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

2020
Product Range Overview

BELIMO

CESIM is the Belimo method to innovate building technology with actuators, valves, and sensors. As a member of the UN Global Compact, Belimo is an active stakeholder contributing to the Sustainable Development Goals (SDG) directly. By incorporating the UN Global Compact principles into strategies, policies, and procedures, Belimo is not only upholding their basic responsibilities to people and the planet, but also setting the stage for long-term success in our industry.

CESIM ensures that the "small" Belimo devices have a big impact on Comfort, Energy Efficiency, Safety, Installation, and Maintenance.

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BELIMO

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

5-year warranty

			Power Supply			Power Consumption		Running Time	Housing Type		Drive Type	Custom Options		Control Input						Control Input MFT				Position Feedback				Bulk Pack
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 100...240 V ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing Y or H = OPTIONAL Heater	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V Span 2.5...32 V	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	1 SPDT, 3A (0.5A Inductive) @ 250 V	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	Quantity of Actuators in Bulk Pack
PMB Series 1400 in-lb [160 Nm]		PMBUP-3-T		●		23	18	35	4X	●	M			●	●													
		PMBUP-MFT-T		●		19	19 (3.5)	35	4X	●	M			●	●	●		1		●	●			●				
GMB Series 360 in-lb [40 Nm] Approx. 90 sq.ft.		GMB24-3	●			6	4.0 (2.0)	150	2		M			●	●												●	
		GMB24-SR	●			6.5	4.5 (2.0)	150	2		M					●								●			●	
		GMB24-IP	●			8	5.5 (5)	150	1		M							2						●	1		●	
		GM24A-MOD	●			7	4 (1.6)	150			M							1							1		●	
		GMB24-MFT	●			7	4.0 (1.5)	150	2		M									●	●	●	●	●			●	
GMX Series 360 in-lb [40 Nm] Approx. 90 sq.ft.	Customizable*	GMX24-3	●			6	4.0 (2.0)	150	2		M	●	●	●	●												●	
		GMX24-3-T N4	●			6	4.0 (2.0)	150	4X	Y	M	●	●	●	●												●	
		GMX24-SR	●			6.5	4.5 (2.0)	150	2		M	●	●			●								●			●	
		GMX24-SR-T N4	●			6.5	4.5 (2.0)	150	4X	Y	M	●	●			●								●			●	
		GMX24-PC	●			7	4.0 (1.5)	150	2		M	●	●						●					●			●	
		GMX120-3			●	7	4.0 (2.0)	150	2		M	●	●	●	●												●	
		GMX24-MFT	●			7	4.0 (1.5)	75...300 (150)	2		M	●	●							●	●	●	●	●			●	
		GMX24-MFT N4	●			7	4.0 (1.5)	75...300 (150)	4X	Y	M	●	●							●	●	●	●	●			●	
		GMX24-MFT-T	●			7	4.0 (1.5)	75...300 (150)	1		M	●	●							●	●	●	●	●			●	
		GMX24-MFT-T N4	●			7	4.0 (1.5)	75...300 (150)	4X	Y	M	●	●							●	●	●	●	●			●	
AMB Series 180 in-lb [20 Nm] Approx. 45 sq.ft.		AMB24-3	●			5.5	2.5 (0.5)	95	2		M			●	●												●	
		AMB24-3-S	●			5.5	2.5 (0.5)	95	2		M			●	●											●	●	
		AMB24-SR	●			5	2.5 (0.4)	95	2		M					●								●			●	
		AMB24-SR-T	●			5	2.5 (0.4)	95	1		M					●								●			●	
		AMB24-IP	●			8	6 (3)	150	1		M							2						●	1		●	
		SM24A-MOD	●			6	3.5 (1.4)	150	2		M							1							1		●	
		AMB24-MFT	●			6	3.5 (1.3)	150	2		M									●	●	●	●	●			●	
		AMCB24-MFT	●			6	3.5 (1.3)	35	2		M									●	●	●	●	●			●	
		AMB120-3			●	7	3.0 (0.6)	95	2		M			●	●												●	
AMX Series 180 in-lb [20 Nm] Approx. 45 sq.ft.	Customizable*	AMX24-3	●			5.5	2.5 (0.5)	95	2		M	●	●	●	●												●	
		AMX24-3-T	●			5.5	2.5 (0.5)	95	1		M	●	●	●	●												●	
		AMX24-3-T N4	●			5.5	2.5 (0.5)	95	4X	Y	M	●	●	●	●												●	
		AMX24-SR	●			5	2.5 (0.4)	95	2		M	●	●			●								●			●	
		AMX24-SR-T	●			5	2.5 (0.4)	95	1		M	●	●			●								●			●	
		AMX24-SR-T N4	●			5	2.5 (0.4)	95	4X	Y	M	●	●			●								●			●	
		AMX24-PC	●			5.5	3.5 (1.3)	90	2		M	●	●						●					●			●	
		AMX120-3			●	7	3.0 (0.6)	95	2		M	●	●	●	●												●	
		AMX120-SR			●	7.5	4.0 (1.0)	95	2		M	●	●			●								●			●	
		AMX24-MFT	●			6	3.5 (1.3)	90...300 (150)	2		M	●	●							●	●	●	●	●			●	
		AMX24-MFT N4	●			6	3.5 (1.3)	90...300 (150)	4X	Y	M	●	●							●	●	●	●	●			●	
		AMX24-MFT-T N4	●			6	3.5 (1.3)	90...300 (150)	4X	Y	M	●	●							●	●	●	●	●			●	
		AMCX24-MFT	●			6	3.5 (1.3)	35...120 (35)	2		M	●	●							●	●	●	●	●			●	
		AMCX24-MFT-T N4	●			6	3.5 (1.3)	35...120 (35)	4X	Y	M	●	●							●	●	●	●	●			●	
		AMX24-MFT95	●			6	3.5 (1.3)	75...150 (150)	2		M	●	●				●							●			●	

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*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

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

5-year warranty

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

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NMB(X) and NMQB(X) Non Fail-Safe Damper Actuator Product Range

5-year warranty

			Power Supply			Power Consumption		Running Time	Housing Type		Drive Type	Custom Options		Control Input							Control Input MFT				Position Feedback				Bulk Pack
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 100...240 V ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing Y or H = OPTIONAL Heater	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V Span 2.5...32 V	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	1 SPDT, 3A (0.5A Inductive) @ 250 V	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	Quantity of Actuators in Bulk Pack
NMB Series 90 in-lb [10 Nm] Approx. 22 sq. ft.		NMB24-3	●			4	2.0 (0.2)	95	2		M			●	●														
		NMCB24-3	●			4	2.5 (0.2)	45	2		M			●	●														
		NMB24-SR	●			5	2.5 (0.4)	95	2		M					●									●				
		NMB24-SR-T	●			5	2.5 (0.4)	95	1		M					●									●				
		NMCB24-SR	●			5	2.5 (0.4)	45	2		M					●									●				
		NMB24-IP	●			6	4 (3)	150	1		M							2							●	1			
		NM24A-MOD	●			6	3.5 (1.4)	150			M							1								1			
		NMB24-MFT	●			6	3.5 (1.3)	150	2		M	●	●							●	●	●	●	●					
NMX Series 90 in-lb [10 Nm] Approx. 22 sq. ft.	Customizable*	NMX24-3	●			4	2.0 (0.2)	95	2		M	●	●	●	●														
		NMX24-3-T	●			4	2.0 (0.2)	95	1		M	●	●	●	●														
		NMX24-3-T N4	●			4	2.0 (0.2)	95	4X	Y	M	●	●	●	●														
		NMX24-SR	●			5	2.5 (0.4)	95	2		M	●	●			●									●				
		NMX24-SR-T	●			5	2.5 (0.4)	95	1		M	●	●			●									●				
		NMX24-SR-T N4	●			5	2.5 (0.4)	95	4X	Y	M	●	●			●									●				
		NMX120-3			●	5.5	2.5 (0.6)	150	2		M	●	●	●	●														
		NMX120-SR			●	6.5	3.5 (1.0)	150	2		M	●	●			●									●				
		NMX24-MFT	●			6	3.5 (1.3)	45...150 (150)	2		M	●	●							●	●	●	●	●					
		NMX24-MFT N4	●			6	3.5 (1.3)	45...150 (150)	4X	Y	M	●	●							●	●	●	●	●					
		NMX24-MFT-T N4	●			6	3.5 (1.3)	45...150 (150)	4X	Y	M	●	●							●	●	●	●	●					
		NMX24-MFT95	●			6	3.5 (1.3)	45...150 (150)	2		M	●	●				●							●					
		NMCX24-MFT	●			5	3.0 (0.6)	20...75 (45)	2		M	●	●							●	●	●	●	●					
NMQB(X) 70 in-lb [8 Nm]		NMQB24-1	●			20	13 (1.5)	4	2		M			●															
		NMQB24-MFT	●			20	13 (1.5)	4	2		M									●		●		●					
	C*	NMQX24-MFT	●			23	13 (1.5)	4...20 (4)	2		M	●	●							●		●		●					

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LMB(X) and LHB 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
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 100...240 V ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing Y or H = OPTIONAL Heater	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V Span 2.5...32 V	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	1 SPDT, 3A (0.5A Inductive) @ 250 V	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	Quantity of Actuators in Bulk Pack
LMB Series 45 in-lb [5 Nm] Approx. 11 sq. ft.		LMB24-3	●			2	1.5 (0.2)	95	2		M			●	●													
		LMCB24-3	●			2.5	1.5 (0.2)	35	2		M			●	●												●	
		LMB24-3.1	●			2	1.5 (0.2)	95	2		M			●	●												●	24
		LMB24-3-S	●			2	1.5 (0.2)	95	2		M			●	●											●	●	
		LMB24-3-T	●			2	1.5 (0.2)	95	1		M			●	●												●	
		LMCB24-3-T	●			2.5	1.5 (0.2)	35	1		M			●	●												●	
		LMB24-3-T.1	●			2	1.5 (0.2)	95	1		M			●	●												●	36
		LMB24-3-P5-T	●			2	1.5 (0.2)	95	1		M			●	●											5k Ω	●	
		LMB24-3-P5-T.1	●			2	1.5 (0.2)	95	1		M			●	●											5k Ω	●	36
		LMB24-3-P10-T	●			2	1.5 (0.2)	95	1		M			●	●											10k Ω	●	
		LMB120-3			●	4	2.0 (0.5)	150	2		M			●	●												●	
		LMB24-SR	●			3	1.5 (0.4)	95	2		M					●									●		●	
		LMCB24-SR	●			3	1.5 (0.4)	35	2		M					●									●		●	
		LMB24-SR.1	●			3	1.5 (0.4)	95	2		M					●									●		●	24
		LMB24-SR-T	●			3	1.5 (0.4)	95	1		M					●									●		●	
		LMCB24-SR-T	●			3	1.5 (0.4)	35	1		M					●									●		●	
		LMB24-SR-T.1	●			3	1.5 (0.4)	95	1		M					●									●		●	36
		LMB24-IP	●			4.5	3 (2)	150	1		M								2						●	1	●	
		LM24A-MOD	●			5	2.5 (1.3)	150	2		M								1							1	●	
		LMB24-MFT	●			5	2.5 (1.2)	150	2		M										●	●	●	●	●		●	
		LMB24-HM	●			2	1.5 (0.2)	95	1		M																●	
		LMB24-10P-HM	●			2	1.5 (0.2)	95	1		M															10k Ω	●	
LMX Series 45 in-lb [5 Nm] Approx. 11 sq. ft.	Customizable*	LMX24-3	●			2	1.5 (0.2)	95	2		M	●	●	●	●												●	
		LMX24-3-T	●			2	1.5 (0.2)	95	1		M	●	●	●	●												●	
		LMX24-SR	●			3	1.5 (0.4)	95	2		M	●	●			●									●		●	
		LMX24-SR-T	●			3	1.5 (0.4)	95	1		M	●	●			●									●		●	
		LMX120-3			●	4	2.0 (0.5)	150	2		M	●	●	●	●												●	
		LMX120-SR			●	4.5	2.5 (1.0)	150	2		M	●	●			●									●		●	
		LMX24-MFT	●			5	2.5 (1.2)	35...200 (150)	2		M	●	●								●	●	●	●	●		●	
		LMX24-MFT95	●			5	2.5 (1.2)	35...150 (150)	2		M	●	●					●								●		●	
LHB Series 34 lbf [150 N Force] 4" or 8" stroke		LHB24-3-100	●			3	1.5 (0.5)	150	2		L, 4"			●	●													
		LHB24-3-T-100	●			3	1.5 (0.5)	150	2		L, 4"			●	●													
		LHB24-3-200	●			3	1.5 (0.5)	300	2		L, 8"			●	●													
		LHB24-SR-100	●			3	1.5 (0.5)	150	2		L, 4"					●									●			
		LHB24-SR-200	●			3	1.5 (0.5)	300	2		L, 8"					●									●			

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LHX, LMQB(X), LHQB(X), and CMB 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
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 100...240 V ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing Y or H = OPTIONAL Heater	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V Span 2.5...32 V	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	1 SPDT, 3A (0.5A Inductive) @ 250 V	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	Quantity of Actuators in Bulk Pack
LHX Series 34 lbf [150 N Force] 4", 8", 12" stroke	Customizable*	LHX24-3-100	●			3	1.5 (0.5)	70...270 (150)	2		L, 4"		●	●	●													
		LHX24-3-200	●			3	1.5 (0.5)	140...540 (300)	2		L, 8"		●	●	●													
		LHX24-3-300	●			3	1.5 (0.5)	200...810 (450)	2		L, 12"		●	●	●													
		LHX120-3-100			●	2.5	1.5 (0.5)	70...270 (150)	2		L, 4"		●	●	●													
		LHX120-3-200			●	2.5	1.5 (0.5)	140...540 (300)	2		L, 8"		●	●	●													
		LHX120-3-300			●	2.5	1.5 (0.5)	200...810 (450)	2		L, 12"		●	●	●													
		LHX24-SR-100	●			3	1.5 (0.5)	70...270 (150)	2		L, 4"		●			●									●			
		LHX24-SR-200	●			3	1.5 (0.5)	140...540 (300)	2		L, 8"		●			●									●			
		LHX24-MFT-100	●			5	2.5 (1.2)	70...270 (150)	2		L, 4"		●							●	●	●	●	●				
		LHX24-MFT-200	●			5	2.5 (1.2)	140...540 (300)	2		L, 8"		●							●	●	●	●	●				
		LHX24-MFT-300	●			5	2.5 (1.2)	200...810 (450)	2		L, 12"		●							●	●	●	●	●				
LMQB(X) Series 35 in-lb [4 Nm]		LMQB24-1	●			20	13 (1.5)	2.5	2		M			●													●	
		LMQB24-MFT	●			20	13 (1.5)	2.5	2		M									●		●		●			●	
	C*	LMQX24-MFT	●			20	13 (1.5)	2.5...10 (2.5)	2		M	●	●							●		●		●			●	
LHQB(X) 22 lbf [100 N Force]		LHQB24-1-100	●			23	13 (1.5)	3.5	2		L, 4"			●														
		LHQB24-MFT-100	●			23	13 (1.5)	3.5	2		L, 4"									●		●		●				
	C*	LHQX24-MFT-100	●			23	13 (1.5)	3.5...15 (3.5)	2		L, 4"		●							●		●		●				
CMB Series 18 in-lb [2 Nm] Approx. 4.5 sq. ft.		CMB24-3	●			1.5	1.0 (0.2)	35	2		M			●	●													
		CMB24-3.1	●			1.5	1.0 (0.2)	35	2		M			●	●													20
		CMB120-3			●	3.5	1.5 (1.0)	35	2		M			●	●													
		CMB24-3-T	●			1.5	1.0 (0.2)	35	1		M			●	●													
		CMB24-3-T.1	●			1.5	1.0 (0.2)	35	1		M			●	●													20
		CMB24-SR-R	●			2.5	1.5 (0.5)	35	2		M					●												
		CMB24-SR-L	●			2.5	1.5 (0.5)	35	2		M					●												
		CHB24-3-T-100.1	●			1	0.5 (0.2)	380	1		L, 4"			●	●													20

Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

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NMV, LMV, LHV, CMB, CMBV Air Flow Measurement and Control Damper Actuator Product Range

5-year warranty

		Power Supply	Power Consumption		Running Time	Application			Operation and Servicing				Housing Type	Cabling	Drive Type		Control Input				Position Feedback		Sensor Integration (Select 1 of 3)		
		AC 24 V ± 20%, 50/60 Hz VDC ±10%	VA Rating	Wattage Running (Holding)	Motor Drive (Default)	CAV (0...3000 fpm)	VAV (0...3000 fpm)	Open Loop (0...3000 fpm)	NFC interface for Android	NFC for iPhone via Zip-BT-NFC*	PC-Tool	ZTH	NEMA 2	Conduit Connector Available**	Rotary "M", Linear "L"	Integrated Damper Blade	On/Off, Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	BACnet: MS/TP or Modbus RTU	MP Bus	2...10 V (Default) Adjustable with MFT	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)	Passive (Pt1000, 10K-2, etc.)	Active (0...10 V) e.g. temperature, humidity, etc.	Contact Closure (switching capacity 16 mA @ 24 V), e.g. switches, occupancy switches
NMV Series 90 in-lb [10 Nm]	NMV-D3-MP	●	5	3	150	●	●	●	●	●	●	●	●		M			●		●	●	●	●	●	●
	NMV-D3-MOD	●	5	3	150	●	●	●			●	●	●		M			●	●	●	●	●	●	●	●
	NMV-D3-MFT	●	5	3	150	●	●	●			●	●	●	●	M			●		●	●	●	●	●	●
LMV Series 45 in-lb [5 Nm]	LMV-D3-MP	●	3.5	2	150	●	●	●	●	●	●	●	●		M			●		●	●	●	●	●	●
	LMV-D3-MOD	●	4	2	150	●	●	●			●	●	●		M			●	●	●	●	●	●	●	●
	LMV-D3-MFT	●	3.5	2	150	●	●	●			●	●	●	●	M			●		●	●	●	●	●	●
LHV Series 34 lbf [150 N]	LHV-D3-MP-100	●	4.5	2.5	150	●	●	●	●	●	●	●	●		L (4")			●		●	●	●	●	●	●
	LHV-D3-MP-200	●	4.5	2.5	150	●	●	●	●	●	●	●	●		L (8")			●		●	●	●	●	●	●
	LHV-D3-MP-300	●	4.5	2.5	150	●	●	●	●	●	●	●	●		L (12")			●		●	●	●	●	●	●
CMB Series 18 in-lb [2 Nm]	CMB24-L-100D	●	1	0.5	58	●	●	●			●	●	●		M	4"	●								
	CMB24-L-125D	●	1	0.5	58	●	●	●			●	●	●		M	5"	●								
	CMB24-L-150D	●	1	0.5	58	●	●	●			●	●	●		M	6"	●								
CMBV Series 18 in-lb [2 Nm]	CMBV-100-MFT	●	2.5	1	70	●	●	●			●	●	●		M	4"		●		●	●				
	CMBV-125-MFT	●	2.5	1	70	●	●	●			●	●	●		M	5"		●		●	●				
	CMBV-150-MFT	●	2.5	1	70	●	●	●			●	●	●		M	6"		●		●	●				

Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*Zip-BT-NFC is not included in the purchase of this actuator. Please refer to page 4-1 of the Product Guide and Price List for more information.
**Conduit connector not included in the purchase of this actuator. Please refer to page 4-11 of the Product Guide and Price List for more information.

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PKB, GKB(X), and 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			
			AC 24 V ± 20%, 50/60 Hz VDC ±10%	AC 24...240 V +10%/- 20%, 50/60 Hz DC 24...125 V ± 10%	AC 120 V ±10%	AC 230 V ±10%	VA Rating (Actuator/Heater)	Wattage Running/Heater (Holding)	Motor Drive (Default)	Fail-Safe	NEMA 1, 2, or 4X	● = Heater Built-in NEMA Housing Y or H = OPTIONAL Heater	Rotary "M", Linear "L"	Select Mechanical Coupler	Select Electrical Connection	On/Off	Floating Point	2...10 V or 4...20 mA (w/500 Ω Resistor)	Honeywell Series 90, 0...135 Ω	3k Ω (1), 10k Ω (2) NTC Thermistor	6...9 V, 20 V Output Voltage	BACnet: MS/TP or Modbus RTU (1) BACnet/IP or Modbus TCP (2)	0.5...20 V Phasecut	On/Off	Floating Point	Start and Span adj., Start 0.5...30 V (2.0) Span 2.5...32 V (8.0)	PWM adj., 0.02...50 Seconds	2...10 V (Default) Adjustable with MFT	Digital (1), Resistive Feedback	SPDT, 3A (0.5A Inductive) @ 250 V, (1 or 2)	Optional Accessories: Aux. Switch (S1A, S2A), Potentiometer (P..A GR)
PKB Series 1400 in-lb [160 Nm]		PKBUP-MFT-T		●			49	47 (4)	35	30	4X	●	M									1		●	●	●		●			
GKB Series 360 in-lb [40 Nm] Approx. 90 sq. ft.		GKB24-3	●				21	11 (3)	150	35	2		M			●	●														●
		GKB24-SR	●				21	11 (3)	150	35	2		M					●										●			●
		GKB24-IP	●				21	11 (3)	150	35	1		M									2						●	1		●
		GKB24-MFT	●				21	11 (3)	150	35	2		M											●	●	●		●			●
GKX Series 360 in-lb [40 Nm] Approx. 90 sq. ft.	Customizable*	GKX24-3	●				21	11 (3)	150	35	2		M	●	●	●	●[3]														●
		GKX24-3-T N4	●				21/21	11/21 (3)	150	35	4X	Y	M	●	●	●	●[3]														●
		GKX24-SR	●				21	11 (3)	150	35	2		M	●	●			●										●			●
		GKX24-SR-T N4	●				21/21	11/21 (3)	150	35	4X	Y	M	●	●			●										●			●
		GKX24-MFT	●				21	11 (3)	150	35	2		M	●	●									●	●	●		●			●
		GKX24-MFT-T N4	●				21/21	11/21 (3)	150	35	4X	Y	M	●	●									●	●	●		●			●
EFB Series 270 in-lb [30 Nm] Approx. 68 sq. ft.		EFB24	●				16	9.5 (4.5)	75	<20	2		M			●															
		EFB24 N4	●				16	9.5 (4.5)	75	<20	4		M			●															
		EFB24-S	●				16	9.5 (4.5)	75	<20	2		M			●														2	
		EFB120			●	●	21	9.5 (4.5)	75	<20	2		M			●															
		EFB120-S			●	●	21	9.5 (4.5)	75	<20	2		M			●														2	
		EFB120-S N4			●	●	21	9.5 (4.5)	75	<20	4		M			●														2	
		EFB24-SR	●				14	8.0 (4.5)	95	<20	2		M					●										●			
		EFB24-SR N4	●				14	8.0 (4.5)	95	<20	4		M					●										●			
		EFB24-SR-S	●				14	8.0 (4.5)	95	<20	2		M					●										●		2	
		EFB24-MFT	●				16	9.5 (4.5)	60...150 (150)	<20	2		M											●	●	●	●	●			
		EFB24-MFT-S	●				16	9.5 (4.5)	60...150 (150)	<20	2		M											●	●	●	●	●		2	

[3] AC 24 V only

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*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

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EFX and AFB Fail-Safe Damper Actuator Product Range

5-year warranty

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

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*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

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

5-year warranty

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

Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

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NFX and NKQB(X) Fail-Safe Damper Actuator Product Range

5-year warranty

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

Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

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LF Fail-Safe Damper Actuator Product Range

5-year warranty

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

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TFB(X) Fail-Safe Damper Actuator Product Range

5-year warranty

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

Visit www.belimo.us for detailed product specifications and downloadable data sheets.
*See pages 4-13 to 4-16 of the Product Guide and Price List for customization options.

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

5-year warranty

LISTED 94D5 TEMP. IND. & REG. EQUIP. c UL us

		Power Supply			Power Consumption	Running Time		Control Input	Auxiliary Switches	
		AC/DC 24 V	AC 120 V	AC 230 V	VA Rating Running	Motor Drive	Fail-Safe	On/Off	2 SPST	2 SPDT
FSAF*A Series 180 in-lb [20 Nm] Approx. 18 sq. ft. @ 350°F	FSAF24A	•			32‡	<25	<15	•		
	FSAF24A-S	•			32‡	<25	<15	•	•	
	FSAF120A		•		30‡	<25	<15	•		
	FSAF120A-S		•		30‡	<25	<15	•	•	
	FSAF230A			•	37‡	<25	<15	•		
	FSAF230A-S			•	37‡	<25	<15	•	•	
FSAFB Series 180 in-lb [20 Nm] Approx. 18 sq. ft. @ 250°F	FSAFB24-SR	•			9.5	<75	<20	2...10 V		
	FSAFB24-SR-S	•			9.5	<75	<20	2...10 V		•
FSNF Series 70 in-lb [8 Nm] Approx. 12 sq. ft. @ 350°F	FSNF24 US	•			27‡	<15	<15	•		
	FSNF24-S US	•			27‡	<15	<15	•		•
	FSNF120 US		•		27‡	<15	<15	•		
	FSNF120-S US		•		27‡	<15	<15	•		•
	FSNF230 US			•	27‡	<15	<15	•		
	FSNF230-S US			•	27‡	<15	<15	•		•
FSLF Series 30 in-lb [3.5 Nm] Approx. 4 sq. ft. @ 350°F	FSLF24 US	•			15‡	<15	<15	•		
	FSLF24-S US	•			15‡	<15	<15	•	•	
	FSLF120 US		•		18‡	<15	<15	•		
	FSLF120-S US		•		18‡	<15	<15	•	•	
	FSLF230 US			•	17‡	<15	<15	•		
	FSLF230-S US			•	17‡	<15	<15	•	•	
FSTF Series• 18 in-lb [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.

•See retrofit installation instructions for details.

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

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

Use FSNF for dampers 4...12 sq.ft. at 350°F and use FSAF*A for larger dampers and multisection applications. Linkages are available for FSAF*A & FSAFB, FSNF, and FSTF.

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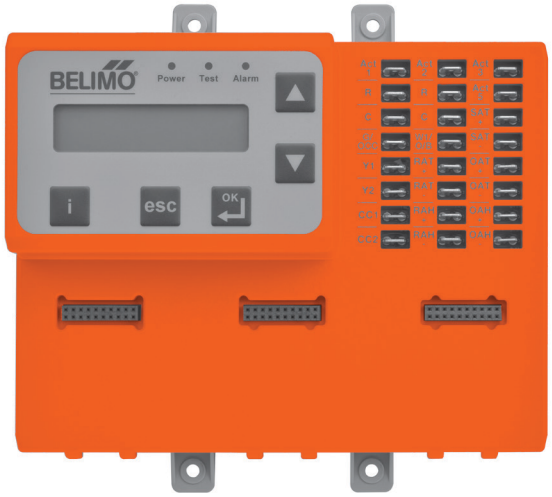
Zip Economizer Product Range



ECON-ZIP-BASE

5

5-year warranty

Specifications	
Power Supply	AC 24 V ±20%, 50/60 Hz, class 2 power
Power Consumption*	4 VA base control (ECON-ZIP-BASE) 5.5 VA base control with Energy Module (ECON-ZIP-BASE + ECON-ZIP-EM) 5 VA base control with Communication Module (ECON-ZIP-BASE + ECON-ZIP-COM) 6.5 VA base control with Energy Module and Communication Module.
Supported Temperature Sensor	NTC 10K-2 Thermistor sensor auto-detection
Supported Humidity Sensor	0...10 V; sensor auto-detection
Supported CO_2 Sensor	0...10 V; sensor auto-detection
Environmental	RoHS, conformally coated
Ambient Temperature	-40...+158°F [-40...+70°C]
Storage Temperature	-40...+176°F [-40...+80°C]
Humidity	5...95% R.H. (non-condensing)
Wiring	¼" male spade connectors
Housing Material	UL94-5VA
Housing	NEMA 1
Display	2x16 character LCD display; 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

*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(s)		VA Rating
					Ⓜ		
AFB24-SR	180 in-lb [20 Nm]	2...10 V	2...10 V	AC/DC 24 V	95 seconds	<20 seconds	8.5
NFB24-SR	90 in-lb [10 Nm]	2...10 V	2...10 V	AC/DC 24 V	95 seconds	<20 seconds	6
LF24-SR US	35 in-lb [4 Nm]	2...10 V	2...10 V	AC/DC 24 V	150 seconds	<25 seconds	5
TFB24-SR	22 in-lb [2.5 Nm]	2...10 V	2...10 V	AC/DC 24 V	95 seconds	<25 seconds	4

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

SENSORS

	Temperature	ECON-ZIP-10K	The ECON-ZIP-10K allows for reliable air temperature readings. The sensor may be used for outdoor air (OAT), return air (RAT), or supply air (SAT) temperature measurements and control, with no configuration required. A minimum of one SAT and one OAT sensor is required for the ZIP Economizer to function. An RAT sensor can be added for differential temperature change over 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.
	Carbon Dioxide (CO_2) Sensor	22DC-51	The 22DC-51 Carbon Dioxide (CO_2) air quality sensor may be incorporated to further increase energy savings and occupant comfort through Demand Control Ventilation (DCV). By directly measuring CO_2 concentration levels in the served space the outside air damper position will modulate to accommodate for changes in space occupancy (CO_2). ECON-ZIP-EM required for Demand Control Ventilation functionality.
	Temperature/ Humidity	ECON-ZIP-TH	The ECON-ZIP-TH Sensor may be used to measure temperature and humidity in the outdoor or return air stream. The temperature and humidity output is via 2 discrete analog channels that can be independently measured with a multimeter. One sensor is used in the outdoor air intake for single enthalpy changeover strategy. An additional sensor can be added in the return air stream for differential enthalpy changeover strategy. Note: When using the ECON-ZIP-TH it is not necessary to use a separate temperature sensor ECON-ZIP-10K for outdoor air (OAT), return air (RAT).

MODULES

	Energy	ECON-ZIP-EM	The ZIP Economizer Energy Module provides additional I/Os to offer higher control functionalities that will save even more energy. The Energy Module is needed for demand control ventilation, indoor fan- 2 speed control or remote diagnostic alarm notification, power exhaust fan, remote override for damper positioning, and preoccupancy purge. The auto-detection and plug and play capability offers quick set up.
	Communication	ECON-ZIP-COM	The ZIP Economizer Communication Module provides remote diagnostic alarm indication with future capabilities such as data trending and building automation integration. Required for BACnet MS/TP communication.

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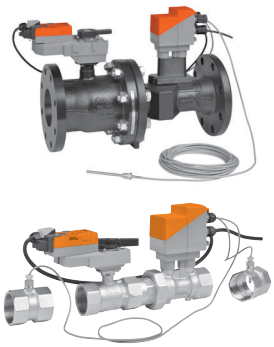
Energy Valve (EV) Product Range

		Valve Nominal Size		Type	Suitable Actuators	
	GPM Range	Inches	DN [mm]	2-way	Non Fail-Safe	Electronic Fail-Safe
NPT	1.65...5.5*	½	15	EV050S-055	LRB(X)24-EV	AKRB(X)24-EV
NPT	3.1...10.3*	¾	20	EV075S-103	LRB(X)24-EV	AKRB(X)24-EV
NPT	5.5...18.2*	1	25	EV100S-182	LRB(X)24-EV	AKRB(X)24-EV
NPT	8.6...28.5*	1¼	32	EV125S-285	NRB(X)24-EV	AKRB(X)24-EV
NPT	11.9...39.6*	1½	40	EV150S-396	NRB(X)24-EV	AKRB(X)24-EV
NPT	22.8...76.1*	2	50	EV200S-761	ARB(X)24-EV	AKRB(X)24-EV
NPT	30...100*	2	50	EV200S-1000**	ARB(X)24-EV	AKRB(X)24-EV
Flanged ANSI 125	38...127*	2½	65	EV250SU-127	ARB(X)24-EV	AKRB(X)24-EV
Flanged ANSI 125	54...180*	3	80	EV300SU-180	ARB(X)24-EV	AKRB(X)24-EV
Flanged ANSI 125	95...317*	4	100	EV400SU-317	GRB(X)24-EV	GKRB(X)24-EV
Flanged ANSI 125	149...495*	5	125	EV500SU-495	GRB(X)24-EV	GKRB(X)24-EV
Flanged ANSI 125	214...713*	6	150	EV600SU-713	GRB(X)24-EV	GKRB(X)24-EV
Flanged ANSI 250	38...127*	2½	65	EV250SU-127-250	ARB(X)24-EV	AKRB(X)24-EV
Flanged ANSI 250	54...180*	3	80	EV300SU-180-250	ARB(X)24-EV	AKRB(X)24-EV
Flanged ANSI 250	95...317*	4	100	EV400SU-317-250	GRB(X)24-EV	GKRB(X)24-EV
Flanged ANSI 250	149...495*	5	125	EV500SU-495-250	GRB(X)24-EV	GKRB(X)24-EV
Flanged ANSI 250	214...713*	6	150	EV600SU-713-250	GRB(X)24-EV	GKRB(X)24-EV

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



5-year warranty 7-year warranty

EV

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	modulating
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, 60% glycol max
Flow characteristic	equal percentage/linear
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 5", 6"
End fitting	NPT female (½...2") pattern to mate with ANSI 125 or 250 flange (2½...6")
Materials	
Body	
Valve	forged brass, nickel plated (½...2") cast iron - GG25 (2½...6")
Sensor housing	forged brass, nickel plated (½...2") ductile iron - GGG50 (2½...6")
Ball	stainless steel
Stem	stainless steel
Characterizing disc	Tefzel® (½...2") stainless steel (2½...6")
Fluid temp range	14...250°F [-10...+120°C], 39...250°F [4...120°C] (EV200SU-1000)
Body pressure rating	360 psi (½...2"), ANSI 125, Class B (2½...6") ANSI 250 (2½...6")
Close-off pressure	200 psid (½...2"), 100 psid (2½...6")
Differential pressure range (ΔP)	see technical documentation
Leakage	0%
Communication	BACnet IP, BACnet MS/TP, listed by BTL, web server, Modbus RTU/IP, Belimo MP-Bus, analog
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]

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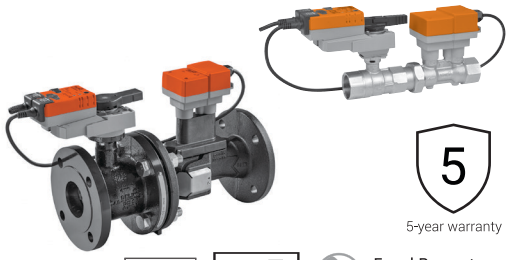
Electronic Pressure Independent Control Valve (ePIV)
Product Range

		Valve Nominal Size		Type	Suitable Actuators	
	GPM	Inches	DN [mm]	2-way	Non Fail-Safe	Electronic Fail-Safe
NPT	5.5*	½	15	P2050SU-055	LRX24-EP2(-MOD)	AKRX24-EP2
NPT	10.3*	¾	20	P2075SU-103	LRX24-EP2(-MOD)	AKRX24-EP2
NPT	18.2*	1	25	P2100SU-182	LRX24-EP2(-MOD)	AKRX24-EP2
NPT	28.5*	1¼	32	P2125SU-285	NRX24-EP2 (-MOD)	AKRX24-EP2
NPT	39.6*	1½	40	P2150SU-396	NRX24-EP2 (-MOD)	AKRX24-EP2
NPT	76.1*	2	50	P2200SU-761	ARX24-EP2 (-MOD)	AKRX24-EP2
NPT	100*	2	50	P2200SU-1000**	ARX24-EP2 (-MOD)	AKRX24-EP2
Flanged ANSI 125	127*	2½	65	P6250SU-127	ARX24-EP2 (-MOD)	AKRX24-EP2
Flanged ANSI 125	180*	3	80	P6300SU-180	ARX24-EP2 (-MOD)	AKRX24-EP2
Flanged ANSI 125	317*	4	100	P6400SU-317	GRX24-EP2 (-MOD)	GKRX24-EP2
Flanged ANSI 125	495*	5	125	P6500SU-495	GRX24-EP2 (-MOD)	GKRX24-EP2
Flanged ANSI 125	713*	6	150	P6600SU-713	GRX24-EP2 (-MOD)	GKRX24-EP2
Flanged ANSI 250	127*	2½	65	P6250SU-127-250	ARX24-EP2 (-MOD)	AKRX24-EP2
Flanged ANSI 250	180*	3	80	P6300SU-180-250	ARX24-EP2 (-MOD)	AKRX24-EP2
Flanged ANSI 250	317*	4	100	P6400SU-317-250	GRX24-EP2(-MOD)	GKRX24-EP2
Flanged ANSI 250	495*	5	125	P6500SU-495-250	GRX24-EP2(-MOD)	GKRX24-EP2
Flanged ANSI 250	713*	6	150	P6600SU-713-250	GRX24-EP2(-MOD)	GKRX24-EP2

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



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	modulating
Manual override	LR, NR, AR, GR, AKR, GKR
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting
Communication	analog and Belimo MP-Bus BACnet MS/TP, Modbus RTU (-MOD actuators)

Valve Specifications

Fluid	chilled or hot water, up to 60% glycol
Flow characteristic***	equal percentage/linear
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 5", 6"
End fitting	NPT female (½...2") pattern to mate with ANSI 125 or 250 flange (2½...6")
Materials	
Body	
Valve	brass, nickel plated (½...2") cast iron-GG25 (2½...6")
Sensor housing	forged brass, nickel plated (½...2") ductile iron- GGG50 (2½...6")
Ball	stainless steel
Stem	stainless steel
Characterizing disc	Tefzel® (½...2") stainless steel (2½...6")
Fluid temp range	14...250°F [-10...+120°C], 39...250°F [4...120°C] (P2200S-1000)
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") 100 psid (2½...6")
Differential pressure range (ΔP)	see technical documentation
Leakage	0%
Rangeability	100:1
Flow control tolerance	±5%
Flow measurement tolerance	±2%

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

All flow tolerances @ 68...77°F [20...25°C] and 0% glycol.

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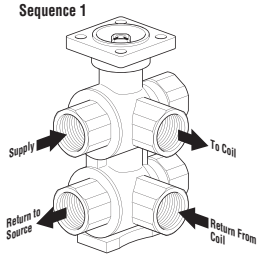
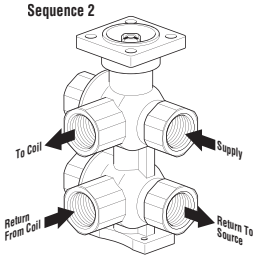
6-Way Electronic Pressure Independent Control Valve (ePIV) Product Range

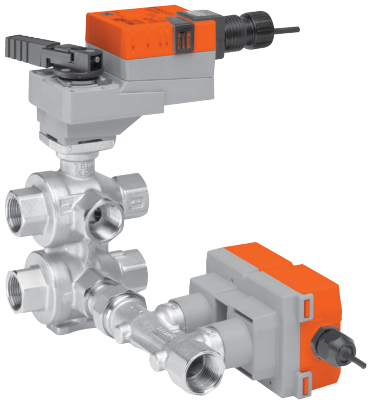
Flow	Valve Nominal Size		Type	Suitable Actuators
Vnom/GPM	Inches	DN [mm]	ePI 6-way	Non Fail-Safe
5.5	½	15	P3050B6-K	LRX24-LP-EP6
10.3	¾	20	P3075B6-J	

Sequence 1



Sequence 2





5-year warranty

ePIV

Linear Characteristic

Mode of Operation
The control valve is operated by an electronic actuator that responds to a modulating 2...10 V 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	modulating
Manual override	LRX24-LP-EP6
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting
Controllable flow range	90°
Communication	Analog, Belimo MP-Bus, BACnet MS/TP, Modbus RTU

Valve Specifications

Fluid	chilled or hot water, up to 60% glycol
Flow characteristic	linear
Controllable flow range	
Sequence 1	(0...30° angle) Dead zone 30...60°
Sequence 2	(60...90° angle)
Sizes	½", ¾"
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 temperature range	43...180°F [6...82°C]
Body pressure rating	232 psi
Close-off pressure	50 psid
Minimum differential pressure at V'nom	see technical documentation
Leakage	0%
Rangeability	100:1
Flow control tolerance	±6%
Flow measurement tolerance	±2%

All flow tolerances @ 68...77°F [20...25°C] and 0% glycol.

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ZoneTight Pressure Independent Zone Valve (PIQCV) Product Range

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

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

5-year warranty

PIQCV

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

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

Mode of Operation

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

Product Features

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

Actuator Specifications

Control type	
-3	on/off, floating point
-SR	modulating, 0.5...10 V*, 2...10 V
Blank	on/off
Manual override	use actuator to turn valve stem
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting screw terminals
Power consumption	
CQ..	0.3 W running, 0.2 W holding
CQK..	2.5 W running, 0.5 W holding
CQ..UP	1 W running, 0.7 W holding
CQK..UP	3.0 W running, 0.5 W holding
Power supply	AC/DC 24 V (AC 110...240 V, UP)
Transformer sizing	
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
Flow characteristic	equal percentage
Controllable flow range	75°
Sizes	½", ¾"
End fitting	NPT female
Materials	
Body	forged brass
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
O-rings	EPDM
Spring	stainless steel
Fluid temp. range	36...212°F [2...100°C]**
Fluid temp. limit	250°F [120°C]**
Maximum allowable operating temperature	212°F [100°C]**
PT ports	2
Body pressure rating	360 psi
Close-off pressure	200 psid
Differential pressure (ΔP) range	5...50 psid
Leakage	0%
Flow control tolerance	±5%

*Specify upon ordering.

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

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ZoneTight Zone Valve (QCV) Product Range

		Valve Nominal Size		Type		Suitable Actuators	
	C_V	Inches	DN [mm]	2-way	3-way	Non Fail-Safe	Fail-Safe
NPT	1.4*	½	15	Z2050Q-F		CQ Series	CQK Series
	5.9*	½	15	Z2050Q-J			
	9.8*	¾	20	Z2075Q-K			
	1	½	15		Z3050Q-E		
	2.7	½	15		Z3050Q-H		
	4.6	¾	20		Z3075Q-J		
Sweat	1.4*	½	15	Z2050QS-F			
	5.9*	½	15	Z2050QS-J			
	9.8*	¾	20	Z2075QS-K			
	1	½	15		Z3050QS-E		
	2.7	½	15		Z3050QS-H		
	4.6	¾	20		Z3075QS-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)-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)-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)-K (¾")	0.5	1.0	N/A	1.5	2.3	N/A	3.3	N/A	4.6	6.6	9.8

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

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

Actuator Specifications

Control type	
-3	on/off, floating point
-SR	modulating, 2...10 V
Blank	on/off
Manual override	use actuator to turn valve stem
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting screw terminals
Power consumption	
CQ..	0.3 W running, 0.2 W holding
CQK..	2.5 W running, 0.5 W holding
CQ..UP	1.0 W running, 0.7 W holding
CQK..UP	3.0 W running, 0.5 W holding
Power supply	AC/DC 24 V (AC 100...240 V, UP)
Transformer sizing	
CQ..	0.6 VA
CQK..	5 VA
CQ..UP	2 VA
CQK..UP	7 VA

Valve Specifications

Fluid	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 sweat
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]**
Maximum allowable operating temperature	212°F [100°C]**
Body pressure rating	360 psi
Close-off pressure	75 psid
Maximum differential pressure (ΔP)	40 psid
Leakage	0%

Teflon® is a registered trademark of DuPont™

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

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6-Way Characterized Control Valve (CCV) Product Range

		Valve Nominal Size		Type	Suitable Actuators	
Sequence 1 C_V	Sequence 2 C_V	Inches	DN [mm]	6-way NPT	Non Fail-Safe	
0.29	0.29	½	15	B315-029-029	LRB24-SR	LRX24-MFT
0.29	0.46	½	15	B315-029-046		
0.29	0.73	½	15	B315-029-073		
0.29	1.16	½	15	B315-029-116		
0.29	1.5	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	1.5	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	1.5	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	1.5	½	15	B315-116-150		
1.5	0.29	½	15	B315-150-029		
1.5	0.46	½	15	B315-150-046		
1.5	0.73	½	15	B315-150-073		
1.5	1.16	½	15	B315-150-116		
1.5	1.5	½	15	B315-150-150		
1.75	2	½	15	B315-175-200		
2	1.75	½	15	B315-200-175		
2	2	½	15	B315-200-200		
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		
2.9	4	¾	20	B320-290-400		
2.9	4.7	¾	20	B320-290-470		
4	2.9	¾	20	B320-400-290		
4	4	¾	20	B320-400-400		
4	4.7	¾	20	B320-400-470		
4.9	2.9	¾	20	B320-490-290		
4.9	4	¾	20	B320-490-400		
4.9	4.7	¾	20	B320-490-470		
7.4	7	1	25	B325-740-700	NRB24-SR	NRX24-MFT

5-year warranty

CCV

Linear Characteristic

Mode of Operation
The control valve is operated by an electronic actuator that responds to a modulating 4…20 mA control signal. The actuator will then move the ball of the valve to the position dictated by the control signal thus changing the flow.

Product Features
Linear characteristic, complete close-off resulting in 0% leakage.

Actuator Specifications

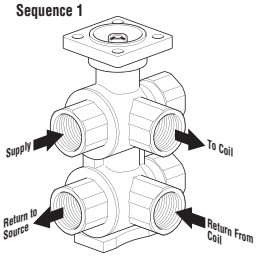
Control type	2...10 V, multi-function technology (MFT)
Manual override	LR..
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

Valve Specifications

Fluid	chilled or hot water, 60% glycol
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 temperature range	43...180°F [6...82°C]
Body pressure rating	232 psi
Close-off pressure	50 psid
Maximum differential pressure (ΔP)	15 psid
Leakage	0%

Teflon® is a registered trademark of DuPont™.

Sequence 1



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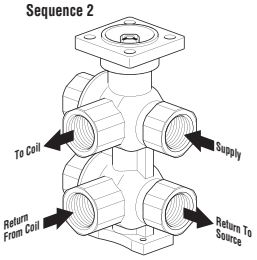

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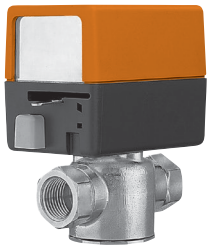
Electronic Zone Valve Product Range

	Valve Nominal Size		Type		Suitable Actuators			
C_V	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				
3.5	¾	20	ZONE220N-35	ZONE220S-35				
5	¾	20	ZONE220N-50	ZONE220S-50				
8	1	25	ZONE225N-80	ZONE225S-80				



2

2-year warranty

	Valve Nominal Size		Type		Suitable Actuators	
C_V	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		
3.5	¾	20	ZONE320N-35	ZONE320S-35		
5	¾	20	ZONE320N-50	ZONE320S-50		
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 AC 24 V or AC 120 V

Actuator Specifications

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

Valve Specifications

Fluid	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 or sweat
Materials	
Body	forged brass
Stem	stainless steel
Stem seals	EPDM
Paddle	EPDM
Fluid temp range	32...212°F [0...100°C]
Body pressure rating	300 psi
Close-off pressure	20...75 psid
Leakage	ANSI Class III 0.1%

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Characterized Control Valve (CCV) Product Range

	Valve Nominal Size		Type		Suitable Actuators				
C_v	Inches	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	TFR Series	LF Series	LR..-IP
0.46	½	15	B208(B)	B308(B)		NR Series			
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	AR Series	AR Series	AFR Series	AFR Series	AR..-IP / AKR..-IP / AFR..-IP
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.

5-year warranty

CCV

Equal Percentage Characteristic

Mode of Operation

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

Product Features

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

Actuator Specifications

Control type	on/off, floating point, 2...10 V, multi-function technology (MFT)
Manual override	TR, LR, AR, NR, 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
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...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
Fluid temp. range	0...250°F [-18...+120°C]
Body pressure rating	
2-way	
All ½", ¾", and 1"	600 psi
1¼" up to B230	600 psi
1¼" from B231	400 psi
1½...2"	400 psi
3-way	
All ½", ¾", and 1"	600 psi
1¼...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 C_V

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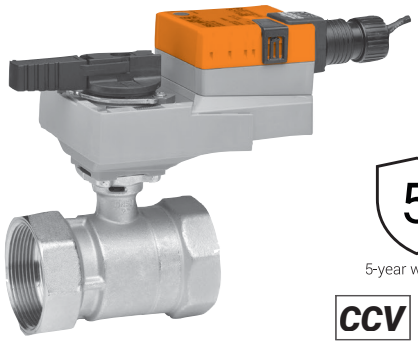
Characterized Control Valve (CCV) Product Range

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

* Models without characterizing disc



5

5-year warranty

CCV

Equal Percentage Characteristic

Mode of Operation

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

Product Features

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

Actuator Specifications

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

Valve Specifications

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

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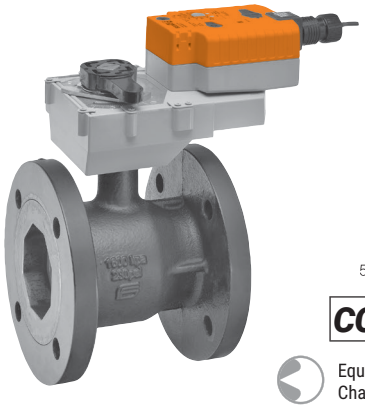
Characterized Control Valve (CCV) Product Range

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



5

5-year warranty

CCV

Equal Percentage Characteristic

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

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

Actuator Specifications

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

Valve Specifications

Fluid	chilled or hot water, up to 60% glycol max.
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	2½", 3", 4", 5", 6"
End fitting	ANSI Class 125 flange, flat face*, ANSI 250
Materials	
Body	cast iron GG25
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
Seat o-rings	EPDM rubber
Characterizing disc	stainless steel
Stem o-rings	EPDM
Fluid temp. range	0...250°F [-18...+120°C]
Body pressure rating	ANSI 125, Class B, ANSI 250
Close-off pressure	100 psid
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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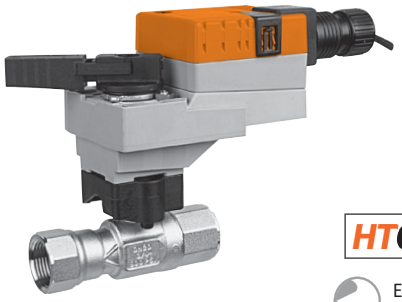
High Temperature Characterized Control Valve (HTCCV)
Product Range

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



5-year warranty

HTCCV

Equal Percentage Characteristic

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

Product Features
Equal-percentage flow characteristic.

Actuator Specifications	
Control type	on/off, floating point, 2...10 V, multi-function technology (MFT)
Manual override	only TR, LR series
Electrical connection	3 ft. [1 m] cable with ½"conduit fitting or covered screw terminal strip
Valve Specifications	
Fluid	hot water, up to 60% glycol, steam
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	½", ¾", 1"
End fitting	NPT female
Materials	
Body	brass (DZR) P-CuZn35Pb2
Ball	stainless steel
Stem	stainless steel
Seat	ETFE
Stem packing	Viton®
Characterizing disc	ETFE
Seat o-rings	EPDM
Body pressure rating	600 psi
Fluid temperature range	
Steam	250°F [120°C]
Water	60...266°F [16...130°C]
Close-off pressure	200 psid
Maximum differential pressure (ΔP)	
Steam	15 psid
Water	60 psid partially open ball 116 psid full open only (Model #B215HT455)
Maximum inlet pressure	
Steam	15 psi
Leakage	0%

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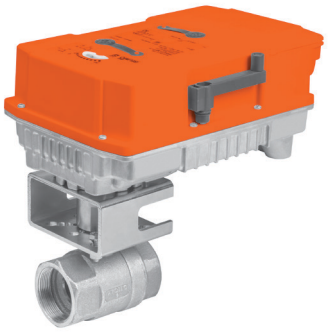
Industrial Ball Valve Product Range

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

* For hot only or cold only applications. Not for temperature changeover applications.
** Not for steam applications

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



2-year warranty

Mode of Operation
The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, by a modulating 4…20 mA, or floating point control system. The actuator will then move the ball of the valve to the position dictated by the control signal thus changing the flow.

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

Actuator Specifications

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

Valve Specifications

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

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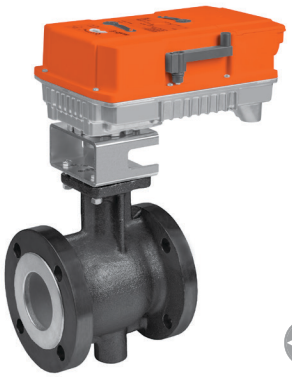
V Ball Control Valve
Product Range

	Valve Nominal Size		Type						
C_V	Inches	DN [mm]	2-way NPT	2-way Flanged	Non Fail-Safe			Fail-Safe	
								Spring Return	Electronic
024	1	25	B2100VB-024		AM Series		PR Series	NF Series	PKR Series
055	1½	40	B2150VB-055						
077	2	50	B2200VB-077					AF	
207	3	80		B6300VB-207					GK Series
350	4	100		B6400VB-350		GM		EF	
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 be operated, or as field condition dictates.



2

2-year warranty

Equal Percentage Characteristic

Mode of Operation

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, by a modulating 4…20 mA, 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, (60% glycol), steam
Flow characteristic	equal percentage
Sizes	1", 1½", 2", 3", 4", 6"
End fitting	SAE NPT female (1...2") ANSI flange (3...6")
Materials	
Body	carbon steel
Characterizing ball	hardened chrome plated stainless steel
Stem	stainless steel
Seats	Teflon®
O-rings	ALFAS
Stem packing	spring loaded Teflon® V-ring
Bushings	Stanyl PA46
Fluid temp. range	380°F max.
Body pressure rating	NPT ANSI 300 (1...2") Flange ANSI 150 (3...6")
Maximum ΔP steam	100 psid
Maximum ΔP water	150 psid
Close-off pressure	
Water	150 psid
Steam	200 psid
Maximum inlet pressure	
Steam	200 psi
Leakage	ANSI Class IV

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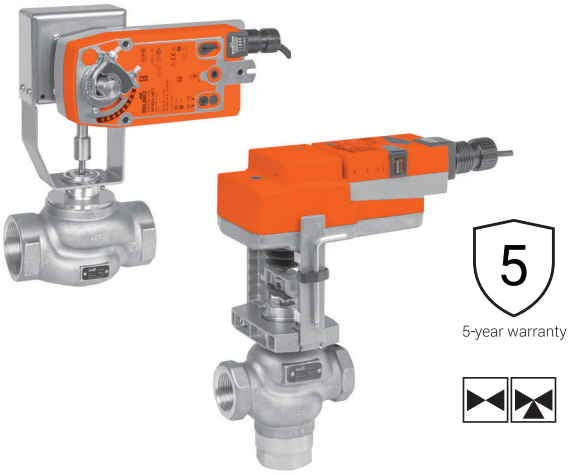
Globe Valve
Product Range

	Valve Nominal Size		Type		Suitable Actuators		
						Fail-Safe	
C_V	Inches	DN [mm]	2-way NPT	3-way NPT	Non Fail-Safe	Spring Return	Electronic
0.4	½	15	G215B-C		LV Series	LF Series	LVK Series
0.4	½	15	G215S-C				
1.3	½	15	G215B-F				
1.3	½	15	G215S-F				
2.2	½	15	G215B-G				
2.2	½	15	G215S-G				
4.4	½	15	G215B-J				
4.4	½	15	G215S-J				
5.5	¾	20	G220B-J				
5.5	¾	20	G220S-J				
7.5	¾	20	G220B-K				
7.5	¾	20	G220S-K				
10	1	25	G225B-K				
10	1	25	G225S-K				
14	1	25	G225B-L				
14	1	25	G225S-L				
20	1¼	32	G232B-M				
20	1¼	32	G232S-M				
28	1½	40	G240B-N			NF Series	
28	1½	40	G240S-N				
40	2	50	G250B-N				
40	2	50	G250S-N				
2.2	½	15		G315B-G	SV Series		SVK Series
4.4	½	15		G315B-J			
6.75	¾	20		G320B-K			
14	1	25		G325B-L			
20	1¼	32		G332B-M			
28	1½	40		G340B-N		AF Series	
40	2	50		G350B-N			



5-year warranty

Mode of Operation
The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, by a modulating 2...10 V/ 4...20 mA, 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, 60% glycol, steam
Flow characteristic	modified equal percentage G3: linear flow from B to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
End fitting	NPT female
Materials	
Body	bronze
Stem	stainless steel
Plug	G2B, G3B: brass G2S: stainless steel
Seat	G2B, G3B: bronze G2S: stainless steel
Stem packing	EPDM O-ring
Fluid temp. range	G2B, G3B: 20...280°F [-7...+138°C] G2S: 20...338°F [-7...+170°C]
Body pressure rating	ANSI Class 250
Maximum inlet pressure	
Steam	G2B: 35 psi [241 kPa] G2S: 100 psi [690 kPa]
Maximum differential pressure (ΔP)	G2B: 35 psid [241 kPa] G2S: 50 psid [345 kPa]
Leakage	ANSI Class VI
Rangeability	100:1

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Globe Valve Product Range

	Valve Nominal Size		Type	Suitable Actuators		
					Fail-Safe	
C_v	Inches	DN [mm]	2-way Flanged	Non Fail-Safe	Spring Return	Electronic
65	2½	65	G665C	EV Series	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.

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, a modulating 2...10 V/4...20 mA, 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, 60% glycol, steam
Flow characteristic	
G6	A-port equal percentage
G6LCS	linear
Sizes	2½", 3", 4", 5", 6"
End fitting	ANSI flange
Materials	
Body	cast iron
Stem	stainless steel
Plug	bronze
Seat	
G6	stainless steel
G6..S	stainless steel
Stem packing	
G6	bronze trimmed: NLP (EPDM)
G6S	stainless trimmed: NLP (EPDM)
Fluid temp. range	refer to valve specification pages in this section
Body pressure rating	
G6.., ANSI 125	125 psi
G6..-250, ANSI 250	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 psid [172 kPa] G6C, G6C..250, 50 psid [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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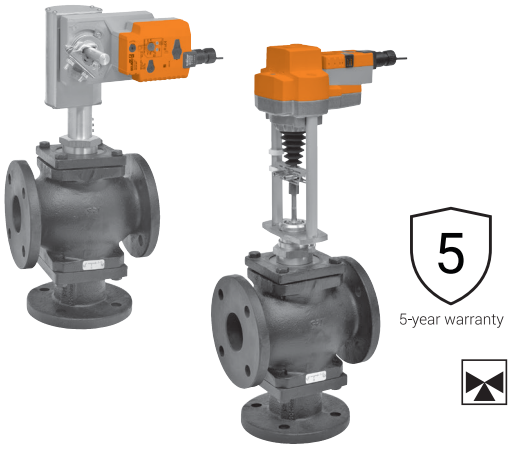
Globe Valve
Product Range

	Valve Nominal Size			Suitable Actuators		
				Non Fail-Safe	Fail-Safe	
C_V	Inches	DN [mm]	3-Way Flanged		Spring Return	Electronic
68	2½	65	G765	EV / RV Series	AFX Series	AVK Series
68	2½	65	G765S			
68	2½	65	G765-250			
68	2½	65	G765S-250			
90	3	80	G780			
90	3	80	G780S			
90	3	80	G780-250			
90	3	80	G780S-250			
190	4	100	G7100			GK Series
190	4	100	G7100S			
190	4	100	G7100-250			
190	4	100	G7100S-250			
280	5	125	G7125	RV Series		
280	5	125	G7125S			
280	5	125	G7125-250			
280	5	125	G7125S-250			
340	6	150	G7150			
340	6	150	G7150S			
340	6	150	G7150-250			
340	6	150	G7150S-250			
68	2½	65	G765D	EV Series	AFX Series	AVK Series
68	2½	65	G765DS			
68	2½	65	G765DS-250			
90	3	80	G780D			
90	3	80	G780DS			
90	3	80	G780DS-250			
154	4	100	G7100D			
154	4	100	G7100DS			
154	4	100	G7100DS-250			
195	5	125	G7125D			
195	5	125	G7125DS			
195	5	125	G7125DS-250			
248	6	150	G7150D			
248	6	150	G7150DS			
248	6	150	G7150DS-250			



5-year warranty

Mode of Operation
The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, a modulating 2...10 V/4...20 mA, 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, 60% glycol
Flow characteristic	linear
Sizes	2½", 3", 4", 5", 6"
End fitting	ANSI flanged
Materials	
Body	cast iron
Stem	stainless steel
Plug	bronze
Seat	
G7	stainless steel
G7..S	stainless steel
Stem packing	
G7	bronze trimmed: NLP (EPDM)
G7..S	stainless trimmed: NLP (EPDM)
Fluid 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 psid [172 kPa] G7, G7..250 50 psid [345 kPa] G7S,G7S..250
Rangeability	50:1

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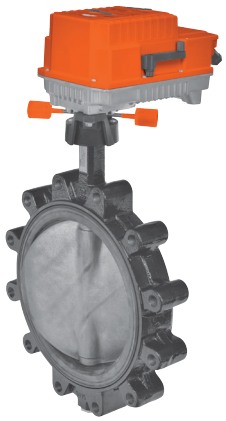
Resilient Seat Butterfly Valve Product Range

		2-way			Suitable Actuators								
		Valve Nominal Size		Type	Non Fail-Safe					Fail-Safe			
										Spring Return	Electronic		
C_V 90°	C_V 60°	IN	DN [mm]	2-way	HDU LU	L	HD			HD	L	HD	
115	44	2	50	F650			AR	GR Series		AF Series			
196	75	2½	65	F665									
302	116	3	80	F680	AR GR							GK	
600	230	4	100	F6100	GR		DR		PR Series			DKR	PKR Series
1022	392	5	125	F6125									
1579	605	6	150	F6150	DR								
3136	1202	8	200	F6200	PR	PR					PKR		
5340	2047	10	250	F6250									
8250	3162	12	300	F6300									
11917	4568	14	350	F6350					SY Series (2 Year Warranty)				
16388	6282	16	400	F6400									
21705	8320	18	450	F6450									
27908	10698	20	500	F6500									
43116	16528	24	600	F6600									

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



5-year warranty

Mode of Operation

Butterfly valves are capable of handling higher flow rates with relatively low pressure loss. These valves may be used for isolation (shut-off) service or throttling service within a range of 0...60 degrees for two-way valves. Butterfly valves are controlled with a maintenance-free electronic actuator or manually with an ergonomic handle or gear operator.

Product Features

The unique disc and seat design ensures positive valve seating while maintaining low seating torque.

Actuator Specifications

Control type	on/off, floating point, modulating, 2...10 V, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft. [1 m] cable terminal block (-T models)
Communication (PR)	BACnet MS/TP, NFC, listed by BTL, Modbus

Valve Specifications

Fluid	chilled, hot water, 60% glycol
Flow characteristic	F6 modified equal percentage F7 modified linear
Sizes	2...24"
End fitting	ASME/ANSI Class 125/150 flanges
Materials	
Body	ductile iron ASTM A536
Body finish	polyester powder coat
Disc	304 stainless steel
Shaft	HD Series: 416 stainless steel L Series: 420 stainless steel
Seat	EPDM
O-rings	EPDM
Bushings	HD Series: RPTFE L Series: bronze, steel, PTFE
Fluid (water) temp. range	-22...+250°F [-30...+120°C]
Body pressure rating	232 psi cold working pressure (CWP)
Close-off pressure	HDU, LU: 50 psid, 3...10" HD: 200 psid, 2...6" HD: 150 psid, 14...24" L Series: 200 psid 8...12"
Rangeability	10:1
Maximum velocity	12 FPS
Leakage	0%

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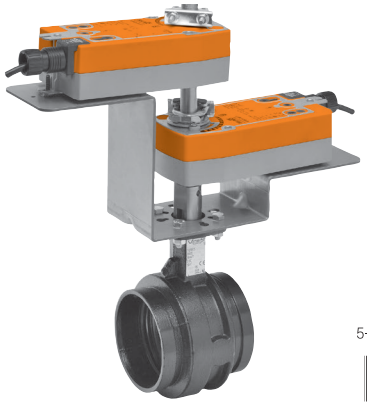
Grooved Butterfly Valve Product Range

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

		3-way					
		Valve Nominal Size		Type	Non Fail-Safe		Fail-Safe
C_V 90°	C_V 60°	IN	DN [mm]	3-way			
115	36	2	50	F750VIC		PR / PKR Series	PKR Series
260	80	2½	65	F765VIC	GM Series		
440	140	3	80	F780VIC			
820	250	4	100	F7100VIC			
1200	370	5	125	F7125VIC			
1800	560	6	150	F7150VIC		SY Series (2 Year Warranty)	
3400	1050	8	200	F7200VIC			
5800	1800	10	250	F7250VIC			
9000	2790	12	300	F7300VIC			



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, listed by BTL, Modbus

Valve Specifications

Fluid	chilled, hot water, 60% glycol
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 alkyd enamel
Disc	electrolysis nickel coated ductile iron
Shaft	416 stainless steel
Seat	EPDM
Bearings	fiberglass with TFE lining
Fluid temp. range	-22...+250°F [-30...+120°C]
Body pressure rating	300 psi
Close-off pressure	200 psid (for most combinations)
Rangeability	100:1
Maximum velocity	20 FPS
Leakage	0%

*VIC® 300 Masterseal™ is manufactured by Victaulic Company

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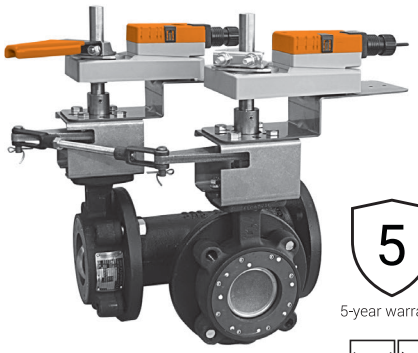
High Performance Butterfly Valve Product Range



5-year warranty

		2-way Valves			Suitable Actuators							
		Valve Nominal Size	Type		Non Fail-Safe				Fail-Safe			
									Spring Return		Electronic	
C_V 90°	C_V 60°	Inches	ANSI 150 2-way	ANSI 300 2-way	150		300		150	300	150	300
102	56	2	F650-150SHP	F650-300SHP	GM Series	PR Series	GM Series	PR Series	AF Series	AF Series	GK Series	GK Series
146	80	2½	F665-150SHP	F665-300SHP								
228	125	3	F680-150SHP	F680-300SHP							PKR	PKR
451	248	4	F6100-150SHP	F6100-300SHP				SY (2 Year Warranty)				
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		SY Series (2 Year Warranty)						
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									
14420	7590	20*	F6500-150SHP									
22050	11550	24*	F6600-150SHP									

Note: C_V values listed for ANSI Class 150 Butterfly Valves. Please consult the technical documentation for ANSI Class 300 C_V values and configurations.
*Call Customer Service at 1-800-543-9038 for product availability. Longer lead times may apply.

		3-way Valves			Suitable Actuators					
		Valve Nominal Size	Type		Non Fail-Safe				Electronic Fail-Safe	
C_V 90°	C_V 60°	Inches	ANSI 150 3-way	ANSI 300 3-way	150		300		150	300
102	56	2	F750-150SHP	F750-300SHP	GM Series	PR Series	GM Series	PR Series	GK Series	GK Series
146	80	2½	F765-150SHP	F765-300SHP						
228	125	3	F780-150SHP	F780-300SHP						PKR
451	248	4	F7100-150SHP	F7100-300SHP						
714	392	5	F7125-150SHP	F7125-300SHP						
1103	607	6	F7150-150SHP	F7150-300SHP		SY Series (2 Year Warranty)		SY Series (2 Year Warranty)		
2064	1135	8	F7200-150SHP	F7200-300SHP						
3517	1934	10	F7250-150SHP	F7250-300SHP						
4837	2660	12	F7300-150SHP	F7300-300SHP						
6857	3592	14*	F7350-150SHP							
9287	4865	16*	F7400-150SHP							

Note: C_V values listed for ANSI Class 150 Butterfly Valves. Please consult the technical documentation for ANSI Class 300 C_V values and configurations.
*Call Customer Service at 1-800-543-9038 for product availability. Longer lead times may apply.

Mode of Operation
High performance butterfly valves are designed for modulating and isolation service and feature a machined seat design and blow out proof solid shaft, providing better torque consistency, which offers longer actuator life and reduced risk of leakage. Available for a variety of high temperature and pressure ratings i.e., ASME/ANSI Class 300 or 150. Valve sizes range from 2...24 inches, with rangeabilities of 100:1, 0% leakage ratings, and a maximum valve velocity of 32 FPS.

Product Features
Unique body seat and double offset disc design ensures positive valve sealing to help assure leak free performance in water applications while maintaining low seating torque.

Actuator Specifications

Control type	on/off, floating point, modulating, 2...10 V, multi-function technology (MFT)
Manual override	all models
Electrical connection	3 ft. [1 m] cable terminal block (-T models)
Communication (PR)	BACnet MS/TP, NFC, listed by BTL, Modbus

Valve Specifications

Fluid	chilled or hot water, 60% glycol, 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
Fluid temp. range	-22...+400°F [-30...+204°C]
Body pressure rating	150 SHP: ASME/ANSI Class 150 300 SHP: ASME/ANSI Class 300
Close-off pressure	150: 285 psid, 300: 600 psid (max)
Rangeability	100:1
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.

SHP Flowseal is manufactured by CRANE company.

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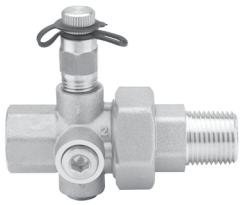
Pipe Package Product Range

	Valve Nominal Size		Hoses	Union	Isolation Valve	Manual Balancing Valve	Strainer
Valve Series	**Inches**	**DN [mm]**	**Lengths**	**Body End/ Tailpiece End**	**Body End/ Tailpiece End**	**Body End/ Tailpiece End**	**Body End/ Tailpiece End**
PIQCV 2-Way	½	15	12”, 18”, 24”	F-NPT, Sweat, Press Fit/ M-NPT	F-NPT, Sweat, Press Fit/ M-NPT		F-NPT, Sweat, Press Fit/F-NPT, M-NPT
	¾	20	12”, 18”, 24”				
ePIV / EV 2-Way	½	15	12”, 18”, 24”				
	¾	20	12”, 18”, 24”				
	1	25	12”, 18”, 24”				
	1¼	32	18”, 24”, 36”				
	1½	40	18”, 24”, 36”				
	2	50	24”, 36”				
CCV 2-Way	½	15	12”, 18”, 24”			F-NPT, Sweat, Press Fit/M-NPT	
	¾	20	12”, 18”, 24”				
	1	25	12”, 18”, 24”				
	1¼	32	18”, 24”, 36”				
	1½	40	18”, 24”, 36”				
	2	50	24”, 36”				
CCV 3-Way	½	15	12”, 18”, 24”		F-NPT, Sweat, Press Fit/ M-NPT		
	¾	20	12”, 18”, 24”				
	1	25	12”, 18”, 24”				
	1¼	32	18”, 24”, 36”				
	1½	40	18”, 24”, 36”				
	2	50	24”, 36”				
QCV 2-Way	½	15	12”, 18”, 24”				
	¾	20	12”, 18”, 24”				
Zone Valves 2-Way	½	15	12”, 18”, 24”				
	¾	20	12”, 18”, 24”				
	1	25	12”, 18”, 24”				

Hose Technical Specifications

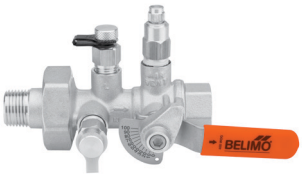
Operating & burst pressure rating	
½”	375 psi operating
	1500 psi burst pressure
¾”	300 psi operating
	1200 psi burst pressure
1”	225 psi operating
	900 psi burst pressure
1¼”	200 psi operating
	800 psi burst pressure
1½”	175 psi operating
	600 psi burst pressure
2”	150 psi operating
	500 burst pressure
Component temperature	-5...+230°F [-20...+110°C] less than 41°F with use of glycol additive.

Note: Fluid temperature may be limited by the hose rating



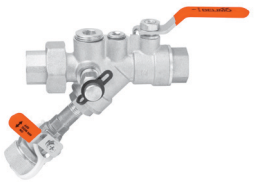
Union Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½”, ¾”, 1”, 1¼”, 1½”, 2”
Pressure/temperature ratings	
½...2”	600 psi
Component temperature	250°F maximum



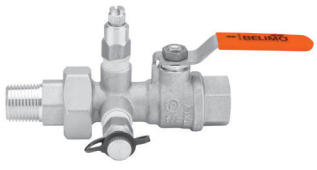
Manual Balance Valve Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½”, ¾”, 1”, 1¼”, 1½”, 2”
Pressure/temperature ratings	
½...2”	400 psi
Component temperature	300°F maximum
Leakage	0%



Strainer Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½”, ¾”, 1”, 1¼”, 1½”, 2”
Pressure/temperature ratings	
½...2”	600 psi
Component temperature	325°F maximum
Leakage	0%



Isolation Valve Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½”, ¾”, 1”, 1¼”, 1½”, 2”
Pressure/temperature ratings	
½...¾”	600 psi
1...2”	500 psi
Component temperature	300°F maximum
Leakage	0%

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Duct / Immersion Sensor Product Range
Temperature

Measuring Values				
Temperature		Output Signal Temperature	Probe Length [mm]	Cable Length [m]
01DT-5AH	Passive	PT100	2" [50]	
01DT-5AL		PT100	4" [100]	
01DT-5AN		PT100	6" [150]	
01DT-5AP		PT100	8" [200]	
01DT-5AR		PT100	12" [300]	
01DT-5AT		PT100	18" [450]	
01DT-5BH		PT1000	2" [50]	
01DT-5BL		PT1000	4" [100]	
01DT-5BN		PT1000	6" [150]	
01DT-5BP		PT1000	8" [200]	
01DT-5BR		PT1000	12" [300]	
01DT-5BT		PT1000	18" [450]	
01DT-5EH		Ni1000	2" [50]	
01DT-5EL		Ni1000	4" [100]	
01DT-5EN		Ni1000	6" [150]	
01DT-5EP		Ni1000	8" [200]	
01DT-5ER		Ni1000	12" [300]	
01DT-5ET		Ni1000	18" [450]	
01DT-5LH		NTC10k2	2" [50]	
01DT-5LL		NTC10k2	4" [100]	
01DT-5LN		NTC10k2	6" [150]	
01DT-5LP		NTC10k2	8" [200]	
01DT-5LR		NTC10k2	12" [300]	
01DT-5LT		NTC10k2	18" [450]	
01DT-5MH		NTC10K3	2" [50]	
01DT-5ML		NTC10K3	4" [100]	
01DT-5MN		NTC10K3	6" [150]	
01DT-5MP		NTC10K3	8" [200]	
01DT-5MR		NTC10K3	12" [300]	
01DT-5MT		NTC10K3	18" [450]	
01DT-5QH		NTC20K	2" [50]	
01DT-5QL		NTC20K	4" [100]	
01DT-5QN		NTC20K	6" [150]	
01DT-5QP		NTC20K	8" [200]	
01DT-5QR		NTC20K	12" [300]	
01DT-5QT		NTC20K	18" [450]	
Cable Flange				
01CT-5BL	Passive	PT1000	4" [100]	6.5 ft. [2]
01CT-5BP		PT1000	8" [200]	6.5 ft. [2]
01CT-5LL		NTC10k2	4" [100]	6.5 ft. [2]
01CT-5LP		NTC10k2	8" [200]	6.5 ft. [2]
01CT-5ML		NTC10K3	4" [100]	6.5 ft. [2]
01CT-5MP		NTC10K3	8" [200]	6.5 ft. [2]
01CT-5QL		NTC20K	4" [100]	6.5 ft. [2]
01CT-5QP		NTC20K	8" [200]	6.5 ft. [2]

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.

01DT

01CT

Includes Adjustable Mounting Flange

Includes Duct Mounting Kit

A-22P-A60

½" Thermowell adaptor available for retrofit applications. See accessories section in the Product Guide and Price List.

01DT Optional Accessory
A-22D-A03 Adjustable Duct Mounting Flange

c UL us

5-year warranty

Duct and immersion temperature sensors for duct and pipe applications provide air or water temperature (with A-22P-A series Thermowell) readings to air handling equipment, unitary HVAC equipment, and central plants. Duct flange mount sensors with adjustable mounting flange are ideal for HVAC equipment that do not require electrical conduit, for example, AHU, FCU, and VAV applications.

Accuracy	PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.3°F @ 77°F [±0.2°C @ 25°C]
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	
01DT	-30...+120°F [-35...+50°C]
01CT	-30...+210°F [-35...+100°C]
Operating Temperature	
01DT	NTC..= -60...+300°F [-50...+150°C] PT., Ni.. = -60...+320°F [-50...+160°C]
01CT	-30...+210°F [-35...+100°C]
Degree of Protection	
01DT	NEMA 4X, IP65
01CT	NEMA 4X, IP67
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

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Duct / Immersion Sensor Product Range
Temperature

Measuring Values			Measuring Ranges									Additional Features
				Temperature								
Duct / Immersion Temperature		Output Signals (default)	Multirange	-30...+130°F [-50...+50°C]	0...150°F [0...160°C]	0...100°F [-15...+35°C]	0...250°F [-10...+120°C]	30...480°F [0...250°C]	40...90°F [-20...+80°C]	40...140°F [0...50°C]	40...240°F [0...100°C]	Probe Length [mm]
22DT-52H	Active	0...5 V (0...10 V)	8	●	•	●	●	●	●	●	●	2" [50]
22DT-52L		0...5 V (0...10 V)	8	●	•	●	●	●	●	●	●	4" [100]
22DT-52N		0...5 V (0...10 V)	8	●	•	●	●	●	●	●	●	6" [150]
22DT-52P		0...5 V (0...10 V)	8	●	•	●	●	●	●	●	●	8" [200]
22DT-52R		0...5 V (0...10 V)	8	●	•	●	●	●	●	●	●	12" [300]
22DT-52T		0...5 V (0...10 V)	8	●	•	●	●	●	●	●	●	18" [450]
22DT-54H		4...20 mA	8	●	•	●	●	●	●	●	●	2" [50]
22DT-54L		4...20 mA	8	●	•	●	●	●	●	●	●	4" [100]
22DT-54N		4...20 mA	8	●	•	●	●	●	●	●	●	6" [150]
22DT-54P		4...20 mA	8	●	•	●	●	●	●	●	●	8" [200]
22DT-54R		4...20 mA	8	●	•	●	●	●	●	●	●	12" [300]
22DT-54T		4...20 mA	8	●	•	●	●	●	●	●	●	18" [450]

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

Please note: 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.

22DT

22DT Optional Accessory
A-22D-A03 Adjustable Duct Mounting Flange

Includes Duct Mounting Kit

A-22P-A60

½" Thermowell adaptor available for retrofit applications. See accessories section in the Product Guide and Price List.

5-year warranty

Duct and immersion temperature sensor for duct and pipe applications provides air or water temperature readings to air handling equipment, unitary HVAC equipment, and central plants.

Accuracy	±1% of upper selected measuring range
Power Supply	DC 15...24 V (± 10%), AC 24 V (± 10%) DC 15...24 V (± 10%) (4...20 mA)
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	-30...+120°F [-35...+50°C]
Operating Temperature	-60...+320°F [-50...+160°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

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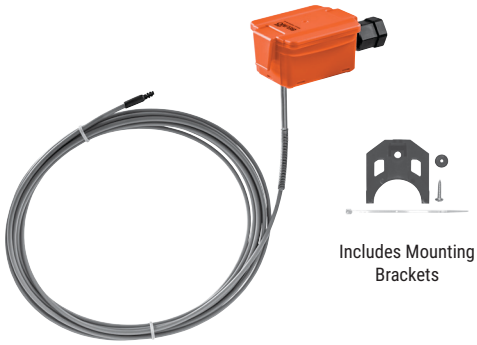
Duct Averaging Sensor Product Range
Temperature

Measuring Values					Temperature								Additional Features
Duct Averaging Temperature		Output Signals (default)	Multirange	True Averaging	-30...+130°F [-50...+50°C]	0...150°F [0...160°C]	0...100°F [-15...+35°C]	0...250°F [-10...+120°C]	30...480°F [0...250°C]	40...90°F [-20...+80°C]	40...140°F [0...50°C]	40...240°F [0...100°C]	Probe Length [m]
01MT-5B4	Passive	PT1000		●									10 ft [3]
01MT-5B5		PT1000		●									20 ft [6]
01MT-5E4		Ni1000											10 ft [3]
01MT-5E5		Ni1000											20 ft [6]
01MT-5L4		NTC10k2											10 ft [3]
01MT-5L5		NTC10k2											20 ft [6]
01MT-5M4		NTC10K3											10 ft [3]
01MT-5M5		NTC10K3											20 ft [6]
01MT-5Q4		NTC20K											10 ft [3]
01MT-5Q5		NTC20K											20 ft [6]
22MT-524	Active	0...5 V (0...10 V)	8	●	●	●	●	●	●	●	●	●	10 ft [3]
22MT-525		0...5 V (0...10 V)	8	●	●	●	●	●	●	●	●	●	20 ft [6]
22MT-544		4...20 mA	8	●	●	●	●	●	●	●	●	●	10 ft [3]
22MT-545		4...20 mA	8	●	●	●	●	●	●	●	●	●	20 ft [6]

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

Please note: 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.



Includes Mounting Brackets

22MT and 01MT

5-year warranty

Duct averaging sensors with 10 or 20 foot [3 or 6 meter] probes are for applications where stratified layers of hot and cold air can occur when outside air and return air are mixed. PT1000 and Active versions are true averaging and one continuous RTD across entire length of the probe to combat against air stratification problems.

Accuracy	
22MT	±1% of upper 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.. = ±0.3°F @ 77°F [±0.2°C @ 25°C]
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	
Passive	-30...+120°F [-35...+50°C]
Active	-30...+120°F [-35...+50°C]
Operating Temperature	
Passive	
PT, Ni	-30...+160°F [-35...+70°C]
NTC	32...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

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Cable Sensor Product Range
Temperature

Measuring Values			Measuring Ranges									Additional Features	
			Temperature										
Cable Temperature		Output Signals (default)	Multirange	-30...+130°F [-50...+50°C]	0...100°F [-15...+35°C]	0...150°F [0...160°C]	0...250°F [-10...+120°C]	30...480°F [0...250°C]	40...90°F [-20...+80°C]	40...140°F [0...50°C]	40...240°F [0...100°C]	Probe Length [mm]	Cable Length [m]
22CT-52H	Active	0...5 V (0...10 V)	8	●	●	•	●	●	●	●	●	2" [50]	6.5 ft [2]
22CT-54H	Active	4...20 mA	8	●	●	•	●	●	●	●	●	2" [50]	6.5 ft [2]
01CT-5AH	Passive	PT100										2" [50]	6.5 ft [2]
01CT-5BH	Passive	PT1000										2" [50]	6.5 ft [2]
01CT-5EH	Passive	Ni1000										2" [50]	6.5 ft [2]
01CT-5LH	Passive	NTC10k2										2" [50]	6.5 ft [2]
01CT-5MH	Passive	NTC10K3										2" [50]	6.5 ft [2]
01CT-5QH	Passive	NTC20K										2" [50]	6.5 ft [2]

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

Please note: 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.

22CT
Includes Mounting Plate

01CT

A-22D-A09
Mounting Plate

5-year warranty

Cable temperature sensors with two-inch stainless steel probe are designed to measures air or water temperature for duct and pipe applications.

Accuracy	
22CT	±1% of upper 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.. = ±0.3°F @ 77°F [±0.2°C @ 25°C]
Power Supply	
22CT	DC 15...24 V (± 10%), AC 24 V (± 10%) DC 15...24 V (± 10%) (4...20 mA)
Cable Entry	
22CT	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	
Passive	-30...+210°F [-35...+100°C]
Active	-30...+120°F [-35...+50°C]
Operating Temperature	
Passive	-30...+210°F [-35...+100°C]
Active	-60...+250°F [-50...+120°C]
Degree of Protection	
22CT	NEMA 4X, IP65
01CT	NEMA 4X, IP67
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

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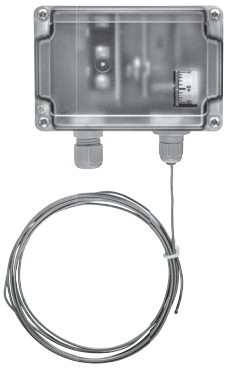
Low Limit Detection Sensor Product Range

Temperature

Low Limit Detection Temperature (Frost Protection)		Measuring Values: Output Signal: SPDT	Measuring Values: Reset: Auto	Measuring Values: Reset: Manual	Measuring Values: Setpoint Range: 14...54°F [-10...+12°C]	Additional Features: Probe Length [m]
01DTS-504	Switch	●	●		●	10 ft [3]
01DTS-504X		●		●	●	10 ft [3]
01DTS-505		●	●		●	20 ft [6]
01DTS-505X		●		●	●	20 ft [6]



01DTS

Includes Mounting Clips

5

5-year warranty

Duct mounted low-temperature detection sensors with vapor filled copper capillary tube are used to protect water coils from freezing within the air handling equipment. Any section of the capillary tube that is below the setpoint will cause the vapor to condense to a liquid and trip the SPDT contact. Reset option is manual or automatic.

Accuracy	±0.9°F [±0.5°C]
Cable Entry	cable gland cap nut with strain relief Ø6...8 mm
Ambient Temperature	-30...+160°F [-35...+70°C]
Operating Temperature	-30...+160°F [-35...+70°C]
Degree of Protection	NEMA 4, IP65

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Duct Sensor Product Range
Temperature / Humidity

Measuring Values				Measuring Ranges												
				Temperature					Relative Humidity	Absolute Humidity	Dewpoint	Enthalpy	Additional Features	
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]
22DTH-53M	Active	4...20 mA	4...20 mA	4	●	●	●	•	•	●	●	●		5.5" [140]
22DTH-51MB	Passive	PT1000	0...5 V (0...10 V)						•	●	●	●		5.5" [140]
22DTH-51ME	Passive	Ni1000	0...5 V (0...10 V)						•	●	●	●		5.5" [140]
22DTH-51ML	Passive	NTC10k2	0...5 V (0...10 V)						•	●	●	●		5.5" [140]
22DTH-51MM	Passive	NTC10k3	0...5 V (0...10 V)						•	●	●	●		5.5" [140]
22DTH-51MQ	Passive	NTC20k	0...5 V (0...10 V)						•	●	●	●		5.5" [140]
22DTH-53MB	Passive	PT1000	4...20 mA						•	●	●	●		5.5" [140]
22DTH-53ME	Passive	Ni1000	4...20 mA						•	●	●	●		5.5" [140]
22DTH-53ML	Passive	NTC10k2	4...20 mA						•	●	●	●		5.5" [140]
22DTH-53MM	Passive	NTC10k3	4...20 mA						•	●	●	●		5.5" [140]
22DTH-53MQ	Passive	NTC20k	4...20 mA						•	●	●	●		5.5" [140]
22DTH-55M	Active	0...5 V (0...10 V)	0...5 V (0...10 V)						•	●	●	●	Modbus RTU	5.5" [140]
22DTH-56M	Active	0...5 V (0...10 V)	0...5 V (0...10 V)						•	●	●	●	BACnet MS/TP	5.5" [140]

• 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.

22DTH

Includes Adjustable Mounting Flange

Modbus BTL c UL us 5-year warranty

Duct mounted combination temperature and humidity sensors are factory set to relative humidity to manage occupant comfort settings. Field selectable with absolute humidity output which determines the moisture content, dew point output manages space moisture, enthalpy output defines the amount of outside air for free cooling by the air handling equipment with integrated economizer sequence. Available with active or passive temperature outputs.

Accuracy	
Temperature	Active = ±0.9°F @ 70°F [±0.5°C @ 21°C] PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.3°F @ 77°F [±0.2°C @ 25°C]
Humidity	±2% between 10...90% RH @ 70°F [21°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	-40...+175°F [-40...+80°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

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Duct Sensor Product Range
Air Quality

Measuring Values			Measuring Ranges						Additional Features		
			Temperature		Relative Humidity	CO_2		VOC			
CO_2		Output Signals	40...140°F	0...50°C	0...100% RH non-condensing	0...2000 ppm	0...5000 ppm	0...100%	Communication	Probe Length [mm]	Display
22DC-51	Active	0...5 V, 0...10 V				●				7" [180]	
22DC-53		4...20 mA, 0...5 V, 0...10 V				●				7" [180]	
CO_2 / Temperature											
22DTC-51		0...5 V, 0...10 V	●			●				7" [180]	
22DTC-11*		0...5 V, 0...10 V		●		●				7" [180]	
22DTC-53		4...20 mA, 0...5 V, 0...10 V	●			●				7" [180]	
22DTC-13*		4...20 mA, 0...5 V, 0...10 V		●		●				7" [180]	
22DTC-5105		0...5 V, 0...10 V	●				●			7" [180]	
22DTC-1105*		0...5 V, 0...10 V		●			●			7" [180]	
CO_2 / Humidity / Temperature											
22DTM-51		0...5 V, 0...10 V	●		●	●				7" [180]	
22DTM-11*		0...5 V, 0...10 V		●	●	●				7" [180]	
22DTM-5106		0...5 V, 0...10 V	●		●	●				7" [180]	LCD
22DTM-1106*		0...5 V, 0...10 V		●	●	●				7" [180]	LCD
22DTM-56		0...5 V, 0...10 V	●		●	●			BACnet MS/TP	7" [180]	
CO_2 / VOC											
22DCV-51		0...5 V, 0...10 V				●		●		7" [180]	
CO_2 / VOC / Mix CO_2 + VOC / Temperature											
22DCK-51		0...5 V, 0...10 V	●			●		●		7" [180]	
22DCK-11*		0...5 V, 0...10 V		●		●		●		7" [180]	
CO_2 / VOC / Temperature											
22DCM-51		0...5 V, 0...10 V	●			●		●		7" [180]	
22DCM-11*		0...5 V, 0...10 V		●		●		●		7" [180]	

*Temperature range configured for degrees Celsius.

22DTM

Includes Adjustable Mounting Flange

5-year warranty

Combined duct mounted air quality sensors for detection of CO_2, VOC, temperature, and humidity. The dual channel CO_2 sensor monitors building occupancy levels and is used to control the amount of outside air supplied by the air handling equipment to ensure air quality and maximize energy savings over the life-cycle of the building.

Accuracy	
Temperature	±0.9 °F @ 70 °F [±0.5 °C @ 21 °C]
Humidity	±2% between 10...90% RH @ 70°F [21°C]
CO_2	±50 ppm and 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	32...120°F [0...50°C]
Operating Temperature	32...120°F [0...50°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

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Duct Switch Product Range
Pressure

Measuring Values			Measuring Ranges				Units
			Pressure				
Differential Pressure Switch		Output Signals (default)	0.08...1.20 inch WC [20...300 Pa]	0.20...2 inch WC [50...500 Pa]	0.80...4 inch WC [200...1000 Pa]	2...10 inch WC [500...2500 Pa]	package of 45
01APS-501	Switch	SPDT			●		
01APS-501.1		SPDT			●		●
01APS-504		SPDT				●	
01APS-504.1		SPDT				●	●
01APS-50R		SPDT	●				
01APS-50R.1		SPDT	●				●
01APS-50U		SPDT		●			
01APS-50U.1		SPDT		●			●

01APS

Includes 6.5 ft. [2 m] tubing and two 4" [100 mm] plastic probes

5-year warranty

Duct mounted pressure switches monitor overpressure, vacuum and differential pressure of air or other noncombustible, non-aggressive gases. The differential pressure switches with automatic reset and field adjustable differential setpoint are used in air handling applications to monitor air filter cleanliness and fan status.

Accuracy	See data sheet for Accuracy and Repeatability
Cable Entry	cable gland M20 x 1.5 mm with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	-5...+185°F [-20...+85°C]
Operating Temperature	-5...+185°F [-20...+85°C]
Degree of Protection	NEMA 13, IP54
Agency Listing	ETL listed

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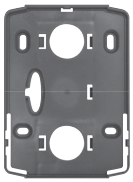
Duct Sensor Product Range
Pressure

Measuring Values			Measuring Ranges																				Additional Features		
				Pressure																					
Differential Pressure Sensor		Output Signals (default)	Multirange	-0.1...0.1 inch WC [-25...25 Pa]	-0.2...0.2 inch WC [-50...50 Pa]	-0.4...0.4 inch WC [-100...100 Pa]	-0.6...0.6 inch WC [-150...150 Pa]	0...0.1 inch WC [0...25 Pa]	0...0.2 inch WC [0...50 Pa]	0...0.4 inch WC [0...100 Pa]	0...1 inch WC [0...250 Pa]	0...2 inch WC [0...500 Pa]	0...4 inch WC [0...1000 Pa]	0...6 inch WC [0...1500 Pa]	0...8 inch WC [0...2000 Pa]	0...10 inch WC [0...2500 Pa]	0...12 inch WC [0...3000 Pa]	0...16 inch WC [0...4000 Pa]	0...20 inch WC [0...5000 Pa]	0...28 inch WC [0...7000 Pa]	Auto Zero - Calibration	Communication	Display
22ADP-58Q	Active	0...5 V, 0...10 V	8	●	●	●	●	●	●	●	•													
22ADP-58QA	Active	0...5 V, 0...10 V	8	●	●	●	●	●	●	●	•											●		
22ADP-58QB	Active	0...5 V, 0...10 V	8	●	●	●	●	●	●	●	•											●		LCD
22ADP-58QL	Active	0...5 V, 0...10 V	8	●	●	●	●	●	●	●	•													LCD
22ADP-55Q	Active	0...5 V, 0...10 V	8	●	●	●	●	●	●	●	•												Modbus RTU	
22ADP-55QA	Active	0...5 V, 0...10 V	8	●	●	●	●	●	●	●	•											●		
22ADP-55QB	Active	0...5 V, 0...10 V	8	●	●	●	●	●	●	●	•											●		LCD
22ADP-55QL	Active	0...5 V, 0...10 V	8	●	●	●	●	●	●	●	•													LCD
22ADP-584	Active	0...5 V, 0...10 V	8			●				●	●	●	●	●	●	●								
22ADP-584L	Active	0...5 V, 0...10 V	8			●				●	●	●	●	●	●	●								LCD
22ADP-554	Active	0...5 V, 0...10 V	8			●				●	●	●	●	●	●	●							Modbus RTU	
22ADP-554L	Active	0...5 V, 0...10 V	8			●				●	●	●	●	●	●	●								LCD
22ADP-556	Active	0...5 V, 0...10 V	8										●	●	●	●	●	●	●	●	•			
22ADP-556L	Active	0...5 V, 0...10 V	8										●	●	●	●	●	●	●	●	•			LCD
22ADP-586	Active	0...5 V, 0...10 V	8										●	●	●	●	●	●	●	●	•			
22ADP-586L	Active	0...5 V, 0...10 V	8										●	●	●	●	●	●	●	●	•			LCD

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

22ADP

Includes 6.5 ft. [2 m] tubing and two 4" [100 mm] plastic probes



A-22D-A10
Mounting Plate

Modbus

cULus

5-year warranty

Duct mounted pressure sensors monitor overpressure, vacuum and differential pressure of air or other noncombustible, non-aggressive gases. The differential pressure sensors with optional LCD, Modbus communications, true auto-zero or manual calibration are used to control air handler supply and return fan speed, maintain a differential pressure between spaces such as hospital isolation rooms or building entrances.

Accuracy	Refer to datasheet for accuracy on all field selectable pressure ranges
Power Supply	DC 15...24 V (± 10%), AC 24 V (± 10%)
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	-15...+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

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Pipe Sensor Product Range
Temperature / Condensation

Measuring Values			Measuring Ranges									Additional Features
				Temperature								
Temperature		Output Signals (default)	Multirange	-30...+130°F [-50...+50°C]	0...250°F [-10...+120°C]	0...100°F [-15...+35°C]	40...90°F [-20...80°C]	40...140°F [0...50°C]	0...150°F [0...160°C]	40...240°F [0...100°C]	30...480°F [0...250°C]	Cable Length [m]
01ST-5A3	Passive	PT100										6.5 ft. [2]
01ST-5B3		PT1000										6.5 ft. [2]
01ST-5E3		Ni1000										6.5 ft. [2]
01ST-5L3		NTC10k2										6.5 ft. [2]
01ST-5M3		NTC10K3										6.5 ft. [2]
01ST-5Q3		NTC20K										6.5 ft. [2]
01HT-5A	Passive	PT100										
01HT-5B		PT1000										
01HT-5E		Ni1000										
01HT-5L		NTC10k2										
01HT-5M		NTC10K3										
01HT-5Q		NTC20K										
22HT-52	Active	0...5 V, 0...10 V	8	•	•	•	•	•	•	◦	•	
22HT-54		4...20 mA	8	•	•	•	•	•	•	◦	•	

• 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.

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])

c UL us

5-year warranty

01HT and 22HT are surface mounted strap-on temperature sensors that incorporates 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 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.. = ±0.3°F @ 77°F [±0.2°C @ 25°C]
22HT	±1% of upper 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)	-30...+210 °F [-35...+100°C]
Active (22HT)	-30...+120°F [-35...+50°C]
Operating Temperature	
Passive (01HT/01ST)	-30...+210°F [-35...+90°C]
Active (22HT)	-30...+160°F [-35...+70°C]
Degree of Protection	
01ST	NEMA 4, IP65
01HT	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
	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

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Pipe Sensor Product Range
Condensation

Measuring Values			Additional Features	
Condensation		Output Signals (default)	Cable Length [m]	Remote Probe
22HH-50	Switch	SPDT		
22HH-500X		SPDT	6.5 ft. [2]	•

Includes Mounting Ties

22HH

22HH-500X

5-year warranty

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

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Pipe Sensor Product Range
Pressure

Measuring Values			Measuring Range			
			Pressure			
Gauge Pressure		Output Signals	0...15 psi	0...50 psi	0...100 psi	0...200 psi
22WP-511	Active	0...10 V	●			
22WP-514		0...10 V		●		
22WP-516		0...10 V			●	
22WP-517		0...10 V				●
22WP-531		4...20 mA	●			
22WP-534		4...20 mA		●		
22WP-536		4...20 mA			●	
22WP-537		4...20 mA				●

22WP

A-22WP-A01 Adaptor
¼" NPT...½" NPT

5
5-year warranty

Pressure sensors incorporate stainless steel strain gauge technology to measure liquids and provide gauge pressure readings for a wide variety of applications in industrial process and HVAC controls.

Accuracy	±0.5% Full Scale @ 77°F [25°C]
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%)
Cable Entry	mvs plug according to DIN EN175301-803 / type A
Thread/Port Connection	¼" NPT (external)
Ambient Temperature	-40...+220°F [-40...+105°C]
Operating Temperature	-40...+255°F [-40...+125°C]
Degree of Protection	NEMA 4, IP65

Pipe Sensor Product Range
Differential Pressure

Measuring Values			Measuring Range			
			Pressure			
Differential Pressure		Output Signals	0...15 psid	0...30 psid	0...50 psid	0...100 psid
22WDP-511	Active	0...10 V	●			
22WDP-512		0...10 V		●		
22WDP-514		0...10 V			●	
22WDP-515		0...10 V				●
22WDP-531		4...20 mA	●			
22WDP-532		4...20 mA		●		
22WDP-534		4...20 mA			●	
22WDP-535		4...20 mA				●

22WDP

See Accessories for ¼" NPT brass and stainless steel pipe adaptors

5
5-year warranty

Differential pressure sensors measure water and or non-aggressive gases are used with the building management system (BMS) to maintain adequate air or water pressure to critical zones.

Accuracy	<±1% of measuring range @ 23...167°F [-5...+75°C]
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%)
Cable Entry	angle plug according to DIN 43650, construction A
Ambient Temperature	15...120°F [-10...+50°C]
Operating Temperature	15...175°F [-10...+80°C]
Thread/Port Connection	¼" NPT (internal)
Degree of Protection	NEMA 4, IP65

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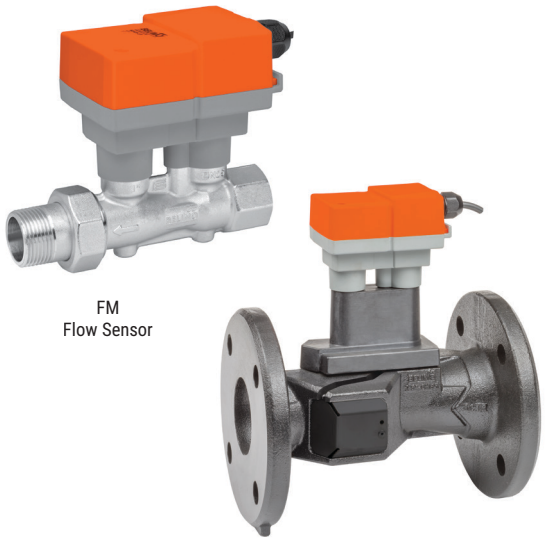
Pipe Sensor Product Range

Flow

Measuring Values				Flow (GPM)												Body Pressure Rating (psi)			Valve Size
	Flow Sensors		Output Signals	0.07...6.6	0.13...12.4	0.22...21.8	0.35...34.2	0.48...47.5	0.92...91.2	1.52...152	2.15...215	3.80...380	5.94...594	8.55...855	360 psi	ANSI 125	ANSI 250	Inches [mm]
NPT	FM050	Active	0...10 V	●											●			½" [15]
	FM075		0...10 V		●										●			¾" [20]
	FM100		0...10 V			●									●			1" [25]
	FM125		0...10 V				●								●			1¼" [32]
	FM150		0...10 V					●							●			1½" [40]
	FM200		0...10 V						●						●			2" [50]
Flanged	FM250		0...10 V							●						●		2½" [65]
	FM250-250		0...10 V							●							●	2½" [65]
	FM300		0...10 V								●					●		3" [80]
	FM300-250		0...10 V								●						●	3" [80]
	FM400		0...10 V									●				●		4" [100]
	FM400-250		0...10 V									●					●	4" [100]
	FM500		0...10 V										●			●		5" [125]
	FM500-250		0...10 V										●				●	5" [125]
	FM600		0...10 V											●		●		6" [150]
	FM600-250		0...10 V											●			●	6" [150]



FM
Flow Sensor

5-year warranty

Flow meters utilizes ultrasonic technology with glycol and temperature compensation to accurately measure water flow for HVAC plant applications and sub-metering of hot or chilled water flow.

Power Supply	AC/DC 24 V
Cable Connection	cable connection with 3ft. [1 m], 18 GA appliance cable
Degree of Protection	NEMA 2, IP54
Fluid	chilled or hot water, up to 60% glycol max, condenser water (open loop/steam not allowed)
End Fitting	NPT female inlet, NPT male outlet (½ to 2") flange (2½ to 6")
Sensor Housing	nickel plated brass (forged), cast iron
Sensor Housing Pressure Rating	360 psi, ANSI 125, or ANSI 250
Fluid Temp. Range	-4...+250°F [-20...+120°C]
Ambient Temp. Range	-22...+122°F [-30...+50°C]
Inlet Length to Meet Specified Measurement Accuracy	inlet: 5x nominal pipe size (NPS) outlet: no requirement
Flow Sensor Technology	ultrasonic with glycol and temperature compensation
Flow Measurement Tolerance	±2%*
Flow Measurement Repeatability	±0.5%
Agency Listing	cULus: UL 94 D5 E108966, UL Enclosure Type 2

*See data sheet for Accuracy information

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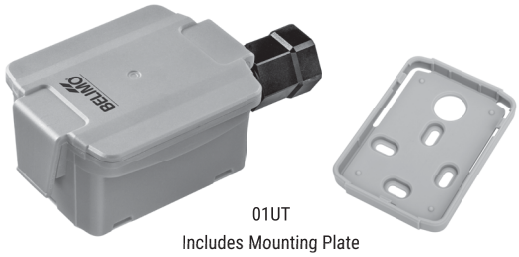
Outdoor Air Sensor Product Range
Temperature

Measuring Values			Measuring Ranges									Additional Features
				Measuring Range Temperature								
Outdoor Air		Output Signal Temperature (default)	Multirange	30...130°F [-50...+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										
01UT-5B		PT1000										
01UT-5E		Ni1000										
01UT-5L		NTC10k2										
01UT-5M		NTC10K3										
01UT-5Q		NTC20K										
22UT-52	Active	0...5 V, 0...10 V	8	●	●	●	●	●	●	●	●	1" [25]
22UT-54		4...20 mA	8	●	●	●	●	●	●	●	●	1" [25]

• 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.



01UT
Includes Mounting Plate

22UT
Includes Mounting Plate

5-year warranty

Outdoor air mounted temperature sensors designed to measure the outside temperature for efficient heating/cooling automation. Equipped with a NEMA 4X / IP65 rated enclosure, snap cover and mounting plate for ease of installation. Available with passive or with an external probe version for active outputs and compatible to major building automation systems.

Accuracy Temperature	
01UT	PT.. = ±0.5°F @ 32°F [±0.3°C @ 0°C] Ni.. = ±0.7°F @ 32°F [±0.4°C @ 0°C] NTC.. = ±0.3°F @ 77°F [±0.2°C @ 25°C]
22UT	±1% of upper selected measuring range
Power Supply	DC 15...24 V (±10%), AC 24 V (±10%) DC 15...24 V (±10%), (4...20 mA)
Cable Entry	cable gland with strain relief Ø6...8 mm, ½" conduit adapter included
Ambient Temperature	
Passive (01UT)	-30...+120°F [-35...+50°C]
Active (22UT)	-30...+120°F [-35...+50°C]
Operating Temperature	
Passive (01UT)	-30...+120°F [-35...+50°C]
Active (22UT)	-30...+120°F [-35...+50°C]
Degree of Protection	NEMA 4X, IP65
Agency Listing	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9, CE acc. to 2014/30/EU, RoHS acc. to 2011/65/EU, UL Enclosure Type 4X

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Outdoor Air Sensor Product Range
Temperature / Humidity

Measuring Values					Measuring Range Temperature				Relative Humidity	Absolute Humidity	Dewpoint	Enthalpy	Additional Features	
Outdoor Air	Temperature	Output Signal Temperature (default)	Output Signal Humidity (default)	Multirange	-40...+160°F [-40...+60°C]	0...200°F [-20...+80°C]	40...140°F [0...50°C]	0...100°F [-15...+35°C]	0...100% RH (non condensing)	0...50 g/m³ (default) 0...80 g/m³	0...200°F [-20...+80°C] 40...140°F [0...50°C] (default)	0...85 kJ/kg	Communication	Weather Shield
22UTH-51	Active	0...5 V, 0...10 V	0...5 V, 0...10 V	4	●	•	●	●	•	●	●	●		
22UTH-53	Active	4...20 mA	4...20 mA	4	●	•	●	●	•	●	●	●		
22UTH-510B	Passive	PT1000	0...5 V, 0...10 V						•	●	●	●		
22UTH-510E	Passive	Ni1000	0...5 V, 0...10 V						•	●	●	●		
22UTH-510L	Passive	NTC10k2	0...5 V, 0...10 V						•	●	●	●		
22UTH-510M	Passive	NTC10K3	0...5 V, 0...10 V						•	●	●	●		
22UTH-510Q	Passive	NTC20K	0...5 V, 0...10 V						•	●	●	●		
22UTH-530B	Passive	PT1000	4...20 mA						•	●	●	●		
22UTH-530E	Passive	Ni1000	4...20 mA						•	●	●	●		
22UTH-530L	Passive	NTC10k2	4...20 mA						•	●	●	●		
22UTH-530M	Passive	NTC10K3	4...20 mA						•	●	●	●		
22UTH-530Q	Passive	NTC20K	4...20 mA						•	●	●	●		
22UTH-510X	Active	0...5 V, 0...10 V	0...5 V, 0...10 V	4	●	•	●	●	•	●	●	●		●
22UTH-530X	Active	4...20 mA	4...20 mA	4	●	•	●	●	•	●	●	●		●
22UTH-550X	Active	0...5 V, 0...10 V	0...5 V, 0...10 V						•	●	●	●	Modbus RTU	●
22UTH-560X	Active	0...5 V, 0...10 V	0...5 V, 0...10 V						•	●	●	●	BACnet MS/TP	●

• 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.

22UTH
with weather shield

22UTH

Includes Rain Protector and Mounting Plate

Modbus BTL C UL US 5-year warranty

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	±0.3°F @ 77°F [±0.2°C @ 25°C]
Humidity	±2% between 10...90% RH @ 70°F [21°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

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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
9120 Washington Boulevard
Savage, MD 20763-0414
Phone: 301-953-8800
With branches in MD, VA

Amcon Controls, Inc.
11906 Warfield Street
San Antonio,TX 78216
Phone: 210-349-6161
With branches in Houston, TX and Mandeville, LA

Relevant Solutions (formally Applied Automation)
3186 South Washington Street, #230
Salt Lake City, UT 84115
Phone: 801-486-6454
With branches in CA, CO, TX

Boston Aircontrols, Inc.
8 Blanchard Road
Burlington, MA 01803
Phone: 781-272-5800

Charles D. Jones Co.
445 Bryant Street, Unit #1
Denver, CO 80204-4800
Phone: 800-777-0910
With branches in CO, MO, KS

Cochrane Supply and Engineering, Inc.
30303 Stephenson Highway
Madison Heights, MI 48071-1633
Phone: 800-482-4894
With branches in MI, OH and KY

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, NV, TN

Control Depot
9304 G Court
Omaha, NE 68127
Phone: 866-809-7408
With a branch in Lincoln, NE

Control Products
9101 Jameel, Suite 130
Houston, TX 77447
Phone: 713-849-7200
With a branch in San Antonio, TX

Control Stop
1000 N Pine Street, Suite 6
Spartanburg, SC 29303
Phone: (864) 586-3818
With a branch in NC

Engineered Control Systems
5627 NW 74th Avenue
Miami, FL 33166
Phone: 305-885-8804
With branches in FL

G & O Thermal Supply
5435 N. Northwest Highway
Chicago, IL 60630
Phone: 773-763-1300
With branches in IL, IN and WI

Industrial Controls Distributors, LLC (formally Climatic Control)
1245 W. Canal Street
Milwaukee, WI 53233
Phone: 414-259-9070
With branches in WI

ICD Building Automation
2010 McAllister Road
Houston, TX 77092
Phone: 800-543-8200
With branches in GA, KY, IN, MA, ME, NC, NY, OH, PA, TN

Interstate HVAC Controls
30 Vineland Street
Brighton, MA 02135
Phone: 617-782-9000

Jackson Controls
1708 E. 10th Street
Indianapolis, IN 46201
Phone: 317-231-2200

M & M Controls
9E West Aylesbury Road
Timonium, MD 21093
Phone: 410-252-1221
With branches in VA

Meier Supply
275 Broome Corporate Pwky
Conklin, NY 13748
Phone: 607-797-7700
With branches in NY, PA

Minvalco, Inc.
3340 Gorham Avenue
Minneapolis, MN 55426-4267
Phone: 952-920-0131
With branches in MN

Relevant Solutions
9750 West Sam Houston Pwky North
Suite 190
Houston, TX 77064
Phone: 281-295-8850

RSD / Refrigeration Supplies Distributor
26021 Atlantic Ocean Drive
Lake Forest, CA 92630
Phone: 949-380-7878
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617 Hanley Industrial Court
St. Louis, MO 63144
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South Side Control Supply, Co.
488 N. Milwaukee Avenue
Chicago, IL 60610-3923
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

Twinco Supply
270 Park Avenue
New Hyde Park, NY 11040
Phone: 800-794-3188
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