variable, Start 0.5 to 8, Span 2 to 10 VDC
	24 VAC +/- 20%, 50/60 Hz, VDC +/- 10%															
GKX24-3	●	21	12 (3)	90, 150 (150)	35	●	●					●	●	●	●	●
GKX24-SR	●	21	12 (3)	90, 150 (150)	35			●			●	●	●	●	●	●
GKX24-MFT*	●	21	12 (3)	90, 150 (150)	35			●	●	●	●	●	●	●	●	●
GKX24-3-T N4	●	21	12 (3)	90, 150 (150)	35	●	●					●	●	●	●	●
GKX24-SR-T N4	●	21	12 (3)	90, 150 (150)	35			●			●	●	●	●	●	●
GKX24-MFT-T N4*	●	21	12 (3)	90, 150 (150)	35			●	●	●	●	●	●	●	●	●
NKQX24-1	●	22	11 (3)	4, 7, 10 (4)	4	●						●	●	●	●	●
NKQX24-SR	●	22	11 (3)	4, 7, 10 (4)	4			●			●	●	●	●	●	●
NKQX24-MFT	●	22	11 (3)	4, 7, 10 (4)	4			●	●	●	●	●	●	●	●	●
AHKX24-MFT-100	●	22	11 (3)	90, 150 (150)	35			●	●	●	●	●	●	●	●	●

\*Piggy back mounting on a single shaft for -MFT wired master slave, 720 in-lbs maximum load, and 1" minimum diameter shaft.

# FSAF\*A, FSAFB, FSAF, FSNF, FSLF, FSTF

## Fire and Smoke Spring Return Damper Actuator Product Range



	Power Supply			Power Consumption		Running Time(s)		Control Input	Auxiliary Switches		
	24 VAC (FSAF - 24 VAC/DC)	120 VAC	230 VAC	VA Rating	Motor Drive	Spring Return	On/Off	2 SPST	2 SPDT		
<b>FSAF*A Series</b> 180 in-lbs [20 Nm] Approx. 18 sq. ft. @ 350°F	FSAF24A	●			32 <sup>‡</sup>	<25	<15	●			
	FSAF24A-S	●			32 <sup>‡</sup>	<25	<15	●	●		
	FSAF120A		●		38 <sup>‡</sup>	<25	<15	●			
	FSAF120A-S		●		38 <sup>‡</sup>	<25	<15	●	●		
	FSAF230A			●	37 <sup>‡</sup>	<25	<15	●			
	FSAF230A-S			●	37 <sup>‡</sup>	<25	<15	●	●		
<b>FSAFB Series</b> 180 in-lbs [20 Nm] Approx. 18 sq. ft. @ 250°F	FSAFB24-SR	●			9	<75	<20	2-10 VDC			
	FSAFB24-SR-S	●			9	<75	<20	2-10 VDC		●	
<b>FSAF Series</b> 133 in-lbs [15 Nm] Approx. 16 sq. ft. @ 250°F	FSAF24 US	●			10	<75	<20	●			
	FSAF24-S US	●			10	<75	<20	●	●		
	FSAF120 US		●		11	<75	<20	●			
	FSAF120-S US		●		11	<75	<20	●	●		
	FSAF230 US			●	12	<75	<20	●			
	FSAF230-S US			●	12	<75	<20	●	●		
	FSAF24-SR US	●			11	<75	<20	2-10 VDC			
	FSAF24-SR-S US	●			11	<75	<20	2-10 VDC		●	
	FSAF24-BAL US	●			10	<75	<20	3-Position			
	FSAF24-BAL-S US	●			10	<75	<20	3-Position		●	
	<b>FSNF Series</b> 70 in-lbs [8 Nm] Approx. 12 sq. ft. @ 350°F	FSNF24 US	●			24 <sup>‡</sup>	<15	<15	●		
		FSNF24-S US	●			24 <sup>‡</sup>	<15	<15	●		●
		FSNF120 US		●		23 <sup>‡</sup>	<15	<15	●		
		FSNF120-S US		●		23 <sup>‡</sup>	<15	<15	●		●
FSNF230 US				●	23 <sup>‡</sup>	<15	<15	●			
FSNF230-S US				●	23 <sup>‡</sup>	<15	<15	●		●	
<b>FSLF Series</b> 30 in-lbs [3.5 Nm] Approx. 4 sq. ft. @ 350°F	FSLF24 US	●			15 <sup>‡</sup>	<15	<15	●			
	FSLF24-S US	●			15 <sup>‡</sup>	<15	<15	●	●		
	FSLF120 US		●		18 <sup>‡</sup>	<15	<15	●			
	FSLF120-S US		●		18 <sup>‡</sup>	<15	<15	●	●		
	FSLF230 US			●	17 <sup>‡</sup>	<15	<15	●			
	FSLF230-S US			●	17 <sup>‡</sup>	<15	<15	●	●		
<b>FSTF Series*</b> 18 in-lbs [2 Nm] Approx. 1.5 sq. ft. @ 250°F	FSTF24 US	●			3	<75	<25	●			
	FSTF24-S US	●			3	<75	<25	●	●		
	FSTF120 US		●		3.5	<75	<25	●			
	FSTF120-S US		●		3.5	<75	<25	●	●		
	FSTF230 US			●	5.5	<75	<25	●			
	FSTF230-S US			●	5.5	<75	<25	●	●		






**†VA Rating Note:**

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

\*Not recommended for retrofit or replacement except for existing FSTF actuators.

# GMB, AMB, NMB, LMB, CMB Non-Spring Return Damper Actuator Product Range



	Power Supply		Power Consumption		Running Time	Control Input		Control Input <b>MFT</b>				Position Feedback		Bulk Pack	NEMA 4/4X Option	Add-On Accessory				
	24 VAC ± 20%, 50/60 Hz VDC ±10%	100 VAC to 240 VAC	VA Rating	Wattage Running (Holding)	Motor Drive	On/Off	Floating Point	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	5 kΩ Resistive Feedback	10 kΩ Resistive Feedback	Quantity of Actuators in Bulk Pack	Enclosure (Part No. +M4 or +M4H) <sup>1</sup>	1 SPDT, 3A (0.5A Inductive) @ 250V	STA or S2A	Potentiometer	
<b>GMB Series</b> 360 in-lbs [40 Nm] Approx. 90 sq.ft. 	GMB24-3	●	6	4.0 (2.0)	150	●	●								●		●	●		
	GMB24-SR	●	6.5	4.5 (2.0)	150			●			●				●		●	●		
	GMB24-MFT†	Ⓐ	●	7	4.0 (1.5)	150			●	●	●	●						●	●	
<b>AMB Series</b> 180 in-lbs [20 Nm] Approx. 45 sq.ft. 	AMB24-3	●	5.5	2.5 (0.5)	95	●	●								●		●	●		
	AMB24-3-S	●	5.5	2.5 (0.5)	95	●	●								●		●	●		
	AMB24-SR	●	5	2.5 (0.4)	95			●				●			●		●	●		
	AMB24-MFT	Ⓐ	●	6	3.5 (1.3)	150			●	●	●	●						●	●	
<b>NMB Series</b> 90 in-lbs [10 Nm] Approx. 22 sq.ft. 	NMB24-3	●	4	2.0 (0.2)	95	●	●								●		●	●		
	NMCB24-3	●	4	2.5 (0.2)	45	●	●											●	●	
	NMB24-SR	●	5	2.5 (0.4)	95			●				●				●		●	●	
	NMCB24-SR	●	5	2.5 (0.4)	45			●				●						●	●	
	NMB24-MFT	Ⓐ	●	6	3.5 (1.3)	150			●	●	●	●						●	●	
<b>LMB Series</b> 45 in-lbs [5 Nm] Approx. 11 sq.ft. 	LMB24-3	●	2	1.5 (0.2)	95	●	●											●	●	
	LMCB24-3	●	2.5	1.5 (0.2)	35	●	●												●	●
	LMB24-3.1	●	2	1.5 (0.2)	95	●	●								24 pc.			●	●	
	LMB24-3-S	●	2	1.5 (0.2)	95	●	●										●		●	●
	LMB24-3-T	●	2	1.5 (0.2)	95	●	●												●	●
	LMCB24-3-T	●	2.5	1.5 (0.2)	35	●	●												●	●
	LMB24-3-T.1	●	2	1.5 (0.2)	95	●	●								36 pc.				●	●
	LMB24-3-P5-T	●	2	1.5 (0.2)	95	●	●						●						●	●
	LMB24-3-P5-T.1	●	2	1.5 (0.2)	95	●	●						●		36 pc.				●	●
	LMB24-3-P10-T	●	2	1.5 (0.2)	95	●	●							●					●	●
	LMB24-SR	●	3	1.5 (0.4)	95			●				●							●	●
	LMCB24-SR	●	3	1.5 (0.4)	35			●				●							●	●
	LMB24-SR.1	●	3	1.5 (0.4)	95			●				●			24 pc.				●	●
	LMB24-SR-T	●	3	1.5 (0.4)	95			●				●							●	●
	LMCB24-SR-T	●	3	1.5 (0.4)	35			●				●							●	●
	LMB24-SR-T.1	●	3	1.5 (0.4)	95			●				●			36 pc.				●	●
	LMB24-MFT	Ⓐ	●	5	2.5 (1.2)	150			●	●	●	●							●	●
LMB24-HM	Ⓑ	●	2	1.5 (0.2)	95													●	●	
LMB24-10P-HM	Ⓑ	●	2	1.5 (0.2)	95									●				●	●	
<b>CMB Series</b> 18 in-lbs [2 Nm] Approx. 4.5 sq.ft. 	CMB24-3	●	1.5	1.0 (0.2)	35	●	●													
	CMB24-3.1*	●	1.5	1.0 (0.2)	35	●	●								20 pc.					
	CMB120-3	●	3.5	1.5 (1.0)	35	●	●													
	CMB24-3-T	●	1.5	1.0 (0.2)	35	●	●													
	CMB24-3-T.1*	●	1.5	1.0 (0.2)	35	●	●								20 pc.					
	CMB24-SR-R	●	2.5	1.5 (0.5)	35			●				●								

† Dual mounting on a single shaft is possible for 720 in-lb (-MFT wired Master-Slave). Please call Belimo customer service for details.

Ⓐ Shipped default. 150 seconds running time, 2-10 VDC control input and feedback. Field programmable with MFT tools.

Ⓑ Drop-in replacement of LM24-M VAV actuator.

<sup>1</sup>Heater option for NEMA 4 and NEMA 4X has a list price adder. Refer to 2015 Product Guide and Price List.

\* Z-PICM position indicator and Z-ARCM anti-rotation bracket sold separately.

# AMQB, NMQB, LMQB Quick Running Non-Spring Return Damper Actuator Product Range



		Power Supply		Power Consumption		Running Time	Control Input		Control Input MFT			Position Feedback		Add-On Accessory				
		24 VAC ± 20%, 50/60 Hz, VDC ± 10%	100 VAC to 240 VAC	VA Rating	Wattage Running (Holding)	Motor Drive	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	5 kΩ Resistive Feedback	10 kΩ Resistive Feedback	S1A or S2A	Potentiometer
<b>AMQB Series</b> 140 in-lbs [16 Nm] Approx. 16 sq.ft.	AMQB24-1	●		23	15 (1.5)	7	●										●	●
	AMQB24-MFT <sup>Ⓐ</sup>	●		23	15 (1.5)	7				●		●		●			●	●
<b>NMQB Series</b> 70 in-lbs [8 Nm] Approx. 12 sq.ft.	NMQB24-1	●		20	13 (1.5)	4	●										●	●
	NMQB24-MFT <sup>Ⓐ</sup>	●		20	13 (1.5)	4				●		●		●			●	●
<b>LMQB Series</b> 35 in-lbs [4 Nm] Approx. 8.5 sq.ft.	LMQB24-1	●		20	13 (1.5)	2.5	●										●	●
	LMQB24-MFT <sup>Ⓐ</sup>	●		20	13 (1.5)	2.5				●		●		●			●	●

<sup>Ⓐ</sup> Shipped default. 2-10 VDC control input and feedback. Field programmable with MFT tools.

# AHB, AHQB, LHB, LHQB, LUB Non-Spring Return Damper Actuator Product Range



		Power Supply		Power Consumption		Running Time	Control Input		Control Input MFT			Position Feedback				
		24 VAC ± 20%, 50/60 Hz, VDC ± 10%	100 VAC to 240 VAC	VA Rating	Wattage Running (Holding)	Motor Drive	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	5 kΩ Resistive Feedback	10 kΩ Resistive Feedback
<b>AHB Series</b> 101 lbf [450 N Force] 4" or 8" stroke	AHB24-3-100	●		4.5	2.0 (0.5)	150*	●	●								
	AHB24-3-200	●		4.5	2.0 (0.5)	150*	●	●								
	AHB24-SR-100	●		4.5	2.5 (0.5)	150*			●					●		
	AHB24-SR-200	●		4.5	2.5 (0.5)	150*			●					●		
<b>AHQB Series</b> 44 lbf [200 N Force] 4" stroke	AHQB24-1-100	●		23	13 (1.5)	7*	●									
	AHQB24-MFT-100 <sup>Ⓐ</sup>	●		23	13 (1.5)	7*				●		●		●		
<b>LHB Series</b> 34 lbf [150 N Force] 4" or 8" stroke	LHB24-3-100	●		3	1.5 (0.5)	150*	●	●								
	LHB24-3-200	●		3	1.5 (0.5)	150*	●	●								
	LHB24-SR-100	●		3	1.5 (0.5)	150*			●					●		
	LHB24-SR-200	●		3	1.5 (0.5)	150*			●					●		
<b>LHQB Series</b> 22 lbf [100 N Force] 4" stroke	LHQB24-1-100	●		23	13 (1.5)	3.5*	●									
	LHQB24-MFT-100	●		23	13 (1.5)	3.5*				●		●		●		
<b>LUB Series</b> 27 in-lbs [3 Nm] Approx. 6 sq.ft.	LUB24-3	●		2.5	1.0 (0.5)	150**	●	●								
	LUB24-SR	●		3	3.0 (0.5)	150**			●					●		


\*Running time is per 4 inches [100 mm] of travel. \*\*Running time is 150 seconds per 90°.

<sup>Ⓐ</sup> Shipped default. 2-10 VDC control input and feedback. Field programmable with MFT tools.

# Custom Non-Spring Return Damper Actuator Product Range




**GMX Series**  
360 in-lbs [40 Nm]  
Approx. 90 sq.ft.



GMX24-3	●	6	4.0 (2.0)	150	●	●													
GMX24-SR	●	6.5	4.5 (2.0)	150			●												
GMX24-PC	●	7	4.0 (1.5)	150				●											
GMX120-3	●	7	4.0 (2.0)	150	●	●													
GMX24-MFT†	●	7	4.0 (1.5)	75-300 (150)			●		●	●	●	●	●	●	●	●	●	●	●

**AMX Series**  
180 in-lbs [20 Nm]  
Approx. 45 sq.ft.



AMX24-3	●	5.5	2.5 (0.5)	95	●	●													
AMX24-3-T	●	5.5	2.5 (0.5)	95	●	●													
AMX24-SR	●	5	2.5 (0.4)	95			●												
AMX24-SR-T	●	5	2.5 (0.4)	95			●												
AMX24-PC	●	5.5	3.5 (1.3)	90				●											
AMX120-3	●	7	3.0 (0.6)	95	●	●													
AMX120-SR	●	7.5	4.0 (1.0)	95			●												
AMX24-MFT	●	6	3.5 (1.3)	90-300 (150)			●		●	●	●	●	●	●	●	●	●	●	●
AMCX24-MFT	●	6	3.5 (1.3)	35-120 (35)			●		●	●	●	●	●	●	●	●	●	●	●
AMX24-MFT95	●	6	3.5 (1.3)	75-150 (150)				●											

**AMQ Series**  
140 in-lbs [16 Nm]

AMQX24-MFT	●	26	15 (1.5)	7-15 (7)					●	●									
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**NMX Series**  
90 in-lbs [10 Nm]  
Approx. 22 sq.ft.




NMX24-3	●	4	2.0 (0.2)	95	●	●													
NMX24-3-T	●	4	2.0 (0.2)	95	●	●													
NMX24-SR	●	5	2.5 (0.4)	95			●												
NMX24-SR-T	●	5	2.5 (0.4)	95			●												
NMX120-3	●	5.5	2.5 (0.6)	150	●	●													
NMX120-SR	●	6.5	3.5 (1.0)	150			●												
NMX24-MFT	●	6	3.5 (1.3)	45-150 (150)			●		●	●	●	●	●	●	●	●	●	●	●
NMX24-MFT95	●	6	3.5 (1.3)	45-150 (150)				●											
NMCX24-MFT	●	5	3.0 (0.6)	20-75 (20)			●												

**NMQ Series**  
70 in-lbs [8 Nm]

NMQX24-MFT	●	23	13 (1.5)	4-20 (4)					●	●									
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**LMX Series**  
45 in-lbs [5 Nm]  
Approx. 11 sq.ft.




LMX24-3	●	2	1.5 (0.2)	95	●	●													
LMX24-3-T	●	2	1.5 (0.2)	95	●	●													
LMX24-SR	●	3	1.5 (0.4)	95			●												
LMX24-SR-T	●	3	1.5 (0.4)	95			●												
LMX120-3	●	4	2.0 (0.5)	150	●	●													
LMX120-SR	●	4.5	2.5 (1.0)	150			●												
LMX24-MFT	●	5	2.5 (1.2)	35-200 (150)			●		●	●	●	●	●	●	●	●	●	●	●
LMX24-MFT95	●	5	2.5 (1.2)	35-150 (150)				●											

**LMQ Series**  
35 in-lbs [4 Nm]

LMQX24-MFT	●	23	13 (1.5)	2.5-10 (2.5)			●		●	●									
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**AHX Series**  
101 lbf [450 N Force]  
4", 8", or 12" stroke




AHX24-3*	●	4.5	2.0 (0.5)	150*	●	●													
AHX24-SR*	●	4.5	2.5 (0.5)	150*			●												
AHX24-MFT*	●	6	3.5 (1.3)	150*			●		●	●	●	●	●	●	●	●	●	●	●

**AHQ Series**  
44 lbf [200 N Force]

AHQX24-MFT-100	●	23	13 (1.5)	7-20 (7)*			●		●	●									
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**LHX Series**  
34 lbf [150 N Force]  
4", 8", or 12" stroke




LHX24-3*	●	3	1.5 (0.5)	150*	●	●													
LHX24-SR*	●	3	1.5 (0.5)	150*			●												
LHX24-MFT*	●	5	2.5 (1.2)	75-150 (150)*			●		●	●	●	●	●	●	●	●	●	●	●

**LHQ Series**  
22 lbf [100 N Force]

LHQX24-MFT-100	●	23	13 (1.5)	3.5-15 (3.5)*			●		●	●									
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**LUX Series**  
27 in-lbs [3 Nm]



LUX24-3	●	2.5	1.0 (0.5)	150	●	●													
LUX24-SR	●	3	1.5 (0.5)	150			●												
LUX24-MFT	●	5	2.5 (1.2)	75-150 (150)			●		●	●	●	●	●	●	●	●	●	●	●

\* The LH and AH linear series actuators come in three different stroke lengths [4, 8, or 12 in]. The part number is followed by -100, -200, -300 respectively. The default running time is 150 seconds per 4 inches [100 mm]. Running time is adjustable depending on model: LH Series: 70-270, 140-540, 200-810, on the -100, -200, -300 models respectively. AH Series: 150-600, 300-1200, 450-1800, on the -100, -200, -300 models respectively. LHQ and AHQ available in 4 inch version only.

† Dual mounting on a single shaft is possible for higher 720 in-lbs (-MFT wired Master-Slave). Please call Belimo customer service for details.

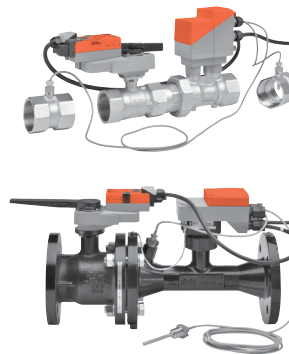
\*Heater option for NEMA 4/NEMA 4X has a list price adder. See 2015 Product Guide and Price List.

# Control Valve Product Range

## Energy Valve Product Range

	GPM Range	Valve Nominal Size		Type	Suitable Actuators	
		Inches	DN [mm]	2-way	Non-Spring Return	Electronic Fail-Safe
NPT	1.65 - 5.5*	½	15	EV050S-055	LRB(X)24-EV	AKRB(X)24-EV
	3.1 - 10.3*	¾	20	EV075S-103		
	5.5 - 18.2*	1	25	EV100S-182		
	8.6 - 28.5*	1¼	32	EV125S-285	NRB(X)24-EV	
	11.9 - 39.6*	1½	40	EV150S-396		
	22.8 - 76.1*	2	50	EV200S-761	ARB(X)24-EV	
	30-100*	2	50	EV200S-1000		
38 - 127*	2½	65	EV250S-127			
Flanged	54 - 180*	3	80	EV300S-180	ARB(X)24-EV	AKRB(X)24-EV
	95 - 317*	4	100	EV400S-317		
	149 - 495*	5	125	EV500S-495	GRB(X)24-EV	
	214 - 713*	6	150	EV600S-713		

\*V'nom = Maximum flow for each valve body size.



Equal Percentage Characteristic

### Mode of Operation

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

### Product Features

**Measures Energy:** using its built-in electronic flow sensor and supply and return temperature sensors.

**Controls Power:** with its Power Control logic, providing linear heat transfer regardless of temperature and pressure variations.

**Manages Delta T:** by solving Low Delta T Syndrome. In addition, it reduces pumping costs while increasing chiller/boiler efficiency by optimizing coil efficiency.

### Actuator Specifications

Control type	proportional
Manual override	external push button
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

### Valve Specifications

Service	chilled or hot water, 60% glycol (open loop and steam not allowed)
Flow characteristic	equal percentage/linear
Controllable flow range	75°
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 5", 6"
End fitting	NPT female ends (½"- 2") pattern to mate with ANSI 125 flange (2½"- 6")

### Materials

Body	
Valve	forged brass, nickel plated (½"- 2") cast iron - GG25 (2½"- 6")
Sensor housing	forged brass, nickel plated (½"- 2") ductile iron - GGG50 (2½"- 6")
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
Characterizing disc	Tefzel® (½"- 2") stainless steel (2½"- 6")
Stem o-rings	EPDM (lubricated)

Media temp range 14°F to 250°F [-10°C to +120°C],  
39°F to 250°F [4°C to 120°C]\*\*

Body pressure rating 250 psi (½"- 2"), ANSI 125, Class B (2½"- 6")

Close-off pressure 200 psi (½"- 2"), 100 psi (2½"- 6")

Differential pressure range (ΔP) 1 to 50 psi\*  
5 to 50 psi  
8 to 50 psi\*\*

Leakage 0%

Inlet length to meet specified measurement accuracy 5x nominal pipe size (NPS)

Conductivity min. 20uS/cm (Applies to sizes 2½" [DN65] to 6" [DN150] only.)

Remote temperature sensor length  
½"- 2" 2 ft. 7.5 in. [0.8 m] short, 9.8 ft. [3 m] long  
2½"- 6" 32.8 ft. [10 m]

\*See flow reduction table in technical documentation.

\*\*Applies to 2" EV models EV200S-1000 only.

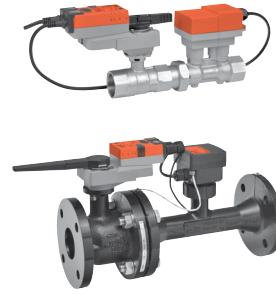
# Control Valve Product Range

## Electronic Pressure Independent Control Valve (ePIV) Product Range

	GPM Range	Valve Nominal Size		Type	Suitable Actuators	
		Inches	DN [mm]	2-way	Non-Spring Return	Electronic Fail-Safe
NPT	1.65 - 5.5*	½	15	P2050S	LRX24-EP	AKRX24-EP
	6 - 10.3*	¾	20	P2075S		
	11.1 - 18.2*	1	25	P2100S		
	18 - 28.5*	1¼	32	P2125S	NRX24-EP	
	26.1 - 39.6*	1½	40	P2150S	ARX24-EP	
	32.7 - 76.1*	2	50	P2200S		
	80-100**	2	50	P2200S		
Flanged	80 - 127*	2½	65	P6250S	ARX24-PI	AKRX24-PI
	133 - 180*	3	80	P6300S	GRX24-PI	GKRX24-PI
	195 - 317*	4	100	P6400S		
	335 - 495*	5	125	P6500S		
	515 - 713*	6	150	P6600S		

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

\*\* Applies to 2" ePIV models P2200S-800 through P2200S-1000 only.



Equal Percentage Characteristic

### Mode of Operation

The Electronic Pressure Independent Control Valve (ePIV) is a two-way valve which is unaffected by pressure variations in a system.

### Product Features

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

### Actuator Specifications

Control type	proportional
Manual override	external push button
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

### Valve Specifications

Service	chilled or hot water, 60% glycol (open loop and steam not allowed)
Flow characteristic*	equal percentage/linear
Controllable flow range	75°
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 5", 6"
End fitting	NPT female ends (½"-2") pattern to mate with ANSI 125 flange (2½"-6")

### Materials

Body	cast iron-GG25 (2½"-6")
Valve	brass, nickel plated (½"-2") forged brass, nickel plated (½"-2") ductile iron- GGG50 (2½"-6")
Sensor housing	stainless steel
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
Characterizing disc	Tefzel® (½"- 2") stainless steel (2½"-6")
Stem o-rings	EPDM (lubricated)
Media temp range	14°F to 250°F [-10°C to +120°C], 39°F to 250°F [4°C to 120°C]**
Body pressure rating	250 psi (½" to 2") ANSI 125, Class B (2½"-6")
Close-off pressure	200 psi (½"- 2") 100 psi (2½"-6")
Differential pressure range (ΔP)	1 to 50 psi (Refer to page 7-6) 5 to 50 psi 8 to 50 psi**
Leakage	0%
Flow sensor technology	ultrasonic (½"- 2") magnetic (2½"-6")
Inlet length to meet specified measurement accuracy	5x nominal pipe size (NPS)
Conductivity	min. 20uS/cm

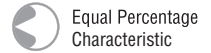
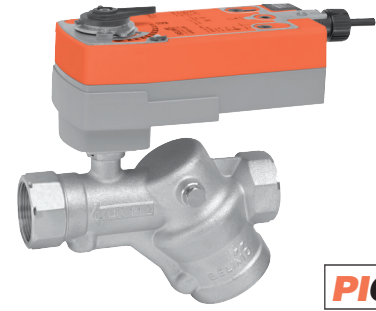
\*The flow characteristic can be changed by using the Belimo PC-Tool software.

\*\*Applies to 2" ePIV models P2200S-800 through P2200S-1000 only.

# Control Valve Product Range

## Factory Set Pressure Independent Characterized Control Valve Product Range

	GPM**	Valve Nominal Size		Type	Suitable Actuators		
		Inches	DN [mm]	2-way NPT	Non-Spring Return	Spring Return	
Models with (-P) have integral PT Ports Forged Body	0.5	½	15	P2050B005 (-P)	LRB24-3 LRX24-MFT LRX120-3 LRCB24-3 (Heat Pump Only) TFRX24-MFT LF24-MFT US		
	1	½	15	P2050B010 (-P)			
	1.5	½	15	P2050B015 (-P)			
	2	½	15	P2050B020 (-P)			
	2.5	½	15	P2050B025 (-P)			
	3	½	15	P2050B030 (-P)			
	3.5	½	15	P2050B035 (-P)			
	4	½	15	P2050B040 (-P)			
	4.5	½	15	P2050B045 (-P)			
	5	½	15	P2050B050 (-P)			
	5.5	½	15	P2050B055 (-P)			
	6	¾	20	P2075B060 (-P)			
	6.5	¾	20	P2075B065 (-P)			
	7	¾	20	P2075B070 (-P)			
	7.5	¾	20	P2075B075 (-P)			
	8	¾	20	P2075B080 (-P)			
	8.5	¾	20	P2075B085 (-P)			
	9	¾	20	P2075B090 (-P)			
	9.5	¾	20	P2075B095 (-P)			
10	¾	20	P2075B100 (-P)				
11	1	25	PICCV-25-011 (-P)				
12	1	25	PICCV-25-012 (-P)				
13	1	25	PICCV-25-013 (-P)				
14	1	25	PICCV-25-014 (-P)				
15	1	25	PICCV-25-015 (-P)				
16	1	25	PICCV-25-016 (-P)				
17	1	25	PICCV-25-017 (-P)				
18	1	25	PICCV-25-018 (-P)				
19	1	25	PICCV-25-019 (-P)				
Models with (-P) have External PT Ports Cast Body	18	1¼	32	PICCV-32-018 (-P)			
	19	1¼	32	PICCV-32-019 (-P)			
	20	1¼	32	PICCV-32-020 (-P)			
	21	1¼	32	PICCV-32-021 (-P)			
	22	1¼	32	PICCV-32-022 (-P)			
	23	1¼	32	PICCV-32-023 (-P)			
	24	1¼	32	PICCV-32-024 (-P)			
	25	1¼	32	PICCV-32-025 (-P)			
	26	1¼	32	PICCV-32-026 (-P)			
	26	1½	40	PICCV-40-026 (-P)			
	27	1½	40	PICCV-40-027 (-P)			
	28	1½	40	PICCV-40-028 (-P)			
	29	1½	40	PICCV-40-029 (-P)			
	30	1½	40	PICCV-40-030 (-P)			
	31	1½	40	PICCV-40-031 (-P)			
	32	1½	40	PICCV-40-032 (-P)			
	33	1½	40	PICCV-40-033 (-P)			
	33	2	50	PICCV-50-033 (-P)			
	34	2	50	PICCV-50-034 (-P)			
	35	2	50	PICCV-50-035 (-P)			
	36	2	50	PICCV-50-036 (-P)			
	37	2	50	PICCV-50-037 (-P)			
	38	2	50	PICCV-50-038 (-P)			
	39	2	50	PICCV-50-039 (-P)			
	40	2	50	PICCV-50-040 (-P)			
	44	2	50	PICCV-50-044 (-P)			
	48	2	50	PICCV-50-048 (-P)			
	52	2	50	PICCV-50-052 (-P)			
	56	2	50	PICCV-50-056 (-P)			
	60	2	50	PICCV-50-060 (-P)			
	65	2	50	PICCV-50-065 (-P)			
70	2	50	PICCV-50-070 (-P)				
75	2	50	PICCV-50-075 (-P)				
80	2	50	PICCV-50-080 (-P)				
90	2	50	PICCV-50-090 (-P)				
100	2	50	PICCV-50-100 (-P)				



### Mode of Operation

The Pressure Independent Characterized Control Valve (PICCV) 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

Constant flow regardless of pressure variations in the system at set degrees of ball opening. Maximizes chiller, preventing energizing additional chillers due to low ΔT. Simplified valve sizing and selection, no C<sub>v</sub> calculations required.

(-P) ΔP verification across valve using PT ports.

### Actuator Specifications

Control type	-3 on/off, floating point -MFT proportional, 2-10 VDC (configurable)
Manual override	LRB, LRX, ARX- external push button AFRX- 5 mm hex crank (3/16" Allen), supplied
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting (additional cable lengths are available)

### Valve Specifications

Service	chilled or hot water, 60% glycol max
Flow characteristic	equal percentage
Controllable flow range	75°
Sizes	½", ¾", 1", 1¼", 1½", 2"
End fitting	NPT female ends
Materials	
Body	brass, nickel plated
Ball	chrome plated brass
Stem	nickel plated brass
Seats	
½" and ¾"	Teflon® PTFE
1" to 2"	Teflon® PTFE
Seat o-rings	Viton®
Characterizing disc	
½" and ¾"	brass
1" to 2"	Tefzel®
Stem o-rings	EPDM (lubricated)
Diaphragm	
½" and ¾"	Nomex reinforced silicone
1" to 2"	polyester reinforced silicone
Regulator components	stainless steel/brass/Nitrile
Spring	stainless steel
Media temp. range	0°F to 212°F [-18°C to +100°C]
PT ports, optional	½" to ¾" integral 1" to 2" external
Body pressure rating	
600 psi	½", ¾", 1"
400 psi	1¼", 1½", 2"
Close-off pressure	200 psi
Differential pressure (ΔP) range	5 to 50 psi
Leakage	ANSI Class IV (0.01% of rated valve capacity at 50 psi differential)

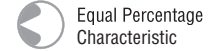
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# Control Valve Product Range

## Field Set Pressure Independent Characterized Control Valve Product Range

Valve is supplied at maximum flow in the full open position only.  
Field adjustment is necessary to achieve lower flow.

GPM Range	Valve Nominal Size		Type	Suitable Actuators	
	Inches	DN [mm]	2-way NPT	Non-Spring Return	
0...(0.5-1.5)	½	15	P2050B010	KRB24-3	LRB24-SA
0...(1.6-3.0)	½	15	P2050B025		
0...(3.0-5.6)	½	15	P2050B055		
0...(5.7-10)	¾	20	P2075B100		
0...(11-16)	1	25	PICCV-25-016		
0...(17-21)	1	25	PICCV-25-021		



### ΔP verification across valve using PT ports (-P)

GPM Range	Valve Nominal Size		Type	Suitable Actuators	
	Inches	DN [mm]	2-way NPT	Non-Spring Return	
0...(0.5-1.5)	½	15	P2050B010-P	KRB24-3	LRB24-SA
0...(1.6-3.0)	½	15	P2050B025-P		
0...(3.0-5.6)	½	15	P2050B055-P		
0...(5.7-10)	¾	20	P2075B100-P		
0...(11-16)	1	25	PICCV-25-016-P		
0...(17-21)	1	25	PICCV-25-021-P		

### Flow verification using ΔP across orifice (-F)

GPM Range	Valve Nominal Size		Type	Suitable Actuators	
	Inches	DN [mm]	2-way NPT	Non-Spring Return	
0...(0.5-1.5)	½	15	P2050B010-F	KRB24-3	LRB24-SA
0...(1.6-3.0)	½	15	P2050B025-F		
0...(3.0-5.6)	½	15	P2050B055-F		
0...(5.7-10)	¾	20	P2075B100-F		
0...(11-16)	1	25	PICCV-25-016-F		
0...(17-21)	1	25	PICCV-25-021-F		

### Mode of Operation

The Pressure Independent Characterized Control Valve (PICCV) 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

Once field set the valve will provide constant flow regardless of pressure variations in the system at set degrees of ball opening. Maximizes chiller, preventing energizing additional chillers due to low ΔT. Simplified valve sizing and selection, no C<sub>v</sub> calculations required.

(-P) ΔP verification across valve using PT ports.

(-F) Flow verification using ΔP across flow orifice.

**Valve is supplied at maximum flow in the full open position only.  
Field adjustment is necessary to achieve lower flow.**

### Actuator Specifications

Control type	on/off, floating point, proportional
Manual override	KRB- engage with magnet, LRB...-SA- external push button
Electrical connection	3 ft. [1 m] cable (no conduit on KR) ½" conduit fitting on LR only

### Valve Specifications

Service	chilled or hot water, 60% glycol max
Flow characteristic	equal percentage
Controllable flow range	75°
Sizes	½", ¾", 1"
End fitting	NPT female ends
<b>Materials</b>	
Body	brass, nickel plated
Ball	chrome plated brass
Stem	nickel plated brass
<b>Seats</b>	
½" and ¾"	Teflon® PTFE
1"	PTFE / ETFE
Seat o-rings	Viton®
<b>Characterizing disc</b>	
½" and ¾"	brass
1"	Tefzel®
Stem o-rings	EPDM (lubricated)
Diaphragm	
½" and ¾"	Nomex reinforced silicone
1"	polyester reinforced silicone
Regulator components	stainless steel/brass/Nitrile
Spring	stainless steel
Media temp. range	0°F to 212°F [-18°C to +100°C]
KR valve assembly	0°F to 176°F [-18°C to +80°C]
Body pressure rating	600 psi
Close-off pressure	200 psi
Differential pressure	5 to 50 psi
(ΔP) range	
Leakage	ANSI Class IV (0.01% of rated valve capacity at 50 psi differential)

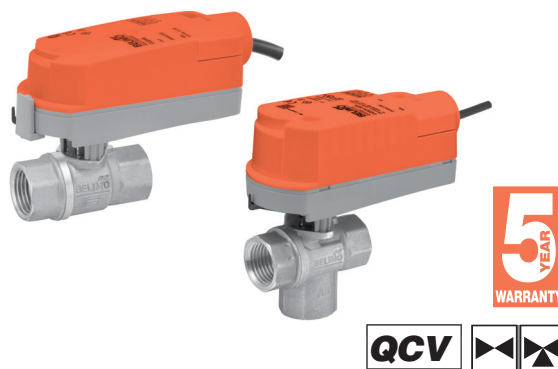
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# Control Valve Product Range

## ZoneTight Zone Valve (QCV) Product Range

C <sub>v</sub>	Valve Nominal Size		Type		Suitable Actuators	
	Inches	DN [mm]	2-way NPT	3-way NPT	Non-Spring Return	Fail-Safe
5.9*	½	15	Z2050Q-J		CQ Series	CQK Series
9.8*	¾	20	Z2075Q-K			
1	½	15		Z3050Q-E		
2.7	½	15		Z3050Q-H		
4.6	¾	20		Z3075Q-J		

\*Maximum flow. Adjustable 0 to max value.



### 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 proportional signal, or 3-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 design of the ball. This characteristic provides linear heating or cooling output from the coil improving energy efficiency and comfort.

### Actuator Specifications

Control type	
-3	on/off, floating point
-SR	proportional, 2-10 VDC
On/Off	24V
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
Power supply	24V (110-230 VAC, UP series)
Transformer sizing	
CQ..	0.6 VA
CQK..	5 VA
CQ..UP	2 VA

### Valve Specifications

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

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\* 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.

# Control Valve Product Range

## ZoneTight Pressure Independent Zone Valve (PIQCV) Product Range

GPM	Valve Nominal Size		Type		Suitable Actuators	
	Inches	DN [mm]	2-way NPT	2-way NPT with PT ports	Non-Spring Return	Fail-Safe
0.9*	½	15		Z2050QPT-B	CQ Series	CQK Series
1.9*	½	15		Z2050QPT-D		
4*	½	15		Z2050QPT-F		

\*Maximum flow. Adjustable 0 to max value.



### 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

Constant flow regardless of pressure variations in the system at set degrees of ball opening. Maximizes chiller ΔT, preventing energizing additional chillers due to low ΔT. Simplified valve sizing and selection, no  $C_v$  calculations required.

### Actuator Specifications

Control type	-3 on/off, floating point -SR proportional, 2-10 VDC On/Off 24V
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
Power supply	24V (110-230 VAC, UP series)
Transformer sizing	CQ.. 0.6 VA CQK.. 5 VA CQ..UP 2 VA

### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	equal percentage
Controllable flow range	75°
Sizes	½"
End fitting	NPT female ends
Materials	Body forged brass Ball stainless steel Stem stainless steel Seats Teflon® PTFE O-rings PTFE Spring stainless steel
Media temp. range*	36°F to 212°F [2°C to 100°C]
Media temp. limit	250°F [120°C]
Maximum allowable operating temperature	212°F [100°C]
PT ports	optional
Body pressure rating	360 psi
Close-off pressure	100 psi
Differential pressure (ΔP) range	5 to 50 psi
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.

# Control Valve Product Range

## 6-Way Characterized Control Valve Product Range



Linear Characteristic

### Mode of Operation

The control valve is operated by an electronic actuator that responds to a proportional VDC/4...20 mA control signal. The actuator will then move the ball of the valve to the position dictated by the control signal and change the flow.

### Product Features

Linear characteristic, complete close-off.

### Actuator Specifications

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

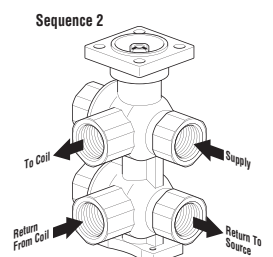
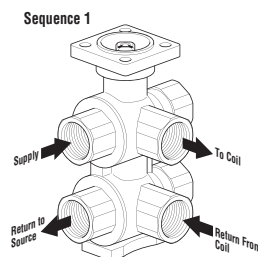
### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Controllable flow range	
Sequence 1	(0 to 30° angle) <sup>1</sup> Dead zone 30° to 60°
Sequence 2	(60° to 90° angle) <sup>2</sup>
Sizes	½" - ¾"
End fitting	NPT
Materials	
Body	nickel plated brass
Ball	chrome plated brass
Stem	nickel plated brass
Seats	Teflon® PTFE
Seat o-rings	EPDM
Characterizing disc	chrome plated steel
O-rings	EPDM
Media temperature range	43°F to 180°F [6°C to 82°C]
Body pressure rating	232 psi [1600kPa]
Close-off pressure	50 psi
Maximum differential pressure (ΔP)	15 psi
Leakage	0%

Sequence 1 C <sub>V</sub>	Sequence 2 C <sub>V</sub>	Valve Nominal Size		Type	Suitable Actuators
		Inches	DN [mm]	6-way NPT	Non-Spring Return
0.29	0.29	½	15	B315-029-029	LRB24-SR
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	
0.73	0.73	¾	20	B320-073-073	
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	

LRB24-SR

LRX24-MFT



# Control Valve Product Range

## Characterized Control Valve Product Range

C <sub>v</sub>	Valve Nominal Size		Type		Suitable Actuators			
	Inches	DN [mm]	2-way NPT	3-way NPT	Non-Spring Return	Spring Return	NEMA 4	NEMA 4X
0.3	½	15	B207(B)	B307(B)	TR Series	TFR Series		
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)	LR Series	LF Series	NR Series	
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		AR Series	AFR Series	AFR Series	
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	AR Series			
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 proportional signal, or 3-point control system which move the ball of the valve to the position dictated by the control system.

### Product Features

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

### Actuator Specifications

Control type	on/off, floating point, 2-10 VDC, multi-function technology (MFT)
Manual override	TR, LR, AR, NR- external push button AFR- 5 mm hex crank (3/16" Allen), supplied
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

### Valve Specifications

Service	chilled or hot water, up to 60% glycol
Flow characteristic	A-port equal percentage B-port modified for constant common port flow
Controllable flow range	75°
Sizes	½" - 2"
End fitting	NPT female ends
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" - 1 ½" (2-way)	Tefzel®
½"-1" (3-way)	Tefzel®
2" (2-way) B248-B249	Tefzel®
2" (2-way) B251-B253	stainless steel
1¼"- 2" (3-way)	stainless steel
Stem o-rings	EPDM (lubricated)
Media temp. range	0°F to 250°F [-18°C to +120°C]
Body pressure rating	
2-way	
½", ¾", and 1"	600 psi
1¼" up to B230	600 psi
1¼" from B231	400 psi
1½" - 2"	400 psi
3-way	
½", ¾", and 1"	600 psi
1¼"- 2"	400 psi
Close-off pressure	200 psi
Maximum differential pressure (ΔP)	50 psi
Leakage	0% for A to AB < 2.0% for B to AB
Cv rating	B port: 70% of A to AB C <sub>v</sub>

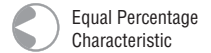
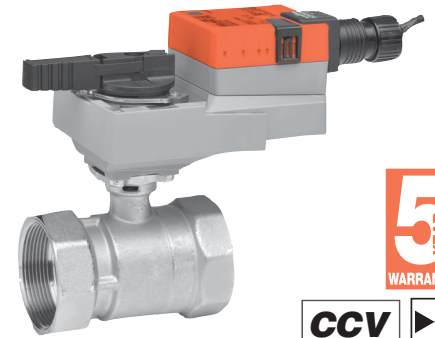
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# Control Valve Product Range

## Characterized Control Valve Product Range

C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators		
	Inches	DN [mm]		Non-Spring Return	Spring Return	NEMA 4X
60	2½	65	B261	AR Series	AFR Series	AR Series
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 proportional signal, or 3-point control system which move the ball of the valve to the position dictated by the control system.

### Product Features

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

### Actuator Specifications

Control type	on/off, floating point, 2-10 VDC, multi-function technology (MFT)
Manual override	AR- external push button AFR- 5 mm hex crank (3/16" Allen), supplied
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

### Valve Specifications

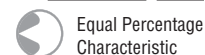
Service	chilled or hot water, up to 60% glycol
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	2½" - 3"
End fitting	NPT female ends
Materials	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
Seat o-rings	EPDM
Characterizing disc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

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# Control Valve Product Range

## Characterized Control Valve Product Range

C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators				
	Inches	DN [mm]	2-way Flanged	Non-Spring Return	Spring Return	Electronic Fail-Safe	NEMA 4	
70	2½	65	B6250S-070	AR Series	AFR Series		AR Series	AFR Series
110	2½	65	B6250S-110					
110	3	80	B6300S-110					
186	4	100	B6400S-186					
290	5	125	B6500S-290	GR Series		GKR Series	GR Series	GKR Series
400	6	150	B6600S-400					



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 proportional signal, or 3-point control system which move the ball of the valve to the position dictated by the control system.

### Product Features

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

### Actuator Specifications

Control type	on/off, floating point, 2-10 VDC, multi-function technology (MFT)
Manual override	AR, GR, GKR- external push button AFR- 5 mm hex crank (3/16" Allen), supplied
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

### Valve Specifications

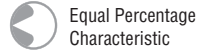
Service	chilled or hot water, up to 60% glycol max.
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	2½", 3", 4", 5", 6"
End fitting	ANSI Class 125 flange
<b>Materials</b>	
Body	cast iron GG25
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
Seat o-rings	EPDM rubber
Characterizing disc	stainless steel
O-rings	EPDM (lubricated)
Media temp. range	0°F to 250°F [-18°C to +120°C]
Body pressure rating	ANSI 125, Class B
	°F                      Psi
	-20° to +150°      200
	200°                    180
	225°                    180
	250°                    175
Close-off pressure	100 psi
Maximum differential pressure (ΔP)	50 psi
Leakage	0% for A to AB

# Control Valve Product Range

## High Temperature Characterized Control Valve Product Range

C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators	
	Inches	DN [mm]		Non-Spring Return	Spring Return
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	LR Series	LF Series
4.55	½	15	B215HT455*		
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		

\* modified equal percentage.



### Mode of Operation

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, by a proportional VDC/4...20 mA, or 3-point control system. The actuator will then move the ball of the valve to the position dictated by the control signal and change the flow.

### Product Features

Equal-percentage characteristic of the flow. B215HT455 model has modified equal percentage characteristic.

### Actuator Specifications

Control type	on/off, floating point, 2-10 VDC multi-function technology (MFT)
Manual override	LR, TR- external push button
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting (except TR)

### Valve Specifications

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

# Control Valve Product Range

## Ball Valve Product Range

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

\* For single temperature applications only

\*\* 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.



### Mode of Operation

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, by a proportional VDC/4...20 mA, or 3-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

B2 ball valves are for steam applications.  
B3...L valves are for diverting applications and are not rated for steam.

### Actuator Specifications

Control type	on/off, floating point, proportional, 2-10 VDC multi-function technology (MFT)
Manual override	LM, NM, AM, GM, GK- external push button SY- 8 mm wrench or hand wheel AF, NF- 5 mm hex crank (3/16" Allen), supplied
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting (excluding SY)

### Valve Specifications

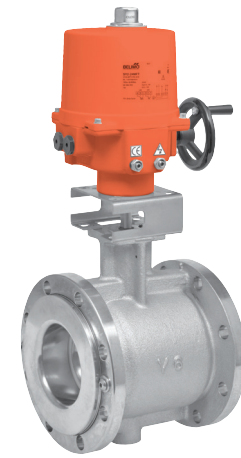
Service	chilled or hot water, (60% glycol), steam
Flow characteristic	modified equal percentage (B2), modified linear (B3...L)
Sizes	½" to 2"
End fitting	NPT
Materials	
Body	bronze (B2..VS) stainless steel (B2..VSS) nickel plated brass (B3..L)
Ball	stainless steel, bronze (B2050VSS-15)
Stem	chrome plated brass (B3..L) stainless steel nickel plated brass (B3..L)
Seats	
2-way	RPTFE
3-way	Teflon PTFE
Packing	
2-way NPT	RPTFE
O-rings	NPT EPDM (B3..L)
Media temp range	
B2..VS	-22°F to +280°F [-30°C to +138°C]
B2..VSS	-22°F to +298°F [-30°C to +148°C]
B3...L	0°F to 250°F [-18°C to +120°C]
Body pressure rating	
VS/VSS	See individual specifications in Product Guide and Price List
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
Water	50 psi B3..L
Leakage	ANSI Class VI (B2..VS) watertight (B3..L)

# Control Valve Product Range

## V Ball Valve Product Range

C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators				
	Inches	DN [mm]		2-way NPT	2-way Flanged	Non-Spring Return	Spring Return	Electronic Fail-Safe
024	1	25	B2100VB-024					
055	1½	40	B2150VB-055					
077	2	50	B2200VB-077					
207	3	80		B6300VB-207				
350	4	100		B6400VB-350				
507	6	150		B6600VB-507				

**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.



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, by a proportional VDC/4...20 mA, or 3-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, proportional, 2-10 VDC multi-function technology (MFT)
Manual override	AM, GM, GK- external push button SY- 8 mm wrench or hand wheel AF, NF- 5 mm hex crank (3/16" Allen), supplied
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting, terminal block

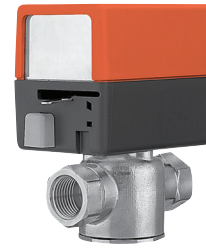
### Valve Specifications

Service	chilled or hot water, (60% glycol), steam
Flow characteristic	equal percentage
Sizes	1", 1½", 2", 3", 4", 6"
End fitting	SAE NPT female (1" to 2") ANSI flanged (3" to 6")
Materials	
Body	carbon steel
Characterizing ball	hardened chrome plated stainless steel
Stem	stainless steel
Seats	Teflon®
O-rings	ALFAS
Packing	spring loaded Teflon® V-ring
Bushings	PEEK
Media temp. range	380°F max.
Body pressure rating	NPT ANSI 300 (1" to 2") Flanged ANSI 150 (3" to 6")
Maximum ΔP steam	100 psi
Maximum ΔP water	150 psi
Close-off pressure	
Water	150 psi
Steam	200 psi
Maximum inlet pressure	
Steam	200 psi
Leakage	ANSI Class IV

# Control Valve Product Range

## Zone Valve Product Range

C <sub>v</sub>	Valve Nominal Size		Type		Suitable Actuators			
	Inches	DN [mm]	2-way NPT	2-way Sweat	Normally Closed		Normally Open	
1	½	15	ZONE215N-10	ZONE215S-10	Zone	Zone (with Switch)	Zone	Zone (with Switch)
2.5	½	15	ZONE215N-25	ZONE215S-25				
3.5	½	15	ZONE215N-35	ZONE215S-35	Zone	Zone (with Switch)	Zone	Zone (with Switch)
3.5	¾	20	ZONE220N-35	ZONE220S-35				
5	¾	20	ZONE220N-50	ZONE220S-50	Zone	Zone (with Switch)	Zone	Zone (with Switch)
8	1	25	ZONE225N-80	ZONE225S-80				



C <sub>v</sub>	Valve Nominal Size		Type		Suitable Actuators	
	Inches	DN [mm]	3-way NPT	3-way Sweat	Normally Closed	
1	½	15	ZONE315N-10	ZONE315S-10	Zone	Zone (with Switch)
2.5	½	15	ZONE315N-25	ZONE315S-25		
3.5	½	15	ZONE315N-35	ZONE315S-35	Zone	Zone (with Switch)
3.5	¾	20	ZONE320N-35	ZONE320S-35		
5	¾	20	ZONE320N-50	ZONE320S-50	Zone	Zone (with Switch)
8	1	25	ZONE325N-80	ZONE325S-80		

### Mode of Operation

Zone valves provide a convenient way to create individual zones or equipment isolation in a hydronic system. Utilizing one pump along with multiple zone valves, flow can be started, stopped, or diverted through the system to provide individual room or area comfort control and energy savings.

### Product Features

Zone valve is designed to fit in compact areas where on/off control is required using 24 VAC or 120 VAC.

### Actuator Specifications

Control type	on/off
Manual override	NC- manual lever
Electrical connection	6" [15 cm] wire lead 120V; 18" [45 cm] wire lead 24V

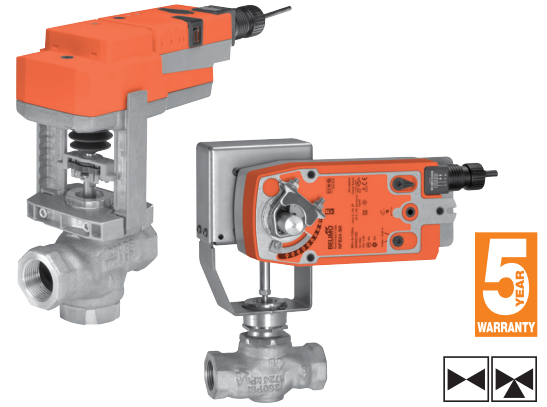
### Valve Specifications

Service	chilled or hot water, 50% glycol
Flow characteristic	
Two-way	on/off
Three-way	on/off, diverting
Sizes	½", ¾" and 1"
End fitting	NPT female ends or sweat
Materials	
Body	forged brass
Stem	stainless steel
Seals	EPDM
Media temp range	32°F to 212°F [0°C to 100°C]
Body pressure rating	300 psi
Close-off pressure	20-75 psi
Leakage	ANSI Class III 0.1%

# Control Valve Product Range

## Globe Valve Product Range

C <sub>v</sub>	Valve Nominal Size		Type		Suitable Actuators		
	Inches	DN [mm]	2-way NPT	3-way NPT	Non-Spring Return	Spring Return	Electronic Fail-Safe
0.4	½	15	G212	–	LV Series	LF Series	LVK Series
1.3	½	15	G213	–			
2.2	½	15	G214	–			
4.4	½	15	G215	–			
0.4	½	15	G212S	–			
1.3	½	15	G213S	–			
2.2	½	15	G214S	G314			
4.4	½	15	G215S	G315			
4.4	½	15	–	G315D			
5.5	¾	20	G219	–			
7.5	¾	20	G220	–			
5.5	¾	20	G219S	–			
7.5	¾	20	G220S	G320			
7.5	¾	20	–	G320D			
10	1	25	G224	–	SV Series	NF Series	SVK Series
14	1	25	G225	–			
10	1	25	G224S	–			
14	1	25	G225S	G325			
14	1	25	–	G325D			
20	1¼	32	G232	–			
20	1¼	32	G232S	G332			
20	1¼	32	–	G332D			
28	1½	40	G240	–			
28	1½	40	G240S	G340			
28	1½	40	–	G340D			
40	2	50	G250	–			
40	2	50	G250S	–			
41	2	50	–	G350			
40	2	50	–	G350D			



### Mode of Operation

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, by a proportional VDC/4...20 mA, 3-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 characteristic of flow for G2, linear characteristic for G3.

### Actuator Specifications

Control type	on/off, floating point, 2-10 VDC multi-function technology (MFT)
Manual override	SV, LV, SVK, LVK- 4 mm hex crank (shipped w/actuator) AF, NF- 5 mm hex crank (3/16" Allen), supplied
Electrical connection	3 ft [1 m] cable with ½" conduit fitting

### Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	G2 - equal percentage G2S, G3, G3D - linear
Sizes	½" - 2"
End fitting	NPT female ends
Materials	
Body	bronze
Stem	stainless steel
Plug	brass stainless steel: G2..S
Seat	bronze stainless steel: G2..S
Packing	spring loaded TFE
Disc / Seal	composition G2 Teflon® G2...S none G3, G3D
Media temp. range	refer to valve specification pages in this section
Body pressure rating	250 psi G2, G3..., ½"- 2"
Maximum inlet pressure	
Steam	35 psi (241 kPa) G2 100 psi (690 kPa) G2...S
Maximum differential pressure (ΔP)	
Water	35 psi (241 kPa)
Steam	20 psi (138 kPa) G2 35 psi (241 kPa) G2...S
Rangeability	5:1 (G212..) 15:1 (G213..) 25:1 (G214..) 40:1 (G215..) 50:1 (G219..) 60:1 (G220.., G224..) 75:1 (all others) 500:1 (G3..)

# Control Valve Product Range

## Globe Valve Product Range

C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators		
	Inches	DN [mm]		2-way Flanged	Non-Spring Return	Spring Return
65	2½	65	G665C	EV Series	AFX 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.



### Mode of Operation

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, a proportional VDC/4...20 mA, or 3-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 characteristic for G6. Linear characteristic for G6...LCS

### Actuator Specifications

Control type	on/off, floating point, 2-10 VDC multi-function technology (MFT)
Manual override	5 mm hex crank (3/16" Allen), supplied
Electrical connection	3 ft [1 m] cable with ½" conduit fitting

### Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	G6 A-port equal percentage G6LCS linear
Sizes	2½" - 6"
End fitting	flanged
Materials	
Body	cast iron
Stem	stainless steel
Plug	brass
Seat	bronze: G6 stainless steel: G6...S
Packing	
G6	bronze trimmed: NLP
G6S	stainless trimmed: NLP
Media temp. range	refer to valve specification pages in this section
Body pressure rating	
G6, 125# ANSI flange	125 psi
G6, 250# ANSI flange	250 psi
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
Maximum differential pressure (ΔP)	
Water	25 psi (172 kPa) G6C, G6C...250 50 psi (345 kPa) G6CS, G6CS...250
Steam	15 psi (103 kPa) G6C, G6C...250
Rangeability	85:1 (G665..), 91:1 (G680..) 98:1 (G6100..), 100:1 (G6125..) 98:1 (G6150..)

# Control Valve Product Range

## Globe Valve Product Range

C <sub>v</sub>	Valve Nominal Size		3-Way Flanged	Suitable Actuators		
	Inches	DN [mm]		Non-Spring Return	Spring Return	Electronic Fail-Safe
68	2½	65	G765	EV / RV Series	AFX Series	AVK Series
68	2½	65	G765S			
68	2½	65	G765-250			
68	2½	65	G765S-250			
91	3	80	G780			
91	3	80	G780S			
91	3	80	G780-250			
91	3	80	G780S-250			
190	4	100	G7100			
190	4	100	G7100S			
190	4	100	G7100-250			
190	4	100	G7100S-250			
280	5	125	G7125	RV Series		GK Series
280	5	125	G7125S			
280	5	125	G7125-250			
280	5	125	G7125S-250			
340	6	150	G7150			
340	6	150	G7150S			
340	6	150	G7150-250			
340	6	150	G7150S-250			
68	2½	65	G765D	EV Series	AFX 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, a proportional VDC/4...20 mA, or 3-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

Linear characteristic

### Actuator Specifications

Control type	on/off, floating point, 2-10 VDC multi-function technology (MFT)
Manual override	EV, RV, AVK, AFX- 5 mm hex crank (3/16" Allen), supplied GK- external push button
Electrical connection	3 ft [1 m] cable with ½" conduit fitting

### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Sizes	2½" - 6"
End fitting	flanged
Materials	
Body	cast iron
Stem	stainless steel
Plug	brass
Seat	
G7	bronze
G7...S	stainless steel
Packing	
G7	bronze trimmed: NLP
G7...S	stainless trimmed: NLP
Media temp. range	Refer to valve specification pages in this section
Body pressure rating	
G7, 125# ANSI flange	125 psi
G7, 250# ANSI flange	250 psi
Maximum inlet pressure	
Water	150 psi (1034 kPa) G7, G7S 250 psi (1724 kPa) G7...250, G7S...250
Maximum differential pressure (ΔP)	
Water	25 psi (172 kPa) G7, G7...250 50 psi (345 kPa) G7S, G7S...250
Rangeability	50:1

# Control Valve Product Range

## Butterfly Valve Product Range

		2-way		Suitable Actuators													
		Valve Nominal Size		Type	Non-Spring Return						Spring Return		Electronic Fail-Safe				
C <sub>v</sub> 90°	C <sub>v</sub> 60°	IN	DN [mm]	2-way	HDU	HD	HDU	HD	HDU	HD	HDU	HD	HDU	HD	HDU	HD	HD
115	44	2	50	F650													
196	75	2½	65	F665	AR Series	AR							AF Series	AF Series			
302	116	3	80	F680			GR Series	GR Series									GKR
600	230	4	100	F6100												DKR	
1022	392	5	125	F6125		DR											
1579	605	6	150	F6150					SY Series							DKR	
3136	1202	8	200	F6200													
5340	2047	10	250	F6250													
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													

		3-way		Suitable Actuators													
		Valve Nominal Size		Type	Non-Spring Return						Spring Return		Electronic Fail-Safe				
C <sub>v</sub> 90°	C <sub>v</sub> 60°	IN	DN [mm]	3-way	HDU	HD	HDU	HD	HDU	HD	HDU	HD	HDU	HD	HDU	HD	HD
115	44	2	50	F750	AM	AM											
196	75	2½	65	F765									AF Series	AF			
302	116	3	80	F780													GK
600	230	4	100	F7100			GM Series	GM Series									
1022	392	5	125	F7125													
1579	605	6	150	F7150					SY Series								
3136	1202	8	200	F7200													
5340	2047	10	250	F7250													
8250	3162	12	300	F7300													
11917	4568	14	350	F7350													
16388	6282	16	400	F7400													
21705	8320	18	450	F7450													



### Mode of Operation

Butterfly valves offer higher flows with relatively low pressure loss from the valve; typically used for isolation of flow control for valve openings between 30 to 70 degrees of full open. Valve openings greater than 70 degrees, the pressure loss of a butterfly valve is too low to produce any significant effect on flow or the energy loss of a flow system. Butterfly valves are controlled with a maintenance-free electronic actuator or with a manually 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, proportional, 2-10 VDC multi-function technology (MFT)
Manual override	AM, GM, AR, GR, GK, GKR- external push button DR, DKR- internal push button (UL Type 4) external push button (UL Type 2) AF- 5 mm hex crank (3/16" Allen), supplied SY- hand wheel
Electrical connection	3 ft. [1 m] cable terminal block

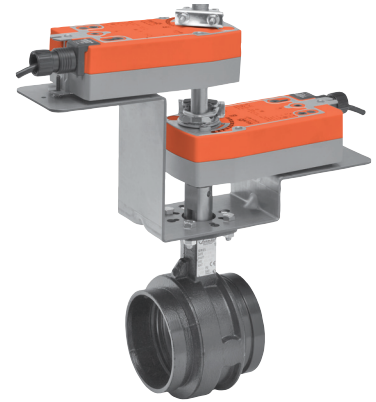
### Valve Specifications

Service	chilled, hot water, 60% glycol
Flow characteristic	F6 modified equal percentage F7 modified linear
Sizes	2" to 24"
End fitting	ASME/ANSI Class 125/150 flanges
Materials	Body ductile iron ASTM A536 Body finish epoxy powder coat Disc 304 stainless steel Shaft 416 stainless steel Seat EPDM standard O-rings EPDM Bushings RPTFE
Media temp. range	-22°F to +250°F [-30°C to +120°C]
Body pressure rating	consistent with ASME/ANSI Class 125
Close-off pressure	HDU: 50 psi HD: 200 psi, 2" to 12" 150 psi, 14" to 24"
Rangeability	10:1 (for 30° to 70° range)
Maximum velocity	12 FPS
Leakage	bubble tight shut-off

# Control Valve Product Range

## Butterfly Valve Product Range

C <sub>v</sub> 90°	C <sub>v</sub> 60°	2-way		Suitable Actuators					
		Valve Nominal Size		Type	Non-Spring Return		Spring Return	Electronic Fail-Safe	
		IN	DN [mm]	2-way					
115	36	2	50	F650VIC	AM Series				
260	80	2½	65	F665VIC		GM Series		AF Series	
440	140	3	80	F680VIC			DR Series		
820	250	4	100	F6100VIC					GK
1200	370	5	125	F6125VIC					
1800	560	6	150	F6150VIC					
3400	1050	8	200	F6200VIC					
5800	1800	10	250	F6250VIC					
9000	2790	12	300	F6300VIC					



### 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 working 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, proportional, 2-10 VDC multi-function technology (MFT)
Manual override	AM, GM, DR, GK- external push button AF- 5 mm hex crank (3/16" Allen), supplied SY- 8 mm wrench or hand wheel
Electrical connection	3 ft. [1 m] cable terminal block

### Valve Specifications

Service	chilled, hot water, 60% glycol
Flow characteristic	F6 modified equal percentage F7 modified linear
Sizes	2" to 12"
End fitting	grooved ANSI/AWWA (C606)
Materials*	
Body	ductile iron ASTM A536, grade 65-45-12
Body finish	black alkyd enamel
Disc	electrolysis nickel coated ductile iron
Shaft	416 stainless steel
Seat	EPDM
Bearings	fiberglass with TFE lining
Media temp. range	-20°F to +250°F [-30°C to +120°C]
Body pressure rating	300 psi
Close-off pressure	200 psi
Rangeability	100:1 (for 30° to 70° range)
Maximum velocity	20 FPS
Leakage	bubble tight shut-off

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C <sub>v</sub> 90°	C <sub>v</sub> 60°	3-way		Suitable Actuators				
		Valve Nominal Size		Type	Non-Spring Return		Spring Return	
		IN	DN [mm]	3-way				
115	36	2	50	F750VIC	AM			AF
260	80	2½	65	F765VIC		GM Series		
440	140	3	80	F780VIC			DR Series	
820	250	4	100	F7100VIC				
1200	370	5	125	F7125VIC				
1800	560	6	150	F7150VIC				
3400	1050	8	200	F7200VIC				
5800	1800	10	250	F7250VIC				
9000	2790	12	300	F7300VIC				

# Control Valve Product Range

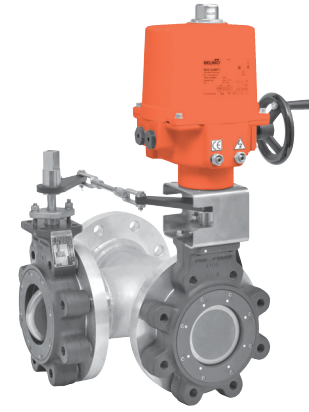
## Butterfly Valve Product Range

		2-way Valves			Suitable Actuators							
		Valve Nominal Size	Type		Non-Spring Return				Spring Return		Electronic Fail-Safe	
C <sub>V</sub> 90°	C <sub>V</sub> 60°	Inches	ANSI 150 2-way	ANSI 300 2-way	150	300	150	300	150	300	150	300
102	56	2	F650-150SHP	F650-300SHP	GM Series	GM Series	SY Series	SY Series	AF Series	AF Series	GK 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								
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	F6400-300SHP								
11400	6270	18	F6450-150SHP	F6450-300SHP								
14420	7590	20	F6500-150SHP	F6500-300SHP								
22050	11550	24	F6600-150SHP	F6600-300SHP								

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.

		3-way Valves			Suitable Actuators							
		Valve Nominal Size	Type		Non-Spring Return				Electronic Fail-Safe			
C <sub>V</sub> 90°	C <sub>V</sub> 60°	Inches	ANSI 150 3-way	ANSI 300 3-way	150	300	150	300	150	300		
100	52	2"	F750-150SHP	F750-300SHP	GM Series	GM Series	SY Series	SY Series	GK Series	GK Series		
143	75	2½"	F765-150SHP	F765-300SHP								
223	117	3"	F780-150SHP	F780-300SHP								
435	228	4"	F7100-150SHP	F7100-300SHP								
688	361	5"	F7125-150SHP	F7125-300SHP								
1041	546	6"	F7150-150SHP	F7150-300SHP								
1911	1001	8"	F7200-150SHP	F7200-300SHP								
3194	1673	10"	F7250-150SHP	F7250-300SHP								
4428	2319	12"	F7300-150SHP	F7300-300SHP								
5702	2986	14"	F7350-150SHP	F7350-300SHP								
8243	3988	16"	F7400-150SHP	F7400-300SHP								
9712	5088	18"	F7450-150SHP	F7450-300SHP								
14420	7590	20"	F7500-150SHP	F7500-300SHP								
22050	11550	24"	F7600-150SHP	F7600-300SHP								

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.



### 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 ASME/ANSI Class 300 or 150 @ 32 fps maximum velocity with 100:1 range ability along with bubble tight leakage and valve sizes from 2 to 24 inches.

### 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, proportional, 2-10 VDC multi-function technology (MFT)
Manual override	GM, GK- external push button AF- 5 mm hex crank (3/16" Allen), supplied SY- hand wheel
Electrical connection	3 ft. [1 m] cable terminal block

### Valve Specifications

Service	chilled or hot water, 60% glycol, steam to 50 psi
Flow characteristic	F6 modified equal percentage, unidirectional F7 modified linear, unidirectional
Sizes	2" to 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
Media temp. range	-20°F to +400°F [-30°C to +204°C]
Body pressure rating	150 SHP: ASME/ANSI Class 150 300 SHP: ASME/ANSI Class 300
Close-off pressure	150: 285 psi, 300: 600 psi
Rangeability	100:1 (for 30° to 70° range)
Maximum velocity	32 FPS
Leakage	bubble tight shut-off

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.

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## CANADA

For a complete list of distributors in Canada, please visit our website: [www.belimo.ca](http://www.belimo.ca) or call toll free: 866-805-7089

## BRAZIL

For a complete list of distributors in Brazil, please visit our website: [www.belimo.com.br](http://www.belimo.com.br) or call: 55 11 3643-5656

## LATIN AMERICA & THE CARIBBEAN

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# Belimo University

## Efficiency Through Training



### Classroom Training

Interactive and connect with others in the HVAC industry and expand your own skillset and knowledge with hands-on training.



### PDH Courses

A wide range of HVAC Professional Development Hour (PDH) courses which qualify for continuing education credits for Professional Engineers (PE).



### Online Training

Complimentary service offered to our customers to ensure that learning takes place when it is most convenient.



### Webinars

Learn from any remote location; webinars are held monthly for 30 minutes to 45 minutes and allow for real-time communications. All webinars are recorded for future viewing.



# Inside our new home in Danbury, CT

Automatic Storage and Retrieval System (ASRS), the heart of production and logistics.



U.S. Production

15,000 sq. ft.  
Valve Test Lab

Technologies in Action

Belimo University



More than 40 individuals from Ability Beyond are placed in jobs throughout the Danbury facility.



Belimo Americas

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