

**2010  
Product Guide and Price List Americas**

Effective April 1, 2010



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# Table of Contents

## DAMPER ACTUATORS

### SPRING RETURN ACTUATORS

Spring Return Actuator Product Range Overview . . . . .	1-1
AFB and AFX Series (180 in-lb) . . . . .	1-3
AFB and AFX Series with NEMA 4 Housing (160 in-lb) . . . . .	1-4
AF Series (133 in-lb) . . . . .	1-5
NFB and NFX Series (90 in-lb) . . . . .	1-6
NFB and NFX Series with NEMA 4 Housing (80 in-lb) . . . . .	1-7
LF Series (35 in-lb) . . . . .	1-8
TF Series (18 in-lb) . . . . .	1-9
MFT Programming Codes . . . . .	1-10

### ELECTRONIC FAIL-SAFE ACTUATORS

Electronic Fail-Safe Actuator Product Range Overview . . . . .	2-1
GK Series (360 in-lb) . . . . .	2-2
GK Series with NEMA 4 Housing (324 in-lb) . . . . .	2-3
NKQ Series (54 in-lb) . . . . .	2-4
AHK Series (101 lbf) . . . . .	2-5

### FIRE AND SMOKE ACTUATORS

Fire and Smoke Actuator Product Range Overview . . . . .	3-1
FSAF Series . . . . .	3-2
FSNF Series . . . . .	3-3
FSLF Series . . . . .	3-4

### NON-SPRING RETURN ACTUATORS

Non-Spring Return Actuator Product Range Overview . . . . .	4-1
GM Series (360 in-lb) . . . . .	4-4
GM Series with NEMA 4 Housing (324 in-lb) . . . . .	4-5
AM Series (180 in-lb) . . . . .	4-6
AM Series with NEMA 4X Housing (160 in-lb) . . . . .	4-7
NM Series (90 in-lb) . . . . .	4-8
NM Series with NEMA 4X Housing (70 in-lb) . . . . .	4-9
LM Series (45 in-lb) . . . . .	4-10
CM Series (18 in-lb) . . . . .	4-13
AH Linear Series (101 lbf) . . . . .	4-14
LH Linear Series (34 lbf) . . . . .	4-16
LU Rotary Series (27 in-lb) . . . . .	4-18
MFT Programming Codes . . . . .	4-19

### DAMPER ACTUATOR ACCESSORIES

MFT Damper Actuator Accessories . . . . .	5-1
Mechanical Damper Actuator Accessories . . . . .	5-2
Electronic Damper Actuator Accessories . . . . .	5-10

## PRESSURE INDEPENDENT VALVES

### PRESSURE INDEPENDENT CHARACTERIZED CONTROL VALVES (PICCV™) (P2 SERIES)

PICCV Product Range Overview . . . . .	6-1
Set-Up . . . . .	6-2
Flow Pattern/Operation/Installation . . . . .	6-3
Brass Trim (½" to 1") 2-way with Non-Spring Return Actuators . . . . .	6-4
Brass Trim (1¼" to 2") 2-way with Non-Spring Return Actuators . . . . .	6-5
Brass Trim (½" to 1-1/2") 2-way with Spring Return Actuators . . . . .	6-7
Brass Trim (1-½" to 2") 2-way with Spring Return Actuators . . . . .	6-8
Heat Pump Applications . . . . .	6-10
Brass Trim (½" to 1") 2-way for Water Source Heat Pumps . . . . .	6-11
Customize Products, LR Series Valve Actuator . . . . .	6-12
Customize Products, AR Series Valve Actuator . . . . .	6-13
PICCV Accessories . . . . .	6-14

### ELECTRONIC PRESSURE INDEPENDENT CONTROL VALVES (ePIV) (P6 SERIES)

ePIV Product Range Overview . . . . .	6-17
Set-Up/Flow Pattern/Functionality . . . . .	6-18
Installation/Piping . . . . .	6-19
Stainless Steel Trim (2.5" to 6") 2 way with Non-Spring Return Actuators . . . . .	6-20
Stainless Steel Trim (2.5" to 6") 2 way with Electronic Fail-Safe Actuators . . . . .	6-21

## CHARACTERIZED CONTROL VALVES

### CCV™ (B2, B3, B6 SERIES)

CCV Product Range Overview . . . . .	7-1
Set-Up . . . . .	7-2
Flow Pattern/Operation/Installation . . . . .	7-3
Piping Reduction Chart . . . . .	7-5
Brass Trim (½" to ¾") 2-way/3-way . . . . .	7-6
Stainless Steel Trim (½" to 3") 2-way/3-way . . . . .	7-10
Stainless Steel Trim (2½" to 3") 2-way Flanged . . . . .	7-26
Stainless Steel Trim (½" to 3") 2-way/3-way, NEMA 4X Non-Spring Return Actuator . . . . .	7-28
Stainless Steel Trim (½" to 2") 2-way/3-way, Quick Running Non-Spring Return Actuator . . . . .	7-32
Customize Products, AR Series Valve Actuator . . . . .	7-34
Customize Products, LR Series Valve Actuator . . . . .	7-35

# Table of Contents (cont.)

Default and MFT Programming Codes . . . . .	7-36
CCV Accessories . . . . .	7-37
<b>HIGH TEMPERATURE CHARACTERIZED CONTROL VALVES (HTCCV) (B2..HT SERIES)</b>	
HTCCV Product Range Overview . . . . .	8-1
Set-Up . . . . .	8-2
Flow Pattern/Operation/Installation . . . . .	8-3
Stainless Steel Trim (½" to 1") 2-way. . . . .	8-4
HTCCV Accessories . . . . .	8-7
<b>ROTARY VALVES</b>	
<b>BALL VALVES (B2...VS/VSS, B3..VS, B6..VS, B2..VB, B6..VB SERIES)</b>	
Ball Valve Product Range Overview . . . . .	9-1
Flow Pattern/Piping Diagrams . . . . .	9-2
Piping Reduction Chart . . . . .	9-3
Bronze Trim (½" to 3"), 2-way . . . . .	9-4
Bronze Trim (½" to 2"), 3-way . . . . .	9-10
Bronze Trim (½" to 3"), 2-way with NEMA 4X Actuator . . . . .	9-18
Stainless Body and Trim (½" to 3"), 2-way . . . . .	9-19
Stainless Body and Trim (½" to 3"), 2-way with NEMA 4X Actuator . . . . .	9-23
Cast Iron Flanged Body (2" to 10"), 2-way with NEMA 4X Actuator . . . . .	9-24
<b>"V" BALL VALVES</b>	
"V" Ball Product Range Overview . . . . .	10-1
General Information/Flow Pattern/Piping . . . . .	10-2
Piping Reduction Chart . . . . .	10-3
Carbon Steel Body (1" to 6"), 2-way with Non-Spring Return Actuators . . . . .	10-4
Carbon Steel Body (1" to 6"), 2-way with Spring Return and Electronic Fail-Safe Actuators . . . . .	10-5
Ball Valve Accessories . . . . .	10-7
<b>ZONE VALVES (ZONE 2/ZONE 3 SERIES)</b>	
Electronic Zone Valve Product Range Overview . . . . .	11-1
Installation . . . . .	11-2
Brass Body (½" to 1") 2-way/3-way . . . . .	11-3
<b>GLOBE VALVES (G2, G3, G6, G7 SERIES)</b>	
Globe Valve Product Range Overview . . . . .	12-1
Flow Pattern/Set-Up. . . . .	12-4
Bronze Trim (½" to 2") 2-way/3-way with NV Series Actuators . . . . .	12-7
Stainless Steel Trim (½" to 2") 2-way with NV Series Actuators . . . . .	12-11
Bronze or Stainless Steel Trim (1/2" to 2") 2-way with Rotary Actuators . . . . .	12-13
Bronze Trim (2½" to 3") 2-way, ANSI 125 Flanged . . . . .	12-25
Stainless Steel Trim (2½" to 3") 2-way, ANSI 125 Flanged . . . . .	12-29
Bronze Trim (2½" to 6") 2-way, Equal Percent, Pressure Compensated ANSI 125 Flanged . . . . .	12-33
Stainless Steel Trim (2½" to 6") 2-way, Equal Percent and Linear, Pressure Compensated ANSI 125 Flanged . . . . .	12-37
Bronze Trim (2½" to 3") 2-way, ANSI 250 Flanged . . . . .	12-47
Stainless Steel Trim (2½" to 3") 2-way, ANSI 250 Flanged . . . . .	12-51
Bronze Trim (2½" to 6") 3-way, ANSI 125 Flanged . . . . .	12-55
Stainless Steel Trim (2½" to 6") 3-way, ANSI 125 Flanged . . . . .	12-59
Bronze Trim (2½" to 6") 3-way, ANSI 250 Flanged . . . . .	12-63
Stainless Steel Trim (2½" to 6") 3-way, ANSI 250 Flanged . . . . .	12-67
Globe Valve Accessories . . . . .	12-71
<b>BUTTERFLY VALVES (F6,F7 SERIES)</b>	
Butterfly Valve Product Range Overview . . . . .	13-1
Butterfly Valve Selection/Velocity Chart . . . . .	13-3
Butterfly Valve Retrofit Actuators . . . . .	13-5
HDU Series (2" to 6") 2-way/3-way with Non-Spring Actuators . . . . .	13-7
HDU Series (2" to 6") 2-way/3-way with Fail-Safe Actuators . . . . .	13-8
HDU Series (2" to 6") 2-way/3-way with NEMA 4 Actuators . . . . .	13-9
HD Series (2" to 4") 2-way/3- way with Non-Spring Actuators . . . . .	13-11
HD Series (2" to 4") 2-way/3- way with Fail-Safe Actuators . . . . .	13-12
HD Series (2" to 4") 2-way/3- way with NEMA 4 Actuators . . . . .	13-13
HDU Series (2" to 12") 2-way/3-way with NEMA 4X Actuators . . . . .	13-15
HD Series (2" to 30") 2-way/3-way with NEMA 4X Actuators . . . . .	13-17
SHP Series 2-way/3-way ANSI Class 150 (2" to 4") with Non-Spring Actuators . . . . .	13-21
SHP Series 2-way/3-way ANSI Class 150 (2" to 4") with Fail-Safe Actuators . . . . .	13-22
SHP Series 2-way/3-way with NEMA 4 & 4X Actuators, ANSI Class 150 (2" to 30") . . . . .	13-23
SHP Series 2-way/3-way ANSI Class 300 (2" to 4") with Non-Spring Actuators . . . . .	13-28
SHP Series 2-way/3-way ANSI Class 300 (2" to 4") with Fail-Safe Actuators . . . . .	13-29
SHP Series 2-way/3-way with NEMA 4X Actuators, ANSI Class 300 (2" to 24") . . . . .	13-30
Butterfly Valve Accessories . . . . .	13-38
<b>PIPE PACKAGES</b>	
For 2-way PICCV . . . . .	14-1
For 2-way CCV . . . . .	14-3
For 3-way CCV . . . . .	14-5
For Zone Valves . . . . .	14-7

# Table of Contents (cont.)

## RETROFIT SOLUTIONS

### Damper Actuators

Why Retrofitting Makes Sense . . . . .	15-1
How to Select an Actuator . . . . .	15-2
Replacement of Discontinued Belimo Products . . . . .	15-4
Direct Replacement Solutions - (Honeywell, Invensys, Johnson Controls, Siemens) . . . . .	15-7
Retrofit Specialized Direct Coupled Actuators . . . . .	15-19
Retrofit Solutions, Non-Direct Coupled . . . . .	15-20

### Valves

Globe Valve Retrofit, Dimensions . . . . .	15-26
How to Select a Globe Valve Retrofit Solution . . . . .	15-27
Globe Valve Retrofit Actuators . . . . .	15-28
UGLK Retrofit Components (various manufacturers) . . . . .	15-29
Globe Valve Retrofit Solutions - (Honeywell, Johnson Controls, Robertshaw, Siebe\Invensys\Barber Colman, Siemens\Landis\Powers, Warren Controls) . . . . .	15-30
UNV Retrofit Components (various manufacturers) . . . . .	15-86
Custom Globe Valve Retrofit Solutions . . . . .	15-87
How to Select a Butterfly Valve Retrofit Solution . . . . .	15-91
Butterfly Valve Retrofit Actuators . . . . .	15-92
Butterfly Valve Retrofit Solutions - (Apollo, Belimo, Bray, Centerline, Challenger, Chemtrol, Dezurik, Flowseal, FNW, Gruvlok, Hammond, Jamesbury, Jenkins, Johnson, Keystone, Keystone K-LOK, Metraflex, Milwaukee, Mueller, Nibco, PDC, Quartermaster, Victaulic, Watts) . . . . .	15-94
Custom Butterfly Valve Retrofit Solutions . . . . .	15-127
Custom Ball Valve Retrofit Solutions . . . . .	15-132

## APPENDIX

Valve Sizing - Water and Steam Applications . . . . .	16-1
ANSI/API Standards . . . . .	16-10
Water Guidelines . . . . .	16-11
Actuator/Valve Specification . . . . .	16-12
Terms and Conditions of Sale and Warranty . . . . .	16-16
Valve Quotation Form . . . . .	16-18
Custom MFT Configuration Order Form . . . . .	16-19
Custom Ball Valve Retrofit Form . . . . .	16-20
Custom Globe Valve Retrofit Form . . . . .	16-22
Custom Butterfly Valve Retrofit Form . . . . .	16-24

Platinum Distributors . . . . . *inside back cover*

# 1

## DAMPER ACTUATORS

SPRING RETURN, ELECTRONIC FAIL-SAFE,  
FIRE & SMOKE AND NON-SPRING RETURN ACTUATORS

- Extensive torque offering (18 in-lb to 360 in-lb), a vast selection of actuators for a wide range of applications.
- Low power consumption provides higher efficiency and smaller transformer sizing.
- Minimum torque guaranteed over entire specified operating range, no loss in performance due to temperature or supply voltage.
- MFT is available giving the user the flexibility to customize and adapt a single actuator to various controllers and applications.
- Fail-safe position can be set 0-100% in 10% increments manually or by using the PC Tool offering a wide range of fail-safe positions (only available on Electronic Fail-Safe actuators).
- Belimo FS Actuators are UL555 and UL555S listed with U.S. damper manufacturers.

### Applications

Belimo actuators are designed for use in a wide variety of HVAC damper applications. For active smoke control systems, Belimo introduced the proportional FSAF24-SR for stairwell, under-floor and other pressurization applications. With our comprehensive torque range, vast selection, and the ability to direct mount or mount on standard damper shafts or jackshafts, solutions are available for fire and smoke actuator dampers, control dampers, air handlers, economizer units, VAV terminal units, fan coil units, fan shutters, and unit ventilators.



# Quality, Reliability and Technical Prowess.

The New Generation AFB, AFX, NFB, and NFX actuators features a compact size, low power consumption, increased torque to 90 in-lbs (50% more compared to original NF series), and faster running times (with MFT technology) offer new solutions for control dampers, control valves and retrofit applications

The New Generation can also be integrated with new and some of the existing accessories allowing for more options in both mounting and commissioning. A wide selection of clamping options, electrical connections and running times are now available. Designed for new construction, retrofit and OEM markets.



The New Electronic Fail-Safe actuators features high torque (360 in-lbs), fail-safe position that can be set 0-100% in 10% increments, LED status and low power consumption offering you new solutions for control dampers, air handlers, economizer units, VAV terminals units, fan coil units, fan shutters, and unit ventilators.

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# Damper Actuators Table of Contents

## DAMPER ACTUATORS

### SPRING RETURN ACTUATORS

Spring Return Actuator Product Range Overview . . . . .	1-1
AFB and AFX Series (180 in-lb) . . . . .	1-3
AFB and AFX Series with NEMA 4 Housing (160 in-lb) . . . . .	1-4
AF Series (133 in-lb) . . . . .	1-5
NFB and NFX Series (90 in-lb) . . . . .	1-6
NFB and NFX Series with NEMA 4 Housing (80 in-lb) . . . . .	1-7
LF Series (35 in-lb) . . . . .	1-8
TF Series (18 in-lb) . . . . .	1-9
MFT Programming Codes . . . . .	1-10

### ELECTRONIC FAIL-SAFE ACTUATORS

Electronic Fail-Safe Actuator Product Range Overview . . . . .	2-1
GK Series (360 in-lb) . . . . .	2-2
GK Series with NEMA 4 Housing (324 in-lb) . . . . .	2-3
NKQ Series (54 in-lb) . . . . .	2-4
AHK Series (101 lbf) . . . . .	2-5

### FIRE AND SMOKE ACTUATORS

Fire and Smoke Actuator Product Range Overview . . . . .	3-1
FSAF Series . . . . .	3-2
FSNF Series . . . . .	3-3
FSLF Series . . . . .	3-4

### NON-SPRING RETURN ACTUATORS

Non-Spring Return Actuator Product Range Overview . . . . .	4-1
GM Series (360 in-lb) . . . . .	4-4
GM Series with NEMA 4 Housing (324 in-lb) . . . . .	4-5
AM Series (180 in-lb) . . . . .	4-6
AM Series with NEMA 4X Housing (160 in-lb) . . . . .	4-7
NM Series (90 in-lb) . . . . .	4-8
NM Series with NEMA 4X Housing (70 in-lb) . . . . .	4-9
LM Series (45 in-lb) . . . . .	4-10
CM Series (18 in-lb) . . . . .	4-13
AH Linear Series (101 lbf) . . . . .	4-14
LH Linear Series (34 lbf) . . . . .	4-16
LU Rotary Series (27 in-lb) . . . . .	4-18
MFT Programming Codes . . . . .	4-19

### DAMPER ACTUATOR ACCESSORIES

MFT Damper Actuator Accessories . . . . .	5-1
Mechanical Damper Actuator Accessories . . . . .	5-2
Electronic Damper Actuator Accessories . . . . .	5-10



# 1

## SPRING RETURN DAMPER ACTUATORS

- Extensive torque offering (18 in-lb to 180 in-lb), a vast selection of actuators for a wide range of applications.
- True mechanical spring return, providing the most reliable fail-safe.
- Manual override crank facilitates installation (all AF and new generation NF series only).
- Low power consumption provides higher efficiency and smaller transformer sizing.
- Minimum torque guaranteed over entire specified operating range, no loss in performance due to temperature or supply voltage.
- MFT is available in all spring return actuators, giving the user the flexibility to customize and adapt a single actuator to various controllers and applications.

### Applications

Belimo actuators are designed for use in a wide variety of HVAC damper applications. With our comprehensive torque range and the ability to direct mount or mount on standard damper shafts or jackshafts, solutions are available for control dampers, air handlers, economizer units, VAV terminal units, fan coil units, fan shutters, and unit ventilators.



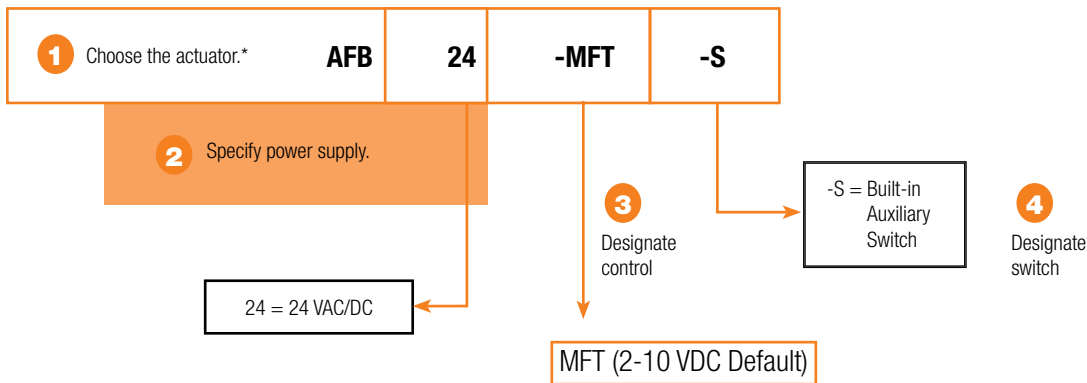
# Spring Return Actuator Nomenclature

A	F	B	24	-MFT	-S	US
<b>Torque Rating</b> A = 180 in-lb† A = 133 in-lb†† N = 90 in-lb L = 35 in-lb T = 18 in-lb	<b>Actuator Type</b> F = Spring Return	<b>Options</b> Blank = None A = No Position Feedback B = Basic C = Fast Running X = Customized	<b>Power Supply</b> 24 = 24 VAC/DC* 120 = 120 VAC** 230 = 230 VAC UP = 24 to 240 VAC***	<b>Control</b> Blank = On/Off -3 = Floating Point -SR = 2-10 VDC -PC = 0 to 20 Volt (Phasecut) -ECON-RO3 = 3 kΩ NTC Type 10 Thermistor -MFT = Multi-Function Technology -MFT95 = 0 to 135 Ω -MFT-20 = 6 to 9 VDC 20 VDC Power Supply	-S = Built-in Auxiliary Switch	US

† Available on AFBUP(-S), AFXUP(-S), AFB24-MFT(-S), AFB24-MFT95, AFX24-MFT(-S) or AFX24-MFT95 series only  
 †† Not available with MFT(-S) or MFT95.

\*TF24-3(-S) US is 24 VAC only.  
 \*\*TF series has 100 to 240 VAC nominal power supply.  
 \*\*\*24 to 125 VDC

## Ordering Example



**5 Complete Ordering Example:** AFB24-MFT-S

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

# Standard Spring Return Actuator Product Range



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



**AF Series**  
133 in-lb [15 Nm]  
Approx. 33 sq. ft.



**NFB Series**  
90 in-lb [10 Nm]  
Approx. 22 sq. ft.



**LF Series**  
35 in-lb [4 Nm]  
Approx. 8 sq. ft.



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


		Running Time		Power Supply		Power Consumption		Control Input				Control Input <b>MFT</b>		Position Feedback		Auxiliary Switches													
		Motor Drive, (Default) (Variable with MFT, fully programmable by Belimo or in field)	Spring Return	24 VAC +/- 20%, VDC +/- 10%, 50/60 HZ	24 to 240 VAC +10%/- 20%, 50/60 HZ	24 to 125 VDC +/- 10%	120 VAC +/- 10%	230 VAC +/- 10%	VA Rating, Transformer Sizing	Wattage Running (Holding)	On/Off	Floating Point	2-10 VDC (Default) 4-20 mA* (w/500 Ω Resistor)	0-20 V Phasecut	3 kΩ NTC Type 10 Thermistor	6 - 9 VDC, 20 VDC Output Voltage	Honeywell Series 90, 0-135 Ω	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default)	VDC Variable, Start 0 to 8, Span 2 to 10 VDC	1 SPDT, 3 A (0.5 A inductive) @250V	2 SPDT, 3 A (0.5 A inductive) @250V	2 SPDT, 7 A (2.5 A inductive) @ 250V			
<b>AFB Series</b>	AFBUP†	<75	<20♦	●			9.5	7.5 (3.0)	●																				
	AFBUP-S†	<75	<20♦	●			9.5	7.5 (3.0)	●																●				
	AFB24-MFT†	70...220 (150)	<20♦	●				10	7.5 (3.0)		●						●	●	●	●	●	●	●	●	●				
	AFB24-MFT95†	70...220 (150)	<20♦	●				10	7.5 (3.0)		●						●	●	●	●	●	●	●	●	●	●			
<b>AF Series</b>	AF24 US†	150	<20	●			10	5.0 (1.5)	●																				
	AF24-S US†	150	<20	●			10	5.0 (1.5)	●																				
	AF120 US†	150	<20		●		11	8.0 (3.0)	●																				
	AF120-S US†	150	<20		●		11	8.0 (3.0)	●																				
	AF230 US†	150	<20			●	11	8.5 (3.0)	●																				
	AF230-S US†	150	<20			●	11	8.5 (3.0)	●																				
	AF24-SR US†	150	<20	●			10	6.0 (2.0)		●											●								
	AF24-SR US†	150	<20	●			10	6.0 (2.0)		●											●								
	AF24-ECON-R03 US†	95	<20	●			10	6.0 (2.5)					●								●								
	AF24-PC US†	150	<20	●			10	6.0 (2.5)				●									●								
<b>NFB Series</b>	NFB24	<75	20♦	●			8.5	6.0 (2.5)	●																				
	NFB24-S	<75	20♦	●			8.5	6.0 (2.5)	●																				
	NFBUP	<75	20♦		●		9.5	6.0 (2.5)	●																				
	NFBUP-S	<75	20♦		●		9.5	6.0 (2.5)	●																				
	NFB24-SR	95	<20♦	●			6	3.5 (2.5)		●											●								
	NFB24-SR-S	95	<20♦	●			6	3.5 (2.5)		●											●								
	NFB24-MFT	40...220 (150)	<20♦	●			9	6.5 (3.0)		●							●	●	●	●	●	●	●	●	●	●	●	●	
	NFB24-MFT-S	40...220 (150)	<20♦	●			9	6.5 (3.0)		●							●	●	●	●	●	●	●	●	●	●	●	●	
<b>LF Series</b>	LF24 US	<40 to 75	<25♦	●			7	5.0 (2.5)	●																				
	LF24-S US	<40 to 75	<25♦	●			7	5.0 (2.5)	●																				
	LF120 US	<40 to 75	<25♦		●		7.5	5.5 (3.5)	●																				
	LF120-S US	<40 to 75	<25♦		●		7.5	5.5 (3.5)	●																				
	LF230 US	<40 to 75	<25♦			●	7	5.0 (3.0)	●																				
	LF230-S US	<40 to 75	<25♦			●	7	5.0 (3.0)	●																				
	LF24-SR US	150	<25♦	●			5	2.5 (1.0)			●										●								
	LF24-SR-S US	150	<25♦	●			5	2.5 (1.0)			●										●								
	LF24-SR-E US	150	<25♦	●			5	2.5 (1.0)			●										●								
	LF24-3 US	150	<25♦	●			5	2.5 (1.0)			●										●								
	LF24-3-S US	150	<25♦	●			5	2.5 (1.0)			●										●								
	LF24-ECON-R03 US	95	<25♦	●			5	2.5 (1.0)					●								●								
	LF24-MFT US	75...300 (150)	<25♦	●			5	2.5 (1.0)				●					●	●	●	●	●	●	●	●	●	●	●	●	
	LF24-MFT-S US	75...300 (150)	<25♦	●			5	2.5 (1.0)				●					●	●	●	●	●	●	●	●	●	●	●	●	
	LF24-MFT-20 US	150	<25♦	●			6	3.5 (1.5)					●				●	●	●	●	●	●	●	●	●	●	●	●	
	LF24-MFT-S-20 US	150	<25♦	●			6	3.5 (1.5)					●				●	●	●	●	●	●	●	●	●	●	●	●	
LFC24-3-R US	90	<25♦	●			5	2.5 (1.0)			●										●									
LFC24-3-S US	90	<25♦	●			5	2.5 (1.0)			●										●									
<b>TF Series</b>	TF24 US	<75	<25♦	●			5	2.0 (1.3)	●																				
	TF24-S US	<75	<25♦	●			5	2.0 (1.3)	●																				
	TF120 US	<75	<25♦		●	●	5	2.0 (1.3)	●																				
	TF120-S US	<75	<25♦		●	●	5	2.0 (1.3)	●																				
	TFC120-S US	<30	<25♦		●	●	6	3.0 (1.5)	●																				
	TF24-SR US	95	<25♦	●			4	2.0 (1.0)			●										●								
	TF24-SR-S US	95	<25♦	●			4	2.0 (1.0)			●										●								
	TF24-3 US	95	<25♦	●			4	2.5 (1.0)			●										●								
	TF24-3-S US	95	<25♦	●			4	2.5 (1.0)			●										●								
TF24-MFT US	75...300 (150)	<25♦	●			4	2.0 (1.0)				●					●	●	●	●	●	●	●	●	●	●	●	●		

♦ <60 seconds @ -22°F [-30°C]. Available July 2010.

† Dual mounting on a single shaft (on/off wired in parallel), (-SR, -MFT [new generation AF only] wired master slave). Please call Belimo customer service for details.

# Custom New Generation Spring Return Actuator Product Range



	Custom Options	Running Time	Power Supply	Power Consumption	Control Input	Control Input MFT	Position Feedback	Auxiliary Switches
	10 ft (3m) or 16 ft (5m) cable	Motor Drive, (Default) (Variable with MFT, fully programmable by Belimo or in field)	Spring Return 24 VAC +/- 20%, VDC +/- 10%, 50/60 HZ 24 to 240 VAC +10%/- 20%, 50/60 HZ 24 to 125 VDC +/- 10%	VA Rating, Transformer Sizing  Wattage Running (Holding)	On/Off 2-10 VDC (Default) 4-20 mA* (w/500 Ω Resistor) Honeywell Series 90, 0-135 Ω	On/Off Floating Point Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) VDC Variable, Start 0 to 8, Span 2 to 10 VDC	2 SPDT, 3 A (0.5 A inductive) @250V
<b>AFX Series</b> 180 in-lb [20 Nm] Approx. 45 sq. ft.	AFXUP†	● <75	● <20♦	● 9.5	7.5 (3.0)	●		
	AFXUP-S†	● <75	● <20♦	● 9.5	7.5 (3.0)	●		●
	AFX24-MFT†	● 70...220 (150)	● <20♦	● 10	7.5 (3.0)	●	●	
	AFX24-MFT-S†	● 70...220 (150)	● <20♦	● 10	7.5 (3.0)	●	●	●
	AFX24-MFT95†	● 70...220 (150)	● <20♦	● 10	7.5 (3.0)	●	●	●
 <b>NFX Series</b> 90 in-lb [10 Nm] Approx. 22 sq. ft.	NFX24	● <75	● 20	● 8.5	6.0 (2.5)	●		
	NFX24-S	● <75	● 20	● 8.5	6.0 (2.5)	●		●
	NFXUP	● <75	● 20	● 9.5	6.0 (2.5)	●		
	NFXUP-S	● <75	● 20	● 9.5	6.0 (2.5)	●		●
	NFX24-SR	● 95	● <20	● 6	3.5 (2.5)	●	●	
	NFX24-SR-S	● 95	● <20	● 6	3.5 (2.5)	●	●	●
	NFX24-MFT	● 40...220 (150)	● <20	● 9	6.5 (3.0)	●	●	●
	NFX24-MFT-S	● 40...220 (150)	● <20	● 9	6.5 (3.0)	●	●	●

♦ <60 seconds @ -22°F [-30°C].

† Dual mounting on a single shaft (on/off wired in parallel), (-MFT [new generation AF only] wired master slave). Please call Belimo customer service for details.  
Available July 2010.

**Actuator Specifications**

Torque	180 in-lb [20 Nm] minimum -22°F to 122°F [-30°C to +50°C]
Angle of Rotation◆	95°, adjustable 35° to 95° (mechanically with limit stops), MFT (electronically variable 0-100%)
Fits Shaft Diameter	1/2" to 1.05" (clamp centers on 1/2", 3/4", and 1.05")
Position Indication	Visual indicator
Manual Override	5mm hex crank (3/16" allen), supplied
Direction of Rotation◆	external switch electronically selectable with MFT
Spring Return Reversible	CW/CCW mounting
Dimensions	9.69" x 3.86" x 3.42" [246.1 x 98 x 86.9 mm]
Electrical Connection	3 ft, 18 GA appliance cable, 1/2" conduit fitting (default)
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	(-S) Models: 2 SPDT, 3A (0.5A inductive) @ 250V, one switch fixed at 10°, one adjustable 10° to 90°
Housing	NEMA 2/IP54, Enclosure Type2
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC


**AFB24-MFT**

**ATTENTION:** New generation AFB24-MFT(-S, 95) or AFX24-MFT(-S, 95) **CANNOT** be tandem mounted with any original AF24-MFT(-S) US or AF24-MFT95 US in any configuration. Same generation actuators must be used for multiple actuator applications. Contact the factory for original AF24-MFT(-S) US and AF24-MFT95 US availability.

**MFT**
**MFT= 2-10 VDC Default, or Set, Modify, Read:**

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



All actuators have BDCM


**Spring Return Actuators**

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switch	Cable Length	List Price	
				(M)	◆◆					
<b>BASIC PRODUCTS<sup>††</sup></b>										
AFBUP	On/Off	-	24-240 VAC <sup>‡</sup>	<75	20	9.5	-	3 ft.	\$490.00	
AFBUP-S	On/Off	-	24-240 VAC <sup>‡</sup>	<75	20	9.5	Built-In	3 ft.	\$576.00	
AFB24-MFT	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	10	-	3 ft.	\$602.00	
AFB24-MFT-S	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	10	Built-In	3 ft.	\$688.00	
AFB24-MFT95	0 to 135 Ω*	2-10 VDC	24 VAC/DC	150	<20	10	-	3 ft.	\$624.00	
<b>CUSTOMIZE PRODUCTS<sup>‡‡</sup> REORDER #</b>										
AFXUP	AF000 1A1 003	On/Off	24-240 VAC <sup>‡</sup>	<75	20	9.5	-	3 ft.	\$490.00	
AFXUP	AF000 1A3 003	On/Off	24-240 VAC <sup>‡</sup>	<75	20	9.5	-	10 ft.	\$518.00	
AFXUP-S	AF020 1A1 003	On/Off	24-240 VAC <sup>‡</sup>	<75	20	9.5	Built-In	3 ft.	\$576.00	
AFXUP-S	AF020 1A3 003	On/Off	24-240 VAC <sup>‡</sup>	<75	20	9.5	Built-In	10 ft.	\$626.00	
<b>MFT PRODUCTS<sup>‡‡</sup> REORDER #</b>										
AFX24-MFT	AF600 1A1 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	-	3 ft.	\$602.00‡
AFX24-MFT	AF600 1A3 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	-	10 ft.	\$630.00‡
AFX24-MFT-S	AF620 1A1 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	Built-In	3 ft.	\$688.00‡
AFX24-MFT-S	AF620 1A3 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	Built-In	10 ft.	\$738.00‡
AFX24-MFT95	AFE10 1C1 R01**	0 to 135 Ω*	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	-	3 ft.	\$624.00‡

◆ Variable with MFT

‡ Prices do not reflect additional programming code surcharge. Price shown is for default running times and control input.

‡‡ For applications that require more torque, the AFB, AFX Series can be tandem mounted. A maximum of two AFBUP/AFXUP... for loads of up to 266 in-lb OR three AFB24-MFT/AFX24-MFT... for loads of up to 432 in-lb can be mechanically connected to one damper or valve shaft.

\* Fixed input.

‡ 24 to 125 VDC

◆◆ &lt;60 seconds @ -22°F [-30°C].

Note: 16 ft. cables available on all AFX products except for MFT95; list price adder to 3 ft. cable versions: \$48 for single and \$90 for dual (AFX...-S).

\*\* Refer to page 1-10 to 1-13 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback &amp; Running Time.

Available July 2010

# AFB, AFX Series with NEMA 4 Housing

Direct Coupled, Spring Return Actuator, 160 in-lb Minimum Torque



### Actuator Specifications

Torque	160 in-lb [18 Nm] minimum
Angle of Rotation ♦	95° (adjustable with mechanical stops)
Fits Shaft Diameter	1/2" to 1.05"
Dimensions	12.5" x 6.25" x 7.25" [318 x 159 x 184 mm]
Electrical Connection	3 ft, 18 GA appliance cable, 1/2" conduit fitting (default)
Overload Protection	Electronic throughout rotation
Auxiliary Switch(es)	(-S) Models: 2 SPDT, 3A (0.5A inductive) @ 250V, one switch fixed at 10°, one adjustable 10° to 90°
Housing Specification	NEMA 4, IP66
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC
Control Shaft Length	Minimum 1" Maximum 2-1/4"



**NEMA 4 Housing Available July 2010**

### MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

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



All actuators have BDCM



Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switch	Cable Length	List Price
				Ⓜ	Ⓢ ♦♦				
				<b>BASIC PRODUCTS<sup>‡‡</sup></b>					
AFBUP N4	On/Off	-	24-240 VAC <sup>‡</sup>	<75	20	9.5	-	3 ft.	\$1,026.00
AFBUP-S N4	On/Off	-	24-240 VAC <sup>‡</sup>	<75	20	9.5	Built-In	3 ft.	\$1,112.00
AFB24-MFT N4	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	10	-	3 ft.	\$1,138.00
AFB24-MFT-S N4	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	10	Built-In	3 ft.	\$1,224.00
AFB24-MFT95 N4	0 to 135 Ω <sup>*</sup>	2-10 VDC	24 VAC/DC	150	<20	10	-	3 ft.	\$1,160.00
<b>MFT PRODUCTS<sup>‡‡</sup></b>									
AFX24-MFT N4	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	-	3 ft.	\$1,138.00 ‡
AFX24-MFT-S N4	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	Built-In	3 ft.	\$1,224.00 ‡
AFX24-MFT95 N4	0 to 135 Ω <sup>*</sup>	Variable VDC	24 VAC/DC	70 to 220 (150 default)	<20	10	-	3 ft.	\$1,160.00 ‡

♦ Variable with MFT

‡ Prices do not reflect additional programming code surcharge. Price shown is for default running times and control input.

‡‡ For applications that require more torque, the AFB, AFX Series can be tandem mounted. A maximum of two AFBUP/AFXUP...N4 for loads of up to 238 in-lb OR three AFB24-MFT/AFX24-MFT...N4 for loads of up to 388 in-lb can be mechanically connected to one damper or valve shaft.

\* Fixed input.

<sup>‡</sup> 24 to 125 VDC

♦♦ <60 seconds @ -22°F [-30°C].

\*\* Refer to page 1-10 to 1-13 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.

**All NEMA 4 spring return assemblies are configured for a CCW spring return rotation. For CW spring return rotation, field reconfiguration is needed.**

**Actuator Specifications**

Torque	133 in-lb [15 Nm] minimum -22°F to +122°F [-30°C to +50°C]
Angle of Rotation	95°, adjustable 35° to 95° (mechanically with ZDB-AF2)
Fits Shaft Diameter	½"-1.05" (clamp centers on ½", ¾", and 1.05")
Position Indication	Visual indicator
Manual Override	3 mm crank (supplied)
Direction of Rotation	CW/CCW external switch (proportional models)
Spring Return Reversible	CW/CCW mounting
Dimensions	10.47" x 3.86" x 3.25" [266 x 98 x 82.7 mm]
Electrical Connection	3 ft., 18 GA appliance cable, 1/2" conduit fitting
Overload Protection	Electronic throughout rotation
Auxiliary Switch(es)	(-S) Models: 2 SPDT, 7A (2.5A inductive) @ 250V, one switch fixed at 5°, one adjustable 25-85°
Housing	NEMA 2 (IP54) any orientation
Agency Listings	cULus according to UL 873 and CAN/CSA C22.2 No. 24-93


**AF24-S US**


All actuators have BDCM


**Spring Return Actuators**

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Aux. Switch	List Price
				(M)	(S)			
<b>BASIC PRODUCTS</b>								
<b>AF24 US</b>	On/Off	—	24 VAC/DC	150	<20	10	—	\$438.00
<b>AF24-S US</b>	On/Off	—	24 VAC/DC	150	<20	10	Built-In	\$524.00
<b>AF120 US</b>	On/Off	—	120 VAC	150	<20	11	—	\$490.00
<b>AF120-S US</b>	On/Off	—	120 VAC	150	<20	11	Built-In	\$576.00
<b>AF230 US</b>	On/Off	—	230 VAC	150	<20	11	—	\$602.00
<b>AF230-S US</b>	On/Off	—	230 VAC	150	<20	11	Built-In	\$688.00
<b>AF24-SR US</b>	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	150	<20	10	—	\$546.00
<b>AFA24-SR US<sup>a</sup></b>	2-10 VDC (4-20mA*)	None	24 VAC/DC	150	<20	10	—	\$494.00
<b>AF24-ECON-R03 US</b>	3 kΩ Type 10 Thermistor	2-10 VDC	24 VAC/DC	95	<20	10	—	\$602.00
<b>AF24-PC US</b>	0-20 V Phasecut	2-10 VDC	24 VAC/DC	150	<20	10	—	\$678.00

\* With 500 Ω resistor, ZG-R01.

\*\*\* Fixed Input.

<sup>a</sup> The AFA24-SR US is the same as the AF24-SR US with the exception of feedback. It cannot be used for dual mounting.

# NFB and NFX Series

Direct Coupled, Spring Return Actuator, 90 in-lb Minimum Torque



### Actuator Specifications

Torque	90 in-lb [10 Nm] minimum -22°F to 122°F [-30°C to +50°C]
Angle of Rotation	95°, adjustable 35° to 95° (mechanically with limit stops), MFT (electronically variable 0-100%)
Fits Shaft Diameter	1/2" to 1.05" (clamp centers on 1/2", 3/4", and 1.05")
Position Indication	Visual indicator
Manual Override	5mm hex crank (3/16" allen), supplied
Direction of Rotation	external switch (proportional models) electronically selectable with MFT
Spring Return Reversible	CW/CCW mounting
Dimensions	9.69" x 3.86" x 3.42" [246.1 x 98 x 86.9 mm]
Electrical Connection	3 ft, 18 GA appliance cable, 1/2" conduit fitting
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	(-S) Models: 2 SPDT, 3A (0.5A inductive) @ 250V, one switch fixed at 10°, one adjustable 10° to 90°
Housing	NEMA 2/IP54, Enclosure Type2
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1-02, CE according to 2004/108/EC and 2006/95/EC



NFB24-MFT

### MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

- Control – (PWM, VDC range, Floating Point)
- Feedback (0.5-10 VDC, 2-10 VDC, Variable)
- Motion (run time)



Actuators in bold have BDCM



### Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switch	Cable Length	List Price	
				M	Ⓢ ♦♦					
<b>BASIC PRODUCTS</b>										
NFB24	On/Off	-	24 VAC/DC	<75	20	8.5	-	3 ft.	\$366.00	
NFB24-S	On/Off	-	24 VAC/DC	<75	20	8.5	Built-In	3 ft.	\$454.00	
NFBUP	On/Off	-	24-240 VAC <sup>u</sup>	<75	20	9.5	-	3 ft.	\$414.00	
NFBUP-S	On/Off	-	24-240 VAC <sup>u</sup>	<75	20	9.5	Built-In	3 ft.	\$502.00	
<b>NFB24-SR</b>	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	-	3 ft.	\$488.00	
<b>NFB24-SR-S</b>	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	Built-In	3 ft.	\$576.00	
<b>NFB24-MFT</b>	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	150	<20	9	-	3 ft.	\$544.00	
<b>NFB24-MFT-S</b>	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	150	<20	9	Built-In	3 ft.	\$632.00	
<b>CUSTOMIZE PRODUCTS REORDER #</b>										
NFX24	NF200 1A1 003	On/Off	24 VAC/DC	<75	20	8.5	-	3 ft.	\$366.00	
NFX24	NF200 1A3 003	On/Off	24 VAC/DC	<75	20	8.5	-	10 ft.	\$394.00	
NFX24-S	NF220 1A1 003	On/Off	24 VAC/DC	<75	20	8.5	Built-In	3 ft.	\$454.00	
NFX24-S	NF220 1A3 003	On/Off	24 VAC/DC	<75	20	8.5	Built-In	10 ft.	\$504.00	
NFXUP	NF000 1A1 003	On/Off	24-240 VAC <sup>u</sup>	<75	20	9.5	-	3 ft.	\$414.00	
NFXUP	NF000 1A3 003	On/Off	24-240 VAC <sup>u</sup>	<75	20	9.5	-	10 ft.	\$442.00	
NFXUP-S	NF000 1A1 003	On/Off	24-240 VAC <sup>u</sup>	<75	20	9.5	Built-In	3 ft.	\$502.00	
NFXUP-S	NF000 1A3 003	On/Off	24-240 VAC <sup>u</sup>	<75	20	9.5	Built-In	10 ft.	\$552.00	
<b>NFX24-SR</b>	NF400 1A1 H01	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	3 ft.	\$488.00	
<b>NFX24-SR</b>	NF400 1A3 H01	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	10 ft.	\$516.00	
<b>NFX24-SR-S</b>	NF420 1A1 H01	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	Built-In	3 ft.	\$576.00
<b>NFX24-SR-S</b>	NF420 1A3 H01	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	Built-In	10 ft.	\$626.00
<b>MFT PRODUCTS REORDER #</b>										
<b>NFX24-MFT</b>	NF600 1A1 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	40 to 220 (150 default)	<20	9	3 ft.	\$544.00‡	
<b>NFX24-MFT</b>	NF600 1A3 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	40 to 220 (150 default)	<20	9	10 ft.	\$572.00‡	
<b>NFX24-MFT-S</b>	NF620 1A1 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	40 to 220 (150 default)	<20	9	Built-In	3 ft.	\$632.00‡
<b>NFX24-MFT-S</b>	NF620 1A3 A01**	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	40 to 220 (150 default)	<20	9	Built-In	10 ft.	\$682.00‡

♦ Variable with MFT

‡ Prices do not reflect additional programming code surcharge. Price shown is for default running times and control input.

\* With 500 Ω resistor, ZG-R01

\*\* Refer to page 1-10 to 1-13 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.

<sup>u</sup> 24 to 125 VDC.

♦♦ <60 seconds @ -22°F [-30°C].

Note: 16 ft. cables available on all NFX products; list price adder to 3 ft. cable versions: \$48 for single and \$90 for dual (NFX...-S).



### Actuator Specifications

Torque	80 in-lb [9 Nm] minimum
Angle of Rotation ♦	95° (adjustable with mechanical stops)
Fits Shaft Diameter	1/2" to 1.05"
Dimensions	12.5" x 6.25" x 7.25" [318 x 159 x 184 mm]
Electrical Connection	3 ft, 18 GA appliance cable, 1/2" conduit fitting (default)
Overload Protection	Electronic throughout rotation
Auxiliary Switch(es)	(-S) Models: 2 SPDT, 3A (0.5A inductive) @ 250V, one switch fixed at 10°, one adjustable 10° to 90°
Housing Specification	NEMA 4, IP66
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC
Control Shaft Length	Minimum 1" Maximum 2-1/4"



**NEMA 4 Housing Available July 2010**

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

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



Actuators in bold have BDCM



### Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switch	Cable Length	List Price
				(M)	⦿ ♦♦				
<b>BASIC PRODUCTS</b>									
NFB24 N4	On/Off	-	24 VAC/DC	<75	20	8.5	-	3 ft.	\$902.00
NFB24-S N4	On/Off	-	24 VAC/DC	<75	20	8.5	Built-In	3 ft.	\$990.00
NFBUP N4	On/Off	-	24-240 VAC <sup>u</sup>	<75	20	9.5	-	3 ft.	\$950.00
NFBUP-S N4	On/Off	-	24-240 VAC <sup>u</sup>	<75	20	9.5	Built-In	3 ft.	\$1,038.00
<b>NFB24-SR N4</b>	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	-	3 ft.	\$1,024.00
<b>NFB24-SR-S N4</b>	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95	<20	6	Built-In	3 ft.	\$1,112.00
<b>NFB24-MFT N4</b>	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	150	<20	9	-	3 ft.	\$1,080.00
<b>NFB24-MFT-S N4</b>	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	150	<20	9	Built-In	3 ft.	\$1,168.00
<b>MFT PRODUCTS</b>									
<b>NFX24-MFT N4</b>	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	40 to 220 (150 default)	<20	9	-	3 ft.	\$1,080.00 ‡
<b>NFX24-MFT-S N4</b>	Variable with MFT (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	40 to 220 (150 default)	<20	9	Built-In	3 ft.	\$1,168.00 ‡

♦ Variable with MFT

‡ Prices do not reflect additional programming code surcharge. Price shown is for default running times and control input.

\* With 500Ω resistor, ZG-R01

<sup>u</sup> 24 to 125 VDC

♦♦ <60 seconds @ -22°F [-30°C].

\*\* Refer to page 1-10 to 1-13 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.

**All NEMA 4 spring return assemblies are configured for a CCW spring return rotation. For CW spring return rotation, field reconfiguration is needed.**

# LF Series

Direct Coupled Spring Return Actuator, 35 in-lb Minimum Torque



### Actuator Specifications

Torque	35 in-lb [4 Nm] minimum -22°F to +122°F [-30°C to +50°C]
Angle of Rotation ♦	95° adjustable 40° to 95° (mechanically with built-in limit stop), MFT (electronically variable 0-100%)
Overload Protection	Electronic throughout rotation
Fits Shaft Diameter	3/8"-1/2" standard (centers on 1/2"); 1/2"-3/4" with K6-1 clamp accessory
Position Indication	Visual indicator
Direction of Rotation ♦	CW/CCW external switch (proportional models) electronically selectable with MFT
Spring Return Reversible	CW/CCW mounting
Dimensions	7.67" x 3.15" x 3.23" [195 x 80 x 82mm]
Electrical Connection	3 ft, 18 GA plenum cable (modulating), 3 ft, 18 GA appliance cable (on/off, -S types), 1/2" conduit fitting
Auxiliary Switch	(-S) Models: 1 SPDT, 3A (0.5 A inductive) @ 250 V Adjustable 0° to 95°
Housing	NEMA 2 (IP54) any orientation
Agency Listings	cULus according to UL 873 and CAN/CSA C22.2 No. 24-93



LF24-SR US

## MFT

MFT=2-10 VDC Default, or Set, Modify, Read:

- Control (PWM, VDC range, Floating Point)
- Feedback (0.5-10, 0.5-5 VDC)
- Motion (run time)



Actuators in bold have BDCM



♦ Variable with MFT

### Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Aux. Switch	List Price
				(M)	◆◆			
<b>BASIC PRODUCTS</b>								
LF24 US	On/Off	—	24 VAC/DC	<40-75	<25	7	—	\$302.00
LF24-S US	On/Off	—	24 VAC/DC	<40-75	<25	7	Built-In	\$356.00
LF120 US	On/Off	—	120 VAC	<40-75	<25	7.5	—	\$334.00
LF120-S US	On/Off	—	120 VAC	<40-75	<25	7.5	Built-In	\$388.00
LF230 US	On/Off	—	230 VAC	<40-75	<25	7	—	\$414.00
LF230-S US	On/Off	—	230 VAC	<40-75	<25	7	Built-In	\$468.00
<b>LF24-SR US</b>	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	150	<25	5	—	\$414.00
<b>LF24-SR-S US</b>	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150	<25	5	Built-In	\$468.00
<b>LF24-SR-E US</b>	2-10 VDC, Built-in Minimum Position	2-10 VDC	24 VAC/DC	150	<25	5	—	\$446.00
<b>LF24-3 US</b>	Floating Point	—	24 VAC/DC	150	<25	5	—	\$368.00
<b>LF24-3-S US</b>	Floating Point	—	24 VAC/DC	150	<25	5	Built-In	\$422.00
<b>LF24-ECON-R03 US</b>	3 kΩ Type 10 Thermistor	2-10 VDC	24 VAC/DC	95	<25	5	—	\$468.00
<b>LFC24-3-R US</b>	Floating Point	—	24 VAC/DC	90	<25	5	—	\$414.00
<b>LFC24-3-S US</b>	Floating Point	—	24 VAC/DC	90	<25	5	Built-In	\$468.00
<b>CUSTOMIZE IT**</b>								
<b>LF24-MFT US</b>	Variable with MFT, (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	Variable with MFT (150 default)	<25	5	—	\$468.00
<b>LF24-MFT-S US</b>	Variable with MFT, (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	Variable with MFT (150 default)	<25	5	Built-In	\$522.00
<b>LF24-MFT-20 US</b>	6-9 VDC †	Variable VDC	24 VAC/DC	Variable with MFT (150 default)	<25	6	—	\$522.00
<b>LF24-MFT-S-20 US</b>	6-9 VDC †	Variable VDC	24 VAC/DC	Variable with MFT (150 default)	<25	6	Built-In	\$610.00

\*With 500 Ω resistor, ZG-R01.

\*\*LF24-MFT US is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, (i.e.: LF24-MFT US + P-10002). Refer to pages 1-10 to 1-13 for P-Codes.

◆◆ <60 seconds @ -22°F [-30°C].

† With 20 VDC fixed output voltage.

LFC24-3-R US with ZG-LFC114 universal mounting bracket are for Trane Voyager retrofit.

**Actuator Specifications**

Torque	18 in-lb [2 Nm] minimum -22°F to +122°F [-30°C to +50°C]
Angle of Rotation◆	95° adjustable 35° to 95° (mechanically with built-in limit stop), MFT (electronically variable 0-100%)
Overload Protection	Electronic throughout rotation
Fits Shaft Diameter	1/4" - 1/2" (centers on 1/2")
Position Indication	Visual indicator
Direction of Rotation◆	CW/CCW external switch (proportional models)
Spring Return Reversible	CW/CCW mounting
Dimensions	6.3" x 3.0" x 3.4" [150 x 76.2 x 84.7mm]
Electrical Connection	3 ft, 18 GA plenum cable (modulating), 3 ft, 18 GA appliance cable (on/off, -S types), 1/2" conduit fitting
Auxiliary Switch	(-S) Models: 1 SPDT, 3 A (0.5 A inductive) @ 250 V adjustable 0° to 95°
Housing	NEMA 2 (IP42), UL Enclosure Type2, any orientation
Agency Listings	cULus according to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC

◆ Variable with MFT


**TF120 US**
**MFT**
**MFT=2-10 VDC Default, or Set, Modify, Read:**

- Control (PWM, VDC range, Floating Point)
- Feedback (0.5-10, 0.5-5 VDC)
- Motion (run time)


**Actuators in bold have BDCM**

**Spring Return Actuators**

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Aux. Switch	List Price
				(M)	(@) ◆◆			
<b>BASIC PRODUCTS</b>								
TF24 US	On/Off	—	24 VAC/DC	<75	<25	5	—	\$250.00
TF24-S US	On/Off	—	24 VAC/DC	<75	<25	5	Built-In	\$302.00
TF120 US	On/Off	—	100-240 VAC	<75	<25	5	—	\$292.00
TF120-S US	On/Off	—	100-240 VAC	<75	<25	5	Built-In	\$344.00
TFC120-S US	On/Off	—	100-240 VAC	<30	<25	6	Built-In	\$362.00
<b>TF24-SR US</b>	2-10 VDC (4-20 mA*)	—	24 VAC/DC	95	<25	4	—	\$356.00
<b>TF24-SR-S US</b>	2-10 VDC (4-20 mA*)	—	24 VAC/DC	95	<25	4	Built-In	\$408.00
<b>TF24-3 US</b>	Floating Point	—	24 VAC	95	<25	4	—	\$326.00
<b>TF24-3-S US</b>	Floating Point	—	24 VAC	95	<25	4	Built-In	\$378.00
<b>CUSTOMIZE IT**</b>								
<b>TF24-MFT US</b>	Variable with MFT, (VDC, PWM, Floating Point, On/Off)	Variable VDC	24 VAC/DC	Variable with MFT (150 default)	<25	4	—	\$414.00

\* With 500 Ω resistor, ZG-R01.

\*\* TF24-MFT US is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, (i.e.: TF24-MFT US + P-10002). Refer to pages 1-10 to 1-13 for P-Codes.

◆◆ &lt;60 seconds @ -22°F [-30°C].

VDC

Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
AFB, AFX, NFB, NFX, LF, TF	A01	150s	2...10V	U5 2...10V	P-10001	No Charge
AFB, AFX, NFB, NFX, LF, TF	A02	150s	0.5...10V	U5 0.5...10V	P-10002	No Charge
AFB, AFX, NFB, NFX, LF, TF	A03	150s	2...10V	U5 0.5...5V	P-10003	No Charge
AFB, AFX, NFB, NFX, LF, TF	A04	150s	4...7V	U5 2...10V	P-10004	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A05	150s	6...9V	U5 2...10V	P-10005	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A06	150s	10.5...13.5V	U5 2...10V	P-10006	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A07	150s	0.5...5V	U5 2...10V	P-10007	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A08	150s	0.5...5V	U5 0.5...10V	P-10008	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A09	150s	5...10V	U5 2...10V	P-10009	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A10	150s	5...10V	U5 0.5...10V	P-10010	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A11	150s	0.5...5V	U5 0.5...5V	P-10011	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A12	150s	0.5...5V	U5 0.5...2.5V	P-10012	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A13	150s	0.5...10V	U5 2...10V	P-10013	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A14	100s	0.5...10V	U5 0.5...2.5V	P-10014	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A15	150s	2...5V	U5 2...10V	P-10015	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A16	150s	2...6V	U5 2...10V	P-10016	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A17	150s	6...10V	U5 2...10V	P-10017	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A18	150s	14...17V	U5 2...10V	P-10018	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A19	100s	2...10V	U5 2...10V	P-10019	No Charge
AFB, AFX, NFB, NFX, LF, TF	A20	150s	9...12V	U5 2...10V	P-10020	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A21	150s	2...10V	U5 0.5...5V	P-10021	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A22	150s	0.5...4.9V	0.5...4.9V	P-10022	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A23	150s	5.1...10V	5.1...10V	P-10023	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A24	150s	0.5...24V	U5 2...10V	P-10024	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A25	76s	2...10V	U5 2...10V	P-10025	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A26	150s	2...9V	U5 2...10V	P-10026	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A27	150s	5...9V	U5 2...10V	P-10027	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A28	100s	0.5...10V	U5 0.5...10V	P-10028	No Charge
AFB, AFX, NFB, NFX, LF, TF	A29	150s	1...3V	U5 2...10V	P-10029	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A30	150s	3...9V	U5 2...10V	P-10030	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A31	150s	0.5...4V	U5 2...10V	P-10031	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A32	150s	6...14V	U5 2...10V	P-10032	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A33	150s	4...14V	U5 2...10V	P-10033	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A34	120s	2...10V	U5 2...10V	P-10034	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A35	78s	2...10V	U5 2...10V	P-10035	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A37	120s	0.5...10V	U5 0.5...10V	P-10037	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A38	150s	6...13V	U5 2...10V	P-10038	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A39	150s	10...14V	U5 2...10V	P-10039	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A40	150s	1...16V	U5 2...10V	P-10040	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A41	150s	3...6V	U5 2...10V	P-10041	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A42	75s	0.5...10V	U5 2...10V	P-10042	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A43	150s	0.5...2.5V	U5 2...10V	P-10043	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A44	150s	7...10V	U5 2...10V	P-10044	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A45	150s	13...17V	U5 2...10V	P-10045	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A46	150s	2...10V	U5 2...10V	P-10046	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A47	150s	0.5...20V	U5 2...10V	P-10047	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A48	150s	1...5V	U5 1...5V	P-10048	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A49	150s	1...5V	U5 1...5V	P-10049	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A52	150s	2...10V	U5 0.5...5V	P-10052	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A53	120s	0.5...10V	U5 2...10V	P-10053	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A54	150s	0.5...2.5V	U5 0.5...2.5V	P-10054	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A55	75s	2...5V	U5 2...10V	P-10055	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A56	75s	6...9V	U5 2...10V	P-10056	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A57	150s	2...5.5V	U5 2...10V	P-10057	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A58	150s	6.5...10V	U5 2...10V	P-10058	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A59	150s	0.5...6V	U5 2...10V	P-10059	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A60	300s	2...10V	U5 2...10V	P-10060	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A61	150s	10...20V	U5 2...10V	P-10061	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A62	90s	2...10V	U5 2...10V	P-10062	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A63	150s	0.5...4.5V	U5 0.5...4.5V	P-10063	No Charge
AFB, AFX, NFB, NFX, LF, TF	A64	150s	5.5...10V	U5 5.5...10V	P-10064	No Charge

L30056 - 04/10 - Subject to change. © Belimo Aircontrols (USA), Inc.

**VDC**

Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
AFB, AFX, NFB, NFX, LF, TF	A65	150s	1...5V	U5 1...5V	P-10065	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A66	150s	2...10V	U5 1...5V	P-10066	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A67	150s	2...8V	U5 2...10V	P-10067	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A68	150s	2...13V	U5 2...10V	P-10068	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A69	150s	1.4V	U5 2...10V	P-10069	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A70	150s	3.5...10V	U5 2...10V	P-10070	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A71	150s	2...15V	U5 2...10V	P-10071	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A72	95s	2...10V	U5 2...10V	P-10072	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A73	150s	6...18V	U5 2...10V	P-10073	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A74	150s	2...10V	U5 2...10V	P-10074	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A76	150s	0.5...3V	U5 0.5...10V	P-10076	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A77	76s	0.5...10V	U5 0.5...10V	P-10077	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A78	150s	2...10V	U5 0.5...10V	P-10078	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A79	150s	0.5...10V	U5 0.5...5V	P-10079	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A80	150s	0.5...3.5	U5 2...10V	P-10080	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A81	150s	4.5...10	U5 2...10V	P-10081	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A82	150s	3...10V	U5 2...10V	P-10082	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A83	150s	5...15V	U5 2...10V	P-10083	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A84	150s	13...20V	U5 2...10V	P-10084	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A85	150s	2...10V	U5 2...10V	P-10085	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A86	150s	5...10.5	U5 2...10V	P-10086	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A88	150s	2...10V	U5 2...10V	P-10088	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A89	150s	12.5...22V	U5 2...10V	P-10089	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A90	150s	2...5V	U5 2...5V	P-10090	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A91	95s	2...10V	U5 2...10V	P-10091	No Charge
AFB, AFX, NFB, NFX, LF, TF	A92	150s	0.5...15V	U5 0.5...10V	P-10092	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A93	150s	2...10V	U5 2...10V	P-10093	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A94	85s	2...10V	U5 2...10V	P-10094	No Charge
AFB, AFX, NFB, NFX, LF, TF	A95	150s	0.5...5V	U5 0.5...5V	P-10095	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A96	150s	0.5...10V	U5 2...10V	P-10096	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A97	150s	5.25...7.25	U5 2...10V	P-10097	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A98	150s	2...10V	U5 2...10V	P-10098	\$34.00
AFB, AFX, NFB, NFX, LF, TF	A99	150s	2...10V	U5 2...10V	P-10099	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AA0	150s	0.5...12.85	U5 2...10V	P-10100	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AA1	150s	3...15V	U5 2...10V	P-10101	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AA2	150s	0.5...14V	U5 2...10V	P-10102	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AA4	150s	0.5...22V	U5 2...10V	P-10104	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AA5	150s	0.5...4V	U5 0.5...5V	P-10105	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AA6	150s	6...10V	U5 0.5...5V	P-10106	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AA7	150s	2...7V	U5 2...10V	P-10107	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AA8	150s	4...10V	U5 2...10V	P-10108	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAA	150s	2...22V	U5 2...10V	P-10110	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAB	150s	0.5...20V	U5 0.5...10V	P-10111	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAC	150s	0.5...29V	U5 2...10V	P-10112	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAD	100s	0.5...4.5V	U5 0.5...4.5V	P-10113	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAE	100s	5.5...10V	U5 5.5...10V	P-10114	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAF	150s	0.5...28V	U5 2...10V	P-10115	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAG	75s	0.5...10V	U5 2...10V	P-10116	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAH	150s	0.5...10V	U5 4...5V	P-10117	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAJ	100s	2...6V	U5 2...10V	P-10118	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAK	100s	6...10V	U5 2...10V	P-10119	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAL	150s	8...20V	U5 2...10V	P-10120	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAM	120s	0.5...10V	U5 2...10V	P-10121	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAN	100s	0.5...10V	U5 2...10V	P-10122	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAP	150s	2...10V	U5 2...10V	P-10123	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAR	150s	2...10V	U5 2...10V	P-10124	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAS	150s	2...10V	U5 2...10V	P-10125	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AAU	100s	6...9V	U5 2...10V	P-10143	No Charge
AFB, AFX, NFB, NFX, LF, TF	AAV	150s	1.2...6V	U5 2...10V	—	No Charge
NFB, NFX	AC0	45s	2...10V	U5 2...10V	P-10131	No Charge
AFB, AFX, NFB, NFX, LF, TF	AC1	90s	2...10V	U5 2...10V	P-10132	No Charge

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**VDC**

Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
AFB, AFX, NFB, NFX, LF, TF	AC2	150s	0.5...10V	U5 0.5...10V	—	No Charge
AFB, AFX, NFB, NFX, LF, TF	AC4	150s	0.5...10V	U5 0.5...10V	—	\$34.00
AFB, AFX, NFB, NFX, LF, TF	AC5	75s	2...10V	U5 2...10V	P-10133	\$34.00
NFB, NFX	AC9	45s	0.5...10V	U5 0.5...10V	—	No Charge
AFB, AFX, NFB, NFX, LF, TF	ACA	90s	0.5...10V	U5 0.5...10V	—	No Charge
AFB, AFX, NFB, NFX, LF, TF	ACV	150s	2...10V	U5 2...10V	—	No Charge
AFB, AFX, NFB, NFX, LF, TF	ACX	150s	2...10V	U5 2...10V	—	No Charge
AFB, AFX, NFB, NFX, LF, TF	AD0	100s	0.5...5V	U5 2...10V	P-10135	No Charge
AFB, AFX, NFB, NFX, LF, TF	AD1	100s	5...10V	U5 2...10V	P-10136	No Charge
AFB, AFX, NFB, NFX, LF, TF	AD2	90s	2...10V	U5 2...10V	—	No Charge
AFB, AFX, NFB, NFX, LF, TF	AD4	150s	2...10V	U5 2...10V	—	No Charge
AFB, AFX, NFB, NFX, LF, TF	AD5	100s	2...5V	U5 2...10V	P-10137	No Charge
AFB, AFX, NFB, NFX, LF, TF	AD6	100s	2...10V	U5 0.5...5V	P-10139	No Charge
AFB, AFX, NFB, NFX, LF, TF	AD7	100s	0.5...10V	U5 0.5...5V	P-10140	No Charge
AFB, AFX, NFB, NFX, LF, TF	ADA	100s	0.5...10V	U5 0.5...10V	—	No Charge
AFB, AFX, NFB, NFX, LF, TF	ADD	150s	9...13V	U5 2...10V	P-10138	No Charge
AFB, AFX, NFB, NFX, LF, TF	ADE	150s	2...10V	U5 2...10V	—	No Charge
AFB, AFX, NFB, NFX, LF, TF	ADF	150s	0.5...10V	U5 0.5...10V	P-10142	No Charge

**FLOATING POINT**

Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
AFB, AFX, NFB, NFX, LF, TF	F01	150s	—	U5 2...10V	P-30001	No Charge
AFB, AFX, NFB, NFX, LF, TF	F02	150s	—	U5 0.5...10V	P-30002	\$34.00
AFB, AFX, NFB, NFX, LF, TF	F03	100s	—	U5 2...10V	P-30003	No Charge
AFB, AFX, NFB, NFX, LF, TF	F04	100s	—	U5 0.5...5V	P-30004	\$34.00
AFB, AFX, NFB, NFX, LF, TF	F05	100s	—	U5 0.5...10V	P-30005	\$34.00
AFB, AFX, NFB, NFX, LF, TF	F06	150s	—	U5 0.5...5V	P-30006	\$34.00
LF, TF	F07	300s	—	U5 2...10V	P-30007	\$34.00
AFB, AFX, NFB, NFX, LF, TF	F08	75s	—	U5 2...10V	P-30008	\$34.00
AFB, AFX, NFB, NFX, LF, TF	F09	85s	—	U5 2...10V	P-30009	\$34.00
AFB, AFX, NFB, NFX, LF, TF	F10	150s	—	U5 0.5...6V	P-30010	\$34.00
AFB, AFX, NFB, NFX, LF, TF	F11	75s	—	U5 0.5...5V	P-30011	\$34.00
AFB, AFX, NFB, NFX, LF, TF	F12	150s	—	U5 2...10V	—	\$34.00
AFB, AFX, NFB, NFX, LF, TF	F13	120s	—	U5 0.5...10V	P-30013	\$34.00
AFB, AFX, NFB, NFX, LF, TF	F14	90s	—	U5 2...10V	P-30014	\$34.00
AFB, AFX, NFB, NFX, LF, TF	F15	150s	—	U5 0.5...4.5V	P-30015	\$34.00
AFB, AFX, NFB, NFX, LF, TF	F16	150s	—	U5 1...5V	P-30016	\$34.00
AFB, AFX, NFB, NFX, LF, TF	F17	90s	—	U5 1...10V	P-30017	\$34.00
NFB, NFX	F18	60s	—	U5 2...10V	—	No Charge
NFB, NFX	F19	45s	—	U5 2...10V	—	No Charge

**ON/OFF**

Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
AFB, AFX, NFB, NFX, LF, TF	J01	75s	—	U5 2...10V	P-40001	\$34.00
AFB, AFX, NFB, NFX, LF, TF	J02	150s	—	U5 2...10V	P-40002	No Charge
AFB, AFX, NFB, NFX, LF, TF	J03	75s	—	U5 2...10V	P-40003	\$34.00
AFB, AFX, NFB, NFX, LF, TF	J04	100s	—	U5 0.5...5V	P-40004	\$34.00
AFB, AFX, NFB, NFX, LF, TF	J05	100s	—	U5 0.5...10V	P-40005	\$34.00
AFB, AFX, NFB, NFX, LF, TF	J06	120s	—	U5 2...10V	P-40006	\$34.00
AFB, AFX, NFB, NFX, LF, TF	J08	200s	—	U5 2...10V	P-40008	\$34.00
AFB, AFX, NFB, NFX, LF, TF	J09	120s	—	U5 0.5...10V	P-40009	\$34.00
LF, TF	J10	300s	—	U5 2...10V	P-40010	\$34.00
AFB, AFX, NFB, NFX, LF, TF	J11	150s	—	U5 0.5...10V	P-40011	\$34.00
AFB, AFX, NFB, NFX, LF, TF	J12	150s	—	U5 0.5...5V	P-40012	\$34.00
AFB, AFX, NFB, NFX, LF, TF	J13	100s	—	U5 0.5...5V	P-40012	No Charge

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**MFT95**

Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
AFB, AFX	R01	150s	0...135 Ohm	U5 2...10V	P-16001	No Charge
AFB, AFX	R02	150s	0...135 Ohm	U5 0.5...10V	P-16002	\$34.00
AFB, AFX	R03	150s	0...135 Ohm	U5 0.5...5V	P-16003	\$34.00
AFB, AFX	R04	75s	0...135 Ohm	U5 2...10V	P-16004	\$34.00
AFB, AFX	R05	100s	0...135 Ohm	U5 0.5...10V	P-16028	\$34.00
AFB, AFX	R09	90s	0...135 Ohm	U5 2...10V	—	No Charge

**PWM**

Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
AFB, AFX, NFB, NFX, LF, TF	W01	150s	0.59...2.93s	U5 2...10V	P-20001	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W02	150s	0.02...5s	U5 2...10V	P-20002	No Charge
AFB, AFX, NFB, NFX, LF, TF	W03	150s	0.1...25.5s	U5 2...10V	P-20003	No Charge
AFB, AFX, NFB, NFX, LF, TF	W04	150s	0.1...25.6s	U5 2...10V	P-20004	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W05	150s	0.1...5.2s	U5 0.5...5V	P-20005	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W06	150s	0.59...2.93s	U5 0.5...10V	P-20006	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W07	150s	0.02...5s	U5 0.5...5V	P-20007	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W08	150s	0.1...10s	U5 2...10V	P-20008	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W09	150s	1...11s	U5 2...10V	P-20009	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W10	150s	0.02...5s	U5 2...10V	P-20010	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W11	150s	0.02...5.6s	U5 2...10V	P-20011	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W12	150s	0.5...25.5s	U5 2...10V	P-20012	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W13	150s	0.5...2.93s	U5 2...10V	P-20013	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W14	150s	0.1...10s	U5 2...10V	P-20014	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W15	150s	1...11s	U5 2...10V	P-20015	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W16	150s	0.02...5s	U5 2...10V	P-20016	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W17	150s	0.02...5.6s	U5 2...10V	P-20017	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W18	150s	0.1...25.5s	U5 2...10V	P-20018	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W19	150s	0.02...2.5s	U5 2...10V	P-20019	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W20	150s	2.7...5s	U5 2...10V	P-20020	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W21	150s	0.1...5.2s	U5 2...10V	P-20021	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W22	150s	0.1...12.85s	U5 2...10V	P-20022	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W23	150s	5.1...10.1s	U5 2...10V	P-20023	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W24	150s	0.59...1.76s	U5 2...10V	P-20024	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W25	150s	1.76...2.93s	U5 2...10V	P-20025	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W26	150s	0.02...12s	U5 2...10V	P-20026	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W27	150s	0.02...14s	U5 2...10V	P-20027	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W28	150s	12.5...22s	U5 2...10V	P-20028	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W29	150s	0.5...12.85s	U5 2...10V	P-20029	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W30	150s	0.1...24s	U5 2...10V	P-20030	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W31	100s	0.02...5s	U5 2...10V	P-20031	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W32	100s	0.1...25.5	U5 2...10V	P-20032	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W33	150s	0.2...25.5	U5 2...10V	P-20033	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W34	100s	0.59...2.93s	U5 2...10V	P-20034	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W35	150s	5.5...9.5s	U5 2...10V	P-20035	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W36	150s	0.5...4.5s	U5 2...10V	P-20036	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W37	150s	0.1...5.2s	U5 0.5...10V	P-20037	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W38	150s	0.02...6s	U5 2...10V	P-20038	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W39	150s	0.59...2.93s	U5 2...10V	P-20039	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W3A	150s	0.5...5.0s	U5 2...10V	P-20040	\$34.00
AFB, AFX, NFB, NFX, LF, TF	W3C	150s	0.1...25.5s	U5 2...10V	—	No Charge
AFB, AFX, NFB, NFX, LF, TF	W3D	150s	0.2...5.2s	U5 2...10V	P-20041	No Charge

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# 2

## ELECTRONIC FAIL-SAFE DAMPER ACTUATORS

- Fail-safe position can be set 0-100% in 10% increments by using the PC Tool or manually from the actuator.
- High torque (360 in-lbs) offering that can handle many applications.
- LED status provides visual feedback on the actuator charge.
- Low power consumption provides higher efficiency and smaller transformer sizing.
- Minimum torque guaranteed over entire specified operating range, no loss in performance due to temperature or supply voltage.
- MFT is available in all Electronic Fail-Safe actuators, giving the user the flexibility to customize and adapt a single actuator to various controllers and applications.
- Status signal on feedback for easy electronic monitoring.

### Applications

Belimo actuators are designed for use in a wide variety of HVAC damper applications. With our high torque, fail-safe position range and the ability to direct mount or mount on standard damper shafts or jackshafts, solutions are available for control dampers, air handlers, economizer units, VAV terminal units, fan coil units, fan shutters, and unit ventilators.

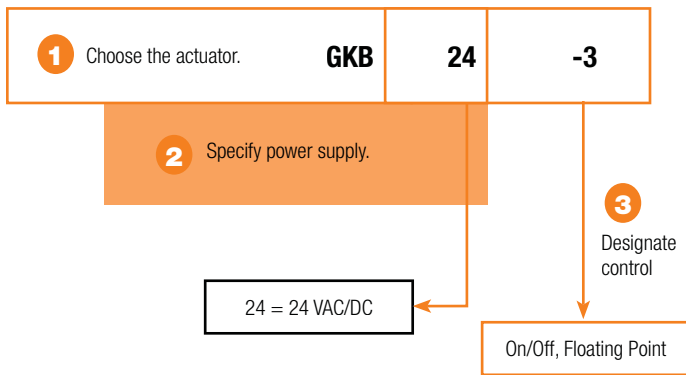




# Electronic Fail-Safe Damper Actuator Nomenclature

GK	Q	B	24	-MFT
<b>Torque Rating</b>	<b>Speed</b>	<b>Version</b>	<b>Power Supply</b>	<b>Control</b>
GK = 360 in-lb* AHK = 101 lbf*	Q = Quickest Running Blank - Normal Speed	B = Basic X = Customized	24 = 24 VAC/DC	-3 = On/Off, Floating Point -SR = 2-10 VDC -MFT = Multi-Function Technology

## Ordering Example



**5** Complete Ordering Example: **GKB24-3**

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

## Standard Electronic Fail-Safe Actuator Product Range

		Running Time	Power Supply	Power Consumption	Control Input	Control Input MFT	Position Feedback	Add-on	
		Motor Drive	Fail-Safe	24 VAC +/- 20%, VDC +/-10%/+20%, 50/60 HZ 24 to 240 VAC +10%/- 20%, 50/60 HZ 24 to 125 VDC +/- 10% 120 VAC +/- 10% 230 VAC +/- 10%	VA Rating, Transformer Sizing	Wattage Running (Holding)	On/Off Floating Point 2-10 VDC (Default) 4-20 mA* (w/500 Ω Resistor)	On/Off Floating Point Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC PWM adj., 0.02 to 50.0 Seconds 2-10 VDC (Default) VDC Variable, Start 0 to 8, Span 2 to 10 VDC	S1A or S2A
<b>GK Series</b> 360 in-lb [40 Nm] Approx. 90 sq. ft.	GKB24-3	150	35	●		20	15 (2)	●	●
	GKB24-SR	150	35	●		20	15 (2)	●	●
<b>NKQ Series</b> 54 in-lb [6 Nm] Approx. 12 sq. ft.	NKQB24-3	4	4	●		*	*	●	●
	NKQB24-SR	4	4	●		*	*	●	●

\*Ratings will be available April 2010.

## Custom Electronic Fail-Safe Actuator Product Range

		Custom Options	Running Time	Power Supply	Power Consumption	Control Input	Control Input MFT	Position Feedback	Add-on	
		10 ft (3m) or 16 ft (5m) cable	Motor Drive, (Default) (...-MFT US, 35 to 300 sec., fully programmable by Belimo or in field)	Fail-Safe	24 VAC +/- 20%, VDC +/- 10%, 50/60 HZ 24 to 240 VAC +10%/- 20%, 50/60 HZ 24 to 125 VDC +/- 10%	VA Rating, Transformer Sizing	Wattage Running (Holding)	On/Off Floating Point 2-10 VDC (Default) 4-20 mA* (w/500 Ω Resistor)	On/Off Floating Point Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC PWM adj., 0.02 to 50.0 Seconds 2-10 VDC (Default) VDC Variable, Start 0 to 8, Span 2 to 10 VDC	S1A or S2A
<b>GKX Series</b> 360 in-lb [40 Nm] Approx. 90 sq. ft.	GKX24-3	●	150	35	●	20	15 (2)	●	●	
	GKX24-SR	●	150	35	●	20	15 (2)	●	●	
	GKX24-MFT	●	95-150 (150)	35	●	20	15 (2)	●	●	
<b>AHKX Series</b> 101 lbf [450 N force]	AHKX24-MFT	●	95-150 (150)	35	●	20	15 (2)	●	●	
<b>NKQX Series</b> 54 in-lb [6 Nm] Approx. 12 sq. ft.	NKQX24-3	●	4-10 (4)	4	●	*	*	●	●	
	NKQX24-SR	●	4-10 (4)	4	●	*	*	●	●	
	NKQX24-MFT	●	4-10 (4)	4	●	*	*	●	●	

\*Ratings will be available April 2010.

# GK Series

Direct Coupled, Electronic Fail-Safe Actuator, 360 in-lbs Minimum Torque



## Actuator Specifications

Torque	360 in-lbs [40 Nm] minimum
Angle of Rotation◆	95° (adjustable with mechanical stops)
Fits Shaft Diameter	1/2" to 1.05" (center on 3/4" shaft with insert and on 1" without insert)
Position Indication	reflective visual indicator (snap on)
Manual Override	external push button
Direction of Rotation◆	external switch
Dimensions	8.3" x 4.5" x 3.4"
Fail-Safe Setting	0-100% at 10% intervals
Electrical Connection	3 ft, 18Ga plenum rated cable, 1/2" conduit fitting
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	add on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250V adjustable 5° to 85°
Housing	NEMA 2/IP54, Enclosure Type 2
Agency Listings	CUL according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 206/EC



GKX24-MFT

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

- Control – (PWM, VDC range, Floating Point)
- Feedback (0.5 VDC, 2-10 VDC, Variable)
- Motion (run time)



All actuators have BDCM



### Electronic Fail-Safe Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switch	Cable Length	List Price
				Motor	Fail Safe				
<b>BASIC PRODUCTS</b>									
GKB24-3	On/Off Floating Pt	Add-on	24 VAC/DC	150 seconds	35 seconds	20	Add-on	3 ft	\$1,008.00**
GKB24-SR	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds	35 seconds	20	Add-on	3 ft	\$1,256.00**
<b>CUSTOMIZED PRODUCTS</b>									
GKX24-3	On/Off Floating Pt	Add-on	24 VAC/DC	150 seconds	35 seconds	20	Add-on	3 ft	\$1,008.00**
GKX24-SR	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds	35 seconds	20	Add-on	3 ft.	\$1,256.00**
GKX24-MFT	Various	2-10 VDC	24 VAC/DC	150 seconds	35 seconds	20	Add-on	3 ft	\$1,386.00**

◆ Variable with MFT

\*500 Ω resistor added

\*\* Price includes 3 ft. cable and no charge programming codes

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### Actuator Specifications

Torque	320 in-lb [35 Nm] minimum
Angle of Rotation♦	95° (adjustable with mechanical stops)
Fits Shaft Diameter	1/2" to 1.05"
Dimensions	12.5" x 6.25" x 7.25" [318 x 159 x 184 mm]
Electrical Connection	terminal strip (-T)
Overload Protection	Electronic throughout rotation
Auxiliary Switch(es)	add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5° to 85°
Housing Specification	NEMA 4, IP66
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC
Control Shaft Length	Minimum 1" Maximum 2-1/4"



**NEMA 4 Housing**  
Available July 2010

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

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



All actuators have BDCM



### Non-Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Auxiliary Switch	List Price
<b>BASIC PRODUCTS</b>							
GKB24-3-T N4	On/Off, Floating Point	Add-on	24 VAC/DC	150 seconds	20	Add-on	\$1,546.00
GKB24-SR-T N4	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds	20	Add-on	\$1,792.00
<b>CUSTOMIZE IT</b>							
GKX24-MFT-T N4	Various	2-10 VDC	24 VAC/DC	150 seconds	20	Add-on	\$1,922.00

- ♦ Variable with MFT
- \* 500 Ω resistor added

### Actuator Specifications

Torque	54 in-lbs [6 Nm] minimum
Angle of Rotation ♦	95° (adjustable with mechanical stops)
Fits Shaft Diameter	1/2" to 1.05" (center on 1/2" and 3/4" shaft with insert and on 1" without insert)
Position Indication	reflective visual indicator (snap on)
Manual Override	external push button
Direction of Rotation ♦	external switch
Dimensions	7.25" x 3.9" x 3"
Fail-Safe Setting	0-100% at 10% intervals
Electrical Connection	3 ft, 18Ga plenum rated cable, 1/2" conduit fitting
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	add on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250V adjustable 5° to 85°
Housing	NEMA 2/IP54, Enclosure Type 2
Agency Listings	CUL according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 206/EC



NKQB24-3

### New NKQ Series, Offers:

- 4 second run time for 95° span
- Compact size
- 54 in-lb of torque
- Set fail-safe position in 10% increments
- LED status indicator

Available Second Quarter 2010!

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

- Control – (PWM, VDC range, Floating Point)
- Feedback (0.5 VDC, 2-10 VDC, Variable)
- Motion (run time)



All actuators have BDCM



### Electronic Fail-Safe Actuators

Models	Control Input	Feedback	Power Supply	Running Time(s)		Auxiliary Switch	Cable Length	List Price
				Motor	Fail Safe			
<b>BASIC PRODUCTS</b>								
NKQB24-3	On/Off Floating Pt	Add-on	24 VAC/DC	4 seconds	4 seconds	Add-on	3 ft	\$690.00
NKQB24-SR	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	4 seconds	4 seconds	Add-on	3 ft	\$730.00
<b>CUSTOMIZED PRODUCTS</b>								
NKQX24-3	On/Off Floating Pt	Add-on	24VAC/DC	4 seconds	4 seconds	Add-on	3 ft	\$690.00
NKQX24-SR	2-10 VDC (4-20 mA*)	2-10 VDC	24VAC/DC	4 seconds	4 seconds	Add-on	3 ft.	\$730.00
NKQX24-MFT	Various	2-10 VDC	24 VAC/DC	4 seconds	4 seconds	Add-on	3 ft	\$790.00

**Actuator Specifications**

Linear Force	101 lbf [450 N force] minimum
Position Indication	
Manual Override	external push button
Direction of Stroke ♦	reversible with switch
Spring Return Reversible	CW/CCW mounting
Dimensions	7.5" x 4.5" x 3.75"
Fail-Safe Setting	0-100% at 10% intervals
Electrical Connection	3 ft, 18Ga plenum rated cable, 1/2" conduit fitting
Overload Protection	electronic throughout full stroke
Housing	NEMA 2/IP54, Enclosure Type 2
Agency Listings	CUL according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 206/EC


**AHKX24-MFT**

## MFT

**MFT= 2-10 VDC Default, or Set, Modify, Read:**

- Control – (PWM, VDC range, Floating Point)
- Feedback (0.5 VDC, 2-10 VDC, Variable)
- Motion (run time)



All actuators have BDCM


**Electronic Fail-Safe Actuators**

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Cable Length	List Price
				Motor	Fail Safe			
<b>CUSTOMIZED PRODUCTS</b>								
<b>AHKX24-MFT</b>	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds	35 seconds	20	3 ft	\$1258.00**

Stock is 4" [100mm]

♦ Variable with MFT

\*500 Ω resistor added

\*\* Price includes 3 ft. cable and no charge programming codes.

# 3

## FIRE AND SMOKE ACTUATORS

- ISO 9001 Certified Quality Control and a 5-Year Warranty assures reliable operation with exceptional customer support.
- 30 in-lb, 70 in-lb, & 133 in-lb torque assortment.
- 24, 120, & 230 VAC availability to meet various wiring requirements.
- 24 VDC (FSAF Only) with 2-position and proportional control to suit special installations.
- Our unique FSAF24-BAL actuator allows duct balancing capabilities from fire and smoke dampers.
- Belimo FS Actuators are UL555 and UL555S listed with U.S. damper manufacturers.

### Applications

The growing sophistication of fire and smoke dampers has introduced an evolutionary shift in damper actuation needs. Belimo's FSLF, FSNF and FSAF product lines offer a broad assortment of actuators to cover the established range of system applications. To address the expanding use of active smoke control systems, Belimo introduced the proportional FSAF24-SR for stairwell, under-floor and other pressurization applications. Belimo continues to lead market innovation with its newest FSAF24-BAL for consolidating duct balancing applications with fire and smoke actuated dampers.

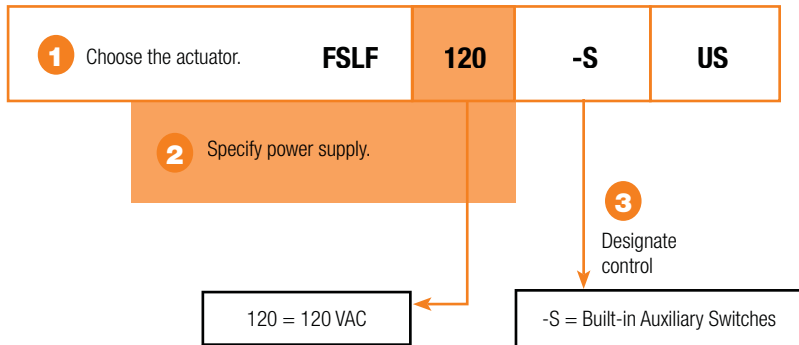


## Fire and Smoke Actuator Nomenclature

FS	L	F	120		-S	US
<b>Fire and Smoke</b>	<b>Torque Rating</b> A = 133 in-lb N = 70 in-lb L = 30 in-lb	<b>Actuator Type</b> F = Spring Return	<b>Power Supply</b> 24 = 24 VAC 120 = 120 VAC 230 = 230 VAC	<b>Control</b> Blank = On/Off -SR = 2-10 VDC -BAL = 3-position	-S = Built-in Auxiliary Switches	






### Ordering Example



**4** Complete Ordering Example: **FSLF120-S US**



# Fire and Smoke Actuator Product Range

		Running Time		Power Supply			Power Consumption	Control Input	Auxiliary Switches	
Motor Drive	Spring Return	24 VAC (FSAF - 24 VAC/DC)	120 VAC	230 VAC	VA Rating	On/Off	2 SPST	2 SPDT		
<b>FSAF Series</b> 133 in-lb [15 Nm] Approx. 16 sq. ft. @ 250°F		FSAF24 US	<75	<20	●		10	●		
		FSAF24-S US	<75	<20	●		10	●	●	
		FSAF120 US	<75	<20		●	11	●		
		FSAF120-S US	<75	<20		●	11	●	●	
		FSAF230 US	<75	<20			12	●		
		FSAF230-S US	<75	<20			12	●	●	
		FSAF24-SR US	<75	<20	●		11	2-10 VDC		
		FSAF24-SR-S	<75	<20	●		11	2-10 VDC		●
		FSAF24-BAL	<75	<20	●		10	3-Position		
FSAF24-BAL-S	<75	<20	●		10	3-Position		●		
<b>FSNF Series</b> 70 in-lb [8 Nm] Approx. 12 sq. ft. @ 350°F		FSNF24 US	<15	<15	●		27	●		
		FSNF24-S US	<15	<15	●		27	●	●	
		FSNF120 US	<15	<15		●	27	●		
		FSNF120-S US	<15	<15		●	27	●	●	
		FSNF230 US	<15	<15			27	●		
		FSNF230-S US	<15	<15			27	●	●	
<b>FSLF Series</b> 30 in-lb [3.5 Nm] Approx. 4 sq. ft. @ 350°F		FSLF24 US	<15	<15	●		5	●		
		FSLF24-S US	<15	<15	●		5	●	●	
		FSLF120 US	<15	<15		●	18	●		
		FSLF120-S US	<15	<15		●	18	●	●	
		FSLF230 US	<15	<15			17	●		
		FSLF230-S US	<15	<15			17	●	●	

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# FSAF Series

Direct Coupled, Fire and Smoke, Spring Return Actuator, 133 in-lb Minimum Torque



## Actuator Specifications

Torque	133 in-lb [15 Nm] minimum from -22°F to 122°F ♦
Angle of Rotation	95°
Fits Shaft Diameter	½"-1.05" (K4-2 clamp self-centers on ½", ¾" and 1.05")
Position Indication	visual indicator, 0 to 95°
Manual Override	3 mm hex crank
Direction of Rotation	CW/CCW mounting
Dimensions	10.59" x 3.86" x 3.23" [266 x 98 x 78 mm]
Electrical Connection	3 ft, 18 GA, ½" conduit fitting
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	2 SPST or 2 SPDT, 7A (2.5A inductive) @ 125/250V
Housing	NEMA 1
Agency Listings	cULus listed according to UL873 and CAN/CSA C22.2 No. 24-93

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



FSAF24 US



## Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switches SPST or SPDT	List Price
				(M)	(C)			
<b>BASIC PRODUCTS</b>								
FSAF24 US	On/Off	None	24 VAC/DC	<75	<20	10	—	\$522.00
FSAF24-S US	On/Off	None	24 VAC/DC	<75	<20	10	2 x SPST	\$608.00
FSAF120 US	On/Off	None	120 VAC	<75	<20	11	—	\$576.00
FSAF120-S US	On/Off	None	120 VAC	<75	<20	11	2 x SPST	\$662.00
FSAF230 US	On/Off	None	230 VAC	<75	<20	12	—	\$680.00
FSAF230-S US	On/Off	None	230 VAC	<75	<20	12	2 x SPST	\$766.00
FSAF24-SR US	2-10 VDC**	2-10 VDC	24 VAC/DC	<75	<20	11	—	\$674.00
FSAF24-SR-S US	2-10 VDC**	2-10 VDC	24 VAC/DC	<75	<20	11	2 x SPDT*	\$760.00
FSAF24-BAL US	3-Position, Built-in Potentiometer	None	24 VAC/DC	<75	<20	10	—	\$600.00
FSAF24-BAL-S US	3-Position, Built-in Potentiometer	None	24 VAC/DC	<75	<20	10	2 x SPDT*	\$686.00

\* One switch fixed at 10° and one adjustable from 30° to 90°.

\*\* 4-20 mA with 500 Ω load resistor.

Specific models and sizes vary with each damper manufacturer.

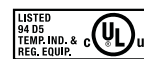
See Belimo Dashboard at [www.belimo.us/Fire & Smoke](http://www.belimo.us/Fire & Smoke) for latest listings.

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**Actuator Specifications**

Torque	70 in-lb [7.8 Nm] minimum from 32°F to 122°F ♦
Angle of Rotation	95°
Fits Shaft Diameter	1/2"-1.05" (K4-2 clamp self-centers on 1/2", 3/4" and 1.05")
Position Indication	visual indicator, 0 to 95°
Manual Override	None
Direction of Rotation	CW/CCW mounting
Dimensions	10.59" x 3.86" x 3.23" [266 x 98 x 78 mm]
Electrical Connection	3 ft, 18 GA, 1/2" conduit fitting
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	2 SPDT, 7A (2.5A inductive) @ 125/250V
Housing	NEMA 1
Agency Listings	cULus listed according to UL873 and CAN/GSA C22.2 No. 24-93

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


**FSNF120-S US**

**Spring Return Actuators**

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switches	List Price
				Ⓜ	Ⓢ			
<b>BASIC PRODUCTS</b>								
FSNF24 US	On/Off	None	24 VAC only	<15	<15	27	—	\$426.00
FSNF24-S US	On/Off	None	24 VAC only	<15	<15	27	Built-In	\$512.00
FSNF120 US	On/Off	None	120 VAC	<15	<15	27	—	\$468.00
FSNF120-S US	On/Off	None	120 VAC	<15	<15	27	Built-In	\$554.00
FSNF230 US	On/Off	None	230 VAC	<15	<15	27	—	\$562.00
FSNF230-S US	On/Off	None	230 VAC	<15	<15	27	Built-In	\$648.00

Specific models and sizes vary with each damper manufacturer.

See Belimo Dashboard at [www.belimo.us/Fire & Smoke](http://www.belimo.us/Fire & Smoke) for latest listings.

# FSLF Series

Direct Coupled, Fire and Smoke, Spring Return Actuator, 30 in-lb Minimum Torque



### Actuator Specifications

Torque	30 in-lb [3.5 Nm] minimum from 32°F to 122°F ♦
Angle of Rotation	95°
Fits Shaft Diameter	3/8" to 1/2" (K6 clamp standard); 1/2" to 3/4" (with K6-1 clamp optional)
Position Indication	visual indicator, 0 to 95°
Manual Override	none
Direction of Rotation	CW/CCW mounting
Dimensions	7.03" x 3.86" x 3.23" [179 x 98 x 82 mm]
Electrical Connection	3 ft, 18 GA, 1/2" conduit fitting
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	2 SPST, 3A (0.5A inductive) @ 125/250 V, 1 mA @ 5 VDC
Housing	NEMA 1
Agency Listings	cULus listed according to UL60730-1 A/-2-14, CAN/CSA E60730-1 and CSA 22.2 No. 24-93

♦ For UL555S, torque is the same for 1/2 hour at 350°F.



FSLF120 US



### Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switches	List Price
				M	⊙			
<b>BASIC PRODUCTS</b>								
FSLF24 US	On/Off	None	24 VAC only	<15	<15	5	—	\$338.00
FSLF24-S US	On/Off	None	24 VAC only	<15	<15	5	Built-In	\$402.00
FSLF120 US	On/Off	None	120 VAC	<15	<15	18	—	\$372.00
FSLF120-S US	On/Off	None	120 VAC	<15	<15	18	Built-In	\$436.00
FSLF230 US	On/Off	None	230 VAC	<15	<15	17	—	\$440.00
FSLF230-S US	On/Off	None	230 VAC	<15	<15	17	Built-In	\$504.00

Specific models and sizes vary with each damper manufacturer.

See Belimo Dashboard at [www.belimo.us/Fire & Smoke](http://www.belimo.us/Fire & Smoke) for latest listings.

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# 4

## NON-SPRING RETURN DAMPER ACTUATORS

- Extensive torque offering (18 in-lb to 360 in-lb), with direct coupled, linear or rotary actuators that can handle many applications.
- All non-spring actuators use brushless DC motor technology, which is controlled by an Application Specific Integrated Circuit (ASIC).
- Minimum torque guaranteed over entire specified operating range; no loss in performance due to temperature, supply voltage or speed.
- Electronically protected against over-load.
- Low power consumption provides higher efficiency and smaller transformer sizing.

### Applications

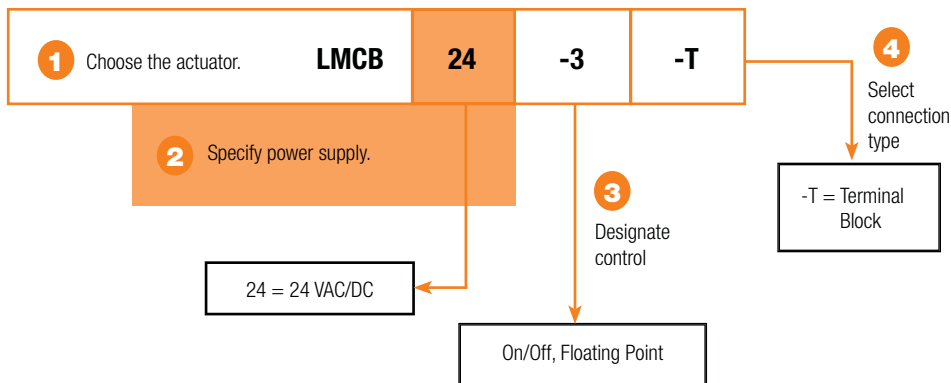
Belimo actuators are designed for use in a wide variety of HVAC damper applications. With our comprehensive torque range and ability to direct mount or mount to a jackshaft, solutions are available for control dampers, air handlers, economizer units, VAV terminal units, fan coil units, fan shutters, and unit ventilators.



# Non-Spring Return Actuator Nomenclature

LM	C	B	24	-3	-T
<b>Torque Rating</b> GM = 360 in-lb AM = 180 in-lb** NM = 90 in-lb** LM = 45 in-lb** CM = 18 in-lb AH = 101 lbf** LH = 34 lbf** LU = 27 in-lb	<b>Speed*</b> Q = Quickest Running C = Fast Running No Designation = Normal Speed (LMB24-3)	<b>Version*</b> B = Basic X = Customized	<b>Power Required*</b> 24 = 24 VAC/DC 120 = 100 to 240 VAC	<b>Control*</b> -1 = On/Off -3 = On/Off, Floating Point -3-P5 = On/Off, Floating Point w/5 kΩ Feedback -3-P10 = On/Off, Floating Point w/10 kΩ Feedback -SR = 2-10 VDC -PC = 0 to 20 Volt (Phasecut) -MFT = Multi-Function Technology -MFT95 = 0 to 135 Ω	<b>Options</b> -T = Terminal Block* Blank = Cable Version -S = Switch*

## Ordering Example



**5** Complete Ordering Example: LMCB24-3-T

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

\*\*Note: Q versions have a slightly lower torque rating..

# Standard Non-Spring Return Actuator Product Range

		Running Time	Power Supply		Power Consumption		Control Input		Control Input MFT			Position Feedback		Auxiliary Switches		NEMA 4X	REFER TO PAGE	
			Motor Drive	24 VAC ± 20%, VDC ±10%, 50/60 HZ	100 VAC to 240 VAC	VA Rating	Wattage Running (Holding)	On/Off	Floating Point	2-10 VDC or 4-20 mA (w/500 Ω Resistor)	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default) Adjustable with MFT	5k Ω Resistive Feedback		10k Ω Resistive Feedback
<b>GM Series</b> 360 in-lb [40 Nm] Approx. 90 sq. ft.	GMB24-3†	150	●		6	4.0 (2.0)	●	●										4-4
	GMB24-SR†	150	●		6.5	4.5 (2.0)			●									4-4
	GMB24-MFT (A)	150	●		7	4.0 (1.5)			●	●	●	●	●					4-4
<b>AM Series</b> 180 in-lb [20 Nm] Approx. 45 sq. ft.	AMB24-3	95	●		5.5	2.5 (0.5)	●	●										4-6
	AMB24-3-S	95	●		5.5	2.5 (0.5)	●	●										4-6
	AMB24-SR	95	●		5	2.5 (0.4)			●				●					4-6
	AMB24-MFT (A)	150	●		6	3.5 (1.3)			●	●	●	●	●					4-6
<b>AMQ Series</b> 140 in-lb [16 Nm]	AMQB24-1	7	●		26	15 (1.5)	●											4-6
	NMB24-3	95	●		4	2.0 (0.2)	●	●										4-8
	NMCB24-3	45	●		4	2.5 (0.2)	●	●										4-8
	NMB24-SR	95	●		5	2.5 (0.4)			●				●					4-8
<b>NM Series</b> 90 in-lb [10 Nm] Approx. 22 sq. ft.	NMCB24-SR	45	●		5	2.5 (0.4)			●				●					4-8
	NMB24-MFT (A)	150	●		6	3.5 (1.3)			●	●	●	●	●					4-8
	NMQB24-1	4	●		23	13 (1.5)	●											4-8
	LMB24-3	95	●		2	1.5 (0.2)	●	●										4-10
<b>LM Series</b> 45 in-lb [5 Nm] Approx. 11 sq. ft.	LMCB24-3	35	●		2.5	1.5 (0.2)	●	●										4-10
	LMB24-3.1	95	●		2	1.5 (0.2)	●	●										4-10
	LMB24-3-S	95	●		2	1.5 (0.2)	●	●										4-10
	LMB24-3-T	95	●		2	1.5 (0.2)	●	●										4-10
	LMCB24-3-T	35	●		2.5	1.5 (0.2)	●	●										4-10
	LMB24-3-T.1	95	●		2	1.5 (0.2)	●	●										4-10
	LMB24-3-P5-T	95	●		2	1.5 (0.2)	●	●					●					4-10
	LMB24-3-P5-T.1	95	●		2	1.5 (0.2)	●	●					●					4-10
	LMB24-3-P10-T	95	●		2	1.5 (0.2)	●	●						●				4-10
	LMB24-SR	95	●		3	1.5 (0.4)			●				●					4-10
	LMCB24-SR	35	●		3	1.5 (0.4)			●				●					4-10
	LMB24-SR.1	95	●		3	1.5 (0.4)			●				●					4-10
	LMB24-SR-T	95	●		3	1.5 (0.4)			●				●					4-10
	LMCB24-SR-T	35	●		3	1.5 (0.4)			●				●					4-10
	LMB24-SR-T.1	95	●		3	1.5 (0.4)			●				●					4-10
	LMB24-MFT (A)	150	●		5	2.5 (1.2)			●	●	●	●	●					4-10
	LMB24-HM (B)	95	●		2	1.5 (0.2)												
LMB24-10P-HM	95	●		2	1.5 (0.2)									●				4-10
<b>LMQ Series</b> 35 in-lb [4 Nm]	LMQB24-1	2.5	●		23	13 (1.5)	●											4-10
<b>CM Series</b> 18 in-lb [2 Nm] Approx. 4.5 sq. ft.	CMB24-3	35	●		1.5	1.0 (0.2)	●	●										4-12
	CMB24-3.1	35	●		1.5	1.0 (0.2)	●	●										4-12
	CMB120-3	35	●	●	3.5	1.5 (1.0)	●	●										4-12
	CMB24-3-T	35	●		1.5	1.0 (0.2)	●	●										4-12
	CMB24-3-T.1	35	●		1.5	1.0 (0.2)	●	●										4-12
	CMB24-SR-R	35	●		2.5	1.5 (0.5)			●				●					4-12
	CMB24-SR-L	35	●		2.5	1.5 (0.5)			●				●					4-12
<b>AH Series</b> 101 lbf [450 N Force] 4" or 8" stroke	AHB24-3-100	150*	●		4.5	2.0 (0.5)	●	●										4-13
	AHB24-3-200	150*	●		4.5	2.0 (0.5)	●	●										4-13
	AHB24-SR-100	150*	●		4.5	2.5 (0.5)			●				●					4-13
	AHB24-SR-200	150*	●		4.5	2.5 (0.5)			●				●					4-13
<b>AHQ Series</b> 44 lbf [200 N Force]	AHQB24-1-100	7*	●		23	13 (1.5)	●											4-13
<b>LH Series</b> 34 lbf [150 N Force] 4" or 8" stroke	LHB24-3-100	150*	●		3	1.5 (0.5)	●	●										4-15
	LHB24-3-T-100	150*	●		3	1.5 (0.5)	●	●										4-15
	LHB24-3-200	150*	●		3	1.5 (0.5)	●	●										4-15
	LHB24-SR-100	150*	●		3	1.5 (0.5)			●				●					4-15
	LHB24-SR-200	150*	●		3	1.5 (0.5)			●				●					4-15
<b>LHQ Series</b> 22 lbf [100 N Force]	LHQB24-1-100	3.5*	●		23	13 (1.5)	●											4-15
<b>LU Series</b> 27 in-lb [3 Nm]	LUB24-3	150**	●		2.5	1.0 (0.5)	●	●										4-17
	LUB24-SR	150**	●		3	3.0 (0.5)			●				●					4-17

\*Running time is per 4 inches [100 mm] of travel.

\*\*Running time is 150 seconds per 90°.

†Dual mounting on a single shaft (-3 and -SR wired in parallel), (-MFT wired Master-Slave). Please call Belimo customer service for details.

(A) Shipped default. 150 seconds running time, 2-10 VDC control input and feedback. Other setups are possible with MFT tools field programming.

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








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NON-SPRING RETURN

L30056 - 04/10 - Subject to change. © Belimo Aircontrols (USA), Inc.



# Custom Non-Spring Return Actuator Product Range

	Custom Options	Running Time	Power Supply	Power Consumption	Control Input		Control Input MFT		Position Feedback	Auxiliary Switches	NEMA 4X										
					Control Input	Control Input	Control Input	Control Input													
	10 ft (3m) cable / 16 ft (5m) cable																				
	Terminal strip NEMA 1/IP20 / 2/IP54																				
	Motor Drive Range, (Default) ... -MFT Fully Programmable		24 VAC +/- 20%, VDC +/- 10%	100 to 240 VAC	VA Rating	Wattage Running (Holding)	On/Off	Floating Point	2-10 VDC (Default) 4-20 mA (w/500 Ω Resistor)	0-20 V Phasecut	Honeywell Series 90, 0-135 Ω	On/Off	Floating Point	Start and Span adj., Start 0.5 to 30 VDC, Span 2.5 to 32 VDC	PWM adj., 0.02 to 50.0 Seconds	2-10 VDC (Default)	VDC Variable, Start 0 to 8, Span 2 to 10 VDC	Add-on	Enclosure (Part No. +N4 or +N4H) with Terminal Strip		
<b>GMX Series</b> 360 in-lb [40 Nm] Approx. 90 sq. ft.		GMX24-3†	●	150	●	6	4.0 (2.0)	●	●												4-4
		GMX24-SR†	●	150	●	6.5	4.5 (2.0)		●												4-4
		GMX24-PC†	●	150	●	7	4.0 (1.5)			●											4-4
		GMX120-3†	●	150	●	7	4.0 (2.0)	●	●												4-4
		GMX24-MFT†	●	75-300 (150)	●	7	4.0 (1.5)		●		●	●	●	●	●	●	●	●	●	●	4-4
		GMX24-MFT95†	●	75-300 (150)	●	7	4.0 (1.5)			●											4-4
<b>AMX Series</b> 180 in-lb [20 Nm] Approx. 45 sq. ft.		AMX24-3	●	95	●	5.5	2.5 (0.5)	●	●												4-6
		AMX24-3-T	●	95	●	5.5	2.5 (0.5)	●	●												4-6
		AMX24-SR	●	95	●	5	2.5 (0.4)		●												4-6
		AMX24-SR-T	●	95	●	5	2.5 (0.4)		●												4-6
		AMX24-PC	●	90	●	5.5	3.5 (1.3)			●											4-6
		AMX120-3	●	95	●	7	3.0 (0.6)	●	●												4-6
		AMX120-SR	●	95	●	7.5	4.0 (1.0)			●											4-6
		AMX24-MFT	●	90-300 (150)	●	6	3.5 (1.3)		●		●	●	●	●	●	●	●	●	●	●	4-6
		AMCX24-MFT	●	35-120 (35)	●	6	3.5 (1.3)		●		●	●	●	●	●	●	●	●	●	●	4-6
		AMX24-MFT95	●	75-150 (150)	●	6	3.5 (1.3)			●											4-6
<b>AMQ Series 140 in-lb [16 Nm]</b>		AMQX24-MFT	●	7-15 (7)	●	26	15 (1.5)		●		●	●	●	●	●	●	●	●	●	●	4-6
<b>NMX Series</b> 90 in-lb [10 Nm] Approx. 22 sq. ft.		NMX24-3	●	95	●	4	2.0 (0.2)	●	●												4-8
		NMX24-3-T	●	95	●	4	2.0 (0.2)	●	●												4-8
		NMX24-SR	●	95	●	5	2.5 (0.4)		●												4-8
		NMX24-SR-T	●	95	●	5	2.5 (0.4)		●												4-8
		NMX24-PC	●	150	●	6	3.5 (1.3)			●											4-8
		NMX120-3	●	150	●	5.5	2.5 (0.6)	●	●												4-8
		NMX120-SR	●	150	●	6.5	3.5 (1.0)			●											4-8
		NMX24-MFT	●	45-150	●	6	3.5 (1.3)		●		●	●	●	●	●	●	●	●	●	●	4-8
		NMX24-MFT95	●	45-150 (150)	●	6	3.5 (1.3)			●											4-8
		NMCX24-MFT	●	20-75 (20)	●	5	3.0 (0.6)		●												4-8
<b>NMQ Series 70 in-lb [8 Nm]</b>		NMQX24-MFT	●	4-20 (4)	●	23	13 (1.5)		●		●	●	●	●	●	●	●	●	●	●	4-8
<b>LMX Series</b> 45 in-lb [5 Nm] Approx. 11 sq. ft.		LMX24-3	●	95	●	2	1.5 (0.2)	●	●												4-10
		LMX24-3-T	●	95	●	2	1.5 (0.2)	●	●												4-10
		LMX24-SR	●	95	●	3	1.5 (0.4)		●												4-10
		LMX24-SR-T	●	95	●	3	1.5 (0.4)		●												4-10
		LMX24-PC	●	95	●	5	2.5 (1.2)			●											4-10
		LMX120-3	●	150	●	4	2.0 (0.5)	●	●												4-10
		LMX120-SR	●	150	●	4.5	2.5 (1.0)			●											4-10
		LMX24-MFT	●	35-200 (150)	●	5	2.5 (1.2)		●		●	●	●	●	●	●	●	●	●	●	4-11
		LMX24-MFT95	●	35-150 (150)	●	5	2.5 (1.2)			●											4-11
<b>LMQ Series 35 in-lb [4 Nm]</b>		LMQX24-MFT	●	2.5-10 (2.5)	●	23	13 (1.5)		●		●	●	●	●	●	●	●	●	●	●	4-11
<b>AHX Series</b> 101 lbf [450 N Force] 4" or 8" stroke		AHX24-3*	●	150*	●	4.5	2.0 (0.5)	●	●												4-13
		AHX24-SR*	●	150*	●	4.5	2.5 (0.5)		●												4-13
		AHX24-MFT*	●	150*	●	6	3.5 (1.3)		●		●	●	●	●	●	●	●	●	●	●	4-14
<b>AHQ Series 44 lbf [200 N Force]</b>		AHQX24-MFT-100	●	7-20 (7)*	●	23	13 (1.5)		●		●	●	●	●	●	●	●	●	●	●	4-14
<b>LHX Series</b> 34 lbf [150 N Force] 4" or 8" stroke		LHX24-3*	●	150*	●	3	1.5 (0.5)	●	●												4-15
		LHX24-SR*	●	150*	●	3	1.5 (0.5)		●												4-15
		LHX24-MFT*	●	75-150 (150)*	●	5	2.5 (1.2)		●		●	●	●	●	●	●	●	●	●	●	4-16
<b>LHQ Series 22 lbf [100 N Force]</b>		LHQX24-MFT-100	●	3.5-15 (3.5)*	●	23	13 (1.5)		●		●	●	●	●	●	●	●	●	●	●	4-16
<b>LUX Series</b> 27 in-lb [3 Nm]		LUX24-3	●	150	●	2.5	1.0 (0.5)	●	●												4-17
		LUX24-SR	●	150	●	3	1.5 (0.5)		●												4-17
		LUX24-MFT	●	75-150 (150)	●	5	2.5 (1.2)		●		●	●	●	●	●	●	●	●	●	●	4-17

\* The LH and AH linear series actuators come in three different stroke lengths [4, 8 or 12 in]. The part number is followed by -100, -200, -300 respectively. The default running time is 150 seconds per 4 inches [100 mm]. Running time is adjustable depending on model:

LH Series: 70-270, 140-540, 200-810, on the -100, -200, -300 models respectively.

AH Series: 150-600, 300-1200, 450-1800, on the -100, -200, -300 models respectively.

LHQ and AHQ available in 4 inch version only.

† Dual mounting on a single shaft is possible for higher torque (-3 and -SR wired in parallel), (-MFT wired Master-Slave). Please call Belimo customer service for details.

REFER TO PAGE

### Actuator Specifications

Torque	360 in-lb [40 Nm] minimum
Angle of Rotation◆	95° (adjustable with mechanical stops)
Fits Shaft Diameter	1/2" to 1.05" (centers on 3/4" shaft with insert and on 1" without insert)
Position Indication	reflective visual indicator (snap-on)
Manual Override	external push-button
Direction of Rotation◆	external switch
Dimensions	9.02" x 4.55" x 2.87" [229.2 x 115.6 x 72.9 mm]
Electrical Connection	3 ft, 18 GA plenum cable, 1/2" conduit fitting
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250V adjustable 5° to 85°
Housing	NEMA 2/IP54, Enclosure Type2
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC



**GMB24-SR**

### MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

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



All actuators have BDCM



### Non-Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s) [Default]	VA Rating	Auxiliary Switch	Cable Length	List Price	
<b>BASIC PRODUCTS</b>									
GMB24-3 ‡	On/Off, Floating Point	Add-on	24 VAC/DC	150 seconds	6	Add-on	3 ft.	\$424.00	
GMB24-SR	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds	6.5	Add-on	3 ft.	\$566.00	
GMB24-MFT	2-10 VDC	2-10 VDC	24 VAC/DC	150 seconds	7	Add-on	3 ft.	\$622.00	
<b>CUSTOMIZE PRODUCTS REORDER #</b>									
GMX24-3	GM540 1C1 000	On/Off, Floating Point	Add on	24 VAC/DC	150 seconds	7	Add-on	3 ft.	\$424.00‡
GMX24-3	GM540 1C3 000	On/Off, Floating Point	Add on	24 VAC/DC	150 seconds	7	Add-on	10 ft.	\$452.00‡
GMX120-3	GM580 1A1 000	On/Off, Floating Point	Add on	100-240 VAC	150 seconds	9	Add-on	3 ft.	\$458.00‡
GMX120-3	GM580 1A3 000	On/Off, Floating Point	Add on	100-240 VAC	150 seconds	9	Add-on	10 ft.	\$486.00‡
GMX24-SR	GM560 1C1 000	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds	6.5	Add-on	3 ft.	\$566.00‡
GMX24-SR	GM560 1C3 000	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds	6.5	Add-on	10 ft.	\$594.00‡
GMX24-PC	GM0P0 1C1 000	0-20 V Phasecut	2-10 VDC	24 VAC/DC	150 seconds	7	Add-on	3 ft.	\$676.00‡
<b>MFT PRODUCTS REORDER #</b>									
GMX24-MFT	GM110 1C1 XXX**	Various	Various	24 VAC/DC	75-150 [150] sec	7	Add-on	3 ft.	\$622.00‡
GMX24-MFT	GM110 1C3 XXX**	Various	Various	24 VAC/DC	75-150 [150] sec	7	Add-on	10 ft.	\$650.00‡
GMX24-MFT95	GM0M0 1C1 R01	0 to 135 Ω	2-10 VDC	24 VAC/DC	150 seconds	7	Add-on	3 ft.	\$676.00‡

◆ Variable with MFT

‡ Prices do not reflect additional programming code surcharge.

\* With 500 Ω resistor.

\*\* Refer to page 4-19 to 4-23 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.

‡‡ For applications that require more torque the GMB Series can be dual mounted. A maximum of 2 GMB/X... Series actuators can be mechanically connected to one damper or valve shaft.

The torque is 640 in-lb.

NOTE: 16' cables are available with a \$48.00 adder except for the PC and MFT95 version, which are only available with a 3' cable.

NON-SPRING RETURN

**Actuator Specifications**

Torque	320 in-lb [35 Nm]
Angle of Rotation♦	95° (adjustable with mechanical stops)
Fits Shaft Diameter	1/2" to 1.05"
Dimensions	12.5" x 6.25" x 7.25" [318 x 159 x 184 mm]
Electrical Connection	terminal strip
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V one switch adjustable 25° to 85°
Housing Specification	NEMA 4, IP66
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC
Control Shaft Length	minimum 1" maximum 2-1/4"

♦ Variable with MFT



**NEMA 4 Housing**

**MFT**

MFT= 2-10 VDC Default, or Set, Modify, Read:

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



All actuators have BDCM



NON-SPRING RETURN

**Non-Spring Return Actuators**

Model	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Auxiliary Switch	List Price
<b>BASIC PRODUCTS</b>							
GMB24-3-T N4	On/Off, Floating Point	Add-on	24 VAC/DC	150 seconds	6	Add-on	\$960.00
GMB24-SR-T N4	2-10 VDC	2-10 VDC	24 VAC/DC	150 seconds	6.5	Add-on	\$1,102.00
<b>CUSTOMIZE PRODUCTS</b>							
GMX24-MFT-T N4	Various	2-10 VDC	24 VAC/DC	150 seconds	7	Add-on	\$1,428.00

# AM Series

AM Series - Direct Coupled, Non-Spring Return Actuator, 180 in-lb Minimum Torque (AMQ Series 140 in-lb)



## Actuator Specifications

Torque	AM 180 in-lb [20 Nm] minimum AMQ 140 in-lb [16 Nm] minimum
Angle of Rotation	95° (adjustable with mechanical stops)
Fits Shaft Diameter	½" to 1.05" (centers on ½" and ¾" shafts with insert and 1.05" without insert)
Position Indication	reflective visual indicator (snap-on)
Manual Override	external push-button
Direction of Rotation	external switch
Dimensions	AM 7.47" x 3.46" x 2.49" [189.8 x 88 x 64 mm] AMQ 9.02" x 4.55" x 2.87" [229.2 x 115.6 x 72.9 mm]
Electrical Connection	3 ft, 18 GA plenum cable, 1/2" conduit fitting
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	(-S) Models: 1 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5° to 85°, Add-on: 1 or 2 SPDT, 3A (0.5 A inductive) @ 250V one switch adjustable 25° to 85°
Housing	NEMA 2/IP54 (NEMA 1/IP20 for -T models), Enclosure Type2
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC



**AMB24-3-S**  
(with conduit fittings)



**AMX24-3-T**  
(with terminal strip)

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

- Control – AM (PWM, VDC range, Floating Point) AMQ (VDC range)
- Feedback (0-10 VDC, 0-5 VDC, 2-10 VDC, Variable)
- Motion (run time)



All actuators have BDCM



## Non-Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s) [Default]	VA Rating	Auxiliary Switch	Cable Length	List Price	
<b>BASIC PRODUCTS</b>									
AMB24-3	On/Off, Floating Point	Add-on	24 VAC/DC	95 seconds	5.5	Add-on	3 ft.	\$300.00	
AMB24-3-S	On/Off, Floating Point	Add-on	24 VAC/DC	95 seconds	5.5	Built-In	3 ft.	\$390.00	
AMB24-SR	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	95 seconds	5	Add-on	3 ft.	\$436.00	
AMB24-MFT	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds	6	Add-on	3 ft.	\$468.00	
AMQB24-1	On/Off	Add-on	24 VAC/DC	7 seconds	23	Add-on	3 ft.	\$522.00	
AMQB24-MFT	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	7 seconds	23	Add-on	3 ft.	\$564.00	
<b>CUSTOMIZE PRODUCTS REORDER #</b>									
AMX24-3	AM000 1C1002	On/Off, Floating Point	Add on	24 VAC/DC	95 seconds	5.5	Add-on	3 ft.	\$300.00‡
AMX24-3	AM000 1C3002	On/Off, Floating Point	Add on	24 VAC/DC	95 seconds	5.5	Add-on	10 ft.	\$328.00‡
AMX24-3-S	AM020 1A1001	On/Off, Floating Point	Built-in	23 VAC/DC	94 seconds	4.5	Built-In	3 ft.	\$390.00‡
AMX24-3-S	AM020 1A3002	On/Off, Floating Point	Built-in	24 VAC/DC	95 seconds	5.5	Built-In	10 ft.	\$418.00‡
AMX24-3-T	AMT00 1T2002	On/Off, Floating Point	Add on	24 VAC/DC	95 seconds	5.5	Add-on	N/A	\$278.00‡
AMX120-3	AM060 1A1002	On/Off, Floating Point	Add on	100-240 VAC	95 seconds	7	Add-on	3 ft.	\$370.00‡
AMX120-3	AM060 1A3002	On/Off, Floating Point	Add on	100-240 VAC	95 seconds	7	Add-on	10 ft.	\$398.00‡
AMX24-SR	AM030 1C1002	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	95 seconds	5	Add-on	3 ft.	\$436.00‡
AMX24-SR	AM030 1C3002	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	95 seconds	5	Add-on	10 ft.	\$464.00‡
AMX24-SR-T	AMT00 1T2002	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	95 seconds	5	Add-on	N/A	\$412.00‡
AMX120-SR	AM450 1A1002	2-10 VDC (4-20 mA*)	2-10 VDC	100-240 VAC	95 seconds	7.5	Add-on	3 ft.	\$508.00‡
AMX120-SR	AM450 1A3002	2-10 VDC (4-20 mA*)	2-10 VDC	100-240 VAC	95 seconds	7.5	Add-on	10 ft.	\$536.00‡
AMQX24-1**	AMQD60 1C1 TOJ	On/Off	Add on	24 VAC/DC	7 seconds	23	Add-on	3 ft.	\$522.00‡
AMQX24-1**	AMQD60 1C3 TOJ	On/Off	Add on	24 VAC/DC	7 seconds	23	Add-on	10 ft.	\$530.00‡
AMX24-PC	AMONO 1C1 S04	0-20 V Phasecut	2-10 VDC	24 VAC/DC	95 seconds	6	Add-on	3 ft.	\$488.00‡
<b>MFT PRODUCTS REORDER #</b>									
AMX24-MFT95	AMOLO 1C1 R01	0 to 135 Ω	2-10 VDC	24 VAC/DC	150 seconds	6	Add-on	3 ft.	\$488.00‡
AMCX24-MFT95	AMCOMO 1C1 R07	0 to 135 Ω	2-10 VDC	24 VAC/DC	35 seconds	6	Add-on	3 ft.	\$562.00‡
AMX24-MFT	AM100 1C1 XXX***	Programmable	Various	24 VAC/DC	90-300 [150] sec	6	Add-on	3 ft.	\$468.00‡
AMX24-MFT	AM100 1C3 XXX***	Programmable	Various	24 VAC/DC	90-300 [150] sec	6	Add-on	10 ft.	\$496.00‡
AMCX24-MFT	AMC110 1C1 XXX***	Programmable	Various	24 VAC/DC	35-120 [35] sec	6	Add-on	3 ft.	\$498.00‡
AMCX24-MFT	AMC110 1C3 XXX***	Programmable	Various	24 VAC/DC	35-120 [35] sec	6	Add-on	10 ft.	\$526.00‡
AMQX24-MFT**	AMQD00 1C1 T03	Programmable	Various	24 VAC/DC	7-15 [7] sec	18	Add-on	3 ft.	\$564.00‡
AMQX24-MFT**	AMQD00 1C3T03	Programmable	Various	24 VAC/DC	7-15 [7] sec	18	Add-on	10 ft.	\$592.00‡

♦ Variable with MFT

‡ Prices do not reflect additional programming code surcharge.

\* With 500 Ω resistor.

\*\* Torque is 140 in-lbs.

\*\*\* Refer to page 4-19 to 4-23 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.

NOTE: 16' cables are available with a \$48.00 adder except for the PC and MFT95 version, which are only available with a 3' cable.

### Actuator Specifications

Torque	160 in-lb [18 Nm]
Angle of Rotation♦	95° (adjustable with mechanical stops)
Fits Shaft Diameter	9/16"...3/4"
Manual Override	external push-button
Direction of Rotation♦	external switch
Dimensions	10.66" x 5.28" x 4.88" [271 x 134 x 124 mm]
Electrical Connection	terminal strip
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V one switch adjustable 25° to 85°
Housing Specification	NEMA 4/4X, IP66/IP67
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC
Control Shaft Length	minimum 3/4" maximum 2-1/4"

♦ Variable with MFT



NEMA 4X Housing

### MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

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



All actuators have BDCM



NON-SPRING RETURN

### Non-Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Built In Heater	Auxiliary Switch	List Price
<b>BASIC PRODUCTS</b>								
AMB24-3-T N4	On/Off, Floating Point	Add-on	24 VAC/DC	95 seconds	5.5		Add-on	\$540.00
AMB24-SR-T N4	2-10 VDC	2-10 VDC	24 VAC/DC	95 seconds	5		Add-on	\$656.00
AMB24-3-T N4H*	On/Off, Floating Point	Add-on	24 VAC/DC	95 seconds	20.5	•	Add-on	\$898.00
AMB24-SR-T N4H*	2-10 VDC	2-10 VDC	24 VAC/DC	95 seconds	20	•	Add-on	\$1,014.00
<b>CUSTOMIZE PRODUCTS</b>								
AMX24-MFT-T N4	Various	2-10 VDC	24 VAC/DC	150 seconds	6		Add-on	\$702.00
AMX24-MFT-T N4H*	Various	2-10 VDC	24 VAC/DC	150 seconds	21	•	Add-on	\$1,060.00

\* Heater option.

# NM Series

NM Series - Direct Coupled, Non-Spring Return Actuator, 90 in-lb Minimum Torque (NMQ Series 70 in-lb)



## Actuator Specifications

Torque	NM 90 in-lb [10 Nm] minimum NMQ 70 in-lb [8 Nm] minimum
Angle of Rotation	95° (adjustable with mechanical stops)
Fits Shaft Diameter	½" to 1.05" (centers on ½" and ¾" shafts with insert and 1.05" without inserts)
Position Indication	reflective visual indicator (snap-on)
Manual Override	external push-button
Direction of Rotation	external switch
Dimensions	NM 6.88" x 3.15" x 2.42" [174.8 x 80 x 61.4 mm] NMQ 7.47" x 3.46" x 2.49" [189.7 x 87.88 x 63.25 mm]
Electrical Connection	3 ft, 18 GA plenum cable, ½" conduit fitting
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5° to 85°
Housing	NEMA 2/IP54, Enclosure Type2
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC



NMQB24-MFT

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

- Control – NM (PWM, VDC range, Floating Point) NMQ (VDC range)
- Feedback (0-10 VDC, 0-5 VDC, 2-10 VDC, Variable)
- Motion (run time)



All actuators have BDCM



## Non-Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s) [Default]	VA Rating	Auxiliary Switch	Cable Length	List Price	
<b>BASIC PRODUCTS</b>									
NMB24-3	On/Off, Floating Point	Add-on	24 VAC/DC	95 seconds	4	Add-on	3 ft.	\$214.00	
NMCB24-3	On/Off, Floating Point	Add-on	24 VAC/DC	45 seconds	4	Add-on	3 ft.	\$248.00	
NMB24-SR	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	95 seconds	5	Add-on	3 ft.	\$300.00	
NMCB24-SR	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	45 seconds	5	Add-on	3 ft.	\$336.00	
NMB24-MFT	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds	6	Add-on	3 ft.	\$376.00	
NMQB24-1	On/Off	Add-on	24 VAC/DC	4 seconds	20	Add-on	3 ft.	\$440.00	
NMQB24-MFT	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	4 seconds	20	Add-on	3 ft.	\$480.00	
<b>CUSTOMIZE PRODUCTS REORDER #</b>									
NMX24-3	NM000 1C1 002	On/Off, Floating Point	Add on	24 VAC/DC	95 seconds	4	Add-on	3 ft.	\$214.00‡
NMX24-3	NM000 1C3 002	On/Off, Floating Point	Add on	24 VAC/DC	95 seconds	4	Add-on	10 ft.	\$242.00‡
NMQX24-1**	NMQD60 1C1 T0H	On/Off	Add on	24 VAC/DC	4 seconds	20	Add-on	3 ft.	\$440.00‡
NMQX24-1**	NMQD60 1C3 T0H	On/Off	Add on	24 VAC/DC	4 seconds	20	Add-on	10 ft.	\$468.00‡
NMX24-3-T	NMT00 1T2 000	On/Off, Floating Point	Add on	24 VAC/DC	95 seconds	4	Add-on	N/A	\$190.00‡
NMX120-3	NM060 1A1 000	On/Off, Floating Point	Add on	100-230 VAC	95 seconds	5.5	Add-on	3 ft.	\$246.00‡
NMX120-3	NM060 1A3 000	On/Off, Floating Point	Add on	100-230 VAC	95 seconds	5.5	Add-on	10 ft.	\$274.00‡
NMX24-SR	NM030 1C1 000	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	95 seconds	5	Add-on	3 ft.	\$300.00‡
NMX24-SR	NM030 1C3 000	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	95 seconds	5	Add-on	10 ft.	\$328.00‡
NMX24-SR-T	NMTW0 T23 000	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	95 seconds	5	Add-on	N/A	\$278.00‡
NMX120-SR	NM450 1A1 000	2-10 VDC (4-20 mA*)	2-10 VDC	100-230 VAC	95 seconds	6.5	Add-on	3 ft.	\$348.00‡
NMX120-SR	NM450 1A3 000	2-10 VDC (4-20 mA*)	2-10 VDC	100-230 VAC	95 seconds	6.5	Add-on	10 ft.	\$376.00‡
NMX24-PC	NMOND 1C1 000	0-20 V Phasecut	2-10 VDC	24 VAC/DC	95 seconds	6	Add-on	3 ft.	\$436.00‡
<b>MFT PRODUCTS REORDER #</b>									
NMX24-MFT95	NMOLD 1C1 R01	0 to 135 Ω	2-10 VDC	24 VAC/DC	150 seconds	6	Add-on	3 ft.	\$436.00‡
NMX24-MFT	NM100 1C1 XXX**	Various	Various	24 VAC/DC	45-150 [150] sec	6	Add-on	3 ft.	\$376.00‡
NMX24-MFT	NM100 1C3 XXX**	Various	Various	24 VAC/DC	45-150 [150] sec	6	Add-on	10 ft.	\$404.00‡
NMCX24-MFT	NMC110 1C1 XXX**	Various	Various	24 VAC/DC	20-75 [20] sec	6	Add-on	3 ft.	\$456.00‡
NMCX24-MFT	NMC110 1C3 XXX**	Various	Various	24 VAC/DC	20-75 [20] sec	6	Add-on	10 ft.	\$484.00‡
NMQX24-MFT**	NMQD00 1C1 T02	Various	Various	24 VAC/DC	4-20 [4] sec	20	Add-on	3 ft.	\$480.00‡
NMQX24-MFT**	NMQD00 1C3 T02	Various	Various	24 VAC/DC	4-20 [4] sec	20	Add-on	10 ft.	\$508.00‡

♦ Variable with MFT

‡ Prices do not reflect additional programming code surcharge.

\* With 500 Ω resistor.

\*\* Torque is 70 in-lbs.

\*\*\* Refer to page 4-19 to 4-23 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.

NOTE: 16' cables are available with a \$48.00 adder except for the PC and MFT95 version, which are only available with a 3' cable.

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### Actuator Specifications

Torque	70 in-lb [8 Nm] minimum
Angle of Rotation◆	95° (adjustable with mechanical stops)
Fits Shaft Diameter	3/8" ... 3/4"
Manual Override	external push-button
Direction of Rotation◆	external switch
Dimensions	10.66" x 5.28" x 4.88" [271 x 134 x 124 mm]
Electrical Connection	terminal strip (-T)
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250 V adjustable 5° to 85°
Housing Specification	NEMA 4/4X, IP66/IP67
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC
Control Shaft Length	minimum 3/4" maximum 2-1/4"



NEMA 4X Housing

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

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



All actuators have BDCM



NON-SPRING RETURN

### Non-Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Built In Heater	Auxiliary Switch	List Price
<b>BASIC PRODUCTS</b>								
NMB24-3-T N4	On/Off, Floating Point	Add-on	24 VAC/DC/	95 seconds	4		Add-on	\$452.00
NMB24-SR-T N4	2-10 VDC	2-10 VDC	24 VAC/DC	95 seconds	5		Add-on	\$530.00
NMB24-3-T N4H*	On/Off, Floating Point	Add-on	24 VAC/DC	95 seconds	19	•	Add-on	\$810.00
NMB24-SR-T N4H*	2-10 VDC	Add-on	24 VAC/DC	95 seconds	20	•	Add-on	\$888.00
<b>CUSTOMIZE IT</b>								
NMX24-MFT-T N4	2-10 VDC	2-10 VDC	24 VAC/DC	150 seconds	6		Add-on	\$580.00
NMX24-MFT-T N4H*	2-10 VDC	2-10 VDC	24 VAC/DC	150 seconds	21	•	Add-on	\$970.00

◆ Variable with MFT

\* Heater option

# LM Series

LM Series - Direct Coupled, Non-Spring Return Actuator, 45 in-lb Minimum Torque (LMQ Series 35 in-lb)



## Actuator Specifications

Torque	LM	45 in-lb [5 Nm] minimum
	LMQ	35 in-lb [4 Nm] minimum
Angle of Rotation	◆	95° (adjustable with mechanical stops)
Fits Shaft Diameter	LM	1/4" to 3/4" (self-centers on 5/8" shaft)
	LMQ	1/2" to 1.05" (centers on 1/2" and 3/4" shafts with insert and 1.05" without insert)
Position Indication		reflective visual indicator (snap-on)
Manual Override		external push-button
Direction of Rotation	◆	external switch
Dimensions	LM	6.57" x 2.6" x 2.34" [167 x 66 x 59.4 mm]
	LMQ	6.88" x 3.15" x 2.42" [174.8 x 80 x 61.5 mm]
Electrical Connection		3 ft, 18 GA plenum rated cable, 1/2" conduit fitting terminal strip (-T) models
Overload Protection		electronic throughout rotation
Auxiliary Switch(es)		(-S) Models: 1 SPDT, 3A (0.5A inductive) @ 250V adjustable 5° to 85° add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250V one switch adjustable 5° to 85°
Housing		NEMA 2/IP54 (NEMA 1/IP20 for -T models), Enclosure Type2
Agency Listings		cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC



**LMB24-3-S**  
(shown with conduit fittings)



**LMB24-SR**  
(shown without conduit fitting)



**LMB24-3-T**  
(shown with terminal strip)

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

- Control – LM (PWM, VDC range, Floating Point) LMQ (VDC range)
- Feedback (0-10 VDC, 0-5 VDC, 2-10 VDC, Variable)
- Motion (run time)



All actuators have BDCM



## Non-Spring Return Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Auxiliary Switch	Cable Length	List Price	
<b>BASIC PRODUCTS</b>									
LMB24-3	On/Off, Floating Point	Add-on	24 VAC/DC	95 seconds	2	Add-on	3 ft.	\$170.00	
LMB24-3-T	On/Off, Floating Point	Add-on	24 VAC/DC	95 seconds	2	Add-on	N/A	\$150.00	
LMB24-3-S	On/Off, Floating Point	Add-on	24 VAC/DC	95 seconds	2	Built-In	3 ft.	\$236.00	
LMB24-3-P5-T	On/Off, Floating Point	5k Ω	24 VAC/DC	95 seconds	2	Add-on	N/A	\$236.00	
LMB24-3-P10-T	On/Off, Floating Point	10k Ω	24 VAC/DC	95 seconds	2	Add-on	N/A	\$236.00	
LMB24-SR	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	95 seconds	3	Add-on	3 ft.	\$266.00	
LMB24-SR-T	2-10 VDC (4-20 mA*)	Add-on	24 VAC/DC	95 seconds	3	Add-on	N/A	\$236.00	
LMCB24-3	On/Off, Floating Point	Add-on	24 VAC/DC	35 seconds	3	Add-on	3 ft.	\$200.00	
LMCB24-3-T	On/Off, Floating Point	Add-on	24 VAC/DC	35 seconds	3	Add-on	N/A	\$180.00	
LMCB24-SR	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	35 seconds	3	Add-on	3 ft.	\$298.00	
LMCB24-SR-T	2-10 VDC (4-20 mA*)	Add-on	24 VAC/DC	35 seconds	3	Add-on	N/A	\$276.00	
LMB24-MFT	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds	5	Add-on	3 ft.	\$332.00	
LMB24-HM	+/- 5 to 14 VDC	Add-on	24 VAC/DC	95 seconds	2	Add-on	3 ft.	\$325.00	
LMB24-10P-HM	+/- 5 to 14 VDC	10k Ω	24 VAC/DC	95 seconds	2	Add-on	3 ft.	\$350.00	
LMQB24-1**	On/Off	Add-on	24 VAC/DC	2.5 seconds	20	Add-on	3 ft.	\$394.00	
<b>CUSTOMIZE PRODUCTS REORDER #</b>									
LMX24-3	LM000 1C1 002	On/Off, Floating Point	Add on	24 VAC/DC	95 seconds	2	Add-on	3 ft.	\$170.00‡
LMX24-3	LM000 1C3 002	On/Off, Floating Point	Add on	24 VAC/DC	95 seconds	2	Add-on	10 ft.	\$198.00‡
LMX24-3-S	LM020 1A1 002	On/Off, Floating Point	Built-in	24 VAC/DC	95 seconds	2	Add-on	3 ft.	\$236.00‡
LMX24-3-S	LM020 1A3 002	On/Off, Floating Point	Built-in	24 VAC/DC	95 seconds	2	Add-on	10 ft.	\$264.00‡
LMX24-3-T	LMT00 1T2 002	On/Off, Floating Point	Add on	24 VAC/DC	95 seconds	2	Add-on	N/A	\$150.00‡
LMX120-3	LM060 1A1 002	On/Off, Floating Point	Add on	120-230 VAC	95 seconds	4	Add-on	3 ft.	\$200.00‡
LMX120-3	LM060 1A3 002	On/Off, Floating Point	Add on	120-230 VAC	95 seconds	4	Add-on	10 ft.	\$228.00‡
LMX24-SR	LM030 1C1 002	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	95 seconds	4.5	Add-on	3 ft.	\$266.00‡
LMX24-SR	LM030 1C3 002	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	95 seconds	4.5	Add-on	10 ft.	\$294.00‡
LMX24-SR-T	LMTW0 1T2 002	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	95 seconds	4.5	Add-on	N/A	\$234.00‡
LMX120-SR	LM450 1A1 002	2-10 VDC (4-20 mA*)	2-10 VDC	120-230 VAC	95 seconds	4.5	Add-on	3 ft.	\$310.00‡
LMX120-SR	LM450 1A3 002	2-10 VDC (4-20 mA*)	2-10 VDC	120-230 VAC	95 seconds	4.5	Add-on	10 ft.	\$338.00‡
LMX24-PC	LMONO 1C1 S04	0-20 V Phasecut	2-10 VDC	24 VAC/DC	95 seconds	5	Add-on	3 ft.	\$384.00‡
LMQX24-1**	LMQD60 1C1 T0G	On/Off	Add on	24 VAC/DC	2.5 seconds	20	Add-on	3 ft.	\$396.00‡
LMQX24-1**	LMQD60 1C3 T0G	On/Off	Add on	24 VAC/DC	2.5 seconds	20	Add-on	10 ft.	\$424.00‡

◆ Variable with MFT

‡ Prices do not reflect additional programming code surcharge.

\* With 500 Ω resistor.

\*\* Torque is 35 in-lbs.

\*\*\* Refer to page 4-19 to 4-23 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.

NOTE: 16' cables are available with a \$48.00 adder except for the PC and MFT95 version, which are only available with a 3' cable.

800-543-9038 USA

866-805-7089 CANADA

203-791-8396 LATIN AMERICA



**Actuator Specifications**

Torque	LM	45 in-lb [5 Nm] minimum
	LMQ	35 in-lb [4 Nm] minimum
Angle of Rotation◆		95° (adjustable with mechanical stops)
Fits Shaft Diameter	LM	¼" to ¾"* (self-centers on 5/8" shaft)
	LMQ	½" to 1.05" (centers on ½" and ¾" shafts with insert and 1.05" without insert)
Position Indication		reflective visual indicator (snap-on)
Manual Override		external push-button
Direction of Rotation◆		external switch
Dimensions	LM	6.57" x 2.6" x 2.34" [167 x 66 x 59.4 mm]
	LMQ	6.88" x 3.15" x 2.42" [174.8 x 80 x 61.5 mm]
Electrical Connection		3 ft, 18 GA plenum rated cable, 1/2" conduit fitting terminal strip (-T) models
Overload Protection		electronic throughout rotation
Auxiliary Switch(es)		(-S) Models: 1 SPDT, 3A (0.5A inductive) @ 250V adjustable 5° to 85° add-on: 1 or 2 SPDT, 3A (0.5A inductive) @ 250V one switch adjustable 5° to 85°
Housing		NEMA 2/IP54 (NEMA 1/IP20 for -T models), Enclosure Type2
Agency Listings		cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC


**LMQB24-MFT**
**MFT**
**MFT= 2-10 VDC Default, or Set, Modify, Read:**

- Control – LM (PWM, VDC range, Floating Point) LMQ (VDC range)
- Feedback (0-10 VDC, 0-5 VDC, 2-10 VDC, Variable)
- Motion (run time)



All actuators have BDCM



NON-SPRING RETURN

**Non-Spring Return Actuators**

Model	REORDER #	Control Input	Feedback	Power Supply	Running Time(s) [Default]	VA Rating	Auxiliary Switch	Cable Length	List Price
<b>MFT PRODUCTS</b>									
LMX24-MFT95	LM0M0 1C1 R01	0 to 135 Ω	Various	24 VAC/DC	150 seconds	5	Add-on	3 ft.	\$384.00‡
LMX24-MFT	LM100 1C1 XXX***	Various	Various	24 VAC/DC	2.5-10 [2.5] sec	5	Add-on	3 ft.	\$332.00‡
LMX24-MFT	LM100 1C3 XXX***	Various	Various	24 VAC/DC	2.5-10 [2.5] sec	5	Add-on	10 ft.	\$360.00‡
LMQX24-MFT**	LMQD00 1C1 T01	Various	Various	24 VAC/DC	35-200 [150] sec	20	Add-on	3 ft.	\$440.00‡
LMQX24-MFT**	LMQD00 1C3 T01	Various	Various	24 VAC/DC	35-200 [150] sec	20	Add-on	10 ft.	\$468.00‡

**BULK PACKAGING - BULK PACK MODELS ARE THE SAME AS STANDARD MODELS EXCEPT FOR PACKAGING.**

Model	UNITS PER CARTON	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Auxiliary Switch	Cable Length	List Price
LMB24-3.1	24	On/Off, Floating Point	Add-on	24 V	95	2	Add-on	3 ft.	\$154.00 each
LMB24-3-T.1	36	On/Off, Floating Point	Add-on	24 V	95	2	Add-on	N/A	\$112.00 each
LMB24-3-P5-T.1	36	On/Off, Floating Point	5k Ω	24 V	95	2	Add-on	N/A	\$226.00 each
LMB24-SR.1	24	2-10 VDC (4-20 mA*)	Add-on	24 V	95	3	Add-on	3 ft.	\$254.00 each
LMB24-SR-T.1	36	2-10 VDC (4-20 mA*)	Add-on	24 V	95	3	Add-on	N/A	\$220.00 each

◆ Variable with MFT

‡ Prices do not reflect additional programming code surcharge.

\* For ¾" clamp option, specify when ordering

\*\*Torque is 35 in-lb.

\*\*\* Refer to page 4-19 to 4-23 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback &amp; Running Time.

NOTE: 16' cables are available with a \$48.00 adder except for the PC and MFT95 version, which are only available with a 3' cable.

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NON-SPRING RETURN

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**Actuator Specifications**

Torque	18 in-lb [2 Nm] minimum
Angle of Rotation	with out end stops limitless 315° with one end stop L = clockwise rotation, R = counter clockwise rotation
Fits Shaft Diameter	1/4" to 1/2" (self-centers on 3/8" shaft)
Position Indication	reflective Visual Indicator (snap-on) with magnet
Manual Override	engages with magnet. magnet built-in to position indicator
Dimensions	6.22" x 2.2" x 1.10" [158 x 56 x 28 mm]
Electrical Connection	3 ft, 15 GA plenum rated cable Terminal Strip (-T) models
Overload Protection	electronic throughout rotation
Auxiliary Switch	N/A
Housing	NEMA 2/IP54 (NEMA 1/IP20 for -T models), Enclosure Type2
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC


**CMB24-3-T**

 All actuators  
have BDCM

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


NON-SPRING RETURN

**Non-Spring Return Actuators**

Model	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	List Price
<b>BASIC PRODUCTS</b>						
CMB24-3	On/Off, Floating Point	NA	24 VAC/DC	35 seconds	1.5	\$170.00
CMB24-3-T	On/Off, Floating Point	NA	24 VAC/DC	35 seconds	1.5	\$150.00
CMB120-3	On/Off, Floating Point	NA	100-230 VAC	35 seconds	3.5	\$228.00
CMB24-SR-R*	2-10 VDC	2-10 VDC	24 VAC/DC	35 seconds	2.5	\$266.00
CMB24-SR-L**	2-10 VDC	2-10 VDC	24 VAC/DC	35 seconds	2.5	\$266.00

\* Clockwise rotation.

\*\* Counterclockwise rotation.

**BULK PACKAGING**

Model	UNITS PER CARTON	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	List Price
CMB24-3.1	20	On/Off, Floating Point	NA	24 VAC/DC	35 seconds	1.5	\$154.00 each
CMB24-3-T.1	20	On/Off, Floating Point	NA	24 VAC/DC	35 seconds	1.5	\$112.00 each

**Bulk pack models have a universal clamp, terminal block or cable and two end stops.**
**The anti-rotational bracket (Z-ARCM) and position indicator (Z-PICM) are available in quantities of 20.**

# AH Linear Series

AH Series - Direct Coupled, Non-Spring Return Actuator, 101 lbf Minimum Linear Force (AHQ Series 44 lbf)



## Actuator Specifications

Linear Force	AH 101 lbf [450 N force] minimum AHQ 44 lbf [200 N force] minimum
Manual Override	external push button
Direction of Stroke	external switch
Dimensions	AHQ 7.0" x 3.19" x 3.58" [178 x 81 x 91 mm] AH 9.0" x 3.2" x 3.0" [228 x 80.5 x 77 mm]
Electrical Connection	3 ft, 18 GA plenum cable, 1/2" conduit fitting
Overload Protection	electronic throughout full stroke
Housing	NEMA 2/IP54, Enclosure Type2
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC
Auxiliary switch(es)	not available.



AHB24-3-100

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

- Control - AH (PWM, VDC range, Floating Point) AHQ (VDC range)
- Feedback (0-10 VDC, 0-5 VDC, 2-10 VDC, Variable)
- Motion (run time)



All actuators have BDCM



## Non-Spring Return Actuators

Model	Linear Stroke	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Cable Length	List Price	
<b>BASIC PRODUCTS</b>									
AHB24-3-100	4" [100 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	3 ft.	\$348.00	
AHB24-SR-100	4" [100 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds per 4"	4.5	3 ft.	\$480.00	
AHB24-3-200	8" [200 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	3 ft.	\$370.00	
AHB24-SR-200	8" [200 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds per 4"	4.5	3 ft.	\$500.00	
AHQB24-1-100	4 in [100 mm]	On/Off	Add-on	24 VAC/DC	7 seconds	20	3 ft.	\$564.00	
AHQB24-MFT-100	4 in [100 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	7 seconds	20	3 ft.	\$604.00	
<b>CUSTOMIZE PRODUCTS REORDER #</b>									
AHX24-3-100	AH000 OC1 000	4" [100 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	3 ft.	\$348.00‡
AHX24-3-100	AH000 OC3 000	4" [200 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	10 ft.	\$376.00‡
AHX24-3-200	AH010 OC1 000	8" [100 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	3 ft.	\$370.00‡
AHX24-3-200	AH010 OC3 000	8" [200 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	10 ft.	\$398.00‡
AHX24-3-300	AH170 OC1 000	12" [100 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	3 ft.	\$384.00‡
AHX24-3-300	AH170 OC3 000	12" [200 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	10 ft.	\$412.00‡
AHX24-SR-100	AH030 OC1 000	4" [100 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds per 4"	5	3 ft.	\$480.00‡
AHX24-SR-100	AH030 OC3 000	4" [200 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds per 4"	5	10 ft.	\$508.00‡
AHX24-SR-200	AH040 OC1 000	8" [200 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds per 4"	5	3 ft.	\$518.00‡
AHX24-SR-200	AH040 OC3 000	8" [200 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds per 4"	5	10 ft.	\$546.00‡
AHQX24-1-100**	AHQD60 OC1 TOJ	4" [100 mm]	On/Off, Floating Point	—	24 VAC/DC	7 per 4"	20	3 ft.	\$592.00‡
AHQX24-1-100**	AHQD60 OC3 TOJ	4" [100 mm]	On/Off, Floating Point	—	24 VAC/DC	7 per 4"	20	10 ft.	\$592.00‡
AHX120-3-100	AH060 OA1 000	4" [100 mm]	On/Off, Floating Point	—	100-230 VAC	150 seconds per 4"	5	3 ft.	\$374.00‡
AHX120-3-100	AH060 OA3 000	4" [100 mm]	On/Off, Floating Point	—	100-230 VAC	150 seconds per 4"	5	10 ft.	\$402.00‡
AHX120-3-200	AH070 OA1 000	8" [200 mm]	On/Off, Floating Point	—	100-230 VAC	150 seconds per 4"	4.5	3 ft.	\$394.00‡
AHX120-3-200	AH070 OA3 000	8" [200 mm]	On/Off, Floating Point	—	100-230 VAC	150 seconds per 4"	4.5	10 ft.	\$422.00‡
AHX120-3-300	AH180 OA1 000	12" [300 mm]	On/Off, Floating Point	—	100-230 VAC	150 seconds per 4"	4.5	3 ft.	\$444.00‡
AHX120-3-300	AH180 OA3 000	12" [300 mm]	On/Off, Floating Point	—	100-230 VAC	150 seconds per 4"	4.5	10 ft.	\$472.00‡
AHX120-SR-100	AH450 OA1 000	4" [100 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	100-230 VAC	150 seconds per 4"	5	3 ft.	\$470.00‡
AHX120-SR-100	AH450 OA3 000	4" [100 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	100-230 VAC	150 seconds per 4"	5	10 ft.	\$498.00‡
AHX120-SR-200	AH460 OA1 000	8" [200 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	100-230 VAC	150 seconds per 4"	5	3 ft.	\$498.00‡
AHX120-SR-200	AH460 OA3 000	8" [200 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	100-230 VAC	150 seconds per 4"	5	10 ft.	\$526.00‡

♦ Variable with MFT

‡ Prices do not reflect additional programming code surcharge.

\* With 500 Ω resistor.

\*\* Torque is 44 lbf.

NOTE: 16' cables are available with a \$48.00 adder except for the PC and MFT95 version, which are only available with a 3' cable.

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### Actuator Specifications

Linear Force	AH 101 lbf [450 N force] minimum AHQ 44 lbf [200 N force] minimum
Manual Override	external push button
Direction of Stroke	external switch
Dimensions	AH 9.0" x 3.2" x 3.0" [228 x 80.5 x 77 mm] AHQ 7.0" x 3.19" x 3.58" [178 x 81 x 91 mm]
Electrical Connection	3 ft, 18 GA plenum cable, 1/2" conduit fitting
Overload Protection	electronic throughout full stroke
Housing	NEMA 2/IP54, Enclosure Type2
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC
Auxiliary switch(es)	not available.



AHQB24-1-100

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

- Control – AH (PWM, VDC range, Floating Point) AHQ (VDC range)
- Feedback (0-10 VDC, 0-5 VDC, 2-10 VDC, Variable)
- Motion (run time)



All actuators have BDCM



NON-SPRING RETURN

### Non-Spring Return Actuators

Model	Linear Stroke	Control Input	Feedback	Power Supply	Running Time(s) [Default]	VA Rating	Cable Length	List Price
<b>MFT PRODUCTS</b>	<b>REORDER #</b>							
AHX24-MFT-100	AH100 0C1 XXX***	4" [100 mm]	Various	Various	24 VAC/DC	75-150 [150] sec	6	3 ft. \$494.00‡
AHX24-MFT-100	AH100 0C3 XXX***	4" [100 mm]	Various	Various	24 VAC/DC	75-150 [150] sec	6	10 ft. \$522.00‡
AHX24-MFT-200	AH280 0C1 XXX***	8" [200 mm]	Various	Various	24 VAC/DC	75-150 [150] sec	6	3 ft. \$518.00‡
AHX24-MFT-200	AH280 0C3 XXX***	8" [200 mm]	Various	Various	24 VAC/DC	75-150 [150] sec	6	10 ft. \$546.00‡
AHX24-MFT-300	AH790 0C1 XXX***	12" [300 mm]	Various	Various	24 VAC/DC	75-150 [150] sec	6	3 ft. \$540.00‡
AHX24-MFT-300	AH790 0C3 XXX***	12" [300 mm]	Various	Various	24 VAC/DC	75-150 [150] sec	6	10 ft. \$568.00‡
AHQX24-MFT-100**	AHQD00 0C1 T03	4" [100 mm]	Various	Various	24 VAC/DC	7-20 [7] seconds	20	3 ft. \$604.00‡
AHQX24-MFT-100**	AHQD00 0C3 T03	4" [100 mm]	Various	Various	24 VAC/DC	7-20 [7] seconds	20	10 ft. \$632.00‡

◆ Variable with MFT

‡ Prices do not reflect additional programming code surcharge.

\* With 500 Ω resistor.

\*\* Torque is 44 lbf.

\*\*\* Refer to page 4-19 to 4-23 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.

NOTE: 16' cables are available with a \$48.00 adder except for the PC and MFT95 version, which are only available with a 3' cable.

# LH Linear Series

LH Series - Direct Coupled, Non-Spring Return Actuator, 34 lbf Minimum Linear Force (LHQ Series 22 lbf)



## Actuator Specifications

Linear Force	LH 34 lbf [150 N force] minimum LHQ 22 lbf [100 N force] minimum
Power Supply	24 VAC/DC
Manual Override	external push-button
Direction of Stroke	external switch
Dimensions	LH 8" x 2.64" x 2.6" [203 x 67 x 66 mm] LHQ 5.63" x 2.6 x 3.15" [143 x 67 x 80mm]
Electrical Connection	3 ft, 18 GA plenum cable, 1/2" conduit fitting
Overload Protection	electronic throughout full stroke
Housing	NEMA 2/IP54 (NEMA1/IP20 for -T models), Enclosure Type2
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1-02, CE according to 2004/108/EC and 2006/95/EC
Auxiliary switch not available.	



LHB24-3-100

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

- Control – LH (PWM, VDC range, Floating Point) LHQ (VDC range)
- Feedback (0-10 VDC, 0-5 VDC, 2-10 VDC, Variable)
- Motion (run time)



All actuators have BDCM



## Non-Spring Return Actuators

Model	Linear Stroke	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Cable Length	List Price	
<b>BASIC PRODUCTS</b>									
LHB24-3-100	4" [100 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	3	3 ft.	\$216.00	
LHB24-3-T-100	4" [100 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	3	3 ft.	\$182.00	
LHB24-SR-100	4" [100 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds per 4"	3	3 ft.	\$310.00	
LHB24-3-200	8" [200 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	3	3 ft.	\$236.00	
LHB24-SR-200	8" [200 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds per 4"	3	3 ft.	\$332.00	
LHQB24-1-100**	4 in [100 mm]	On/Off	Add-on	24 VAC/DC	3.5 seconds per 4"	20	3 ft.	\$440.00	
LHQB24-MFT-100**	4 in [100 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	3.5 seconds per 4"	20	3 ft.	\$500.00	
<b>CUSTOMIZE PRODUCTS REORDER #</b>									
LHX24-3-100	LH000 OC1 000	4" [100 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	3 ft.	\$216.00‡
LHX24-3-100	LH000 OC3 000	4" [100 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	10 ft.	\$244.00‡
LHX24-3-200	LH010 OC1 000	8" [200 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	3 ft.	\$238.00‡
LHX24-3-200	LH010 OC3 000	8" [200 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	10 ft.	\$266.00‡
LHX24-3-300	LH170 OC1 000	12" [300 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	3 ft.	\$248.00‡
LHX24-3-300	LH170 OC3 000	12" [300 mm]	On/Off, Floating Point	—	24 VAC/DC	150 seconds per 4"	4.5	10 ft.	\$276.00‡
LHX24-SR-100	LH030 OC1 000	4" [100 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds per 4"	5	3 ft.	\$312.00‡
LHX24-SR-100	LH030 OC3 000	4" [100 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds per 4"	5	10 ft.	\$340.00‡
LHX24-SR-200	LH040 OC1 000	8" [200 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds per 4"	5	3 ft.	\$334.00‡
LHX24-SR-200	LH040 OC3 000	8" [200 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	24 VAC/DC	150 seconds per 4"	5	10 ft.	\$362.00‡
LHQX24-1-100**	LHQD60 OC1 T0J	4" [100 mm]	On/Off, Floating Point	—	24 VAC/DC	3.5 seconds per 4"	20	3 ft.	\$440.00‡
LHQX24-1-100**	LHQD60 OC3 T0J	4" [100 mm]	On/Off, Floating Point	—	24 VAC/DC	3.5 seconds per 4"	20	10 ft.	\$468.00‡
LHX120-3-100	LH060 OA1 000	4" [100 mm]	On/Off, Floating Point	—	100-230 VAC	150 seconds per 4"	5	3 ft.	\$240.00‡
LHX120-3-100	LH060 OA3 000	4" [100 mm]	On/Off, Floating Point	—	100-230 VAC	150 seconds per 4"	5	10 ft.	\$268.00‡
LHX120-3-200	LH070 OA1 000	8" [200 mm]	On/Off, Floating Point	—	100-230 VAC	150 seconds per 4"	5	3 ft.	\$260.00‡
LHX120-3-200	LH070 OA3 000	8" [200 mm]	On/Off, Floating Point	—	100-230 VAC	150 seconds per 4"	5	10 ft.	\$288.00‡
LHX120-3-300	LH180 OA1 000	12" [300 mm]	On/Off, Floating Point	—	100-230 VAC	150 seconds per 4"	5	3 ft.	\$280.00‡
LHX120-3-300	LH180 OA3 000	12" [300 mm]	On/Off, Floating Point	—	100-230 VAC	150 seconds per 4"	5	10 ft.	\$308.00‡
LHX120-SR-100	LH450 OAC1 000	4" [100 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	100-230 VAC	150 seconds per 4"	5	3 ft.	\$344.00‡
LHX120-SR-100	LH450 OAC3 000	4" [100 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	100-230 VAC	150 seconds per 4"	5	10 ft.	\$372.00‡
LHX120-SR-200	LH460 OA1 000	8" [200 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	100-230 VAC	150 seconds per 4"	5	3 ft.	\$366.00‡
LHX120-SR-200	LH460 OA3 000	8" [200 mm]	2-10 VDC (4-20 mA*)	2-10 VDC	100-230 VAC	150 seconds per 4"	5	10 ft.	\$394.00‡

♦ Variable with MFT

‡ Prices do not reflect additional programming code surcharge.

\* With 500 Ω resistor.

\*\* Torque is 22 lbf.

NOTE: 16' cables are available with a \$48.00 adder except for the PC and MFT95 version, which are only available with a 3' cable.

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### Actuator Specifications

Linear Force	LH	34 lbf [150 N force] minimum
	LHQ	22 lbf [100 N force] minimum
Power Supply	24 VAC/DC	
Manual Override	external push-button	
Direction of Stroke	external switch	
Dimensions	LH	7.47" x 3.45" x 2.52" [189.8 x 88 x 64 mm]
	LHQ	3.7" x 2.64" x 3.11" [94 x 67 x 79 mm]
Electrical Connection	3 ft, 18 GA plenum cable, ½" conduit fitting	
Overload Protection	electronic throughout full stroke	
Housing	NEMA 2/IP54 (NEMA1/IP20 for -T models), Enclosure Type2	
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC	
Auxiliary switch not available.		



LHQX24-MFT-100

### MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

- Control (VDC range)
- Feedback (0-10 VDC, 0-5 VDC, 2-10 VDC, Variable)
- Motion (run time)



All LH Actuators have BDCM



NON-SPRING RETURN

### Non-Spring Return Actuators

Model		Linear Stroke	Control Input	Feedback	Power Supply	Running Time(s) [Default]	VA Rating	Cable Length	List Price
<b>MFT PRODUCTS</b>		<b>REORDER #</b>							
LHX24-MFT-100	LH100 0C1 XXX***	4" [100 mm]	Various	Various	24 VAC/DC	75-150 [150] seconds per 4"	6	3 ft.	\$344.00‡
LHX24-MFT-100	LH100 0C3 XXX***	4" [100 mm]	Various	Various	24 VAC/DC	75-150 [150] seconds per 4"	6	10 ft.	\$372.00‡
LHX24-MFT-200	LH280 0C1 XXX***	8" [200 mm]	Various	Various	24 VAC/DC	75-150 [150] seconds per 4"	6	3 ft.	\$366.00‡
LHX24-MFT-200	LH280 0C3 XXX***	8" [200 mm]	Various	Various	24 VAC/DC	75-150 [150] seconds per 4"	6	10 ft.	\$394.00‡
LHX24-MFT-300	LH790 0C1 XXX***	12" [300 mm]	Various	Various	24 VAC/DC	75-150 [150] seconds per 4"	6	3 ft.	\$386.00‡
LHX24-MFT-300	LH790 0C3 XXX***	12" [300 mm]	Various	Various	24 VAC/DC	75-150 [150] seconds per 4"	6	10 ft.	\$414.00‡
LHQX24-MFT-100**	LHQD00 0C1 T03	4" [100 mm]	Various	Various	24 VAC/DC	3.5-15 [3.5] seconds per 4"	18	3 ft.	\$480.00‡
LHQX24-MFT-100**	LHQD00 0C3 T03	4" [100 mm]	Various	Various	24 VAC/DC	3.5-15 [3.5] seconds per 4"	18	10 ft.	\$508.00‡

◆ Variable with MFT

‡ Prices do not reflect additional programming code surcharge.

\*\* Torque is 22 lbf.

\*\*\* Refer to page 4-19 to 4-23 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.

NOTE: 16' cables are available with a \$48.00 adder except for the PC and MFT95 version, which are only available with a 3' cable.

# LU Rotary Series

Direct Coupled, Non-Spring Return Actuator, 27 in-lb Minimum Torque



## Actuator Specifications

Torque	27 in-lb [3 Nm] minimum
Angle of Rotation◆	endless (-3 Models), 330° (-SR Models)
Fits Shaft Diameter	5/16" to 13/32" [8 to 10 mm] square
Manual Override	external push-button
Direction of Rotation◆	external switch
Dimensions	6.2" x 3.1" x 2.4" [158 x 80 x 62 mm]
Electrical Connection	3 ft, 18 GA plenum rated cable, 1/2" conduit fitting
Overload Protection	electronic throughout rotation
Housing	NEMA 2/IP54, Enclosure Type2
Agency Listings	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC
Auxiliary switch not available.	



LUB24-3

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

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



All actuators  
have BDCM



## Non-Spring Return Actuators

Model	Control Input	Form Fit	Feedback	Power Supply	Running Time(s) [Default]	VA Rating	Cable Length	List Price	
<b>BASIC PRODUCTS</b>									
LUB24-3	On/Off, Floating Point		—	24 VAC/DC	150 seconds per 90°	2.5	3 ft.	\$228.00	
LUB24-SR	2-10 VDC (4-20 mA*)		2-10 VDC	24 VAC/DC	150 seconds per 90°	3	3 ft.	\$312.00	
<b>CUSTOMIZE PRODUCTS REORDER #</b>									
LUX24-3	LU010 AC1 000	On/Off, Floating Point	A = 8 x 8 mm***	—	24 VAC/DC	150 seconds per 90°	3	3 ft.	\$228.00‡
LUX24-3	LU010 CC1 000	On/Off, Floating Point	C = 10 x 10 mm***	—	24 VAC/DC	150 seconds per 90°	3	3 ft.	\$228.00‡
LUX24-3	LU010 EC1 000	On/Off, Floating Point	E = 12 x 12 mm***	—	24 VAC/DC	150 seconds per 90°	3	3 ft.	\$228.00‡
LUX24-3	LU010 AC3 000	On/Off, Floating Point	C and E are available	—	24 VAC/DC	150 seconds per 90°	3	10 ft.	\$228.00‡
LUX120-3	LU070 AA1 000	On/Off, Floating Point	C and E are available	—	100-230 VAC	150 seconds per 90°	4.5	3 ft.	\$250.00‡
LUX120-3	LU070 AA3 000	On/Off, Floating Point	C and E are available	—	100-230 VAC	150 seconds per 90°	4.5	10 ft.	\$250.00‡
LUX24-SR	LU040 AC1 000	2-10 VDC (4-20 mA*)	C and E are available	2-10 VDC	24 VAC/DC	150 seconds per 90°	3	3 ft.	\$312.00‡
LUX24-SR	LU040 AC3 000	2-10 VDC (4-20 mA*)	C and E are available	2-10 VDC	24 VAC/DC	150 seconds per 90°	3	10 ft.	\$312.00‡
LUX120-SR	LU460 AA1 000	2-10 VDC (4-20 mA*)	C and E are available	2-10 VDC	24 VAC/DC	150 seconds per 90°	4.5	3 ft.	\$348.00‡
LUX120-SR	LU460 AA3 000	2-10 VDC (4-20 mA*)	C and E are available	2-10 VDC	24 VAC/DC	150 seconds per 90°	4.5	10 ft.	\$348.00‡
<b>MFT VERSIONS REORDER #</b>									
LUX24-MFT	LU100AC1XXX***	Various	C and E are available	Various	24 VAC/DC	75-150 [150] seconds per 90°	4.5	3 ft.	\$358.00‡
LUX24-MFT	LU100AC3XXX***	Various	C and E are available	Various	24 VAC/DC	75-150 [150] seconds per 90°	4.5	10 ft.	\$386.00‡

◆ Variable with MFT

‡ Prices do not reflect additional programming code surcharge.

\*\* Refer to page 4-19 to 4-23 for P-Codes. The P-Code programs the actuator for the desired Control Input, Feedback & Running Time.

\*\*\*Three form fits are available for each model - enter the correct letter (A, C or E) into the 6th position of the reorder number.

NOTE: 16' cables are available with a \$48.00 adder except for the PC and MFT95 version, which are only available with a 3' cable.

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**VDC**

Non-Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
GM, AM, NM, LM, AH, LH, LU	000	150s	2...10V	U5 2...10V	—	No Charge
GM, AM, NM, LM, LU	002	90s	2...10V	U5 2...10V	—	No Charge
LM, LU	004	45s	2...10V	U5 2...10V	—	No Charge
LM, LU	005	35s	2...10V	U5 2...10V	—	No Charge
GM, AM, NM, LM, AH, LH	A01	150s	2...10V	U5 2...10V	P-10001	No Charge
GM, AM, NM, LM, AH, LH	A02	150s	0.5...10V	U5 0.5...10V	P-10002	No Charge
GM, AM, NM, LM, AH, LH	A03	150s	2...10V	U5 0.5...5V	P-10003	No Charge
GM, AM, NM, LM, AH, LH	A04	150s	4...7V	U5 2...10V	P-10004	\$34.00
GM, AM, NM, LM, AH, LH, LU	A05	150s	6...9V	U5 2...10V	P-10005	\$34.00
GM, AM, NM, LM, AH, LH	A06	150s	10.5...13.5V	U5 2...10V	P-10006	\$34.00
GM, AM, NM, LM, AH, LH	A07	150s	0.5...5V	U5 2...10V	P-10007	\$34.00
GM, AM, NM, LM, AH, LH	A08	150s	0.5...5V	U5 0.5...10V	P-10008	\$34.00
GM, AM, NM, LM, AH, LH	A09	150s	5...10V	U5 2...10V	P-10009	\$34.00
GM, AM, NM, LM, AH, LH	A10	150s	5...10V	U5 0.5...10V	P-10010	\$34.00
AM	A11	150s	0.5...5V	U5 0.5...5V	P-10011	\$34.00
AM	A12	150s	0.5...5V	U5 0.5...2.5V	P-10012	\$34.00
GM, AM, NM, LM, AH, LH	A13	150s	0.5...10V	U5 2...10V	P-10013	\$34.00
AM	A14	100s	0.5...10V	U5 0.5...2.5V	P-10014	\$34.00
GM, AM, NM, LM, AH, LH	A15	150s	2...5V	U5 2...10V	P-10015	\$34.00
GM, AM, NM, LM, AH, LH	A16	150s	2...6V	U5 2...10V	P-10016	\$34.00
GM, AM, NM, LM, AH, LH	A17	150s	6...10V	U5 2...10V	P-10017	\$34.00
GM, AM, NM, LM, AH, LH	A18	150s	14...17V	U5 2...10V	P-10018	\$34.00
GM, AM, NM, LM, LU	A19	100s	2...10V	U5 2...10V	P-10019	No Charge
GM, AM, NM, LM, AH, LH	A20	150s	9...12V	U5 2...10V	P-10020	\$34.00
GM, AM, NM, AH, LH	A21	150s	2...10V	U5 0.5...5V	P-10021	\$34.00
GM, AM, NM, LM, AH, LH	A22	150s	0.5...4.9V	0.5...4.9V	P-10022	\$34.00
GM, AM, NM, LM, AH, LH	A23	150s	5.1...10V	5.1...10V	P-10023	\$34.00
GM, AM, NM, LM, AH, LH	A24	150s	0.5...24V	U5 2...10V	P-10024	\$34.00
AM, NM, LM	A25	76s	2...10V	U5 2...10V	P-10025	\$34.00
GM, AM, NM, LM, AH, LH	A26	150s	2...9V	U5 2...10V	P-10026	\$34.00
GM, AM, NM, LM, AH, LH	A27	150s	5...9V	U5 2...10V	P-10027	\$34.00
GM, AM, NM, LM	A28	100s	0.5...10V	U5 0.5...10V	P-10028	No Charge
GM, AM, NM, LM, AH, LH	A29	150s	1...3V	U5 2...10V	P-10029	\$34.00
GM, AM, NM, LM, AH, LH	A30	150s	3...9V	U5 2...10V	P-10030	\$34.00
GM, AM, NM, LM, AH, LH	A31	150s	0.5...4V	U5 2...10V	P-10031	\$34.00
GM, AM, NM, LM, AH, LH	A32	150s	6...14V	U5 2...10V	P-10032	\$34.00
GM, AM, NM, LM	A33	150s	4...14V	U5 2...10V	P-10033	\$34.00
GM, AM, NM, LM, AH, LH	A34	120s	2...10V	U5 2...10V	P-10034	\$34.00
AM, LM	A35	78s	2...10V	U5 2...10V	P-10035	\$34.00
GM, AM, NM, LM	A37	120s	0.5...10V	U5 0.5...10V	P-10037	\$34.00
GM, AM, NM, LM, AH, LH	A38	150s	6...13V	U5 2...10V	P-10038	\$34.00
GM, AM, NM, LM, AH, LH	A39	150s	10...14V	U5 2...10V	P-10039	\$34.00
GM, AM, NM, LM, AH, LH	A40	150s	1...16V	U5 2...10V	P-10040	\$34.00
GM, AM, NM, LM, AH, LH	A41	150s	3...6V	U5 2...10V	P-10041	\$34.00
AM, NM, LM, LU	A42	75s	0.5...10V	U5 2...10V	P-10042	\$34.00
GM, AM, NM, LM, AH, LH	A43	150s	0.5...2.5V	U5 2...10V	P-10043	\$34.00
GM, AM, NM, LM, AH, LH	A44	150s	7...10V	U5 2...10V	P-10044	\$34.00
GM, AM, NM, LM, AH, LH	A45	150s	13...17V	U5 2...10V	P-10045	\$34.00
GM, AM, NM, LM, AH, LH	A46	150s	2...10V	U5 2...10V	P-10046	\$34.00
GM, AM, NM, LM, AH, LH	A47	150s	0.5...20V	U5 2...10V	P-10047	\$34.00
GM, AM, NM, LM, AH, LH	A48	150s	1...5V	U5 1...5V	P-10048	\$34.00
GM, AM, NM, LM, AH, LH	A49	150s	1...5V	U5 1...5V	P-10049	\$34.00
GM, AM, NM, LM, AH, LH	A52	150s	2...10V	U5 0.5...5V	P-10052	\$34.00
GM, AM, NM, LM	A53	120s	0.5...10V	U5 2...10V	P-10053	\$34.00
GM, AM, NM, LM, AH, LH	A54	150s	0.5...2.5V	U5 0.5...2.5V	P-10054	\$34.00
AM, NM, LM, LU	A55	75s	2...5V	U5 2...10V	P-10055	\$34.00
AM, NM, LM, LU	A56	75s	6...9V	U5 2...10V	P-10056	\$34.00
GM, AM, NM, LM, AH, LH	A57	150s	2...5.5V	U5 2...10V	P-10057	\$34.00
GM, AM, NM, LM, AH, LH	A58	150s	6.5...10V	U5 2...10V	P-10058	\$34.00
GM, AM, NM, LM, AH, LH	A59	150s	0.5...6V	U5 2...10V	P-10059	\$34.00
GM, AM, NM, LM	A60	300s	2...10V	U5 2...10V	P-10060	\$34.00
GM, AM, NM, LM, AH, LH	A61	150s	10...20V	U5 2...10V	P-10061	\$34.00

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NON-SPRING RETURN

## VDC

Non-Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
GM, AM, NM, LM	A62	90s	2...10V	U5 2...10V	P-10062	\$34.00
GM, AM, NM, LM, AH, LH	A63	150s	0.5...4.5V	U5 0.5...4.5V	P-10063	No Charge
GM, AM, NM, LM, AH, LH	A64	150s	5.5...10V	U5 5.5...10V	P-10064	No Charge
GM, AM, NM, LM, AH, LH	A65	150s	1...5V	U5 1...5V	P-10065	\$34.00
GM, AM, NM, LM, AH, LH	A66	150s	2...10V	U5 1...5V	P-10066	\$34.00
GM, AM, NM, LM, AH, LH	A67	150s	2...8V	U5 2...10V	P-10067	\$34.00
GM, AM, NM, LM, AH, LH	A68	150s	2...13V	U5 2...10V	P-10068	\$34.00
GM, AM, NM, LM, AH, LH	A69	150s	1.4V	U5 2...10V	P-10069	\$34.00
GM, AM, NM, LM, AH, LH	A70	150s	3.5...10V	U5 2...10V	P-10070	\$34.00
GM, AM, NM, LM, AH, LH	A71	150s	2...15V	U5 2...10V	P-10071	\$34.00
GM, AM, NM, LM	A72	95s	2...10V	U5 2...10V	P-10072	\$34.00
GM, AM, NM, LM, AH, LH	A73	150s	6...18V	U5 2...10V	P-10073	\$34.00
GM, AM, NM, LM, AH, LH	A74	150s	2...10V	U5 2...10V	P-10074	\$34.00
GM, AM, NM, LM, AH, LH	A76	150s	0.5...3V	U5 0.5...10V	P-10076	\$34.00
AM, NM, LM	A77	76s	0.5...10V	U5 0.5...10V	P-10077	\$34.00
GM, AM, NM, LM, AH, LH	A78	150s	2...10V	U5 0.5...10V	P-10078	\$34.00
GM, AM, NM, LM, AH, LH	A79	150s	0.5...10V	U5 0.5...5V	P-10079	\$34.00
GM, AM, NM, LM, AH, LH	A80	150s	0.5...3.5	U5 2...10V	P-10080	\$34.00
GM, AM, NM, LM, AH, LH	A81	150s	4.5...10	U5 2...10V	P-10081	\$34.00
GM, AM, NM, LM, AH, LH	A82	150s	3...10V	U5 2...10V	P-10082	\$34.00
GM, AM, NM, LM, AH, LH	A83	150s	5...15V	U5 2...10V	P-10083	\$34.00
GM, AM, NM, LM, AH, LH	A84	150s	13...20V	U5 2...10V	P-10084	\$34.00
GM, AM, NM, LM, AH, LH	A85	150s	2...10V	U5 2...10V	P-10085	\$34.00
GM, AM, NM, LM, AH, LH	A86	150s	5...10.5	U5 2...10V	P-10086	\$34.00
GM, AM, NM, LM, AH, LH	A88	150s	2...10V	U5 2...10V	P-10088	\$34.00
GM, AM, NM, LM, AH, LH	A89	150s	12.5...22V	U5 2...10V	P-10089	\$34.00
GM, AM, NM, LM, AH, LH	A90	150s	2...5V	U5 2...5V	P-10090	\$34.00
GM, AM, NM, LM	A91	95s	2...10V	U5 2...10V	P-10091	No Charge
GM, AM, NM, LM, AH, LH	A92	150s	0.5...15V	U5 0.5...10V	P-10092	\$34.00
GM, AM, NM, LM, AH, LH	A93	150s	2...10V	U5 2...10V	P-10093	\$34.00
GM, AM, NM, LM	A94	85s	2...10V	U5 2...10V	P-10094	No Charge
GM, AM, NM, LM, AH, LH	A95	150s	0.5...5V	U5 0.5...5V	P-10095	\$34.00
GM, AM, NM, LM, AH, LH	A96	150s	0.5...10V	U5 2...10V	P-10096	\$34.00
GM, AM, NM, LM, AH, LH	A97	150s	5.25...7.25	U5 2...10V	P-10097	\$34.00
GM, AM, NM, LM	A98	150s	2...10V	U5 2...10V	P-10098	\$34.00
GM, AM, NM, LM, AH, LH	A99	150s	2...10V	U5 2...10V	P-10099	\$34.00
GM, AM, NM, LM, AH, LH	AA0	150s	0.5...12.85	U5 2...10V	P-10100	\$34.00
GM, AM, NM, LM, AH, LH	AA1	150s	3...15V	U5 2...10V	P-10101	\$34.00
GM, AM, NM, LM, AH, LH	AA2	150s	0.5...14V	U5 2...10V	P-10102	\$34.00
GM, AM, NM, LM, AH, LH	AA4	150s	0.5...22V	U5 2...10V	P-10104	\$34.00
GM, AM, NM, LM, AH, LH	AA5	150s	0.5...4V	U5 0.5...5V	P-10105	\$34.00
GM, AM, NM, LM, AH, LH	AA6	150s	6...10V	U5 0.5...5V	P-10106	\$34.00
GM, AM, NM, LM, AH, LH	AA7	150s	2...7V	U5 2...10V	P-10107	\$34.00
GM, AM, NM, LM, AH, LH	AA8	150s	4...10V	U5 2...10V	P-10108	\$34.00
GM, AM, NM, LM, AH, LH	AAA	150s	2...22V	U5 2...10V	P-10110	\$34.00
GM, AM, NM, LM, AH, LH	AAB	150s	0.5...20V	U5 0.5...10V	P-10111	\$34.00
GM, AM, NM, LM, AH, LH	AAC	150s	0.5...29V	U5 2...10V	P-10112	\$34.00
GM, AM, NM, LM	AAD	100s	0.5...4.5V	U5 0.5...4.5V	P-10113	\$34.00
GM, AM, NM, LM	AAE	100s	5.5...10V	U5 5.5...10V	P-10114	\$34.00
GM, AM, NM, LM, AH, LH	AAF	150s	0.5...28V	U5 2...10V	P-10115	\$34.00
AM, NM, LM	AAG	75s	0.5...10V	U5 2...10V	P-10116	\$34.00
GM, AM, NM, LM, AH, LH	AAH	150s	0.5...10V	U5 4...5V	P-10117	\$34.00
GM, AM, NM, LM, AH, LH	AAJ	100s	2...6V	U5 2...10V	P-10118	\$34.00
GM, AM, NM, LM	AAK	100s	6...10V	U5 2...10V	P-10119	\$34.00
GM, AM, NM, LM, AH, LH	AAL	150s	8...20V	U5 2...10V	P-10120	\$34.00
GM, AM, NM, LM	AAM	120s	0.5...10V	U5 2...10V	P-10121	\$34.00
GM, AM, NM, LM	AAN	100s	0.5...10V	U5 2...10V	P-10122	\$34.00
GM, AM, NM, LM, AH, LH	AAP	150s	2...10V	U5 2...10V	P-10123	\$34.00
GM, AM, NM, LM, AH, LH	AAR	150s	2...10V	U5 2...10V	P-10124	\$34.00
GM, AM, NM, LM, AH, LH	AAS	150s	2...10V	U5 2...10V	P-10125	\$34.00
GM, AM, NM, LM	AAT	20s	2...10V	U5 2...10V	—	No Charge
GM, AM, NM, LM	AAU	100s	6...9V	U5 2...10V	P-10143	No Charge

NON-SPRING RETURN

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**VDC**

Non-Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
GM, AM, NM, LM, AH, LH	AAV	150s	1.2...6V	U5 2...10V	—	No Charge
AM	AAX	35s	2...10V	U5 2...10V	P-10130	No Charge
AM, NM, LM, LU	AC0	45s	2...10V	U5 2...10V	P-10131	No Charge
GM, AM, NM,	AC1	90s	2...10V	U5 2...10V	P-10132	No Charge
GM, AM, NM, AH, LH	AC2	150s	0.5...10V	U5 0.5...10V	—	No Charge
GM, AM,	AC4	150s	0.5...10V	U5 0.5...10V	—	\$34.00
AM, NM, LU	AC5	75s	2...10V	U5 2...10V	P-10133	\$34.00
AM, NM	AC8	35s	0.5...10V	U5 0.5...10V	—	No Charge
AM, NM	AC9	45s	0.5...10V	U5 0.5...10V	—	No Charge
GM, AM, NM, LM	ACA	90s	0.5...10V	U5 0.5...10V	—	No Charge
AM, NM, LM, AH, LH	ACV	150s	2...10V	U5 2...10V	—	No Charge
GM, AM, NM, LM	ACX	150s	2...10V	U5 2...10V	—	No Charge
GM, AM, NM	AD0	100s	0.5...5V	U5 2...10V	P-10135	No Charge
GM, AM, NM, LM	AD1	100s	5...10V	U5 2...10V	P-10136	No Charge
GM, AM, NM, LM	AD2	90s	2...10V	U5 2...10V	—	No Charge
GM, AM, LM	AD3	35s	2...10V	U5 2...10V	—	No Charge
GM, AM, NM, LM	AD4	150s	2...10V	U5 2...10V	—	No Charge
GM, AM, NM, LM	AD5	100s	2...5V	U5 2...10V	P-10137	No Charge
GM, AM, NM, LM	AD6	100s	2...10V	U5 0.5...5V	P-10139	No Charge
GM, AM, NM, LM	AD7	100s	0.5...10V	U5 0.5...5V	P-10140	No Charge
AM, LM	AD8	35s	2...10V	U5 2...10V	—	No Charge
AM	ADA	100s	0.5...10V	U5 0.5...10V	—	No Charge
AM	ADC	35s	0.5...10V	U5 0.5...10V	—	No Charge
GM, AM, NM, LM	ADD	150s	9...13V	U5 2...10V	P-10138	No Charge
AM	ADE	150s	2...10V	U5 2...10V	—	No Charge
AM	ADF	150s	0.5...10V	U5 0.5...10V	P-10142	No Charge

**ON/OFF**

Non-Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
NM, LM, LU	J01	75s	—	U5 2...10V	P-40001	\$34.00
GM, AM, NM, LM, AH, LH,	J02	150s	—	U5 2...10V	P-40002	No Charge
NM, LM, AH, LH,	J03	75s	—	U5 2...10V	P-40003	\$34.00
GM, AM, NM, LM	J04	100s	—	U5 0.5...5V	P-40004	\$34.00
GM, AM, NM, LM	J05	100s	—	U5 0.5...10V	P-40005	\$34.00
GM, AM, NM, LM	J06	120s	—	U5 2...10V	P-40006	\$34.00
GM, AM, NM, LM, AH, LH	J08	200s	—	U5 2...10V	P-40008	\$34.00
GM, AM, NM, LM	J09	120s	—	U5 0.5...10V	P-40009	\$34.00
AM, AH, LH	J10	300s	—	U5 2...10V	P-40010	\$34.00
GM, AM, NM, LM, AH, LH,	J11	150s	—	U5 0.5...10V	P-40011	\$34.00
GM, AM, NM, LM, AH, LH,	J12	150s	—	U5 0.5...5V	P-40012	\$34.00
GM, AM, NM, LM	J13	100s	—	U5 0.5...5V	P-40012	No Charge

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NON-SPRING RETURN

## QUICK RUNNING

Non-Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
LMQ	T01	2.5s	2...10V	U5 2...10V	—	No Charge
NMQ	T02	4s	2...10V	U5 2...10V	—	No Charge
AMQ, NMQ, LMQ, AHQ, LHQ	T03	7s	2...10V	U5 2...10V	—	No Charge
AMQ, NMQ, LMQ, AHQ, LHQ	T04	10s	2...10V	U5 2...10V	—	No Charge
AMQ, NMQ, AHQ, LHQ	T05	15s	2...10V	U5 2...10V	—	No Charge
AMQ, AHQ, LHQ	T06	20s	2...10V	U5 2...10V	—	No Charge
LMQ	T07	2.5s	0.5...10V	U5 0.5...10V	—	No Charge
NMQ, LMQ	T08	4s	0.5...10V	U5 0.5...10V	—	No Charge
AMQ, NMQ, LMQ, AHQ, LHQ	T09	7s	0.5...10V	U5 0.5...10V	—	No Charge
AMQ, NMQ, LMQ, AHQ, LHQ	T0A	10s	0.5...10V	U5 0.5...10V	—	No Charge
AMQ, NMQ, AHQ, LHQ	T0C	15s	0.5...10V	U5 0.5...10V	—	No Charge
AMQ, AHQ, LHQ	T0D	20s	0.5...10V	U5 0.5...10V	—	No Charge
LHQ	T0E	3.5s	2...10V	U5 2...10V	—	No Charge
LHQ	T0F	3.5s	0.5...10V	U5 0.5...10V	—	No Charge
LMQ	T0J	7.0s	2...10V	U5 2...10V	—	No Charge
AMQ	T0R	10s	2...10V	U5 2...10V	—	No Charge
AMQ	T0S	15s	2...10V	U5 2...10V	—	No Charge
AMQ	T0T	20s	2...10V	U5 2...10V	—	No Charge
NMQ, LMQ	T11	5.0s	0.5...10V	U5 0.5...10V	—	No Charge
NMQ, LMQ	T12	5.0s	2...10V	U5 2...10V	—	No Charge
AMQ	T18	7.0s	5...10V	U5 2...10V	—	No Charge

## PHASE CUT

Non-Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
GM, AM, NM, LM	S01	150s	Phasecut	U5 2...10V	—	No Charge
AM, LM	S02	35s	Phasecut	U5 2...10V	—	No Charge
AM, NM, LM	S03	45s	Phasecut	U5 2...10V	—	No Charge
GM, AM, NM, LM	S04	90s	Phasecut	U5 2...10V	—	No Charge
NM, LM	S0D	75s	Phasecut	U5 2...10V	—	No Charge

## FLOATING POINT

Non-Spring Return Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
GM, AM, NM, LM, AH, LH,	F01	150s	—	U5 2...10V	P-30001	No Charge
GM, AM, NM, LM, AH, LH,	F02	150s	—	U5 0.5...10V	P-30002	\$34.00
GM, AM, NM, LM	F03	100s	—	U5 2...10V	P-30003	No Charge
GM, AM, NM, LM	F04	100s	—	U5 0.5...5V	P-30004	\$34.00
GM, AM, NM, LM	F05	100s	—	U5 0.5...10V	P-30005	\$34.00
GM, AM, NM, LM, AH, LH,	F06	150s	—	U5 0.5...5V	P-30006	\$34.00
AH, LH,	F07	300s	—	U5 2...10V	P-30007	\$34.00
AM, NM	F08	75s	—	U5 2...10V	P-30008	\$34.00
AM, NM, LM	F09	85s	—	U5 2...10V	P-30009	\$34.00
GM, AM, NM, LM, AH, LH,	F10	150s	—	U5 0.5...6V	P-30010	\$34.00
NM, LM	F11	75s	—	U5 0.5...5V	P-30011	\$34.00
AH, LH,	F12	150s	—	U5 2...10V	—	\$34.00
GM, AM, NM, LM	F13	120s	—	U5 0.5...10V	P-30013	\$34.00
GM, AM, NM, LM	F14	90s	—	U5 2...10V	P-30014	\$34.00
GM, AM, NM, LM, AH, LH,	F15	150s	—	U5 0.5...4.5V	P-30015	\$34.00
GM, AM, NM, LM, AH, LH,	F16	150s	—	U5 1...5V	P-30016	\$34.00
GM, AM, NM, LM	F17	90s	—	U5 1...10V	P-30017	\$34.00
NM, LM	F18	60s	—	U5 2...10V	—	No Charge
NM	F19	45s	—	U5 2...10V	—	No Charge
LM	F1A	35s	—	U5 2...10V	—	No Charge

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**PWM**

Non-Spring Actuators	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
GM, AM, NM, LM, AH, LH	W01	150s	0.59...2.93s	U5 2...10V	P-20001	\$34.00
GM, AM, NM, LM, AH, LH	W02	150s	0.02...5s	U5 2...10V	P-20002	No Charge
GM, AM, NM, LM, AH, LH	W03	150s	0.1...25.5s	U5 2...10V	P-20003	No Charge
GM, AM, NM, LM, AH, LH	W04	150s	0.1...25.6s	U5 2...10V	P-20004	\$34.00
GM, AM, NM, LM, AH, LH	W05	150s	0.1...5.2s	U5 0.5...5V	P-20005	\$34.00
GM, AM, NM, LM, AH, LH	W06	150s	0.59...2.93s	U5 0.5...10V	P-20006	\$34.00
GM, AM, NM, LM, AH, LH	W07	150s	0.02...5s	U5 0.5...5V	P-20007	\$34.00
GM, AM, NM, LM, AH, LH	W08	150s	0.1...10s	U5 2...10V	P-20008	\$34.00
GM, AM, NM, LM, AH, LH	W09	150s	1...11s	U5 2...10V	P-20009	\$34.00
GM, AM, NM, LM, AH, LH	W10	150s	0.02...5s	U5 2...10V	P-20010	\$34.00
GM, AM, NM, LM, AH, LH	W11	150s	0.02...5.6s	U5 2...10V	P-20011	\$34.00
GM, AM, NM, LM, AH, LH	W12	150s	0.5...25.5s	U5 2...10V	P-20012	\$34.00
GM, AM, NM, LM, AH, LH	W13	150s	0.5...2.93s	U5 2...10V	P-20013	\$34.00
GM, AM, NM, LM, AH, LH	W14	150s	0.1...10s	U5 2...10V	P-20014	\$34.00
GM, AM, NM, LM, AH, LH	W15	150s	1...11s	U5 2...10V	P-20015	\$34.00
GM, AM, NM, LM, AH, LH	W16	150s	0.02...5s	U5 2...10V	P-20016	\$34.00
GM, AM, NM, LM, AH, LH	W17	150s	0.02...5.6s	U5 2...10V	P-20017	\$34.00
GM, AM, NM, LM, AH, LH	W18	150s	0.1...25.5s	U5 2...10V	P-20018	\$34.00
GM, AM, NM, LM, AH, LH	W19	150s	0.02...2.5s	U5 2...10V	P-20019	\$34.00
GM, AM, NM, LM, AH, LH	W20	150s	2.7...5s	U5 2...10V	P-20020	\$34.00
GM, AM, NM, LM, AH, LH	W21	150s	0.1...5.2s	U5 2...10V	P-20021	\$34.00
GM, AM, NM, LM, AH, LH	W22	150s	0.1...12.85s	U5 2...10V	P-20022	\$34.00
GM, AM, NM, LM, AH, LH	W23	150s	5.1...10.1s	U5 2...10V	P-20023	\$34.00
GM, AM, NM, LM, AH, LH	W24	150s	0.59...1.76s	U5 2...10V	P-20024	\$34.00
GM, AM, NM, LM, AH, LH	W25	150s	1.76...2.93s	U5 2...10V	P-20025	\$34.00
GM, AM, NM, LM, AH, LH	W26	150s	0.02...12s	U5 2...10V	P-20026	\$34.00
GM, AM, NM, LM, AH, LH	W27	150s	0.02...14s	U5 2...10V	P-20027	\$34.00
GM, AM, NM, LM, AH, LH	W28	150s	12.5...22s	U5 2...10V	P-20028	\$34.00
GM, AM, NM, LM, AH, LH	W29	150s	0.5...12.85s	U5 2...10V	P-20029	\$34.00
GM, AM, NM, LM, AH, LH	W30	150s	0.1...24s	U5 2...10V	P-20030	\$34.00
GM, AM, NM, LM, AH, LH	W31	100s	0.02...5s	U5 2...10V	P-20031	\$34.00
GM, AM, NM, LM, AH, LH	W32	100s	0.1...25.5	U5 2...10V	P-20032	\$34.00
GM, AM, NM, LM, AH, LH	W33	150s	0.2...25.5	U5 2...10V	P-20033	\$34.00
GM, AM, NM, LM, AH, LH	W34	100s	0.59...2.93s	U5 2...10V	P-20034	\$34.00
GM, AM, NM, LM, AH, LH	W35	150s	5.5...9.5s	U5 2...10V	P-20035	\$34.00
GM, AM, NM, LM, AH, LH	W36	150s	0.5...4.5s	U5 2...10V	P-20036	\$34.00
GM, AM, NM, LM, AH, LH	W37	150s	0.1...5.2s	U5 0.5...10V	P-20037	\$34.00
GM, AM, NM, LM, AH, LH	W38	150s	0.02...6s	U5 2...10V	P-20038	\$34.00
GM, AM, NM, LM, AH, LH	W39	150s	0.59...2.93s	U5 2...10V	P-20039	\$34.00
GM, AM, NM, LM, AH, LH	W3A	150s	0.5...5.0s	U5 2...10V	P-20040	\$34.00
GM, AM, NM, LM, AH, LH	W3C	150s	0.1...25.5s	U5 2...10V	—	No Charge
GM, AM, NM, LM, AH, LH	W3D	150s	0.2...5.2s	U5 2...10V	P-20041	No Charge

NON-SPRING RETURN

**MFT95**

Non-Spring Actuator	Programmable Code	Running Time	Control Range	Feedback	Obsolete Code	List Price
GM, AM, NM, LM	R01	150s	0...135 Ohm	U5 2...10V	P-16001	No Charge
GM, AM, NM, LM	R02	150s	0...135 Ohm	U5 0.5...10V	P-16002	\$34.00
GM, AM, NM, LM	R03	150s	0...135 Ohm	U5 0.5...5V	P-16003	\$34.00
AM, NM, LM	R04	75s	0...135 Ohm	U5 2...10V	P-16004	\$34.00
GM, AM, NM, LM	R05	100s	0...135 Ohm	U5 0.5...10V	P-16028	\$34.00
AM, LM	R07	35s	0...135 Ohm	U5 2...10V	—	No Charge
NM, LM	R08	45s	0...135 Ohm	U5 2...10V	—	No Charge
GM, AM, NM, LM	R09	90s	0...135 Ohm	U5 2...10V	—	No Charge
AM	ROA	37s	0...135 Ohm	U5 2...10V	—	No Charge

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# 5

## DAMPER ACTUATOR ACCESSORIES

- Universal mounting brackets are designed for applications where the actuator cannot be mounted directly to the shaft.
- Crankarm adaptor kits allow for easy retrofit applications.
- Battery back-up unit switches the damper actuator from its main AC power supply over to the 24 VDC battery to drive the actuator to its safety position during power failure.
- Software will modify actuators for all applications.

### Applications

Belimo will help solve any application problem with a wide range of Multi-Function Technology, electrical and mechanical accessories. With unparalleled customer service and technical support our accessories are designed to enhance performance and add value.



# Direct Coupling Reinvented

*Available July 2010.*



The ZG-JSL Linkage provides a unique open ended design to easily clamp on to any part of a jackshaft eliminating the need to disassemble the bearings – thus simplifying installation and reducing cost.

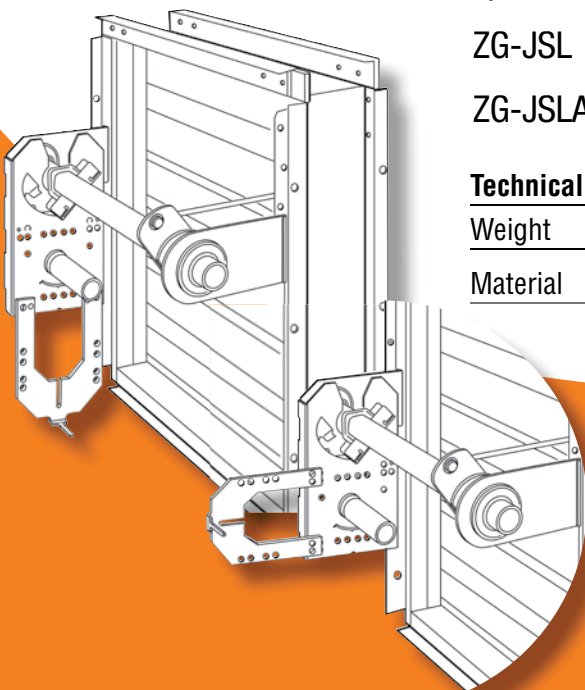
The ZG-JSL linkage clamps to any jackshaft from 3/4” to 1.05” diameter. The built-in, open-ended, steel shaft allows direct coupling to these select Belimo series actuators:

- AFB, AFX Series (180 in-lb)
- AF Series (133 in-lb)
- NFB, NFX Series (90 in-lb)
- LF Series (35 in-lb)
- AM Series (180 in-lb)
- NM Series (90 in-lb)

The ZG-JSL linkage can also be configured for 90° mounting for space saving applications.

ZG-JSL	Individually boxed	\$250.00
ZG-JSLA	Assembled with the actuator	\$200.00

Technical Data	ZG-JSL
Weight	3.5 lbs
Material	Galvanized Steel



PROGRAMMING TOOLS		AFB AFX	NFB NFX	LF	TF	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	LUB LUX	SY	List Price
	<b>MFT-P US</b> Belimo MFT Configuration Software (V3.X) Includes: PC Tool software and MFT-LBL Kit US (Hardware Not Included)	●	●	●	●	●	●	●	●	●	●	●	●	\$140.00
INTERFACES, CABLES														
	<b>ZIP-USB-MP US</b> PC-Interface: Compact Unit for use with USB port and "ZK" Style Cable Adapter (ZK Cable Below Purchased Separately)	●	●	●	●	●	●	●	●	●	●	●	●	\$520.00
	<b>ZIP-RS232 US</b> Terminal block connects to PC with RS232 connection. Includes MFT-XFMR, F/M communication cable and F/F gender changer.	●	●	●	●	●	●	●	●	●	●	●	●	\$590.00
	<b>MFT-XFMR</b> Transformer for ZIP-RS232 US.	●	●	●	●	●	●	●	●	●	●	●	●	\$66.00
	<b>ZK1-GEN</b> Cable for Use with ZIP-USB-MP US to Connect to New Generation Non-Spring Return Actuator via Diagnostic/ Programming Socket					●	●	●	●	●	●	●		\$90.00
	<b>ZK2-GEN</b> Cable for Use with ZIP-USB-MP US to Connect with Spring and Non-Spring Return Actuators Not Equipped with Diagnostic/ Programming Socket	●	●	●	●	●	●	●	●	●	●	●	●	\$42.00
	<b>ZK3-GEN</b> Cable to Connect ZIP-RS232 US and MFT-H SET US to New Generation Non-Spring Return Actuator via Diagnostic/ Programming Socket					●	●	●	●	●	●	●		\$148.00
	<b>ZKS-MP</b> Cable to Connect ZIP-RS232 US and ZIP-USB-MP US to MFT Based Actuator	●	●	●	●	●	●	●	●	●	●	●	●	\$90.00
	<b>ZK6-GEN</b> Cable for Use with ZIP-USB-MP US to Connect to SY Actuator via RJ11 Port												●	\$44.00
	<b>UK24LON</b> Interface module that can connect up to 8 MFT actuators and communicates to the controller	<i>Available for all MFT Actuators</i>											\$760.00	

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DAMPER ACCESSORIES





CLAMPS		AFB AFX	AF	NFB NFX	LF	TF	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	LUB LUX	List Price
	<b>K7-2</b> Standard AFB/NFB Clamp (½" to 1.05")	●		●										\$24.00
	<b>K4-2 US</b> Standard AF/NF Clamp (½" to 1.05")		●											\$20.00
	<b>K4-1 US</b> Jackshaft Clamp (Up to 1.05")		●											\$22.00
	<b>K4-H</b> Hex Shaft Clamp (⅜" to ⅝")		●											\$22.00
	<b>K6 US</b> Standard LF Clamp (⅜" to ½")				●									\$16.00
	<b>K6-1</b> Jackshaft Clamp (½" to ¾")				●									\$14.00
	<b>K8 US</b> Standard TF Clamp (¼" to ½")					●								\$14.00
	<b>K-GM20</b> Clamp (¾")						●							\$30.00
	<b>K-AM25</b> Standard Clamp (½" to 1.05")							●	●					\$18.00
	<b>K-SA</b> Reversible Clamp (⅝" to ¾")							●						\$24.00
	<b>K-NA</b> Reversible Clamp (⅝" to ¾")								●					\$24.00
	<b>K-LM20</b> Clamp (¾")									●				\$12.00
	<b>K-LU</b> Spindle Clamp (⅝" to ½")												●	\$26.00

DAMPER ACCESSORIES

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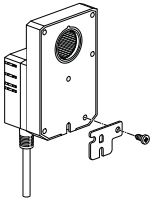
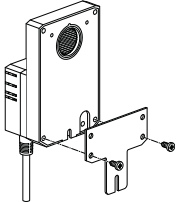
POSITION INDICATORS / ROTATION LIMITERS		AFB AFX	AF	NFB NFX	LF	TF	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	LUB LUX	List Price
	<b>IND-AFB</b> Position Indicator	•		•										\$10.00
	<b>IND-AF2</b> Position Indicator		•											\$10.00
	<b>IND-LF</b> Position Indicator				•									\$10.00
	<b>IND-TF</b> Position Indicator					•								\$10.00
	<b>ZDB-AF2 US</b> Angle of Rotation Limiter for AF Includes IND-AF2		•											\$16.00
	<b>ZDB-LF</b> Angle of Rotation Limiter for LF				•									\$10.00
	<b>ZDB-TF</b> Angle of Rotation Limiter for TF					•								\$10.00
	<b>ZDB-LU</b> Angle of Rotation Limiter for LU												•	\$12.00
MOUNTING BRACKETS														
	<b>ZG-118*</b> Channel (5 7/8" H x 5 1/2" W x 2 19/32" base)	•		•										\$50.00
	<b>ZG-100</b> Right Angle (17" H x 11 5/32" W x 6 1/32" base)	•	•	•			•	•						\$74.00
	<b>ZG-101</b> Right Angle (13" H x 11 1/32" W x 7 15/32" base)	•	•	•			•	•						\$74.00
	<b>ZG-102</b> Multiple Actuator Mounting Bracket	•	•				•							\$72.00
	<b>ZG-103</b> Right Angle (11 1/32" H x 7 15/32" W x 2 3/4" base)						•	•	•					\$54.00

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

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DAMPER ACCESSORIES



MOUNTING BRACKETS		AFB AFX	AF	NFB NFX	LF	TF	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	LUB LUX	List Price
	<b>ZG-104</b> Right Angle (13 11/16" H x 6 1/8" W x 4" base)						•	•	•					\$54.00
	<b>ZG-106*</b> Channel (1 1/2" H x 5 1/2" W x 2 1/4" base)		•											\$40.00
	<b>ZG-107*</b> Channel (2 1/4" H x 5 1/2" W x 2 1/4" base)		•											\$40.00
	<b>ZG-108*</b> Right Angle (5 7/8" H x 5 1/2" W x 2" base)		•											\$48.00
	<b>ZG-112*</b> Right Angle (4 1/2" H x 5 1/2" W x 2 1/2" base)				•									\$30.00
	<b>ZG-113*</b> Right Angle (4 1/2" H x 5 1/2" W x 2 1/2" base)					•								\$30.00
	<b>20477-00001</b> Honeywell Logic Module Bracket (See pages 13-21, 22)				•									\$48.00
	<b>Z-AF</b> AF/NF to AFB(X)/NFB(X) Retrofit Mounting Bracket	•		•										\$16.00
	<b>Z-NMA</b> NM to NMB(X) Retrofit Mounting Bracket (supplied with non-spring actuators)								•					\$14.00
	<b>Z-SMA</b> AM, SM to AMB(X) Retrofit Mounting Bracket (supplied with non-spring actuators)							•						\$14.00
	<b>Z-GMA</b> GM to GMB(X) Retrofit Mounting Bracket (supplied with non-spring actuators)						•							\$14.00

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



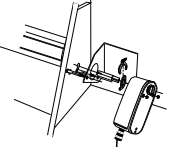
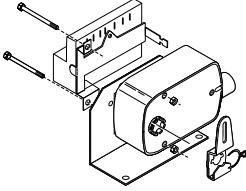
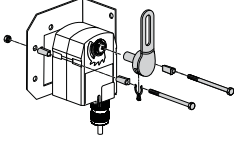
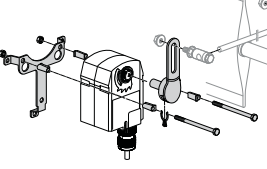

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CRANK ARM ADAPTOR KITS		AFB AFX	AF	NFB NFX	LF	TF	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	LUB LUX	List Price
	<b>KH-AFB</b> Crank arm for Shafts to 3/4"	●		●										\$24.00
	<b>KH-AF</b> Crank arm for Shafts to 3/4"		●											\$22.00
	<b>KH-AF-1 US</b> Crank arm for Jackshaft to 1.05"		●											\$42.00
	<b>KH-AFV</b> V-Bolt Kit for Direct Coupling with KH-AF US and KH-AF-1		●											\$12.00
	<b>KH-LF</b> Crank arm for Shafts to 1/2"				●									\$22.00
	<b>KH-LFV</b> V-Bolt Kit for Direct Coupling with KH-LF				●									\$10.00
	<b>KH-TF US</b> Crank arm with 5/16" Slot					●								\$26.00
	<b>KH-TF-1 US</b> Crank arm with 1/4" slot					●								\$26.00
	<b>AH-GMA</b> GMB(X) Crank arm						●							\$32.00
	<b>AH-25</b> NMB(X) and AMB(X) Crank arm							●	●					\$26.00
	<b>ZG-AFB</b> Crank arm Adaptor Kit	●		●										\$76.00
	<b>ZG-AF US</b> Crank arm Adaptor Kit (includes mounting hardware)		●											\$68.00
	<b>ZG-AFB118</b> Crank arm Adaptor Kit	●		●										\$74.00
	<b>ZG-AF108</b> Crank arm Adaptor Kit (includes ZG-108 & KH-AF US)		●											\$72.00

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DAMPER ACCESSORIES



CRANK ARM ADAPTOR KITS		AFB AFX	AF	NFB NFX	LF	TF	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	LUB LUX	List Price
	<b>ZG-LF112</b> Crank arm Adaptor Kit (includes ZG-112 & KH-LF)				●									\$48.00
	<b>ZG-LF2</b> Crank arm Adaptor Kit (includes mounting hardware)				●									\$56.00
	<b>ZG-LFC114</b> Trane Voyager Retrofit Kit (includes retrofit bracket)				●									\$90.00
	<b>ZG-ECON1</b> Honeywell Economizer Retrofit Kit (includes 20477-00001 retrofit bracket)				●									\$80.00
	<b>ZG-ECON2</b> Honeywell Economizer Retrofit Kit (logic module bracket not included)				●									\$64.00
	<b>ZG-TF112</b> Crank arm Adaptor Kit (includes ZG-113 and KH-TF-1)					●								\$50.00
	<b>ZG-TF2</b> Crank arm Adaptor Kit (includes mounting hardware)					●								\$42.00
	<b>ZG-GMA</b> Crank arm Adaptor Kit						●							\$80.00
	<b>ZG-NMA</b> Crank arm Adaptor Kit							●	●					\$54.00

DAMPER ACCESSORIES

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BALL JOINTS, DAMPER CLIPS, PUSH RODS		AFB AFX	AF	NFB NFX	LF	TF	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	LUB LUX	List Price
	<b>KH6**</b> Universal Crank Arm (For KG6 Ball Joint) Slot width 1/4" (6.2mm). For damper shafts: 3/8" to 11/16" dia. (10 to 18mm) or 3/8" to 9/16" sq. (10 to 14mm).			•	•	•								\$16.00
	<b>KH8**</b> Universal Crank Arm (For KG8 or KG10A Ball Joint) slot width 21/64" (8.2mm). For damper shafts: 3/8" to 11/16" dia. (10 to 18mm) or 3/8" to 9/16" sq. (10 to 14mm).	•	•	•	•	•								\$16.00
	<b>KH10</b> Universal Crank Arm Slot width 21/64" (8.2mm) For damper shafts 9/16" to 1" dia. (14 to 25 mm)	•	•	•	•	•								\$42.00
	<b>KH12</b> Universal Crank Arm Slot width 21/64" (8.2mm) For damper shafts 3/4" to 1" dia. (20 to 25 mm)	•	•	•	•	•								\$22.00
	<b>KG6</b> Ball joint (5/16" Dia. Rod) Zinc Plated			•	•	•								\$14.00
	<b>KG8</b> Ball joint (5/16" Dia. Rod, 90°) Galvanized Steel	•	•	•	•	•	•	•	•					\$18.00
	<b>KG10A</b> Ball joint for KH8 (3/8" Dia. Rod) Zinc Plated	•	•	•	•	•	•	•	•					\$20.00
	<b>SH8</b> Push rod for KG6 & KG8 Ball Joints (36", 5/16" Dia.)	•	•	•	•	•	•	•	•					\$22.00
	<b>SH10</b> Push rod for KG10 Ball Joints (36", 3/8" Dia.)	•	•	•	•	•	•	•	•					\$30.00
	<b>ZG-DC1</b> Damper clip for Damper Blade, 3.5 width	•	•	•	•	•	•	•	•					\$35.00
	<b>ZG-DC2</b> Damper clip for Damper Blade, 6.0 width	•	•	•	•	•	•	•	•					\$38.00

DAMPER ACCESSORIES

\*\*Universal crank arms are not designed to be directly attached to an actuator's universal clamp. They also cannot be modified for the same installation. Universal crank arms are to be mounted to a control shaft only. Crank arm adaptor kits can be found on the respective actuator pages.

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HOUSINGS	AFB AFX	AF	NFB NFX	LF	TF	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	LUB LUX	List Price
<p><b>ZS-T</b> Terminal Cover for NEMA 2 (-T Models)</p>							•	•	•				\$18.00
<p><b>ZS-100</b> Weather Shield - Galvaneal (13" L x 8" W x 6" D)</p>	•	•	•	•	•	•	•	•	•			•	\$134.00
<p><b>ZS-101</b> Base Plate for ZS-100</p>	•	•	•	•	•	•	•	•	•			•	\$30.00
<p><b>ZS-150</b> Weather Shield - Polycarbonate with Foam Seal (16" L x 5 1/4" W x 4" D)</p>	•	•	•	•	•	•	•	•	•			•	\$150.00
<p><b>ZS-260</b> Explosion Proof Housing</p>	•	•	•	•		•	•						\$2,216.00
<p><b>ZG-109</b> Right Angle Bracket for ZS-260</p>	•	•	•	•		•	•						\$106.00
<p><b>ZG-110</b> Stand-Off Bracket for ZS-260</p>	•	•	•	•		•	•						\$126.00
<p><b>ZS-300</b> NEMA 4X, 304 Stainless Steel Enclosure</p>	•	•	•	•		•	•						\$1,820.00
<p><b>ZS-300-1</b> ZS-300 without Brackets (17 1/4" L x 8 3/4" W x 5 1/2" D)</p>	•	•	•	•		•	•						\$1,722.00
<p><b>ZS-300-5</b> NEMA 4X, 316L Stainless Steel Enclosure</p>	•	•	•	•		•	•						\$2,200.00
<p><b>ZS-300-BK</b> ZS-300 Bracket Kit</p>	•	•	•	•		•	•						\$176.00
<p><b>ZS-300-C1</b> 1/2" Shaft Adaptor (Standard with ZS-300)</p>	•	•	•	•		•	•						\$270.00
<p><b>ZS-300-C2</b> 3/4" Shaft Adaptor</p>	•	•	•	•		•	•						\$280.00
<p><b>ZS-300-C3</b> 1" Shaft Adaptor</p>	•	•	•	•		•	•						\$402.00

DAMPER ACCESSORIES

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SHAFT ADAPTORS		AFB AFX	AF	NFB NFX	LF	TF	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	LUB LUX	List Price
	<b>AV6-20</b> 6.7" Shaft Extension fits ¼" to ¾" Diameter Shafts				●	●				●				\$44.00
	<b>AV8-25*</b> 9.8" Shaft Extension fits 5/16" to 1" Diameter Shafts	●	●	●	●		●	●	●					\$52.00
	<b>ZG-JSA-1</b> 1" Jackshaft Adaptor [11"]	●	●	●										\$172.00
	<b>ZG-JSA-2</b> 1 5/16" Jackshaft Adaptor [12"]	●	●	●										\$372.00
	<b>ZG-JSA-3</b> 1.05" Jackshaft Adaptor [12"]	●	●	●										\$306.00
	<b>ZG-NMSA-1</b> Shaft Extension for ½" Diameter Shafts [3.8"]							●	●					\$48.00
	<b>ZG-LMSA</b> Shaft Extension for ½" Diameter Shafts [3.8"]									●				\$62.00
	<b>ZG-LMSA-½"-5</b> Shaft Extension for ½" Diameter Shafts [5"]				●									\$54.00
	<b>ZG-LMSA-1</b> Shaft Extension for 3/8" Diameter Shafts [4"]				●					●				\$54.00

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

MISCELLANEOUS		AFB AFX	AF	NFB NFX	LF	TF	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	LUB LUX	List Price
	<b>AF-CC US</b> Conduit Connector		●											\$22.00
	<b>TF-CC US</b> Conduit Connector	●		●		●	●	●	●	●	●	●	●	\$12.00
	<b>AF-P</b> Anti-Rotation Bracket	●	●	●										\$8.00
	<b>LF-P</b> Anti-Rotation Bracket				●									\$8.00
	<b>TF-P</b> Anti-Rotation Bracket					●				●				\$6.00
	<b>Z-DS1</b> Rotary Support for Lateral Force Compensation										●	●		\$32.00
	<b>Z-KSA</b> 5/16" Shaft Clevis											●		\$38.00
	<b>Z-KSC</b> 3/8" Shaft Clevis										●			\$38.00
	<b>Tool-06</b> 8 mm and 10 mm Wrench	●	●	●	●	●		●	●	●				No Charge
	<b>Tool-07</b> 13 mm Wrench						●							No Charge

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DAMPER ACCESSORIES





AUXILIARY SWITCHES & POTENTIOMETERS		AFB AFX	AF	NFB NFX	LF	TF	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	LUB LUX	List Price
	<b>S1A</b> Auxiliary Switch, 1x SPDT, 3A Resistive (0.5A inductive) @ 250 VAC						•	•	•	•				\$74.00
	<b>S2A</b> Auxiliary Switch, 2x SPDT, 3A Resistive (0.5A inductive) @ 250 VAC						•	•	•	•				\$110.00
	<b>P370</b> Shaft Mount Auxiliary Switch, 1/2" Shaft	•	•	•	•	•	•	•	•	•	•	•	•	\$158.00
	<b>P140A GR</b> Feedback Potentiometer 140 Ω						•	•	•	•				\$122.00
	<b>P500A GR</b> Feedback Potentiometer 500 Ω						•	•	•	•				\$122.00
	<b>P1000A GR</b> Feedback Potentiometer 1000 Ω						•	•	•	•				\$122.00
	<b>P2800A GR</b> Feedback Potentiometer 2800 Ω						•	•	•	•				\$122.00
	<b>P5000A GR</b> Feedback Potentiometer 5000 Ω						•	•	•	•				\$122.00
	<b>P10000A GR</b> Feedback Potentiometer 10000 Ω						•	•	•	•				\$122.00
CONTROL & POSITIONING														
	<b>SGA24</b> (Surface Mount) Positioner for Remote Control (Proportional Models)	•	•	•	•	•	•	•	•	•	•	•	•	\$134.00
	<b>SGF24</b> (Flush Mount) Positioner for Remote Control (Proportional Models)	•	•	•	•	•	•	•	•	•	•	•	•	\$114.00
	<b>ZG-SGF</b> Mounting Plate for SGF	•	•	•	•	•	•	•	•	•	•	•	•	\$20.00
	<b>IRM-100</b> Input Rescaling Module (Proportional Models)	•	•	•	•	•	•	•	•	•	•	•	•	\$186.00
	<b>PTA-250</b> Pulse Width Modulation Interface (Proportional Models)	•	•	•	•	•	•	•	•	•	•	•	•	\$236.00
	<b>ADS-100</b> Analog to Digital Switch (Proportional Models)	•	•	•	•	•	•	•	•	•	•	•	•	\$200.00
	<b>ZG-R01</b> 4 to 20 mA Adaptor, 500 Ω, 1/2" W Resistor with 6" Pigtail Wires	•	•	•	•	•	•	•	•	•	•	•	•	\$16.00
	<b>ZG-R02</b> 50% Voltage Divider	•	•	•	•	•	•	•	•	•	•	•	•	\$26.00
	<b>ZG-R03</b> Resistor Kit for ...MFT95 actuators in a 0 to 135 Ω Control Application	•					•	•	•	•				\$16.00

DAMPER ACCESSORIES

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CONTROL & POSITIONING		AFB AFX	AF	NFB NFX	LF	TF	GMB GMX	AMB AMX	NMB NMX	LMB LMX	AHB AHX	LHB LHX	LUB LUX	List Price
	<b>ZG-R05</b> Resistor Kit for ...MFT95 actuators in a 4 to 20 mA Control Application	●					●	●	●	●				\$16.00
	<b>ZG-R06</b> Resistor Kit for ...MFT95 actuators in a Series 90 Control Application	●					●	●	●	●				\$16.00
MISCELLANEOUS														
	<b>PS-100</b> Actuator Power Supply Simulator	●	●	●	●	●	●	●	●	●	●	●	●	\$1,200.00
	<b>MFT-XFMR</b> Replacement Transformer for PS-100	●	●	●	●	●	●	●	●	●	●	●	●	\$66.00
	<b>NSV24 US</b> Battery Back-Up Module						●	●	●	●	●	●	●	\$692.00
	<b>NSV-BAT</b> 12V 1.2AH Battery (2 required)						●	●	●	●	●	●	●	\$106.00
	<b>ZG-HTR</b> Thermostat / 24 VAC Heater Kit		●											\$250.00
	<b>ZG-X40</b> 120 to 24 VAC, 40 VA Transformer	●	●	●	●	●	●	●	●	●	●	●	●	\$78.00
	<b>ZG-CBNS</b> Electrical Junction Box for AF and NF actuators*		●											\$88.00
	<b>ZG-CBLS</b> Electrical Junction Box for LF actuators				●									\$76.00

\* Excludes AF24-S US, AF120-S US, AF230-S US and NF24-S2 US due to the internal volume of the junction box, according to UL requirements.

MISCELLANEOUS	FSAF	FSNF	FSLF	List Price
<b>BAE165 US</b> 165°F electric thermal sensor. SPST, NC	●	●	●	\$16.00

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DAMPER ACCESSORIES

# 6

## PRESSURE INDEPENDENT CONTROL VALVES (PICCV™ & ePIV)

- Pressure independent valves compensate for pressure variations, performing a continual balancing function to maintain system performance at varying loads.
- Predictable flow throughout valve travel eliminates over-pumping and provides favorable energy savings.
- Equal percentage flow characteristic leads to system controllability.
- PICCV and ePIV prevent energizing additional chillers by maintaining desired Delta T.
- Constant flow performance significantly reduces actuator movement, providing less hunting and wear on the valve assembly.
- Pressure independent valves are selected based on coil flow rate and no  $C_v$  calculations are needed.

### Applications

Pressure independent valves directly control the water flow required by the coil and are not affected by pressure fluctuations in the system. The valves are selected based on the GPM requirements of the coil and no  $C_v$  calculations are needed. By precisely controlling the flow, the pressure independent valves eliminate the need for balancing valves, thus reducing the installation and balancing cost. By far, the biggest benefit for the owner comes in the form of energy savings by eliminating overflow thru the coil. Overflow wastes energy by over pumping and is the main cause of the low Delta T syndrome in chilled water systems.

The Pressure Independent Characterized Control Valve (PICCV) combines a differential pressure regulator with a 2-way control valve to supply a specific flow for each degree of ball opening—regardless of system pressure fluctuations. The valve performs the function of a balancing valve and control valve in one unit. Therefore, the flow characteristic and operation of the valve is not distorted in the system.

The ePIV directly measures flow by combining a magnetic flow meter and a 2-way control valve. The actuator has a powerful algorithm that modulates the control valve to maintain the flow setpoint set by the controller. The flow reading is reported back to the controller using a standard signal, and this value can be used by the Building Automation System to perform advanced control and energy strategies.

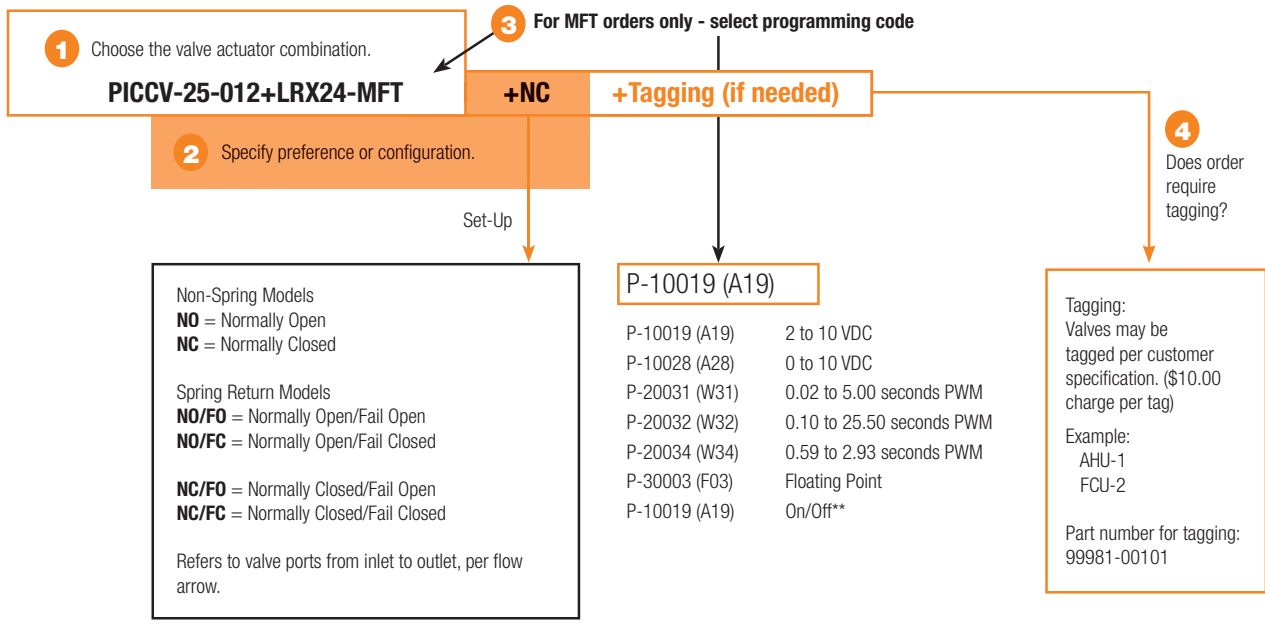
Pressure independent valves can be used to regulate flow through air handlers, heating and cooling coils, fan coil units, unit ventilators and VAV re-heat coils.



# Pressure Independent Characterized Control Valve™ Nomenclature

PICCV	25	-012	+LRX	24	-MFT	
<b>Pressure Independent Characterized Control Valve</b> 2-way Chrome Plated Brass Ball and Brass Stem	<b>Valve Size</b>	<b>Flow Rate</b>	<b>Actuator Type</b>	<b>Power Supply</b>	<b>Control</b>	
	25 = 1" 32 = 1¼" 40 = 1½" 50 = 2"	3 GPM Refer to table	Non-Spring Return LRB... LRX... ARX... Spring Return TF... LF... AF...	24 = 24 VAC/DC 120 = 120 VAC	-3 = Floating Point -MFT = Multi-Function Technology	S = Built-in Auxiliary Switch

## Ordering Example



**5** Complete Ordering Example: PICCV-25-012+LRX24-MFT+NC+A19

\*\* Wire for On/Off

# 6

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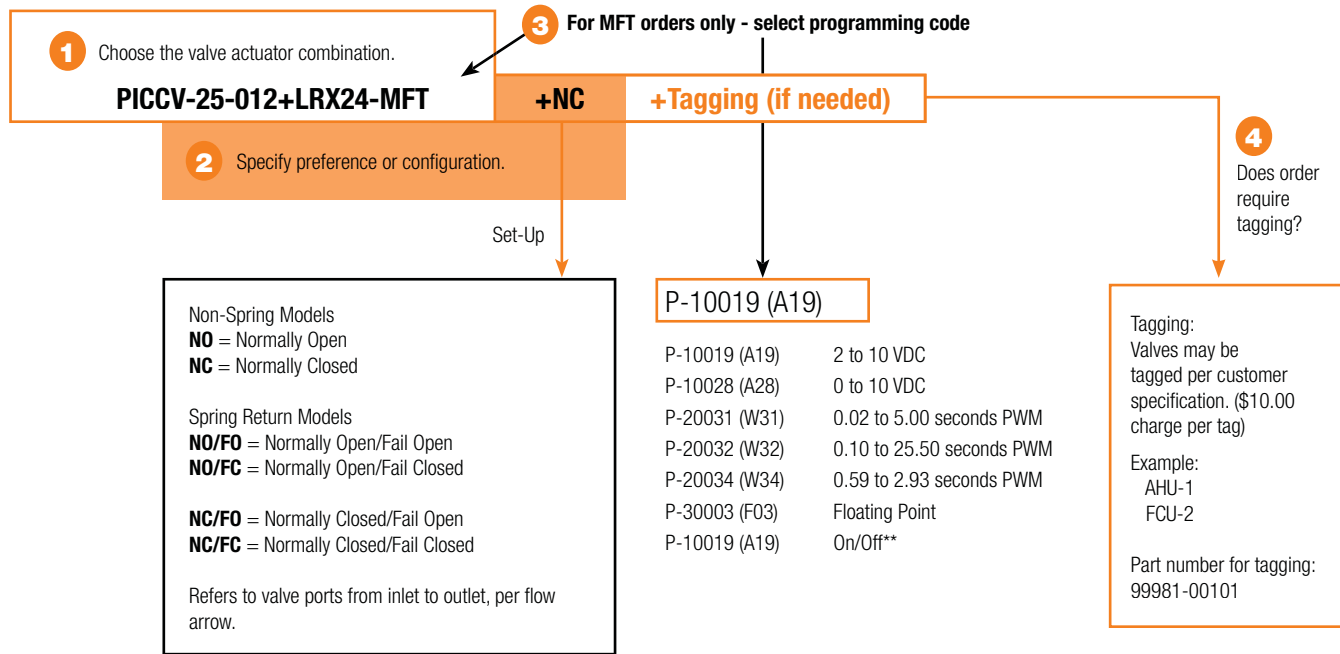
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## Ordering Example

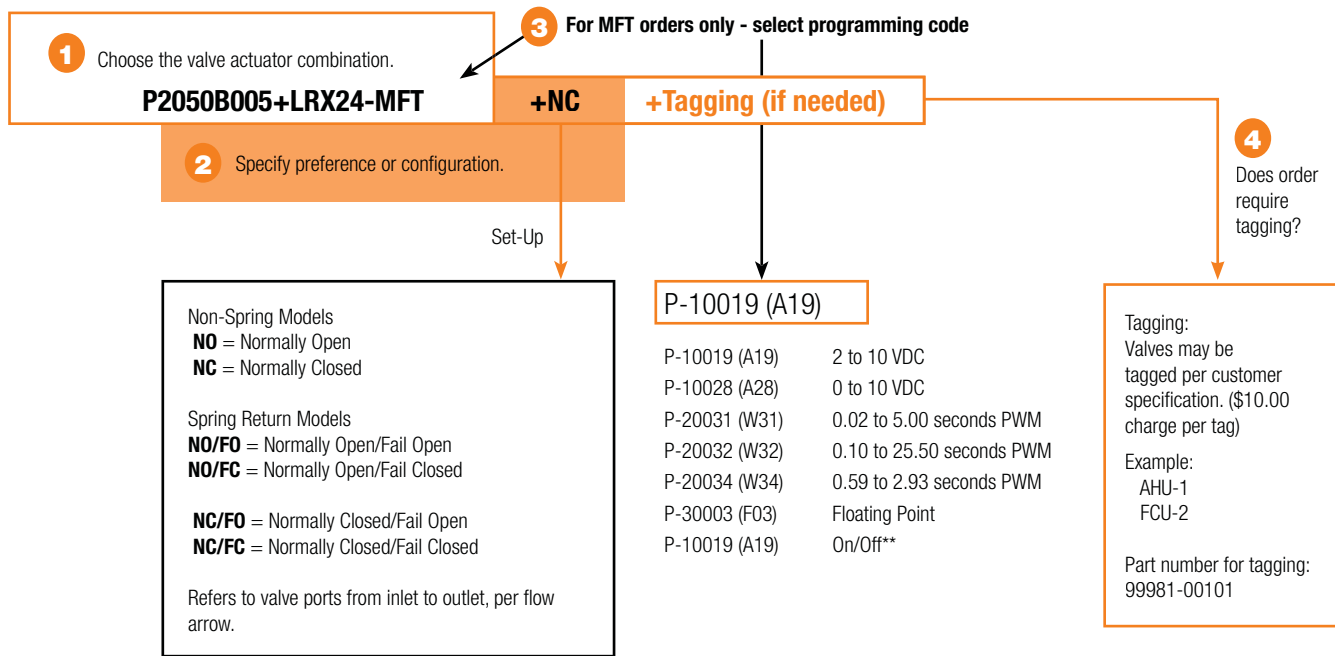


\*\* Wire for On/Off

# Pressure Independent Characterized Control Valve™ (½" and ¾") Nomenclature

P	2	050	B	005	LRX	24	-MFT
<b>Valve Type</b> P= Pressure Independent Characterized Control Valve	<b>Porting</b> 2 = Two Way	<b>Valve Body Size</b> 050 = ½" 075 = ¾"	<b>Body Type</b> B= Chrome Plated	<b>Flow Rate</b> 005 = .50 GPM 010 = 1 GPM 015 = 1.5 GPM 020 = 2 GPM 025 = 2.5 GPM 030 = 3 GPM 035 = 3.5 GPM 040 = 4 GPM 045 = 4.5 GPM 050 = 5 GPM 055 = 5.5 GPM 060 = 6 GPM 065 = 6.5 GPM 070 = 7 GPM 075 = 7.5 GPM 080 = 8 GPM 085 = 8.5 GPM 090 = 9 GPM 095 = 9.5 GPM 100 = 10 GPM	<b>Actuator Type</b> Non-Spring Return LRB... LRX... Spring Return TF... LF...	<b>Power Supply</b> 24 = 24 VAC/DC 120 = 120 VAC	<b>Control</b> -3 = Floating Point -MFT = Multi-Function Technology

## Ordering Example



\*\* Wire for On/Off





# Control Valve Product Range

## Pressure Independent Characterized Control Valve Product Range P2..., 2-way



Equal percentage characteristic



GPM**	Valve Nominal Size		Type	Suitable Actuators				
	Inches	DN [mm]		2-way NPT	Spring Return	Non-Spring Return		
0.5	½	15	P2050B005	TF24-MFT US	LF24-MFT US	LRB24-3	LRX24-MFT	LRCB24-3 Heat Pump Only
1	½	15	P2050B010					
1.5	½	15	P2050B015					
2	½	15	P2050B020					
3	½	15	P2050B030					
4	½	15	P2050B040	AFR24-MFT	ARX24-MFT			
5	½	15	P2050B050					
6	¾	20	P2075B060					
7	¾	20	P2075B070					
8	¾	20	P2075B080					
9	¾	20	P2075B090					
10	¾	20	P2075B100					
12	1	25	PICCV-25-012					
14	1	25	PICCV-25-014					
16	1	25	PICCV-25-016					
18	1	25	PICCV-25-018					
18	1¼	32	PICCV-32-018					
20	1¼	32	PICCV-32-020					
22	1¼	32	PICCV-32-022					
24	1¼	32	PICCV-32-024					
26	1¼	32	PICCV-32-026					
26	1½	40	PICCV-40-026					
28	1½	40	PICCV-40-028					
30	1½	40	PICCV-40-030					
33	1½	40	PICCV-40-033					
33	2	50	PICCV-50-033					
36	2	50	PICCV-50-036					
40	2	50	PICCV-50-040					
44	2	50	PICCV-50-044					
48	2	50	PICCV-50-048					
52	2	50	PICCV-50-052					
56	2	50	PICCV-50-056					
60	2	50	PICCV-50-060					
65	2	50	PICCV-50-065					
70	2	50	PICCV-50-070					
75	2	50	PICCV-50-075					
80	2	50	PICCV-50-080					
90	2	50	PICCV-50-090					
100	2	50	PICCV-50-100					

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### Applications

Water-side control of heating and cooling systems, for AHUs, re-heat coils, fan coil units, unit ventilators and heat pumps.

### Mode of Operation

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

### Product Features

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

### Actuator Specifications

Control type	Floating Point, Non-Spring Multi-Function Technology (MFT) Non-Spring and Spring Return
Manual override	(LRB, LRX, LRC, AF, ARX)
Electrical connection	3 ft [1m] cable with ½" conduit fitting (additional cable lengths are available)

### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	equal percentage
Controllable flow range	75°
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials	
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	chrome plated brass
Seat	fiberglass reinforced Teflon® PTFE
Set O-ring	Viton®
Characterizing disc	
½" & ¾"	brass
1"-2"	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Diaphragm	
½" & ¾"	silicone and Nomex
1"-2"	polyester reinforced silicone
Regulator components	stainless steel/brass/Delrin 500AF
Spring	stainless steel
Pressure rating	
600 psi	½", ¾", 1"
400 psi	1¼", 1½", 2"
Media temp range	0°F to 212°F [-18°C to 100°C]
Close off pressure	200 psi
Maximum differential pressure across valve (range)	5 to 50 psid
Leakage	ANSI Class IV (0.01% of rated valve capacity at 50 psi differential)

\*\*Reference the following pages for all flow rates available.





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# Pressure Independent Characterized Control Valves

## P2 Series Pressure Independent Characterized Control Valves



### SET-UP

		2-WAY VALVE			
		SPECIFY UPON ORDERING			
<b>NON-SPRING RETURN</b> Stays in Last Position	<b>LRB24-3</b> Floating type actuators	Power to pin 2 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "1" position-to reverse select the "0" position.			
	<b>LRX24-MFT</b> <b>ARX24-MFT</b> MFT type actuators†	<b>NC:</b> Valve Closed-will open as voltage increases. Actuator switch on Y2.	<b>NO:</b> Valve Open-will close as voltage increases. Actuator switch on Y1.		
<b>SPRING RETURN</b> Note Fail Position	<b>LF24-MFT US</b> <b>AFRX24-MFT</b> MFT type actuators†	<b>NC/FO Valve:</b> Valve Closed-will open as voltage increases. Actuator switch on CW. Spring Action: Will spring open upon power loss.	<b>NC/FC Valve:</b> Valve Closed-will open as voltage increases. Actuator switch on CW. Spring Action: Will spring closed upon power loss.	<b>NO/FC Valve:</b> Valve Open-will close as voltage increases. Actuator switch on CCW. Spring Action: Will spring closed upon power loss.	<b>NO/FO Valve:</b> Valve Open-will close as voltage increases. Actuator switch on CCW. Spring Action: Will spring open upon power loss.
	<b>TF24-MFT US</b>	<b>NC/FO Valve:</b> Valve Closed-will open as voltage increases. Switch on  (arrow setting) Spring Action: Will spring open upon power loss.	<b>NC/FC Valve:</b> Valve Closed-will open as voltage increases. Switch on  (arrow setting) Spring Action: Will spring closed upon power loss.	<b>NO/FC Valve:</b> Valve Open-will close as voltage increases. Switch on  (arrow setting) Spring Action: Will spring closed upon power loss.	<b>NO/FO Valve:</b> Valve Open-will close as voltage increases. Switch on  (arrow setting) Spring Action: Will spring open upon power loss.

† The design flow rate of PICCVs with MFT actuators are dependent on their Minimum and Maximum Percentages of rotation. Actuators must be re-programmed for different Minimum and Maximum Settings if actuator set-ups must be changed. Please refer to PICCV online technical documentation, MFT Adjustment Tables, for re-programming the settings.

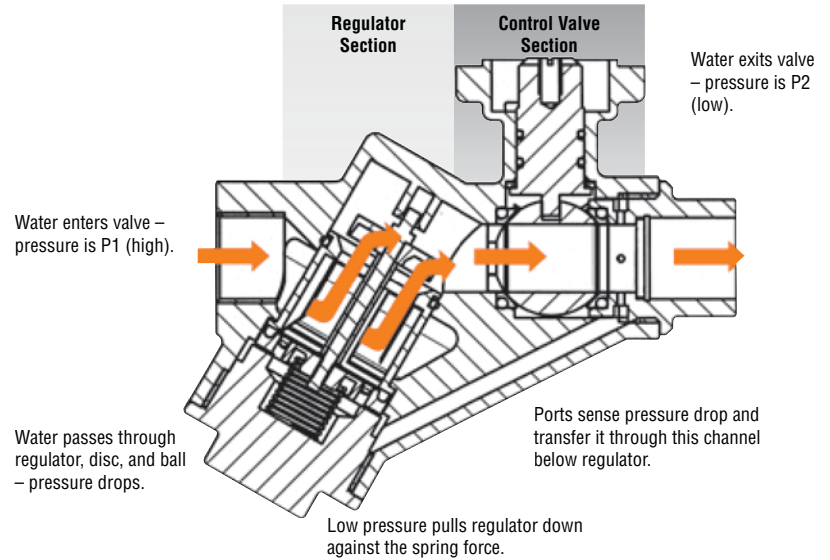
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### FLOW PATTERN

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

The amount of flow that passes through the valve is controlled by the use of a pressure regulator that moves according to the change in pressure above and below it.

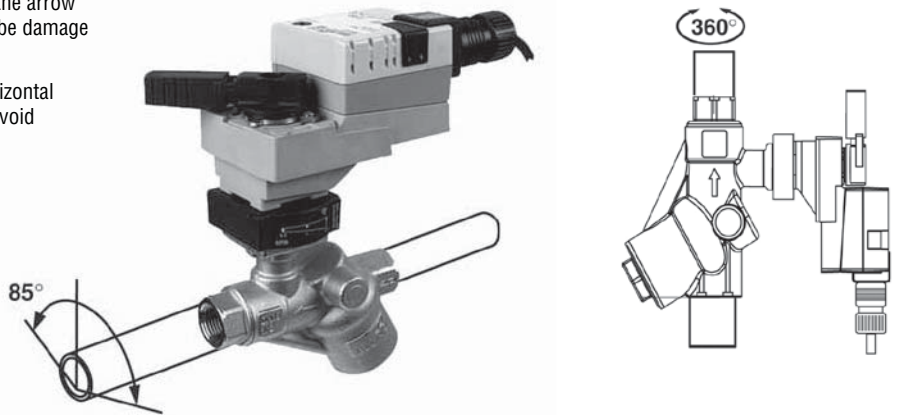
All pressure changes are absorbed by the pressure regulator allowing the differential pressure to be held constant over the control valve section thereby giving the same flow.



### INSTALLATION

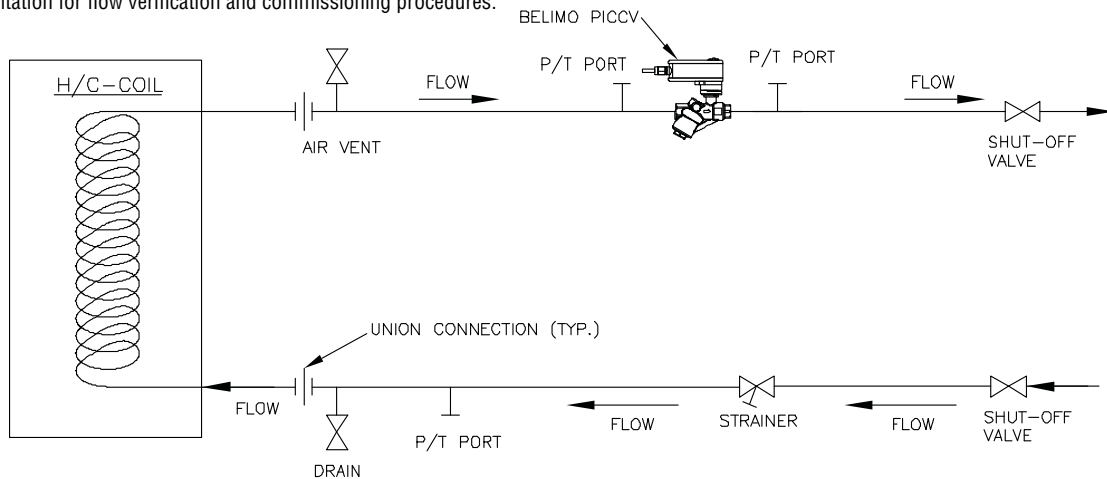
PICCVs shall be installed, with flow in the direction of the arrow on the valve body. If installed backwards, there could be damage to either the diaphragm or the regulator top.

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



### PIPING

The PICCVs are recommended to be installed on the return side of the coil. This diagram is for typical applications only. Consult engineering specification and drawings for particular circumstances. P/T ports are recommended on either side of the valve and the supply side of the heat transfer device to allow for pressure/flow measurement/calculation. Refer to Belimo documentation for flow verification and commissioning procedures.



# P2 Series Pressure Independent Characterized Control Valve with Floating Point and MFT, Non-Spring Return Actuator



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

## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	equal percentage
Controllable flow range	75°
Sizes	½", ¾", 1"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	chrome plated brass
Seat	fiberglass reinforced Teflon® PTFE
Seat O-rings	Viton®
Characterizing disc	brass (½" and ¾"), TEFZEL® (1")
Packing	2 EPDM O-rings, lubricated
Diaphragm	silicone and Nomex (½" and ¾"), polyester reinforced silicone (1")
Regular components	stainless steel, brass, Delrin 500AF
Spring	stainless steel
Body pressure rating	600 psi (½", ¾", 1")
Media temp. range	0°F to 212°F [-18°C to +100°C]
Differential pressure range (ΔP)	5 to 50 psid
Leakage	ANSI Class IV (0.01% of rated valve capacity at 50 psi differential)



## Non-Spring Return Actuators



ACTUATOR PART #	LRB24-3	LRX24-MFT
Control type	Floating Point	Proportional/MFT
Manual override	•	•
Running time	95 seconds (varies in the flow setting)	100 seconds
Noise level	<35 dB(A)	<35 dB(A)
<b>ELECTRICAL CONNECTION:</b>		
3 ft cable, ½" conduit fitting	•	•

PICCV Model #	Flow Rate		Valve Nominal Size			Close-off psi		
	GPM	Liter/Sec	Inches	DN mm				
P2050B005	0.5	0.03	½	15	200		\$462.00	\$634.00
P2050B010	1	0.06	½	15	200		\$462.00	\$634.00
P2050B015	1.5	0.09	½	15	200		\$462.00	\$634.00
P2050B020	2	0.13	½	15	200		\$462.00	\$634.00
P2050B025	2.5	0.16	½	15	200		\$462.00	\$634.00
P2050B030	3	0.19	½	15	200		\$462.00	\$634.00
P2050B035	3.5	0.22	½	15	200		\$462.00	\$634.00
P2050B040	4	0.25	½	15	200		\$462.00	\$634.00
P2050B045	4.5	0.28	½	15	200		\$462.00	\$634.00
P2050B050	5	0.32	½	15	200		\$462.00	\$634.00
P2050B055	5.5	0.35	½	15	200		\$462.00	\$634.00
P2075B060	6	0.38	¾	20	200		\$482.00	\$656.00
P2075B065	6.5	0.41	¾	20	200		\$482.00	\$656.00
P2075B070	7	0.44	¾	20	200		\$482.00	\$656.00
P2075B075	7.5	0.47	¾	20	200		\$482.00	\$656.00
P2075B080	8	0.5	¾	20	200		\$482.00	\$656.00
P2075B085	8.5	0.54	¾	20	200		\$482.00	\$656.00
P2075B090	9	0.57	¾	20	200		\$482.00	\$656.00
P2075B095	9.5	0.6	¾	20	200		\$482.00	\$656.00
P2075B100	10	0.63	¾	20	200		\$482.00	\$656.00
PICCV-25-011	11	0.69	1	25	200		\$540.00	\$744.00
PICCV-25-012	12	0.76	1	25	200		\$540.00	\$744.00
PICCV-25-013	13	0.82	1	25	200		\$540.00	\$744.00
PICCV-25-014	14	0.88	1	25	200		\$540.00	\$744.00
PICCV-25-015	15	0.95	1	25	200		\$540.00	\$744.00
PICCV-25-016	16	1.01	1	25	200		\$540.00	\$744.00
PICCV-25-017	17	1.07	1	25	200		\$540.00	\$744.00
PICCV-25-018	18	1.14	1	25	200		\$540.00	\$744.00
PICCV-25-019	19	1.2	1	25	200		\$540.00	\$744.00

OPTIONS (ADD TO LIST PRICE)	LRB24-3-S	LRX24-3-S	LRX120-3
Built-in auxiliary switch (-S)	\$66.00	\$66.00	
120 VAC			\$30.00

½" body has two different flow capacities (.50 GPM to 2.5 GPM) (3 GPM to 5.5 GPM)  
 1" body has two different flow capacities (11 GPM to 16 GPM) (17 GPM to 19 GPM)

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### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	equal percentage
Controllable flow range	75°
Sizes	1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	chrome plated brass
Seat	fiberglass reinforced Teflon® PTFE
Seat O-rings	Viton®
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Diaphragm	polyester reinforced silicone (1¼" - 2")
Regular components	stainless steel, brass, Delrin 500AF
Spring	stainless steel
Body pressure rating	400 psi (1¼", 1½", 2")
Media temp. range	0°F to 212°F [-18°C to +100°C]
Differential pressure range (ΔP)	5 to 50 psid
Leakage	ANSI Class IV (0.01% of rated valve capacity at 50 psi differential)



### Non-Spring Return Actuators



<b>ACTUATOR PART #</b>	<b>ARX24-MFT</b>
Control type	Proportional/MFT
Manual override	•
Running time	100 seconds
Noise level	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>	
3 ft cable, ½" conduit fitting	•

PICCV Model #	Flow Rate		Valve Nominal Size			Close-off psi	
	GPM	Liter/Sec	Inches	DN mm			
PICCV-32-018	18	1.14	1¼	32	200		\$1,362.00
PICCV-32-019	19	1.2	1¼	32	200		\$1,362.00
PICCV-32-020	20	1.26	1¼	32	200		\$1,362.00
PICCV-32-021	21	1.32	1¼	32	200		\$1,362.00
PICCV-32-022	22	1.39	1¼	32	200		\$1,362.00
PICCV-32-023	23	1.45	1¼	32	200		\$1,362.00
PICCV-32-024	24	1.51	1¼	32	200		\$1,362.00
PICCV-32-025	25	1.58	1¼	32	200		\$1,362.00
PICCV-32-026	26	1.64	1¼	32	200		\$1,362.00
PICCV-40-026	26	1.64	1½	40	200		\$1,462.00
PICCV-40-027	27	1.7	1½	40	200		\$1,462.00
PICCV-40-028	28	1.77	1½	40	200		\$1,462.00
PICCV-40-029	29	1.83	1½	40	200		\$1,462.00
PICCV-40-030	30	1.89	1½	40	200		\$1,462.00
PICCV-40-031	31	1.96	1½	40	200		\$1,462.00
PICCV-40-032	32	2.01	1½	40	200		\$1,462.00
PICCV-40-033	33	2.08	1½	40	200		\$1,462.00
PICCV-50-033	33	2.08	2	50	200		\$1,648.00
PICCV-50-034	34	2.15	2	50	200		\$1,648.00
PICCV-50-035	35	2.21	2	50	200		\$1,648.00
PICCV-50-036	36	2.27	2	50	200		\$1,648.00
PICCV-50-037	37	2.33	2	50	200		\$1,648.00
PICCV-50-038	38	2.4	2	50	200		\$1,648.00
PICCV-50-039	39	2.46	2	50	200		\$1,648.00
PICCV-50-040	40	2.52	2	50	200		\$1,648.00
PICCV-50-044	44	2.78	2	50	200		\$4,350.00
PICCV-50-048	48	3.03	2	50	200		\$4,350.00
PICCV-50-052	52	3.28	2	50	200		\$4,350.00
PICCV-50-056	56	3.53	2	50	200		\$4,350.00
PICCV-50-060	60	3.79	2	50	200		\$4,350.00
PICCV-50-065	65	4.1	2	50	200		\$4,350.00
PICCV-50-070	70	4.42	2	50	200		\$4,350.00
PICCV-50-075	75	4.73	2	50	200		\$4,350.00
PICCV-50-080	80	5.05	2	50	200		\$4,350.00
PICCV-50-090	90	5.68	2	50	200		\$4,350.00
PICCV-50-100	100	6.31	2	50	200		\$4,350.00

1½" body has different flow capabilities (26 GPM to 30 GPM) (31 GPM to 33 GPM).

2" has two bodies - larger body has two different flow capacities (44 GPM to 80 GPM) (90 GPM to 100 GPM).

# P2 Series Pressure Independent Characterized Control Valve with MFT, Non-Spring Return Actuator



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

MULTI-FUNCTION TECHNOLOGY					
Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10019	A19	2-10 VDC	100 seconds	2-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10118	AAJ	2-6 VDC	100 seconds	2-10 VDC	No Charge
P-10119	AAK	6-10 VDC	100 seconds	2-10 VDC	No Charge
P-10137	AD5	2-5 VDC	100 seconds	2-10 VDC	No Charge
P-20031	W31	0.02-5.00 seconds PWM	100 seconds	2-10 VDC	No Charge
P-20032	W32	0.10-25.5 seconds PWM	100 seconds	2-10 VDC	No Charge
P-20034	W34	0.59-2.93 seconds PWM	100 seconds	2-10 VDC	No Charge
P-30003	F03	Floating Point	100 seconds	2-10 VDC	No Charge
P-10019†	A19	On/Off	100 seconds	2-10 VDC	No Charge

Example: LRX24-MFT is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Note: Most popular configurations available at no additional cost. All other configurations carry a \$34.00 list price.

† Wire for On/Off. Refer to PICCV technical documentation for wiring diagram.

PICCV

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### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	equal percentage
Controllable flow range	75°
Sizes	½", ¾", 1", 1¼"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	chrome plated brass
Seats	fiberglass reinforced Teflon® PTFE
Seat O-rings	Viton®
Characterizing disc	brass (½" and ¾"), TEFZEL® (1" and 1¼")
Packing	2 EPDM O-rings, lubricated
Diaphragm	silicone and Nomex (½" and ¾"), polyester reinforced silicone (1" and 1¼")
Regular components	stainless steel, brass, Delrin 500AF
Spring	stainless steel
Body pressure rating	600 psi (½", ¾", 1") 400 psi (1¼")
Media temp. range	0°F to 212°F [-18°C to +100°C]
Differential pressure range (ΔP)	5 to 50 psid
Leakage	ANSI Class IV (0.01% of rated valve capacity at 50 psi differential)



### Spring Return Actuators



ACTUATOR PART #	TF24-MFT US	LF24-MFT US	AFRX24-MFT
Control type	Proportional/MFT	Proportional/MFT	Proportional/MFT
Manual override			•
Running time	100 seconds	100 seconds	100 seconds
Noise level	<35 dB(A)	<35 dB(A)	≤40 dB(A) motor @ 100 seconds ≤62 dB(A) spring return

### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting

PICCV Model #	Flow Rate		Valve Nominal Size			Close-off psi			
	GPM	Liter/Sec	Inches	DN mm					
P2050B005*	0.5	0.03	½	15	200		\$736.00		\$780.00
P2050B010*	1	0.06	½	15	200		\$736.00		\$780.00
P2050B015*	1.5	0.09	½	15	200		\$736.00		\$780.00
P2050B020*	2	0.13	½	15	200		\$736.00		\$780.00
P2050B025*	2.5	0.16	½	15	200		\$736.00		\$780.00
P2050B030*	3	0.19	½	15	200		\$736.00		\$780.00
P2050B035*	3.5	0.22	½	15	200		\$736.00		\$780.00
P2050B040*	4	0.25	½	15	200		\$736.00		\$780.00
P2050B045*	4.5	0.28	½	15	200		\$736.00		\$780.00
P2050B050*	5	0.32	½	15	200		\$736.00		\$780.00
P2050B055*	5.5	0.35	½	15	200		\$736.00		\$780.00
P2075B060	6	0.38	¾	20	200				\$796.00
P2075B065	6.5	0.41	¾	20	200				\$796.00
P2075B070	7	0.44	¾	20	200				\$796.00
P2075B075	7.5	0.47	¾	20	200				\$796.00
P2075B080	8	0.5	¾	20	200				\$796.00
P2075B085	8.5	0.54	¾	20	200				\$796.00
P2075B090	9	0.57	¾	20	200				\$796.00
P2075B095	9.5	0.6	¾	20	200				\$796.00
P2075B100	10	0.63	¾	20	200				\$796.00
PICCV-25-011	11	0.69	1	25	200				\$868.00
PICCV-25-012	12	0.76	1	25	200				\$868.00
PICCV-25-013	13	0.82	1	25	200				\$868.00
PICCV-25-014	14	0.88	1	25	200				\$868.00
PICCV-25-015	15	0.95	1	25	200				\$868.00
PICCV-25-016	16	1.01	1	25	200				\$868.00
PICCV-25-017	17	1.07	1	25	200				\$868.00
PICCV-25-018	18	1.14	1	25	200				\$868.00
PICCV-25-019	19	1.2	1	25	200				\$868.00
PICCV-32-018	18	1.14	1¼	32	200				\$1,508.00
PICCV-32-019	19	1.2	1¼	32	200				\$1,508.00
PICCV-32-020	20	1.26	1¼	32	200				\$1,508.00
PICCV-32-021	21	1.32	1¼	32	200				\$1,508.00
PICCV-32-022	22	1.39	1¼	32	200				\$1,508.00
PICCV-32-023	23	1.45	1¼	32	200				\$1,508.00
PICCV-32-024	24	1.51	1¼	32	200				\$1,508.00
PICCV-32-025	25	1.58	1¼	32	200				\$1,508.00
PICCV-32-026	26	1.64	1¼	32	200				\$1,508.00

### OPTIONS (ADD TO LIST PRICE)

Built-in auxiliary switch (-S)		LF24-MFT-S US	AFRX24-MFT-S
		\$54.00	\$86.00

½" body has two different flow capacities (.50 GPM to 2.5 GPM) (3 GPM to 5.5 GPM)

1" body has two different flow capacities (11 GPM to 16 GPM) (17 GPM to 19 GPM)

# P2 Series Pressure Independent Characterized Control Valve with MFT, Spring Return Actuator



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

## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	equal percentage
Controllable flow range	75°
Sizes	1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	chrome plated brass
Seat	fiberglass reinforced Teflon® PTFE
Seat O-rings	Viton®
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Diaphragm	polyester reinforced silicone
Regular components	stainless steel, brass, Delrin 500AF
Spring	stainless steel
Body pressure rating	400 psi (1¼", 1½", 2")
Media temp. range	0°F to 212°F [-18°C to +100°C]
Differential pressure range (ΔP)	5 to 50 psid
Leakage	ANSI Class IV (0.01% of rated valve capacity at 50 psi differential)



## Spring Return Actuators



## ACTUATOR PART #

AFRX24-MFT

Control type	Proportional/MFT
Manual override	•
Running time	100 seconds
Noise level	≤40 dB(A) motor @ 100 seconds ≤62 dB(A) spring return

## ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting

PICCV Model #	Flow Rate		Valve Nominal Size		Close-off psi	
	GPM	Liter/Sec	Inches	DN mm		
PICCV-40-026	26	1.64	1½	40	200	\$1,660.00
PICCV-40-027	27	1.7	1½	40	200	\$1,660.00
PICCV-40-028	28	1.77	1½	40	200	\$1,660.00
PICCV-40-029	29	1.83	1½	40	200	\$1,660.00
PICCV-40-030	30	1.89	1½	40	200	\$1,660.00
PICCV-40-031	31	1.96	1½	40	200	\$1,660.00
PICCV-40-032	32	2.01	1½	40	200	\$1,660.00
PICCV-40-033	33	2.08	1½	40	200	\$1,660.00
PICCV-50-033	33	2.08	2	50	200	\$1,808.00
PICCV-50-034	34	2.15	2	50	200	\$1,808.00
PICCV-50-035	35	2.21	2	50	200	\$1,808.00
PICCV-50-036	36	2.27	2	50	200	\$1,808.00
PICCV-50-037	37	2.33	2	50	200	\$1,808.00
PICCV-50-038	38	2.4	2	50	200	\$1,808.00
PICCV-50-039	39	2.46	2	50	200	\$1,808.00
PICCV-50-040	40	2.52	2	50	200	\$1,808.00
PICCV-50-044	44	2.78	2	50	200	\$4,442.00
PICCV-50-048	48	3.03	2	50	200	\$4,442.00
PICCV-50-052	52	3.28	2	50	200	\$4,442.00
PICCV-50-056	56	3.53	2	50	200	\$4,442.00
PICCV-50-060	60	3.79	2	50	200	\$4,442.00
PICCV-50-065	65	4.1	2	50	200	\$4,442.00
PICCV-50-070	70	4.42	2	50	200	\$4,442.00
PICCV-50-075	75	4.73	2	50	200	\$4,442.00
PICCV-50-080	80	5.05	2	50	200	\$4,442.00
PICCV-50-090	90	5.68	2	50	200	\$4,442.00
PICCV-50-100	100	6.31	2	50	200	\$4,442.00

## OPTIONS (ADD TO LIST PRICE)

Built-in auxiliary switch (-S)	AFRX24-MFT-S	\$86.00
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1½" body has different flow capabilities (26 GPM to 30 GPM) (31 GPM to 33 GPM).  
2" has two bodies - larger body has two different flow capacities (44 GPM to 80 GPM) (90 GPM to 100 GPM).



MULTI-FUNCTION TECHNOLOGY					
Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10019	A19	2-10 VDC	100 seconds	2-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10118	AAJ	2-6 VDC	100 seconds	2-10 VDC	No Charge
P-10119	AAK	6-10 VDC	100 seconds	2-10 VDC	No Charge
P-10137	AD5	2-5 VDC	100 seconds	2-10 VDC	No Charge
P-20031	W31	0.02-5.00 seconds PWM	100 seconds	2-10 VDC	No Charge
P-20032	W32	0.10-25.5 seconds PWM	100 seconds	2-10 VDC	No Charge
P-20034	W34	0.59-2.93 seconds PWM	100 seconds	2-10 VDC	No Charge
P-30003	F03	Floating Pt.	100 seconds	2-10 VDC	No Charge
P-10019†	A19	On/Off	100 seconds	2-10 VDC	No Charge

Example: LF24-MFT US is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Note: Most popular configurations available at no additional cost. All other configurations carry a \$34.00 list price.

† Wire for On/Off. Refer to PICCV technical documentation for wiring diagram.

# Optimize Your Heat Pump Application

by Using a Pressure Independent Characterized Control Valve

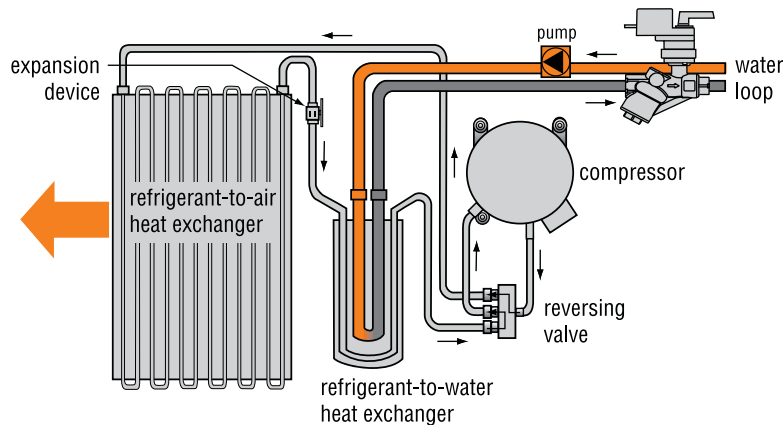
## What are the benefits?

A balanced system is achieved without the need for a balancer to manually balance each circuit. Because the system is dynamic and the PICCV performs dynamic balancing, Differential Pressures are no longer an issue to be concerned with. The PICCV will maintain a constant flow at part load and during morning warm-up when all loops become critical. With the PICCV, each terminal gets the required flow, no over-flow or under-flow at this critical time. The PICCV allows a mechanic to easily commission additional circuits after the initial system is up and running, again thanks to dynamic balancing capability. The PICCV is available in flow rates from .5 to 100 GPM. Choosing the right PICCV is as easy as determining the appropriate flow for your heat pump and then choosing the valve that satisfies the flow requirement.

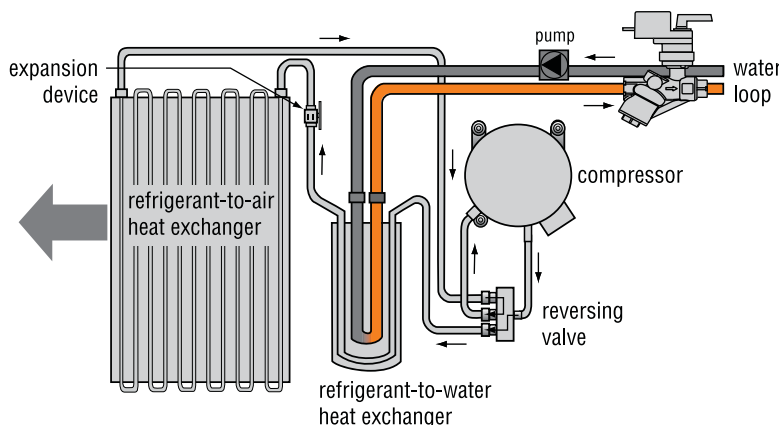
## How does it work?

Keep with the same idea of a conventional heat pump system, then add the Belimo PICCV (2-way Pressure Independent Characterized Control Valve). Think savings, and not necessarily first cost of equipment. Add a VFD (with its known and accepted benefits) and a Belimo PICCV as your flow control valve, and you have now optimized your system flow for very little additional cost.

### HEAT PUMP IN HEATING MODE



### HEAT PUMP IN COOLING MODE



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### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	equal percentage
Controllable flow range	75°
Sizes	½", ¾", 1"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	chrome plated brass
Seats	fiberglass reinforced Teflon® PTFE
Seat O-rings	Viton®
Characterizing disc	brass (½" and ¾"), TEFZEL® (1")
Packing	2 EPDM O-rings, lubricated
Diaphragm	silicone and Nomex
Regular components	stainless steel, brass, Delrin 500AF
Spring	stainless steel
Body pressure rating	600 psi (½", ¾", 1")
Media temp. range	0°F to 212°F [-18°C to +100°C]
Differential pressure range (ΔP)	5 to 50 psid
Leakage	ANSI Class IV (0.01% of rated valve capacity at 50 psi differential)



### Non-Spring Return Actuator



<b>ACTUATOR PART #</b>	<b>LRCB24-3</b>
Control type	On/Off
Manual override	•
Running time	40 seconds
Noise level	<35 dB(A)
<b>ELECTRICAL CONNECTION:</b>	
3 ft cable, ½" conduit fitting	•

PICCV Model #	Flow Rate		Valve Nominal Size			Close-off psi	
	GPM	Liter/Sec	Inches	DN mm			
P2050B005	0.5	0.03	½	15	200		\$416.00
P2050B010	1	0.06	½	15	200		\$416.00
P2050B015	1.5	0.09	½	15	200		\$416.00
P2050B020	2	0.13	½	15	200		\$416.00
P2050B025	2.5	0.16	½	15	200		\$416.00
P2050B030	3	0.19	½	15	200		\$416.00
P2050B035	3.5	0.22	½	15	200		\$416.00
P2050B040	4	0.25	½	15	200		\$416.00
P2050B045	4.5	0.28	½	15	200		\$416.00
P2050B050	5	0.32	½	15	200		\$416.00
P2050B055	5.5	0.35	½	15	200		\$416.00
P2075B060	6	0.38	¾	20	200		\$436.00
P2075B065	6.5	0.41	¾	20	200		\$436.00
P2075B070	7	0.44	¾	20	200		\$436.00
P2075B075	7.5	0.47	¾	20	200		\$436.00
P2075B080	8	0.5	¾	20	200		\$436.00
P2075B085	8.5	0.54	¾	20	200		\$436.00
P2075B090	9	0.57	¾	20	200		\$436.00
P2075B095	9.5	0.6	¾	20	200		\$436.00
P2075B100	10	0.63	¾	20	200		\$436.00
PICCV-25-011	11	0.69	1	25	200		\$562.00
PICCV-25-012	12	0.76	1	25	200		\$562.00
PICCV-25-013	13	0.82	1	25	200		\$562.00
PICCV-25-014	14	0.88	1	25	200		\$562.00
PICCV-25-015	15	0.95	1	25	200		\$562.00
PICCV-25-016	16	1.01	1	25	200		\$562.00
PICCV-25-017	17	1.07	1	25	200		\$562.00
PICCV-25-018	18	1.14	1	25	200		\$562.00
PICCV-25-019	19	1.2	1	25	200		\$562.00

<b>OPTIONS (ADD TO LIST PRICE)</b>	<b>LRCB24-3-S</b>
Built-in auxiliary switch (-S)	\$66.00

½" body has two different flow capacities (.50 GPM to 2.5 GPM) (3 GPM to 5.5 GPM)  
 1" body has two different flow capacities (11 GPM to 16 GPM) (17 GPM to 19 GPM)

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PICCV

# LR Series Valve Actuator

Direct Coupled Non-Spring Valve Actuator, 45 in-lb Minimum Torque



## Actuator Specifications

Torque	45 in-lb [5 Nm]
Angle of Rotation	max. 95, adjustable with mechanical stop electronically variable
Fits Shaft Diameter	N/A
Position Indication	reflective visual Indicator (snap-on)
Manual Override	external push-button
Direction of Rotation	reversible with switch
Dimensions	6.18" x 2.6" x 2.34" [157 x 66 x 59.4 mm]
Electrical Connection	18 GA plenum rated cable, 1/2" conduit fitting
Overload Protection	electronic throughout rotation
Housing	NEMA 2/IP54
Agency Listings	cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CSA C22.2 No. 24-93, CE acc. to 2006/95/EC and 89/336/EEC

◆ Variable with MFT



LRX24-3

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

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



All LR Actuators have BDCM



## Non-Spring Return Actuator

Model	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Cable Length	Re-order Number	List Price ‡
<b>CUSTOMIZE PRODUCTS</b>								
LRX24-3	On/Off, Floating Point	Add on	24 VAC/DC	95	2	10 ft.	LR000 RC3 000	\$228.00
LRX24-3	On/Off, Floating Point	Add on	24 VAC/DC	95	2	16 ft.	LR000 RC5 000	\$248.00
LRX24-3-S	On/Off, Floating Point	Built-in	24 VAC/DC	95	2	10 ft.	LR020 RA3 000	\$296.00
LRX24-3-S	On/Off, Floating Point	Built-in	24 VAC/DC	95	2	16 ft.	LR020 RA5 000	\$316.00
LRX120-3	On/Off, Floating Point	Add on	100-230 VAC	95	4	10 ft.	LR060 RA3 000	\$280.00
LRX120-3	On/Off, Floating Point	Add on	100-230 VAC	95	4	16 ft.	LR060 RA5 000	\$300.00
LRX24-MFT	Various	Various	24 VAC/VDC	Various	5	3 ft.	LR100 RC1 XXX**	\$362.00

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PICCV

### Actuator Specifications

Torque	180 in-lb [20 Nm]
Angle of Rotation ♦	max 90°, adjustable with mechanical stop electronically variable
Position Indication	handle
Manual Override	external push-button
Direction of Rotation ♦	reversible with switch
Dimensions	7.47" x 3.45" x 2.52" [189.8 x 88 x 64 mm]
Electrical Connection	18 GA plenum rated cable, 1/2" conduit connector
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	(-S) Models: 1 SPDT, 3A (0.5A inductive) @ 250 V Adjustable 5° to 85°
Housing	NEMA 2/IP54
Agency Listings	cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CSA C22.2 No. 24-93, CE acc. to 2006/95/EC and 89/336/EEC

♦ Variable with MFT



**ARX24-MFT**

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

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



All AR Actuators have BDCM



### Non-Spring Valve Actuators




Model	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Cable Length	Re-order Number	List Price
ARX24-MFT	Various	Various	24 VAC/VDC	Various	6	3 ft.	AR100 0C1 XXX**	\$468.00
ARX24-MFT	Various	Various	24 VAC/VDC	Various	6	10 ft.	AR100 0C3 XXX**	\$496.00
ARX24-MFT	Various	Various	24 VAC/VDC	Various	6	16 ft.	AR100 0C5 XXX**	\$516.00

\*With 500 Ω resistor

\*\* See next page for P-Codes available.

The P-Code programs the actuator for the desired Control Input, Feedback and Running Time.



		Non-Spring Return Actuator		Spring Return Actuator		List Price
		LR	AR	LF	AF	
<b>WEATHERSHIELDS - NEMA 4</b>						
	ZS-CCV-90*			•	•	\$190.00
	ZS-CCV-100*	•	•			\$190.00
<b>EXTENSION BRACKET</b>						
	<b>CCV-EXT-KIT</b> CCV/PICCV valve neck extension kit	•	•	•	•	\$170.00
<b>AUXILIARY SWITCHES &amp; POTENTIOMETERS</b>						
	<b>S1A</b> Auxiliary switch - 1x SPDT, 3A (0.5A Inductive) @ 250 VAC	•	•			\$74.00
	<b>S2A</b> Auxiliary switch - 1x SPDT, 3A (0.5A Inductive) @ 250 VAC	•	•			\$110.00
	<b>P140A GR</b> Feedback potentiometer 140 Ω	•	•			\$122.00
	<b>P500A GR</b> Feedback potentiometer 500 Ω	•	•			\$122.00
	<b>P1000A GR</b> Feedback potentiometer 1000 Ω	•	•			\$122.00
	<b>P2800A GR</b> Feedback potentiometer 2800 Ω	•	•			\$122.00
	<b>P5000A GR</b> Feedback potentiometer 5000 Ω	•	•			\$122.00
	<b>P10000A GR</b> Feedback potentiometer 10000 Ω	•	•			\$122.00

NOTE: CCV-EXT-KIT is an option for all CCVs except for B6 flanged CCVs where it is factory mounted as a standard.

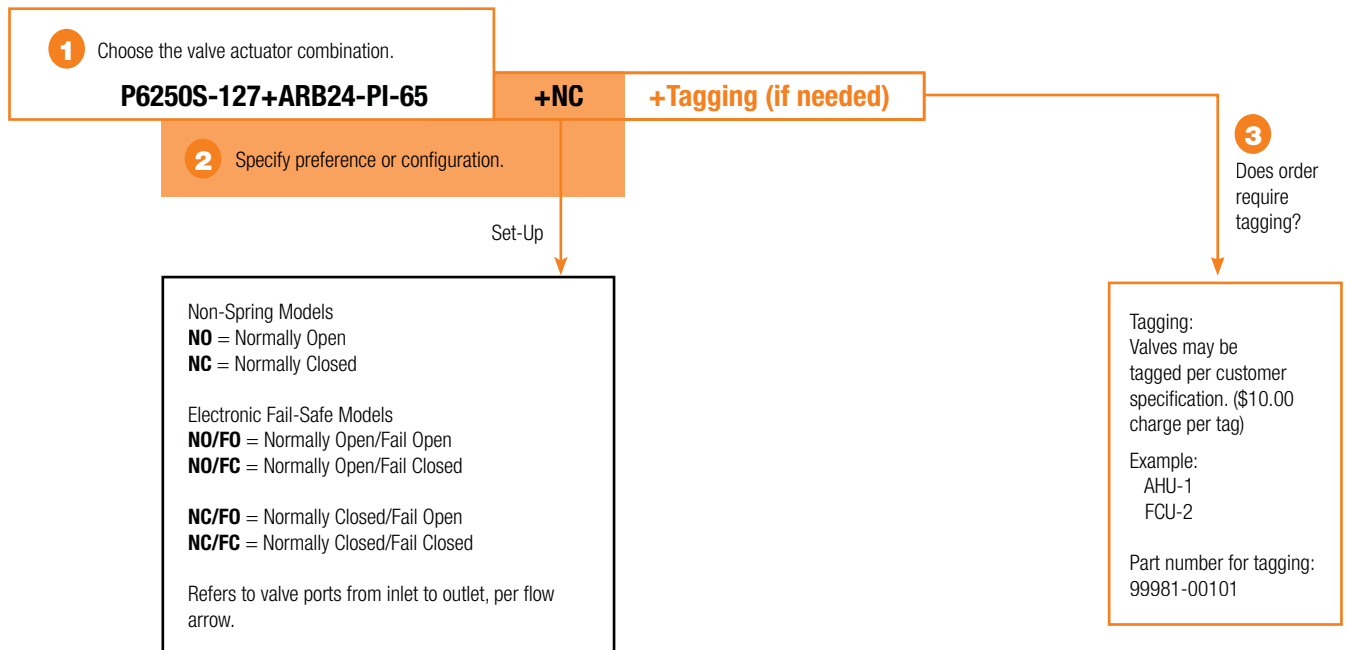
NOTE: For TF actuators, no weathershield available at this time. Please call 800-543-9038 for assistance.

\* Designed to NEMA 4 specifications.

# Electronic Pressure Independent Valve (ePIV) Nomenclature

P6	250S	127	+ARB	24	-PI	-65
<b>Electronic Pressure Independent Valve</b> 2-way Flanged	<b>Valve Size</b> 250 = 2½" 300 = 3" 400 = 4" 500 = 5" 600 = 6" S = Stainless Steel Ball and Stem	<b>Flow Rate</b> 127 GPM Refer to table	<b>Actuator Type</b> Non-Spring Return AR... GR... Electronic Fail-Safe AK... GK...	<b>Power Supply</b> 24 = 24 VAC/DC	PI = Pressure Independent Valve Proportional Control	<b>Actuator Programmed for Valve Size</b> 65 = 2½" 80 = 3" 100 = 4" 125 = 5" 150 = 6"

## Ordering Example



**5** Complete Ordering Example: P6250S-127+ARB24-PI-65+NC

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# Control Valve Product Range

## Electronic Pressure Control Valve Product Range P6.., 2-way

GPM**	Valve Nominal Size		Type	Suitable Actuators	
	Inches	DN [mm]		2-way NPT	Electronic Fail-Safe
127	2.50	65	P6250S-127	AKB24-PI-65/ AKX24-PI-65	ARB24-PI-65/ ARX24-PI-65
180	3	80	P6300S-180	AKB24-PI-80/ AKX24-PI-80	ARB24-PI-80/ ARX24-PI-80
317	4	100	P6400S-317	GKB24-PI-100/ GKX24-PI-100	GRB24-PI-100/ GRX24-PI-100
495	5	125	P6500S-495	GKB24-PI-125/ GKX24-PI-125	GRB24-PI-125/ GRX24-PI-125
713	6	150	P6600S-713	GKB24-PI-150/ GKX24-PI-150	GRB24-PI-150/ GRX24-PI-150



Equal percentage characteristic



### Applications

Water-side control of heating and cooling systems for AHUs and heat pumps.

### Mode of Operation

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

### Product Features

Constant flow regardless of pressure variations in the system. Maximizes chiller  $\Delta T$ , preventing energizing additional chillers due to low  $\Delta T$ . Simplified valve sizing and selection, no Cv calculations required.

### Actuator Specifications

Control type	Proportional Control
Manual override	AR,GR,AK,GK
Electrical connection	3 ft [1m] cable with ½" conduit fitting

### Valve Specifications

Service	chilled or hot water, 50% glycol
Flow characteristic	equal percentage
Controllable flow range	90° rotation
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	pattern to mate with ANSI 125 flange
<b>Materials</b>	
Body	cast iron - GG25 and ductile iron - GGG50
Ball	stainless steel
Seat	PTFE
Characterizing disc	stainless steel
Body pressure rating	According to ANSI 125, standard class B
Media temp range	36° F to 250° F (+2°C to 120°C)
Conductivity	Min. 20uS/cm (no fully desalinated systems)
Differential pressure range ( $\Delta P$ )	5 to 50 psid
Leakage	0%
Inlet length required in front of valve	5x DN
Power supply for the flow by the sensor	Sensor is powered by the actuator

# Electronic Pressure Independent Control Valves

P6 Series Pressure Independent Characterized Control Valves

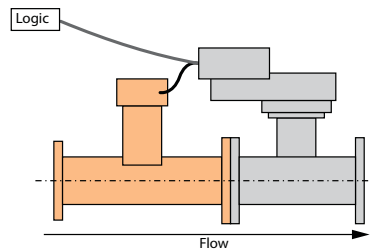


## SET-UP

		2-WAY VALVE		
		SPECIFY UPON ORDERING		
NON-SPRING RETURN STAYS IN LAST POSITION	ARB24-PI-65 ARB24-PI-80 ARB24-PI-100 ARB24-PI-125 ARB24-PI-150	<b>NC:</b> Valve Closed-will open as voltage increases.	<b>NO:</b> Valve Open-will close as voltage increases.	
	ELECTRONIC FAIL-SAFE STAYS IN FAIL-SAFE POSITION	AKB24-PI-65 AKB24-PI-80 GKB24-PI-100 GKB24-PI-125 GKB24-PI-150	<b>NC/FO Valve:</b> Valve Closed-will open as voltage increases. Fail Action: Will fail open upon power loss.	<b>NC/FC Valve:</b> Valve Closed-will open as voltage increases. Fail Action: Will fail closed upon power loss.
				<b>NO/FO Valve:</b> Valve Open-will close as voltage increases. Fail Action: Will fail open upon power loss.

## FLOW PATTERN

The ePIV directly measures flow by combining a magnetic flow meter and a 2-way control valve. The actuator has a powerful algorithm that modulates the control valve to maintain the flow setpoint set by the controller. The flow reading is reported back to the controller using a standard signal, and this value can be used by the Building Automation System to perform advanced control and energy strategies.



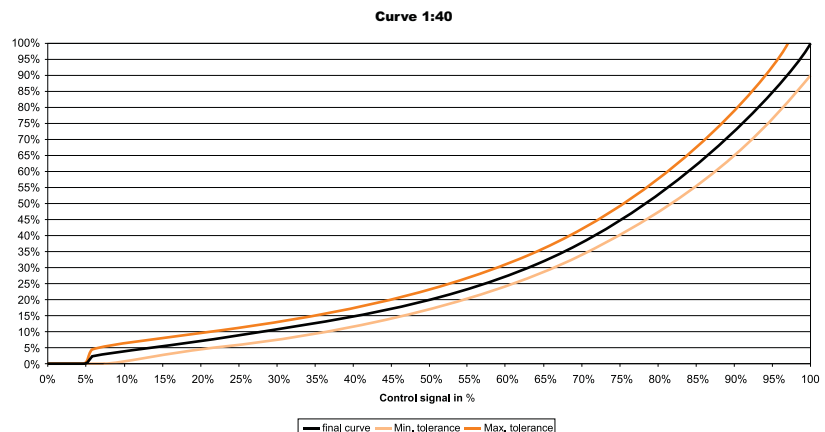
## FUNCTIONALITY

Flow Tolerance of the ePIV:

From 25% to 100%  $V'_{nom}$  → +/-10% of the actual Flow

From 2.5% to 25%  $V'_{nom}$  → +/-10% of the Flow at 25% → +/-2.5% of  $V'_{nom}$ .

$V'_{nom}$  = flow rating of valve as listed in catalog

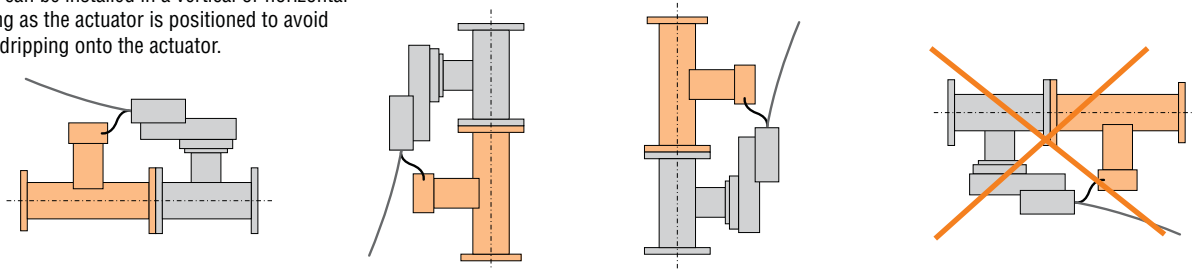


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### INSTALLATION

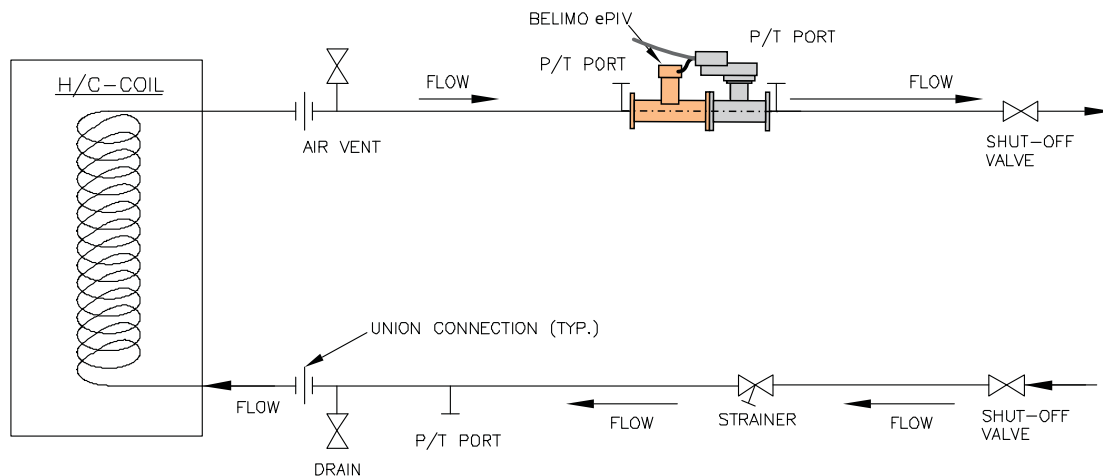
ePIVs shall be installed with flow in the direction of the arrow on the valve body.

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



### PIPING

The ePIV is recommended to be installed on the return side of the coil. This diagram is for typical applications only. Consult engineering specification and drawings for particular circumstances. P/T ports are recommended on either side of the valve and the supply side of the heat transfer device to allow for pressure/flow measurement/calculation. Refer to Belimo documentation for flow verification and commissioning procedures.



# P6 Series Electronic Pressure Independent Valve Non-Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 50% glycol (closed loop / steam not allowed)
Flow characteristic	equal percentage
Controllable flow range	90° rotation
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	pattern to mate with ANSI 125 flange
Materials:	
Body	cast iron - GG25 and ductile iron - GGG50
Ball	stainless steel
Seats	PTFE
Characterizing disc	stainless steel
Packing	2 EPDM O-rings, lubricated
Body pressure rating	According to ANSI 125, standard class B
Media temp. range	36° F to 250° F (+2°C to 120°C)
Conductivity	Min. 20uS/cm (no fully desalinated systems)
Differential pressure range (ΔP)	5 to 50 psid
Leakage	0%
Inlet length required in front of valve	5x DN
Power supply for the Flow sensor	Sensor is powered by the actuator



## Non-Spring Return Actuators



ACTUATOR PART #	ARB24-PI-65	ARB24-PI-80	GRB24-PI-100	GRB24-PI-125	GRB24-PI-150	
Control type	Proportional	Proportional	Proportional	Proportional	Proportional	
Manual override	•	•	•	•	•	
Running time	90 seconds	90 seconds	150 seconds	150 seconds	150 seconds	
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	
<b>ELECTRICAL CONNECTION:</b>						
3 ft cable, ½" conduit fitting	•	•	•	•	•	
<b>Valve Nominal Size</b>						
<b>EPIV Model #</b>	<b>Flow Rate GPM</b>	<b>Flow Rate Liter/Min</b>	<b>Inches</b>	<b>DN mm</b>	<b>Close-off psi</b>	
P6250S-127	127	480	2½	65	100	\$5,998.00
P6300S-180	180	680	3	80	100	\$7,400.00
P6400S-317	317	1200	4	100	100	\$8,500.00
P6500S-495	495	1875	5	125	100	\$10,500.00
P6600S-713	713	2700	6	150	100	\$13,500.00

Note: ARX, GRX model also available for custom options.  
4", 5" and 6" valves available July 2010. Call Belimo for details.

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		Non-Spring Return Actuator		Spring Return Actuator		List Price
		LR	AR	LF	AF	
<b>WEATHERSHIELDS - NEMA 4</b>						
	ZS-CCV-90*			•	•	\$190.00
	ZS-CCV-100*	•	•			\$190.00
<b>EXTENSION BRACKET</b>						
	<b>CCV-EXT-KIT</b>					
	CCV/PICCV valve neck extension kit	•	•	•	•	\$170.00
<b>AUXILIARY SWITCHES &amp; POTENTIOMETERS</b>						
	<b>S1A</b>					
	Auxiliary switch - 1x SPDT, 3A (0.5A Inductive) @ 250 VAC	•	•			\$74.00
	<b>S2A</b>					
	Auxiliary switch - 1x SPDT, 3A (0.5A Inductive) @ 250 VAC	•	•			\$110.00
	<b>P140A GR</b>					
	Feedback potentiometer 140 Ω	•	•			\$122.00
	<b>P500A GR</b>					
	Feedback potentiometer 500 Ω	•	•			\$122.00
<b>P1000A GR</b>						
Feedback potentiometer 1000 Ω	•	•			\$122.00	
<b>P2800A GR</b>						
Feedback potentiometer 2800 Ω	•	•			\$122.00	
<b>P5000A GR</b>						
Feedback potentiometer 5000 Ω	•	•			\$122.00	
<b>P10000A GR</b>						
Feedback potentiometer 10000 Ω	•	•			\$122.00	

NOTE: CCV-EXT-KIT is an option for all CCVs except for B6 flanged CCVs where it is factory mounted as a standard.

NOTE: For TF actuators, no weathershield available at this time. Please call 800-543-9038 for assistance.

\* Designed to NEMA 4 specifications.

# CHARACTERIZED CONTROL VALVES (CCV™ & HTCCV™)

- Equal percentage flow characteristic yields a linear heat output.
- $C_v$  values equal to globe valves of the same size requiring no additional system design.
- Valve bodies available with stainless steel trim or chrome plated brass trim depending upon application and cost involved.
- Higher close-off rating ensures shut off.
- 3-way assemblies can be piped for mixing or diverting applications.

## Applications

The Characterized Control Valve (CCV and High Temperature CCV) marks a true advancement in control valves. It combines the high close-off capabilities of a ball valve with a specialized disc that ensures a true equal percentage flow characteristic. Both the HTCCV and CCV are available with spring return and non-spring return actuators. The CCV offers a comprehensive  $C_v$  range for various applications, such as air handlers, heating and cooling coils, fan coil units, unit ventilators and VAV re-heat coils. The HTCCV, with its sturdy construction and specially designed disc, is the perfect solution for a steam control valve with supply pressures of 15 psig or less.





# Accurate sizing and selection of your control valves in minutes!

## Select Pro™

provides a fast, user-friendly and flexible means for accurately sizing and selecting control valves for hydronic and steam applications in HVAC systems. Software capabilities include:

- Calculating control valve cost for any size project
- Generating valve/actuator submittal data for project
- Printing project data, valve data and pricing
- Exporting project data and selected products to Excel data format
- Saving projects in .xls or .bel file format for future editing or ordering
- Automatically uploading data through web interface for easy ordering

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# Characterized Control Valves Table of Contents

## CHARACTERIZED CONTROL VALVES

CCV™ (B2, B3, B6 Series)	
CCV Product Range Overview . . . . .	7-1
Set-Up . . . . .	7-2
Flow Pattern/Operation/Installation . . . . .	7-3
Piping Reduction Chart . . . . .	7-5
Brass Trim (½" to ¾") 2-way/3-way . . . . .	7-6
Stainless Steel Trim (½" to 3") 2-way/3-way . . . . .	7-10
Stainless Steel Trim (2½" to 3") 2-way Flanged. . . . .	7-26
Stainless Steel Trim (½" to 3") 2-way/3-way, NEMA 4X Non-Spring Return Actuator . . . . .	7-28
Stainless Steel Trim (½" to 2") 2-way/3-way, Quick Running Non-Spring Return Actuator. . . . .	7-32
Customize Products, AR Series Valve Actuator . . . . .	7-34
Customize Products, LR Series Valve Actuator . . . . .	7-35
Default and MFT Programming Codes . . . . .	7-36
CCV Accessories . . . . .	7-37

## HIGH TEMPERATURE CHARACTERIZED CONTROL VALVES (HTCCV) (B2..HT SERIES)

HTCCV Product Range Overview . . . . .	8-1
Set-Up . . . . .	8-2
Flow Pattern/Operation/Installation . . . . .	8-3
Stainless Steel Trim (½" to 1") 2-way. . . . .	8-4
HTCCV Accessories . . . . .	8-7

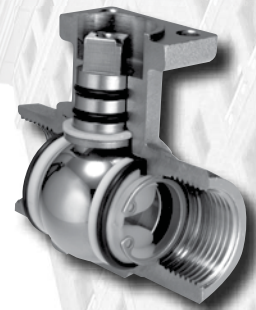
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## CHARACTERIZED CONTROL VALVES (CCV™)

- Equal percentage flow characteristic yields a linear heat output.
- Cv values equal to globe valves of the same size requiring no additional system design.
- Valve bodies available with stainless steel trim or chrome plated brass trim depending upon application and cost involved.
- Higher close-off rating ensures shut off.
- 3-way assemblies can be piped for mixing or diverting applications.

### Applications

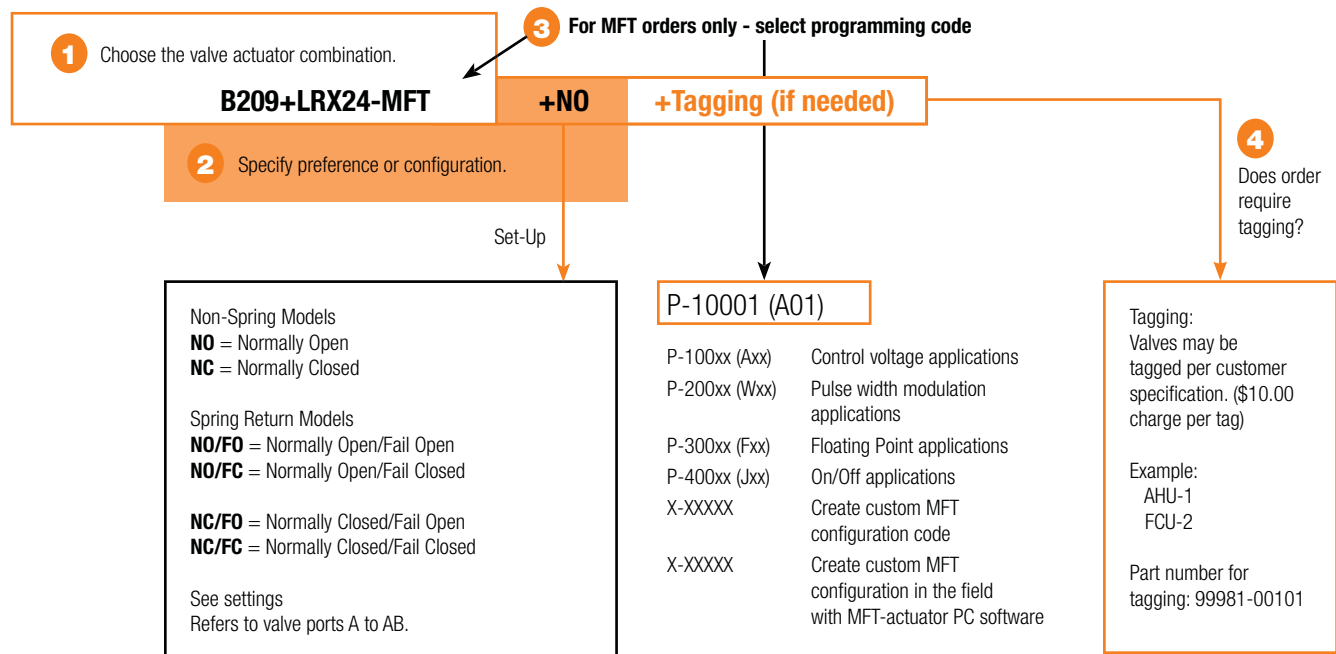
The Characterized Control Valve (CCV) marks a true advancement in control valves. It combines the high close-off capabilities of a ball valve with a specialized disc that ensures a true equal percentage flow characteristic. Since its release in 1999, over 2 million CCVs have been sold in hydronic systems. The CCV offers a comprehensive Cv range for various applications such as air handlers, heating and cooling coils, fan coil units, unit ventilators and VAV re-heat coils.



# Characterized Control Valve™ Nomenclature

B2	09		LRX	24	-MFT	
<b>Valve</b> B2 = 2-way B3 = 3-way B6 = 2-way Flanged	<b>Valve Size</b> 07-80 = ½" to 3"	<b>Trim Material</b> B = Chrome Plated Brass Ball, Nickel Plated Stem Blank = Stainless Steel Ball and Stem	<b>Actuator Type</b> Non-Spring Return TR... LRB... LRX... ARB... ARX... Spring Return TF... LF... AF... AFR... Electronic Fail-Safe GKR...	<b>Power Supply</b> 24 = 24 VAC/DC 120 = 120 VAC* 230 = 230 VAC	<b>Control</b> Blank = On/Off, Floating -3 = Floating Point -SR = 2-10 VDC -MFT = Multi-Function Technology -MFT95 = 0-135 Ω	-S = Built-in Auxiliary Switch -T = Terminal Strip N4 = NEMA 4X N4H = NEMA 4X with Heater

## Ordering Example



\*LR and AR include 120-240 VAC

# Control Valve Product Range

## Characterized Control Valves Product Range

B2..., B3..., B6..., 2-way, 3-way, Stainless Steel and Brass Ball and Stem



Equal percentage characteristic

C <sub>v</sub>	Valve Nominal Size		Type			Suitable Actuators			
	Inches	DN [mm]	2-way NPT	3-way NPT	2-way Flange	Non-Spring Return	Spring Return	Electronic Fail-Safe	NEMA 4X
0.3	½	15	B207(B)	B307(B)	–	TR Series	TF Series		
0.46	½	15	B208(B)	B308(B)	–				
0.8	½	15	B209(B)	B309(B)	–				
1.2	½	15	B210(B)	B310(B)	–				
1.9	½	15	B211(B)	B311(B)	–				
3	½	15	B212(B)	B312(B)	–				
4.7	½	15	B213(B)	B313(B)	–				
7.4	½	15	B214(B)		–				
10	½	15	B215(B)*	B315(B)*	–				
4.7	¾	20	B217(B)	B317(B)	–				
7.4	¾	20	B218(B)	B318(B)	–				
10	¾	20	B219(B)		–				
24	¾	20	B220(B)*	B320(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	B329	–				
19	1¼	32	B230*	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*		–				
60	2½	65	B261						
70	2½	65			B6250S-070	AR Series	AF/AFR Series	NR Series	GKR
75	2½	65	B262						
110	2½	65	B263		B6250S-110				
150	2½	65	B264						
210	2½	65	B265*						
70	3	80	B277						
110	3	80			B6300S-110	AR Series	AF/AFR Series	NR Series	GKR
130	3	80	B278						
170	3	80	B280*						

### Applications

Water-side control of heating and cooling systems, for AHUs, re-heat coils, fan coil units, unit ventilators and heat pumps.

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

### Product Features

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

### Actuator Specifications

Control type	On/Off, Floating Point, 2-10 VDC, Multi-Function Technology (MFT)
Manual override	TR, LR, AR, AF, and AFR series
Electrical connection	3 ft [1m] cable with ½" conduit fitting or covered screw terminal strip

### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage B-port modified for constant common port flow
Action	max 90° rotation
Sizes	½" - 3"
Type of end fitting	½" - 3" NPT female ends 2½" - 3" ANSI 125 flange pattern

### Materials

Body	forged brass, nickel plated, cast iron- for LGCCV
Ball	stainless steel [BXXXB - chrome plated brass]
Stem	stainless steel [BXXXB - nickel plated brass]
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	stainless steel (B6250/300) 2 EPDM O-rings, lubricated

Pressure rating	2-way 3-way 600 psi ½" - 1¼" (B230) ½" - 1" 400 psi 1¼" (B231) - 3" 1¼" - 3"
Media temp range	0°F to 212°F [-18°C to 100°C]
Close-off pressure	2-way 3-way 200 psi ½" - 2" (B250) ½" - 2" 100 psi 2" (B251) - 3", B6

Maximum differential pressure (ΔP)	30 psi, 58 psi (B6250/300)
------------------------------------	----------------------------

Leakage	0% for A to AB < 2.0% for B to AB
---------	--------------------------------------

C <sub>v</sub> rating	A port: see product chart above for values B port: 70% of A to AB C <sub>v</sub>
-----------------------	---

\* Models without characterizing disc

(B) Models with chrome plated brass ball and brass stem

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**SET-UP**

	2-WAY VALVE		3-WAY VALVE	
	SPECIFY UPON ORDERING		SPECIFY UPON ORDERING	
	<b>NON-SPRING RETURN</b> Stays in Last Position	TR24-3(-T)	Power To pin 2 will drive valve CCW. Power to pin 3 will drive valve CW.	
LRB24-3(-T), ARB24-3(-T)		Power to pin 2 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "1" position to reverse, select the "0" position.		Power to pin 2 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "1" position to reverse, select the "0" position.
TR24-SR(-T), LRB24-SR, LRB(X)24-MFT, ARB24-SR, ARB(X)24-MFT		<b>NC:</b> Closed A to AB, will open as voltage increases	<b>NO:</b> Open A to AB, will close as voltage increases	<b>NC:</b> Closed A to AB, will open as voltage increases

<b>SPRING RETURN</b> Note Fail Position	TFX24 US LF24 US AF24 US	<b>NO/FO:</b> Valve open A to AB, will drive closed. Spring Action: Actuator will spring open A to AB upon power loss.	<b>NC/FC:</b> Valve closed A to AB, will drive open. Spring Action: Actuator will spring closed A to AB upon power loss.	<b>NO/FO:</b> Valve open A to AB, will drive closed. Spring Action: Actuator will spring open A to AB upon power loss.	<b>NC/FC:</b> Valve closed A to AB, will drive open. Spring Action: Actuator will spring closed A to AB upon power loss.
	TF24-3 US, TF24-SR US, TF24-MFTUS, LF24-3 US, LF24-SR US, LF24-MFT US, AF24-SR, AFRB24-MFT	<b>NC/FO:</b> Valve closed A to AB, will open as voltage increases. Actuator switch on CW. Spring Action: Will spring open upon power loss.	<b>NC/FC:</b> Valve closed A to AB, will open as voltage increases. Actuator switch on CW. Spring Action: Will spring closed upon power loss.	<b>NO/FC:</b> Valve open A to AB, will close as voltage increases. Actuator switch on CW. Spring Action: Will spring closed upon power loss.	<b>NO/FO:</b> Valve open A to AB, will close as voltage increases. Actuator switch on CW. Spring Action: Will spring open upon power loss.

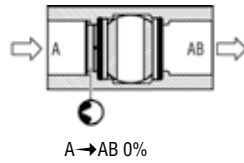
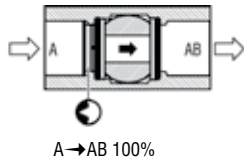
<b>ELECTRONIC FAIL -SAFE</b>	GKRB24-3-5-14†	Power to pin 2 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "1" position to reverse, select the "0" position.		Power to pin 2 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "1" position to reverse, select the "0" position.	
	GKRB24-MFT-5-14†	<b>NC:</b> Closed A to AB, will open as voltage increases	<b>NO:</b> Open A to AB, will close as voltage increases	<b>NC:</b> Closed A to AB, will open as voltage increases	<b>NO:</b> Open A to AB, will close as voltage increases

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

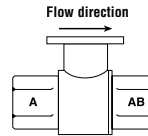
## FLOW PATTERNS

### 2-way Characterized Control Valves™

(Belimo B2 Series)



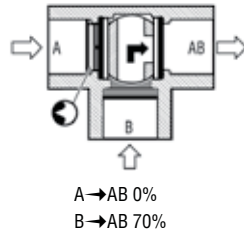
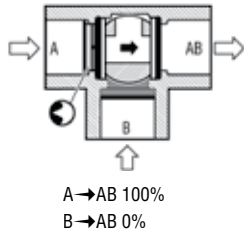
Two-way valves should be installed with the disc upstream.



### 3-way Characterized Control Valves™

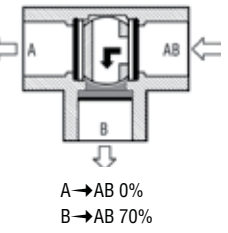
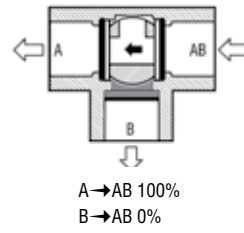
(Belimo B3 Series)

#### MIXING



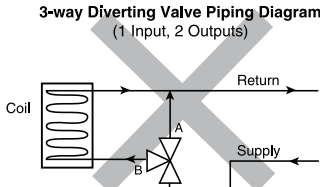
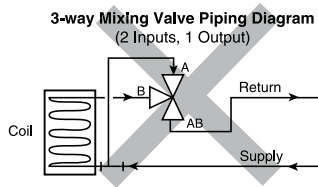
The A-port must be piped to the coil to maintain proper control.

#### DIVERTING



## INCORRECT PIPING

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



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

**Note Valve Porting!**

**The A-port must be piped to the coil! Not the B-port!**

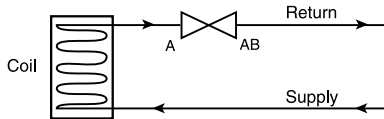
Flow is not possible from A to B. If AB-port is not piped as the common port, the valve must be re-piped. It is good practice to install a balancing valve in the bypass line. These valves are intended for closed loop systems. Do not install in an open loop system or in an application that is open to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

## OPERATION/INSTALLATION – CORRECT PIPING

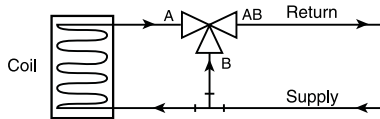
2-way valves should be installed with the disc upstream. If installed with disc downstream, flow curve will be deeper. If installed “backwards” it is NOT necessary to remove and change. No damage or control problems will occur.

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

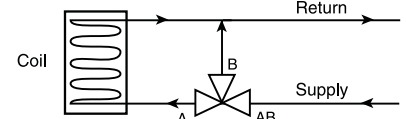
2-way Valve Piping Diagram  
(1 Input, 1 Output)



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



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



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

### REDUCED B-PORT FLOW

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

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

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

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**PIPING REDUCTION CHART**
**Piping Reduction Factor (Fp) - Correction Factor for Valves**

Values in chart are corrected Cv ratings for indicated pipe size.

VALVE SIZE				LINE SIZE										
Model #	Inches	DN (mm)	Cv Rating	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"
B215*	½"	15	10	10	7.4	6.3								
B220*	¾"	20	24		24	19	16.1	14.6						
B225*	1"	25	30			30	27.3	24.9	21.9					
B230*	1¼"	32	19				19	18.8	18.2	17.9				
B232*	1¼"	32	37				37	35.5	31.8	30				
B240*	1½"	40	37					37	35	34	33			
B250*	2"	50	57						57	56	54	52		
B251	2"	50	65						65	65	64	64		
B252	2"	50	85						85	81	78	74		
B253	2"	50	120						120	107	102	92		
B254*	2"	50	240						240	197	182	148		
B261	2½"	65	60							60	58	55	54	
B262	2½"	65	75							75	73	72	70	
B263	2½"	65	110							110	104	100	95	
B264	2½"	65	150							150	139	132	122	
B265*	2½"	65	210							210	190	175	164	
B277	3"	80	70								70	69	68	68
B278	3"	80	130								130	119	115	113
B280*	3"	80	170								170	148	142	139

\*Models without disc.

**NOTE:** Please use the corrected Cv values for the valves listed in the chart, when installing them in pipes larger than the line size of the valve. All CCVs not listed do not require piping reduction factors.

**NOTE:** Values also apply to A-AB flow of 3-way versions.

# B2/B3 Series Characterized Control Valve, Non-Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage B-port modified linear for constant flow
Action	90° rotation
Sizes	½", ¾"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	nickel plated brass
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating	600 psi
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB <2.0% for B to AB
C <sub>v</sub> rating	A-port: as stated in chart B-port: 70% of A to AB C <sub>v</sub>



## Non-Spring Return Actuators



ACTUATOR PART #	TR24-3-T US	TR24-3 US	TR24-SR-T US	TR24-SR US	LRB24-3-T	LRB24-3	LRB24-SR-T	LRB24-SR
Control type	On/Off, Floating Point	On/Off, Floating Point	Proportional	Proportional	On/Off, Floating Point	On/Off, Floating Point	Proportional	Proportional
Manual override	•	•	•	•	•	•	•	•
Running time	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds
Noise level	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)
<b>ELECTRICAL CONNECTION:</b>								
½" conduit fitting						•		•
3 ft [1m] cable		•		•		•		•
Covered terminal strip	•		•		•		•	
<b>CCV</b>								
<b>Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Valve Inches</b>	<b>Nominal DN (mm)</b>	<b>Close-Off psi</b>				

### B2...B 2-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS

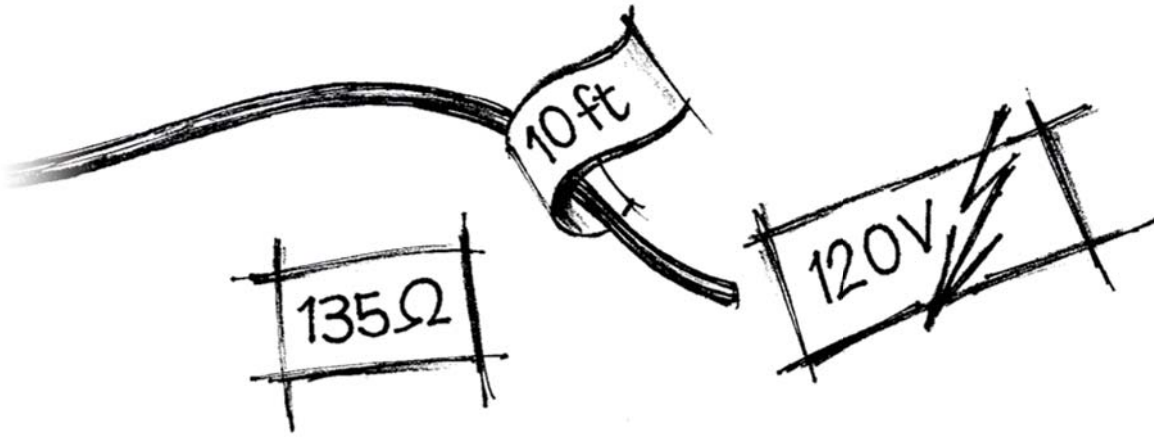
B207B	0.3	½	15	200	\$174.00	\$186.00	\$262.00	\$274.00	\$216.00	\$230.00	\$330.00	\$342.00
B208B	0.46	½	15	200	\$174.00	\$186.00	\$262.00	\$274.00	\$216.00	\$230.00	\$330.00	\$342.00
B209B	0.8	½	15	200	\$174.00	\$186.00	\$262.00	\$274.00	\$216.00	\$230.00	\$330.00	\$342.00
B210B	1.2	½	15	200	\$176.00	\$188.00	\$264.00	\$276.00	\$218.00	\$232.00	\$332.00	\$344.00
B211B	1.9	½	15	200	\$176.00	\$188.00	\$264.00	\$276.00	\$218.00	\$232.00	\$332.00	\$344.00
B212B	3	½	15	200	\$180.00	\$192.00	\$270.00	\$282.00	\$224.00	\$236.00	\$340.00	\$352.00
B213B	4.7	½	15	200	\$182.00	\$194.00	\$274.00	\$286.00	\$226.00	\$238.00	\$344.00	\$356.00
B214B	7.4	½	15	200	\$186.00	\$198.00	\$278.00	\$292.00	\$230.00	\$242.00	\$348.00	\$362.00
B215B*	10	½	15	200	\$188.00	\$200.00	\$280.00	\$294.00	\$232.00	\$244.00	\$350.00	\$364.00
B217B	4.7	¾	20	200	\$226.00	\$238.00	\$296.00	\$310.00	\$264.00	\$276.00	\$366.00	\$378.00
B218B	7.4	¾	20	200	\$228.00	\$240.00	\$300.00	\$314.00	\$266.00	\$278.00	\$370.00	\$382.00
B219B	10	¾	20	200	\$230.00	\$242.00	\$302.00	\$318.00	\$268.00	\$280.00	\$372.00	\$384.00
B220B*	24	¾	20	200	\$232.00	\$244.00	\$304.00	\$320.00	\$270.00	\$282.00	\$374.00	\$386.00

### B3...B 3-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS

B307B	0.3	½	15	200	\$214.00	\$228.00	\$326.00	\$338.00	\$254.00	\$266.00	\$368.00	\$380.00
B308B	0.46	½	15	200	\$214.00	\$228.00	\$326.00	\$338.00	\$254.00	\$266.00	\$368.00	\$380.00
B309B	0.8	½	15	200	\$214.00	\$228.00	\$326.00	\$338.00	\$254.00	\$266.00	\$368.00	\$380.00
B310B	1.2	½	15	200	\$216.00	\$230.00	\$328.00	\$340.00	\$256.00	\$268.00	\$370.00	\$382.00
B311B	1.9	½	15	200	\$216.00	\$230.00	\$328.00	\$340.00	\$256.00	\$268.00	\$370.00	\$382.00
B312B	3	½	15	200	\$224.00	\$236.00	\$334.00	\$346.00	\$260.00	\$272.00	\$376.00	\$388.00
B313B	4.7	½	15	200	\$226.00	\$238.00	\$338.00	\$350.00	\$264.00	\$276.00	\$380.00	\$392.00
B315B*	10	½	15	200	\$228.00	\$240.00	\$340.00	\$352.00	\$270.00	\$282.00	\$382.00	\$394.00
B317B	4.7	¾	20	200	\$278.00	\$292.00	\$356.00	\$370.00	\$286.00	\$300.00	\$400.00	\$414.00
B318B	7.4	¾	20	200	\$280.00	\$294.00	\$358.00	\$372.00	\$292.00	\$304.00	\$402.00	\$416.00
B320B*	24	¾	20	200	\$282.00	\$296.00	\$362.00	\$374.00	\$296.00	\$310.00	\$404.00	\$418.00

\* Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.



**Non-Spring Return Actuator Options**



OPTIONS	TR24-3/300 US	TR24-SR/300 US	LRB24-3-S	LRB120-3	LRB120-SR
Control type	On/Off, Floating Point	Proportional	On/Off, Floating Point	On/Off, Floating Point	Proportional
120 VAC power supply				•	•
Built-in auxiliary switch			•		
½" conduit fitting			•	•	•
3 ft [1m] cable			•	•	•
10 ft [3m] cable	•	•			

CCV Model #	C <sub>v</sub> Rating	Valve Nominal Size Inches					
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**B2...B 2-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS**

B207B	0.3	½	\$202.00	\$292.00	\$280.00	\$260.00	\$374.00
B208B	0.46	½	\$202.00	\$292.00	\$280.00	\$260.00	\$374.00
B209B	0.8	½	\$202.00	\$292.00	\$280.00	\$260.00	\$374.00
B210B	1.2	½	\$204.00	\$294.00	\$282.00	\$262.00	\$376.00
B211B	1.9	½	\$204.00	\$294.00	\$282.00	\$262.00	\$376.00
B212B	3	½	\$210.00	\$300.00	\$286.00	\$266.00	\$384.00
B213B	4.7	½	\$214.00	\$304.00	\$290.00	\$268.00	\$388.00
B214B	7.4	½	\$218.00	\$310.00	\$294.00	\$272.00	\$392.00
B215B*	10	½	\$222.00	\$312.00	\$296.00	\$274.00	\$394.00
B217B	4.7	¾	\$254.00	\$328.00	\$332.00	\$310.00	\$408.00
B218B	7.4	¾	\$256.00	\$332.00	\$334.00	\$312.00	\$414.00
B219B	10	¾	\$258.00	\$334.00	\$336.00	\$314.00	\$416.00
B220B*	24	¾	\$260.00	\$336.00	\$338.00	\$318.00	\$418.00

**B3...B 3-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS**

B307B	0.3	½	\$244.00	\$354.00	\$322.00	\$298.00	\$412.00
B308B	0.46	½	\$244.00	\$354.00	\$322.00	\$298.00	\$412.00
B309B	0.8	½	\$244.00	\$354.00	\$322.00	\$298.00	\$412.00
B310B	1.2	½	\$246.00	\$356.00	\$324.00	\$300.00	\$414.00
B311B	1.9	½	\$246.00	\$356.00	\$324.00	\$300.00	\$414.00
B312B	3	½	\$252.00	\$364.00	\$328.00	\$304.00	\$422.00
B313B	4.7	½	\$254.00	\$368.00	\$332.00	\$310.00	\$426.00
B315B*	10	½	\$256.00	\$370.00	\$338.00	\$318.00	\$428.00
B317B	4.7	¾	\$310.00	\$386.00	\$354.00	\$334.00	\$448.00
B318B	7.4	¾	\$312.00	\$388.00	\$358.00	\$338.00	\$450.00
B320B*	24	¾	\$314.00	\$390.00	\$364.00	\$342.00	\$452.00

\* Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

L30056 - 04/10 - Subject to change. © Belimo Aircontrols (USA), Inc.

CCV

# B2/B3 Series Characterized Control Valve, Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage B-port modified linear for constant flow
Action	90° rotation
Sizes	½", ¾"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	nickel plated brass
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating	600 psi
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB <2.0% for B to AB
C <sub>v</sub> rating	A-port: as stated in chart B-port: 70% of A to AB C <sub>v</sub>



## Spring Return Actuators



ACTUATOR PART #		TFX24 US	TF24-3 US	TF24-SR US	LF24 US	LF24-3 US	LF24-SR US
Control type		On/Off	Floating Point	Proportional	On/Off	Floating Point	Proportional
Manual override							
Running time	Motor	<75 seconds	95 seconds	95 seconds	<40-75 seconds	150 seconds	150 seconds
	Spring	<75 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<25 seconds
Noise level	Running	<40 dB(A)	<35 dB(A)	<35 dB(A)	<50 dB(A)	<30 dB(A)	<30 dB(A)
	Spring	<40 dB(A)	<62 dB(A)	<62 dB(A)	<62 dB(A)	<62 dB(A)	<62 dB(A)
<b>ELECTRICAL CONNECTION:</b>							
3 ft. cable, ½" conduit fitting		•	•	•	•	•	•
CCV	C <sub>v</sub>	Valve	Nominal	Size	Close-Off		
Model #	Rating	Inches	DN (mm)	psi			

### B2...B 2-WAY CHARACTERIZED CONTROL VALVE WITH SPRING RETURN ACTUATORS

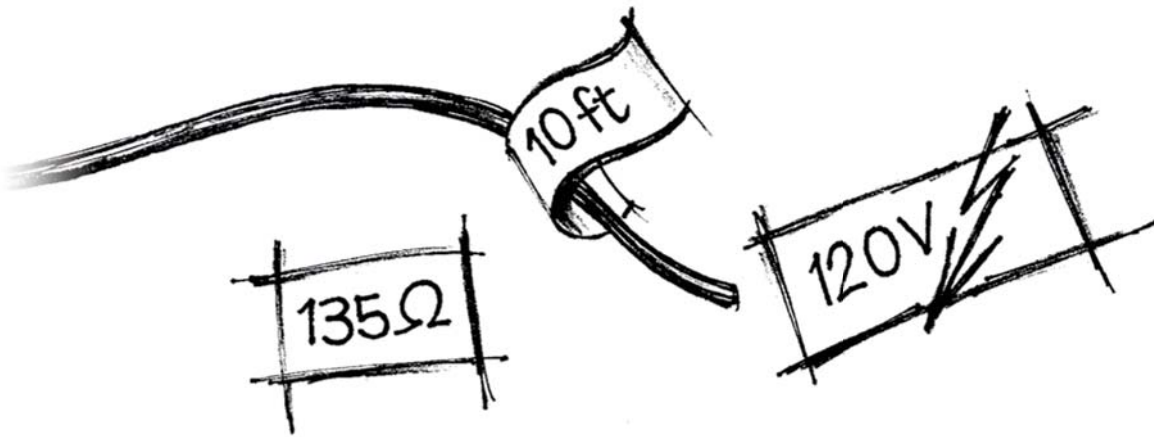
B207B	0.3	½	15	200	\$320.00	\$366.00	\$392.00	\$368.00	\$468.00	\$482.00
B208B	0.46	½	15	200	\$320.00	\$366.00	\$392.00	\$368.00	\$468.00	\$482.00
B209B	0.8	½	15	200	\$320.00	\$366.00	\$392.00	\$368.00	\$468.00	\$482.00
B210B	1.2	½	15	200	\$322.00	\$368.00	\$394.00	\$370.00	\$470.00	\$484.00
B211B	1.9	½	15	200	\$322.00	\$368.00	\$394.00	\$370.00	\$470.00	\$484.00
B212B	3	½	15	200	\$326.00	\$370.00	\$396.00	\$376.00	\$476.00	\$490.00
B213B	4.7	½	15	200	\$328.00	\$374.00	\$402.00	\$378.00	\$478.00	\$492.00
B214B	7.4	½	15	200	\$330.00	\$376.00	\$404.00	\$380.00	\$480.00	\$494.00
B215B*	10	½	15	200	\$332.00	\$378.00	\$406.00	\$384.00	\$484.00	\$496.00
B217B	4.7	¾	20	200	\$368.00	\$414.00	\$444.00	\$422.00	\$522.00	\$534.00
B218B	7.4	¾	20	200	\$370.00	\$416.00	\$446.00	\$424.00	\$524.00	\$536.00
B219B	10	¾	20	200	\$372.00	\$418.00	\$448.00	\$426.00	\$526.00	\$538.00
B220B*	24	¾	20	200	\$374.00	\$424.00	\$450.00	\$428.00	\$528.00	\$540.00

### B3...B 3-WAY CHARACTERIZED CONTROL VALVE WITH SPRING RETURN ACTUATORS

B307B	0.3	½	15	200	\$378.00	\$442.00	\$462.00	\$436.00	\$538.00	\$556.00
B308B	0.46	½	15	200	\$378.00	\$442.00	\$462.00	\$436.00	\$538.00	\$556.00
B309B	0.8	½	15	200	\$378.00	\$442.00	\$462.00	\$436.00	\$538.00	\$556.00
B310B	1.2	½	15	200	\$380.00	\$444.00	\$466.00	\$438.00	\$540.00	\$558.00
B311B	1.9	½	15	200	\$382.00	\$446.00	\$466.00	\$442.00	\$544.00	\$562.00
B312B	3	½	15	200	\$386.00	\$448.00	\$468.00	\$448.00	\$550.00	\$568.00
B313B	4.7	½	15	200	\$390.00	\$452.00	\$472.00	\$450.00	\$552.00	\$570.00
B315B*	10	½	15	200	\$392.00	\$454.00	\$474.00	\$452.00	\$554.00	\$572.00
B317B	4.7	¾	20	200	\$424.00	\$486.00	\$506.00	\$484.00	\$586.00	\$604.00
B318B	7.4	¾	20	200	\$426.00	\$488.00	\$508.00	\$486.00	\$588.00	\$606.00
B320B*	24	¾	20	200	\$428.00	\$490.00	\$510.00	\$490.00	\$590.00	\$610.00

\* Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.



**Spring Return Actuator Options**



OPTIONS	TFX24/300 US	TFX24-S US	TF24-3 /300 US	TF24-3-S US	TF24-SR-S US	TFX120 US	TFX120 /300 US	TFX120-S US	LF24-S US	LF24-3-S US	LF24-SR-S US	LF120 US	LF120-S US
Control type	On/Off	On/Off	Floating Point	Floating Point	Proportional	On/Off	On/Off	On/Off	On/Off	Floating Point	Proportional	On/Off	On/Off
120 VAC power supply						•	•	•				•	•
Built-in auxiliary switch		•		•	•			•	•	•	•		•
3 ft [1m] cable		•		•	•	•		•	•	•	•	•	•
10 ft [3m] cable	•		•				•						

CCV Model #	Cv Rating	Valve Nominal Size Inches											
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**B2...B 2-WAY CHARACTERIZED CONTROL VALVE WITH SPRING RETURN ACTUATORS**

B207B	0.3	½	\$348.00	\$372.00	\$394.00	\$418.00	\$448.00	\$362.00	\$390.00	\$414.00	\$422.00	\$522.00	\$538.00	\$398.00	\$454.00
B208B	0.46	½	\$348.00	\$372.00	\$394.00	\$418.00	\$448.00	\$362.00	\$390.00	\$414.00	\$422.00	\$522.00	\$538.00	\$398.00	\$454.00
B209B	0.8	½	\$348.00	\$372.00	\$394.00	\$418.00	\$448.00	\$362.00	\$390.00	\$414.00	\$422.00	\$522.00	\$538.00	\$398.00	\$454.00
B210B	1.2	½	\$350.00	\$374.00	\$396.00	\$422.00	\$450.00	\$364.00	\$392.00	\$416.00	\$424.00	\$524.00	\$540.00	\$400.00	\$456.00
B211B	1.9	½	\$350.00	\$374.00	\$396.00	\$422.00	\$450.00	\$364.00	\$392.00	\$416.00	\$424.00	\$524.00	\$540.00	\$400.00	\$456.00
B212B	3	½	\$354.00	\$378.00	\$398.00	\$424.00	\$452.00	\$368.00	\$396.00	\$422.00	\$430.00	\$530.00	\$544.00	\$404.00	\$460.00
B213B	4.7	½	\$356.00	\$380.00	\$402.00	\$428.00	\$458.00	\$370.00	\$398.00	\$424.00	\$432.00	\$532.00	\$546.00	\$406.00	\$462.00
B214B	7.4	½	\$358.00	\$382.00	\$404.00	\$430.00	\$460.00	\$372.00	\$400.00	\$426.00	\$434.00	\$534.00	\$548.00	\$408.00	\$464.00
B215B*	10	½	\$362.00	\$384.00	\$406.00	\$432.00	\$462.00	\$374.00	\$402.00	\$428.00	\$438.00	\$540.00	\$550.00	\$410.00	\$466.00
B217B	4.7	¾	\$396.00	\$422.00	\$446.00	\$468.00	\$494.00	\$408.00	\$442.00	\$464.00	\$474.00	\$574.00	\$592.00	\$444.00	\$500.00
B218B	7.4	¾	\$398.00	\$424.00	\$448.00	\$470.00	\$496.00	\$412.00	\$444.00	\$466.00	\$476.00	\$576.00	\$594.00	\$446.00	\$502.00
B219B	10	¾	\$400.00	\$426.00	\$450.00	\$472.00	\$498.00	\$414.00	\$446.00	\$468.00	\$478.00	\$578.00	\$596.00	\$448.00	\$504.00
B220B*	24	¾	\$402.00	\$428.00	\$454.00	\$476.00	\$500.00	\$416.00	\$448.00	\$470.00	\$480.00	\$580.00	\$600.00	\$450.00	\$506.00

**B3...B 3-WAY CHARACTERIZED CONTROL VALVE WITH SPRING RETURN ACTUATORS**

B307B	0.3	½	\$406.00	\$432.00	\$470.00	\$492.00	\$516.00	\$422.00	\$452.00	\$474.00	\$486.00	\$590.00	\$608.00	\$466.00	\$520.00
B308B	0.46	½	\$406.00	\$432.00	\$470.00	\$492.00	\$516.00	\$422.00	\$452.00	\$474.00	\$486.00	\$590.00	\$608.00	\$466.00	\$520.00
B309B	0.8	½	\$406.00	\$432.00	\$470.00	\$492.00	\$516.00	\$422.00	\$452.00	\$474.00	\$486.00	\$590.00	\$608.00	\$466.00	\$520.00
B310B	1.2	½	\$408.00	\$436.00	\$472.00	\$494.00	\$520.00	\$424.00	\$454.00	\$476.00	\$488.00	\$592.00	\$610.00	\$468.00	\$522.00
B311B	1.9	½	\$412.00	\$438.00	\$474.00	\$496.00	\$520.00	\$426.00	\$456.00	\$478.00	\$492.00	\$596.00	\$612.00	\$470.00	\$524.00
B312B	3	½	\$416.00	\$442.00	\$476.00	\$498.00	\$522.00	\$430.00	\$460.00	\$482.00	\$498.00	\$602.00	\$614.00	\$472.00	\$526.00
B313B	4.7	½	\$530.00	\$446.00	\$480.00	\$502.00	\$526.00	\$434.00	\$464.00	\$486.00	\$500.00	\$604.00	\$616.00	\$474.00	\$528.00
B315B*	10	½	\$424.00	\$448.00	\$482.00	\$506.00	\$530.00	\$438.00	\$466.00	\$488.00	\$502.00	\$606.00	\$618.00	\$476.00	\$530.00
B317B	4.7	¾	\$454.00	\$476.00	\$518.00	\$542.00	\$560.00	\$466.00	\$494.00	\$520.00	\$530.00	\$634.00	\$652.00	\$504.00	\$554.00
B318B	7.4	¾	\$456.00	\$478.00	\$520.00	\$544.00	\$562.00	\$468.00	\$496.00	\$522.00	\$532.00	\$636.00	\$654.00	\$506.00	\$556.00
B320B*	24	¾	\$458.00	\$480.00	\$522.00	\$546.00	\$564.00	\$470.00	\$498.00	\$526.00	\$534.00	\$638.00	\$656.00	\$508.00	\$558.00

\* Models without characterizing discs.

For corrected Cvs with piping reduction factor refer to page 7-5.

# B2 Series Characterized Control Valve, Non-Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage
Action	90° rotation
Sizes	½", ¾", 1", 1¼"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
600 psi	½" - 1¼" (B230)
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB



## Non-Spring Return Actuators



ACTUATOR PART #	TR24-3-T US	TR24-3 US	TR24-SR-T US	TR24-SR US	LRB24-3-T	LRB24-3	LRB24-SR-T	LRB24-SR	LRX24-MFT
Control type	On/Off, Floating Point	On/Off, Floating Point	Proportional	Proportional	On/Off, Floating Point	On/Off, Floating Point	Proportional	Proportional	Proportional/ MFT
Manual override	•	•	•	•	•	•	•	•	•
Running time	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	150 sec. default/ 35 to 200 variable
Noise level	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)
<b>ELECTRICAL CONNECTION:</b>									
½" conduit fitting						•		•	•
3 ft. cable		•		•		•		•	•
Covered terminal strip	•		•		•		•		
<b>CCV</b>									
<b>Model #</b>	<b>C<sub>v</sub></b>	<b>Valve</b>	<b>Nominal Size</b>	<b>Close-Off</b>					
	<b>Rating</b>	<b>Inches</b>	<b>DN (mm)</b>	<b>psi</b>					

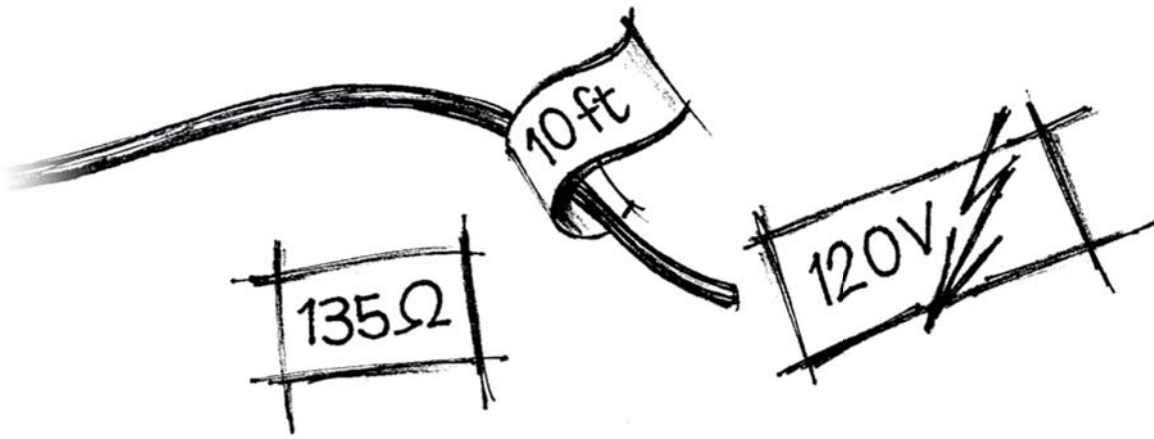
## B2... 2-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS

B207	0.3	½	15	200	\$204.00	\$222.00	\$310.00	\$324.00	\$234.00	\$246.00	\$332.00	\$344.00	\$450.00
B208	0.46	½	15	200	\$204.00	\$222.00	\$310.00	\$324.00	\$234.00	\$246.00	\$332.00	\$344.00	\$450.00
B209	0.8	½	15	200	\$204.00	\$222.00	\$310.00	\$324.00	\$234.00	\$246.00	\$332.00	\$344.00	\$450.00
B210	1.2	½	15	200	\$210.00	\$226.00	\$312.00	\$326.00	\$236.00	\$248.00	\$334.00	\$346.00	\$454.00
B211	1.9	½	15	200	\$210.00	\$226.00	\$312.00	\$326.00	\$236.00	\$248.00	\$334.00	\$346.00	\$454.00
B212	3	½	15	200	\$214.00	\$228.00	\$314.00	\$328.00	\$238.00	\$250.00	\$336.00	\$348.00	\$458.00
B213	4.7	½	15	200	\$218.00	\$232.00	\$320.00	\$332.00	\$250.00	\$262.00	\$340.00	\$352.00	\$466.00
B214	7.4	½	15	200	\$224.00	\$236.00	\$324.00	\$336.00	\$256.00	\$268.00	\$344.00	\$356.00	\$470.00
B215*	10	½	15	200	\$226.00	\$238.00	\$326.00	\$338.00	\$266.00	\$278.00	\$348.00	\$362.00	\$474.00
B217	4.7	¾	20	200	\$260.00	\$272.00	\$342.00	\$354.00	\$276.00	\$290.00	\$356.00	\$370.00	\$484.00
B218	7.4	¾	20	200	\$262.00	\$274.00	\$344.00	\$356.00	\$278.00	\$292.00	\$358.00	\$372.00	\$486.00
B219	10	¾	20	200	\$264.00	\$276.00	\$348.00	\$362.00	\$280.00	\$294.00	\$362.00	\$374.00	\$488.00
B220*	24	¾	20	200	\$266.00	\$278.00	\$350.00	\$364.00	\$282.00	\$296.00	\$364.00	\$376.00	\$490.00
B222	7.4	1	25	200					\$294.00	\$306.00	\$376.00	\$388.00	\$516.00
B223	10	1	25	200					\$298.00	\$312.00	\$378.00	\$390.00	\$522.00
B224	19	1	25	200					\$298.00	\$312.00	\$382.00	\$394.00	\$530.00
B225*	30	1	25	200					\$300.00	\$314.00	\$384.00	\$396.00	\$532.00
B229	10	1¼	32	200					\$336.00	\$348.00	\$412.00	\$426.00	\$552.00
B230*	19	1¼	32	200					\$338.00	\$350.00	\$416.00	\$430.00	\$554.00

\* Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

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**Non-Spring Return Actuator Options**



OPTIONS	TR24-3/300 US	TR24-SR/300 US	LRB24-3-S US	LRX24-MFT95	LRB120-3	LRB120-SR
Control type	On/Off, Floating Point	Proportional	On/Off, Floating Point	135 Ω	On/Off, Floating Point	Proportional
120 VAC power supply					•	•
Built-in auxiliary switch			•			
½" conduit fitting			•	•	•	•
3 ft. [1m] cable			•	•	•	•
10 ft. [3m] cable	•	•				

CCV Model #	Cv Rating	Valve Nominal Size Inches	TR24-3/300 US	TR24-SR/300 US	LRB24-3-S US	LRX24-MFT95	LRB120-3	LRB120-SR
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B2... 2-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS								
B207	0.3	½	\$238.00	\$340.00	\$298.00	\$544.00	\$276.00	\$376.00
B208	0.46	½	\$238.00	\$340.00	\$298.00	\$544.00	\$276.00	\$376.00
B209	0.8	½	\$238.00	\$340.00	\$298.00	\$544.00	\$276.00	\$376.00
B210	1.2	½	\$242.00	\$342.00	\$300.00	\$550.00	\$278.00	\$378.00
B211	1.9	½	\$242.00	\$342.00	\$300.00	\$550.00	\$278.00	\$378.00
B212	3	½	\$244.00	\$344.00	\$302.00	\$554.00	\$270.00	\$380.00
B213	4.7	½	\$248.00	\$348.00	\$318.00	\$558.00	\$294.00	\$384.00
B214	7.4	½	\$252.00	\$352.00	\$324.00	\$562.00	\$300.00	\$388.00
B215*	10	½	\$254.00	\$354.00	\$334.00	\$566.00	\$312.00	\$392.00
B217	4.7	¾	\$290.00	\$372.00	\$344.00	\$578.00	\$324.00	\$400.00
B218	7.4	¾	\$292.00	\$374.00	\$346.00	\$580.00	\$326.00	\$402.00
B219	10	¾	\$294.00	\$378.00	\$348.00	\$582.00	\$328.00	\$404.00
B220*	24	¾	\$296.00	\$380.00	\$350.00	\$584.00	\$330.00	\$406.00
B222	7.4	1			\$362.00	\$598.00	\$340.00	\$422.00
B223	10	1			\$366.00	\$606.00	\$344.00	\$424.00
B224	19	1			\$366.00	\$610.00	\$344.00	\$428.00
B225*	30	1			\$368.00	\$612.00	\$346.00	\$430.00
B229	10	1¼			\$400.00	\$634.00	\$380.00	\$458.00
B230*	19	1¼			\$402.00	\$636.00	\$382.00	\$462.00

\* Models without characterizing discs.  
For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

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CCV

# B2 Series Characterized Control Valve, Non-Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage
Action	90° rotation
Sizes	1¼", 1½", 2", 2½", 3"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
400 psi	1¼" (B231) - 3"
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB



## Non-Spring Return Actuators



ACTUATOR PART #	ARB24-3	ARB24-SR	ARX24-MFT
Control type	On/Off, Floating Point	Proportional	Proportional/MFT
Manual override	•	•	•
Running time	90 seconds	90 seconds	150 sec. default / 90 to 300 variable
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>			
3 ft. cable, 1/2" conduit fitting	•	•	•
<b>CCV</b>	<b>C<sub>v</sub></b>	<b>Valve Nominal Size</b>	<b>Close-Off</b>
<b>Model #</b>	<b>Rating</b>	<b>Inches DN (mm)</b>	<b>psi</b>

### B2... 2-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS

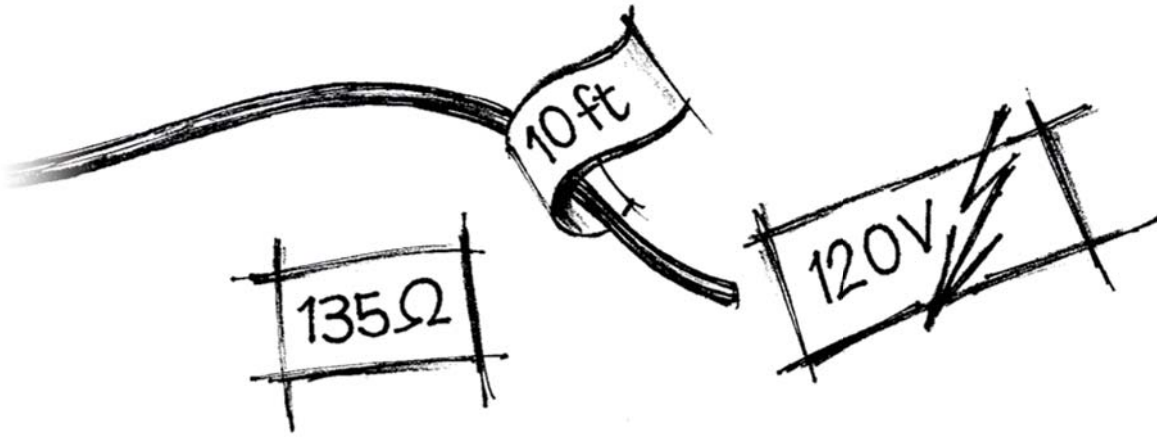
Model #	C <sub>v</sub> Rating	Valve Nominal Size Inches	DN (mm)	Close-Off psi	ARB24-3 Price	ARB24-SR Price	ARX24-MFT Price
B231	25	1¼	32	200	\$404.00	\$534.00	\$580.00
B232*	37	1¼	32	200	\$412.00	\$538.00	\$594.00
B238	19	1½	40	200	\$412.00	\$546.00	\$594.00
B239	29	1½	40	200	\$412.00	\$548.00	\$598.00
B240*	37	1½	40	200	\$414.00	\$550.00	\$600.00
B248	29	2	50	200	\$534.00	\$662.00	\$706.00
B249	46	2	50	200	\$536.00	\$668.00	\$710.00
B250*	57	2	50	200	\$538.00	\$672.00	\$720.00
B251	65	2	50	100	\$776.00		\$972.00
B252	85	2	50	100	\$842.00		\$1,036.00
B253	120	2	50	100	\$904.00		\$1,098.00
B254*	240	2	50	100	\$1,098.00		\$1,298.00
B261	60	2½	65	100	\$858.00		\$1,052.00
B262	75	2½	65	100	\$922.00		\$1,116.00
B263	110	2½	65	100	\$982.00		\$1,180.00
B264	150	2½	65	100	\$1,048.00		\$1,230.00
B265*	210	2½	65	100	\$1,178.00		\$1,372.00
B277	70	3	80	100	\$1,060.00		\$1,256.00
B278	130	3	80	100	\$1,122.00		\$1,318.00
B280*	170	3	80	100	\$1,384.00		\$1,580.00

\* Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

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**Non-Spring Return Actuator Options**



OPTIONS	ARX24-MFT95	ARB120-3	ARB120-SR
Control type	135 Ω	On/Off, Floating Point	Proportional
120 VAC power supply		•	•
3 ft. [1m] cable	•	•	•

CCV Model #	C <sub>v</sub> Rating	Valve Nominal Size Inches			
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**B2... 2-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS**

B231	25	1¼	\$676.00	\$440.00	\$564.00
B232*	37	1¼	\$686.00	\$446.00	\$572.00
B238	19	1½	\$686.00	\$446.00	\$578.00
B239	29	1½	\$690.00	\$446.00	\$580.00
B240*	37	1½	\$692.00	\$448.00	\$582.00
B248	29	2	\$804.00	\$564.00	\$692.00
B249	46	2	\$808.00	\$566.00	\$698.00
B250*	57	2	\$812.00	\$568.00	\$702.00
B251	65	2	\$1,064.00	\$808.00	
B252	85	2	\$1,128.00	\$874.00	
B253	120	2	\$1,158.00	\$938.00	
B254*	240	2	\$1,350.00	\$1,130.00	
B261	60	2½	\$1,150.00	\$890.00	
B262	75	2½	\$1,210.00	\$956.00	
B263	110	2½	\$1,274.00	\$1,014.00	
B264	150	2½	\$1,324.00	\$1,080.00	
B265*	210	2½	\$1,468.00	\$1,208.00	
B277	70	3	\$1,338.00	\$1,092.00	
B278	130	3	\$1,412.00	\$1,158.00	
B280*	170	3	\$1,756.00	\$1,414.00	

\* Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

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CCV

# B3 Series Characterized Control Valve, Non-Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage B-port modified linear for constant flow
Action	90° rotation
Sizes	½", ¾", 1"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
600 psi	½" - 1"
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB <2.0% for B to AB
C <sub>v</sub> rating	A port: as stated in chart B port: 70% of A to AB C <sub>v</sub>



## Non-Spring Return Actuators



ACTUATOR PART #	TR24-3-T US	TR24-3 US	TR24-SR-T US	TR24-SR US	LRB24-3-T	LRB24-3	LRB24-SR-T	LRB24-SR	LRX24-MFT
Control type	On/Off, Floating Point	On/Off, Floating Point	Proportional	Proportional	On/Off, Floating Point	On/Off, Floating Point	Proportional	Proportional	Proportional/MFT
Manual override	•	•	•	•	•	•	•	•	•
Running time	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	90 seconds	150 sec. default/ 35 to 200 variable
Noise level	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)
<b>ELECTRICAL CONNECTION:</b>									
½" conduit fitting						•		•	•
3 ft, cable		•		•		•		•	•
Covered terminal strip	•		•		•		•		
<b>CCV</b>	<b>C<sub>v</sub></b>	<b>Valve Nominal Size</b>	<b>Close-Off</b>						
<b>Model #</b>	<b>Rating</b>	<b>Inches</b>	<b>DN (mm)</b>	<b>psi</b>					

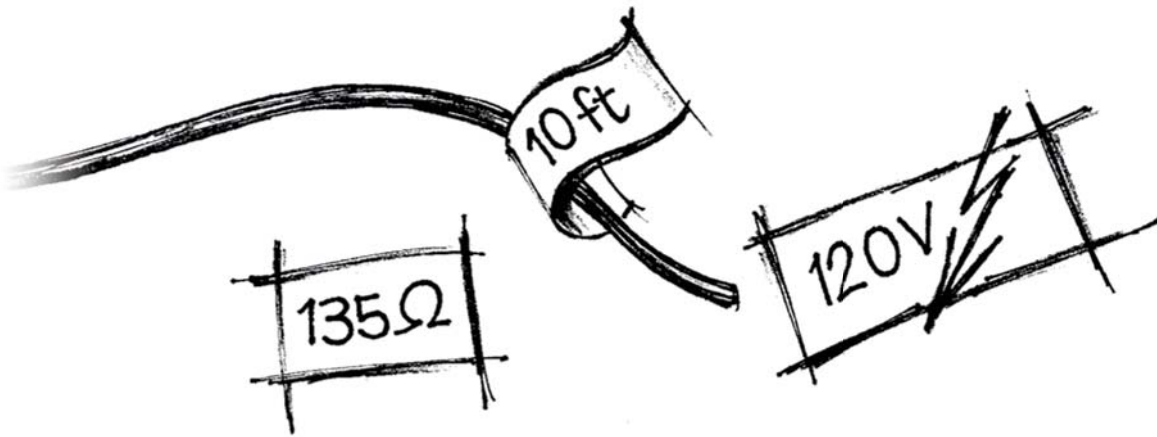
### B3... 3-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS

Model #	C <sub>v</sub> Rating	Valve Nominal Size (Inches)	Close-Off (psi)	TR24-3-T US	TR24-3 US	TR24-SR-T US	TR24-SR US	LRB24-3-T	LRB24-3	LRB24-SR-T	LRB24-SR	LRX24-MFT	
B307	0.3	½	15	200	\$256.00	\$268.00	\$368.00	\$380.00	\$286.00	\$300.00	\$396.00	\$408.00	\$518.00
B308	0.46	½	15	200	\$256.00	\$268.00	\$368.00	\$380.00	\$286.00	\$300.00	\$396.00	\$408.00	\$518.00
B309	0.8	½	15	200	\$256.00	\$268.00	\$368.00	\$380.00	\$286.00	\$300.00	\$396.00	\$408.00	\$518.00
B310	1.2	½	15	200	\$258.00	\$270.00	\$370.00	\$382.00	\$290.00	\$302.00	\$398.00	\$412.00	\$520.00
B311	1.9	½	15	200	\$258.00	\$270.00	\$370.00	\$382.00	\$290.00	\$302.00	\$398.00	\$412.00	\$520.00
B312	3	½	15	200	\$264.00	\$276.00	\$376.00	\$388.00	\$296.00	\$310.00	\$402.00	\$416.00	\$522.00
B313	4.7	½	15	200	\$266.00	\$278.00	\$380.00	\$392.00	\$300.00	\$314.00	\$406.00	\$422.00	\$532.00
B315*	10	½	15	200	\$268.00	\$280.00	\$382.00	\$394.00	\$304.00	\$320.00	\$412.00	\$426.00	\$534.00
B317	4.7	¾	20	200	\$320.00	\$332.00	\$428.00	\$442.00	\$362.00	\$374.00	\$444.00	\$456.00	\$554.00
B318	7.4	¾	20	200	\$324.00	\$336.00	\$430.00	\$444.00	\$364.00	\$376.00	\$446.00	\$458.00	\$556.00
B320*	24	¾	20	200	\$328.00	\$340.00	\$432.00	\$446.00	\$370.00	\$382.00	\$450.00	\$462.00	\$558.00
B322	7.4	1	25	200					\$392.00	\$404.00	\$504.00	\$518.00	\$636.00
B323	10	1	25	200					\$394.00	\$406.00	\$506.00	\$520.00	\$638.00
B325*	30	1	25	200					\$396.00	\$408.00	\$510.00	\$526.00	\$642.00

\* Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

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**Non-Spring Return Actuator Options**



OPTIONS	TR24-3/300 US	TR24-SR/300 US	LRB24-3-S	LRB120-3	LRB120-SR	LRX24-MFT95
Control type	On/Off, Floating Point	Proportional	On/Off, Floating Point	On/Off, Floating Point	Proportional	135 Ω
120 VAC power supply				•	•	
Built-in auxiliary switch			•			
½" conduit fitting			•	•	•	•
3 ft [1m] cable			•	•	•	•
10 ft [3m] cable	•	•				

CCV Model #	C <sub>v</sub> Rating	Valve Nominal Size Inches	TR24-3/300 US	TR24-SR/300 US	LRB24-3-S	LRB120-3	LRB120-SR	LRX24-MFT95
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**B3... 3-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS**

B307	0.3	½	\$284.00	\$396.00	\$354.00	\$334.00	\$444.00	\$612.00
B308	0.46	½	\$284.00	\$396.00	\$354.00	\$334.00	\$444.00	\$612.00
B309	0.8	½	\$284.00	\$396.00	\$354.00	\$334.00	\$444.00	\$612.00
B310	1.2	½	\$286.00	\$398.00	\$356.00	\$336.00	\$446.00	\$616.00
B311	1.9	½	\$286.00	\$398.00	\$356.00	\$336.00	\$446.00	\$616.00
B312	3	½	\$294.00	\$404.00	\$364.00	\$342.00	\$450.00	\$618.00
B313	4.7	½	\$296.00	\$408.00	\$368.00	\$346.00	\$454.00	\$626.00
B315*	10	½	\$298.00	\$412.00	\$372.00	\$350.00	\$458.00	\$630.00
B317	4.7	¾	\$348.00	\$458.00	\$428.00	\$404.00	\$486.00	\$650.00
B318	7.4	¾	\$352.00	\$460.00	\$430.00	\$406.00	\$488.00	\$652.00
B320*	24	¾	\$356.00	\$462.00	\$438.00	\$414.00	\$492.00	\$654.00
B322	7.4	1			\$460.00	\$440.00	\$550.00	\$710.00
B323	10	1			\$462.00	\$442.00	\$552.00	\$736.00
B325*	30	1			\$464.00	\$444.00	\$556.00	\$742.00

\* Models without characterizing discs.  
 For corrected C<sub>v</sub> with piping reduction factor refer to page 7-5.

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CCV

# B3 Series Characterized Control Valve, Non-Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage B-port modified linear for constant flow
Action	90° rotation
Sizes	1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
400 psi	1¼" - 2"
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB <2.0% for B to AB
C <sub>v</sub> rating	A port: as stated in chart B port: 70% of A to AB C <sub>v</sub>



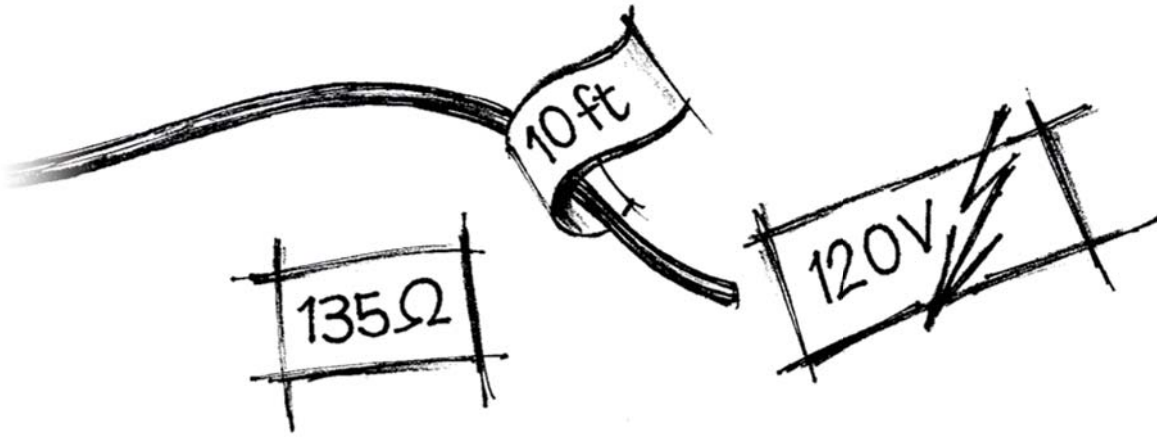
## Non-Spring Return Actuators



ACTUATOR PART #	ARB24-3		ARB24-SR		ARX24-MFT	
Control type	On/Off, Floating Point		Proportional		Proportional/MFT	
Manual override	•		•		•	
Running time	90 seconds		90 seconds		150 sec. default / 90 to 300 variable	
Noise level	<45 db(A)		<45 db(A)		<45 db(A)	
<b>ELECTRICAL CONNECTION:</b>						
3 ft. cable, ½" conduit fitting						
CCV Model #	C <sub>v</sub> Rating	Valve Nominal Size Inches	Nominal Size DN (mm)	Close-Off psi		
<b>B3... 3-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS</b>						
B329	10	1¼	32	200	\$472.00	\$552.00
B330	19	1¼	32	200	\$476.00	\$556.00
B331	25	1¼	32	200	\$600.00	\$728.00
B338	19	1½	40	200	\$608.00	\$742.00
B339	29	1½	40	200	\$610.00	\$746.00
B340	37	1½	40	200	\$612.00	\$750.00
B341	46	1½	40	200	\$616.00	\$754.00
B347	29	2	50	200	\$814.00	\$928.00
B348	37	2	50	200	\$816.00	\$930.00
B349	46	2	50	200	\$816.00	\$934.00
B350	57	2	50	200	\$822.00	\$936.00
B351	68	2	50	200	\$828.00	\$944.00
B352	83	2	50	200	\$834.00	\$950.00

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

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**Non-Spring Return Actuator Options**



OPTIONS	ARB120-3	ARB120-SR	ARX24-MFT95
Control type	On/Off, Floating Point	Proportional	135 Ω
120 VAC power supply	•	•	
3 ft [1m] cable	•	•	•
<b>CCV Model #</b>	<b>Cv Rating</b>	<b>Valve Nominal Size Inches</b>	

B3... 3-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS			
B329	10	1¼	\$508.00
B330	19	1¼	\$516.00
B331	25	1¼	\$634.00
B338	19	1½	\$642.00
B339	29	1½	\$644.00
B340	37	1½	\$646.00
B341	46	1½	\$650.00
B347	29	2	\$848.00
B348	37	2	\$850.00
B349	46	2	\$850.00
B350	57	2	\$854.00
B351	68	2	\$860.00
B352	83	2	\$868.00

For corrected Cvs with piping reduction factor refer to page 7-5.

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CCV

# B2 Series Characterized Control Valve, Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage
Action	90° rotation
Sizes	½", ¾"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
600 psi	½" - ¾"
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB



## Spring Return Actuators



ACTUATOR PART #		TFX24 US	TF24-3 US	TF24-SR US	TF24-MFT US
Control type		On/Off	Floating Point	Proportional	Proportional/MFT
Manual override					
Running time	Motor	<75 seconds	95 seconds	95 seconds	150 sec. default / 75 to 300 variable
	Spring	<75 seconds	<25 seconds	<25 seconds	<25 seconds
Noise level	Running	<40 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)
	Spring	<40 dB(A)	<62 dB(A)	<62 dB(A)	<62 dB(A)
<b>ELECTRICAL CONNECTION:</b>					
3 ft. cable, ½" conduit fitting		•	•	•	•
<b>CCV</b>	<b>C<sub>v</sub></b>	<b>Valve Nominal Size</b>	<b>Close-Off</b>		
<b>Model #</b>	<b>Rating</b>	<b>Inches</b>	<b>DN (mm)</b>	<b>psi</b>	

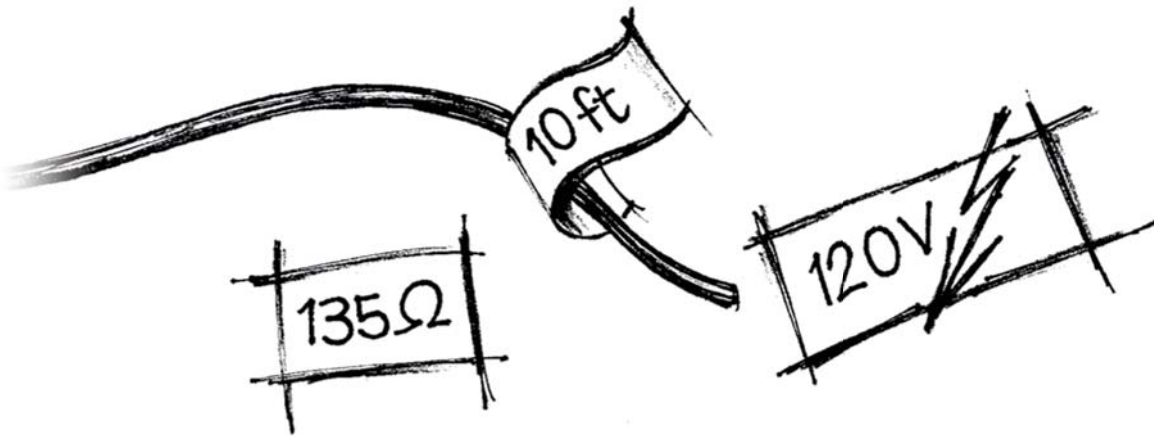
## B2... 2-WAY CHARACTERIZED CONTROL VALVE WITH SPRING RETURN ACTUATORS

B207	0.3	½	15	200	\$332.00	\$378.00	\$406.00	\$478.00
B208	0.46	½	15	200	\$332.00	\$378.00	\$406.00	\$478.00
B209	0.8	½	15	200	\$332.00	\$378.00	\$406.00	\$478.00
B210	1.2	½	15	200	\$334.00	\$382.00	\$408.00	\$480.00
B211	1.9	½	15	200	\$334.00	\$382.00	\$408.00	\$480.00
B212	3	½	15	200	\$342.00	\$386.00	\$414.00	\$484.00
B213	4.7	½	15	200	\$344.00	\$388.00	\$416.00	\$486.00
B214	7.4	½	15	200	\$346.00	\$390.00	\$418.00	\$488.00
B215*	10	½	15	200	\$348.00	\$392.00	\$422.00	\$490.00
B217	4.7	¾	20	200	\$382.00	\$428.00	\$458.00	\$516.00
B218	7.4	¾	20	200	\$384.00	\$430.00	\$460.00	\$518.00
B219	10	¾	20	200	\$386.00	\$432.00	\$462.00	\$520.00
B220*	24	¾	20	200	\$388.00	\$438.00	\$464.00	\$522.00

\* Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

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**Spring Return Actuator Options**



OPTIONS	TFX24/300 US	TFX24-S US	TFX120 US	TFX120/300 US	TFX120-S US	TF24-3/300 US	TF24-3-S US	TF24-SR/300 US	TF24-SR-S US
Control type	On/Off	On/Off	On/Off	On/Off	On/Off	Floating Point	Floating Point	Proportional	Proportional
120 VAC power supply			•	•	•				
Built-in auxiliary switch		•			•		•		•
3 ft [1m] cable		•	•		•		•		•
10 ft [3m] cable	•			•		•		•	
<b>CCV Model #</b>									
<b>C<sub>v</sub> Rating</b>									
<b>Valve Nominal Size Inches</b>									

B2... 2-WAY CHARACTERIZED CONTROL VALVE WITH SPRING RETURN ACTUATORS											
B207	0.3	½	\$362.00	\$384.00	\$374.00	\$402.00	\$428.00	\$406.00	\$432.00	\$440.00	\$462.00
B208	0.46	½	\$362.00	\$384.00	\$374.00	\$402.00	\$428.00	\$406.00	\$432.00	\$440.00	\$462.00
B209	0.8	½	\$362.00	\$384.00	\$374.00	\$402.00	\$428.00	\$406.00	\$432.00	\$440.00	\$462.00
B210	1.2	½	\$364.00	\$386.00	\$376.00	\$404.00	\$430.00	\$412.00	\$438.00	\$442.00	\$464.00
B211	1.9	½	\$364.00	\$386.00	\$376.00	\$404.00	\$430.00	\$412.00	\$438.00	\$442.00	\$464.00
B212	3	½	\$372.00	\$394.00	\$384.00	\$414.00	\$440.00	\$416.00	\$442.00	\$446.00	\$468.00
B213	4.7	½	\$374.00	\$396.00	\$386.00	\$416.00	\$442.00	\$418.00	\$444.00	\$448.00	\$470.00
B214	7.4	½	\$376.00	\$398.00	\$388.00	\$418.00	\$444.00	\$422.00	\$446.00	\$450.00	\$472.00
B215*	10	½	\$378.00	\$400.00	\$390.00	\$422.00	\$446.00	\$424.00	\$448.00	\$452.00	\$474.00
B217	4.7	¾	\$412.00	\$438.00	\$426.00	\$456.00	\$478.00	\$460.00	\$482.00	\$486.00	\$508.00
B218	7.4	¾	\$414.00	\$440.00	\$428.00	\$458.00	\$480.00	\$462.00	\$484.00	\$488.00	\$510.00
B219	10	¾	\$416.00	\$442.00	\$430.00	\$460.00	\$482.00	\$464.00	\$486.00	\$490.00	\$512.00
B220*	24	¾	\$418.00	\$444.00	\$432.00	\$462.00	\$484.00	\$468.00	\$490.00	\$492.00	\$514.00

\* Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

# B2 Series Characterized Control Valve, Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage
Action	90° rotation
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
600 psi	½" - 1¼" (B230)
400 psi	1¼" (B231) - 3"
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB



## Spring Return Actuators



ACTUATOR PART #		LF24 US	LF24-3 US	LF24-SR US	LF24-MFT US	AF24 US	AF24-SR US	AFRB24-MFT
Control type		On/Off	Floating Point	Proportional	Proportional/MFT	On/Off	Proportional	Proportional/MFT
Manual override					•	•	•	•
Running time	Motor	<40-75 seconds	150 seconds	150 seconds	150 sec. default/ 75 to 300 variable	150 seconds	150 seconds	150 sec. default/ 75 to 300 variable
	Spring	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<20 seconds	<20 seconds	<20 seconds
Noise level	Running	<50 dB(A)	<30 dB(A)	<30 dB(A)	<30 dB(A)	<45 dB (A)	<45 dB (A)	<45 dB (A)
	Spring	<62 dB (A)	<62 dB (A)	<62 dB (A)	<62 dB (A)	<62 dB (A)	<62 dB (A)	<62 dB (A)

## ELECTRICAL CONNECTION:

3 ft. cable, ½" conduit fitting

CCV	Cv	Valve Nominal Size	Close-Off					
Model #	Rating	Inches DN (mm)	psi					

## B2... 2-WAY CHARACTERIZED CONTROL VALVE WITH SPRING RETURN ACTUATORS

B2...	Cv	Valve Nominal Size	Close-Off	LF24 US	LF24-3 US	LF24-SR US	LF24-MFT US	AF24 US	AF24-SR US	AFRB24-MFT
Model #	Rating	Inches DN (mm)	psi							
B207	0.3	½	15	200	\$386.00	\$484.00	\$500.00	\$578.00		
B208	0.46	½	15	200	\$386.00	\$484.00	\$500.00	\$578.00		
B209	0.8	½	15	200	\$386.00	\$484.00	\$500.00	\$578.00		
B210	1.2	½	15	200	\$388.00	\$486.00	\$502.00	\$582.00		
B211	1.9	½	15	200	\$388.00	\$486.00	\$502.00	\$582.00		
B212	3	½	15	200	\$394.00	\$492.00	\$508.00	\$590.00		
B213	4.7	½	15	200	\$396.00	\$494.00	\$510.00	\$596.00		
B214	7.4	½	15	200	\$398.00	\$496.00	\$512.00	\$606.00		
B215*	10	½	15	200	\$396.00	\$498.00	\$514.00	\$612.00		
B217	4.7	¾	20	200	\$434.00	\$534.00	\$546.00	\$624.00		
B218	7.4	¾	20	200	\$436.00	\$536.00	\$548.00	\$626.00		
B219	10	¾	20	200	\$438.00	\$538.00	\$550.00	\$628.00		
B220*	24	¾	20	200	\$440.00	\$540.00	\$552.00	\$630.00		
B222	7.4	1	25	200	\$448.00	\$544.00	\$556.00	\$644.00		
B223	10	1	25	200	\$454.00	\$552.00	\$566.00	\$646.00		
B224	19	1	25	200	\$462.00	\$558.00	\$572.00	\$648.00		
B225*	30	1	25	200	\$468.00	\$568.00	\$580.00	\$650.00		
B229	10	1¼	32	200	\$476.00	\$582.00	\$594.00	\$668.00		
B230*	19	1¼	32	200	\$478.00	\$586.00	\$596.00	\$670.00		
B231	25	1¼	32	200				\$554.00	\$688.00	\$784.00
B232*	37	1¼	32	200				\$556.00	\$690.00	\$786.00
B238	19	1½	40	200				\$560.00	\$696.00	\$790.00
B239	29	1½	40	200				\$562.00	\$700.00	\$792.00
B240*	37	1½	40	200				\$564.00	\$704.00	\$794.00
B248	29	2	50	200				\$780.00	\$938.00	\$980.00
B249	46	2	50	200				\$790.00	\$944.00	\$988.00
B250*	57	2	50	200				\$798.00	\$950.00	\$992.00
B251	65	2	50	100				\$972.00		\$1,098.00
B252	85	2	50	100				\$1,036.00		\$1,166.00
B253	120	2	50	100				\$1,098.00		\$1,228.00
B254*	240	2	50	100				\$1,294.00		\$1,410.00
B261	60	2½	65	100				\$1,052.00		\$1,184.00
B262	75	2½	65	100				\$1,116.00		\$1,246.00
B263	110	2½	65	100				\$1,180.00		\$1,308.00
B264	150	2½	65	100				\$1,242.00		\$1,376.00
B265*	210	2½	65	100				\$1,376.00		\$1,502.00
B277	70	3	80	100				\$1,256.00		\$1,388.00
B278	130	3	80	100				\$1,322.00		\$1,448.00
B280*	170	3	80	100				\$1,580.00		\$1,708.00

\* Models without characterizing discs.

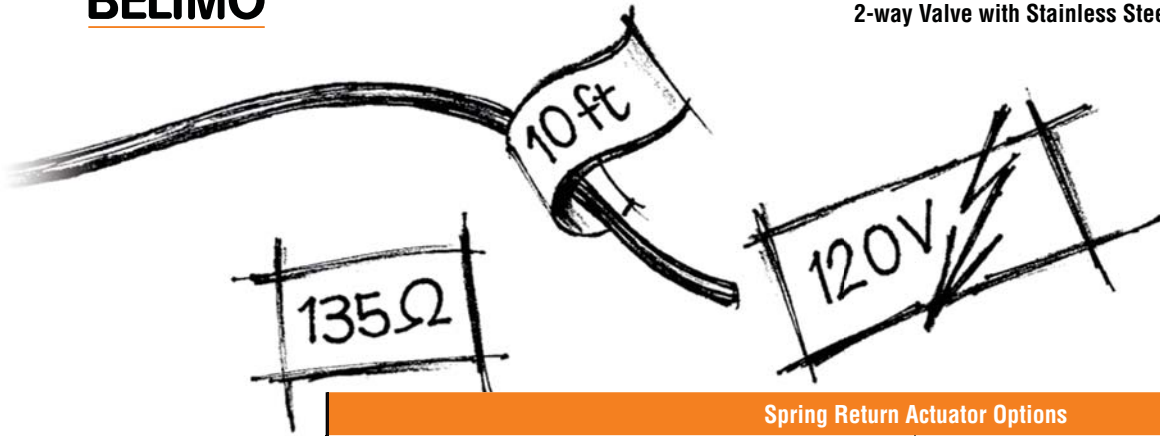
For corrected Cvs with piping reduction factor refer to page 7-5.

800-543-9038 USA

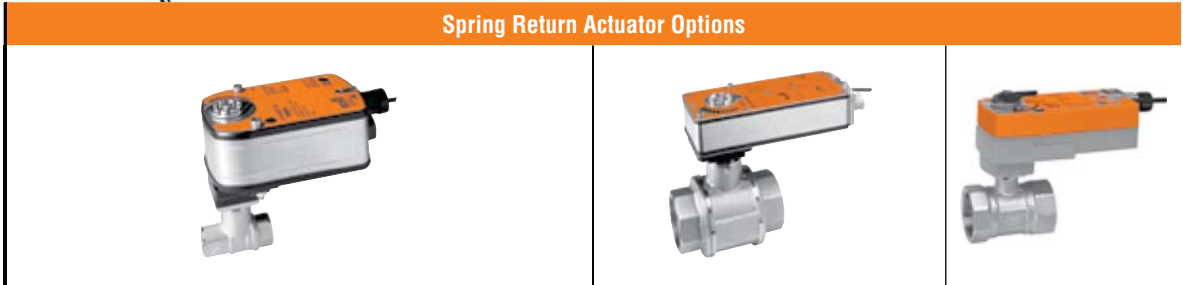
866-805-7089 CANADA

203-791-8396 LATIN AMERICA





**Spring Return Actuator Options**



OPTIONS	LF24-S US	LF24-3-S US	LF24-SR-S US	LF120 US	LF120-S US	AF24-S US	AF120 US	AF120-S US	AFRB24-MFT-S	AFRB24-MFT95
Control type	On/Off	Floating Point	Proportional	On/Off	On/Off	On/Off	On/Off	On/Off	Proportional/MFT	135 Ω
120 VAC power supply				•	•		•	•		
Built-in auxiliary switch	•	•	•		•	•		•	•	
3 ft [1m] cable	•	•	•	•	•	•	•	•	•	•
<b>CCV Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Valve Nominal Size Inches</b>								

**B2... 2-WAY CHARACTERIZED CONTROL VALVE WITH SPRING RETURN ACTUATORS**

B207	0.3	½	\$442.00	\$540.00	\$556.00	\$418.00	\$472.00					
B208	0.46	½	\$442.00	\$540.00	\$556.00	\$418.00	\$472.00					
B209	0.8	½	\$442.00	\$540.00	\$556.00	\$418.00	\$472.00					
B210	1.2	½	\$444.00	\$542.00	\$558.00	\$420.00	\$474.00					
B211	1.9	½	\$444.00	\$542.00	\$558.00	\$420.00	\$474.00					
B212	3	½	\$450.00	\$548.00	\$564.00	\$426.00	\$480.00			\$742.00		
B213	4.7	½	\$452.00	\$550.00	\$566.00	\$428.00	\$482.00			\$746.00		
B214	7.4	½	\$454.00	\$552.00	\$568.00	\$430.00	\$484.00			\$752.00		
B215*	10	½	\$456.00	\$556.00	\$570.00	\$432.00	\$486.00			\$758.00		
B217	4.7	¾	\$486.00	\$582.00	\$598.00	\$452.00	\$512.00			\$764.00		
B218	7.4	¾	\$488.00	\$584.00	\$600.00	\$454.00	\$514.00			\$766.00		
B219	10	¾	\$480.00	\$586.00	\$602.00	\$456.00	\$516.00			\$768.00		
B220*	24	¾	\$492.00	\$590.00	\$606.00	\$458.00	\$518.00			\$770.00		
B222	7.4	1	\$506.00	\$598.00	\$612.00	\$480.00	\$538.00			\$792.00		
B223	10	1	\$508.00	\$604.00	\$620.00	\$484.00	\$540.00			\$794.00		
B224	19	1	\$516.00	\$610.00	\$626.00	\$492.00	\$548.00			\$796.00		
B225*	30	1	\$522.00	\$622.00	\$634.00	\$498.00	\$554.00			\$798.00		
B229	10	1¼	\$532.00	\$636.00	\$642.00	\$508.00	\$562.00			\$814.00		
B230*	19	1¼	\$534.00	\$640.00	\$644.00	\$510.00	\$564.00			\$816.00		
B231	25	1¼						\$640.00	\$606.00	\$692.00	\$872.00	\$830.00
B232*	37	1¼						\$640.00	\$608.00	\$694.00	\$874.00	\$832.00
B238	19	1½						\$646.00	\$612.00	\$698.00	\$876.00	\$834.00
B239	29	1½						\$650.00	\$616.00	\$700.00	\$878.00	\$836.00
B240*	37	1½						\$652.00	\$618.00	\$702.00	\$880.00	\$840.00
B248	29	2						\$868.00	\$834.00	\$918.00	\$1,066.00	\$1,006.00
B249	46	2						\$876.00	\$844.00	\$928.00	\$1,074.00	\$1,014.00
B250*	57	2						\$884.00	\$852.00	\$938.00	\$1,080.00	\$1,018.00
B251	65	2						\$1,058.00	\$1,026.00	\$1,110.00	\$1,184.00	\$1,122.00
B252	85	2						\$1,120.00	\$1,090.00	\$1,176.00	\$1,250.00	\$1,190.00
B253	120	2						\$1,184.00	\$1,154.00	\$1,238.00	\$1,312.00	\$1,254.00
B254*	240	2						\$1,380.00	\$1,346.00	\$1,434.00	\$1,496.00	\$1,438.00
B261	60	2½						\$1,136.00	\$1,104.00	\$1,190.00	\$1,270.00	\$1,208.00
B262	75	2½						\$1,202.00	\$1,172.00	\$1,258.00	\$1,332.00	\$1,272.00
B263	110	2½						\$1,266.00	\$1,234.00	\$1,318.00	\$1,394.00	\$1,334.00
B264	150	2½						\$1,326.00	\$1,296.00	\$1,382.00	\$1,462.00	\$1,400.00
B265*	210	2½						\$1,462.00	\$1,426.00	\$1,514.00	\$1,590.00	\$1,528.00
B277	70	3						\$1,340.00	\$1,308.00	\$1,394.00	\$1,474.00	\$1,412.00
B278	130	3						\$1,408.00	\$1,378.00	\$1,464.00	\$1,534.00	\$1,474.00
B280*	170	3						\$1,664.00	\$1,630.00	\$1,716.00	\$1,796.00	\$1,734.00

\* Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

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CCV

# B3 Series Characterized Control Valve, Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A port equal percentage B port modified linear for constant flow
Action	90° rotation
Sizes	½", ¾"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
600 psi	½" - ¾"
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB <2.0% for B to AB
Cv rating	A-port: as stated in chart B-port: 70% of A to AB Cv



## Spring Return Actuators



ACTUATOR PART #		TFX24 US	TF24-3 US	TF24-SR US	TF24-MFT US
Control type		On/Off	Floating Point	Proportional	Proportional/MFT
Manual override					
Running time	Motor	<75 seconds	95 seconds	95 seconds	150 sec. default / 75 to 300 variable
	Spring	<75 seconds	<25 seconds	<25 seconds	<25 seconds
Noise level	Running	<40 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)
	Spring	<40 dB(A)	<62 dB(A)	<62 dB(A)	<62 dB(A)

### ELECTRICAL CONNECTION:

3 ft. cable, ½" conduit fitting		•	•	•	•
CCV Model #	Cv Rating	Valve Nominal Size Inches	Nominal Size DN (mm)	Close-Off psi	

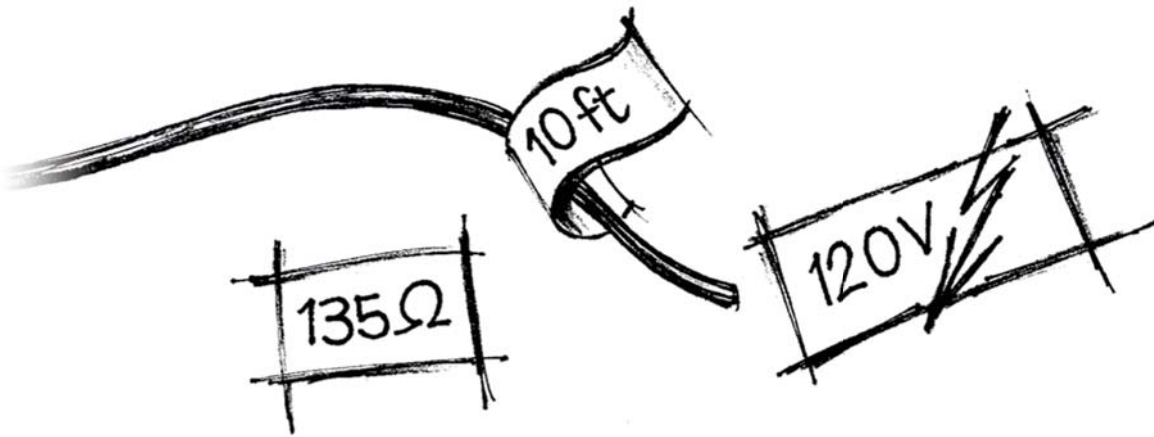
### B3... 3-WAY CHARACTERIZED CONTROL VALVE WITH SPRING RETURN ACTUATORS

Model #	Cv Rating	Valve Nominal Size Inches	Nominal Size DN (mm)	Close-Off psi	TFX24 US	TF24-3 US	TF24-SR US	TF24-MFT US
B307	0.3	½	15	200	\$400.00	\$464.00	\$474.00	\$546.00
B308	0.46	½	15	200	\$400.00	\$464.00	\$474.00	\$546.00
B309	0.8	½	15	200	\$400.00	\$464.00	\$474.00	\$546.00
B310	1.2	½	15	200	\$402.00	\$466.00	\$476.00	\$548.00
B311	1.9	½	15	200	\$406.00	\$468.00	\$478.00	\$550.00
B312	3	½	15	200	\$412.00	\$470.00	\$482.00	\$554.00
B313	4.7	½	15	200	\$414.00	\$474.00	\$486.00	\$558.00
B315*	10	½	15	200	\$416.00	\$476.00	\$488.00	\$560.00
B317	4.7	¾	20	200	\$452.00	\$518.00	\$526.00	\$594.00
B318	7.4	¾	20	200	\$454.00	\$520.00	\$530.00	\$598.00
B320*	24	¾	20	200	\$456.00	\$522.00	\$532.00	\$600.00

\*Models without characterizing discs.

For corrected Cvs with piping reduction factor refer to page 7-5.

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### Spring Return Actuator Options



OPTIONS	TFX24/300 US	TFX24-S US	TFX120 US	TFX120/300 US	TFX120-S US	TF24-3/300 US	TF24-3-S US	TF24-SR/300 US	TF24-SR-S US		
Control type	On/Off	On/Off	On/Off	On/Off	On/Off	Floating Point	Floating Point	Proportional	Proportional		
120 VAC power supply			•	•	•						
Built-in auxiliary switch		•			•		•		•		
3 ft [1m] cable		•	•		•		•		•		
10 ft [3m] cable	•			•		•		•			
<b>CCV Model #</b>											
<b>C<sub>v</sub> Rating</b>											
<b>Valve Nominal Size Inches</b>											
<b>B3... 3-WAY CHARACTERIZED CONTROL VALVE WITH SPRING RETURN ACTUATORS</b>											
B307	0.3	½	\$432.00	\$456.00	\$446.00	\$474.00	\$496.00	\$492.00	\$514.00	\$504.00	\$530.00
B308	0.46	½	\$432.00	\$456.00	\$446.00	\$474.00	\$496.00	\$492.00	\$514.00	\$504.00	\$530.00
B309	0.8	½	\$432.00	\$456.00	\$446.00	\$474.00	\$496.00	\$492.00	\$514.00	\$504.00	\$530.00
B310	1.2	½	\$436.00	\$458.00	\$448.00	\$476.00	\$498.00	\$494.00	\$516.00	\$506.00	\$532.00
B311	1.9	½	\$440.00	\$462.00	\$452.00	\$480.00	\$504.00	\$496.00	\$518.00	\$508.00	\$534.00
B312	3	½	\$444.00	\$466.00	\$456.00	\$484.00	\$508.00	\$498.00	\$520.00	\$514.00	\$538.00
B313	4.7	½	\$446.00	\$468.00	\$458.00	\$486.00	\$510.00	\$502.00	\$524.00	\$518.00	\$542.00
B315*	10	½	\$448.00	\$470.00	\$460.00	\$488.00	\$514.00	\$504.00	\$528.00	\$520.00	\$544.00
B317	4.7	¾	\$480.00	\$504.00	\$492.00	\$526.00	\$548.00	\$550.00	\$574.00	\$554.00	\$578.00
B318	7.4	¾	\$482.00	\$506.00	\$494.00	\$528.00	\$550.00	\$552.00	\$576.00	\$558.00	\$582.00
B320*	24	¾	\$484.00	\$508.00	\$496.00	\$530.00	\$552.00	\$554.00	\$578.00	\$560.00	\$584.00

\* Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

# B3 Series Characterized Control Valve, Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A port equal percentage B port modified linear for constant flow
Action	90° rotation
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
600 psi	½" - 1"
400 psi	1¼" - 2"
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB <2.0% for B to AB
C <sub>v</sub> rating	A-port: as stated in chart B-port: 70% of A to AB C <sub>v</sub>



## Spring Return Actuators



ACTUATOR PART #		LF24 US	LF24-3 US	LF24-SR US	LF24-MFT US	AF24 US	AF24-SR US	AFRB24-MFT
Control type		On/Off	Floating Point	Proportional	Proportional/MFT	On/Off	Proportional	Proportional/MFT
Manual override						•	•	•
Running time	Motor	<40-75 seconds	150 seconds	150 seconds	150 sec. default/ 75 to 300 variable	150 seconds	150 seconds	150 sec. default/ 75 to 300 variable
	Spring	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<20 seconds	<20 seconds	<20 seconds
Noise level	Running	<50 dB(A)	<30 dB(A)	<30 dB(A)	<30 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
	Spring	<62 dB(A)	<62 dB(A)	<62 dB(A)	<62 dB(A)	<62 dB(A)	<62 dB(A)	<62 dB(A)
<b>ELECTRICAL CONNECTION:</b>								
3 ft. cable, ½" conduit fitting		•	•	•	•	•	•	•
<b>CCV</b>	<b>C<sub>v</sub></b>	<b>Valve</b>	<b>Nominal Size</b>	<b>Close-Off</b>				
<b>Model #</b>	<b>Rating</b>	<b>Inches</b>	<b>DN (mm)</b>	<b>psi</b>				

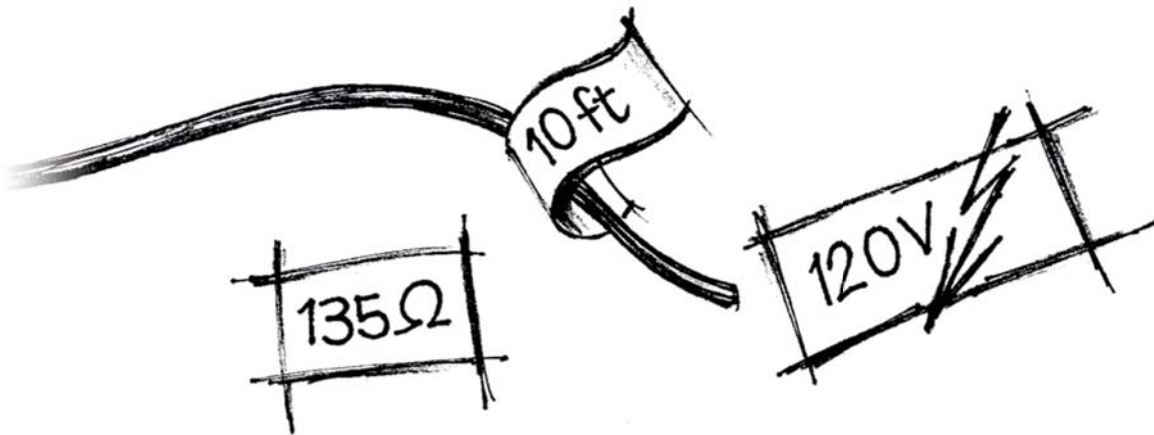
## B3... 3-WAY CHARACTERIZED CONTROL VALVE WITH SPRING RETURN ACTUATORS

B307	0.3	½	15	200	\$452.00	\$554.00	\$582.00	\$636.00			
B308	0.46	½	15	200	\$452.00	\$554.00	\$582.00	\$636.00			
B309	0.8	½	15	200	\$452.00	\$554.00	\$582.00	\$636.00			
B310	1.2	½	15	200	\$454.00	\$556.00	\$584.00	\$640.00			
B311	1.9	½	15	200	\$458.00	\$560.00	\$588.00	\$644.00			
B312	3	½	15	200	\$464.00	\$566.00	\$594.00	\$652.00			
B313	4.7	½	15	200	\$466.00	\$568.00	\$596.00	\$656.00			
B315*	10	½	15	200	\$468.00	\$570.00	\$600.00	\$666.00			
B317	4.7	¾	20	200	\$496.00	\$596.00	\$616.00	\$680.00			
B318	7.4	¾	20	200	\$504.00	\$602.00	\$620.00	\$684.00			
B320*	24	¾	20	200	\$510.00	\$612.00	\$624.00	\$688.00			
B322	7.4	1	25	200	\$526.00	\$630.00	\$644.00	\$706.00			
B323	10	1	25	200	\$532.00	\$632.00	\$646.00	\$708.00			
B325*	30	1	25	200	\$536.00	\$634.00	\$648.00	\$710.00			
B329	10	1¼	32	200					\$632.00	\$756.00	\$782.00
B330	19	1¼	32	200					\$636.00	\$760.00	\$786.00
B331	25	1¼	32	200					\$770.00	\$912.00	\$972.00
B338	19	1½	40	200					\$782.00	\$926.00	\$974.00
B339	29	1½	40	200					\$784.00	\$944.00	\$976.00
B340	37	1½	40	200					\$790.00	\$948.00	\$978.00
B341	46	1½	40	200					\$942.00	\$1,112.00	\$1,140.00
B347	29	2	50	200					\$1,110.00	\$1,262.00	\$1,292.00
B348	37	2	50	200					\$1,112.00	\$1,264.00	\$1,294.00
B349	46	2	50	200					\$1,112.00	\$1,266.00	\$1,296.00
B350	57	2	50	200					\$1,114.00	\$1,276.00	\$1,300.00
B351	68	2	50	200					\$1,278.00	\$1,476.00	\$1,502.00
B352	83	2	50	200					\$1,334.00	\$1,530.00	\$1,558.00

\*Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

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### Spring Return Actuator Options



OPTIONS	LF24-S US	LF120 US	LF120-S US	LF24-3-S US	LF24-SR-S US	AF24-S US	AF120 US	AF120-S US	AFRB24-MFT-S	AFRB24-MFT95
Control type	On/Off	On/Off	On/Off	Floating Point	Proportional	On/Off	On/Off	On/Off	Proportional/MFT	135 Ω
120 VAC power supply		•	•				•	•		
Built-in auxiliary switch	•		•	•	•	•		•	•	
3 ft [1m] cable	•	•	•	•	•	•	•	•	•	•
<b>CCV Model #</b>										
<b>C<sub>v</sub> Rating</b>										
<b>Valve Nominal Size Inches</b>										

### B3... 3-WAY CHARACTERIZED CONTROL VALVE WITH SPRING RETURN ACTUATORS

B307	0.3	½	\$504.00	\$482.00	\$538.00	\$606.00	\$636.00				
B308	0.46	½	\$504.00	\$482.00	\$538.00	\$606.00	\$636.00				
B309	0.8	½	\$504.00	\$482.00	\$538.00	\$606.00	\$636.00				
B310	1.2	½	\$506.00	\$484.00	\$540.00	\$608.00	\$638.00				
B311	1.9	½	\$510.00	\$488.00	\$544.00	\$612.00	\$642.00				
B312	3	½	\$516.00	\$494.00	\$550.00	\$618.00	\$648.00				\$798.00
B313	4.7	½	\$518.00	\$496.00	\$552.00	\$620.00	\$650.00				\$800.00
B315*	10	½	\$522.00	\$500.00	\$556.00	\$624.00	\$654.00				\$806.00
B317	4.7	¾	\$552.00	\$532.00	\$584.00	\$652.00	\$672.00				\$840.00
B318	7.4	¾	\$558.00	\$538.00	\$590.00	\$658.00	\$674.00				\$844.00
B320*	24	¾	\$564.00	\$544.00	\$596.00	\$668.00	\$676.00				\$848.00
B322	7.4	1	\$578.00	\$556.00	\$608.00	\$680.00	\$690.00				\$868.00
B323	10	1	\$584.00	\$562.00	\$616.00	\$688.00	\$696.00				\$864.00
B325*	30	1	\$588.00	\$566.00	\$620.00	\$694.00	\$708.00				\$872.00
B329	10	1¼					\$718.00	\$684.00	\$740.00	\$838.00	\$808.00
B330	19	1¼					\$722.00	\$688.00	\$744.00	\$842.00	\$812.00
B331	25	1¼					\$856.00	\$824.00	\$908.00	\$1,058.00	\$996.00
B338	19	1½					\$868.00	\$838.00	\$922.00	\$1,060.00	\$998.00
B339	29	1½					\$870.00	\$840.00	\$924.00	\$1,062.00	\$1,000.00
B340	37	1½					\$876.00	\$844.00	\$928.00	\$1,064.00	\$1,004.00
B341	46	1½					\$1,028.00	\$992.00	\$1,080.00	\$1,222.00	\$1,160.00
B347	29	2					\$1,196.00	\$1,166.00	\$1,250.00	\$1,378.00	\$1,316.00
B348	37	2					\$1,198.00	\$1,168.00	\$1,254.00	\$1,380.00	\$1,318.00
B349	46	2					\$1,198.00	\$1,168.00	\$1,254.00	\$1,382.00	\$1,320.00
B350	57	2					\$1,200.00	\$1,170.00	\$1,256.00	\$1,386.00	\$1,324.00
B351	68	2					\$1,364.00	\$1,332.00	\$1,416.00	\$1,586.00	\$1,522.00
B352	83	2					\$1,420.00	\$1,388.00	\$1,474.00	\$1,642.00	\$1,578.00

\* Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

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CCV

# B6 Series Flanged CCV, Non-Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage
Action	90° rotation
Sizes	2½", 3"
Type of end fitting	pattern to mate with ANSI 125 flange
Materials:	
Body	cast iron - GG25
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	stainless steel
Packing	2 EPDM O rings, lubricated
Pressure rating	According to ANSI 125, standard class B
Media temp. range	0°F to 250°F [-18°C to +120°C]
Maximum differential pressure (ΔP)	58 psi
Leakage	0% for A to AB



## Non-Spring Return Actuators



ACTUATOR PART #	ARB24-3-5-14	ARB24-MFT-5-14			
Control type	On/Off, Floating Point	Proportional/MFT			
Manual override	•	•			
Running time	90 seconds	150 sec. default / 90 to 300 variable			
Noise level	<45 dB(A)	<45 dB(A)			
<b>ELECTRICAL CONNECTION:</b>					
3 ft. cable, ½" conduit fitting	•	•			
<b>B6...S 2-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS</b>					
<b>CCV Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Valve Nominal Size Inches DN (mm)</b>	<b>Close-Off psi</b>		
B6250S-070	70	2½ 65	100	\$1,550.00	\$1,692.00
B6250S-110	110	2½ 65	100	\$1,618.00	\$1,746.00
B6300S-110	110	3 80	100	\$1,696.00	\$1,896.00

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

Example: ARX24-MFT is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Note: Most popular configurations available at no additional cost. All other configurations carry a \$34.00 list price. B6 Series 4", 5" and 6" sizes will be available in June 2010. For more information, call Customer Service at 800-543-9038 or visit [www.belimo.us](http://www.belimo.us).

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### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage
Action	90° rotation
Sizes	2½", 3"
Type of end fitting	pattern to mate with ANSI 125 flange
<b>Materials:</b>	
Body	cast iron - GG25
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	stainless steel
Packing	2 EPDM O rings, lubricated
Pressure rating	According to ANSI 125, standard class B
Media temp. range	0°F to 250°F [-18°C to +120°C]
Maximum differential pressure (ΔP)	58 psi
Leakage	0% for A to AB



### Spring Return Actuators



### Electronic Fail-Safe Actuators



ACTUATOR PART #		AF24 US	AFRB24-MFT-5-14	GKRB24-3-5-14	GKRB24-MFT-5-14
Control type		On/Off	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override		•	•	•	•
Running time	Motor	150 seconds	150 sec. default / 75 to 300 variable	150 seconds default variable 90 to 150 seconds	150 seconds default variable 90 to 150 seconds
	Fail-Safe	<20 seconds	<20 seconds	35 seconds	35 seconds
Noise level	Running	< 45 dB(A)	< 45 dB(A)	< 45 dB(A)	< 45 dB(A)
	Spring	62 dB(A)	62 dB(A)		
<b>ELECTRICAL CONNECTION:</b>					
3 ft, cable, ½" conduit fitting		•	•	•	•
<b>CCV Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Valve Nominal Size Inches</b>	<b>DN (mm)</b>	<b>Close-Off psi</b>	
<b>B6...S 2-WAY CHARACTERIZED CONTROL VALVE WITH SPRING RETURN ACTUATORS</b>					
B6250S-070	70	2½	65	100	\$1,618.00
B6250S-110	110	2½	65	100	\$1,692.00
B6300S-110	110	3	80	100	\$1,828.00

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

Example: AFRX24-MFT is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Note: Most popular configurations available at no additional cost. All other configurations carry a \$34.00 list price. B6 Series 4", 5" and 6" sizes will be available in June 2010. For more information, call Customer Service at 800-543-9038 or visit [www.belimo.us](http://www.belimo.us).

# B2 Series Characterized Control Valve, NEMA 4X Non-Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage
Action	90° rotation
Sizes	½", ¾", 1", 1¼"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
600 psi	½" - 1¼" (B230)
400 psi	1¼" (B231)
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB



## NEMA 4X Non-Spring Return Actuators



ACTUATOR PART #	NRB24-3-T N4	NRB24-SR-T N4	NRX24-MFT-T N4	NRB24-3-T N4H	NRB24-SR-T N4H	NRX24-MFT-T N4H				
Control type	On/Off, Floating Point	Proportional	Proportional/MFT	On/Off, Floating Point	Proportional	Proportional/MFT				
Manual override	•	•	•	•	•	•				
Running time	90 seconds	90 seconds	150 sec. default / 60 to 200 variable	90 seconds	90 seconds	150 sec. default / 60 to 200 variable				
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)				
Built-in heater	•	•	•	•	•	•				
<b>ELECTRICAL CONNECTION:</b>										
Terminal strip	•	•	•	•	•	•				
<b>CCV</b> Model #	<b>C<sub>v</sub></b> Rating	<b>Valve Nominal Size</b> Inches	<b>Close-Off</b> psi							
<b>B2... 2-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS</b>										
B207	0.3	½	15	200	\$516.00	\$612.00	\$720.00	\$844.00	\$940.00	\$1,042.00
B208	0.46	½	15	200	\$516.00	\$612.00	\$720.00	\$844.00	\$940.00	\$1,042.00
B209	0.8	½	15	200	\$516.00	\$612.00	\$720.00	\$844.00	\$940.00	\$1,042.00
B210	1.2	½	15	200	\$518.00	\$614.00	\$724.00	\$846.00	\$942.00	\$1,046.00
B211	1.9	½	15	200	\$518.00	\$614.00	\$724.00	\$846.00	\$942.00	\$1,046.00
B212	3	½	15	200	\$518.00	\$614.00	\$724.00	\$846.00	\$942.00	\$1,046.00
B213	4.7	½	15	200	\$522.00	\$620.00	\$728.00	\$850.00	\$948.00	\$1,050.00
B214	7.4	½	15	200	\$528.00	\$626.00	\$734.00	\$856.00	\$954.00	\$1,056.00
B215*	10	½	15	200	\$532.00	\$630.00	\$738.00	\$860.00	\$958.00	\$1,060.00
B217	4.7	¾	20	200	\$562.00	\$642.00	\$756.00	\$890.00	\$970.00	\$1,078.00
B218	7.4	¾	20	200	\$564.00	\$644.00	\$758.00	\$892.00	\$972.00	\$1,080.00
B219	10	¾	20	200	\$566.00	\$646.00	\$760.00	\$894.00	\$974.00	\$1,082.00
B220*	24	¾	20	200	\$570.00	\$650.00	\$764.00	\$898.00	\$978.00	\$1,086.00
B222	7.4	1	25	200	\$578.00	\$660.00	\$786.00	\$906.00	\$988.00	\$1,108.00
B223	10	1	25	200	\$582.00	\$662.00	\$792.00	\$910.00	\$990.00	\$1,114.00
B224	19	1	25	200	\$582.00	\$666.00	\$798.00	\$910.00	\$994.00	\$1,120.00
B225*	30	1	25	200	\$586.00	\$670.00	\$802.00	\$914.00	\$998.00	\$1,124.00
B229	10	1¼	32	200	\$618.00	\$694.00	\$822.00	\$946.00	\$1,022.00	\$1,144.00
B230*	19	1¼	32	200	\$620.00	\$698.00	\$824.00	\$948.00	\$1,026.00	\$1,146.00

\*Models without characterizing discs.

For corrected C<sub>v</sub>s with piping reduction factor refer to page 7-5.

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### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage
Action	90° rotation
Sizes	1¼", 1½", 2", 2½", 3"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
400 psi	1¼" - 3"
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB



### NEMA 4X Non-Spring Return Actuators



ACTUATOR PART #	ARB24-3-T N4	ARB24-SR-T N4	ARX24-MFT-T N4	ARB24-3-T N4H	ARB24-SR-T N4H	ARX24-MFT-T N4H
Control type	On/Off, Floating Point	Proportional	Proportional/MFT	On/Off, Floating Point	Proportional	Proportional/MFT
Manual override	•	•	•	•	•	•
Running time	90 seconds	90 seconds	150 sec. default / 90 to 300 variable	90 seconds	90 seconds	150 sec. default / 90 to 300 variable
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
Built-in heater				•	•	•
<b>ELECTRICAL CONNECTION:</b>						
Terminal strip	•	•	•	•	•	•

CCV Model #	Cv Rating	Valve Inches	Nominal Size DN (mm)	Close-Off psi
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B2... 2-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS										
B231	25	1¼	32	200	\$674.00	\$800.00	\$848.00	\$1,064.00	\$1,190.00	\$1,206.00
B232*	37	1¼	32	200	\$676.00	\$802.00	\$852.00	\$1,066.00	\$1,192.00	\$1,210.00
B238	19	1½	40	200	\$682.00	\$814.00	\$866.00	\$1,072.00	\$1,204.00	\$1,224.00
B239	29	1½	40	200	\$682.00	\$814.00	\$866.00	\$1,072.00	\$1,204.00	\$1,224.00
B240*	37	1½	40	200	\$686.00	\$818.00	\$866.00	\$1,076.00	\$1,208.00	\$1,214.00
B248	29	2	50	200	\$704.00	\$820.00	\$872.00	\$1,094.00	\$1,210.00	\$1,230.00
B249	46	2	50	200	\$802.00	\$932.00	\$978.00	\$1,192.00	\$1,322.00	\$1,336.00
B250*	57	2	50	200	\$804.00	\$936.00	\$982.00	\$1,194.00	\$1,326.00	\$1,340.00
B251	65	2	50	100	\$806.00	\$944.00	\$990.00	\$1,196.00	\$1,334.00	\$1,348.00
B252	85	2	50	100	\$1,048.00	\$1,182.00	\$1,242.00	\$1,438.00	\$1,572.00	\$1,600.00
B253	120	2	50	100	\$1,110.00	\$1,246.00	\$1,306.00	\$1,500.00	\$1,636.00	\$1,664.00
B254*	240	2	50	100	\$1,176.00	\$1,310.00	\$1,370.00	\$1,568.00	\$1,700.00	\$1,728.00
B261	60	2½	65	100	\$1,188.00	\$1,322.00	\$1,384.00	\$1,578.00	\$1,712.00	\$1,742.00
B262	75	2½	65	100	\$1,190.00	\$1,324.00	\$1,386.00	\$1,580.00	\$1,714.00	\$1,744.00
B263	110	2½	65	100	\$1,192.00	\$1,326.00	\$1,388.00	\$1,582.00	\$1,716.00	\$1,746.00
B264	150	2½	65	100	\$1,254.00	\$1,388.00	\$1,450.00	\$1,644.00	\$1,778.00	\$1,808.00
B265*	210	2½	65	100	\$1,316.00	\$1,452.00	\$1,500.00	\$1,706.00	\$1,842.00	\$1,858.00
B277	70	3	80	100	\$1,330.00	\$1,466.00	\$1,524.00	\$1,720.00	\$1,856.00	\$1,882.00
B278	130	3	80	100	\$1,394.00	\$1,528.00	\$1,590.00	\$1,784.00	\$1,886.00	\$1,948.00
B280*	170	3	80	100	\$1,448.00	\$1,584.00	\$1,642.00	\$1,838.00	\$1,974.00	\$2,000.00

\*Models without characterizing discs.

For corrected Cv's with piping reduction factor refer to page 7-5.

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CCV

# B3 Series Characterized Control Valve, NEMA 4X Non-Spring Return Actuator

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage B-port modified linear for constant flow
Action	90° rotation
Sizes	½", ¾", 1"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
600 psi	½" - 1"
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB <2.0% for B to AB
Cv rating	A-port: as stated in chart B-port: 70% of A to AB Cv



## NEMA 4X Non-Spring Return Actuators



ACTUATOR PART #	NRB24-3-T N4	NRB24-SR-T N4	NRX24-MFT-T N4	NRB24-3-T N4H	NRB24-SR-T N4H	NRX24-MFT-T N4H
Control type	On/Off, Floating Point	Proportional	Proportional/MFT	On/Off, Floating Point	Proportional	Proportional/MFT
Manual override	•	•	•	•	•	•
Running time	90 seconds	90 seconds	150 sec. default / 60 to 200 variable	90 seconds	90 seconds	150 sec. default / 60 to 200 variable
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
Built-in heater				•	•	•
ELECTRICAL CONNECTION:						
Terminal strip	•	•	•	•	•	•
CCV Model #	Cv Rating	Valve Inches	Nominal Size DN (mm)	Close-Off psi		

### B3... 3-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS

B307	0.3	½	15	200	\$558.00	\$668.00	\$788.00	\$886.00	\$996.00	\$1,110.00
B308	0.46	½	15	200	\$558.00	\$668.00	\$788.00	\$886.00	\$996.00	\$1,110.00
B309	0.8	½	15	200	\$558.00	\$668.00	\$788.00	\$886.00	\$996.00	\$1,110.00
B310	1.2	½	15	200	\$560.00	\$670.00	\$790.00	\$888.00	\$998.00	\$1,112.00
B311	1.9	½	15	200	\$560.00	\$670.00	\$790.00	\$888.00	\$998.00	\$1,112.00
B312	3	½	15	200	\$562.00	\$672.00	\$792.00	\$890.00	\$1,000.00	\$1,114.00
B313	4.7	½	15	200	\$562.00	\$672.00	\$792.00	\$890.00	\$1,000.00	\$1,114.00
B315*	10	½	15	200	\$564.00	\$674.00	\$794.00	\$892.00	\$1,002.00	\$1,116.00
B317	4.7	¾	20	200	\$634.00	\$712.00	\$984.00	\$962.00	\$1,040.00	\$1,306.00
B318	7.4	¾	20	200	\$636.00	\$714.00	\$986.00	\$964.00	\$1,042.00	\$1,308.00
B320*	24	¾	20	200	\$640.00	\$718.00	\$990.00	\$968.00	\$1,046.00	\$1,312.00
B322	7.4	1	25	200	\$654.00	\$766.00	\$892.00	\$982.00	\$1,094.00	\$1,214.00
B323	10	1	25	200	\$656.00	\$776.00	\$904.00	\$984.00	\$1,104.00	\$1,226.00
B325*	30	1	25	200	\$664.00	\$778.00	\$906.00	\$992.00	\$1,434.00	\$1,550.00

\* Models without characterizing discs.

For corrected Cvs with piping reduction factor refer to page 7-5.

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### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A port equal percentage B port modified linear for constant flow
Action	90° rotation
Sizes	1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
400 psi	1¼" - 2"
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB
Cv rating	A-port: as stated in chart B-port: 70% of A to AB Cv



### NEMA 4X Non-Spring Return Actuators



ACTUATOR PART #	ARB24-3-T N4	ARB24-SR-T N4	ARX24-MFT-T N4	ARB24-3-T N4H	ARB24-SR-T N4H	ARX24-MFT-T N4H
Control type	On/Off, Floating Point	Proportional	Proportional/MFT	On/Off, Floating Point	Proportional	Proportional/MFT
Manual override	•	•	•	•	•	•
Running time	90 seconds	90 seconds	150 sec. default / 90 to 300 variable	90 seconds	90 seconds	150 sec. default / 90 to 300 variable
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
Built-in heater				•	•	•
ELECTRICAL CONNECTION:						
Terminal strip	•	•	•	•	•	•
CCV Model #	Cv Rating	Valve Inches	Nominal Size DN (mm)	Close-Off psi		

B3... 3-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS										
B329	10	1¼	32	200	\$744.00	\$822.00	\$922.00	\$1,134.00	\$1,212.00	\$1,280.00
B330	19	1¼	32	200	\$748.00	\$826.00	\$930.00	\$1,138.00	\$1,216.00	\$1,288.00
B331	25	1¼	32	200	\$872.00	\$998.00	\$1,048.00	\$1,262.00	\$1,388.00	\$1,406.00
B338	19	1½	40	200	\$880.00	\$1,010.00	\$1,072.00	\$1,270.00	\$1,400.00	\$1,430.00
B339	29	1½	40	200	\$882.00	\$1,014.00	\$1,074.00	\$1,272.00	\$1,404.00	\$1,432.00
B340	37	1½	40	200	\$884.00	\$1,016.00	\$1,076.00	\$1,274.00	\$1,406.00	\$1,434.00
B341	46	1½	40	200	\$886.00	\$1,024.00	\$1,082.00	\$1,276.00	\$1,414.00	\$1,440.00
B347	29	2	50	200	\$1,086.00	\$1,198.00	\$1,250.00	\$1,476.00	\$1,588.00	\$1,608.00
B348	37	2	50	200	\$1,088.00	\$1,200.00	\$1,254.00	\$1,478.00	\$1,590.00	\$1,612.00
B349	46	2	50	200	\$1,090.00	\$1,206.00	\$1,256.00	\$1,480.00	\$1,596.00	\$1,614.00
B350	57	2	50	200	\$1,094.00	\$1,210.00	\$1,262.00	\$1,484.00	\$1,600.00	\$1,620.00
B351	68	2	50	200	\$1,098.00	\$1,212.00	\$1,264.00	\$1,488.00	\$1,602.00	\$1,622.00
B352	83	2	50	200	\$1,102.00	\$1,216.00	\$1,266.00	\$1,492.00	\$1,606.00	\$1,624.00

\* Models without characterizing discs.

For corrected Cvs with piping reduction factor refer to page 7-5.

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CCV

# B2 Series Characterized Control Valve, Quick Running Non-Spring Return Actuator

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



### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage
Action	90° rotation
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
600 psi	½" - 1¼" (B230)
400 psi	1¼" (B231) - 2"
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB



### Quick Running Non-Spring Return Actuators



ACTUATOR PART #	LRQB24-1	LRQX24-MFT	NRQB24-1	NRQX24-MFT
Control type	On/Off,	Proportional/MFT	On/Off,	Proportional/MFT
Manual override	•	•	•	•
Running time	5 seconds	5 seconds default	5 seconds	5 seconds default
Noise level	<35 dB(A)	<35 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>				
3 ft. cable, ½ conduit fitting	•	•	•	•
<b>CCV</b> Model #	<b>Cv</b> Rating	<b>Valve Nominal Size</b> Inches	<b>Close-Off</b> DN (mm)	<b>psi</b>

B2... 2-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS					LRQB24-1	LRQX24-MFT	NRQB24-1	NRQX24-MFT
B207	0.3	½	15	200	\$556.00	\$596.00		
B208	0.46	½	15	200	\$556.00	\$596.00		
B209	0.8	½	15	200	\$556.00	\$596.00		
B210	1.2	½	15	200	\$560.00	\$600.00		
B211	1.9	½	15	200	\$560.00	\$600.00		
B212	3	½	15	200	\$564.00	\$604.00		
B213	4.7	½	15	200	\$572.00	\$612.00		
B214	7.4	½	15	200	\$576.00	\$618.00		
B215*	10	½	15	200	\$580.00	\$622.00		
B217	4.7	¾	20	200	\$590.00	\$634.00		
B218	7.4	¾	20	200	\$592.00	\$636.00		
B219	10	¾	20	200	\$594.00	\$638.00		
B220*	24	¾	20	200	\$596.00	\$640.00		
B222	7.4	1	25	200	\$622.00	\$664.00		
B223	10	1	25	200	\$630.00	\$670.00		
B224	19	1	25	200	\$636.00	\$676.00		
B225*	30	1	25	200	\$638.00	\$678.00		
B229	10	1¼	32	200	\$658.00	\$698.00		
B230*	19	1¼	32	200	\$660.00	\$700.00		
B231	25	1¼	32	200			\$686.00	\$728.00
B232*	37	1¼	32	200			\$700.00	\$744.00
B238	19	1½	40	200			\$700.00	\$744.00
B239	29	1½	40	200			\$704.00	\$748.00
B240*	37	1½	40	200			\$706.00	\$750.00
B248	29	2	50	200			\$812.00	\$856.00
B249	46	2	50	200			\$816.00	\$860.00
B250*	57	2	50	200			\$826.00	\$868.00

\* Models without characterizing discs.

For corrected Cvs with piping reduction factor refer to page 7-5.

L30056 - 04/10 - Subject to change. © Belimo Aircontrols (USA), Inc.

### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage B port modified linear for constant flow
Action	90° rotation
Sizes	½", ¾", 1", 1¼"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	TEFZEL®
Packing	2 EPDM O-rings, lubricated
Pressure rating:	
600 psi	½" - 1"
400 psi	1¼"
Media temp. range	0°F to 212°F [-18°C to +100°C]
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB <2.0% for B to AB
Cv rating	A-port: as stated in chart B-port: 70% of A to AB Cv



### Quick Running Non-Spring Return Actuators



ACTUATOR PART #	LRQB24-1	LROX24-MFT	NRQB24-1	NROX24-MFT
Control type	On/Off,	Proportional/MFT	On/Off,	Proportional/MFT
Manual override	•	•	•	•
Running time	5 seconds	5 seconds default	5 seconds	5 seconds default
Noise level	<35 dB(A)	<35 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>				
3 ft, cable, ½ conduit fitting	•	•	•	•
<b>CCV</b>	<b>Cv</b>	<b>Valve Nominal Size</b>	<b>Close-Off</b>	
<b>Model #</b>	<b>Rating</b>	<b>Inches DN (mm)</b>	<b>psi</b>	

B3... 3-WAY CHARACTERIZED CONTROL VALVE WITH NON-SPRING RETURN ACTUATORS								
B307	0.3	½	15	200	\$624.00	\$666.00		
B308	0.46	½	15	200	\$624.00	\$666.00		
B309	0.8	½	15	200	\$624.00	\$666.00		
B310	1.2	½	15	200	\$626.00	\$668.00		
B311	1.9	½	15	200	\$626.00	\$668.00		
B312	3	½	15	200	\$630.00	\$670.00		
B313	4.7	½	15	200	\$638.00	\$678.00		
B315*	10	½	15	200	\$640.00	\$680.00		
B317	4.7	¾	20	200	\$660.00	\$700.00		
B318	7.4	¾	20	200	\$662.00	\$702.00		
B320*	24	¾	20	200	\$664.00	\$704.00		
B322	7.4	1	25	200	\$742.00	\$782.00		
B323	10	1	25	200	\$744.00	\$784.00		
B325*	30	1	25	200	\$748.00	\$788.00		
B329	10	1¼	32	200			\$758.00	\$798.00
B330	19	1¼	32	200			\$766.00	\$806.00
B331	25	1¼	32	200			\$882.00	\$924.00

\* Models without characterizing discs.

For corrected Cvs with piping reduction factor refer to page 7-5.

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CCV

# AR Series Valve Actuator

Custom, Direct Coupled, Non-Spring Valve Actuator, 180 in-lb Minimum Torque



## Actuator Specifications

Torque	180 in-lb [20 Nm]
Angle of Rotation ♦	max 90°, adjustable with mechanical stop electronically variable
Position Indication	handle
Manual Override	external push-button
Direction of Rotation ♦	reversible with switch
Dimensions	7.47" x 3.45" x 2.52" [189.8 x 88 x 64 mm]
Electrical Connection	18 GA plenum rated cable, 1/2" conduit connector
Overload Protection	electronic throughout rotation
Auxiliary Switch(es)	(-S) Models: 1 SPDT, 3A (0.5A inductive) @ 250 V Adjustable 5° to 85°
Housing	NEMA 2/IP54
Agency Listings	cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CSA C22.2 No. 24-93, CE acc. to 2006/95/EC and 89/336/EEC

♦ Variable with MFT



ARX24-SR

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

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



All AR Actuators have BDCM



## Non-Spring Valve Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s)	VA Rating	Cable Length	Re-order Number	List Price
ARX24-3	On/Off, Floating Point	Add on	24 VAC/VDC	95	5.5	10 ft.	AR000 0C3 000	\$358.00
ARX24-3	On/Off, Floating Point	Add on	24 VAC/VDC	95	5.5	16 ft.	AR000 0C5 000	\$378.00
ARX24-3-S	On/Off, Floating Point	Built-in	24 VAC/VDC	95	5.5	10 ft.	AR020 0A3 000	\$440.00
ARX24-3-S	On/Off, Floating Point	Built-in	24 VAC/VDC	95	5.5	16 ft.	AR020 0A5 000	\$460.00
ARX24-3-T	On/Off, Floating Point	Add on	24 VAC/VDC	95	5.5	N/A	ART00 0T2 000	\$310.00
ARX120-3	On/Off, Floating Point	Add on	100-230 VAC/VDC	95	7	10 ft.	AR060 0A3 000	\$428.00
ARX120-3	On/Off, Floating Point	Add on	100-230 VAC/VDC	95	7	16 ft.	AR060 0A5 000	\$448.00
ARX24-SR	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/VDC	95	5	10 ft.	AR030 0C3 000	\$482.00
ARX24-SR	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/VDC	95	5	16 ft.	AR030 0C5 000	\$502.00
ARX24-SR-T	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/VDC	95	5	N/A	ARTW0 0T2 000	\$380.00
ARX120-SR	2-10 VDC (4-20mA*)	2-10 VDC	100-230 VAC/VDC	95	7.5	10 ft.	AR450 0A3 000	\$588.00
ARX120-SR	2-10 VDC (4-20mA*)	2-10 VDC	100-230 VAC/VDC	95	7.5	16 ft.	AR4500A5 000	\$554.00

## MFT Versions

ARX24-MFT	Various	Various	24 VAC/VDC	Various	6	3 ft.	AR100 0C1 XXX**	\$468.00
ARX24-MFT	Various	Various	24 VAC/VDC	Various	6	10 ft.	AR100 0C3 XXX**	\$496.00
ARX24-MFT	Various	Various	24 VAC/VDC	Various	6	16 ft.	AR100 0C5 XXX**	\$516.00
ARX24-MFT95	0 to 135 Ω	Various	24 VAC/VDC	150	6	3 ft.	AR0L0 0C3 R01	\$488.00

\*With 500 Ω resistor

\*\* See next page for P-Codes available.

The P-Code programs the actuator for the desired Control Input, Feedback and Running Time.

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### Actuator Specifications

Torque	45 in-lb [5 Nm]
Ambient Temperature	-22°F to 122°F [-30°C to 50°C]
Angle of Rotation ♦	max. 90, adjustable with mechanical stop electronically variable
Position Indication	handle
Manual Override	external push-button
Direction of Rotation ♦	reversible with switch
Dimensions	6.18" x 2.6" x 2.34" [157 x 66 x 59.4 mm]
Electrical Connection	18 GA plenum rated cable, 1/2" conduit fitting terminal strip (-T) models
Overload Protection	electronic throughout rotation
Auxiliary Switch	LRX24-3-S - 1SPDT, 3A (0.5A) @ 250 VAC, UL Listed, adjustable 0° to 100°
Housing	NEMA 2/IP54
Agency Listings	cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CSA C22.2 No. 24-93, CE acc. to 2006/95/EC and 89/336/EEC

♦ Variable with MFT



**LRX24-MFT**

(shown with conduit fittings)

## MFT

MFT= 2-10 VDC Default, or Set, Modify, Read:

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



All actuators have BDCM



### Non-Spring Return Valve Actuators

Model	Control Input	Feedback	Power Supply	Running Time(s) [Default]	VA Rating	Cable Length	Re-order Number	List Price
<b>BASIC PRODUCTS</b>								
LRX24-3	On/Off, Floating Point	Add on	24 VAC/DC	90	2	10 ft.	LR000 RC3 000	\$228.00
LRX24-3	On/Off, Floating Point	Add on	24 VAC/DC	90	2	16 ft.	LR000 RC5 000	\$248.00
LRX24-3-S	On/Off, Floating Point	Add on	24 VAC/DC	90	2	10 ft.	LR020 RA3 000	\$296.00
LRX24-3-S	On/Off, Floating Point	Add on	24 VAC/DC	90	2	16 ft.	LR020 RA5 000	\$316.00
LRX24-3-T	On/Off, Floating Point	Add on	24 VAC/DC	90	2	N/A	LRT00 RT2 000	\$180.00
LRX120-3	On/Off, Floating Point	Add on	100-230 VAC	90	4	10 ft.	LR060 RA3 000	\$280.00
LRX120-3	On/Off, Floating Point	Add on	100-230 VAC	90	4	16 ft.	LR060 RA5 000	\$300.00
LRX24-SR	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	90	4.5	10 ft.	LR030RC3 000	\$326.00
LRX24-SR	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	90	4.5	16 ft.	LR560RC5 000	\$346.00
LRX24-SR-T	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	90	4.5	N/A	LRTW0 5T2 000	\$278.00
LRX120-SR	2-10 VDC (4-20mA*)	2-10 VDC	100-230 VAC	90	4.5	10 ft.	LR450 5A3 000	\$368.00
LRX120-SR	2-10 VDC (4-20mA*)	2-10 VDC	100-230 VAC	90	4.5	16 ft.	LR450 5A5 000	\$388.00

### Customize It!

LRX24-MFT	Various	Various	24 VAC/VDC	Various	5	3 ft.	LR100 RC1 XXX**	\$362.00
LRX24-MFT	Various	Various	24 VAC/VDC	Various	5	10 ft.	LR100 RC3 XXX**	\$390.00
LRX24-MFT	Various	Various	24 VAC/VDC	Various	5	16 ft.	LR100 RC5 XXX**	\$410.00
LRX24-MFT95	0 to 135 Ω	2-10 VDC	24 VAC/VDC	150	5	3 ft.	LR0L0 RC1 R01	\$414.00
LRX24-3-T	On/Off, Floating Point	Add on	24 VAC/VDC	90	2	N/A	LRT00 RT2 000	\$180.00
LRX120-3	On/Off, Floating Point	Add on	100-230 VAC	90	4	10 ft.	LR060 RA3 000	\$308.00

‡ Prices do not reflect additional programming code surcharge.

\*With 500 Ω resistor

\*\* See next page for P-Codes available

The P-Code programs the actuator for the desired Control Input, Feedback and Running Time.

		CONTROL				
-3 and SR	CONFIGURATION DESCRIPTION	P-CODE	INPUT RANGE	FEEDBACK POSITION	RUNNING TIME	List Price
	N/A	0	2.0 to 10.0 VDC (for -3)	2-10 VDC (for -3)	150 seconds	No Charge
	N/A	2	2.0 to 10.0 VDC (for -SR)	2-10 VDC (for -SR)	90 seconds	No Charge

		CONTROL				
MFT and PC	CONFIGURATION DESCRIPTION	P-CODE	INPUT RANGE	FEEDBACK POSITION	RUNNING TIME	List Price ‡
	P-10001	A01	2.0 to 10.0 VDC	2.0 to 10.0 VDC	150 seconds	No Charge*
	P-10002	A02	0.5 to 10.0 VDC	0.0 to 10.0 VDC	150 seconds	No Charge
	P-10003	A03	2.0 to 10.0 VDC	0.0 to 5.0 VDC	150 seconds	No Charge
	P-10004	A04	4.0 to 7.0 VDC	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-10005	A05	6.0 to 9.0 VDC	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-10006	A06	10.5 to 13.5 VDC	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-10007	A07	0.5 to 5.0 VDC	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-10009	A09	5.0 to 10.0 VDC	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-10010	A10	5.0 to 10.0 VDC	0.0 to 10.0 VDC	150 seconds	\$34.00
	P-10013	A13	0.5 to 10.0 VDC	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-10015	A15	2.0 to 5.0 VDC	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-10016	A16	2.0 to 6.0 VDC	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-10017	A17	6.0 to 10.0 VDC	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-10018	A18	14.0 to 17.0 VDC	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-10020	A20	9.0 to 12.0 VDC	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-10028	A28	0.5 to 10.0 VDC	0.5 to 10.0 VDC	100 seconds	No Charge
	P-10031	A31	0.5 to 4.0 VDC	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-10063	A63	0.5 to 4.5 VDC	0.5 to 4.5 VDC	150 seconds	No Charge
	P-10032	A32	2.0 to 10.0 VDC	2.0 to 10.0 VDC	100 seconds	No Charge
	P-10064	A64	5.5 to 10.0 VDC	5.5 to 10.0 VDC	150 seconds	No Charge
	N/A	AAT	2.0 to 10.0 VDC	2.0 to 10.0 VDC	20 seconds	No Charge
	P-20001	W01	0.59 to 2.93 sec.	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-20002	W02	0.02 to 5.00 sec.	2.0 to 10.0 VDC	150 seconds	No Charge
	P-20003	W03	0.10 to 25.50 sec.	2.0 to 10.0 VDC	150 seconds	No Charge
	P-20004	W04	0.10 to 25.60 sec.	2.0 to 10.0 VDC	150 seconds	\$34.00
	P-20005	W05	0.10 to 5.20 sec.	0.0 to 5.0 VDC	150 seconds	\$34.00
	P-30001	F01	Floating Point	2.0 to 10.0 VDC	150 seconds	No Charge
	P-30002	F02	Floating Point	0.0 to 10.0 VDC	150 seconds	\$34.00
	P-40002	J02	On/Off	2.0 to 10.0 VDC	150 seconds	No Charge
	N/A	S01 (for -PC only)	Phasecut	2.0 to 10.0 VDC	150 seconds	No Charge
	P-16001	R01 (for -MFT95 only)	0 to 135 Ω	2.0 to 10.0 VDC	150 seconds	No Charge

NOTE: More P-codes are available, consult factory.

‡ Add to list price on previous page.

\*P-10001 is the default configuration for MFT.





WEATHERSHIELDS - NEMA 4		Non-Spring Return Actuator		Spring Return Actuator		List Price
		LR	AR	LF	AF	
	<b>ZS-CCV-90*</b>			•	•	\$190.00
	<b>ZS-CCV-100*</b>	•	•			\$190.00
EXTENSION BRACKET						
	<b>CCV-EXT-KIT</b> CCV/PICCV valve neck extension kit	•	•	•	•	\$170.00
AUXILIARY SWITCHES & POTENTIOMETERS						
	<b>S1A</b> Auxiliary switch - 1x SPDT, 3A (0.5A Inductive) @ 250 VAC	•	•			\$74.00
	<b>S2A</b> Auxiliary switch - 1x SPDT, 3A (0.5A Inductive) @ 250 VAC	•	•			\$110.00
	<b>P140A GR</b> Feedback potentiometer 140 Ω	•	•			\$122.00
	<b>P500A GR</b> Feedback potentiometer 500 Ω	•	•			\$122.00
	<b>P1000A GR</b> Feedback potentiometer 1000 Ω	•	•			\$122.00
	<b>P2800A GR</b> Feedback potentiometer 2800 Ω	•	•			\$122.00
	<b>P5000A GR</b> Feedback potentiometer 5000 Ω	•	•			\$122.00
<b>P10000A GR</b> Feedback potentiometer 10000 Ω	•	•			\$122.00	

NOTE: CCV-EXT-KIT is an option for all CCVs except for B6 flanged CCVs where it is factory mounted as a standard.

NOTE: For TF/TR actuators, no weathershield available at this time. Please call 800-543-9038 for assistance.

\* Designed to NEMA 4 specifications.

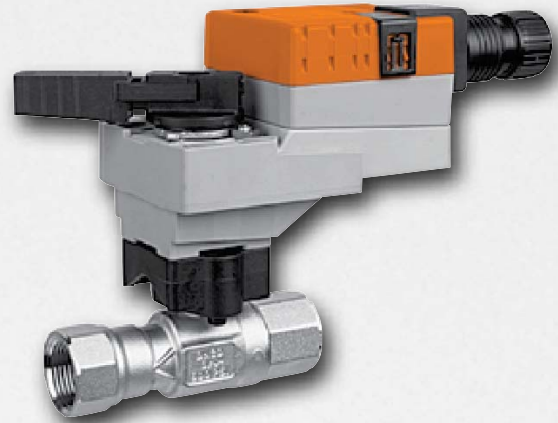
# 8

## HIGH TEMPERATURE CHARACTERIZED CONTROL VALVES (HTCCV)

- Fluid dynamically designed characterizing elongated disc reduces turbulent flow and improves efficiency of the system.
- Maintenance free – no repacking required after being in service for an extended period of time.
- Dezincified brass body to ensure the mechanical strength and integrity of the valve in a critical steam application.

### Applications

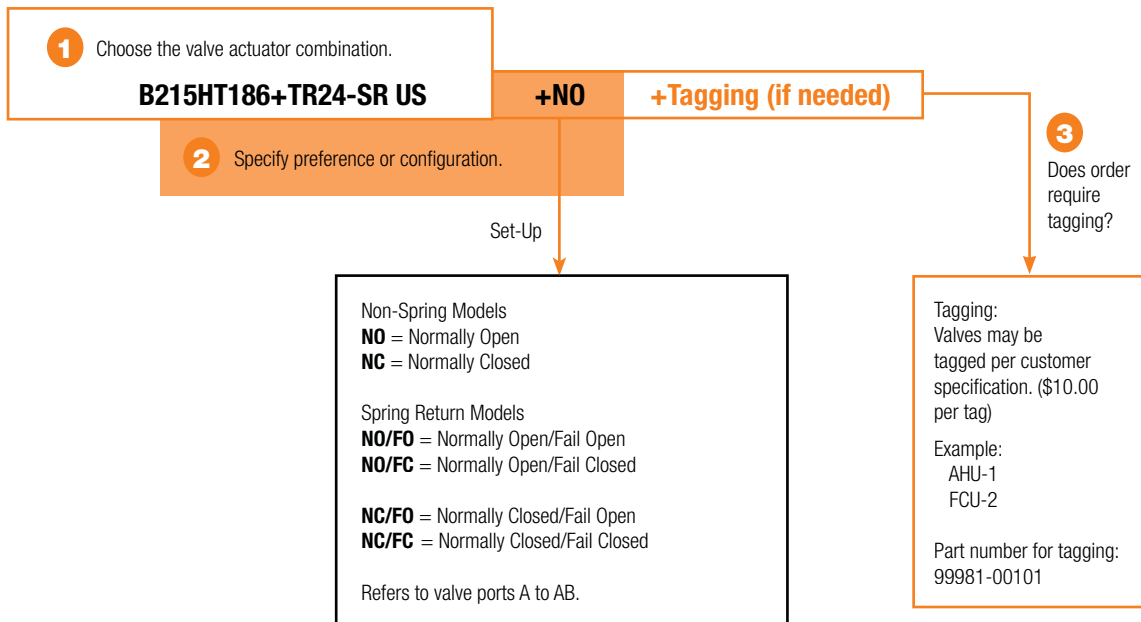
Available with spring and non-spring return actuators, the HTCCV meets the challenges of space restricted applications, such as unit ventilations and fan coil units. In addition, with its sturdy construction and specially designed disc, it is the perfect solution for a steam control valve with supply pressures of 15 psig or less.



# High Temperature Characterized Control Valve (HTCCV) Nomenclature

<b>B2</b>	<b>15</b>	<b>HT</b>	<b>186</b>	<b>TR</b>	<b>24</b>	<b>-SR</b>	
<b>Valve</b> B2 = 2-way	<b>Valve Size</b> 15-25 = ½" to 1"	High Temperature	<b>Cv Rating</b> 1.86 Refer to Table	<b>Actuator Type</b> Non-Spring Return TR... LR... Spring Return TF... LF...	<b>Power Supply</b> 24 = 24 VAC/DC 120 = 120 VAC*	<b>Control</b> Blank = On/Off -3 = Floating Point -SR = 2-10 VDC -MFT = Multi-Function Technology	-S = Built-in Auxiliary Switch

## Ordering Example



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

\*TF Series has 100 to 240 VAC nominal power supply.

# Control Valve Product Range

## High Temperature Characterized Control Valves Product Range B2..HT., 2-way



Equal-percentage characteristic

C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators		
	Inches	DN [mm]	2-way NPT	Spring Return	Non-Spring Return	
0.29	½	15	B215HT029	TF Series		TR 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*	LF Series		LR Series
1.86	¾	20	B220HT186			
2.90	¾	20	B220HT290			
4.64	¾	20	B220HT464			
7.31	¾	20	B220HT731			
9.28	¾	20	B220HT928			
13.20	¾	20	B220HT1320*			
4.64	1	25	B225HT464			
7.31	1	25	B225HT731			
11.60	1	25	B225HT1160			
18.56	1	25	B225HT1856			
28.00	1	25	B225HT2800*			

\* modified equal percentage.

### Applications

- Water/low pressure steam control of air handling apparatus in ventilation and air-conditioning systems
- District heating
- Humidifier

### Mode of Operation

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

### Product Features

Equal-percentage characteristic of the flow; models with \* have modified equal percentage characteristic.

### Actuator Specifications

Control type	On/Off, Floating Point, 2-10 VDC Multi-Function Technology (MFT)
Manual override	(only LR, TR Series)
Electrical connection	3 ft [1m] cable with ½" conduit fitting (except TR)

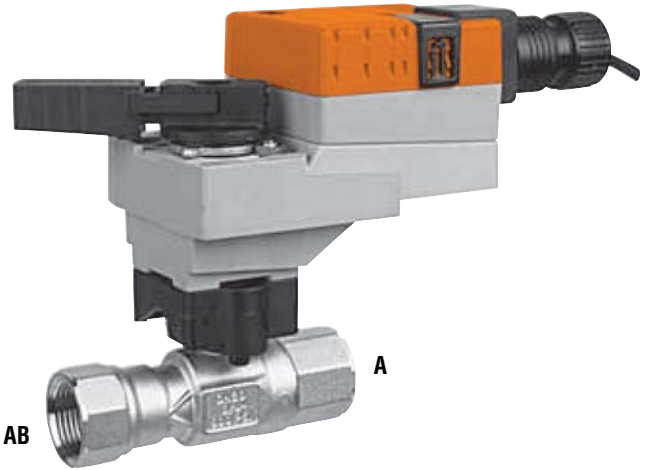
### Valve Specifications

Service	hot water 60% glycol, steam
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	½" - 1"
Type of end fitting	NPT female ends
Materials	
Body	brass (DZR) P-CuZn35Pb2
Ball	stainless steel
Stem	stainless steel
Seats	Tefzel®
Characterizing disc	Tefzel®
Packing	EPDM O-rings
Pressure rating	600 psi
Media temp range	
Steam	250°F
Water	60°F to 266°F
Close off pressure	200 psi
Maximum differential pressure (ΔP)	60 psi partially open ball 116 psi full open only (Model #B215HT455)
Steam	15 psi
Maximum inlet pressure	
Steam	15 psi
Leakage	bubble tight 0%
C <sub>v</sub> rating	see product chart for values

## SET-UP

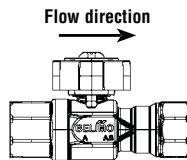
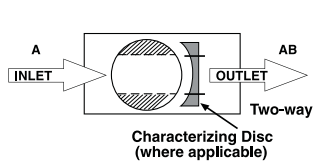
		TWO-WAY VALVE (Specify upon ordering)	
NON-SPRING RETURN Stays in Last Position	TR24-3 US	Power to pin 2 will drive valve CCW. Power to pin 3 will drive valve CW.	
	TR24-SR US	<b>NC:</b> Closed A to AB, will open as voltage increases.	<b>NO:</b> Open A to AB, will close as voltage increases (Can be chosen with switch inside terminal block of actuator).
	LRB24-3, LRB24-SR, LRX24-MFT	Power to pin 2 will drive valve CW. Power to pin 3 will drive valve CCW. The above will function when the directional switch is in the "1" position, to reverse select the "0" position.	<b>NO:</b> Open A to AB, will close as voltage increases or power applied. (Can be chosen with CW/CCW switch).
SPRING RETURN Note Fail Position	TFX24 US LF24 US	<b>NO/FO</b> Valve: Open A to AB will drive closed. Spring Action: Will spring open A to AB upon power loss.	<b>NC/FC</b> Valve: Closed A to AB will drive open. Spring Action: Will spring closed A to AB upon power loss.
	TF (-3), MFT, SR LF (-3), MFT, SR Floating or Proportional type actuators	<b>NC/FO</b> Valve: Closed A to AB will drive open. Spring Action: Will spring open A to AB upon power loss.	<b>NC/FC</b> or <b>NO/FC</b> Valve: Closed A to AB or Open A to AB (Can be chosen with CW/CCW switch). Spring Action: Will spring closed A to AB upon power loss.  <b>NO/FO</b> Valve: Open A to AB Spring Action: Will spring open A to AB upon power loss. ( <b>NO</b> action can be chosen with CW/CCW switch).

Service	hot water, 60% glycol, steam
Flow characteristic	A-port equal percentage
Media temp range	60°F to 266°F [12.5°C to 130°C] Water max 250°F [120°C] Steam
Maximum differential pressure (ΔP)	60 psi typical application 116 psi full open only (Model # B215HT455) steam: 15 psi
Maximum inlet	steam: 15 psi
Leakage	0% for A to AB



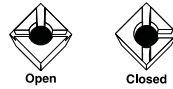
### FLOW PATTERN

#### 2-way High Temperature Characterized Control Valves™



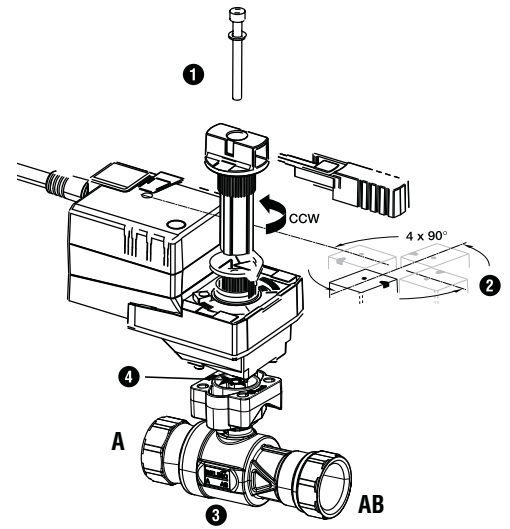
Upstream A  
Downstream AB

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



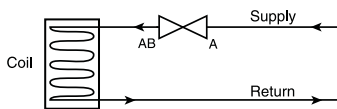
### ASSEMBLY

- 1 One screw attaches to valve
- 2 Four actuator mounting positions
- 3 2-way flow pattern
- 4 Top of valve stem indicates direction of flow (Flow A to AB shown)

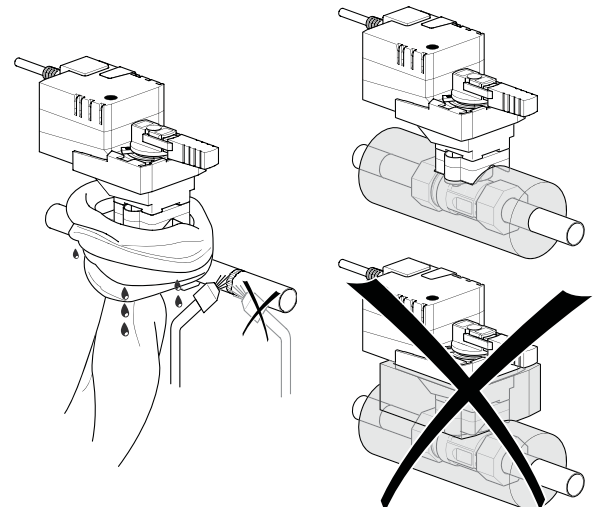
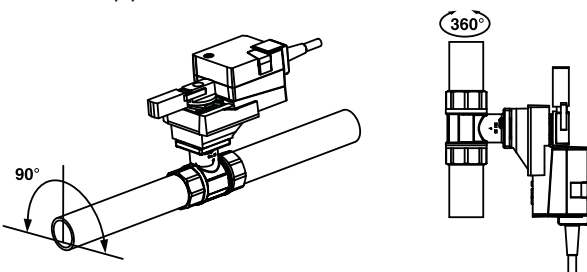


### OPERATION/INSTALLATION

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



Assembly can be mounted horizontally or vertically for water applications. For steam applications the valve can be mounted vertically but if mounted horizontally the valve must be 90° off center of the pipe. Do not install with actuator below pipe.



# High Temperature CCV, Non-Spring Return Actuator

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



## Valve Specifications

Service	hot water 60% glycol, steam
Flow characteristic	A-port equal percentage
Controlable flow range	75°
Sizes	½" - 1"
Type of end fitting	NPT female ends
Materials:	
Body	Dezincified (DZR) brass (P-CuZn35Pb2)
Ball	stainless steel
Stem	stainless steel
Seats	Tefzel®
Characterizing disc	Tefzel®
Packing	EPDM O-rings, lubricated
Pressure rating	600 psi
Media temp. range	
Steam	250°F
Water	60°F to 266°F
Close off pressure	200 psi
Maximum differential pressure (ΔP)	60 psi typical application 116 psi full open only (Model # B215HT455)
Maximum inlet	steam: 15 psi
Leakage	bubble tight 0%
C <sub>v</sub> rating	see chart below for values



## Non-Spring Return Actuators



ACTUATOR PART #	TR24-3 US	TR24-SR US	LRB24-3	LRB24-SR	LRX24-MFT
Control type	Floating Point	Proportional	On/Off, Floating Point	Proportional	Proportional/MFT
Manual override	•	•	•	•	•
Running time	95 seconds	95 seconds	90 seconds	90 seconds	150 seconds (default) variable (35 to 150 seconds)
Noise level	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)
<b>ELECTRICAL CONNECTION:</b>					
3 ft. cable, ½" conduit fitting			•	•	•
Covered terminal strip	•	•			

HTCCV Model #	C <sub>v</sub> Rating	Valve Nominal Size			Close-Off psi	TR24-3 US	TR24-SR US	LRB24-3	LRB24-SR	LRX24-MFT
		Inches	DN mm	Close-Off psi						
<b>2-WAY HIGH TEMPERATURE CCV WITH NON-SPRING RETURN ACTUATORS</b>										
B215HT029	0.29	½	15	200	\$232.00	\$332.00	\$266.00	\$346.00	\$468.00	
B215HT046	0.46	½	15	200	\$232.00	\$332.00	\$266.00	\$346.00	\$468.00	
B215HT073	0.73	½	15	200	\$232.00	\$332.00	\$266.00	\$346.00	\$468.00	
B215HT116	1.16	½	15	200	\$236.00	\$336.00	\$268.00	\$348.00	\$470.00	
B215HT186	1.86	½	15	200	\$236.00	\$336.00	\$270.00	\$350.00	\$472.00	
B215HT290	2.90	½	15	200	\$238.00	\$338.00	\$272.00	\$352.00	\$474.00	
B215HT455*	4.55	½	15	200	\$242.00	\$342.00	\$302.00	\$382.00	\$504.00	
B220HT186	1.86	¾	20	200			\$302.00	\$382.00	\$504.00	
B220HT290	2.90	¾	20	200			\$302.00	\$382.00	\$504.00	
B220HT464	4.64	¾	20	200			\$304.00	\$382.00	\$504.00	
B220HT731	7.31	¾	20	200			\$304.00	\$384.00	\$506.00	
B220HT928	9.28	¾	20	200			\$306.00	\$386.00	\$508.00	
B220HT1320*	13.20	¾	20	200			\$310.00	\$388.00	\$512.00	
B225HT464	4.64	1	25	200			\$342.00	\$422.00	\$544.00	
B225HT731	7.31	1	25	200			\$342.00	\$422.00	\$544.00	
B225HT1160	11.60	1	25	200			\$346.00	\$426.00	\$548.00	
B225HT1856	18.56	1	25	200			\$346.00	\$426.00	\$548.00	
B225HT2800*	28.00	1	25	200			\$348.00	\$428.00	\$550.00	

\*Models have modified equal percentage characteristic.

OPTIONS (ADD TO LIST PRICE)		LRB24-3-S
Description		
built-in auxiliary switch		\$66.00

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### Valve Specifications

Service	hot water 60% glycol, steam
Flow characteristic	A-port equal percentage
Controlable flow range	75°
Sizes	½" - 1"
Type of end fitting	NPT female ends
Materials:	
Body	Dezincified (DZR) brass (P-CuZn35Pb2)
Ball	stainless steel
Stem	stainless steel
Seats	Tefzel®
Characterizing disc	Tefzel®
Packing	EPDM O-rings, lubricated
Pressure rating	600 psi
Media temp. range	
Steam	250°F
Water	60°F to 266°F
Close off pressure	200 psi
Maximum differential pressure (ΔP)	60 psi typical application 116 psi full open only (Model # B215HT455) steam: 15 psi
Maximum inlet	steam: 15 psi
Leakage	bubble tight 0%
Cy rating	see chart below for values



### Spring Return Actuators



ACTUATOR PART #		TFX24 US	TF24-3 US	TF24-SR US	TF24-MFT US	LF24 US	LF24-3 US	LF24-SR US	LF24-MFT US
Control type		On/Off	Floating	Proportional	Proportional/MFT	On/Off	Floating	Proportional	Proportional/MFT
Running time	Motor	<75 seconds	<95 seconds	<95 seconds	150 seconds	<40 to 75 seconds	150 seconds	150 seconds	150 seconds
	Spring	<25 seconds @ -4°F to 122°F <60 seconds @-22°F	<25 seconds @ -4°F to 122°F <60 seconds @-22°F	<25 seconds @ -4°F to 122°F <60 seconds @-22°F	<25 seconds @ -4°F to 122°F <60 seconds @-22°F	<25 seconds @ -4°F to 122°F <60 seconds @-22°F	<25 seconds @ -4°F to 122°F <60 seconds @-22°F	<25 seconds @ -4°F to 122°F <60 seconds @-22°F	<25 seconds @ -4°F to 122°F <60 seconds @-22°F
Noise level	Motor	<50 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<50 dB(A)	<30 dB(A)	<30 dB(A)	<30 dB(A)
	Spring	<62 dB(A)	< 62 dB(A)	<62 dB(A)	<62 dB(A)	<62 dB(A)	<62 dB(A)	<62 dB(A)	<62 dB(A)

### ELECTRICAL CONNECTION:

3 ft. cable, ½" conduit fitting

Valve Nominal Size									
HTCCV Model #	Cy Rating	Inches	DN mm	Close-Off psi					

### 2-WAY HIGH TEMPERATURE CCV WITH SPRING RETURN ACTUATORS

B215HT029	0.29	½	15	200	\$336.00	\$396.00	\$430.00	\$486.00				
B215HT046	0.46	½	15	200	\$336.00	\$396.00	\$430.00	\$486.00				
B215HT073	0.73	½	15	200	\$336.00	\$396.00	\$430.00	\$486.00				
B215HT116	1.16	½	15	200	\$338.00	\$398.00	\$432.00	\$488.00				
B215HT186	1.86	½	15	200	\$338.00	\$398.00	\$432.00	\$488.00				
B215HT290	2.90	½	15	200	\$346.00	\$406.00	\$440.00	\$496.00				
B215HT455*	4.55	½	15	200	\$348.00	\$408.00	\$442.00	\$498.00				
B220HT186	1.86	¾	20	200					\$406.00	\$490.00	\$522.00	\$638.00
B220HT290	2.90	¾	20	200					\$406.00	\$490.00	\$522.00	\$638.00
B220HT464	4.64	¾	20	200					\$406.00	\$490.00	\$522.00	\$638.00
B220HT731	7.31	¾	20	200					\$408.00	\$492.00	\$526.00	\$640.00
B220HT928	9.28	¾	20	200					\$412.00	\$494.00	\$528.00	\$642.00
B220HT1320*	13.20	¾	20	200					\$414.00	\$496.00	\$530.00	\$644.00
B225HT464	4.64	1	25	200					\$470.00	\$554.00	\$584.00	\$698.00
B225HT731	7.31	1	25	200					\$470.00	\$554.00	\$584.00	\$698.00
B225HT1160	11.60	1	25	200					\$474.00	\$558.00	\$588.00	\$702.00
B225HT1856	18.56	1	25	200					\$484.00	\$558.00	\$588.00	\$702.00
B225HT2800*	28.00	1	25	200					\$476.00	\$560.00	\$590.00	\$704.00

\*Models have modified equal percentage characteristic.

OPTIONS (ADD TO LIST PRICE ABOVE)	TFX24-S US	TF24-3-S US	TF24-SR-S US	TF24-MFT-S US	LF24-S US	LF24-3-S US	LF24-SR-S US	LF24-MFT-S US
built-in auxiliary switch	\$52.00	\$52.00			\$54.00			
OPTIONS (ADD TO LIST PRICE ABOVE)	TFX120-S US	TF24-SR-S US	TF24-MFT-S US	LF120-S US	LF24-3-S US	LF24-SR-S US	LF24-MFT-S US	
built-in auxiliary switch	\$94.00	\$52.00		\$86.00	\$54.00	\$54.00	\$54.00	
OPTIONS (ADD TO LIST PRICE ABOVE)	TFX120 US	LF120 US	LF120 US	LF120 US	LF120 US	LF120 US	LF120 US	
120 VAC power supply	\$42.00			\$32.00				

Note: Weather shield are not available at this time.



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AUXILIARY SWITCHES & POTENTIOMETERS		Non-Spring Return	List Price
		LR	
	<b>S1A</b> Auxiliary switch - 1x SPDT, 3A (0.5A Inductive) @ 250 VAC	•	\$74.00
	<b>S2A</b> Auxiliary switch - 1x SPDT, 3A (0.5A Inductive) @ 250 VAC	•	\$110.00
	<b>P140A</b> Feedback potentiometer 140 Ω	•	\$122.00
	<b>P500A</b> Feedback potentiometer 500 Ω	•	\$122.00
	<b>P1000A</b> Feedback potentiometer 1000 Ω	•	\$122.00
	<b>P2800A</b> Feedback potentiometer 2800 Ω	•	\$122.00
	<b>P5000A</b> Feedback potentiometer 5000 Ω	•	\$122.00
	<b>P10000A</b> Feedback potentiometer 10000 Ω	•	\$122.00

# ROTARY VALVES

## BALL AND ZONE VALVES

### Ball Valves:

- Bronze, cast iron and stainless steel ball valves with NPT and flanged connections.
- A Range of fluid temperature rating ideal for chilled and hot water, and steam.
- Fitted with damper type rotary actuators for easy field assembly and installation.
- RPTFE seats allows valve to operate in high temperature applications.
- Full, reduce, and standard port for various flow characteristic.
- Wide range of sizes and C<sub>v</sub> for various applications.

### Applications

Available with spring return or non-spring return actuators, ball valves offer the solution for aggressive applications. The high close-off capabilities with high quality stainless steel trim allow these valves to be used in low and medium pressure steam applications and applications that operate with a higher media temperature.



### Zone Valves:

- Designed to fit in compact areas where On/Off control is required.
- Actuator installation is a snap with an easy, one-handed removal or engagement.
- Actuator has a synchronous motor that winds the return spring and moves the valve paddle to the desired position.
- Economical operation allows for low current draw and multiple valves per transformer.
- Enhanced motion gear action reduces motor wear and provides smooth, quiet operation with no water hammer and dependable close off.



### Applications

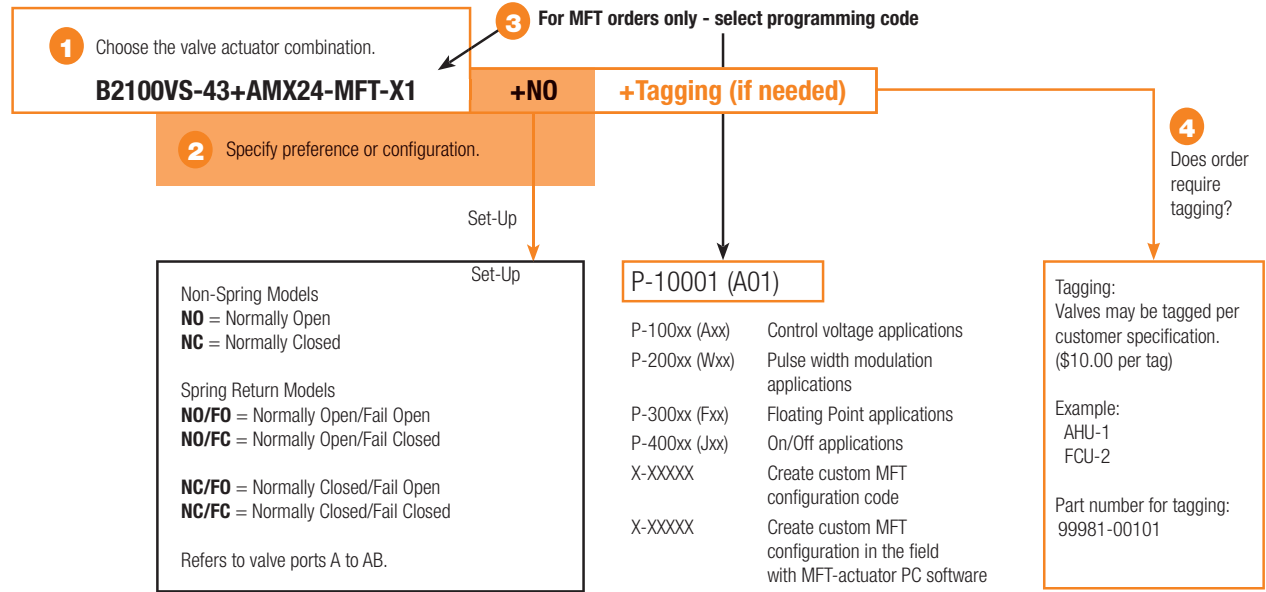
For high rise and commercial applications where higher close-off is required: fin tube casing, fan coils, radiant panels and duct coils. Zone valves control the flow of hot and chilled water through coils and heat exchangers.



# Ball Valve Nomenclature

B2	100	VS	-43	AMX	24	-MFTX1	
<b>Valve</b> B2 = 2-way B3 = 3-way B6 = 2-way Flanged	<b>Valve Size</b> 12-80 = ½" to 3" 50-250 = 2" to 10" (Flanged)	<b>Industrial Construction/Material</b> VS = Bronze Body, Stainless Steel Ball and Stem VSS = Stainless Steel Body, Ball and Stem	<b>Cv</b> 1-370	<b>Actuator Type</b> Non-Spring Return LM... NM... AM... GM... SY... SY...P Spring Return LF... NF... AF... SY...	<b>Power Supply</b> 24 = 24 VAC/DC 120 = 120 VAC 230 = 230 VAC	<b>Control</b> -3X1 = On/Off, Floating Point -MFTX1 = Multi-Function Technology -MFT95 = 0-135 Ω	-S = Built-in Auxiliary Switch

## Ordering Example



**5** Complete Ordering Example: B2100VS-43+AMX24-MFT-X1+NO+A01

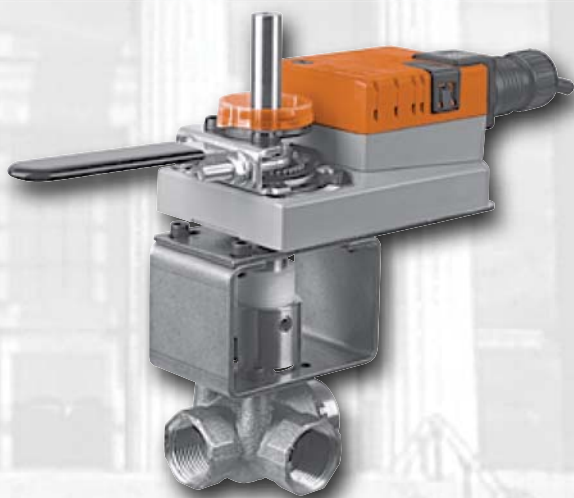
# 9

## INDUSTRIAL BALL VALVES

- Bronze, cast iron and stainless steel ball valves with NPT and flanged connections.
- A range of fluid temperature rating ideal for chilled and hot water, and steam.
- Fitted with damper type rotary actuators for easy field assembly and installation.
- RPTFE seats allows valve to operate in high temperature applications.
- Full ported for unobstructed flow.
- Wide range of sizes and  $C_v$  for various applications.

### Applications

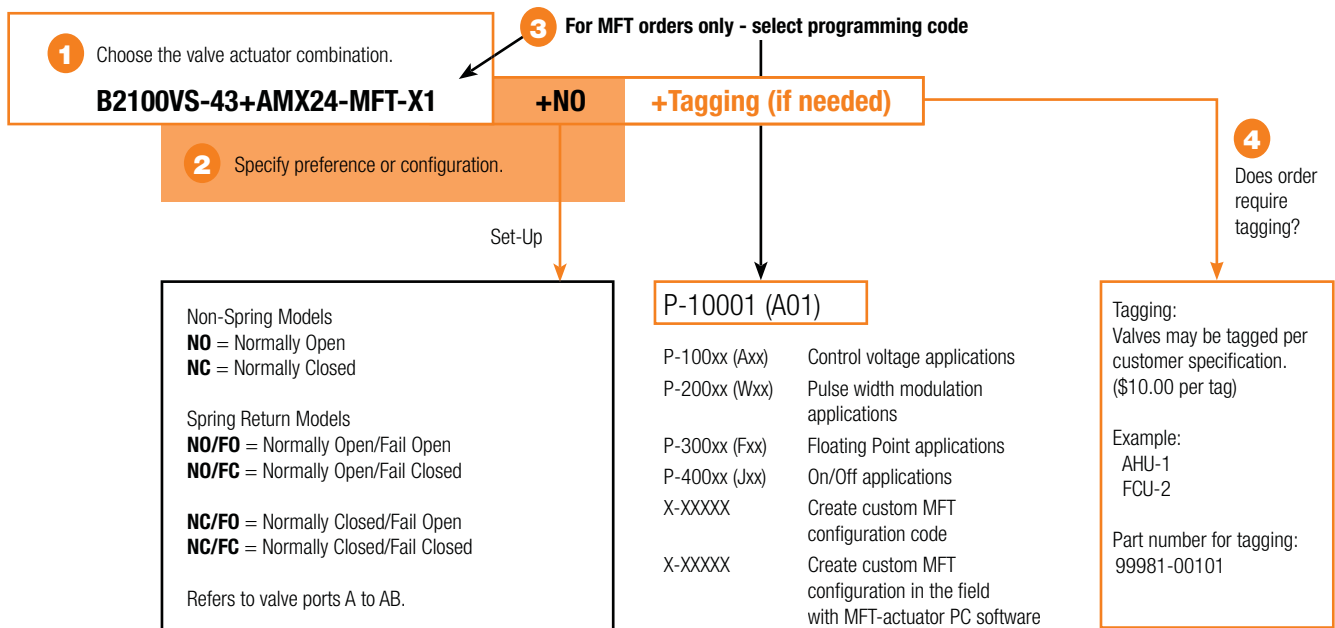
Available with spring return or non-spring return actuators, ball valves offer the solution for aggressive applications. The high close-off capabilities with high quality stainless steel trim allow these valves to be used in low and medium pressure steam applications and applications that operate with a higher media temperature.



# Ball Valve Nomenclature

B2	100	VS	-43	AMX	24	-MFTX1	
<b>Valve</b> B2 = 2-way B3 = 3-way B6 = 2-way Flanged	<b>Valve Size</b> 12-80 = ½" to 3" 50-250 = 2" to 10" (Flanged)	<b>Industrial Construction/ Material</b> VS = Bronze Body, Stainless Steel Ball and Stem VSS = Stainless Steel Body, Ball and Stem	<b>Cv</b> 1-370	<b>Actuator Type</b> Non-Spring Return LM... NM... AM... GM... SY... SY...P Spring Return LF... NF... AF... Electronic Fail-Safe GK...	<b>Power Supply</b> 24 = 24 VAC/DC 120 = 120 VAC 230 = 230 VAC	<b>Control</b> -3X1 = On/Off, Floating Point -MFTX1 = Multi-Function Technology -MFT95 = 0-135 Ω	-S = Built-in Auxiliary Switch

## Ordering Example



**5** Complete Ordering Example: B2100VS-43+AMX24-MFT-X1+NO+A01

# Control Valve Product Range

## VS/VSS Ball Valve Product Range B2...VS/VSS, B3...VS, B6...VS

C <sub>v</sub>	Valve Nominal Size		Type			Suitable Actuators		
	Inches	DN [mm]	2-way NPT	3-way NPT	2-Way Flanged	Spring Return	Electronic Fail-Safe	Non-Spring Return
1	½	15	B2050VS-01			LF Series		LM Series
2	½	15	B2050VS-02					
4	½	15	B2050VS-04					
15	½	15	B2050VS-15			NF Series		NM Series
30	¾	20	B2075VS-30					
51	¾	20	B2075VS-51			AF Series		AM Series
43	1	25	B2100VS-43					
68	1	25	B2100VS-68					
48	1¼	32	B2125VS-48					
84	1½	40	B2150VS-84					
177	1½	40	B2150VS-177			GK		GM Series
108	2	50	B2200VS-108					
389	2	50	B2200VS-389					
503	2½	65	B2250VS-503			GK Series		GM Series
370	3	80	B2300VS-370					
15	½	15	B2050VSS-15					
30	¾	20	B2075VSS-30			AF Series		AM Series
43	1	25	B2100VSS-43					
48	1¼	32	B2125VSS-48					
84	1½	40	B2150VSS-84					
108	2	50	B2200VSS-108					
503	2½	65	B2250VSS-503			GK Series		GM Series
370	3	80	B2300VSS-370					
4.8	½	15		B315VS				
11	¾	20		B320VS		NF		NM Series
21	1	25		B325VS		AF Series		AM
33	1¼	32		B332VS				
49	1½	40		B340VS				
91	2	50		B350VS				
330	2	50			B650VS			
420	2½	65			B665VS			
600	3	80			B680VS			
1200	4	100			B6100VS			
3300	6	150			B6150VS			
9000	8	200			B6200VS			
12400	10	250			B6250VS			



### Applications

- Water-side control of air handling apparatus in ventilation and air-conditioning systems
- Water/Steam control in heating systems

### Mode of Operation

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

### Product Features

Modified equal percentage of flow for B2, B3 and B6. Modified linear flow for B3.

### Actuator Specifications

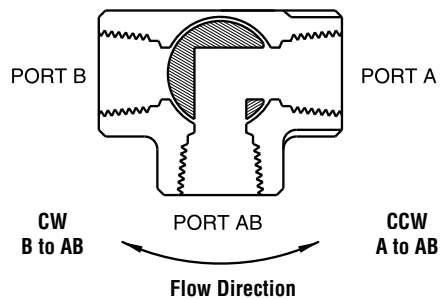
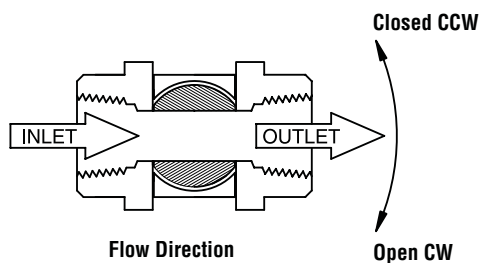
Control type	On/Off, Floating Point, Proportional, 2-10 VDC Multi-Function Technology (MFT)
Manual override	LM, NM, GM, AM, SY, AF, GK
Electrical connection	3 ft [1m] cable with ½" conduit fitting

### Valve Specifications

Service	chilled or hot water, (60% glycol), steam
Flow characteristic	modified equal percentage (2-way), modified linear (3-way)
Sizes	½" to 10"
Type of end fitting	NPT (B2...VS & B3.. VS) flanged (B6...VS)
Materials	
Body	bronze (B2...VS & B3...VS), stainless steel (B2...VSS), cast iron (B6...VS)
Stem	stainless steel
Ball	stainless steel
Seats	MPTFE
Packing	RPTFE
Pressure rating	Up to 2000 psig WOG
Media temp range	
B2...VS, B3...VS	-22°F to 280°F [-30°C to 138°C]
B2...VSS	-22°F to 298°F [-30°C to 148°C]
Maximum inlet pressure	
Steam	35 psi B2...VS 50 psi B2...VSS, B6...VS

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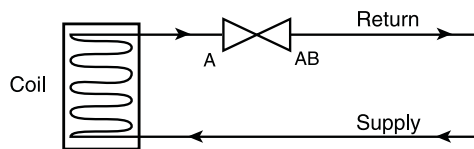
## FLOW PATTERN



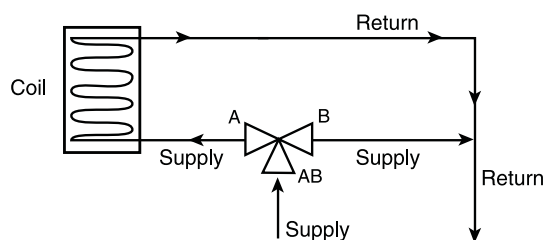
NOTE: B3...VS are piped differently than B3 CCV Valves.

## VS SERIES BALL VALVE PIPING DIAGRAMS

2-way Valve Piping Diagram

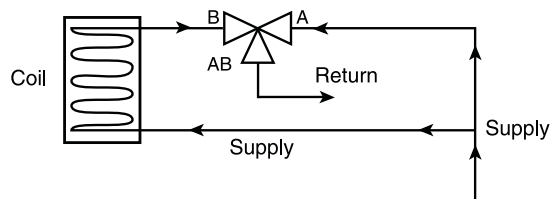


3-way Diverting Valve Piping Diagram



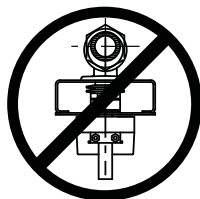
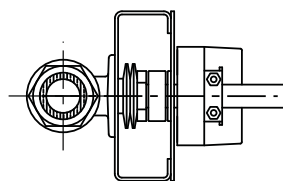
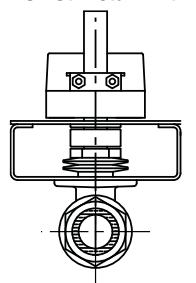
3-way Mixing Valve Piping Diagram

(N.C. TO COIL @ 0 VDC)



## PIPING/MOUNTING ORIENTATION

Assembly can be mounted horizontally or vertically for water applications. For steam applications the valve can be mounted vertically but if mounted horizontally the valve must be 90° off center of the pipe. Do not install with actuator below pipe.

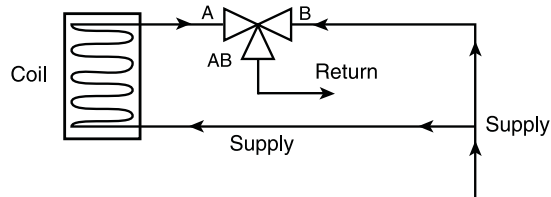


(Water application only)

(Steam or water application)

3-way Mixing Valve Piping Diagram

(N.O. TO COIL @ 0 VDC)



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VALVE SIZE	C <sub>v</sub>	TYPE	MODEL #	LINE SIZE												
				¾" Fp Cv	1" Fp Cv	1¼" Fp Cv	1½" Fp Cv	2" Fp Cv	2½" Fp Cv	3" Fp Cv	4" Fp Cv	5" Fp Cv	6" Fp Cv	8" Fp Cv	10" Fp Cv	
½"	1	2W NPT	B2050VS-01	1.00	1.00	—	—	—	—	—	—	—	—	—	—	—
½"	2	2W NPT	B2050VS-02	2.00	1.90	—	—	—	—	—	—	—	—	—	—	—
½"	4	2W NPT	B2050VS-04	3.80	3.60	—	—	—	—	—	—	—	—	—	—	—
½"	15	2W NPT	B2050VS-15	8.90	7.20	—	—	—	—	—	—	—	—	—	—	—
¾"	30	2W NPT	B2075VS-30	30.00	21.60	17.40	15.60	—	—	—	—	—	—	—	—	—
¾"	51	2W NPT	B2075VS-51	51.00	26.50	19.90	17.30	—	—	—	—	—	—	—	—	—
1"	43	2W NPT	B2100VS-43	—	43.00	36.10	30.50	25.80	—	—	—	—	—	—	—	—
1"	68	2W NPT	B2100VS-68	—	68.00	48.30	36.70	29.20	—	—	—	—	—	—	—	—
1¼"	48	2W NPT	B2125VS-43	—	—	48.00	44.60	37.90	35.00	—	—	—	—	—	—	—
1½"	84	2W NPT	B2150VS-84	—	—	—	84.00	69.70	59.60	55.40	—	—	—	—	—	—
1½"	177	2W NPT	B2150VS-177	—	—	—	177.00	102.70	77.90	67.30	—	—	—	—	—	—
2"	108	2W NPT	B2200VS-108	—	—	—	—	108.00	100.40	91.80	83.20	—	—	—	—	—
2"	389	2W NPT	B2200VS-389	—	—	—	—	389.00	221.70	159.50	124.50	—	—	—	—	—
2½"	503	2W NPT	B2250VS-503	—	—	—	—	—	503.00	352.10	221.30	186.10	—	—	—	—
3"	370	2W NPT	B2300VS-370	—	—	—	—	—	—	370.00	296.00	251.60	229.40	—	—	—
½"	5	3W NPT	B315VS	4.40	4.10	—	—	—	—	—	—	—	—	—	—	—
¾"	11	3W NPT	B320VS	11.00	10.30	9.00	—	—	—	—	—	—	—	—	—	—
1"	21	3W NPT	B325VS	—	21.00	20.20	18.90	17.60	—	—	—	—	—	—	—	—
1¼"	33	3W NPT	B332VS	—	—	33.00	32.00	29.00	27.70	—	—	—	—	—	—	—
1½"	49	3W NPT	B340VS	—	—	—	49.00	45.60	42.60	40.70	—	—	—	—	—	—
2"	91	3W NPT	B350VS	—	—	—	—	91.00	86.50	81.00	74.60	—	—	—	—	—
2"	330	2W FLG	B650VS	—	—	—	—	330.00	207.90	155.10	122.10	—	—	—	—	—
2½"	420	2W FLG	B665VS	—	—	—	—	—	420.00	319.20	214.20	184.80	—	—	—	—
3"	600	2W FLG	B680VS	—	—	—	—	—	—	600.00	384.00	300.00	264.00	—	—	—
4"	1200	2W FLG	B6100VS	—	—	—	—	—	—	—	1200.00	804.00	600.00	480.00	—	—
6"	3300	2W FLG	B6150VS	—	—	—	—	—	—	—	—	—	3300.00	1716.00	1254.00	—
8"	9000	2W FLG	B6200VS	—	—	—	—	—	—	—	—	—	—	9000.00	3870.00	—
10"	12400	2W FLG	B6250VS	—	—	—	—	—	—	—	—	—	—	—	—	12400.00

# B2...VS Series Ball Valve, Non-Spring Return Actuators

2-way Valve, Bronze Body, NPT Female Ends



### Valve Specifications

Service	chilled or hot water, 60% glycol, 35# steam
Flow characteristic	modified equal percentage
Action	90° rotation valve open CW, valve closed CCW
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3"
Type of end fitting	NPT female ends
Materials:	
Stem Packing	MPTFE
Stem Bearing	RPTFE
Ball	316 stainless steel
Seat	reinforced FTFE w/ durafill
Retainer	B16 (¾" to 1") brass B584 (1¼" to 3") brass
Gland	B16 brass
Stem	316 stainless steel
Lever Nut	stainless steel
Body Seal	PTFE
Body	B584-C84400 bronze
Pressure rating	600 psig WOG
Media temp. range	-22°F to +280°F (-30°C to +138°C)
Maximum differential pressure (ΔP)	<600 psig



### Non-Spring Return Actuators



ACTUATOR PART #	LMB24-3-X1	NMB24-3-X1	AMB24-3-X1	GMB24-3-X1	2*GMB24-3-X1
Control type	On/Off, Floating Point	On/Off, Floating Point	On/Off, Floating Point	On/Off, Floating Point	On/Off, Floating Point
Manual override	•	•	•	•	•
Running time	95 seconds	90 seconds	95 seconds	135 seconds	135 seconds
Noise level	<35 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>					
3 ft cable, ½" conduit fitting	•	•	•	•	•
<b>Valve Nominal Size</b>					
<b>Ball Valve Model #</b>	<b>Cv Rating</b>	<b>Inches</b>	<b>DN mm</b>	<b>Close-off psi</b>	

### B2...VS 2-WAY BALL VALVE WITH NON-SPRING RETURN ACTUATORS

B2050VS-01	1	½	15	100	\$506.00			
B2050VS-02	2	½	15	100	\$506.00			
B2050VS-04	4	½	15	100	\$506.00			
B2050VS-15	15	½	15	100	\$506.00			
B2075VS-30	30	¾	20	400		\$652.00		
B2075VS-51	51	¾	20	400		\$674.00		
B2100VS-43	43	1	25	400		\$662.00		
B2100VS-68	68	1	25	400			\$838.00	
B2125VS-48	48	1¼	32	400			\$986.00	
B2150VS-84	84	1½	40	400			\$1,098.00	
B2150VS-177	177	1½	40	400				\$1,306.00
B2200VS-108	108	2	50	400			\$1,258.00	
B2200VS-389	389	2	50	400				\$1,940.00
B2250VS-503	503	2½	65	200*				\$3,866.00
B2300VS-370	370	3	80	200				\$3,582.00

\* Denotes tandem actuators

### Valve Specifications

Service	chilled or hot water, 60% glycol, 35# steam
Flow characteristic	modified equal percentage
Action	90° rotation valve open CW, valve closed CCW
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3"
Type of end fitting	NPT female ends
Materials:	
Stem Packing	MPTFE
Stem Bearing	RPTFE
Ball	316 stainless steel
Seat	Reinforced FTFE w/ durafill
Retainer	B16 (¾" to 1") brass B584 (1¼" to 3") brass
Gland	B16 brass
Stem	316 stainless steel
Lever Nut	stainless steel
Body Seal	PTFE
Body	B584-C84400 bronze
Pressure rating	600 psig WOG
Media temp. range	-22°F to +280°F (-30°C to +138°C)
Maximum differential pressure (ΔP)	<600 psi



### Non-Spring Return Actuators



ACTUATOR PART #	LMX24-MFT-X1	NMX24-MFT-X1	AMX24-MFT-X1	GMX24-MFT-X1	2* GMX24-MFT-X1
Control type	Proportional/MFT	Proportional/MFT	Proportional/MFT	Proportional/MFT	Proportional/MFT
Manual override	•	•	•	•	•
Running time	150 seconds (default) variable 35 to 150 seconds	150 seconds (default) variable 45 to 170 seconds	150 seconds (default) variable 90 to 350 seconds	150 seconds (default) variable 120 to 300 seconds	150 seconds (default)
Noise level	<35 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>					
3 ft cable, ½" conduit fitting	•	•	•	•	•

Ball Valve Model #	C <sub>v</sub> Rating	Valve Nominal Size		
		Inches	DN mm	Close-off psi

B2...VS 2-WAY BALL VALVE WITH NON-SPRING RETURN ACTUATORS								
B2050VS-01	1	½	15	100	\$690.00			
B2050VS-02	2	½	15	100	\$690.00			
B2050VS-04	4	½	15	100	\$690.00			
B2050VS-15	15	½	15	100	\$690.00			
B2075VS-30	30	¾	20	400		\$946.00		
B2075VS-51	51	¾	20	400		\$980.00		
B2100VS-43	43	1	25	400		\$922.00		
B2100VS-68	68	1	25	400			\$1,104.00	
B2125VS-48	48	1¼	32	400			\$1,220.00	
B2150VS-84	84	1½	40	400			\$1,140.00	
B2150VS-177	177	1½	40	400				\$1,356.00
B2200VS-108	108	2	50	400			\$1,346.00	
B2200VS-389	389	2	50	200				\$1,892.00
B2250VS-503	503	2½	65	200*				\$4,148.00
B2300VS-370	370	3	80	200				\$3,666.00

2\* Designates tandem.

\* Denotes tandem actuators.

### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Note: Most popular configurations available at no additional cost. All other configurations carry a \$34.00 list price.

See Belimo's Customize It! section for a complete list of configurable actuators and options.

# B2...VS Series Ball Valve, Spring Return Actuators

2-way Valve, Bronze Body, NPT Female Ends



### Valve Specifications

Service	chilled or hot water, 60% glycol, 35# steam
Flow characteristic	modified equal percentage
Action	90° rotation valve open CW, valve closed CCW
Sizes	½", ¾", 1", 1¼", 1½", 2", 3"
Type of end fitting	NPT female ends
Materials:	
Body	B584-C84400 bronze
Ball	316 stainless steel
Stem	316 stainless steel
Seats	MPTFE
Packing	RPTFE
Pressure rating	600 psi WOG
Media temp. range	-22°F to +280°F [-30°C to +138°C]
Maximum differential pressure (ΔP)	<600 psi



### Spring Return Actuators



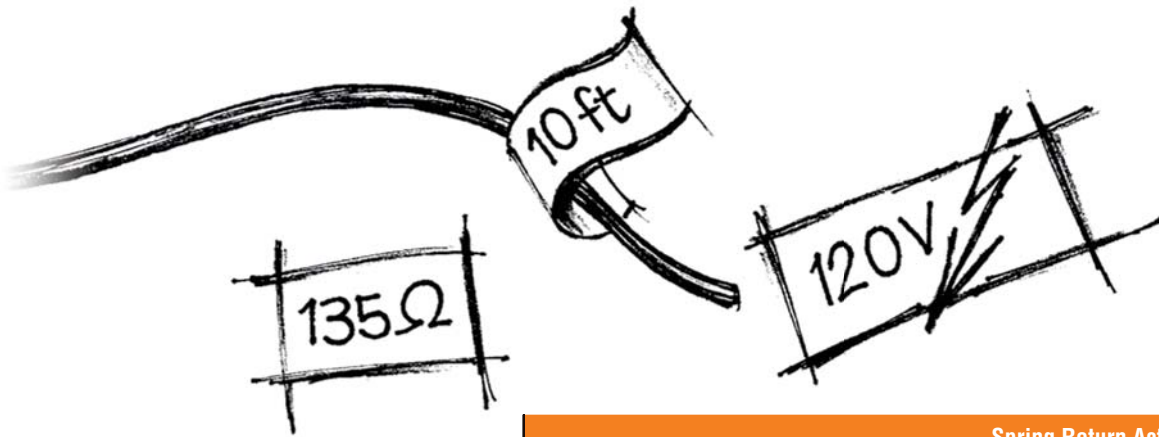
ACTUATOR PART #	LF24 US	LF120 US	LF24-MFT US	NFB24-X1	NFX24-MFT- X1
Control type	On/Off	On/Off	Proportional/MFT	On/Off	Proportional/MFT
Manual override				•	•
Running time	motor: <40 to 75 seconds spring: <25 seconds <60 seconds	motor: <40 to 75 seconds spring: <25 seconds <60 seconds	motor: 150 seconds spring: <25 seconds <60 seconds	motor: <75 seconds spring: <60 seconds	motor: 150 seconds spring: <60 seconds
Noise level	<50 dB(A)spring: <62 dB(A)	<50 dB(A)spring: <62 dB(A)	<45 dB(A)	<50 dB(A)	<50 dB(A)
<b>ELECTRICAL CONNECTION:</b>					
3 ft cable, ½" conduit fitting	•	•	•	•	•
<b>Valve Nominal Size</b>					
<b>Ball Valve Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Inches</b>	<b>DN mm</b>	<b>Close-off psi</b>	

B2...VS 2-WAY BALL VALVE WITH SPRING RETURN ACTUATORS									
B2050VS-01	1	½	15	100	\$548.00	\$582.00	\$764.00		
B2050VS-02	2	½	15	100	\$548.00	\$582.00	\$764.00		
B2050VS-04	4	½	15	100	\$548.00	\$582.00	\$764.00		
B2050VS-15	15	½	15	100	\$548.00	\$582.00	\$764.00		
B2075VS-30	30	¾	20	400				\$744.00	\$956.00
B2075VS-51	51	¾	20	400				\$778.00	\$992.00
B2100VS-43	43	1	25	400				\$768.00	\$988.00

MULTI-FUNCTION TECHNOLOGY						
Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price	
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge	
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge	
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge	
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge	
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge	
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge	
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge	
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge	
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge	

Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.  
Note: Most popular configurations available at no additional cost.

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**Spring Return Actuator Options**



OPTIONS	LF24-S US	LF120-S US	LF24-MFT-S US	NFBUP-X1	NFBUP-S-X1	NFX24-MFT-S-X1
Control type	On/Off	On/Off	Proportional/MFT	On/Off	On/Off	Proportional/MFT
Built-in auxiliary switch (-S)	•	•	•		•	•
120 VAC power supply		•				
<b>Ball Valve Model #</b>						
<b>C<sub>v</sub> Rating</b>						
<b>B2...VS 2-WAY BALL VALVE WITH SPRING RETURN ACTUATORS</b>						
B2050VS-01	\$602.00	\$638.00	\$818.00			
B2050VS-02	\$602.00	\$638.00	\$818.00			
B2050VS-04	\$602.00	\$638.00	\$818.00			
B2050VS-15	\$602.00	\$638.00	\$818.00			
B2075VS-30				\$788.00	\$872.00	\$1,044.00
B2075VS-51				\$818.00	\$904.00	\$1,080.00
B2100VS-43				\$872.00	\$960.00	\$1,076.00

\* For tandem actuators – only one of the two actuators is provided with switch. For MFT95 models only one will be MFT95.  
 Note: Specify configuration.

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# B2...VS Series Ball Valve, Spring Return and Electronic Fail-Safe Actuators

2-way Valve, Bronze Body, NPT Female Ends



### Valve Specifications

Service	chilled or hot water, 60% glycol, 35# steam
Flow characteristic	modified equal percentage
Action	90° rotation valve open CW, valve closed CCW
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	B584-C84400 bronze
Ball	316 stainless steel
Stem	316 stainless steel
Seats	MPTFE
Packing	RPTFE
Pressure rating	600 psi WOG
Media temp. range	-22°F to +280°F [-30°C to +138°C]
Maximum differential pressure (ΔP)	<600 psi



### Spring Return and Electronic Fail-Safe Actuators



ACTUATOR PART #	AF24 US	AF120 US	AF24-MFT US	2*AF24 US	2*AF120 US	2*AF24-MFT US	GKB24-3-X1	GKX24-MFT-X1
Control type	On/Off	On/Off	Proportional/ MFT	On/Off	On/Off	Proportional/ MFT	On/Off Floating Point	Proportional/ MFT
Manual override	•	•	•	•	•	•		
Running time	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds fail safe 35seconds	motor: 150 seconds fail safe 35seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<30 dB(A) spring: <62 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>								
3 ft cable, ½" conduit fitting	•	•	•	•	•	•	•	•
<b>Valve Nominal Size</b>								
<b>Ball Valve Model #</b>	<b>Cv Rating</b>	<b>Inches</b>	<b>DN mm</b>	<b>Close-off psi</b>				

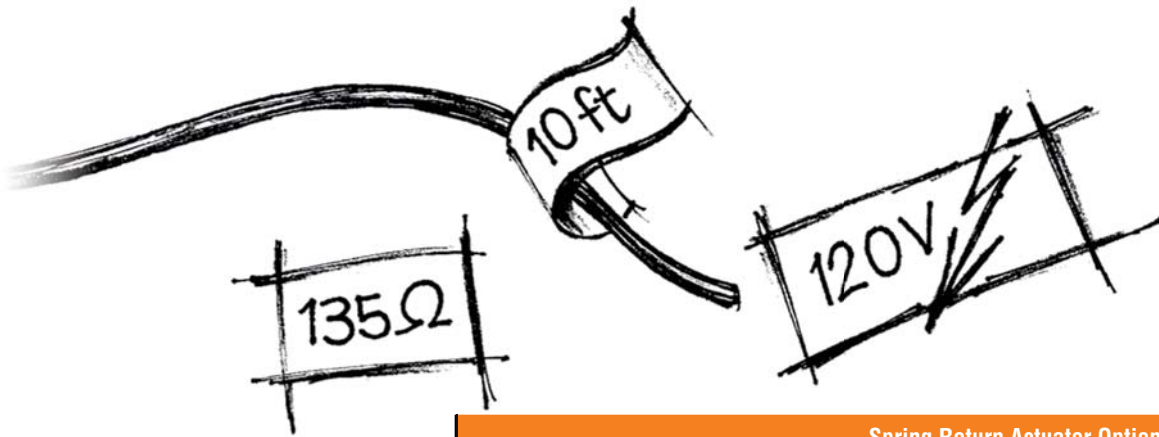
B2...VS 2-WAY BALL VALVE WITH SPRING RETURN ACTUATORS									
B2100VS-68	68	1	25	200	\$1,002.00	\$1,058.00	\$1,154.00		
B2125VS-48	48	1¼	32	100	\$1,060.00	\$1,114.00	\$1,222.00		
B2150VS-84	84	1½	40	400				\$1,588.00	\$1,696.00
B2150VS-177	177	1½	40	100				\$1,628.00	\$1,738.00
B2200VS-108	108	2	50	200	\$1,358.00	\$1,414.00	\$1,496.00		
B2200VS-389	389	2	50	100				\$2,384.00	\$2,444.00
B2300VS-370	370	3	80	100					
								\$4,196.00	\$4,460.00

### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Note: Most popular configurations available at no additional cost.



**Spring Return Actuator Options**



OPTIONS	AF24-S US	AF120-S US	AF24-MFT-S US	AF24-MFT-S US	2*AF24-S US	2*AF120-S US	2*AF24-MFT-S US	2*AF24-MFT95 US
Control type	On/Off	On/Off	Proportional/MFT	Proportional/MFT	On/Off	On/Off	Proportional/MFT	Proportional/MFT
Built-in auxiliary switch (-S)	•	•	•	•	•	•	•	
120 VAC power supply		•				•		
<b>Ball Valve Model #</b>								
<b>C<sub>v</sub> Rating</b>								
<b>B2...VS 2-WAY BALL VALVE WITH SPRING RETURN ACTUATORS</b>								
B2100VS-68	\$1,088.00	\$1,142.00	\$1,220.00	\$1,220.00				
B2125VS-48	\$1,144.00	\$1,200.00	\$1,288.00	\$1,288.00				
B2150VS-84					\$1,674.00	\$1,782.00	\$1,962.00	\$1,896.00
B2150VS-177					\$1,716.00	\$1,826.00	\$2,024.00	\$1,958.00
B2200VS-108	\$1,358.00	\$1,414.00	\$1,496.00	\$1,496.00				
B220VS-389					\$2,470.00	\$2,530.00	\$2,610.00	\$2,630.00

\* For tandem actuators – only one of the two actuators is provided with switch. For MFT95 models only one will be MFT95.  
 Note: Specify configuration.

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# B3...VS Series Ball Valve, Non-Spring Return Actuators

3-way Valve, Bronze Body, NPT Female Ends



### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	modified equal percentage
Action	90° rotation (A to AB open CCW, B to AB open CW)
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	B584-C84400 bronze
Ball	316 stainless steel
Stem	316 stainless steel
Seats	MPTFE
Packing	RPTFE
Pressure rating	400 psig WOG
Media temp. range	-22°F to +280°F [-30°C to +138°C]
Close off pressure	400 psi @ 100°F
Maximum differential pressure (ΔP)	<400 psi



### Non-Spring Return Actuators



ACTUATOR PART #	LMB24-3-X1	LMX24-MFT-X1	NMB24-3-X1	NMX24-MFT-X1	AMB24-3-X1	AMX24-MFT-X1	GMB24-3-X1	GMX24-MFT-X1
Control type	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•	•	•	•	•
Running time	90 seconds	150 seconds (default) variable 35 to 150 seconds	95 seconds	150 seconds (default) variable 45 to 170 seconds	95 seconds	150 seconds (default) variable 90 to 350 seconds	135 seconds	150 seconds (default) variable 120 to 300 seconds
Noise level	<35 dB(A)	<35 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>								
3 ft cable, ½" conduit fitting	•	•	•	•	•	•	•	•
<b>Valve Nominal Size</b>								
<b>Ball Valve Model #</b>	<b>Cv Rating</b>	<b>Inches</b>	<b>DN mm</b>	<b>Close-off psi</b>				

### B3...VS 3-WAY BALL VALVE WITH NON-SPRING RETURN ACTUATORS

B315VS	4.8	½	15	75	\$576.00	\$798.00				
B320VS	11	¾	20	75			\$724.00	\$922.00		
B325VS	21	1	25	75			\$904.00	\$1,052.00		
B332VS	33	1¼	32	75					\$1,138.00	\$1,272.00
B340VS	49	1½	40	75						\$1,588.00
B350VS	91	2	50	75						\$2,056.00

### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

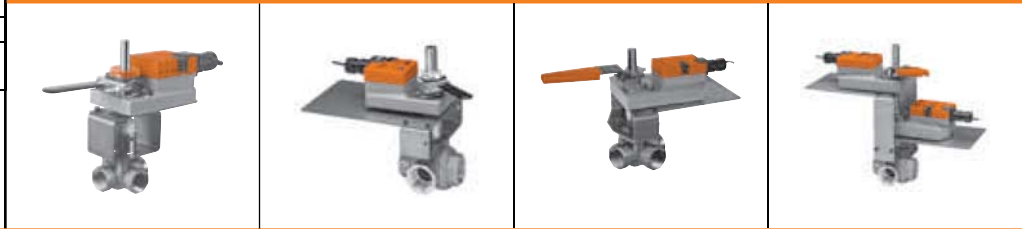
Note: Most popular configurations available at no additional cost. All other configurations carry a \$34.00 list price.

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**Valve Specifications**

Service	chilled or hot water, 60% glycol
Flow characteristic	modified equal percentage
Action	90° rotation (A to AB open CCW, B to AB open CW)
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	B584-C84400 bronze
Ball	316 stainless steel
Stem	316 stainless steel
Seats	MPTFE
Packing	RPTFE
Pressure rating	400 psig WOG
Media temp. range	-22°F to +280°F [-30°C to +138°C]
Close off pressure	400 psi @ 100°F
Maximum differential pressure (ΔP)	<400 psi


**Non-Spring Return Actuators**


ACTUATOR PART #	NMB24-3-X1	NMX24-MFT-X1	AMB24-3-X1	AMX24-MFT-X1	GMB24-3-X1	GMX24-MFT-X1	2*GMB24-3-X1	2*GMX24-MFT-X1
Control type	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•	•	•	•	•
Running time	90 seconds	150 seconds (default) variable 45 to 170 seconds	95 seconds	150 seconds (default) variable 90 to 350 seconds	135 seconds	150 seconds (default) variable 120 to 300 seconds	135 seconds	150 seconds (default) variable 120 to 300 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>								
3 ft cable, ½" conduit fitting	•	•	•	•	•	•	•	•
<b>Valve Nominal Size</b>								
<b>Ball Valve Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Inches</b>	<b>DN mm</b>	<b>Close-off psi</b>				

B3...VS 3-WAY BALL VALVE WITH NON-SPRING RETURN ACTUATORS									
B315VS	4.8	½	15	200	\$608.00	\$912.00			
B320VS	11	¾	20	200		\$758.00	\$1,008.00		
B325VS	21	1	25	200		\$942.00	\$1,136.00		
B332VS	33	1¼	32	200			\$1,314.00	\$1,400.00	
B340VS	49	1½	40	200				\$2,128.00	\$2,186.00
B350VS	91	2	50	200				\$2,556.00	\$2,910.00

Dual mounted actuators use standard run time only (no reprogramming of standard run time allowed).

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# B3...VS Series Ball Valve, Spring Return Actuators

3-way Valve, Bronze Body, NPT Female Ends



### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	modified equal percentage
Action	90° rotation (A to AB open CCW, B to AB open CW)
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	B584-C84400 bronze
Ball	316 stainless steel
Stem	316 stainless steel
Seats	MPTFE
Packing	RPTFE
Gland	B16 brass
Pressure rating	400 psig WOG
Media temp. range	-22°F to +280°F [-30°C to +138°C]
Maximum velocity	15 FPS



### Spring Return Actuators



ACTUATOR PART #	LF24 US	LF24-MFT US	NFB24-X1	NFX24-MFT-X1	AF24 US	AF24-MFT US	AF24-MFT95 US	2*AF24 US	2*AF24-MFT US	2*AF24-MFT95 US
Control type	On/Off	Proportional/MFT	On/Off	Proportional/MFT	On/Off	Proportional/MFT	Proportional/MFT95	On/Off	Proportional/MFT	Proportional/MFT95
Manual override					•	•	•	•	•	•
Running time	motor: <40 to 75 seconds spring: <25 seconds <60 seconds	motor: 150 seconds spring: <25 seconds	motor: 75 seconds spring: <60 seconds	motor: 150 seconds spring: <60 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds
Noise level	<50 dB(A)	<50 dB(A)	<50 dB(A)	<50 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>										
3 ft cable, ½" conduit fitting	•	•	•	•	•	•	•	•	•	•
<b>Valve Nominal Size</b>										
<b>Ball Valve Model #</b>	<b>Cv Rating</b>	<b>Inches</b>	<b>DN mm</b>	<b>Close-off psi</b>						

B3...VS 3-WAY BALL VALVE WITH SPRING RETURN ACTUATORS										
B315VS	4.8	½	15	75	\$636.00	\$870.00				
B320VS	11	¾	20	75		\$768.00	\$1,010.00			
B325VS	21	1	25	75			\$1,028.00	\$1,218.00	\$1,240.00	
B332VS	33	1¼	32	75			\$1,204.00	\$1,292.00	\$1,314.00	
B340VS	49	1½	40	75					\$1,936.00	\$2,090.00
B350VS	91	2	50	75					\$2,668.00	\$2,794.00

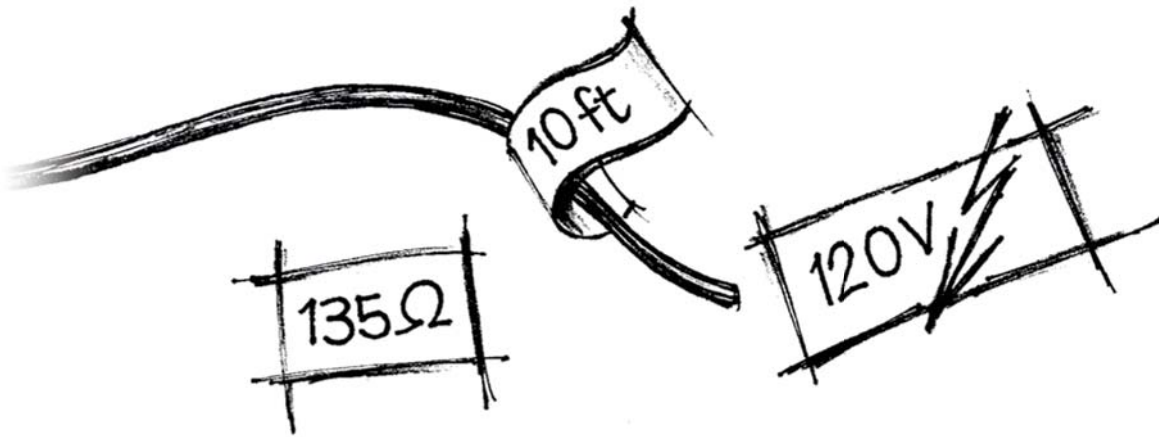
MULTI-FUNCTION TECHNOLOGY						
Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price	
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge	
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge	
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge	
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge	
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge	
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge	
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge	
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge	
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge	

Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Note: Most popular configurations available at no additional cost.

\* For tandem actuators – only one of the two actuators is provided with switch.

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**Spring Return Actuator Options**



OPTIONS	LF24-S US	LF24-MFT-S US	LF120 US	LF120-S US	NFBUP-X1	NFBUP-S-X1	NFX24-MFT-S-X1	AF24-S US	AF120 US	AF120-S US	AF24-MFT-S US	AF24-MFT95 US
Control type	On/Off	Proportional/MFT	On/Off	On/Off	On/Off	On/Off	On/Off	On/Off	On/Off	On/Off	Proportional/MFT	0-135 Ω
Built-in auxiliary switch	•	•	•	•		•	•	•	•	•	•	•
120 VAC power supply			•	•					•	•		
Ball Valve Model #	Cv Rating											
<b>B3...VS 3-WAY BALL VALVE WITH SPRING RETURN ACTUATORS</b>												
B315VS	4.8	\$668.00	\$904.00	\$668.00	\$722.00							
B320VS	11					\$868.00	\$948.00	\$1,090.00				
B325VS	21								\$1,118.00	\$1,084.00	\$1,174.00	\$1,304.00
B332VS	33								\$1,292.00	\$1,258.00	\$1,346.00	\$1,382.00

\* For tandem actuators – only one of the two actuators is provided with switch. For MFT95 models only one will be MFT95. Note: Specify configuration.

**Spring Return Actuator Options**



OPTIONS	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AF24-MFT-S US	2*AF24-MFT95 US
Control type	On/Off	On/Off	On/Off	Proportional/MFT	0-135 Ω
Built-in auxiliary switch	•	•	•	•	•
120 VAC power supply		•	•		
Ball Valve Model #	Cv Rating				
<b>B3...VS 2-WAY BALL VALVE WITH SPRING RETURN ACTUATORS</b>					
B340VS	49	\$2,024.00	\$2,044.00	\$2,134.00	\$2,176.00
B350VS	91	\$2,758.00	\$2,778.00	\$2,866.00	\$2,880.00

\* For tandem actuators – only one of the two actuators is provided with switch. For MFT95 models only one will be MFT95. Note: Specify configuration.

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### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	modified equal percentage
Action	90° rotation (A to AB open CCW, B to AB open CW)
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Stem Packing	MPTFE
Stem Bearing	RPTFE
Ball	316 stainless steel
Seats	MPTFE
Retainer	B16 (½" to 1") brass B584 (1¼" to 2") brass
Gland	ASTM B16 brass
Stem	316 stainless steel
Body Seal	PTFE
Body	B854-C84400 bronze
Pressure rating	400 psig WOG
Media temp. range	-22°F to +280°F [-30°C to +138°C]
Maximum differential pressure (ΔP)	<400 psi



### Spring Return Actuators



ACTUATOR PART #	GKB24-3-X1	GKX24-MFT-X1	2*GKB24-3-X1	2*GKX24-MFT-X1				
Control type	On/Off	Proportional/ MFT	On/Off	On/Off				
Manual override	•	•	•	•				
Running time	motor: 150 seconds fail-safe: 35 seconds	motor: 150 seconds fail-safe: 35 seconds	motor: 150 seconds fail-safe: 35 seconds	motor: 150 seconds fail-safe: 35 seconds				
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)				
<b>ELECTRICAL CONNECTION:</b>								
3 ft cable, ½" conduit fitting	•	•	•	•				
<b>Valve Nominal Size</b>								
<b>Ball Valve Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Inches</b>	<b>DN mm</b>	<b>Close-off psi</b>				
<b>B3...VS 3-WAY BALL VALVE WITH SPRING RETURN ACTUATORS</b>								
B340VS	49	1½	40	200			\$3,356.00	\$3,774.00
B350VS	91	2	50	200			\$3,784.00	\$4,498.00
B340VS	49	1½	40	75	\$2,348.00	\$2,388.00		
B350VS	91	2	50	75	\$2,776.00	\$3,112.00		

Note: Specify configuration.

### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Note: Most popular configurations available at no additional cost.

\* For tandem actuators – only one of the two actuators is provided with switch.

# B3...VS Series Ball Valve, Spring Return and Electronic Fail-Safe Actuators

3-way Valve, Bronze Body, NPT Female Ends



### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	modified equal percentage
Action	90° rotation (A to AB open CCW, B to AB open CW)
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Stem Packing	MPTFE
Stem Bearing	RPTFE
Ball	316 stainless steel
Seats	MPTFE
Retainer	B16 (½" to 1") brass B584 (1¼" to 2") brass
Gland	ASTM B16 brass
Stem	316 stainless steel
Body Seal	PTFE
Body	B854-C84400 bronze
Pressure rating	400 psig WOG
Media temp. range	-22°F to +280°F [-30°C to +138°C]
Maximum differential pressure (ΔP)	<400 psi



### Spring Return and Electronic Fail-Safe Actuators



ACTUATOR PART #	NFB24-X1	NFX24-MFT-X1	AF24 US	AF24-MFT US	AF24-MFT95 US	2*AF24 US	2*AF24-MFT US	2*AF24-MFT95 US
Control type	On/Off	Proportional/ MFT	On/Off	Proportional/ MFT	Proportional/ MFT95	On/Off	Proportional/ MFT	Proportional/ MFT
Manual override	•	•	•	•	•	•	•	•
Running time	motor: 75 seconds spring: <25 seconds <60 seconds	motor: 150 seconds spring: <60 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>								
3 ft cable, ½" conduit fitting	•	•	•	•	•	•	•	•
<b>Valve Nominal Size</b>								
<b>Ball Valve Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Inches</b>	<b>DN mm</b>	<b>Close-off psi</b>				
<b>B3...VS 3-WAY BALL VALVE WITH SPRING RETURN ACTUATORS</b>								
B315VS	4.8	½	15	200	\$674.00	\$940.00		
B320VS	11	¾	20	200		\$824.00	\$1,072.00	\$1,092.00
B325VS	21	1	25	200			\$1,490.00	\$1,668.00
B332VS	33	1¼	32	200			\$1,664.00	\$1,910.00

Note: Specify configuration.

### MULTI-FUNCTION TECHNOLOGY

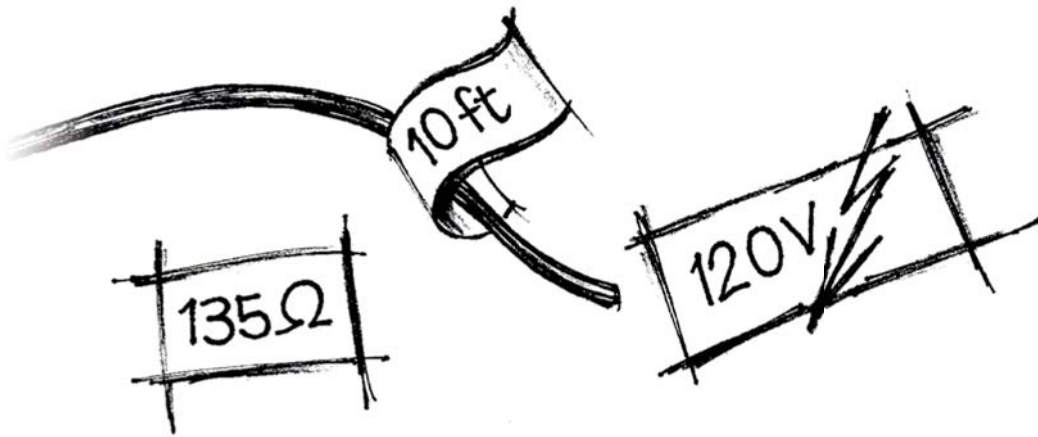
Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Note: Most popular configurations available at no additional cost.

\* For tandem actuators – only one of the two actuators is provided with switch.

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### Spring Return Actuator Options



OPTIONS	NFBUP-S-X1	NFX24-MFT-S-X1	NFBUP-S-X1
Control type	On/Off	Proportional/MFT	On/Off
Built-in auxiliary switch (-S)	•	•	•
120 VAC power supply			•
<b>Ball Valve Model #</b>	<b>C<sub>v</sub> Rating</b>		
<b>B3...VS 3-WAY BALL VALVE WITH SPRING RETURN ACTUATORS</b>			
B315VS	4.8	\$718.00	\$982.00
			\$760.00

### Spring Return Actuator Options



OPTIONS	AF24-S US	AF120 US	AF120-S US	AF24-MFT-S US	AF24-MFT95 US	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AF24-MFT-S US	2*AF24-MFT95 US
Control type	On/Off	On/Off	On/Off	Proportional/MFT	0-135 Ω	On/Off	On/Off	On/Off	Proportional/MFT	0-135 Ω
Built-in auxiliary switch (-S)	•	•	•	•	•	•	•	•	•	•
120 VAC power supply		•	•							
<b>Ball Valve Model #</b>	<b>C<sub>v</sub> Rating</b>									
<b>B3...VS 3-WAY BALL VALVE WITH SPRING RETURN ACTUATORS</b>										
B320VS	11	\$912.00	\$880.00	\$968.00	\$1,160.00	\$1,092.00				
B325VS	21						\$1,574.00	\$1,600.00	\$1,686.00	\$1,756.00
B332VS	33						\$1,750.00	\$1,772.00	\$1,860.00	\$1,998.00
B340VS	49						\$2,024.00	\$2,044.00	\$2,134.00	\$2,176.00
B350VS	91						\$2,758.00	\$2,778.00	\$2,866.00	\$2,880.00

\* For tandem actuators – only one of the two actuators is provided with switches. For MFT95 models only one will be MFT95. Note: Specify configuration.

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# B2...VS Series Ball Valve, Non-Spring Return Actuators

2-way Valve, Bronze Body, NPT Female Ends with NEMA 4X Industrial Style Actuators



### Valve Specifications

Service	chilled or hot water, 60% glycol, 35# steam
Flow characteristic	modified equal percentage
Action	90° rotation valve open CW, valve closed CCW
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3"
Type of end fitting	NPT female ends
Materials:	
Stem Packing	MPTFE
Stem Bearing	RPTFE
Ball	316 stainless steel
Seats	MPTFE
Retainer	B16 (¾" to 1") brass B584 (1¼" to 3") brass
Gland	B16 brass
Stem	316 stainless steel
Lever Nut	stainless steel
Body Seal	PTFE brass
Body	B584-C84400 bronze
Pressure Rating	600 psig WOG
Media temp. range	-22°F to +280°F [-30°C to +138°C]
Maximum differential pressure (ΔP)	<600 psig



### Non-Spring Return Actuators



ACTUATOR PART #	SY1-24, SY1-110, SY1-220	SY1-24P, SY1-110P, SY1-220P	SY2-24, SY2-110, SY2-230	SY2-24MFT, SY2-120MFT, SY2-230MFT
Control type	On/Off, Floating Point	Proportional	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•
Running time	15 seconds	15 seconds	15 seconds	15 seconds
<b>ELECTRICAL CONNECTION:</b>				
2 (two), ½" conduit fittings / covered terminal strip	•	•	•	•
<b>Valve Nominal Size</b>				
<b>Ball Valve Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Inches</b>	<b>DN mm</b>	<b>Close-off psi</b>

### B2...VS 2-WAY BALL VALVE WITH NON-SPRING RETURN ACTUATORS

B2050VS-01	1	½	15	600	\$1,204.00	\$3,128.00	\$2,422.00	\$4,500.00
B2050VS-02	2	½	15	600	\$1,204.00	\$3,128.00	\$2,422.00	\$4,500.00
B2050VS-04	4	½	15	600	\$1,204.00	\$3,128.00	\$2,422.00	\$4,500.00
B2050VS-15	15	½	15	600	\$1,204.00	\$3,128.00	\$2,422.00	\$4,500.00
B2075VS-30	30	¾	20	600	\$1,334.00	\$3,240.00	\$2,518.00	\$4,600.00
B2075VS-51	51	¾	20	600	\$1,352.00	\$3,258.00	\$2,538.00	\$4,620.00
B2100VS-43	43	1	25	600	\$1,376.00	\$3,278.00	\$2,558.00	\$4,640.00
B2100VS-68	68	1	25	600	\$1,390.00	\$3,294.00	\$2,660.00	\$4,744.00
B2125VS-48	48	1¼	32	600	\$1,510.00	\$3,416.00	\$2,780.00	\$4,866.00
B2150VS-84	84	1½	40	600	\$1,564.00	\$3,474.00	\$2,838.00	\$4,922.00
B2150VS-177	177	1½	40	600	\$1,894.00	\$2,486.00	\$2,902.00	\$4,986.00
B2200VS-108	108	2	50	600	\$2,224.00	\$2,816.00	\$3,070.00	\$5,150.00
B2200VS-389	389	2	50	600	\$2,242.00	\$2,768.00	\$3,390.00	\$5,444.00
B2250VS-503	503	2½	65	600			\$5,122.00	\$7,204.00
B2300VS-370	370	3	80	600			\$4,986.00	\$7,056.00

Note: Specify configuration.

### SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	ACL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

\*Available only on 24MFT actuators.

800-543-9038 USA

866-805-7089 CANADA

203-791-8396 LATIN AMERICA



### Valve Specifications

Service	chilled or hot water, 60% glycol, 50# steam
Flow characteristic	modified equal percentage
Action	90° rotation valve open CW, valve closed CCW
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½"
Type of end fitting	NPT female ends
Materials:	
Stem Packing	MPTFE
Stem Bearing	RPTFE
Ball	316 stainless steel
Seats	MPTFE
Retainer	B16 (¾" to 1") brass B589 (1¼" to 3") brass
Gland	A276-316
Stem	316 stainless steel
Lever Nut	stainless steel
Body Seal	PTFE
Body	A351-CF8M 316 stainless steel
Pressure rating	2000 psig WOG (½" to 1")
Media temp. range	-22°F to +298°F [-30°C to +148°C]
Maximum differential pressure (ΔP)	up to 1000 psi



### Non-Spring Return Actuators



ACTUATOR PART #	LMB24-3-X1	LMX24-MFT-X1	NMB24-3-X1	NMX24-MFT-X1	AMB24-3-X1	AMX24-MFT-X1	2*GMB24-3-X1	2*GMX24-MFT-X1
Control type	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•	•	•	•	•
Running time	90 seconds	150 seconds (default) variable 45 to 170 seconds	90 seconds	150 seconds (default) variable 45 to 170 seconds	90 seconds	150 seconds (default) variable 90 to 350 seconds	135 seconds	150 seconds (default)
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)

### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•	•	•	•
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### Valve Nominal Size

Ball Valve Model #	C <sub>v</sub> Rating	Inches	DN mm	Close-off psi
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### B2...VSS 2-WAY BALL VALVE WITH NON-SPRING RETURN ACTUATORS

Ball Valve Model #	C <sub>v</sub> Rating	Inches	DN mm	Close-off psi	LMB24-3-X1	LMX24-MFT-X1	NMB24-3-X1	NMX24-MFT-X1	AMB24-3-X1	AMX24-MFT-X1	2*GMB24-3-X1	2*GMX24-MFT-X1
B2050VSS-15	15	½	15	1000	\$658.00	\$968.00						
B2075VSS-30	30	¾	20	1000			\$914.00	\$1,220.00				
B2100VSS-43	43	1	25	1000			\$942.00	\$1,200.00				
B2125VSS-48	48	1¼	32	1000			\$1,416.00	\$1,680.00				
B2150VSS-84	84	1½	40	1000					\$1,712.00	\$1,850.00		
B2200VSS-108	108	2	50	1000					\$2,374.00	\$2,624.00		
B2250VSS-503	503	2½	50	1000							\$5,742.00	\$6,024.00
B2300VSS-370	370	3	65	1000							\$6,442.00	\$6,624.00

### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Note: Most popular configurations available at no additional cost. All other configurations carry a \$34.00 list price.

Dual mounted actuators use standard run time only (no reprogramming of standard run time allowed).

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# B2...VSS Series Ball Valve, Spring Return Actuators

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



### Valve Specifications

Service	chilled or hot water, 60% glycol, 50# steam
Flow characteristic	modified equal percentage
Action	90° rotation valve open CW, valve close CCW
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Stem Packing	MPTFE
Stem Bearing	RPTFE
Ball	316 stainless steel
Seats	MPTFE
Retainer	B16 (¾" to 1") brass B584 (1¼" to 3") brass
Gland	A276-316
Stem	316 stainless steel
Lever Nut	stainless steel
Body Seal	PTFE
Body	A351-CF8M 316 stainless steel
Pressure rating	2000 psig WOG (½")
Media temp. range	-22°F to +298°F [-30°C to +148°C]
Maximum differential pressure (ΔP)	up to 1000 psi



### Spring Return Actuators



ACTUATOR PART #	LF24 US	LF24-MFT US	NFB24-X1	NFX24-MFT-X1	AF24 US	AF24-MFT US	2*AF24 US	2*AF24-MFT US
Control type	On/Off	Proportional/MFT	On/Off	Proportional/MFT	On/Off	Proportional/MFT	On/Off	Proportional/MFT
Manual override			•	•	•	•	•	•
Running time	<40 to 75 seconds spring: <25 seconds <60 seconds	motor: 150 seconds spring: <25 seconds <60 seconds	75 seconds spring: seconds <60 seconds	motor: 150 seconds spring: <60 seconds	motor: 150 seconds spring: <20 seconds	motor: <150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: <150 seconds spring: <20 seconds
Noise level	<50 dB(A) spring: <62 dB(A)	<30 dB(A) spring: <62 dB(A)	<50 dB(A) spring: <62 dB(A)	<30 dB(A) spring: <62 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)

### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•	•	•	•
--------------------------------	---	---	---	---	---	---	---	---

### Valve Nominal Size

Ball Valve Model #	Cv Rating	Inches	DN mm	Close-off psi
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### B2...VSS 2-WAY BALL VALVE WITH SPRING RETURN ACTUATORS

B2050VSS-15	15	½	15	1000	\$686.00	\$1,072.00					
B2075VSS-30	30	¾	20	1000							
B2100VSS-43	43	1	25	1000			\$1,046.00	\$1,440.00	\$1,040.00	\$1,406.00	
B2125VSS-48	48	1¼	32	1000					\$1,564.00	\$1,996.00	
B2150VSS-84	84	1½	40	1000					\$1,710.00	\$2,346.00	
B2200VSS-108	108	2	50	1000						\$2,434.00	\$3,178.00

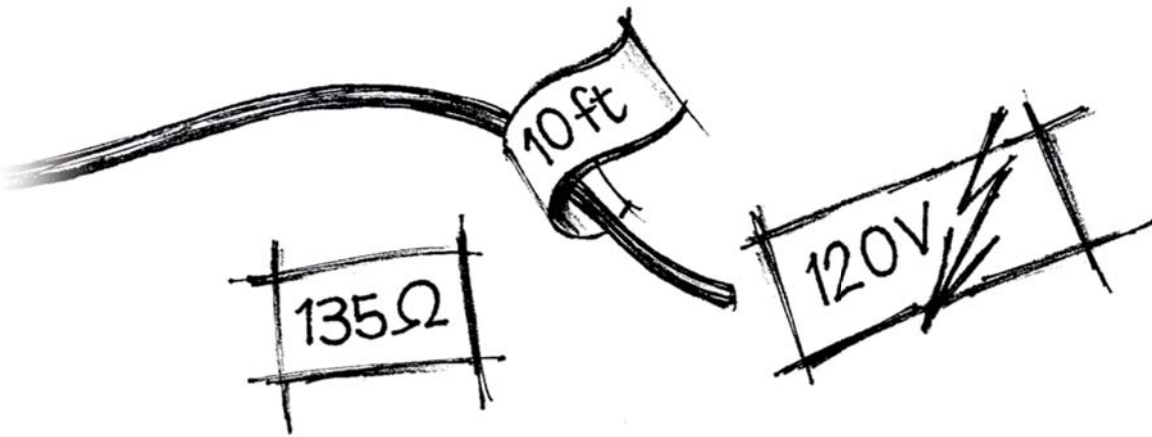
### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Example: AF24-MFT US is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Note: Most popular configurations available at no additional cost.

L30056 - 04/10 - Subject to change. © Belimo Aircontrols (USA), Inc.



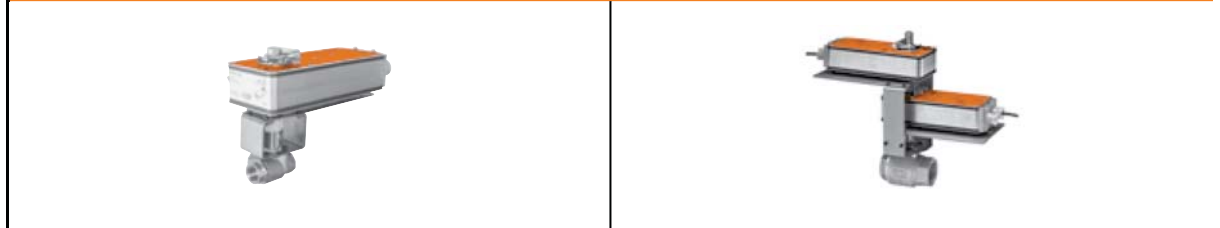
**Spring Return Actuator Options**



OPTIONS	LF24-S US	LF120 US	LF120-S US	LF24-MFT-S US	NFBUP-1X	NFBUP-S-X1	NFX24-MFT-S-X1
Control type	On/Off	On/Off	On/Off	Proportional/MFT	On/Off	On/Off	Proportional/MFT
Built-in auxiliary switch (-S)	•		•	•		•	•
120 VAC power supply		•	•				•
<b>Ball Valve Model #</b>	<b>C<sub>v</sub> Rating</b>						
<b>B2...VSS 2-WAY BALL VALVE WITH SPRING RETURN ACTUATORS</b>							
B2050VSS-15	15	\$742.00	\$720.00	\$776.00	\$1,126.00	\$1,150.00	\$1,236.00
B2100VSS-43	43						\$1,506.00

\* For tandem actuators – only one of the two actuators is provided with switch. For MFT95 models only one will be MFT95. Note: Specify configuration.

**Spring Return Actuator Options**



OPTIONS	AF24-S US	AF120 US	AF120-S US	AF24-MFT-S US	AF24-MFT95 US	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AF24-MFT-S US	2*AF24-MFT95 US
Control type	On/Off	On/Off	On/Off	On/Off	0-135 Ω	On/Off	Proportional/MFT	Proportional/MFT	Proportional/MFT	0-135 Ω
Built-in auxiliary switch (-S)	•		•	•		•		•	•	
120 VAC power supply		•	•		•		•	•		•
<b>Ball Valve Model #</b>	<b>C<sub>v</sub> Rating</b>									
<b>B2...VSS 2-WAY BALL VALVE WITH SPRING RETURN ACTUATORS</b>										
B2075VSS-30	30	\$1,128.00	\$1,094.00	\$1,184.00	\$1,470.00	\$1,426.00				
B2100VSS-43	43					\$1,518.00				
B2125VSS-48	48	\$1,654.00	\$1,620.00	\$1,708.00	\$2,084.00	\$2,018.00				
B2150VSS-84	48	\$1,796.00	\$1,762.00	\$1,848.00	\$2,432.00	\$2,366.00				
B2200VSS-108	84						\$2,520.00	\$2,544.00	\$2,630.00	\$3,264.00
										\$3,198.00

\* For tandem actuators – only one of the two actuators is provided with switch. For MFT95 models only one will be MFT95. Note: Specify configuration.

L30056 - 04/10 - Subject to change. © Belimo Aircontrols (USA), Inc.

# B2...VSS Series Ball Valve, Spring Return Actuators

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



### Valve Specifications

Service	chilled or hot water, 60% glycol, 50# steam
Flow characteristic	modified equal percentage
Action	90° rotation valve open CW, valve close CCW
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Stem Packing	MPTFE
Stem Bearing	RPTFE
Ball	316 stainless steel
Seats	MPTFE
Retainer	B16 (¾" to 1") brass B584 (1¼" to 3") brass
Gland	A276-316
Stem	316 stainless steel
Lever Nut	stainless steel
Body Seal	PTFE
Body	A351-CF8M 316 stainless steel
Pressure rating	2000 psig WOG (½")
Media temp. range	-22°F to +298°F [-30°C to +148°C]
Maximum differential pressure (ΔP)	up to 1000 psi



ACTUATOR PART #	GKB24-3-X1	GKX24-MFT-X1	2*GKB24-3-X1	2*GKX24-MFT-X1
Control type	On/Off	Proportional/MFT	On/Off	Proportional/MFT
Manual override	•	•	•	•
Running time	motor: <150 seconds fail safe 35 seconds	motor: <150 seconds fail safe 35 seconds	motor: <150 seconds fail safe 35 seconds	motor: <150 seconds fail safe 35 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>				
3 ft cable, ½" conduit fitting	•	•	•	•

Valve Nominal Size				
Ball Valve Model #	C <sub>v</sub> Rating	Inches	DN mm	Close-off psi

B2...VSS 2-WAY BALL VALVE WITH SPRING RETURN ACTUATORS								
B2200VSS-108	108	2	50	1000	\$2,446.00	\$2,906.00		
B2250VSS-503	503	2 1/2	65	1000			\$5,742.00	\$6,024.00
B2300VSS-370	370	3	80	1000			\$6,442.00	\$6,624.00

### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Example: AF24-MFT US is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.  
Note: Most popular configurations available at no additional cost.

### Valve Specifications

Service	chilled or hot water, 60% glycol, 50# steam
Flow characteristic	modified equal percentage
Action	90° rotation valve open CW, valve closed CCW
Sizes	½", ¾", 1", 1¼", 1½", 2", 2 ½", 3"
Type of end fitting	NPT female ends
Materials:	
Stem Packing	MPTFE
Stem Bearing	RPTFE
Ball	316 stainless steel
Seats	MPTFE
Retainer	B16 (¾" to 1") brass B584 (1¼" to 3") brass
Gland	B16 brass
Stem	316 stainless steel
Lever Nut	stainless steel
Body Seal	PTFE
Body	A351-CF8M 316 stainless steel
Pressure rating	2000 psig WOG (½")
Media temp. range	-22°F to +298°F [-30°C to +148°C]
Maximum differential pressure (ΔP)	up to 1000 psi



### Non-Spring Return Actuators



ACTUATOR PART #	SY1-24 SY1-110 SY1-220	SY1-24P SY1-110P SY1-220P	SY2-24, SY2-110, SY2-230	SY2-24MFT, SY2-120MFT, SY2-230MFT
Control type	On/Off, Floating Point	Proportional	On/Off, Floating Point	On/Off, Floating Point
Manual override	•	•	•	•
Running time	12 seconds	12 seconds	15 seconds	22 seconds
<b>ELECTRICAL CONNECTION:</b>				
2 (two), ½" conduit fittings / covered terminal strip	•	•	•	•
<b>Valve Nominal Size</b>				
<b>Ball Valve Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Inches</b>	<b>DN mm</b>	<b>Close-off psi</b>

B2...VSS 2-WAY BALL VALVE WITH NON-SPRING RETURN ACTUATORS								
B2050VSS-15	15	½	15	1000	\$1,384.00	\$3,290.00	\$2,582.00	\$4,666.00
B2075VSS-30	30	¾	20	1000	\$1,582.00	\$3,488.00	\$2,766.00	\$4,846.00
B2100VSS-43	43	1	25	1000	\$1,660.00	\$3,566.00	\$2,842.00	\$4,924.00
B2125VSS-48	48	1¼	32	1000	\$2,042.00	\$3,948.00	\$3,312.00	\$5,396.00
B2150VSS-84	84	1½	40	1000	\$2,154.00	\$4,062.00	\$3,426.00	\$5,510.00
B2200VSS-108	108	2	50	1000	\$2,536.00	\$4,445.00	\$3,724.00	\$5,804.00
B2250VSS-503	503	2½	65	1000			\$7,264.00	\$9,298.00
B2300VSS-370	370	3	80	1000			\$7,516.00	\$9,538.00

Note: Specify configuration.

### SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	ACL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

\*Available only on 24MFT actuators.

# B6...VS Series Ball Valve, Non-Spring Return Actuators

2-way Valve, Cast Iron Flanged Body with NEMA 4X Industrial Style Actuators



### Valve Specifications

Service	chilled or hot water, 60% glycol, 50# steam
Flow characteristic	modified equal percentage
Action	90° rotation valve open CW, valve closed CCW
Sizes	2", 2½", 3", 4", 6", 8", 10"
Type of end fitting	flanged 125# ANSI bolt pattern
<b>Materials:</b>	
Body	cast iron - ASTM A126 class B
Ball	304 stainless steel - ASTM A351
Stem	304 stainless steel - AISI 304
Seats	MPTFE
Packing	PTFE
Gland	cast iron - ASTM A126 class B
Gasket	PTFE
Lever Nut	steel - ASTM A6
Pressure rating	200 psi WOG
Media temp. range	-22°F to +280°F [-30°C to +138°C]
Maximum differential pressure (ΔP)	<200 psi



### Non-Spring Return Actuators



ACTUATOR PART #	SY2-24, SY2-110, SY2-230 SY2-24	SY2-24MFT, SY2-120MFT, SY2-230MFT SY3-24	SY3-24, SY3-110, SY3-220 SY4-24	SY4-24, SY4-110, SY4-220 SY5-24	SY5-24, SY5-110, SY5-220 SY8-110
Control type	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	On/Off, Floating Point	On/Off, Floating Point
Manual override	•	•	•	•	•
Running time	15 seconds	15 seconds	22 seconds	16 seconds	22 seconds
<b>ELECTRICAL CONNECTION:</b>					
2 (two), ½" conduit fittings / covered terminal strip					
<b>Valve Nominal Size</b>					
<b>Ball Valve Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Inches</b>	<b>DN mm</b>	<b>Close-off psi</b>	
<b>B6...VS 2-WAY BALL VALVE WITH NON-SPRING RETURN ACTUATORS</b>					
B650VS	330	2	50	200	\$3,928.00
B665VS	420	2½	65	200	\$4,064.00
B680VS	600	3	80	200	\$4,198.00
B6100VS	1200	4	100	200	\$5,342.00
B6150VS	3300	6	150	200	\$10,772.00
B6200VS	9000	8	203	200	\$14,412.00
B6250VS	12400	10	254	200	\$34,436.00

Note: Specify configuration.

### SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	ACL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

\* Available only on 24MFT actuators.

800-543-9038 USA

866-805-7089 CANADA

203-791-8396 LATIN AMERICA

### Valve Specifications

Service	chilled or hot water, 60% glycol, 50# steam
Flow characteristic	modified equal percentage
Action	90° rotation valve open CW, valve closed CCW
Sizes	2", 2½", 3", 4", 6", 8", 10"
Type of end fitting	flanged 125# ANSI bolt pattern
<b>Materials:</b>	
Body	cast iron - ASTM A126 class B
Ball	304 stainless steel - ASTM A351
Stem	304 stainless steel - AISI 304
Seats	MPTFE
Packing	PTFE
Gland	cast iron - ASTM A126 class B
Gasket	PTFE
Lever Nut	steel - ASTM A6
Pressure rating	200 psi WOG
Media temp. range	-22°F to +250°F [-30°C to +120°C]
Maximum differential pressure (ΔP)	<200 psi



### Non-Spring Return Actuators



ACTUATOR PART #	SY2-24MFT, SY2-120MFT, SY2-230MFT SY2-24MFT	SY3-24MFT, SY3-120MFT, SY3-230MFT SY3-24MFT	SY4-24MFT, SY4-120MFT, SY4-230MFT SY4-24MFT	SY5-24MFT, SY5-120MFT, SY5-230MFT SY5-24MFT	SY8-120MFT, SY8-230MFT SY8-120MFT
Control type	Proportional/MFT	Proportional/MFT	Proportional/MFT	Proportional/MFT	Proportional/MFT
Manual override	•	•	•	•	•
Running time	15 seconds	22 seconds	16 seconds	22 seconds	46 seconds
<b>ELECTRICAL CONNECTION:</b>					
2 (two), ½" conduit fittings / covered terminal strip	•	•	•	•	•
<b>Valve Nominal Size</b>					
<b>Ball Valve Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Inches</b>	<b>DN mm</b>	<b>Close-off psi</b>	

B6...VS 2-WAY BALL VALVE WITH NON-SPRING RETURN ACTUATORS					
B650VS	330	2	50	200	\$5,936.00
B665VS	420	2½	65	200	\$6,144.00
B680VS	600	3	80	200	\$6,234.00
B6100VS	1200	4	100	200	\$7,870.00
B6150VS	3300	6	150	200	\$12,812.00
B6200VS	9000	8	203	200	\$15,808.00
B6250VS	12400	10	254	200	\$36,342.00

Note: Specify configuration.

### SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	ACL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

\*Consult factory.





# 10

## “V” BALL CONTROL VALVES

- High performance carbon steel bodies ANSI class 150 and 300.
- Fluid temperatures up to 400°F; ideal for chilled, hot water or steam applications.
- Fitted with damper type actuators for easy field assembly and installation.
- Field replaceable seats and stem packing.
- Wide  $C_v$  ranges comparable to globe valves.
- 300:1 rangeability.

### Applications

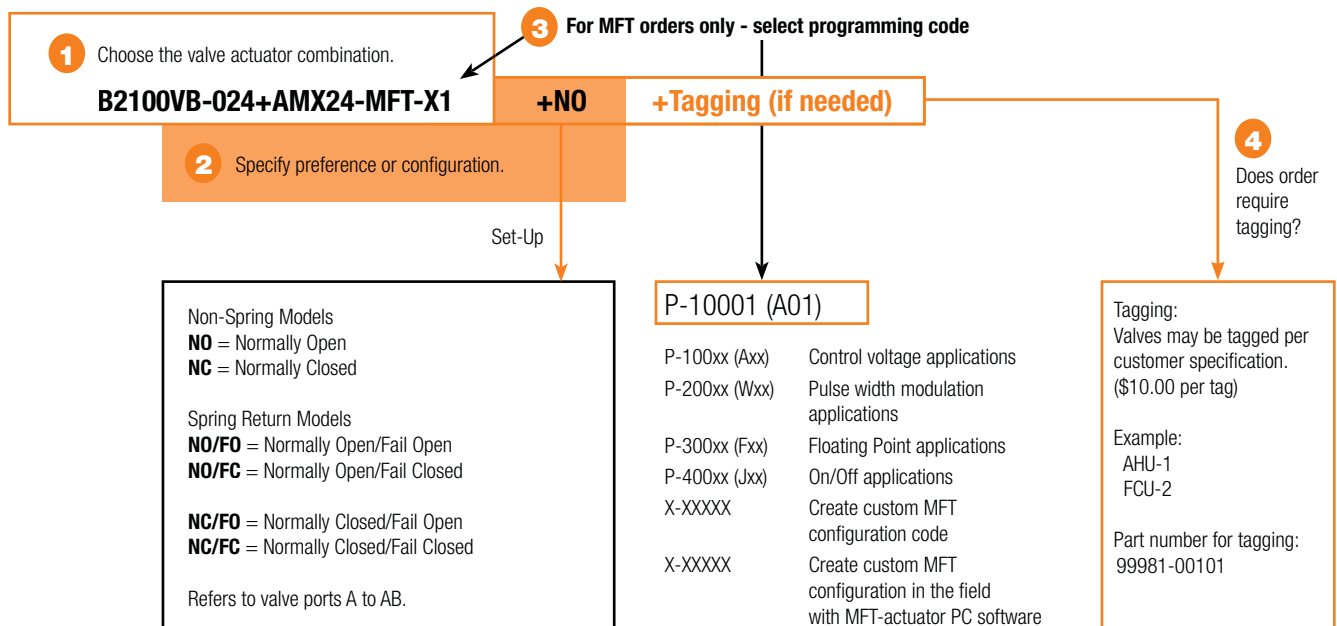
Available with mechanical fail-safe, electronic fails and non-fail-safe actuators, the “V” ball control valves are ideal for aggressive applications. The hardened chrome plated stainless steel ball allows these valves to be used for high pressure and high temperature applications. For wet locations we offer NEMA 4X industrial actuators and also weather tight accessories.



## V Ball Valve Nomenclature

B2	100	VB	-024	AMX	24	-MFTX1	
<b>Valve</b> B2 = 2-way B6 = 2-way Flanged	<b>Valve Size</b> 12-80 = 1" to 2" 50-250 = 3" to 6" (Flanged)	<b>Industrial Construction/ Material</b> VB = Chrome plated stainless steel "V" ball	<b>Cv</b>	<b>Actuator Type</b> Non-Spring Return AM... GM... SY... SY...P Mechanical Fail-Safe NF... AF... Electronic Fail-Safe... GK...	<b>Power Supply</b> 24 = 24 VAC/DC 120 = 120 VAC 230 = 230 VAC	<b>Control</b> -3-X1 = On/Off, Floating Point -MFTX1 = Multi-Function Technology -MFT95 = 0-135 Ω	-S = Built-in Auxiliary Switch

## Ordering Example



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

# "V" Ball Control Valve Product Range

## VSI Ball Valve Product Range B2...VB, B6...VB

C <sub>v</sub>	Valve Nominal Size		Type		Suitable Actuators		
	Inches	DN [mm]	2-way NPT	Flange	Spring Return	Electronic Fail-Safe	Non-Spring Return
24	1	25	B2100VB-024		NF Series		AM Series
55	1½	40	B2150VB-055				GM Series
77	2	50	B2200VB-077		AF Series		
207	3	80		B6300VB-207		GK Series	
350	4	100		B6400VB-350			
507	6	150		B6600VB-507			



### Applications

- Water-side control of air handling apparatus in ventilation and air-conditioning systems
- Water/Steam control in heating systems

### Mode of Operation

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

### Product Features

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

### Actuator Specifications

Control type	On/Off, Floating Point, Proportional, 2-10 VDC Multi-Function Technology (MFT)
Manual override	GM, AM, SY, NF, AF, GK
Electrical connection	3 ft [1m] cable with ½" conduit fitting

### Valve Specifications

Service	chilled or hot water, (60% glycol) steam
Flow characteristic	equal percentage
Sizes	1" to 6"
Type of end fitting	NPT (1" to 2") flanged (3" to 6")
Materials	
Body	carbon steel
Stem	stainless steel
Ball	chrome plate stainless steel
Seats	Graphite
Packing	Spring loaded Teflon
Pressure rating	Up to 400 psig
Media temp range	400°F
Maximum inlet pressure	
Steam	250 psi
Maximum ΔP steam	100 psi
Maximum ΔP water	150 psi

# B2...VB and B6...VB "V" Ball Control Valve

General Information / Typical Installation



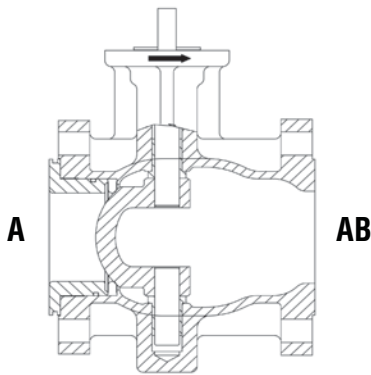
## GENERAL INFORMATION

- Carbon Steel or Stainless Steel 150/300 ANSI Rated Bodies
- Equal Percentage Flow Characteristic
- Dual Body rating on 1", 1 1/2" & 2" (ANSI 150/300)
- ASME B16.10 Face to Face Dimensions
- ANSI Class VI Shut-off
- 250PSI 400 degree rated
- Field replaceable seat
- Maintenance free spring loaded packing

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

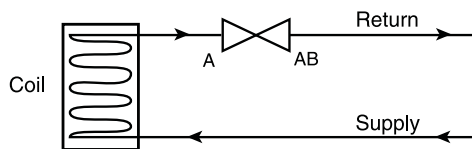
Ideal for replacing globe valves where high close off is required.

## FLOW PATTERN

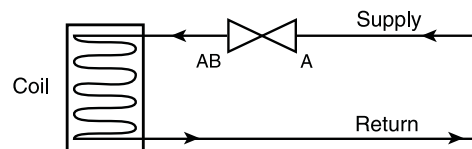


## VS SERIES BALL VALVE PIPING DIAGRAMS

**Water Application**  
2-way Valve Piping Diagram



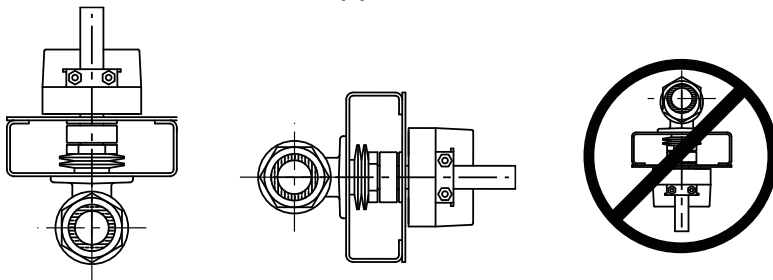
**Steam Application**  
2-way Valve Piping Diagram



## PIPING/MOUNTING ORIENTATION

Assembly can be mounted horizontally or vertically for water applications. For steam applications the valve can be mounted vertically but if mounted horizontally the valve must be 90° off center of the pipe.

Do not install with actuator below pipe.



VALVE SIZE	C <sub>v</sub>	TYPE	MODEL #	LINE SIZE										
				1" Fp Cv	1¼" Fp Cv	1½" Fp Cv	2" Fp Cv	2½" Fp Cv	3" Fp Cv	4" Fp Cv	5" Fp Cv	6" Fp Cv	8" Fp Cv	10" Fp Cv
1"	24	2-Way NPT	B2100VB-024	24	22.6	21.1	19.3	18.5	-	-	-	-	-	-
1½"	55	2-Way NPT	B2150VD-055	-	-	55	50.4	46.3	43.9	41.7	-	-	-	-
2"	77	2-Way NPT	B2200VB-077	-	-	-	77	74.1	70.5	66.2	64.2	63	-	-
3"	207	2-Way Flanged	B6300VB-027	-	-	-	-	-	207	191.3	177.2	168.9	160.7	157
4"	350	2-Way Flanged	B6400VB-350	-	-	-	-	-	-	350	333	313.2	290.3	279.4
6"	507	2-Way Flanged	B6600VB-507	-	-	-	-	-	-	-	-	507	491.5	475.5

"V" BALL VALVES

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# V Ball, Non-Spring Return Actuators

2-way Valve with Stainless Steel Ball and Stem



## Valve Specifications

Service	steam & hot water 60% glycol, steam
Flow characteristic	A-port equal percentage
Controlable flow range	75°
Sizes	1" - 6"
Type of end fitting	NPT Female Ends (1", 1-1/2" & 2") ISO Flange (3", 4" 6")
Materials:	
Body	WCC Grade Carbon steel
Ball	stainless steel
Stem	stainless steel
Seats	Graphite
Packing	Spring loaded Teflon V-Ring
Pressure rating	300 psi
Media temp. range:	
Steam	400°F
Water	400°F
Close off pressure	150 psi
Maximum differential pressure (ΔP)	60 psi typical application steam: 100 psi
Maximum inlet steam	steam: 250 psi
Maximum ΔP water	water: 150 psi
Leakage	ANSI IV
C <sub>v</sub> rating	see chart below for values



## Non-Spring Return Actuators



ACTUATOR PART #	AMB24-3-X1	AMX24-MFT-X1	GMB24-3-X1	GMB24-SR-X1	GMX24-MFT-X1	SY1-24, SY1-110, SY1-220	SY2-24, SY2-110, SY2-230	SY2-24MFT, SY2-120MFT, SY2-230MFT
Control type	On/Off, Floating Point	Proportional/MFT	On/Off	Proportional	Proportional/MFT	On/Off, Floating Point	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•	•	•	•	•
Running time	90 seconds	150 seconds (default variable 90 to 350 seconds)	135 seconds	135 seconds	150 seconds (default)	12 seconds	12 seconds	15 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)			
<b>ELECTRICAL CONNECTION:</b>								
3 ft cable, 1/2" conduit fitting	•	•	•	•	•			
2 (two), 1/2" conduit fittings / covered terminal strip						•	•	•
<b>Valve Nominal Size</b>								
<b>V Ball Valve Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>In.</b>	<b>DN mm</b>	<b>Close-off psi</b>				
B2100VB-024	24	1	25	150	\$2,006.00	\$2,174.00		
B2150VB-055	55	1.5	40	150	\$2,362.00	\$2,530.00	\$2,858.00	\$3,714.00
B2200VB-077	77	2	50	150	\$2,498.00	\$2,666.00	\$2,994.00	\$4,070.00
B6300VB-207	207	3	80	150	\$3,888.00	\$4,056.00	\$4,384.00	\$4,206.00
B6400VB-350	350	4	100	150				\$5,596.00
B6600VB-507	507	6	150	150				\$7,680.00
					\$5,464.00	\$5,606.00	\$5,662.00	\$5,596.00
								\$7,048.00
								\$9,132.00
								\$8,948.00
								\$11,032.00

**NOTE:** Industrial ball valves have serviceable components, proper maintenance of these parts will ensure longer in service life for the valves. The seats of these valves will require replacement at an interval consistent with number of full cycles the valve has been operated, or as field condition dictates. Replacement parts can be ordered from Belimo.

## SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	ACL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

\*Available only on 24MFT actuators.

800-543-9038 USA

866-805-7089 CANADA

203-791-8396 LATIN AMERICA

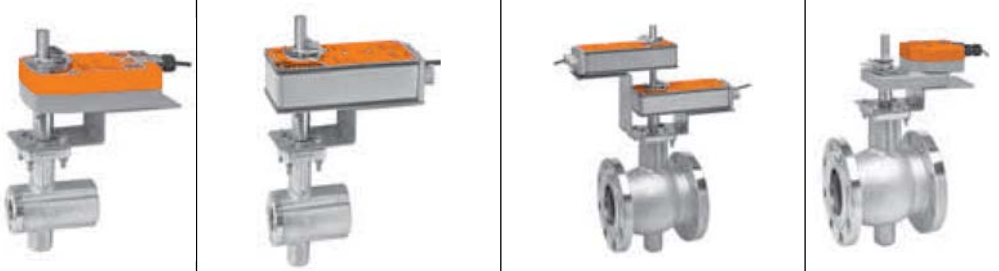
### Valve Specifications

Service	steam & hot water 60% glycol, steam
Flow characteristic	A-port equal percentage
Controlable flow range	75°
Sizes	1" - 6"
Type of end fitting	NPT Female Ends (1", 1-1/2" & 2") ISO Flange (3", 4" 6")
Materials:	
Body	WCC Grade Carbon steel
Ball	stainless steel
Stem	stainless steel
Seats	Graphite
Packing	Spring loaded Teflon V-Ring
Pressure rating	300 psi
Media temp. range:	
Steam	400°F
Water	400°F
Close off pressure	150 psi
Maximum differential pressure (ΔP)	60 psi typical application steam: 100 psi
Maximum inlet	steam: 250 psi
Maximum ΔP steam	water: 150 psi
Leakage	ANSI IV
Cv rating	see chart below for values



"V" BALL VALVES

### Spring Return and Electronic Fail-Safe Actuators



ACTUATOR PART #	NFB24-X1	NFX24-MFT-X1	AF24 US	AF120 US	AF24-MFT US	2*AF24 US	2*AF120 US	2*AF24-MFT US	GKB24-3-X1	GKX24-MFT-X1
Control type	On/Off	Proportional/MFT	On/Off	On/Off	Proportional/MFT	On/Off	On/Off	Proportional/MFT	On/Off	Proportional/MFT
Manual override	•	•	•	•	•	•	•	•	•	•
Running time	motor: 75 seconds spring: <25 seconds <60 seconds	motor: 150 seconds spring: <60 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: <150 seconds fail safe 35 seconds	motor: <150 seconds fail safe 35 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>										
3 ft cable, 1/2" conduit fitting	•	•	•	•	•	•	•	•	•	•
<b>V Ball Valve Model #</b>	<b>In.</b>	<b>DN mm</b>	<b>Close-off psi</b>							
B2100VB-024	1	25	150	\$2,072.00	\$2,250.00					
B2150VB-055	1.5	40	150	\$2,428.00	\$2,606.00					
B2200VB-077	2	50	150			\$2,636.00	\$2,688.00	\$2,800.00		
B6300VB-207	3	80	150					\$4,464.00	\$4,568.00	\$4,792.00
B6400VB-350	4	100	150						\$5,464.00	\$5,662.00

**NOTE:** Industrial ball valves have serviceable components, proper maintenance of these parts will ensure longer in service life for the valves. The seats of these valves will require replacement at an interval consistent with number of full cycles the valve has been operated, or as field condition dictates. Replacement parts can be ordered from Belimo.

### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Example: AF24-MFT US is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed. Note: Most popular configurations available at no additional cost.

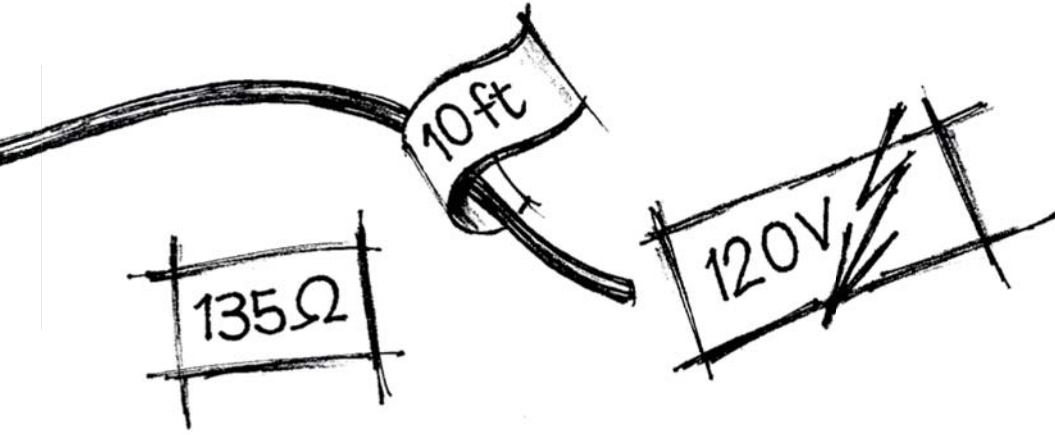
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# V Ball, Non-Spring Return Actuators

2-way Valve with Stainless Steel Ball and Stem



## OPTIONS



### Non-Spring Return Actuators



ACTUATOR PART #	NFBUP-X1	NFBUP-S-X1	NFX24-MFT-S-X1	AF24-S US	AF120-S US	AF24-MFT95 US	2*AF24-S US	2*AF120-S US	2*AF24-MFT-S US	2*AF24-MFT95 US
Control type	On/Off	On/Off	Proportional/MFT	On/Off	On/Off	Proportional/MFT	On/Off	On/Off	Proportional/MFT	Proportional/MFT
Built-in auxiliary switch	•	•	•	•	•	•	•	•	•	•
Manual override	•	•	•	•	•	•	•	•	•	•
Running time	motor: 75 seconds spring: <25 seconds <60 seconds	motor: 75 seconds spring: <25 seconds <60 seconds	motor: 150 seconds spring: <60 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds	motor: 150 seconds spring: <20 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>										
3 ft cable, 1/2" conduit fitting	•	•	•	•	•	•	•	•	•	•
<b>Valve Nominal Size</b>										
<b>V Ball Valve Model #</b>	<b>Torque in-lb</b>	<b>C<sub>v</sub> Rating</b>	<b>In. In.</b>	<b>DN mm</b>	<b>Close-off psi</b>					
B2100VB-024	44	24	1	25	150	\$2,120.00	\$2,208.00	\$2,338.00		
B2150VB-055	88	55	1.5	40	150	\$2,476.00	\$2,564.00	\$2,694.00		
B2200VB-077	133	77	2	50	150			\$2,722.00	\$2,774.00	\$2,820.00
B6300VB-207	175	207	3	80	150			\$4,636.00	\$4,740.00	\$4,964.00
									\$4,812.00	



**NOTE:** Industrial ball valves have serviceable components, proper maintenance of these parts will ensure longer in service life for the valves. The seats of these valves will require replacement at an interval consistent with number of full cycles the valve has been operated, or as field condition dictates. Replacement parts can be ordered from Belimo.

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"V" BALL VALVES








WEATHERSHIELDS		Non-Spring Return				Spring Return			List Price
		LM	NM	AM	GM	LF	NF	AF	
	<b>ZS-SPBV-30</b> LM/NM/LF series on VS/VSS	•	•			•			\$262.00
	<b>ZS-SPBV-10</b> AM/GM/NF/AF series on VS/VSS			•	•		•	•	\$262.00
	<b>ZS-SPBV-20</b> Dual GM/AF series on VS/VSS				•			•	\$464.00
AUXILIARY SWITCHES & POTENTIOMETERS									
	<b>S1A</b> Auxiliary switch - 1x SPDT, 3A (0.5A Inductive) @ 250 VAC		•	•	•	•			\$74.00
	<b>S2A</b> Auxiliary switch - 1x SPDT, 3A (0.5A Inductive) @ 250 VAC		•	•	•	•			\$110.00
	<b>P140A</b> Feedback potentiometer 140 Ω		•	•	•	•			\$122.00
	<b>P500A</b> Feedback potentiometer 500 Ω		•	•	•	•			\$122.00
	<b>P1000A</b> Feedback potentiometer 1000 Ω		•	•	•	•			\$122.00
	<b>P2800A</b> Feedback potentiometer 2800 Ω		•	•	•	•			\$122.00
	<b>P5000A</b> Feedback potentiometer 5000 Ω		•	•	•	•			\$122.00
	<b>P10000A</b> Feedback potentiometer 10000 Ω		•	•	•	•			\$122.00
BATTERY BACKUP									
	<b>NSV24 US</b> Battery backup module		•	•	•	•			\$492.00
	<b>NSV-BAT US</b> 12VDC 1.2 AH battery (2 required)		•	•	•	•			\$106.00

Note: Each NSV-24 US requires 2 NSV-BAT.

ELECTRIC DISCONNECT		Non-Spring Return actuators			Spring Return actuators	List Price
		AM	GM	SY	AF	
	<b>SY-HOA-110</b> Local Electric Disconnect SY2-SY12 110V - 2 Position			•		\$548.00
	<b>SY-HOA-110P</b> Local Electric Disconnect SY2-SY12 110V - Proportional			•		\$548.00
	<b>SY-HOA-24</b> Local Electric Disconnect SY2-SY12 24V - 2 Position			•		\$548.00
	<b>SY-HOA-24P</b> Local Electric Disconnect SY2-SY12 - 24 Proportional			•		\$548.00
AUXILIARY SWITCHES & POTENTIOMETERS						
	<b>SY-1000-FB01</b> 1000 Ω Feedback Potentiometer 2 Position, Factory Installed Option Only			•		\$228.00
	<b>SY-1000-FB02</b> 1000 Ω Feedback Potentiometer Proportional, Factory Installed Option Only (Proportional Models SYx...-P, SR or MFT)			•		\$228.00
PROGRAMMING TOOLS						
	<b>MFT-P US</b> Belimo MFT Configuration Software (V3.X) Includes: PC Tool software and MFT-LBL Kit US (interface cables [ZIP-RS232 US and ZIP-USB-MP] not included)	•	•	•	•	\$140.00

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		Non-Spring Return Actuators			Spring Return Actuators	List Price
		AM	GM	SY	AF	
<b>INTERFACES, CABLES</b>						
	<b>ZIP-USB-MP US</b> PC-Interface: Compact Unit for use with USB port and "ZK" Style Cable Adapter (ZK Cable Below Purchased Separately)	•	•	•	•	\$520.00
	<b>ZK1-GEN</b> Cable for Use with ZIP-USB-MP US to Connect to New Generation Non-Spring Return Actuator via Diagnostic/ Programming Socket	•	•			\$90.00
	<b>ZK2-GEN</b> Cable for Use with ZIP-USB-MP US to Connect with Spring and Non-Spring Return Actuators Not Equipped with Diagnostic/ Programming Socket	•	•	•		\$42.00
	<b>ZK3-GEN</b> Cable to Connect ZIP-RS232 US and MFT-H SET US to New Generation Non-Spring Return Actuator via Diagnostic/ Programming Socket	•	•			\$148.00
	<b>ZK6-GEN</b> Cable for Use with ZIP-USB-MP US to Connect to SY Actuator via RJII Port			•		\$44.00
<b>BATTERY BACKUP</b>						<b>List Price</b>
	<b>NSV-SY-01</b> Battery Backup System for SY1-SY6 2 Position - 110 VAC			•		\$3,718.00
	<b>NSV-SY-02</b> Battery Backup System for SY1-SY6 Proportional - 120 VAC			•		\$3,886.00
	<b>NSV-SY-11</b> Battery Backup System for SY1-SY5 2 Position - 24 VAC			•		\$4,338.00
	<b>NSV-SY-12</b> Battery Backup System for SY1-SY5 Proportional - 24 VAC			•		\$4,452.00
	<b>NSV-SY-21</b> Battery Backup System for SY1-SY6 2 Position - 220 VAC			•		\$4,282.00
	<b>NSV-SY-22</b> Battery Backup System for SY1-SY6 Proportional - 230 VAC			•		\$4,394.00
<b>HANDWHEELS</b>						
	<b>ZG-SY23</b> SY2-SY3 Handwheel (replacement only)			•		\$42.00

"V" BALL VALVES

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# 11

## ZONE VALVES

- Designed to fit in compact areas where On/Off control is required.
- Actuator installation is a snap with an easy, one-handed removal or engagement.
- Actuator has a synchronous motor that winds the return spring and moves the valve paddle to the desired position.
- Economical operation allows for low current draw and multiple valves per transformer.
- Enhanced motion gear action reduces motor wear and provides smooth, quiet operation with no water hammer and dependable close off.

### Applications

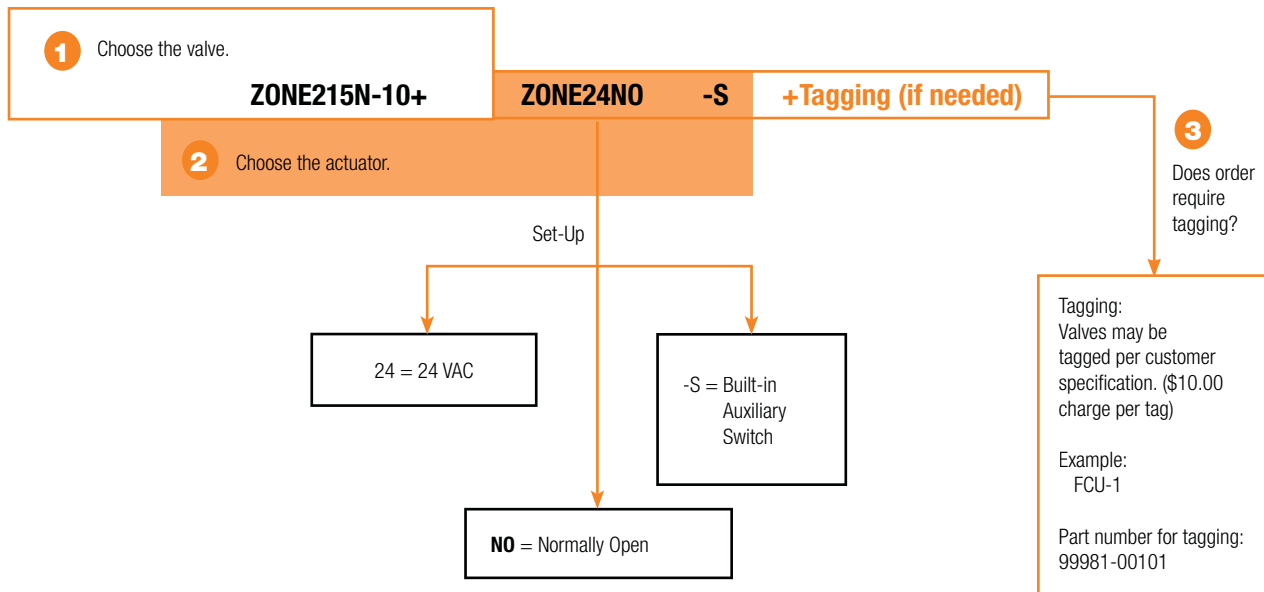
For high rise and commercial applications where higher close-off is required: fin tube casing, fan coils, radiant panels and duct coils. Zone valves control the flow of hot and chilled water through coils and heat exchangers.



# Zone Valve Nomenclature

<b>ZONE2</b>	<b>15</b>	<b>N</b>	<b>-10</b>	<b>ZONE24NO</b>	<b>-S</b>
<b>Valve</b> Zone2 = 2-way Zone3 = 3-way	<b>Valve Size</b> 15 = 1/2" 20 = 3/4" 25 = 1"	<b>End Fitting</b> N = NPT Female Connection S = Sweat Connection	<b>Cv Valve</b> -10 = 1.0 -25 = 2.5 -35 = 3.5 -50 = 5.0 -80 = 8.0	<b>Actuator Type</b> 24NC = 24 Volt Normally Closed 24NO = 24 Volt Normally Open 120NC = 120 Volt Normally Closed 120NO = 120 Volt Normally Open	-S = Built-in Auxiliary Switch

## Ordering Example



**4** Complete Ordering Example: ZONE215N-10+ZONE24NO-S

# Control Valve Product Range

## Zone Valve Product Range 2-way and 3-way

C <sub>v</sub>	2-way							
	Valve Nominal Size		Type		Suitable Actuators			
	Inches	DN [mm]	NPT	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				

C <sub>v</sub>	3-way					
	Valve Nominal Size		Type		Suitable Actuators	
	Inches	DN [mm]	NPT	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		



### Applications

- Fan coil units and baseboards where fail safe operation or 2-wire control is required
- Hydronic systems with variable or constant flow

### Mode of Operation

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

### Product Features

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

### Actuator Specifications

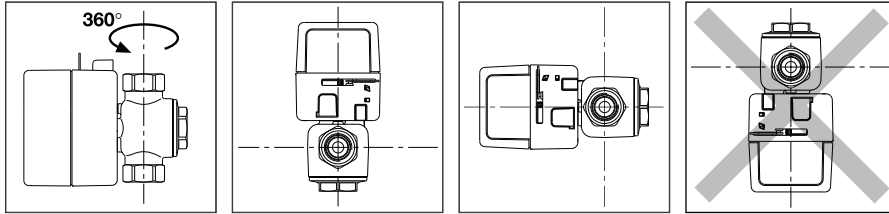
Control type	On/Off, Diverting
Manual override	(only NC versions)
Electrical connection	6" [15cm] wire lead 120 V; 18" [45 cm] wire lead 24 V

### Valve Specifications

Service	chilled or hot water, 50% glycol
Flow characteristic	Two-way On/Off Three-way On/Off, Diverting Sizes ½", ¾" and 1"
Type of end fitting	NPT female ends or sweat
Materials	Body forged brass Stem stainless steel Seals EPDM
Pressure rating	300 psi
Media temp range	32°F to 212°F [0°C to 100°C]
Close off pressure	20-75 psi
Leakage	ANSI Class III 0.1%
Cv rating	see product chart for values

### INSTALLATION

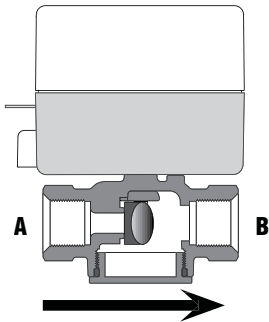
The valve can be installed vertically or horizontally, but not below horizontal.



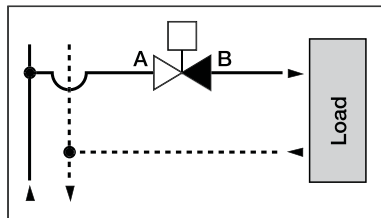
- A 3-way valve cannot be transformed into a 2-way valve and visa versa.
- The 2-way flow is from A to B (see diagram below) and must be installed so the paddle closes against the direction of flow.
- The 2-way valves can be installed on the supply or on the return; for correct installation it is necessary to respect the direction of flow indicated by the arrow on the body valve.
- The NC versions have an override handle.
- 3-way zone valves can be fitted with NC actuator only (rotate the valve body 180° for NO application).

	2-WAY	3-WAY
<b>N.C. without power</b>	Port "A" closed	Port "A" closed Port "B" open Port "AB" open
<b>N.C. open with power</b>	Port "A" open	Port "A" open Port "B" closed Port "AB" open
<b>N.C. manually open</b>	Port "A" open	Port "A" open Port "B" open Port "AB" open

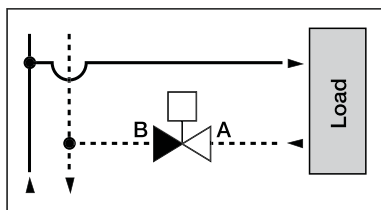
### 2-way Valve



Normally closed actuator

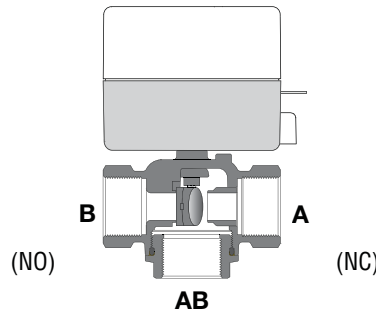


Installed on the supply



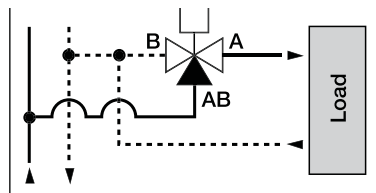
Installed on the return

### 3-way Valve



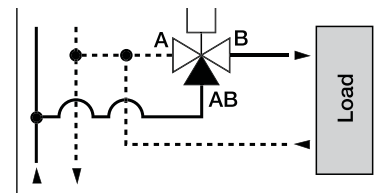
Normally closed actuator

#### Normally closed actuator

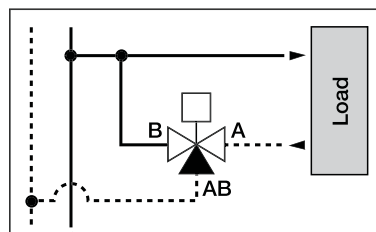


Installed on the supply in diverting configuration

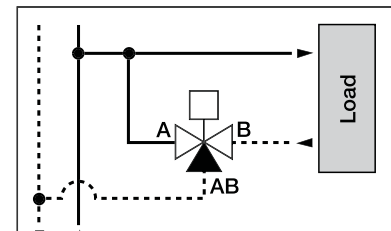
#### Normally closed actuator



Installed on the supply in diverting configuration



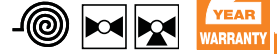
Installed on the return



Installed on the return

### Valve Specifications

Service	chilled or hot water, 50% glycol
Flow characteristic	two-way: on/off three-way: on/off, diverting
Sizes	½", ¾" and 1"
Type of end fitting	female NPT or sweat
Materials:	
Body	forged brass
Stem	stainless steel
Seats	EPDM
Seals	machined brass
Pressure rating	300 psi
Media temp. range	32°F to 212°F [0°C to 100°C]
Leakage	ANSI Class III 0.1%



### Spring Return Actuators



ACTUATOR PART #	ZONE24NC	ZONE24NO	ZONE24NC-S	ZONE24NO-S
Control type	On/Off	On/Off	On/Off	On/Off
Manual override	•		•	
Running time	Motor: 20-40 seconds Spring: 5 seconds	Motor: 20-40 seconds Spring: 5 seconds	Motor: 20-40 seconds Spring: 5 seconds	Motor: 20-40 seconds Spring: 5 seconds
Noise level	max. 35 dB(A)	max. 35 dB(A)	max. 35 dB(A)	max. 35 dB(A)
<b>ELECTRICAL CONNECTION:</b>				
24 V 18" wire	•	•	•	•

Zone Valve Model #	Cv Rating	Valve Nominal Size		Close-Off psi					
		Inches	DN mm						
<b>2-WAY WITH NPT FEMALE CONNECTION</b>									
ZONE215N-10	1	½	15	75	\$162.00	\$162.00	\$174.00	\$174.00	
ZONE215N-25	2.5	½	15	50	\$162.00	\$162.00	\$174.00	\$174.00	
ZONE215N-35	3.5	½	15	30	\$162.00	\$162.00	\$174.00	\$174.00	
ZONE220N-35	3.5	¾	20	30	\$178.00	\$178.00	\$190.00	\$190.00	
ZONE220N-50	5	¾	20	25	\$178.00	\$178.00	\$190.00	\$190.00	
ZONE225N-80	8	1	25	20	\$230.00	\$230.00	\$242.00	\$242.00	
<b>3-WAY WITH NPT FEMALE CONNECTION</b>									
ZONE315N-10	1	½	15	75	\$178.00	†	\$190.00	†	
ZONE315N-25	2.5	½	15	50	\$178.00	†	\$190.00	†	
ZONE315N-35	3.5	½	15	30	\$178.00	†	\$190.00	†	
ZONE320N-35	3.5	¾	20	30	\$192.00	†	\$204.00	†	
ZONE320N-50	5	¾	20	25	\$192.00	†	\$204.00	†	
ZONE325N-80	8	1	25	20	\$246.00	†	\$258.00	†	
<b>2-WAY WITH SWEAT CONNECTION</b>									
ZONE215S-10	1	½	15	75	\$158.00	\$158.00	\$170.00	\$170.00	
ZONE215S-25	2.5	½	15	50	\$158.00	\$158.00	\$170.00	\$170.00	
ZONE215S-35	3.5	½	15	30	\$158.00	\$158.00	\$170.00	\$170.00	
ZONE220S-35	3.5	¾	20	30	\$170.00	\$170.00	\$184.00	\$184.00	
ZONE220S-50	5	¾	20	25	\$170.00	\$170.00	\$184.00	\$184.00	
ZONE225S-80	8	1	25	20	\$224.00	\$224.00	\$236.00	\$236.00	
<b>3-WAY WITH SWEAT CONNECTION</b>									
ZONE315S-10	1	½	15	75	\$172.00	†	\$186.00	†	
ZONE315S-25	2.5	½	15	50	\$172.00	†	\$186.00	†	
ZONE315S-35	3.5	½	15	30	\$172.00	†	\$186.00	†	
ZONE320S-35	3.5	¾	20	30	\$188.00	†	\$200.00	†	
ZONE320S-50	5	¾	20	25	\$188.00	†	\$200.00	†	
ZONE325S-80	8	1	25	20	\$236.00	†	\$248.00	†	

† Three-way valve can be installed in NC or NO configuration using the NC actuator.

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ZONE VALVES



# Electronic Zone Valves, Spring Return Actuator

Two-way and Three-way Valves with NPT or Sweat Connection



## Valve Specifications

Service	chilled or hot water, 50% glycol
Flow characteristic	two-way: on/off three-way: on/off, diverting
Sizes	½", ¾" and 1"
Type of end fitting	female NPT or sweat
Materials:	
Body	forged brass
Stem	stainless steel
Seats	EPDM
Seals	machined brass
Pressure rating	300 psi
Media temp. range	32°F to 212°F [0°C to 100°C]
Leakage	ANSI Class III 0.1%



## Spring Return Actuators



ACTUATOR PART #	ZONE120NC	ZONE120NO	ZONE120NC-S	ZONE120NO-S
Control type	On/Off	On/Off	On/Off	On/Off
Manual override	•	•	•	•
Running time	Motor: 20-40 seconds Spring: 5 seconds	Motor: 20-40 seconds Spring: 5 seconds	Motor: 20-40 seconds Spring: 5 seconds	Motor: 20-40 seconds Spring: 5 seconds
Noise level	max. 35 dB(A)	max. 35 dB(A)	max. 35 dB(A)	max. 35 dB(A)
<b>ELECTRICAL CONNECTION:</b>				
120 V 6" wire	•	•	•	•

Zone Valve Model #	Cv Rating	Valve Nominal Size			Close-Off psi	ZONE120NC	ZONE120NO	ZONE120NC-S	ZONE120NO-S
		VNS IN	DN mm						
<b>2-WAY WITH NPT FEMALE CONNECTION</b>									
ZONE215N-10	1	½	15	75	\$162.00	\$162.00	\$174.00	\$174.00	
ZONE215N-25	2.5	½	15	50	\$162.00	\$162.00	\$174.00	\$174.00	
ZONE215N-35	3.5	½	15	30	\$162.00	\$162.00	\$174.00	\$174.00	
ZONE220N-35	3.5	¾	20	30	\$178.00	\$178.00	\$190.00	\$190.00	
ZONE220N-50	5	¾	20	25	\$178.00	\$178.00	\$190.00	\$190.00	
ZONE225N-80	8	1	25	20	\$230.00	\$230.00	\$242.00	\$242.00	
<b>3-WAY WITH NPT FEMALE CONNECTION</b>									
ZONE315N-10	1	½	15	75	\$178.00	†	\$190.00	†	
ZONE315N-25	2.5	½	15	50	\$178.00	†	\$190.00	†	
ZONE315N-35	3.5	½	15	30	\$178.00	†	\$190.00	†	
ZONE320N-35	3.5	¾	20	30	\$192.00	†	\$204.00	†	
ZONE320N-50	5	¾	20	25	\$192.00	†	\$204.00	†	
ZONE325N-80	8	1	25	20	\$246.00	†	\$258.00	†	
<b>2-WAY WITH SWEAT CONNECTION</b>									
ZONE215S-10	1	½	15	75	\$158.00	\$158.00	\$170.00	\$170.00	
ZONE215S-25	2.5	½	15	50	\$158.00	\$158.00	\$170.00	\$170.00	
ZONE215S-35	3.5	½	15	30	\$158.00	\$160.00	\$170.00	\$170.00	
ZONE220S-35	3.5	¾	20	30	\$170.00	\$170.00	\$184.00	\$184.00	
ZONE220S-50	5	¾	20	25	\$170.00	\$170.00	\$186.00	\$184.00	
ZONE225S-80	8	1	25	20	\$224.00	\$224.00	\$236.00	\$236.00	
<b>3-WAY WITH SWEAT CONNECTION</b>									
ZONE315S-10	1	½	15	75	\$172.00	†	\$186.00	†	
ZONE315S-25	2.5	½	15	50	\$172.00	†	\$186.00	†	
ZONE315S-35	3.5	½	15	30	\$172.00	†	\$186.00	†	
ZONE320S-35	3.5	¾	20	30	\$188.00	†	\$200.00	†	
ZONE320S-50	5	¾	20	25	\$188.00	†	\$200.00	†	
ZONE325S-80	8	1	25	20	\$236.00	†	\$248.00	†	

† Three-way valve can be installed in NC or NO configuration using the NC actuator.

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# 12

## GLOBE VALVES

- Self-adjusting stroke of actuator utilizes full control signal for maximum resolution.
- Visual sliding stroke indicators speed installation and system check.
- Assembly can be mounted with valve stem horizontal to the pipe.
- Self locking valve coupling to ensure proper valve-actuator connection.
- Pressure compensated flanged globe valves utilize a balanced plug design perfect for high close-off requirements.

### Applications

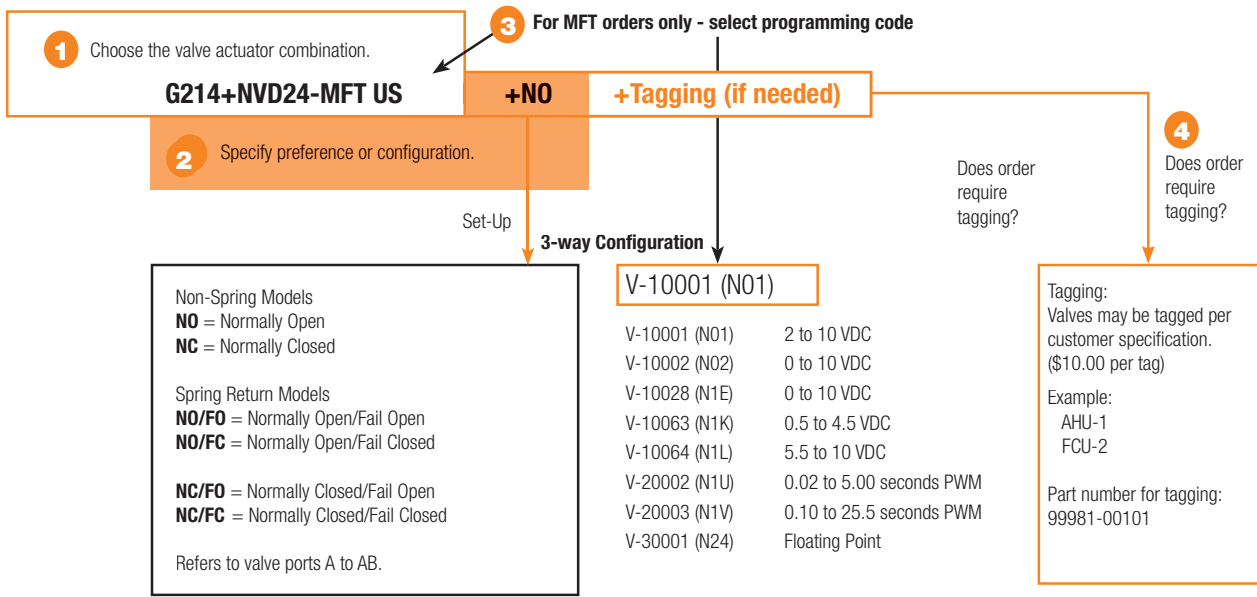
The comprehensive line of globe valves is available in sizes from ½" to 6" and fulfills the requirements of ANSI 125 and ANSI 250 applications. Utilizing either bronze or stainless steel trim and fitted with either spring or non-spring return actuators, globe valves are the perfect fit for such applications as unit ventilation and air handling units as well as other water/steam control in heating and cooling systems.



# Globe Valve Nomenclature

G2	14	S	NVD	24	-MFT	
<b>Valve Type</b>	<b>Valve Size</b>	<b>Trim Material</b>	<b>Actuator Type</b>	<b>Power Supply</b>	<b>Control</b>	
G2 = 2-way NPT G3 = 3-way NPT G6 = 2-way Flanged G7 = 3-way Flanged	12-50 = ½" to 2" 65-150 = 2½" to 6" (Flanged)	Blank = Bronze Trim S = Stainless Trim -250 = ANSI 250 Bronze Trim S-250 = ANSI 250 Stainless Trim C = Bronze Trim Pressure Compensated CS = Stainless Trim Pressure Compensated LCS = Linear Stainless Trim Pressure Compensated D = Diverting Bronze Trim DS = Diverting Stainless Trim	Non-Spring Return NVD... NV... NVG... LM... NM... AM... GM... Spring Return NVFD... NVF... LF... NF... AF... Electronic Fail-Safe GK...	24 = 24 VAC/DC 120 = 120 VAC	Blank = On/Off -3-X1 = On/Off, Floating Point -SR = 2-10 VDC -MFT or MFT-X1 = Multi-Function Technology -MFT95-X1 = 0-135 Ω	S = Built-in Auxiliary Switch

## Ordering Example



**5** Complete Ordering Example: G214+NVD24-MFT US+NO+N01

# Control Valve Product Range

## Globe Valve Product Range G2... G3..., 2-way and 3-way, NPT

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



### Applications

- Water-side control of air handling unit in ventilation and air-conditioning systems
- Water/Steam control in heating systems

### Mode of Operation

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

### Product Features

Equal-percentage characteristic of flow for G2, linear characteristic for G3.

### Actuator Specifications

Control type	On/Off, Floating Point, 2-10 VDC
Multi-Function Technology (MFT)	
Manual override	all models except LF
Electrical connection	3 ft [1m] cable with ½" conduit fitting

### Valve Specifications

Service	chilled or hot water, 60% glycol, steam (G2, G2S only)
Flow characteristic	G2 - equal percentage G2(S), G3, G3D - linear
Sizes	½" - 2"
Type of end fitting	½" - 2" NPT female ends
Materials	
Body	bronze
Stem	stainless steel
Seat	bronze stainless steel: G2...S
Plug	brass stainless steel: G2...S
Packing	spring loaded TFE
Disc	composition G2 Teflon® G2...S None G3, G3D
Pressure rating	250 psi G2, G3..., ½" - 2"
Media temp range	Refer to valve specification pages in this section
Maximum inlet pressure	
Steam	15 psi (103 kPa) G2 with NV 35 psi (241 kPa) G2 with rotary actuators 50 psi (345 kPa) G2...S with NV 100 psi (690 kPa) G2...S with rotary actuators
Maximum differential pressure (ΔP)	
Water	35 psi (241 kPa)
Steam	15 psi (103 kPa) G2 with NV 20 psi (138 kPa) G2 with rotary actuators 35 psi (241 kPa) G2...S

# Control Valve Product Range

## Globe Valve Product Range

### G6... 2-way, Flanged Connection

C <sub>v</sub>	Valve Nominal Size	Type	Suitable Actuators			
	Inches	2-way Flanged	Non-Spring Return	Spring Return	Electronic Fail-Safe	
65	2½	G665	NVG Series	GM Series	GK Series	
90	3	G680				
65	2½	G665S				
90	3	G680S				
65	2½	G665-250				
90	3	G680-250				
65	2½	G665S-250		NV Series		NF Series
90	3	G680S-250				
65	2½	G665C				
90	3	G680C				
65	2½	G665CS				
65	2½	G665LCS	AF Series	GK Series		
90	3	G680CS				
90	3	G680LCS				
170	4	G6100C				
170	4	G6100CS				
170	4	G6100LCS				
263	5	G6125C			GM Series	GK Series
263	5	G6125CS				
263	5	G6125LCS				
344	6	G6150C				
344	6	G6150CS				
344	6	G6150LCS				

The G...(C) (CS) (LCS) Series valve is a pressure compensated valve that allows high close-off ratings while utilizing standard actuation.



#### Applications

- Water-side control of air handling unit in ventilation and air-conditioning systems
- Water/Steam control in heating systems

#### Mode of Operation

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

#### Product Features

Equal-percentage characteristic for G6. Linear characteristic for G6...LCS

#### Actuator Specifications

Control type	On/Off, Floating Point, 2-10 VDC Multi-Function Technology (MFT)
Manual override	all models
Electrical connection	3 ft [1m] cable with ½" conduit fitting

#### Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	
G6	A-port equal percentage
G6LCS	linear
Sizes	2½" - 6"
Type of end fitting	flanged
Materials	
Body	cast iron
Stem	stainless steel
Seats	bronze: G6 stainless steel: G6..S
Packing	bronze trimmed: NLP stainless trimmed: TFE V-ring
Pressure rating	
G6, 125# ANSI flange	125 psi
G6, 250# ANSI flange	250 psi
Media temp range	Refer to valve specification pages in this section
Maximum inlet pressure	
Water	150 psi (1034 kPa) G6, G6S 250 psi (1724 kPa) G6...250, G6S...250
Steam	35 psi (241 kPa) G6, G6...250 50 psi (345 kPa) G6S, G6S...250 (NV) 100 psi (690 kPa) G6S, G6S...250 (Rotary)
Maximum differential pressure (ΔP)	
Water	25 psi (172 kPa) G6, G6...250 50 psi (345 kPa) G6S, G6S...250
Steam	15 psi (103 kPa) G6, G6...250 50 psi (345 kPa) G6S, G6S...250

# Control Valve Product Range

## Globe Valve Product Range G7..., 3-way, Flanged Connection



C <sub>v</sub>	Valve Nominal Size	Type	Suitable Actuators		
	Inches	3-Way Flange	Spring Return	Non-Spring Return	Electronic Fall-Safe
68	2½	G765	AF Series	NVG Series	GK Series
91	3	G780			
68	2½	G765S			
91	3	G780S			
68	2½	G765-250			
91	3	G780-250			
68	2½	G765S-250			
91	3	G780S-250			
190	4	G7100		GM Series	
280	5	G7125			
340	6	G7150			
190	4	G7100S			
280	5	G7125S			
340	6	G7150S			
190	4	G7100-250			
280	5	G7125-250			
340	6	G7150-250			
154	4	G7100S-250			
195	5	G7125S-250			
248	6	G7150S-250			
68	2½	G765D	NVG Series	GK Series	
85	3	G780D			
154	4	G7100D			
195	5	G7125D	NVG Series		
248	6	G7150D			
68	2½	G765DS			NVG Series
85	3	G780DS			
154	4	G7100DS			
195	5	G7125DS	NVG Series		
248	6	G7150DS			
68	2½	G765DS-250			NVG Series
85	3	G780DS-250			
154	4	G7100DS-250			
195	5	G7125DS-250			
248	6	G7150DS-250			

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### Applications

- Water-side control of air handling apparatus in ventilation and air-conditioning systems
- Water/Steam control in heating systems

### Mode of Operation

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

### Product Features

Linear characteristic

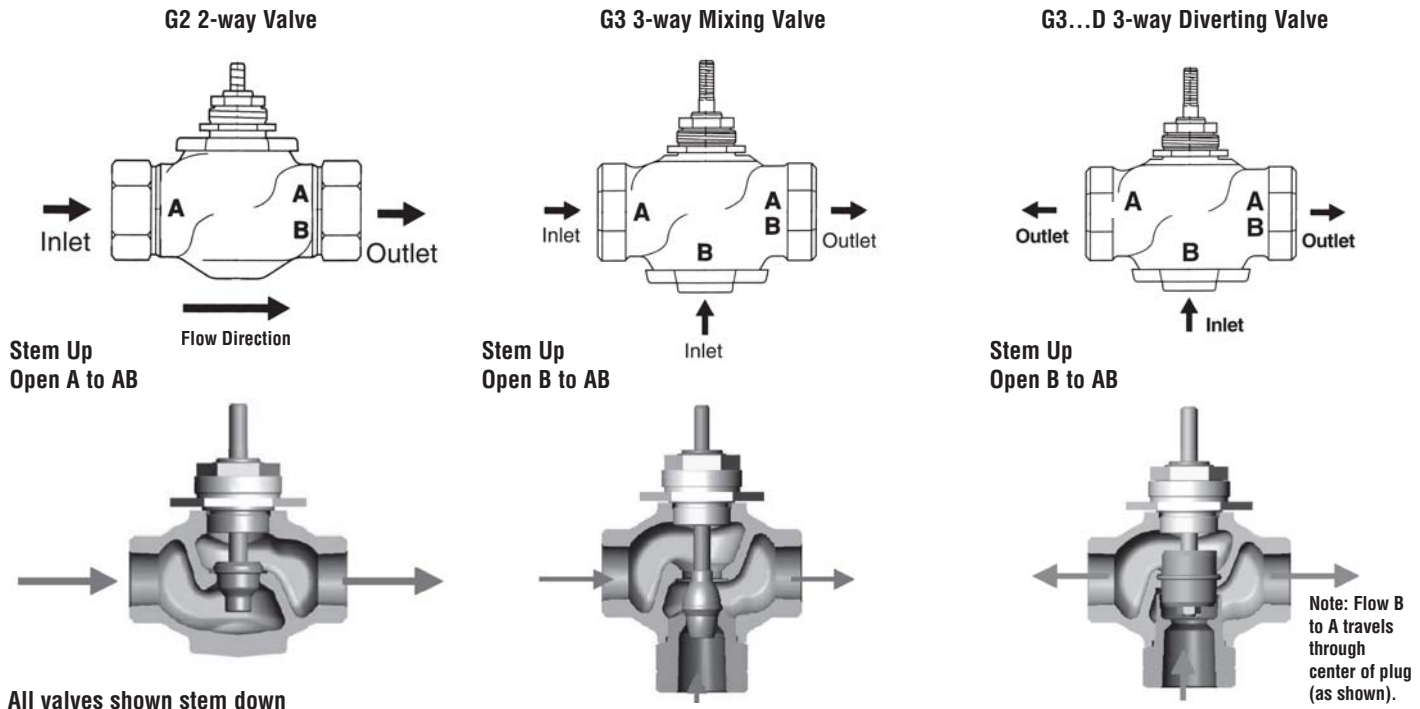
### Actuator Specifications

Control type	On/Off, Floating Point, 2-10 VDC Multi-Function Technology (MFT)
Manual override	all models
Electrical connection	3 ft [1m] cable with ½" conduit fitting

### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Sizes	2½" - 6"
Type of end fitting	flanged
<b>Materials</b>	
Body	cast iron
Stem	stainless steel
Seats	bronze
Packing	stainless steel: G7...S
	bronze trimmed: NLP
	stainless trimmed: TFE V-ring
<b>Pressure rating</b>	
G7, 125# ANSI flange	125 psi
G7, 250# ANSI flange	250 psi
<b>Media temp range</b>	
Refer to valve specification pages in this section	
<b>Maximum inlet pressure</b>	
Water	150 psi (1034 kPa) G7, G7S 250 psi (1724 kPa) G7...250, G7S...250
<b>Maximum differential pressure (ΔP)</b>	
Water	25 psi (172 kPa) G7, G7...250 50 psi (345 kPa) G7S, G7S...250

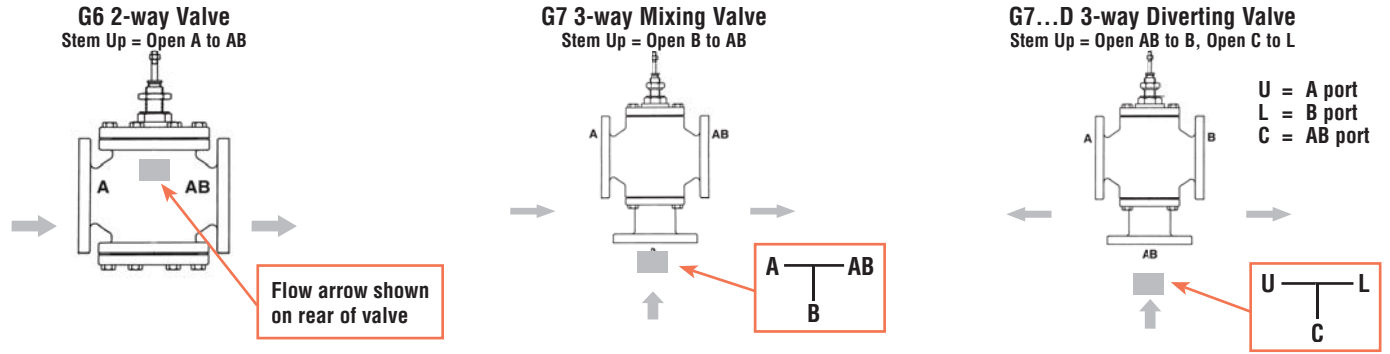
## FLOW PATTERN



## VALVE ASSEMBLY SET-UP:

		SPRING ACTION	2-WAY VALVE	2-WAY VALVE	3-WAY MIXING VALVE	3-WAY MIXING VALVE
			SPECIFY UPON ORDERING	SPECIFY UPON ORDERING	SPECIFY UPON ORDERING	SPECIFY UPON ORDERING
NON-SPRING RETURN	NV Series NV(D)24-3 US, NV(D)24-MFT US NVG24-MFT US	NA				
	NVF Series NVFD24-3 US, NVFD24-MFT US NVF24-MFT US	Spring Up Stem Up	NC: Closed A to AB, will open upon increase in signal/power. Note: To change reverse the switch S3.1.	NO: Open A to AB, will close upon increase in signal/power. Note: To change reverse the switch S3.1.	NC: Closed A to AB, will open upon increase in signal/power. Note: To change reverse the switch S3.1.	NO: Open A to AB, will close upon increase in signal/power. Note: To change reverse the switch S3.1.
NON-SPRING RETURN	NVF-E Series NVFD24-E US, NVF24-MFT-E US	Spring Down Stem Down				
	NV Series NV(D)24-3 US, NV(D)24-MFT US NVG24-MFT US	NA			<b>3-WAY DIVERTING VALVE</b>	
SPRING RETURN	NVF Series NVFD24-3 US, NVFD24-MFT US, NVF24-MFT US	Spring Up Stem Up			NC: Closed B to A will open upon increase in signal/power. Note: To change reverse the switch S3.1.	NO: Open B to A will open upon increase in signal/power. Note: To change reverse the switch S3.1.
	NVF-E Series NVFD24-E US, NVF24-MFT-E US NVF24-MFT-E US	Spring Down Stem Down				
	LF, NFBUP, AF Series On/Off		NO/FO Valve: Open A to AB will drive closed. Spring Action: Will spring open A to AB upon power loss.	NC/FC Valve: Closed A to AB will drive open. Spring Action: Will spring closed A to AB upon power loss.	NO/FO Valve: Open A to AB will drive closed. Spring Action: Will spring open A to AB upon power loss.	NC/FC Valve: Closed A to AB will drive open. Spring Action: Will spring closed A to AB upon power loss.
SPRING RETURN	LF, NFB(X), AF(X) Series		NC/FO Valve: Closed A to AB will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Spring Action: Will spring open A to AB upon power loss.	NO/FC or NC/FC Valve: Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Spring Action: Closed A to AB upon power loss.	NC/FO Valve: Closed A to AB will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Spring Action: Will spring open A to AB upon power loss.	NO/FC or NC/FC Valve: Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Spring Action: Closed A to AB upon power loss.
				NO/FO Valve: Open A to AB Spring Action: Will spring open A to AB upon power loss. (NO or NC action can be chosen with CW/CCW switch).		NO/FO Valve: Open A to AB Spring Action: Will spring open A to AB upon power loss. (NO or NC action can be chosen with CW/CCW switch).
NON-SPRING RETURN	LM, NM, AM Series Stays in last position		NC: Closed A to AB, will open upon increase in signal/power. Note: To change reverse the CW/CCW switch.	NO: Open A to AB, will close upon increase in signal/power. Note: To change reverse the CW/CCW switch.	NC: Closed A to AB, will open upon increase in signal/power. Note: To change reverse the CW/CCW switch.	NO: Open A to AB, will close upon increase in signal/power. Note: To change reverse the CW/CCW switch.

## FLOW PATTERN – Flow Pattern is Marked on Valve



## DEFAULT SET-UP:

		2-WAY VALVE		3-WAY VALVE	
		SPECIFY UPON ORDERING	SPECIFY UPON ORDERING	SPECIFY UPON ORDERING	SPECIFY UPON ORDERING
NON-SPRING RETURN STAYS IN LAST POSITION	GM Series	<b>NC:</b> Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse CW/CCW switch.	<b>NO:</b> Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse CW/CCW switch.	<b>NC:</b> Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse CW/CCW switch.	<b>NO:</b> Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse CW/CCW switch.
	NV Series	<b>NC:</b> Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse S3.1 switch in actuator.	<b>NO:</b> Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse S3.1 switch in actuator.	<b>NC:</b> Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse S3.1 switch in actuator.	<b>NO:</b> Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse S3.1 switch in actuator.
	NVG Series	<b>NC:</b> Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse S3.1 switch in actuator.	<b>NO:</b> Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse S3.1 switch in actuator.	<b>NC:</b> Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse S3.1 switch in actuator.	<b>NO:</b> Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse S3.1 switch in actuator.
SPRING RETURN NOTE FAIL POSITION	AF Series On/Off	<b>NO/FO Valve:</b> Open A to AB will drive closed. Spring Action: Will spring open A to AB upon power loss.	<b>NC/FC Valve:</b> Closed A to AB will drive open. Spring Action: Will spring closed A to AB upon power loss.	<b>NO/FO Valve:</b> Open A to AB will drive closed. Spring Action: Will spring open A to AB upon power loss.	<b>NC/FC Valve:</b> Closed A to AB will drive open. Spring Action: Will spring closed A to AB upon power loss.
	AF MFT Series AF(X) MFT Series	<b>NC/FO Valve:</b> Closed A to AB will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Spring Action: Will spring open A to AB upon power loss.	<b>NO/FC or NC/FC Valve:</b> Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Spring Action: Closed A to AB upon power loss.	<b>NC/FO Valve:</b> Closed A to AB will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Spring Action: Will spring open A to AB upon power loss.	<b>NO/FC or NC/FC Valve:</b> Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Spring Action: Closed A to AB upon power loss.
	NVF... and NVF...-E	<b>NC:</b> Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse S3.1 switch in actuator. Spring return direction is fixed by model. NVF... Spring Open (stem up), NVF...-E Spring Closed (stem down).	<b>NO/FO Valve:</b> Open A to AB Spring Action: Will spring open A to AB upon power loss. (NO or NC action can be chosen with CW/CCW switch).	<b>NO:</b> Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse S3.1 switch in actuator. Spring return direction is fixed by model. NVF... Spring Open (stem up), NVF...-E Spring Closed (stem down).	
ELECTRONIC FAIL-SAFE	GK Series	<b>NC/FO Valve:</b> Closed A to AB will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0%-100%, in 10% increments.	<b>NC/FC or NC/FC Valve:</b> Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0%-100%, in 10% increments.	<b>NC/FO Valve:</b> Closed A to AB will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0%-100%, in 10% increments.	<b>NC/FC or NC/FC Valve:</b> Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0%-100%, in 10% increments.
			<b>NO/FO Valve:</b> Open A to AB Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0%-100%, in 10% increments.		<b>NO/FO Valve:</b> Open A to AB Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0%-100%, in 10% increments.
NON-SPRING RETURN	NV Series NV(D)24-3 US NV(D)24-MFT US NVG24-MFT US	NA		<b>3-WAY DIVERTING VALVE</b>	
SPRING RETURN	NVF Series NVFD24-3 US NVFD24-MFT US NVF24-MFT US	Spring Up Stem Up			
	NVF-E Series NVFD24-E US NVF24-MFT-E US NVF24-MFT-E US	Spring Down Stem Down			

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GLOBE VALVES



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GLOBE VALVES

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### Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	G2 stem up - open A to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	bronze
Seat	bronze
Stem	stainless steel
Plug	brass
Packing	spring loaded TFE
Disc	composition
ANSI Class	ANSI 250 (up to 400 psi below 150°F)
Leakage	G2 - ANSI IV
Max Steam Inlet	15 psi (103 kPa)
Media Temp - Water	20°F to 250°F (-7°C to +120°C)
Steam	20°F to 250°F (-7°C to +120°C)
Ambient Temp	32°F to 122°F (0°C to 50°C)
Maximum ΔP:	
Water	35 psi (241 kPa)
Steam	15 psi (103 kPa)
Rangeability:	5:1 (G212) 15:1 (G213) 25:1 (G241) 40:1 (G215) 50:1 (G219) 60:1 (G220, G224) 75:1 (all others)



### Non-Spring Return Actuators



ACTUATOR PART #	NVD24-3 US	NVD24-MFT US	NV24-3 US	NV24-MFT US	NVG24-MFT US
Control type	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	Proportional/MFT
Manual override	•	•	•	•	•
Running time	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)

### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•
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Globe Valve Model #	C <sub>v</sub> Rating	Valve Nominal Size			Close-off psi				
		Inches	DN mm						

### G2... 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G212	0.4	½	15	250	\$640.00	\$728.00			
G213	1.3	½	15	250	\$642.00	\$730.00			
G214	2.2	½	15	250	\$644.00	\$732.00			
G215	4.4	½	15	250	\$646.00	\$734.00			
G219	5.5	¾	20	250	\$650.00	\$740.00			
G220	7.5	¾	20	250	\$652.00	\$746.00			
G224	10	1	25	250			\$708.00	\$804.00	
G225	14	1	25	250			\$712.00	\$810.00	
G232	20	1¼	32	162			\$774.00	\$872.00	
G240	28	1½	40	110			\$888.00	\$992.00	
G250	40	2	50	58			\$1,016.00	\$1,116.00	
G240	28	1½	40	160					\$1,344.00
G250	40	2	50	90					\$1,550.00

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
	V-10001	N01		2-10 VDC	150	2-10 VDC
V-10002	N02		0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		Floating Point	150	2-10 VDC	No Charge
V-40002	N29		On/Off	150	2-10 VDC	No Charge

Note: Most popular configurations available at no additional cost. Specify when ordering Proportional (V-10001) 2-10 VDC, Floating Point (V-30001), On/Off (V-40002).

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GLOBE VALVES

# G3 Series Globe Valves, NV Series Non-Spring Return Actuators

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

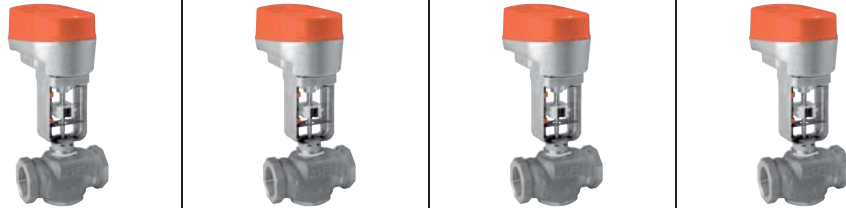


## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	G3: stem up - open B to AB G3D: stem up - open B to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	bronze
Seat	bronze
Stem	stainless steel
Plug	brass
Packing	spring loaded TFE
Disc	none
ANSI Class	ANSI 250 (up to 400 psi below 150°F)
Leakage	ANSI III
Media Temp - Water	20°F to 250°F (-7°C to +120°C)
Ambient Temp	32°F to 122°F (0°C to 50°C)
Maximum ΔP:	
Water	35 psi (241 kPa)
Rangeability:	500:1



## Non-Spring Return Actuators



ACTUATOR PART #	NVD24-3 US	NVD24-MFT US	NV24-3 US	NV24-MFT US
Control type	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•
Running time	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)

## ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•
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Globe Valve Model #	C <sub>v</sub> Rating	Valve Nominal Size			Close-off psi
		Inches	DN mm		

## G3... 3-WAY MIXING GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G314	2.2	½	15	250	\$680.00	\$770.00		
G315	4.4	½	15	250	\$682.00	\$772.00		
G320	7.5	¾	20	250	\$686.00	\$776.00		
G325	14	1	25	250			\$740.00	\$830.00
G332	20	1¼	32	162			\$812.00	\$904.00
G340	28	1½	40	110			\$1,080.00	\$1,178.00
G350	41	2	50	58			\$1,204.00	\$1,296.00

## G3...D 3-WAY DIVERTING GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G315D	4.4	½	15	250	\$840.00	\$932.00		
G320D	7.5	¾	20	250	\$862.00	\$958.00		
G325D	15	1	25	250	\$990.00	\$1,080.00		
G332D	20	1¼	32	250			\$1,274.00	\$1,346.00
G340D	28	1½	40	250			\$1,380.00	\$1,450.00
G350D	40	2	50	250			\$2,248.00	\$2,324.00

## MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
	V-10001	N01		2-10 VDC	150	2-10 VDC
V-10002	N02		0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		Floating Point	150	2-10 VDC	No Charge
V-40002	N29		On/Off	150	2-10 VDC	No Charge

Note: Most popular configurations available at no additional cost. Specify when ordering Proportional (V-10001) 2-10 VDC, Floating Point (V-30001), On/Off (V-40002).

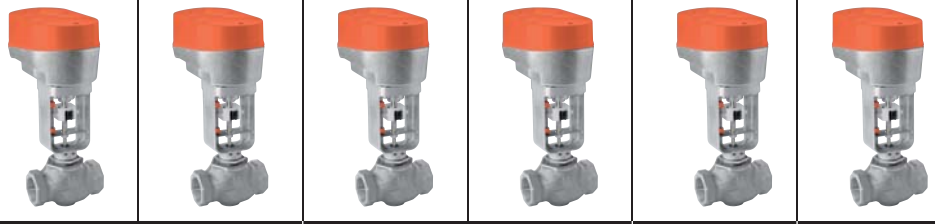
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### Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	G2 stem up - open A to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	bronze
Seat	bronze
Stem	stainless steel
Plug	brass
Packing	spring loaded TFE
Disc	composition
ANSI Class	ANSI 250 (up to 400 psi below 150°F)
Leakage	G2 - ANSI IV
Max Steam Inlet	15 psi (103 kPa)
Media Temp - Water	20°F to 250°F (-7°C to +120°C)
Steam	20°F to 250°F (-7°C to +120°C)
Ambient Temp	32°F to 122°F (0°C to 50°C)
Maximum ΔP:	
Water	35 psi (241 kPa)
Steam	15 psi (103 kPa)
Rangeability:	5:1 (G212) 15:1 (G213) 25:1 (G241) 40:1 (G215) 50:1 (G219) 60:1 (G220, G224) 75:1 (all others)



### Spring Return Actuators



ACTUATOR PART #	NVFD24 US	NVFD24-MFT US	NVFD24-E US	NVFD24-MFT-E US	NVFD24-MFT-E US	NVFD24-MFT US
Control type	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	Proportional/MFT	Proportional/MFT
Manual override	•	•	•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
	spring	30 seconds	30 seconds	30 seconds	30 seconds	30 seconds
Noise level	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)

### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•	•
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Globe Valve Model #	C <sub>v</sub> Rating	Valve Nominal Size			Close-off psi					
		Inches	DN mm							
<b>G2... 2-WAY DIVERTING GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>										
G212	0.4	½	15	250	\$728.00	\$816.00	\$728.00	\$816.00		
G213	1.3	½	15	250	\$730.00	\$818.00	\$730.00	\$818.00		
G214	2.2	½	15	250	\$732.00	\$820.00	\$732.00	\$820.00		
G215	4.4	½	15	250	\$736.00	\$822.00	\$736.00	\$822.00		
G219	5.5	¾	20	250	\$766.00	\$864.00	\$766.00	\$864.00		
G220	7.5	¾	20	250	\$770.00	\$868.00	\$770.00	\$868.00		
G224	10	1	25	207				\$898.00	\$898.00	
G225	14	1	25	207				\$904.00	\$904.00	
G232	20	1¼	32	130				\$990.00	\$990.00	
G240	28	1½	40	88				\$1,050.00	\$1,050.00	
G250	40	2	50	47				\$1,224.00	\$1,224.00	

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
	V-10001	N01		2-10 VDC	150	2-10 VDC
V-10002	N02		0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		Floating Point	150	2-10 VDC	No Charge
V-40002	N29		On/Off	150	2-10 VDC	No Charge

Note: Most popular configurations available at no additional cost. Specify when ordering Proportional (V-10001) 2-10 VDC, Floating Point (V-30001), On/Off (V-40002).

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GLOBE VALVES

# G3 Series Globe Valves, NVF Series Spring Return Actuators

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

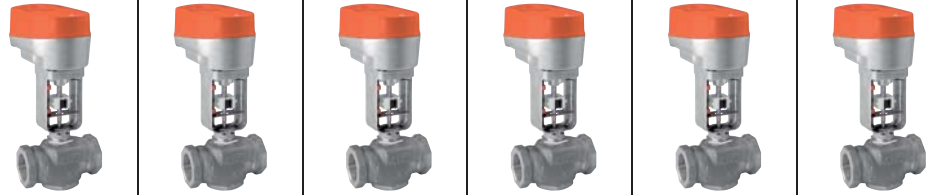


## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	G3: stem up - open B to AB G3D: stem up - open B to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	bronze
Seat	bronze
Stem	stainless steel
Plug	brass
Packing	spring loaded TFE
Disc	none
ANSI Class	ANSI 250 (up to 400 psi below 150°F)
Leakage	ANSI III
Media Temp - Water	20°F to 250°F (-7°C to +120°C)
Ambient Temp	32°F to 122°F (0°C to 50°C)
Maximum ΔP: Water	35 psi (241 kPa)
Rangeability:	500:1



## Spring Return Actuators



FAIL CLOSED A-AB

FAIL OPEN A-AB

FAIL CLOSED A-AB

FAIL OPEN A-AB

ACTUATOR PART #	NVFD24 US	NVFD24-MFT US	NVFD24-E US	NVFD24-MFT-E US	NVFD24-MFT US	NVFD24-MFT-E US
Control type	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	Proportional/MFT	Proportional/MFT
Manual override	•	•	•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
	spring	30 seconds	30 seconds	30 seconds	30 seconds	30 seconds
Noise level	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)

## ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•	•
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Globe Valve Model #	C <sub>v</sub> Rating	Valve Nominal Size			Close-off psi
		Inches	DN mm		

## G3... 3-WAY MIXING GLOBE VALVE WITH SPRING RETURN ACTUATORS

G314	2.2	½	15	250	\$766.00	\$848.00	\$766.00	\$848.00		
G315	4.4	½	15	250	\$768.00	\$850.00	\$768.00	\$850.00		
G320	7.5	¾	20	250	\$804.00	\$886.00	\$804.00	\$886.00		
G325	14	1	25	207					\$928.00	\$928.00
G332	20	1¼	32	130					\$1,078.00	\$1,078.00
G340	28	1½	40	88					\$1,242.00	\$1,242.00
G350	41	2	50	47					\$1,424.00	\$1,424.00

## G3...D 3-WAY DIVERTING GLOBE VALVE WITH SPRING RETURN ACTUATORS

Globe Valve Model #	C <sub>v</sub> Rating	Inches	DN mm	Close-off psi	FAIL OPEN B-AB		FAIL CLOSED B-AB		FAIL OPEN B-AB	FAIL CLOSED B-AB
G315D	4.4	½	15	250	\$930.00	\$1,022.00	\$930.00	\$1,022.00		
G320D	7.5	¾	20	250	\$956.00	\$1,048.00	\$956.00	\$1,048.00		
G325D	15	1	25	250					\$1,174.00	\$1,174.00
G332D	20	1¼	32	250					\$1,490.00	\$1,490.00
G340D	28	1½	40	250					\$1,596.00	\$1,596.00
G350D	40	2	50	250					\$2,470.00	\$2,470.00

## MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
	V-10001	N01	2-10 VDC	150	2-10 VDC	No Charge
	V-10002	N02	0-10 VDC	150	0-10 VDC	No Charge
	V-10028	N1E	0-10 VDC	100	0-10 VDC	No Charge
	V-10063	N1K	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	V-10064	N1L	5.5-10 VDC	150	5.5-10 VDC	No Charge
	V-20002	N1U	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	V-20003	N1V	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	V-30001	N24	Floating Point	150	2-10 VDC	No Charge
	V-40002	N29	On/Off	150	2-10 VDC	No Charge

Note: Most popular configurations available at no additional cost. Specify when ordering Proportional (V-10001) 2-10 VDC, Floating Point (V-30001), On/Off (V-40002).

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866-805-7089 CANADA

203-791-8396 LATIN AMERICA

### Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	linear
Action	G2S: stem up - open A to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	bronze
Seat	stainless steel
Stem	stainless steel
Plug	stainless steel
Packing	spring loaded TFE
Disc	Teflon®
ANSI Class	ANSI 250 (up to 400 psi below 150°F)
Leakage	G2S - ANSI V
Max Steam Inlet	50 psi (345 kPa)
Media Temp - Water	20°F to 250°F (-7°C to +120°C)
Steam	20°F to 298°F (-7°C to +149°C)
Maximum ΔP:	
Water	35 psi (241 kPa)
Steam	35 psi (241 kPa)
Rangeability:	5:1 (G212S) 15:1 (G213S) 25:1 (G241S) 40:1 (G215S) 50:1 (G219S) 60:1 (G220S, G224S) 75:1 (all others)



### Non-Spring Return Actuators



ACTUATOR PART #	NVD24-3 US	NVD24-MFT US	NV24-3 US	NV24-MFT US	NVG24-MFT US
Control type	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	Proportional/MFT
Manual override	•	•	•	•	•
Running time	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)

### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•
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Globe Valve Model #	C <sub>v</sub> Rating	Valve Nominal Size			Close-off psi
		Inches	DN mm		
G212S	0.4	½	15	250	
G213S	1.3	½	15	250	
G214S	2.2	½	15	250	
G215S	4.4	½	15	250	
G219S	5.5	¾	20	250	
G220S	7.5	¾	20	250	
G224S	10	1	25	250	
G225S	14	1	25	250	
G232S	20	1¼	32	162	
G240S	28	1½	40	110	
G250S	40	2	50	58	
G240S	28	1½	40	160	\$1,352.00
G250S	40	2	50	90	\$2,486.00

### G2...S 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G212S	0.4	½	15	250	\$898.00	\$996.00		
G213S	1.3	½	15	250	\$900.00	\$998.00		
G214S	2.2	½	15	250	\$904.00	\$1,000.00		
G215S	4.4	½	15	250	\$906.00	\$1,002.00		
G219S	5.5	¾	20	250	\$1,000.00	\$1,094.00		
G220S	7.5	¾	20	250	\$1,002.00	\$1,098.00		
G224S	10	1	25	250		\$1,120.00	\$1,236.00	
G225S	14	1	25	250		\$1,126.00	\$1,242.00	
G232S	20	1¼	32	162		\$1,486.00	\$1,462.00	
G240S	28	1½	40	110		\$1,648.00	\$1,722.00	
G250S	40	2	50	58		\$1,838.00	\$1,910.00	
G240S	28	1½	40	160				\$1,352.00
G250S	40	2	50	90				\$2,486.00

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
	V-10001	N01		2-10 VDC	150	2-10 VDC
V-10002	N02		0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		Floating Point	150	2-10 VDC	No Charge
V-40002	N29		On/Off	150	2-10 VDC	No Charge

Note: Most popular configurations available at no additional cost. Specify when ordering Proportional (V-10001) 2-10 VDC, Floating Point (V-30001), On/Off (V-40002).

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GLOBE VALVES

# G2...S Series Globe Valves, NVF Series Spring Return Actuators

2-way Valve with Stainless Steel Trim, NPT Female Ends



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	linear
Action	G2S: stem up - open A to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	bronze
Seat	stainless steel
Stem	stainless steel
Plug	stainless steel
Packing	spring loaded TFE
Disc	Teflon®
ANSI Class	ANSI 250 (up to 400 psi below 150°F)
Leakage	G2S - ANSI V
Max Steam Inlet	50 psi (345 kPa)
Media Temp - Water	20°F to 250°F (-7°C to +120°C)
Steam	20°F to 298°F (-7°C to +149°C)
Maximum ΔP:	
Water	35 psi (241 kPa)
Steam	35 psi (241 kPa)
Rangeability:	5:1 (G212S) 15:1 (G213S) 25:1 (G241S) 40:1 (G215S) 50:1 (G219S) 60:1 (G220S, G224S) 75:1 (all others)



## Spring Return Actuators



ACTUATOR PART #	FAIL OPEN A-AB		FAIL CLOSED A-AB		FAIL OPEN A-AB		FAIL CLOSED A-AB	
	NVFD24 US	NVFD24-MFT US	NVFD24-E US	NVFD24-MFT-E US	NVFD24-MFT US	NVFD24-MFT-E US	NVFD24-MFT US	NVFD24-MFT-E US
Control type	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	Proportional/MFT	Proportional/MFT	Proportional/MFT	Proportional/MFT
Manual override	•	•	•	•	•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
	spring	30 seconds	30 seconds	30 seconds	30 seconds	30 seconds	30 seconds	30 seconds
Noise level	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)	<35 dB(A)

## ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•	•	•	•
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## Valve Nominal Size

Globe Valve Model #	C <sub>v</sub> Rating	Inches	DN mm	Close-off psi
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## G2...S 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS

Globe Valve Model #	C <sub>v</sub> Rating	Inches	DN mm	Close-off psi	NVFD24 US	NVFD24-MFT US	NVFD24-E US	NVFD24-MFT-E US	NVFD24-MFT US	NVFD24-MFT-E US
G212S	0.4	½	15	250	\$980.00	\$1,064.00	\$980.00	\$1,064.00		
G213S	1.3	½	15	250	\$982.00	\$1,066.00	\$982.00	\$1,066.00		
G214S	2.2	½	15	250	\$984.00	\$1,068.00	\$984.00	\$1,068.00		
G215S	4.4	½	15	250	\$986.00	\$1,070.00	\$986.00	\$1,070.00		
G219S	5.5	¾	20	250	\$1,084.00	\$1,154.00	\$1,084.00	\$1,154.00		
G220S	7.5	¾	20	250	\$1,086.00	\$1,162.00	\$1,086.00	\$1,162.00		
G224S	10	1	25	207					\$1,308.00	\$1,308.00
G225S	14	1	25	207					\$1,350.00	\$1,350.00
G232S	20	1¼	32	130					\$1,692.00	\$1,692.00
G240S	28	1½	40	88					\$1,868.00	\$1,868.00
G250S	40	2	50	47					\$2,056.00	\$2,056.00

† Specify when ordering Proportional (V-10001) 2-10 VDC, Floating Point (V-30001), On/Off (V-40002).

## MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
	V-10001	N01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02	0-10 VDC	150	0-10 VDC	No Charge	
V-10028	N1E	0-10 VDC	100	0-10 VDC	No Charge	
V-10063	N1K	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge	
V-10064	N1L	5.5-10 VDC	150	5.5-10 VDC	No Charge	
V-20002	N1U	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge	
V-20003	N1V	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge	
V-30001	N24	Floating Point	150	2-10 VDC	No Charge	
V-40002	N29	On/Off	150	2-10 VDC	No Charge	

Note: Most popular configurations available at no additional cost. Specify when ordering Proportional (V-10001) 2-10 VDC, Floating Point (V-30001), On/Off (V-40002).

### Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	linear
Action	G2, G2S: stem up - open A to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	bronze
Seat	bronze (G2S stainless steel)
Stem	stainless steel
Plug	brass (G2S is stainless steel)
Packing	spring loaded TFE
Disc	composition (G2...S = Teflon®)
ANSI Class	ANSI 250 (up to 400 psi below 150°F)
Leakage	G2(S) - ANSI V
Max Steam Inlet	G2 35 psi (241 kPa) G2S 100 psi (690 kPa)
Media Temp - Water	20°F to 250°F (-7°C to +120°C) up to 300°F (149°C) on G2...S
Steam	20°F to 280°F (-7°C to 138°C) 20°F to 338°F (-7°C to 170°C)
Ambient Temp	32°F to 122°F (0°C to 50°C)
Maximum ΔP:	Water 35 psi (241 kPa) Steam 20 psi (138 kPa) (G2) 35 psi (241 kPa) (G2...S)
Rangeability:	5:1 (G212S) 15:1 (G213S) 25:1 (G241S) 40:1 (G215S) 50:1 (G219S) 60:1 (G220S, G224S) 75:1 (all others)



### Non-Spring Return Actuators



ACTUATOR PART #	LMB24-3-X1	LMB24-SR-X1	LMX24-MFT-X1	NMB24-3-X1	NMB24-SR-X1	NMX24-MFT-X1	AMB24-3-X1	AMB24-SR-X1	AMX24-MFT-X1
Control type	On/Off, Floating Point	Proportional	Proportional/MFT	On/Off, Floating Point	Proportional	Proportional/MFT	On/Off, Floating Point	Proportional	Proportional/MFT
Manual override	•	•	•	•	•	•	•	•	•
Running time	95 seconds	95 seconds	150 seconds variable	95 seconds	95 seconds	150 seconds variable	95 seconds	95 seconds	150 seconds variable
Noise level	<35 dB(A)	<35 dB(A)	<35 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)

### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting

Globe Valve Model #	C <sub>v</sub> Rating	Valve Nominal Size Inches	Valve Nominal Size DN (mm)	Close-off psi	LMB24-3-X1	LMB24-SR-X1	LMX24-MFT-X1	NMB24-3-X1	NMB24-SR-X1	NMX24-MFT-X1	AMB24-3-X1	AMB24-SR-X1	AMX24-MFT-X1
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### G2... 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G212	0.4	½	15	250	\$786.00	\$874.00	\$914.00						
G213	1.3	½	15	250	\$788.00	\$876.00	\$916.00						
G214	2.2	½	15	250	\$790.00	\$878.00	\$918.00						
G215	4.4	½	15	250	\$792.00	\$880.00	\$920.00						
G219	5.5	¾	20	250	\$794.00	\$882.00	\$922.00						
G220	7.5	¾	20	250	\$798.00	\$884.00	\$924.00						
G224	10	1	25	250				\$882.00	\$970.00	\$1,014.00			
G225	14	1	25	250				\$884.00	\$972.00	\$1,016.00			
G232	20	1¼	32	158				\$960.00	\$1,046.00	\$1,090.00			
G240	28	1½	40	230							\$1,250.00	\$1,286.00	\$1,328.00
G250	40	2	50	127							\$1,356.00	\$1,404.00	\$1,436.00

### G2...S 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G212S	0.4	½	15	250	\$1,036.00	\$1,068.00	\$1,104.00						
G213S	1.3	½	15	250	\$1,040.00	\$1,070.00	\$1,106.00						
G214S	2.2	½	15	250	\$1,042.00	\$1,072.00	\$1,108.00						
G215S	4.4	½	15	250	\$1,044.00	\$1,074.00	\$1,110.00						
G219S	5.5	¾	20	250	\$1,132.00	\$1,218.00	\$1,250.00						
G220S	7.5	¾	20	250	\$1,134.00	\$1,220.00	\$1,252.00						
G224S	10	1	25	250				\$1,260.00	\$1,346.00	\$1,384.00			
G225S	14	1	25	250				\$1,262.00	\$1,348.00	\$1,386.00			
G232S	20	1¼	32	158				\$1,534.00	\$1,620.00	\$1,646.00			
G240S	28	1½	40	230							\$1,984.00	\$2,010.00	\$2,042.00
G250S	40	2	50	127							\$2,152.00	\$2,172.00	\$2,204.00

### MULTI-FUNCTION TECHNOLOGY

L.M., N.M., A.M. DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
		P-10001	A01	2-10 VDC	150	2-10 VDC
	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: All other MFT actuators use P-codes. Most popular configurations available at no additional cost.



# G2... (S) Series Globe Valves, Spring Return Actuators

2-way Valve with Bronze Trim / Stainless Steel Trim



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	linear
Action	G2, G2S: stem up - open A to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	bronze
Seat	bronze (G2S is stainless steel)
Stem	stainless steel
Plug	brass (G2S is stainless steel)
Packing	spring loaded TFE
Disc	composition (G2...S = Teflon®)
ANSI Class	ANSI 250 (up to 400 psi below 150°F)
Leakage	G2(S) - ANSI V
Max Steam Inlet	G2 35 psi (241 kPa) G2S 100 psi (690 kPa)
Media Temp - Water	20°F to 250°F (-7°C to +120°C) up to 300°F (149°C) on G2...S
Steam	20°F to 280°F (-7°C to 138°C) 20°F to 338°F (-7°C to 170°C)
Ambient Temp	32°F to 122°F (0°C to 50°C)
Maximum ΔP:	Water 35 psi (241 kPa) Steam 20 psi (138 kPa) (G2) 35 psi (241 kPa) (G2...S)
Rangeability:	5:1 (G212S) 15:1 (G213S) 25:1 (G241S) 40:1 (G215S) 50:1 (G219S) 60:1 (G220S, G224S) 75:1 (all others)

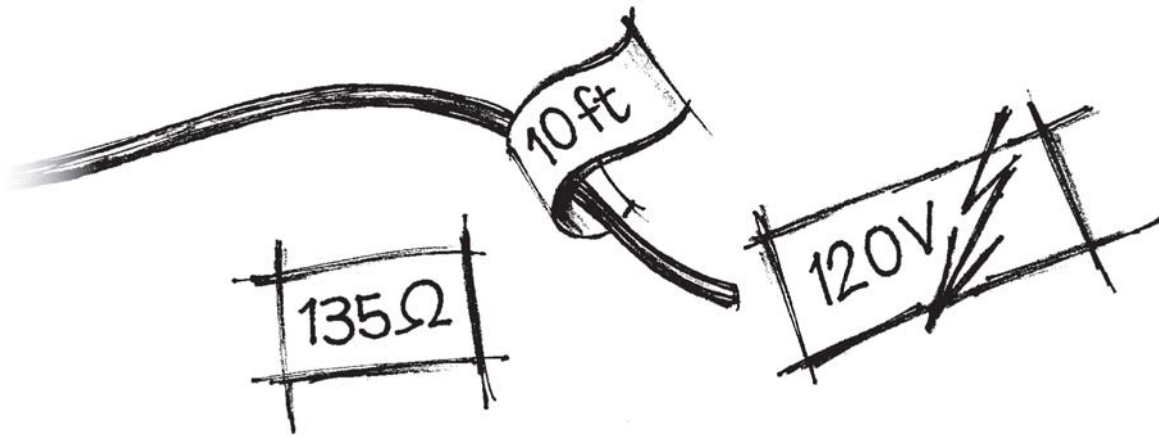


## Spring Return Actuators



ACTUATOR PART #		LF24 US	LF24-3 US	LF24-SR US	LF24-MFT US	NFBUP-X1	NFB24-SR-X1	NFX24-MFT-X1
Control type		On/Off	Floating Point	Proportional	Proportional/MFT	On/Off	Proportional	Proportional/MFT
Manual override								
Power supply								
Running time	motor	<40 to 75 seconds	150 seconds	150 seconds	150 seconds (variable)	<75 seconds	95 seconds	150 seconds (variable)
	spring	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<20 seconds	<20 seconds	<20 seconds
Noise level		<50 dB(A)	<30 dB(A)	<30 dB(A)	<30 dB(A)	<50 dB(A)	≤40 dB(A)	≤40 dB(A)
<b>ELECTRICAL CONNECTION:</b>								
3 ft cable, ½" conduit fitting		•	•	•	•	•	•	•
Globe Valve Model #	C <sub>v</sub> Rating	Valve Nominal Size Inches	Nominal Size DN (mm)	Close-off psi				
<b>G2...2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>								
G212	0.4	½	15	250	\$896.00	\$958.00	\$982.00	\$1,036.00
G213	1.3	½	15	250	\$898.00	\$960.00	\$984.00	\$1,038.00
G214	2.2	½	15	250	\$900.00	\$964.00	\$986.00	\$1,040.00
G215	4.4	½	15	250	\$902.00	\$966.00	\$988.00	\$1,042.00
G219	5.5	¾	20	185	\$924.00	\$988.00	\$1,010.00	\$1,066.00
G220	7.5	¾	20	185	\$926.00	\$990.00	\$1,014.00	\$1,070.00
G224	10	1	25	250			\$986.00	\$1,076.00
G225	14	1	25	250			\$988.00	\$1,078.00
G232	20	1¼	32	158			\$1,062.00	\$1,152.00
<b>G2...S 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>								
G212S	0.4	½	15	250	\$1,142.00	\$1,174.00	\$1,230.00	\$1,286.00
G213S	1.3	½	15	250	\$1,144.00	\$1,176.00	\$1,232.00	\$1,288.00
G214S	2.2	½	15	250	\$1,146.00	\$1,178.00	\$1,234.00	\$1,290.00
G215S	4.4	½	15	250	\$1,148.00	\$1,180.00	\$1,236.00	\$1,292.00
G219S	5.5	¾	20	185	\$1,176.00	\$1,202.00	\$1,422.00	\$1,478.00
G220S	7.5	¾	20	185	\$1,178.00	\$1,204.00	\$1,424.00	\$1,480.00
G224S	10	1	25	168			\$1,358.00	\$1,456.00
G225S	14	1	25	168			\$1,360.00	\$1,458.00
G232S	20	1¼	32	105			\$1,624.00	\$1,728.00

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### Spring Return Actuators



OPTIONS	LF24-S US	LF24-3-S US	LF120 US	LF120-S US	NFBUP-S-X1	NFBUP-X1	NFBUP-S-X1
120 VAC power supply			•	•		•	•
24 VAC power supply					•		
Built-in auxiliary switch	•	•		•	•		•
Floating Point		•					
<b>Globe Valve Model #</b>	<b>C<sub>v</sub> Rating</b>						
<b>G2... 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>							
G212	0.4	\$946.00	\$1,010.00	\$926.00	\$980.00		
G213	1.3	\$950.00	\$1,012.00	\$928.00	\$982.00		
G214	2.2	\$952.00	\$1,014.00	\$930.00	\$984.00		
G215	4.4	\$954.00	\$1,016.00	\$932.00	\$986.00		
G219	5.5	\$978.00	\$1,040.00	\$956.00	\$1,008.00		
G220	7.5	\$980.00	\$1,044.00	\$958.00	\$1,010.00		
G224	10					\$1,064.00	\$986.00
G225	14					\$1,066.00	\$988.00
G232	20					\$1,140.00	\$1,062.00
<b>G2... S 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>							
G212S	0.4	\$1,162.00	\$1,224.00	\$1,140.00	\$1,194.00		
G213S	1.3	\$1,164.00	\$1,226.00	\$1,142.00	\$1,196.00		
G214S	2.2	\$1,166.00	\$1,228.00	\$1,144.00	\$1,198.00		
G215S	4.4	\$1,170.00	\$1,230.00	\$1,146.00	\$1,200.00		
G219S	5.5	\$1,226.00	\$1,254.00	\$1,172.00	\$1,222.00		
G220S	7.5	\$1,230.00	\$1,256.00	\$1,174.00	\$1,224.00		
G224S	10					\$1,436.00	\$1,358.00
G225S	14					\$1,438.00	\$1,360.00
G232S	20					\$1,702.00	\$1,624.00

### MULTI-FUNCTION TECHNOLOGY

LF, NF DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
		P-10001	A01	2-10 VDC	150	2-10 VDC
	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

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GLOBE VALVES

# G2... (S) Series Globe Valves, Spring Return Actuators

2-way Valve with Bronze Trim / Stainless Steel Trim



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	linear
Action	G2, G2S: stem up - open A to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	bronze
Seat	bronze (G2S is stainless steel)
Stem	stainless steel
Plug	brass (G2S is stainless steel)
Packing	spring loaded TFE
Disc	composition (G2...S = Teflon®)
ANSI Class	ANSI 250 (up to 400 psi below 150°F)
Leakage	G2(S) - ANSI V
Max Steam Inlet	G2     35 psi (241 kPa) G2S   100 psi (690 kPa)
Media Temp - Water	20°F to 250°F (-7°C to +120°C) up to 300°F (149°C) on G2...S
Steam	20°F to 280°F (-7°C to 138°C) 20°F to 338°F (-7°C to 170°C)
Ambient Temp	32°F to 122°F (0°C to 50°C)
Maximum ΔP: Water	35 psi (241 kPa)
Steam	20 psi (138 kPa) (G2) 35 psi (241 kPa) (G2...S)
Rangeability:	5:1 (G212S) 15:1 (G213S) 25:1 (G241S) 40:1 (G215S) 50:1 (G219S) 60:1 (G220S, G224S) 75:1 (all others)



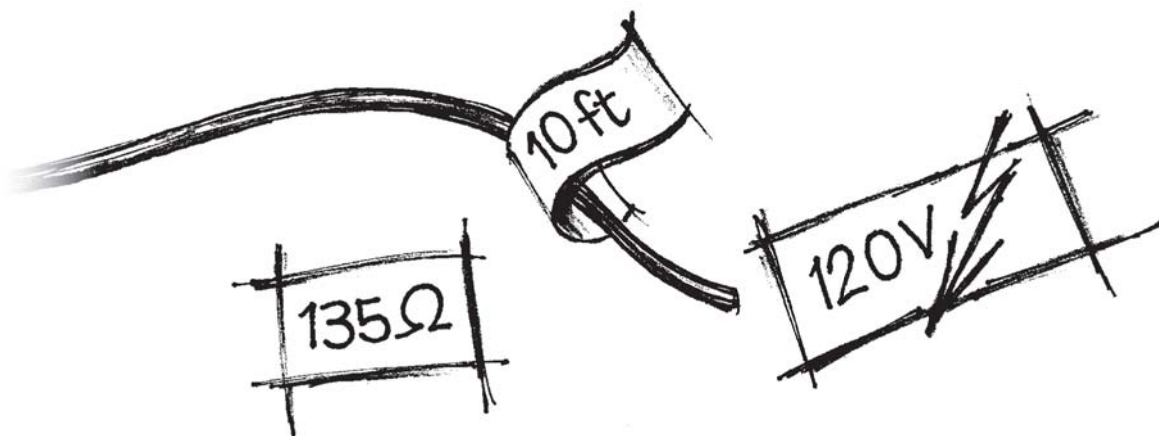
## Spring Return Actuators



ACTUATOR PART #		AF24 US	AF24-SR US	AFX24-MFT-X1
Control type		On/Off	Proportional	Proportional/MFT
Manual override		•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds (variable with MFT)
	spring	<20 seconds	<20 seconds	<20 seconds
Noise level		≤45 dB(A)	≤45 dB(A)	≤40 dB(A)
<b>ELECTRICAL CONNECTION:</b>				
3 ft cable, ½" conduit fitting		•	•	•
<b>Globe Valve Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Valve Size Inches</b>	<b>Nominal Size DN (mm)</b>	<b>Close-off psi</b>
<b>G2... 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>				
G240	28	1½	40	169
G240	28	1½	40	230
G250	40	2	50	93
G250	40	2	50	127
<b>G2...S 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>				
G240S	28	1½	40	169
G240S	28	1½	40	230
G250S	40	2	50	93
G250S	40	2	50	127
		\$1,262.00	\$1,440.00	\$1,496.00
		\$1,314.00	\$1,546.00	\$1,550.00
		\$1,962.00	\$2,176.00	\$2,232.00
		\$2,120.00	\$2,344.00	\$2,398.00

GLOBE VALVES

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GLOBE VALVES

### Spring Return Actuator Options



OPTIONS	AF24-S US	AF120 US	AF120-S US
120 VAC power supply	•	•	•
Built-in auxiliary switch	•	•	•
Floating Point			
<b>Globe Valve Model #</b>			
<b>C<sub>v</sub> Rating</b>			
<b>G2... 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>			
G240	\$1,350.00	\$1,384.00	\$1,426.00
G250	\$1,402.00	\$1,436.00	\$1,480.00
<b>G2...S 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>			
G240S	\$2,050.00	\$2,118.00	\$2,142.00
G250S	\$2,210.00	\$2,286.00	\$2,370.00

### MULTI-FUNCTION TECHNOLOGY

AF DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
	P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

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GLOBE VALVES

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### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	G3: stem up - open B to AB G3D: stem up - open B to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	bronze
Seat	bronze
Stem	stainless steel
Plug	brass
Packing	spring loaded TFE and EPDM
Disc	none
ANSI Class	ANSI 250 (up to 400 psi below 150°F)
Leakage	ANSI III
Media Temp - Water	20°F to 250°F (-7°C to +120°C)
Ambient Temp	32°F to 122°F (0°C to 50°C)
Maximum ΔP:	
Water	35 psi (241 kPa)
Rangeability:	500:1



### Non-Spring Return Actuators



ACTUATOR PART #	LMB24-3-X1	LMB24-SR-X1	LMX24-MFT-X1	NMB24-3-X1	NMB24-SR-X1	NMX24-MFT-X1	AMB24-3-X1	AMB24-SR-X1	AMX24-MFT-X1
Control type	On/Off, Floating Point	Proportional	Proportional/MFT	On/Off, Floating Point	Proportional	Proportional/MFT	On/Off, Floating Point	Proportional	Proportional/MFT
Manual override	•	•	•	•	•	•	•	•	•
Running time	95 seconds	95 seconds	150 seconds (variable)	95 seconds	95 seconds	150 seconds (variable)	95 seconds	95 seconds	150 seconds (variable)
Noise level	<35 dB(A)	<35 dB(A)	<35 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)

### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•	•	•	•	•
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Globe Valve Model #	C <sub>v</sub> Rating	Valve Inches	Nominal Size DN (mm)	Close-off psi						
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### G3...3-WAY MIXING GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G314	2.2	½	15	250	\$820.00	\$908.00	\$946.00			
G315	4.4	½	15	250	\$822.00	\$910.00	\$950.00			
G320	7.5	¾	20	250	\$824.00	\$912.00	\$952.00			
G325	14	1	25	168				\$906.00	\$982.00	\$1,026.00
G332	20	1¼	32	105				\$992.00	\$1,078.00	\$1,122.00
G340	28	1½	40	169						\$1,426.00
G350	41	2	50	93						\$1,536.00

### G3...D 3-WAY DIVERTING GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G315D	4.4	½	15	250	\$978.00	\$1,064.00	\$1,098.00			
G320D	7.5	¾	20	250	\$996.00	\$1,072.00	\$1,108.00			
G325D	14	1	25	250				\$1,152.00	\$1,242.00	\$1,280.00
G332D	20	1¼	32	250				\$1,488.00	\$1,572.00	\$1,604.00
G340D	28	1½	40	250						\$1,690.00
G350D	40	2	50	250						\$2,526.00

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GLOBE VALVES

# G3...(D) Series Globe Valves, Spring Return Actuators

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	G3: stem up - open B to AB G3D: stem up - open B to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	bronze
Seat	bronze
Stem	stainless steel
Plug	brass
Packing	spring loaded TFE and EPDM
Disc	none
ANSI Class	ANSI 250 (up to 400 psi below 150°F)
Leakage	ANSI III
Media Temp - Water	20°F to 250°F (-7°C to 120°C)
Ambient Temp	32°F to 122°F (0°C to 50°C)
Maximum ΔP:	
Water	35 psi (241 kPa)
Rangeability:	500:1



## Spring Return Actuators



ACTUATOR PART #		LF24 US	LF24-3 US	LF24-SR US	LF24-MFT US	NFBUP-X1	NFB24-SR-X1	NFX24-MFT-X1
Control type		On/Off	Floating Point	Proportional	Proportional/MFT	On/Off	Proportional	Proportional/MFT
Manual override								
Running time	motor	<40 to 75 seconds	150 seconds	150 seconds	150 seconds	<75 seconds	95 seconds	150 seconds
	spring	<25 seconds	<25 seconds	<25 seconds	<25 seconds	<20 seconds	<20 seconds	<20 seconds
Noise level		<50 dB(A)	<30 dB(A)	<30 dB(A)	<30 dB(A)	<50 dB(A)	<40 dB(A)	<40 dB(A)

### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•	•	•	•
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Globe Valve Model #	C <sub>v</sub> Rating	Valve Nominal Size Inches	Valve Nominal Size DN (mm)	Close-off psi				
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### G3... 3-WAY MIXING GLOBE VALVE WITH SPRING RETURN ACTUATORS

G314	2.2	½	15	250	\$902.00	\$966.00	\$986.00	\$1,040.00		
G315	4.4	½	15	250	\$904.00	\$968.00	\$988.00	\$1,042.00		
G320	7.5	¾	20	250	\$906.00	\$970.00	\$990.00	\$1,044.00		
G325	14	1	25	250					\$864.00	\$1,046.00
G332	20	1¼	32	158					\$946.00	\$1,128.00

### G3...D 3-WAY DIVERTING GLOBE VALVE WITH SPRING RETURN ACTUATORS

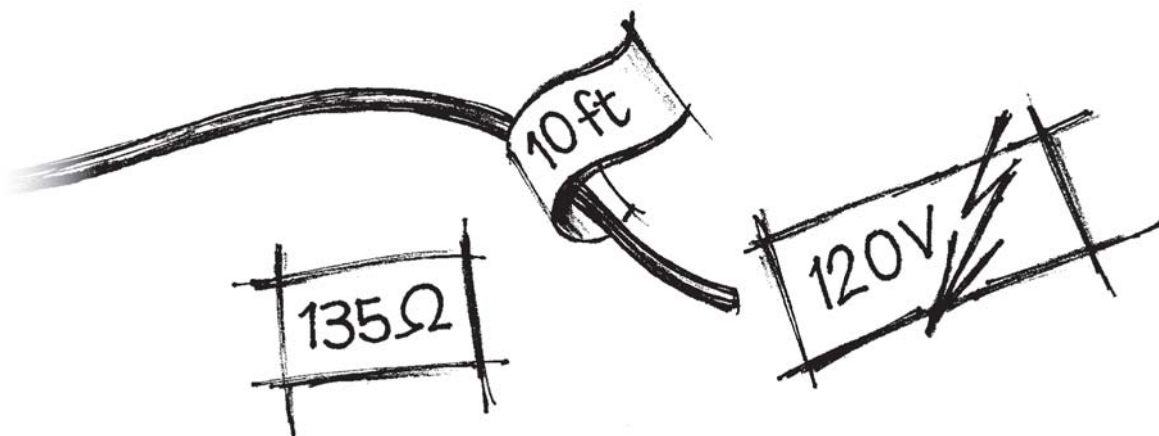
G315D	4.4	½	15	250	\$1,052.00	\$1,116.00	\$1,136.00	\$1,192.00		
G320D	7.5	¾	20	250	\$1,072.00	\$1,134.00	\$1,154.00	\$1,210.00		
G325D	14	1	25	250					\$1,102.00	\$1,284.00
G332D	20	1¼	32	250					\$1,418.00	\$1,602.00

### MULTI-FUNCTION TECHNOLOGY

LF, NF, AF DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
	P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

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**Spring Return Actuator Options**



OPTIONS	LF24-S US	LF24-3-S US	LF120 US	LF120-S US	NFBUP-S-X1	NFBUP-X1	NFBUP-S-X1
120 VAC power supply			•	•		•	•
24 VAC					•		
Built-in auxiliary switch	•	•		•	•		•
Floating Point		•					
<b>Globe Valve Model #</b>							
<b>C<sub>v</sub> Rating</b>							
<b>G3...3-WAY MIXING GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>							
G314	2.2	\$954.00	\$1,016.00	\$932.00			
G315	4.4	\$956.00	\$1,018.00	\$934.00			
G320	7.5	\$958.00	\$1,020.00	\$936.00			
G325	14				\$946.00	\$864.00	\$946.00
G332	20				\$1,028.00	\$946.00	\$1,028.00
<b>G3...D 3-WAY DIVERTING GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>							
G315D	4.4	\$1,106.00	\$1,170.00	\$1,084.00			
G320D	7.5	\$1,124.00	\$1,188.00	\$1,104.00			
G325D	14				\$1,184.00	\$1,102.00	\$1,184.00
G332D	20				\$1,500.00	\$1,418.00	\$1,500.00

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GLOBE VALVES



# G3...(D) Series Globe Valves, Spring Return Actuators

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



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	G3: stem up - open B to AB G3D: stem up - open B to AB
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	bronze
Seat	bronze
Stem	stainless steel
Plug	brass
Packing	spring loaded TFE and EPDM
Disc	none
ANSI Class	ANSI 250 (up to 400 psi below 150°F)
Leakage	ANSI III
Media Temp - Water	20°F to 250°F (-7°C to 120°C)
Ambient Temp	32°F to 122°F (0°C to 50°C)
Maximum ΔP:	
Water	35 psi (241 kPa)
Rangeability:	500:1



## Spring Return Actuators



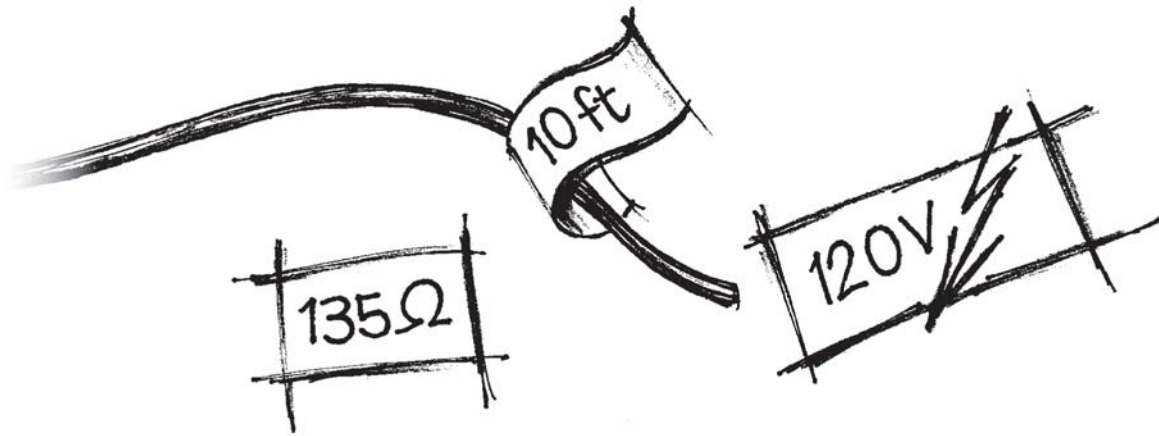
ACTUATOR PART #		AF24 US	AF24-SR US	AFX24-MFT-X1	
Control type		On/Off	Proportional	Proportional/MFT	
Manual override		•	•	•	
Running time	motor	150 seconds	150 seconds	150 seconds	
	spring	<20 seconds	<20 seconds	<20 seconds	
Noise level		≤45 dB(A)	≤45 dB(A)	≤40 dB(A)	
<b>ELECTRICAL CONNECTION:</b>					
3 ft cable, ½" conduit fitting		•	•	•	
Globe Valve Model #	C <sub>v</sub> Rating	Valve Size Inches	Nominal Size DN (mm)	Close-off psi	
<b>G3... 3-WAY MIXING GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>					
G340	28	1½	40	169	\$1,436.00
G340	28	1½	40	230	\$1,576.00
G350	41	2	50	93	\$1,692.00
G350	41	2	50	127	\$1,744.00
<b>G3...D 3-WAY DIVERTING GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>					
G340D	28	1½	40	250	\$1,762.00
G350D	40	2	50	250	\$2,508.00
					\$1,910.00
					\$2,722.00

## MULTI-FUNCTION TECHNOLOGY

AF DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
		P-10001	A01	2-10 VDC	150	2-10 VDC
	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

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**Spring Return Actuator Options**



OPTIONS	AF24-S US	AF120 US	AF120-S US
120 VAC power supply		•	•
Built-in auxiliary switch	•		•
Floating Point			
<b>Globe Valve Model #</b>			
<b>C<sub>v</sub> Rating</b>			
<b>G3...3-WAY MIXING GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>			
G340	28	\$1,526.00	\$1,606.00
G350	41	\$1,636.00	\$1,720.00
<b>G3...D 3-WAY DIVERTING GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>			
G340D	28	\$1,850.00	\$1,938.00
G350D	40	\$2,596.00	\$2,698.00

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GLOBE VALVES

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GLOBE VALVES

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### Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	stem up - open A to AB
Sizes	2½", 3"
Type of end fitting	125 lb. flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034kPa) @ 250°F
Max Steam Inlet	35 psi (241 kPa)
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Media Temp - Steam	32°F to 280°F (0°C to 138°C)
Ambient Temp	-22°F to 122°F [-30°C to +50°C]
Maximum ΔP:	
Water	25 psi (172 kPa)
Steam	15 psi (103 kPa)
Rangeability	50:1



### Non-Spring Return Actuators



ACTUATOR PART #	NVG24-MFT US	GMB24-3-X1	GMX24-MFT-X1	2* GMB24-3-X1	2* GMX24-MFT-X1
Control type	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•	•
Running time	150 seconds	150 seconds	150 seconds	150 seconds,	150 seconds
Noise level	<35 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>					
3 ft cable, ½" conduit fitting	•	•	•	•	•
<b>Valve Nominal Size</b>					
<b>Globe Valve Model #</b>	<b>C<sub>v</sub> Rating</b>	<b>Inches</b>	<b>Flanged Type</b>	<b>Close-off ANSI III</b>	

G6... 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS					
G665	65	2½	ANSI 125	62	\$1,644.00
G680	90	3	ANSI 125	42	\$1,800.00
G665	65	2½	ANSI 125	113	\$1,826.00
G680	90	3	ANSI 125	78	\$1,956.00
G665	65	2½	ANSI 125	150	\$2,072.00
G680	90	3	ANSI 125	121	\$2,226.00
					\$2,346.00
					\$2,478.00
					\$2,764.00
					\$2,900.00

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		GM DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price	
V-10001	N01		P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02		P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29		P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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GLOBE VALVES

# G6 Series Flanged Globe Valves, Spring Return Actuators

2-way Valve with Bronze Trim - ANSI 125 Flanged



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	stem up - open A to AB
Sizes	2½", 3"
Type of end fitting	125 lb. flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034kPa) @ 250°F
Max Steam Inlet	35 psi (241 kPa)
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Steam	32°F to 280°F (0°C to 138°C)
Ambient Temp	-22°F to 122°F (-30°C to +50°C)
Maximum ΔP:	
Water	25 psi (172 kPa)
Steam	15 psi (103 kPa)
Rangeability	50:1



## Spring Return Actuators



ACTUATOR PART #	AF24 US	AFX24-MFT-X1	2*AF24 US	2*AFX24-MFT-X1
Control type	On/Off	Proportional/MFT	On/Off	Proportional/MFT
Manual override	•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds
	spring	<20 seconds	<20 seconds	<20 seconds
Noise level	≤45 dB(A)	≤40 dB(A)	≤45 dB(A)	≤40 dB(A)

## ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•
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Valve Nominal Size				
Globe Valve Model #	C <sub>v</sub> Rating	Inches	Flanged Type	Close-off ANSI III

## G6...2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS

G665	65	2½	ANSI 125	36	\$1,872.00		
G665	65	2½	ANSI 125	51		\$2,004.00	
G665	65	2½	ANSI 125	59			\$2,368.00
G665	65	2½	ANSI 125	82			\$2,692.00
G680	90	3	ANSI 125	24	\$2,008.00		
G680	90	3	ANSI 125	34		\$2,120.00	
G680	90	3	ANSI 125	40			\$2,498.00
G680	90	3	ANSI 125	56			\$2,824.00

For fail safe operation where AF actuator is not available or close-off is too low, use GM actuator with NSV battery backup.

## MULTI-FUNCTION TECHNOLOGY

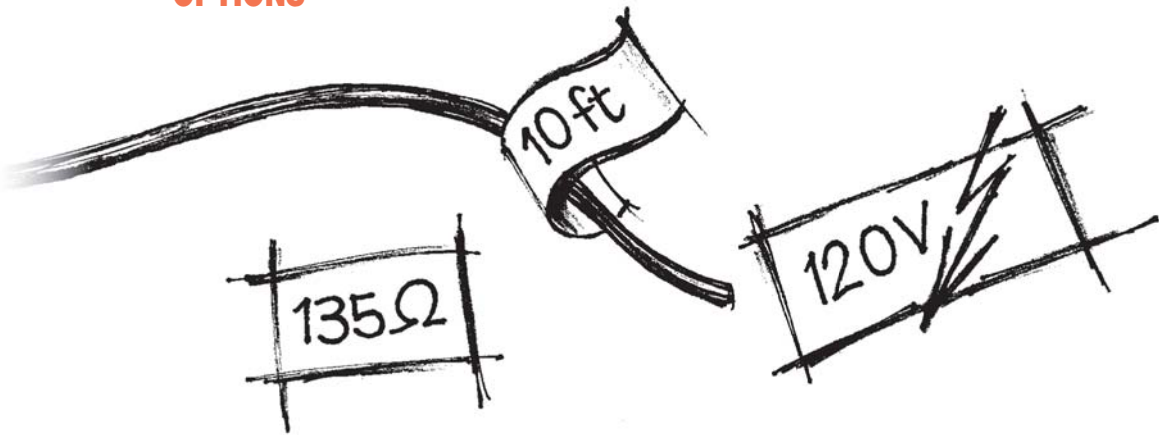
AF DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
		P-10001	A01	2-10 VDC	150	2-10 VDC
	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Most popular configurations available at no additional cost.

2\* designates tandem.

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**Spring Return Actuators Options**



OPTIONS	AF24-S US	AF120 US	AF120-S US	AFX24-MFT-S-X1	AFX24-MFT95-X1	2*AF24-S US	2*AFX24-MFT-S-X1	2*AFX24-MFT95-X1	2*AF120 US	2*AF120-S US
120 VAC power supply		•	•						•	•
Built-in auxiliary switch	•		•	•		•	•			•
0-135 Ω control					•			•		
<b>Globe Valve Model #</b>										
<b>C<sub>v</sub> Rating</b>										

G6... 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS										
G665	65	\$1,958.00	\$1,928.00	\$2,014.00	\$2,088.00	\$2,026.00				
G680	90	\$2,092.00	\$2,060.00	\$2,148.00	\$2,206.00	\$2,142.00				
G665	65						\$2,454.00	\$2,778.00	\$2,712.00	\$2,564.00
G680	90						\$2,584.00	\$2,910.00	\$2,844.00	\$2,694.00

Note: (-S) models with tandem actuators only have one switch.

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GLOBE VALVES

# G6 Series Flanged Globe Valves, Electronic Fail-Safe Actuators

2-way Valve with Bronze Trim - ANSI 125 Flanged



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	stem up - open A to AB
Sizes	2½", 3"
Type of end fitting	125 lb. flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034kPa) @ 250°F
Max Steam Inlet	35 psi (241 kPa)
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Media Temp - Steam	32°F to 280°F (0°C to 138°C)
Ambient Temp	-22°F to 122°F [-30°C to +50°C]
Maximum ΔP:	
Water	25 psi (172 kPa)
Steam	15 psi (103 kPa)
Rangeability	50:1



## Electronic Fail-Safe Actuators



ACTUATOR PART #		GKB24-3-X1	GKX24-MFT-X1	2*GKX24-MFT-X1
Control type		On/Off, Floating Point	Proportional/MFT	Proportional/MFT
Manual override		•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds
	fail-safe	35 seconds	35 seconds	35 seconds
Noise level		<45 dB(A)	<45 dB(A)	<45 dB(A)
ELECTRICAL CONNECTION:				
3 ft cable, ½" conduit fitting		•	•	•
Valve Nominal Size				
Globe Valve Model #	C <sub>v</sub> Rating	Inches	Flanged Type	Close-off ANSI III

G6... 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS							
G665	65	2½	ANSI 125	113	\$2,526.00	\$2,904.00	
G680	90	3	ANSI 125	78	\$2,658.00	\$3,036.00	
G665	65	2½	ANSI 125	150			\$4,320.00
G680	90	3	ANSI 125	121			\$4,452.00

## MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		GM DESCRIPTION	Control Input		Running Time	Built-in Feedback	List Price
	V	N		P	A			
V-10001	N01		P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02		P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29		P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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### Valve Specifications

Service	chilled or hot water, 60% glycol, steam	
Flow characteristic	equal percentage	
Action	stem up - open A to AB	
Sizes	2½", 3"	
Type of end fitting	125 lb. flanged	
Materials:		
Body	iron	
Seat	stainless steel	
Stem	stainless steel	
Plug	stainless steel	
Packing	TFE V-ring	
ANSI Class	ANSI 125	
Leakage	Class III	
Max Water Inlet	150 psi (1034kPa) @ 250°F	
Max Steam Inlet	G6S Rotary	100 psi (680 kPa)
	G6S NV	50 psi (345 kPa)
Media Temp - Water	32°F to 350°F (0°C to 176°C)	
	Steam	32°F to 338°F (0°C to 170°C) Rotary 20°F to 298°F (-7°C to 148°C) NV
Ambient Temp	-22°F to 122°F [-30°C to +50°C]	
Maximum ΔP:		
Water	50 psi (345 kPa)	
Steam	50 psi (345 kPa)	
Rangeability	50:1	



### Non-Spring Return Actuators



ACTUATOR PART #	NVG24-MFT US	GMB24-3-X1	GMX24-MFT-X1	2*GMB24-3-X1	2*GMX24-MFT-X1
Control type	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•	•
Running time	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<35 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)

### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•

### G6...S 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

Globe Valve Model #	C <sub>v</sub> Rating	Valve Nominal Size Inches	Flanged Type	Close-off ANSI III				
G665S	65	2½	ANSI 125	62	\$2,332.00			
G680S	90	3	ANSI 125	42	\$2,566.00			
G665S	65	2½	ANSI 125	113		\$2,346.00	\$2,580.00	
G680S	90	3	ANSI 125	78		\$2,604.00	\$2,888.00	
G665S	65	2½	ANSI 125	150				\$2,756.00
G680S	90	3	ANSI 125	121				\$3,358.00
								\$3,146.00
								\$3,642.00

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES	GM DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price
V-10001	P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
V-10002	P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
V-10028	P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
V-10063	P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
V-10064	P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
V-20002	P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
V-20003	P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
V-30001	P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

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GLOBE VALVES



# G6...S Series Flanged Globe Valves, Spring Return Actuators

2-way Valve with Stainless Steel Trim - ANSI 125 Flanged



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	stem up - open A to AB
Sizes	2½", 3"
Type of end fitting	125 lb. flanged
Materials:	
Body	iron
Seat	stainless steel
Stem	stainless steel
Plug	stainless steel
Packing	TFE V-ring
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034kPa) @ 250°F
Max Steam Inlet	100 psi (680 kPa)
Media Temp - Water	32°F to 338°F (0°C to 170°C)
Steam	32°F to 338°F (0°C to 170°C)
Ambient Temp	-22°F to 122°F [-30°C to +50°C]
Maximum ΔP:	
Water	50 psi (345 kPa)
Steam	50 psi (345 kPa)
Rangeability	50:1



## Spring Return Actuators



ACTUATOR PART #		AF24 US	AFX24-MFT-X1	2*AF24 US	2*AFX24-MFT-X1
Control type		On/Off	Proportional/MFT	On/Off	Proportional/MFT
Manual override		•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds
	spring	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Noise level		≤45 dB(A)	≤40 dB(A)	≤45 dB(A)	≤40 dB(A)

## ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•
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Globe Valve Model #	C <sub>v</sub> Rating	Valve Nominal Size		Close-off ANSI III
		Inches	Flanged Type	

G6...S 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS								
G665S	65	2½	ANSI 125	36	\$2,392.00			
G665S	65	2½	ANSI 125	51		\$2,558.00		
G665S	65	2½	ANSI 125	59			\$2,888.00	
G665S	65	2½	ANSI 125	82				\$3,286.00
G680S	90	3	ANSI 125	24	\$2,676.00			
G680S	90	3	ANSI 125	34		\$2,842.00		
G680S	90	3	ANSI 125	40			\$3,172.00	
G680S	90	3	ANSI 125	56				\$3,570.00

For fail safe operation where AF actuator is not available or Close-off is too low, use pressure compensated globe valves.

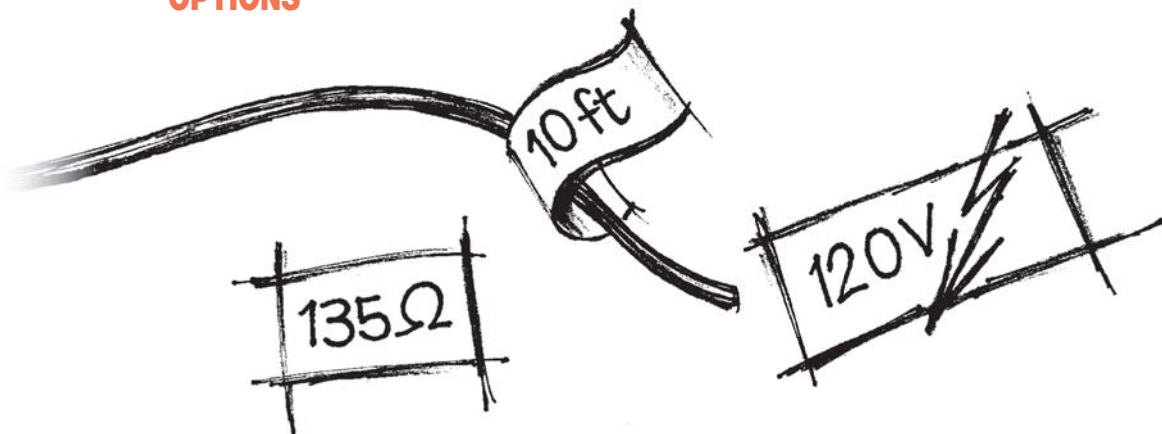
## MULTI-FUNCTION TECHNOLOGY

AF DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
		P-10001	A01	2-10 VDC	150	2-10 VDC
	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Most popular configurations available at no additional cost.

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#### Spring Return Actuators Options

OPTIONS	AF24-S US	AF120 US	AF120-S US	AFX24-MFT-S-X1	AFX24-MFT95-X1	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AFX24-MFT-S-X1
120 VAC power supply		•	•				•	•	
Built-in auxiliary switch	•		•	•		•		•	•
0-135 Ω control					•				
<b>Globe Valve Model #</b>									
<b>C<sub>v</sub> Rating</b>									

#### G6...S 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS

G665S	65	\$2,480.00	\$2,446.00	\$2,534.00	\$2,644.00	\$2,578.00	\$2,976.00			
G680S	90	\$2,764.00	\$2,728.00	\$2,814.00	\$2,926.00	\$2,862.00	\$3,258.00			
G665S	65						\$2,996.00	\$3,082.00	\$3,374.00	
G680S	90						\$3,280.00	\$3,368.00	\$3,594.00	

Note: (-S) models with tandem actuators only have one switch.

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GLOBE VALVES

# G6...S Series Flanged Globe Valves, Electronic Fail-Safe Actuators

2-way Valve with Stainless Steel Trim - ANSI 125 Flanged



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam	
Flow characteristic	equal percentage	
Action	stem up - open A to AB	
Sizes	2½", 3"	
Type of end fitting	125 lb. flanged	
Materials:		
Body	iron	
Seat	stainless steel	
Stem	stainless steel	
Plug	stainless steel	
Packing	TFE V-ring	
ANSI Class	ANSI 125	
Leakage	Class III	
Max Water Inlet	150 psi (1034kPa) @ 250°F	
Max Steam Inlet	G6S Rotary	100 psi (680 kPa)
	G6S NV	50 psi (345 kPa)
Media Temp - Water	32°F to 350°F (0°C to 176°C)	
	Steam	32°F to 338°F (0°C to 170°C) Rotary 20°F to 298°F (-7°C to 148°C) NV
Ambient Temp	-22°F to 122°F [-30°C to +50°C]	
Maximum ΔP:		
Water	50 psi (345 kPa)	
Steam	50 psi (345 kPa)	
Rangeability	50:1	



## Electronic Fail-Safe Actuators



ACTUATOR PART #		GKB24-3-X1	GKX24-MFT-X1	2*GKX24-MFT-X1
Control type		On/Off, Floating Point	Proportional/MFT	Proportional/MFT
Manual override		•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds
	fail-safe	35 seconds	35 seconds	35 seconds
Noise level		<45 dB(A)	<45 dB(A)	<45 dB(A)

## ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•
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Globe Valve Model #	Cv Rating	Valve Nominal Size		Close-off ANSI III
		Inches	Flanged Type	
G665S	65	2½	ANSI 125	113
G680S	90	3	ANSI 125	78
G665S	65	2½	ANSI 125	150
G680S	90	3	ANSI 125	121

## G6...S 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G665S	65	2½	ANSI 125	113	\$3,120.00	\$3,498.00	
G680S	90	3	ANSI 125	78	\$3,404.00	\$3,782.00	
G665S	65	2½	ANSI 125	150			\$4,914.00
G680S	90	3	ANSI 125	121			\$5,198.00

## MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES			Control Input	Running Time	Built-in Feedback	List Price
	P-CODES						
V-10001	P-10001	A01		2-10 VDC	150 seconds	2-10 VDC	No Charge
V-10002	P-10002	A02		0-10 VDC	150 seconds	0-10 VDC	No Charge
V-10028	P-10028	A28		0-10 VDC	100 seconds	0-10 VDC	No Charge
V-10063	P-10063	A63		0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
V-10064	P-10064	A64		5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
V-20002	P-20002	W02		0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
V-20003	P-20003	W03		0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
V-30001	P-30001	F01		Floating Point	150 seconds	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

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### Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	stem up - open A to AB
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	125 lb flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034 kPa) @ 250°F
Max Steam Inlet	35 psi (241 kPa)
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Media Temp - Steam	32°F to 280°F (0°C to 138°C)
Maximum ΔP:	
Water	25 psi (172 kPa)
Steam	15 psi (103 kPa)
Rangeability	50:1



### Non-Spring Return Actuators



ACTUATOR PART #	NV24-3 US	NV24-MFT US	GMB24-3-X1	GMX24-MFT-X1
Control type	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•
Running time	30 seconds	30 seconds	150 seconds	150 seconds
Noise level	<35 db(A)	<35 db(A)	<45 db(A)	<45 db(A)
<b>ELECTRICAL CONNECTION:</b>				
3 ft. cable, ½" conduit fitting	•	•	•	•
Valve Nominal Size				
Globe Valve Model #	Cv Rating	Inches	Flanged Type	Close-Off ANSI III

G6...C 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS					
G665C	65	2½	ANSI 125	150	\$2,074.00
G680C	90	3	ANSI 125	150	\$2,304.00
G6100C	170	4	ANSI 125	150	\$2,778.00
G6125C	263	5	ANSI 125	150	\$4,080.00
G6150C	344	6	ANSI 125	150	\$4,660.00

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		GM DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price	
	V-Code	N-Code						
NV DESCRIPTION	V-10001	N01	P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
	V-10002	N02	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	V-10028	N1E	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	V-10063	N1K	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	V-10064	N1L	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	V-20002	N1U	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	V-20003	N1V	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	V-30001	N24	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	V-40002	N29	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

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GLOBE VALVES

# G6...C Series Flanged Globe Valve, Spring Return Actuators

2-way Pressure Compensated Valve with Bronze Trim– ANSI 125 Flanged



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	stem up - open A to AB
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	125 lb flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034 kPa) @ 250°F
Max Steam Inlet	35 psi (241 kPa)
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Media Temp - Steam	32°F to 280°F (0°C to 138°C)
Maximum ΔP:	
Water	25 psi (172 kPa)
Steam	15 psi (103 kPa)
Rangeability	50:1



## Spring Return Actuators



ACTUATOR PART #	NV F24-MFT US	NV F24-MFT-E US	AF24 US	AFX24-MFT-X1	2*AF24 US	2*AFX24-MFT-X1
Control type	Proportional/MFT	Proportional/MFT	On/Off	Proportional/MFT	On/Off	Proportional/MFT
Manual override	•	•	•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
	spring	30 seconds	30 seconds	20 seconds	<20 seconds	<20 seconds
Noise level	<35 dB(A)	<35 dB(A)	≤45 dB(A)	≤40 dB(A)	≤45 dB(A)	≤40 dB(A)

## ELECTRICAL CONNECTION:

3 ft. cable, ½" conduit fitting	•	•	•	•	•	•
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## Valve Nominal Size

Globe Valve Model #	Cv Rating	IN	Flanged Type	Close-Off ANSI III
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## G6...C 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS

G665C	65	2½	ANSI 125	150	\$2,234.00	\$2,234.00	\$2,376.00	\$2,554.00	
G680C	90	3	ANSI 125	136	\$2,464.00	\$2,464.00			
G680C	90	3	ANSI 125	150			\$2,536.00	\$2,788.00	
G6100C	170	4	ANSI 125	132					\$3,354.00
G6100C	170	4	ANSI 125	150					\$3,838.00
G6125C	263	5	ANSI 125	87					\$4,584.00
G6125C	263	5	ANSI 125	150					\$4,680.00
G6150C	344	6	ANSI 125	50					\$5,074.00
G6150C	344	6	ANSI 125	105					\$5,566.00

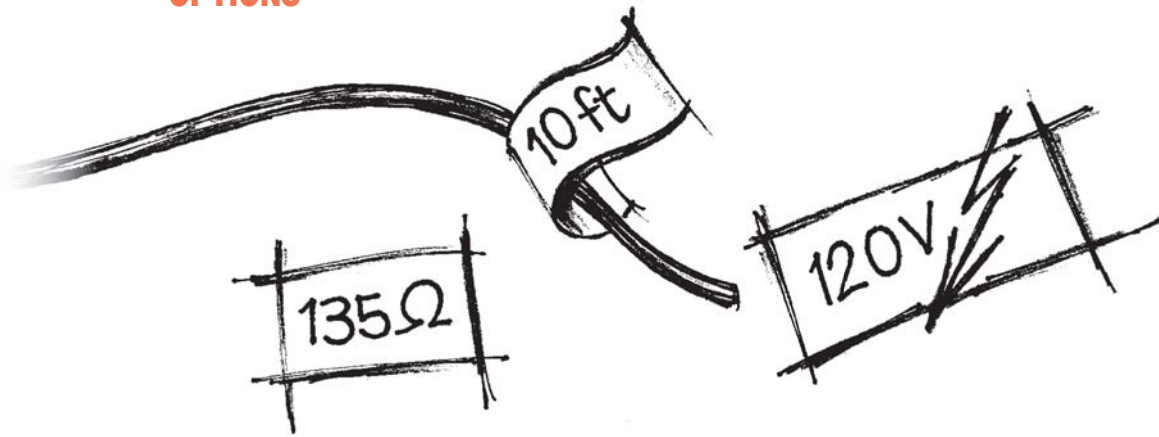
## MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		AF DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price	
	P-Code	N-Code						
V-10001	N01		P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02		P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29		P-40002	J02	On/Off	150	2-10 VDC	No Charge

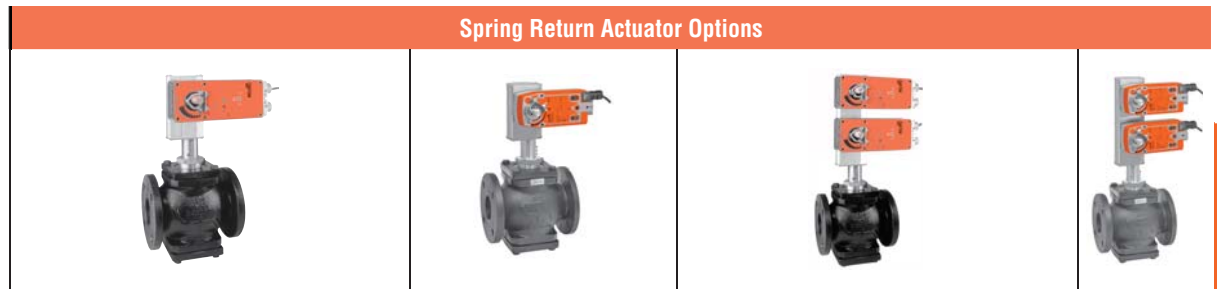
Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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### Spring Return Actuator Options



GLOBE VALVES

OPTIONS	AF24-S US	AF120 US	AF120-S US	AFX24-MFT-S-X1	AFX24-MFT95-X1	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AFX24-MFT-S-X1
120 VAC power supply		•	•	•			•	•	•
Built-in auxiliary switch	•		•	•		•		•	•
0-135 Ω control					•				
<b>Globe Valve Model #      C<sub>v</sub> Rating</b>									
<b>G6...C 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>									
G665C      65	\$2,464.00	\$2,432.00	\$2,516.00	\$2,640.00	\$2,574.00				
G680C      90	\$2,700.00	\$2,666.00	\$2,756.00	\$2,868.00	\$2,808.00				
G6100C      170						\$3,442.00	\$3,358.00	\$3,550.00	\$3,422.00
G6125C      263						\$4,672.00	\$4,694.00	\$4,780.00	\$4,906.00
G6150C      344						\$5,162.00	\$5,182.00	\$5,268.00	\$5,306.00

Note: (-S) models with tandem actuators only have one switch.

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# G6...C Series Flanged Globe Valve, Electronic Fail-Safe Actuators

2-way Pressure Compensated Valve with Bronze Trim – ANSI 125 Flanged



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	stem up - open A to AB
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	125 lb flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034 kPa) @ 250°F
Max Steam Inlet	35 psi (241 kPa)
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Media Temp - Steam	32°F to 280°F (0°C to 138°C)
Maximum ΔP:	
Water	25 psi (172 kPa)
Steam	15 psi (103 kPa)
Rangeability	50:1



## Electronic Fail-Safe Actuators



ACTUATOR PART #		GKB24-3-X1	GKX24-MFT-X1
Control type		On/Off, Floating Point	Proportional/MFT
Manual override		•	•
Running time	motor	150 seconds	150 seconds
	fail-safe	35 seconds	35 seconds
Noise level		<45 dB(A)	<45 dB(A)

## ELECTRICAL CONNECTION:

3 ft, cable, ½" conduit fitting	•	•
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Globe Valve Model #	Cv Rating	Valve Nominal Size		Close-Off ANSI III		
		Inches	Flanged Type			
<b>G6...C 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS</b>						
G6100C	170	4	ANSI 125	150	\$3,672.00	\$4,050.00
G6125C	263	5	ANSI 125	150	\$4,514.00	\$4,892.00
G6150C	344	6	ANSI 125	150	\$5,400.00	\$5,778.00

## MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		GM DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price
	V-Code	P-Code					
V-10001	N01	P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

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### Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	stem up - open A to AB
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	125 lb flanged
Materials:	
Body	iron
Seat	stainless steel
Stem	stainless steel
Plug	stainless steel
Packing	TFE V-ring
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034 kPa) @ 250°F
Max Steam Inlet	G6S Rotary 100 psi (680 kPa)
	G6S NV 50 psi (345 kPa)
Media Temp - Water	32°F to 350°F (0°C to 176°C)
	32°F to 338°F (0°C to 170°C) Rotary
Steam	20°F to 298°F (-7°C to 148°C) NV
Maximum ΔP:	
Water	50 psi (345 kPa)
Steam	50 psi (345 kPa)
Rangeability	50:1



### Non-Spring Return Actuators



ACTUATOR PART #	NV24-3 US	NV24-MFT US	GMB24-3-X1	GMX24-MFT-X1
Control type	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•
Running time	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<35 dB(A)	<35 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>				
3 ft. cable, ½" conduit fitting	•	•	•	•
<b>Valve Nominal Size</b>				
<b>Globe Valve Model #</b>	<b>Cv Rating</b>	<b>Inches</b>	<b>Flanged Type</b>	<b>Close-Off ANSI III</b>

G6...CS 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS					
G665CS	65	2½	ANSI 125	150	\$2,964.00
G680CS	90	3	ANSI 125	150	\$3,452.00
G6100CS	170	4	ANSI 125	150	\$4,588.00
G6125CS	263	5	ANSI 125	150	\$6,358.00
G6150CS	344	6	ANSI 125	150	\$6,812.00

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		GM DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price
V-10001	N01	P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

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GLOBE VALVES



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GLOBE VALVES

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### Valve Specifications

Service	chilled or hot water, 60% glycol, steam		
Flow characteristic	linear		
Action	stem up - open A to AB		
Sizes	2½", 3", 4", 5", 6"		
Type of end fitting	125 lb flanged		
Materials:			
Body	iron		
Seat	stainless steel		
Stem	stainless steel		
Plug	stainless steel		
Packing	TFE V-ring		
ANSI Class	ANSI 125		
Leakage	Class III		
Max Water Inlet	150 psi (1034 kPa) @ 250°F		
Max Steam Inlet	G6S Rotary	100 psi (680 kPa)	
	G6S NV	50 psi (345 kPa)	
Media Temp - Water	32°F to 350°F (0°C to 176°C)		
	Steam	32°F to 338°F (0°C to 170°C) Rotary	
	20°F to 298°F (-7°C to 148°C) NV		
Maximum ΔP:			
Water	50 psi (345 kPa)		
Steam	50 psi (345 kPa)		
Rangeability	50:1		



### Non-Spring Return Actuators



ACTUATOR PART #	NV24-3 US	NV24-MFT US	GMB24-3-X1	GMX24-MFT-X1
Control type	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•
Running time	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<35 dB(A)	<35 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>				
3 ft, cable, ½" conduit fitting	•	•	•	•
	<b>Valve Nominal Size</b>			
<b>Globe Valve Model #</b>	<b>Cv Rating</b>	<b>Inches</b>	<b>Flanged Type</b>	<b>Close-Off ANSI III</b>

G6...LCS 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS								
G665LCS	65	2½	ANSI 125	150	\$2,964.00	\$3,032.00		
G680LCS	90	3	ANSI 125	150	\$3,452.00	\$3,520.00		
G6100LCS	170	4	ANSI 125	150			\$4,588.00	\$4,780.00
G6125LCS	263	5	ANSI 125	150			\$6,358.00	\$6,558.00
G6150LCS	344	6	ANSI 125	150			\$6,812.00	\$7,008.00

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		GM DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price
V-10001	N01	P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

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GLOBE VALVES

# G6...CS Series Flanged Globe Valve, Spring Return Actuators

2-way Pressure Compensated Valve with Stainless Steel Trim – ANSI 125 Flanged



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam	
Flow characteristic	equal percentage	
Action	stem up - open A to AB	
Sizes	2½", 3", 4", 5", 6"	
Type of end fitting	125 lb flanged	
Materials:		
Body	iron	
Seat	stainless steel	
Stem	stainless steel	
Plug	stainless steel	
Packing	TFE V-ring	
ANSI Class	ANSI 125	
Leakage	Class III	
Max Water Inlet	150 psi (1034 kPa) @ 250°F	
Max Steam Inlet	G6S Rotary	100 psi (680 kPa)
	G6S NV	50 psi (345 kPa)
Media Temp - Water	32°F to 350°F (0°C to 176°C)	
	Steam	32°F to 338°F (0°C to 170°C) Rotary 20°F to 298°F (-7°C to 148°C) NV
Maximum ΔP:		
Water	50 psi (345 kPa)	
Steam	50 psi (345 kPa)	
Rangeability	50:1	



## Spring Return Actuators



ACTUATOR PART #	NVF24-MFT US	NVF24-MFT-E US	AF24 US	AFX24-MFT-X1	2*AF24 US	2*AFX24-MFT-X1
Control type	Proportional/MFT	Proportional/MFT	On/Off	Proportional/MFT	On/Off	Proportional/MFT
Manual override	•	•	•	•	•	•
Running time	motor	30 seconds	30 seconds	150 seconds	150 seconds	150 seconds
	spring	30 seconds	30 seconds	<20 seconds	<20 seconds	<20 seconds
Noise level	<35 db(A)	<35 db(A)	≤45 dB(A)	≤40 dB(A)	≤45 dB(A)	≤40 dB(A)

## ELECTRICAL CONNECTION:

3 ft. cable, ½" conduit fitting	•	•	•	•	•	•
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Globe Valve Model	Cv Rating	Valve Nominal Size		Close-Off ANSI III						
		Inches	Flanged Type							
<b>G6...CS 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>										
G665CS	65	2½	ANSI 125	150	\$3,122.00	\$3,122.00	\$3,196.00	\$3,368.00		
G680CS	90	3	ANSI 125	136	\$3,610.00	\$3,610.00				
G680CS	90	3	ANSI 125	150			\$3,684.00	\$3,954.00		
G6100CS	170	4	ANSI 125	132					\$5,066.00	
G6100CS	170	4	ANSI 125	150						\$5,146.00
G6125CS	263	5	ANSI 125	87					\$6,734.00	
G6125CS	263	5	ANSI 125	150						\$6,970.00
G6150CS	344	6	ANSI 125	50					\$7,048.00	
G6150CS	344	6	ANSI 125	105						\$7,190.00

## MULTI-FUNCTION TECHNOLOGY

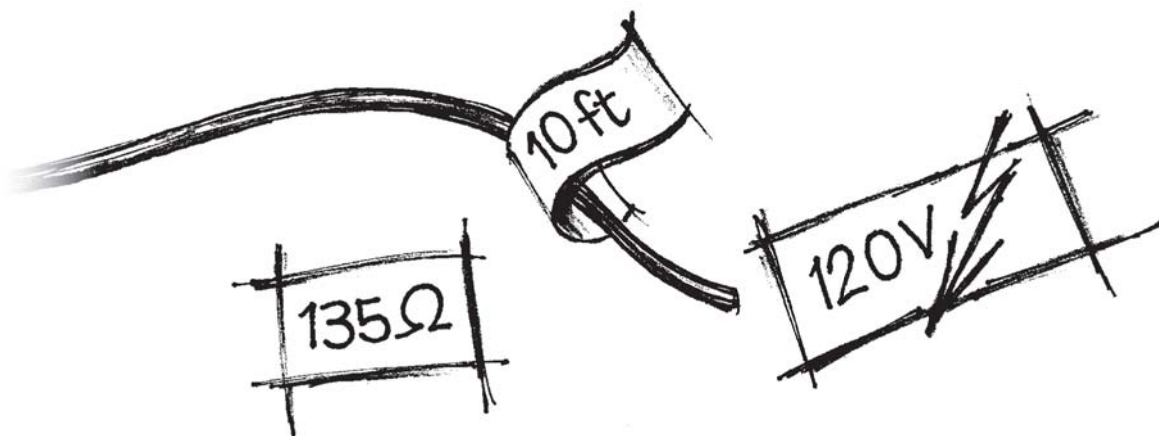
NV DESCRIPTION	P-CODES		AF DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price
	P-Code	AF-Code					
V-10001	N01	P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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### Spring Return Actuator Options



GLOBE VALVES

OPTIONS	AF24-S US	AF120 US	AF120-S US	AFX24-MFT-S-X1	AFX24-MFT95-X1	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AFX24-MFT-S-X1	
120 VAC power supply		•	•	•			•	•	•	
Built-in auxiliary switch	•		•	•		•		•	•	
0-135 Ω control					•					
<b>Globe Valve Model #</b>										
<b>C<sub>v</sub> Rating</b>										
<b>G6...CS 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>										
G665CS	65	\$3,380.00	\$3,346.00	\$3,432.00	\$3,554.00	\$3,388.00				
G680CS	90	\$3,880.00	\$3,850.00	\$3,936.00	\$4,058.00	\$4,078.00				
G6100CS	170						\$5,306.00	\$5,326.00	\$5,412.00	\$5,390.00
G6125CS	263						\$7,022.00	\$7,044.00	\$7,128.00	\$7,266.00
G6150CS	344						\$7,344.00	\$7,370.00	\$7,454.00	\$7,494.00

Note: (-S) models with tandem actuators only have one switch.

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GLOBE VALVES

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### Valve Specifications

Service	chilled or hot water, 60% glycol, steam		
Flow characteristic	equal percentage		
Action	stem up - open A to AB		
Sizes	2½", 3", 4", 5", 6"		
Type of end fitting	125 lb flanged		
Materials:			
Body	iron		
Seat	stainless steel		
Stem	stainless steel		
Plug	stainless steel		
Packing	TFE V-ring		
ANSI Class	ANSI 125		
Leakage	Class III		
Max Water Inlet	150 psi (1034 kPa) @ 250°F		
Max Steam Inlet	G6S Rotary	100 psi (680 kPa)	
	G6S NV	50 psi (345 kPa)	
Media Temp - Water	32°F to 350°F (0°C to 176°C)		
	Steam	32°F to 338°F (0°C to 170°C) Rotary 20°F to 298°F (-7°C to 148°C) NV	
Maximum ΔP:			
Water	50 psi (345 kPa)		
Steam	50 psi (345 kPa)		
Rangeability	50:1		



### Electronic Fail-Safe Actuators



ACTUATOR PART #		GKB24-3-X1	GKX24-MFT-X1			
Control type		On/Off, Floating Point	Proportional/MFT			
Manual override		•	•			
Running time	motor	150 seconds	150 seconds			
	fail-safe	35 seconds	35 seconds			
Noise level		<45 dB(A)	<45 dB(A)			
<b>ELECTRICAL CONNECTION:</b>						
3 ft. cable, ½" conduit fitting		•	•			
<b>Valve Nominal Size</b>						
Globe Valve Model	C <sub>v</sub> Rating	Inches	Flanged Type	Close-Off ANSI III		
<b>G6...CS 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>						
G6100CS	170	4	ANSI 125	150	\$4,980.00	\$5,358.00
G6125CS	263	5	ANSI 125	150	\$6,804.00	\$7,182.00
G6150CS	344	6	ANSI 125	150	\$7,024.00	\$7,402.00

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES			AF DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price
	V	N	P					
V-10001	N01	P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge	
V-10002	N02	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge	
V-10028	N1E	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge	
V-10063	N1K	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge	
V-10064	N1L	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge	
V-20002	N1U	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge	
V-20003	N1V	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge	
V-30001	N24	P-30001	F01	Floating Point	150	2-10 VDC	No Charge	
V-40002	N29	P-40002	J02	On/Off	150	2-10 VDC	No Charge	

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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GLOBE VALVES

# G6...LCS Series Flanged Globe Valve, Spring Return Actuators

2-way Pressure Compensated Valve with Stainless Steel Trim – ANSI 125 Flanged



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam	
Flow characteristic	linear	
Action	stem up - open A to AB	
Sizes	2½", 3", 4", 5", 6"	
Type of end fitting	125 lb flanged	
Materials:		
Body	iron	
Seat	stainless steel	
Stem	stainless steel	
Plug	stainless steel	
Packing	TFE V-ring	
ANSI Class	ANSI 125	
Leakage	Class III	
Max Water Inlet	150 psi (1034 kPa) @ 250°F	
Max Steam Inlet	G6S Rotary	100 psi (680 kPa)
	G6S NV	50 psi (345 kPa)
Media Temp - Water	32°F to 350°F (0°C to 176°C)	
	Steam	32°F to 338°F (0°C to 170°C) Rotary 20°F to 298°F (-7°C to 148°C) NV
Maximum ΔP:		
Water	50 psi (345 kPa)	
Steam	50 psi (345 kPa)	
Rangeability	50:1	



## Spring Return Actuators



FAIL OPEN A-AB

FAIL CLOSED A-AB

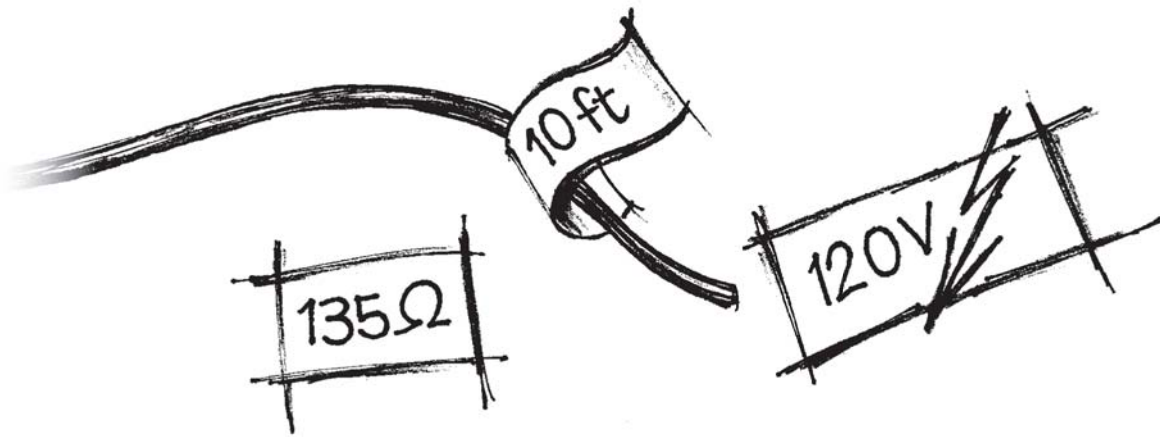
ACTUATOR PART #	NVF24-MFT US	NVF24-MFT-E US	AF24 US	AFX24-MFT-X1	2*AF24 US	2*AFX24-MFT-X1
Control type	Proportional/MFT	Proportional/MFT	On/Off	Proportional/MFT	On/Off	Proportional/MFT
Manual override	•	•	•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
	spring	30 seconds	30 seconds	<20 seconds	<20 seconds	<20 seconds
Noise level	<35 db(A)	<35 db(A)	≤45 db(A)	≤40 db(A)	≤45 db(A)	≤40 db(A)
<b>ELECTRICAL CONNECTION:</b>						
3 ft. cable, ½" conduit fitting	•	•	•	•	•	•
<b>Valve Nominal Size</b>						
<b>Globe Valve Model</b>	<b>C<sub>v</sub> Rating</b>	<b>Inches</b>	<b>Flanged Type</b>	<b>Close-Off ANSI III</b>		
<b>G6...LCS 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>						
G665LCS	65	2½	ANSI 125	150	\$3,122.00	\$3,122.00
G680LCS	90	3	ANSI 125	136	\$3,610.00	\$3,610.00
G680LCS	90	3	ANSI 125	150		\$3,684.00
G6100LCS	170	4	ANSI 125	132		\$5,066.00
G6100LCS	170	4	ANSI 125	150		\$5,146.00
G6125LCS	263	5	ANSI 125	87		\$6,734.00
G6125LCS	263	5	ANSI 125	150		\$6,970.00
G6150LCS	344	6	ANSI 125	50		\$7,048.00
G6150LCS	344	6	ANSI 125	105		\$7,190.00

## MULTI-FUNCTION TECHNOLOGY

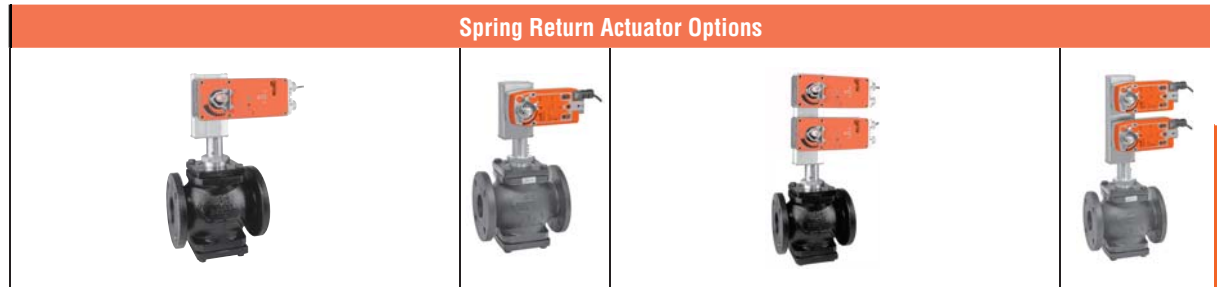
P-CODES		Control Input	Running Time	Built-in Feedback	List Price			
NV DESCRIPTION	V-10001	N01	P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
	V-10002	N02	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	V-10028	N1E	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	V-10063	N1K	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	V-10064	N1L	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	V-20002	N1U	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	V-20003	N1V	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	V-30001	N24	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	V-40002	N29	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed. V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

GLOBE VALVES



### Spring Return Actuator Options



OPTIONS	AF24-S US	AF120 US	AF120-S US	AFX24-MFT-S-X1	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AFX24-MFT-S-X1	
120 VAC power supply		•	•			•	•		
Built-in auxiliary switch	•		•	•	•		•	•	
0-135 Ω control									
<b>Globe Valve Model #</b>									
<b>C<sub>v</sub> Rating</b>									
<b>G6...LCS 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>									
G665LCS	65	\$3,380.00	\$3,346.00	\$3,432.00	\$3,554.00				
G680LCS	90	\$3,880.00	\$3,850.00	\$3,936.00	\$4,058.00				
G6100LCS	170					\$5,306.00	\$5,326.00	\$5,412.00	
G6125LCS	263					\$7,022.00	\$7,044.00	\$7,128.00	
G6150LCS	344					\$7,344.00	\$7,370.00	\$7,454.00	

Note: (-S) models with tandem actuators only have one switch.

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GLOBE VALVES



# G6...LCS Series Flanged Globe Valve, Electronic Fail-Safe Actuators

2-way Pressure Compensated Valve with Stainless Steel Trim – ANSI 125 Flanged



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam	
Flow characteristic	linear	
Action	stem up - open A to AB	
Sizes	2½", 3", 4", 5", 6"	
Type of end fitting	125 lb flanged	
Materials:		
Body	iron	
Seat	stainless steel	
Stem	stainless steel	
Plug	stainless steel	
Packing	TFE V-ring	
ANSI Class	ANSI 125	
Leakage	Class III	
Max Water Inlet	150 psi (1034 kPa) @ 250°F	
Max Steam Inlet	G6S Rotary	100 psi (680 kPa)
	G6S NV	50 psi (345 kPa)
Media Temp - Water	32°F to 350°F (0°C to 176°C)	
	Steam	32°F to 338°F (0°C to 170°C) Rotary 20°F to 298°F (-7°C to 148°C) NV
Maximum ΔP:		
Water	50 psi (345 kPa)	
Steam	50 psi (345 kPa)	
Rangeability	50:1	



## Electronic Fail-Safe Actuators



ACTUATOR PART #		GKB24-3-X1	GKX24-MFT-X1
Control type		On/Off, Floating Point	Proportional/MFT
Manual override		•	•
Running time	motor	150 seconds	150 seconds
	fail-safe	35 seconds	35 seconds
Noise level		≤45 dB(A)	≤45 dB(A)
<b>ELECTRICAL CONNECTION:</b>			
3 ft. cable, ½" conduit fitting		•	•
<b>Valve Nominal Size</b>			
Globe Valve Model	C <sub>v</sub> Rating	Inches Flanged Type	Close-Off ANSI III
<b>G6...LCS 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>			
G6100LCS	170	4 ANSI 125	150
G6125LCS	263	5 ANSI 125	150
G6150LCS	344	6 ANSI 125	150
			\$4,980.00
			\$6,804.00
			\$7,024.00
			\$5,358.00
			\$7,182.00
			\$7,402.00

## MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		AF DESCRIPTION	Control Input		Running Time	Built-in Feedback	List Price
	V	N		W	F	seconds	VDC	
V-10001	N01		P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02		P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29		P-40002	J02	On/Off	150	2-10 VDC	No Charge

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed. V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

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GLOBE VALVES

### Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	stem up - Open A to AB
Sizes	2½", 3"
Type of end fitting	250 lb flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 250
Leakage	Class III
Max Water Inlet	250 psi (1724 kPa) @ 300°F
Max Steam Inlet	35 psi (241 kPa)
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Steam	32°F to 280°F (0°C to 138°C)
Maximum ΔP:	
Water	25 psi (172 kPa)
Steam	15 psi (103 kPa)
Rangeability	50:1



### Non-Spring Return Actuators



ACTUATOR PART #	NVG24-MFT US	GMB24-3-X1	GMX24-MFT-X1	2*GMB24-3-X1	2*GMX24-MFT-X1
Control type	Proportional / MFT	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•	•
Running time	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<35 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)

### ELECTRICAL CONNECTION:

3 ft, cable, ½" conduit fitting	•	•	•	•	•
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Globe Valve Model #	Cv Rating	Valve Nominal Size		
		Inches	Flanged Type	Close-Off ANSI III

### G6...-250 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

Globe Valve Model #	Cv Rating	Inches	Flanged Type	Close-Off ANSI III	NVG24-MFT US	GMB24-3-X1	GMX24-MFT-X1	2*GMB24-3-X1	2*GMX24-MFT-X1
G665-250	65	2½	ANSI 250	62	\$2,156.00				
G680-250	90	3	ANSI 250	42	\$2,484.00				
G665-250	65	2½	ANSI 250	113		\$2,376.00	\$2,624.00		
G680-250	90	3	ANSI 250	78		\$2,696.00	\$2,942.00		
G665-250	65	2½	ANSI 250	179				\$2,860.00	\$3,354.00
G680-250	90	3	ANSI 250	121				\$3,184.00	\$3,674.00

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		GM DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price		
	P-Code	NV-Code							
NV DESCRIPTION	V-10001	N01	GM DESCRIPTION	P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
	V-10002	N02		P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	V-10028	N1E		P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	V-10063	N1K		P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	V-10064	N1L		P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	V-20002	N1U		P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	V-20003	N1V		P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	V-30001	N24		P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29	P-40002	J02	On/Off	150	2-10 VDC	No Charge		

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost. 2\* designates tandem.

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GLOBE VALVES

# G6...-250 Series Flanged Globe Valve, Spring Return Actuators

2-way Valve with Bronze Trim – ANSI 250 Flanged



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	stem up - Open A to AB
Sizes	2½", 3"
Type of end fitting	250 lb flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 250
Leakage	Class III
Max Water Inlet	250 psi (1724 kPa) @ 300°F
Max Steam Inlet	35 psi (241 kPa)
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Steam	32°F to 280°F (0°C to 138°C)
Maximum ΔP:	
Water	25 psi (172 kPa)
Steam	15 psi (103 kPa)
Rangeability	50:1



## Spring Return Actuators



ACTUATOR PART #	AF24 US	AFX24-MFT-X1	2*AF24 US	2*AFX24-MFT-X1
Control type	On/Off	Proportional / MFT	On/Off	Proportional / MFT
Manual override	•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds
	spring	<20 seconds	<20 seconds	<20 seconds
Noise level	≤45 dB(A)	≤40 dB(A)	≤45 dB(A)	≤40 dB(A)

## ELECTRICAL CONNECTION:

3 ft. cable, ½" conduit fitting

Globe Valve Model #	Cv Rating	Valve Nominal Size		
		Inches	Flanged Type	Close-Off ANSI III
G665-250	65	2½	ANSI 250	36
G665-250	65	2½	ANSI 250	51
G665-250	65	2½	ANSI 250	59
G665-250	65	2½	ANSI 250	82
G680-250	90	3	ANSI 250	24
G680-250	90	3	ANSI 250	34
G680-250	90	3	ANSI 250	40
G680-250	90	3	ANSI 250	56

## G6...-250 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS

G665-250	65	2½	ANSI 250	36	\$2,364.00		
G665-250	65	2½	ANSI 250	51		\$2,558.00	
G665-250	65	2½	ANSI 250	59			\$2,854.00
G665-250	65	2½	ANSI 250	82			\$3,196.00
G680-250	90	3	ANSI 250	24	\$2,712.00		
G680-250	90	3	ANSI 250	34		\$2,882.00	
G680-250	90	3	ANSI 250	40			\$3,196.00
G680-250	90	3	ANSI 250	56			\$3,516.00

Note: For fail safe operation where AF actuator is not available or close-off is too low, use GM actuator with NSV battery backup.

## MULTI-FUNCTION TECHNOLOGY

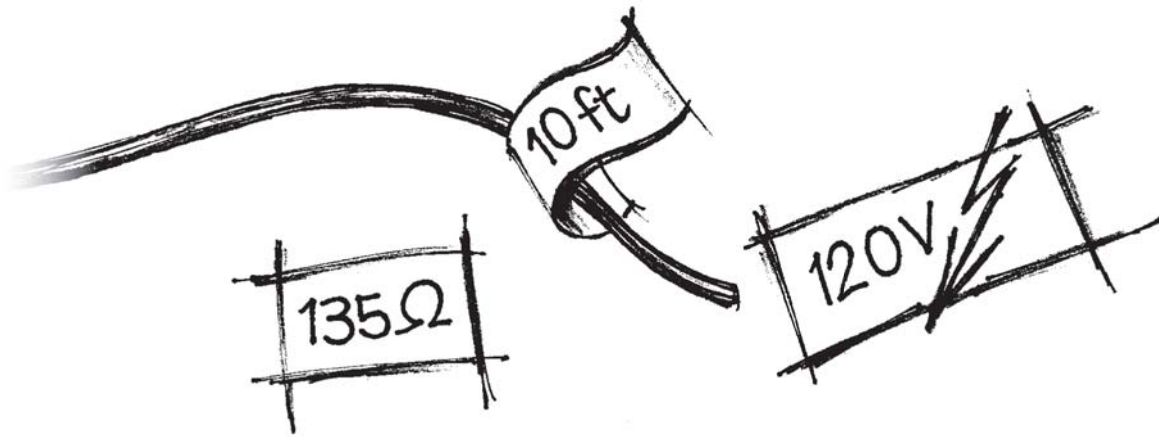
AF DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
		P-10001	A01	2-10 VDC	150	2-10 VDC
	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Most popular configurations available at no additional cost.

2\* designates tandem.

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**Spring Return Actuator Options**



OPTIONS	AF24-S US	AF120-S US	AFX24-MFT-S-X1	AFX24-MFT95-X1	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AFX24-MFT-S-X1
120 VAC power supply		•				•	•	
Built-in auxiliary switch	•	•	•		•		•	•
0-135 Ω control			•					
<b>Globe Valve</b>								
<b>Model #</b>								
<b>C<sub>v</sub> Rating</b>								

**G6...-250 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS**

Globe Valve Model #	C <sub>v</sub> Rating	AF24-S US	AF120-S US	AFX24-MFT-S-X1	AFX24-MFT95-X1	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AFX24-MFT-S-X1
G665-250	65	\$2,450.00	\$2,504.00	\$2,644.00	\$2,578.00	\$2,908.00	\$2,964.00	\$3,048.00	\$3,282.00
G680-250	90	\$2,798.00	\$2,854.00	\$2,972.00	\$3,332.00	\$3,282.00	\$3,304.00	\$3,390.00	\$3,536.00

Note: (-S) models with tandem actuators only have one switch.

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GLOBE VALVES

# G6...-250 Series Flanged Globe Valve, Electronic Fail-Safe Actuators

2-way Valve with Bronze Trim – ANSI 250 Flanged



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	stem up - Open A to AB
Sizes	2½", 3"
Type of end fitting	250 lb flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 250
Leakage	Class III
Max Water Inlet	250 psi (1724 kPa) @ 300°F
Max Steam Inlet	35 psi (241 kPa)
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Steam	32°F to 280°F (0°C to 138°C)
Maximum ΔP:	
Water	25 psi (172 kPa)
Steam	15 psi (103 kPa)
Rangeability	50:1



## Electronic Fail-Safe Actuators



ACTUATOR PART #	GKB24-3-X1	GKX24-MFT-X1	2* GKX24-MFT-X1
Control type	On/Off, Floating Point	Proportional/MFT	Proportional/MFT
Manual override			•
Running time	motor	150 seconds	150 seconds
	fail-safe	35 seconds	35 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)

## ELECTRICAL CONNECTION:

3 ft, cable, ½" conduit fitting	•	•	•
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Globe Valve Model #	Cv Rating	Valve Nominal Size			Close-Off ANSI III			
		Inches	Flanged Type					
<b>G6...-250 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS</b>								
G665-250	65	2½	ANSI 250	113		\$3,030.00	\$3,408.00	
G665-250	65	2½	ANSI 250	176				\$4,824.00
G680-250	90	3	ANSI 250	78		\$3,350.00	\$3,728.00	
G680-250	90	3	ANSI 250	121				\$5,702.00

## MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		GM DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price	
V-10001	N01		P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02		P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29		P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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### Valve Specifications

Service	chilled or hot water, 60% glycol, steam	
Flow characteristic	equal percentage	
Action	stem up - open A to AB	
Sizes	2½", 3"	
Type of end fitting	250 lb flanged	
Materials:		
Body	iron	
Seat	stainless steel	
Stem	stainless steel	
Plug	stainless steel	
Packing	TFE V-ring	
ANSI Class	ANSI 250	
Leakage	Class III	
Max Water Inlet	250 psi (1724 kPa) @ 350°F	
Max Steam Inlet	G6S Rotary	100 psi (680 kPa)
	G6S NV	50 psi (345 kPa)
Media Temp - Water	32°F to 350°F (0°C to 176°C)	
	Steam	32°F to 338°F (0°C to 170°C) Rotary 20°F to 298°F (-7°C to 148°C) NV
Maximum ΔP:		
Water	50 psi (345 kPa)	
Steam	50 psi (345 kPa)	
Rangeability	50:1	



### Non-Spring Return Actuators



ACTUATOR PART #	NVG24-MFT US	GMB24-3-X1	GMX24-MFT-X1	2*GMB24-3-X1	2*GMX24-MFT-X1
Control type	Proportional / MFT	On/Off, Floating Point	Proportional / MFT	On/Off, Floating Point	Proportional / MFT
Manual override	•	•	•	•	•
Running time	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<35 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)

### ELECTRICAL CONNECTION:

3 ft. cable, ½" conduit fitting	•	•	•	•	•
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Globe Valve Model #	Cv Rating	Valve Nominal Size			Close-Off ANSI III
		Inches	Flanged Type		

### G6...S-250 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G665S-250	65	2½	ANSI 250	62	\$2,498.00			
G680S-250	90	3	ANSI 250	42	\$3,048.00			
G665S-250	65	2½	ANSI 250	113		\$2,664.00	\$2,912.00	
G680S-250	90	3	ANSI 250	78		\$3,196.00	\$3,454.00	
G665S-250	65	2½	ANSI 250	179				\$3,176.00
G680S-250	90	3	ANSI 250	121				\$3,722.00

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES			GM DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price	
NV DESCRIPTION	V-10001	N01	GM DESCRIPTION	P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
	V-10002	N02		P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	V-10028	N1E		P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	V-10063	N1K		P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	V-10064	N1L		P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	V-20002	N1U		P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	V-20003	N1V		P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	V-30001	N24		P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	V-40002	N29		P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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GLOBE VALVES

# G6...S-250 Series Flanged Globe Valve, Spring Return Actuators

2-way Valve with Stainless Steel Trim – ANSI 250 Flanged



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	equal percentage
Action	stem up - open A to AB
Sizes	2½", 3"
Type of end fitting	250 lb flanged
Materials:	
Body	iron
Seat	stainless steel
Stem	stainless steel
Plug	stainless steel
Packing	TFE V-ring
ANSI Class	ANSI 250
Leakage	Class III
Max Water Inlet	250 psi (1724 kPa) @ 350°F
Max Steam Inlet	100 psi (680 kPa)
Media Temp - Water	32°F to 350°F (0°C to 176°C)
Media Temp - Steam	32°F to 338°F (0°C to 170°C)
Maximum ΔP:	
Water	50 psi (345 kPa)
Steam	50 psi (345 kPa)
Rangeability	50:1



## Spring Return Actuators



ACTUATOR PART #		AF24 US	AFX24-MFT-X1	2* AF24 US	2* AFX24-MFT-X1	
Control type		On/Off	Proportional / MFT	On/Off	Proportional / MFT	
Manual override		•	•	•	•	
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds	
	spring	<20 seconds	<20 seconds	<20 seconds	<20 seconds	
Noise level		≤45 dB(A)	≤40 dB(A)	≤45 dB(A)	≤40 dB(A)	
<b>ELECTRICAL CONNECTION:</b>						
3 ft, cable, ½" conduit fitting		•	•	•	•	
<b>Valve Nominal Size</b>						
Globe Valve Model #	Cv Rating	IN	Flanged Type	Close-Off ANSI III		
<b>G6...S-250 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>						
G665S-250	65	2½	ANSI 250	36	\$2,730.00	
G665S-250	65	2½	ANSI 250	51		\$2,934.00
G665S-250	65	2½	ANSI 250	59		\$3,280.00
G665S-250	65	2½	ANSI 250	82		\$3,674.00
G680S-250	90	3	ANSI 250	24	\$3,254.00	
G680S-250	90	3	ANSI 250	34		\$3,312.00
G680S-250	90	3	ANSI 250	40		\$3,674.00
G680S-250	90	3	ANSI 250	56		\$4,074.00

Note: For fail safe operation where AF actuator is not available or close-off is too low, use GM actuator with NSV battery backup.

## MULTI-FUNCTION TECHNOLOGY

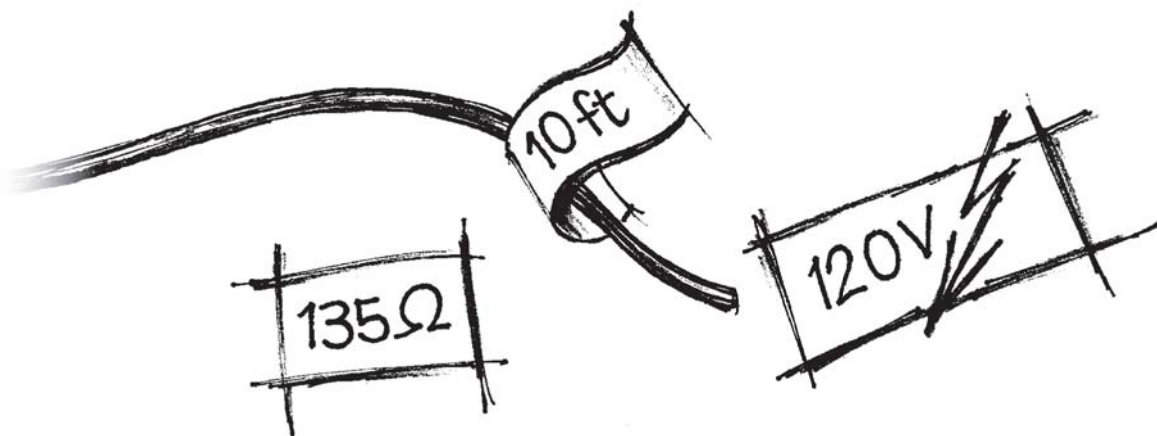
AF DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
		P-10001	A01	2-10 VDC	150	2-10 VDC
	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

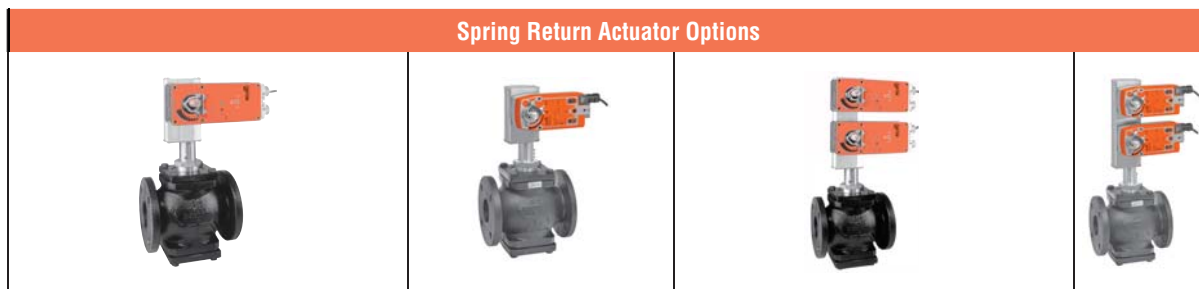
Most popular configurations available at no additional cost.

2\* designates tandem.

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### Spring Return Actuator Options



GLOBE VALVES

OPTIONS	AF24-S US	AF120 US	AF120-S US	AFX24-MFT-S-X1	AFX24-MFT95-X1	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AFX24-MFT-S-X1	
120 VAC power supply		•	•				•	•		
Built-in auxiliary switch	•		•	•		•		•	•	
0-135 Ω control					•					
<b>Globe Valve Model #</b>										
<b>C<sub>v</sub> Rating</b>										
<b>G6...S-250 2-WAY GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>										
G665S-250	65	\$2,818.00	\$2,784.00	\$2,870.00	\$3,020.00	\$2,958.00	\$3,368.00	\$3,386.00	\$3,472.00	\$3,020.00
G680S-250	90	\$3,340.00	\$3,308.00	\$3,286.00	\$3,398.00	\$3,332.00	\$3,760.00	\$3,780.00	\$3,866.00	\$4,160.00

Note: (-S) models with tandem actuators only have one switch.

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# G6...S-250 Series Flanged Globe Valve, Electronic Fail-Safe Actuators

2-way Valve with Stainless Steel Trim – ANSI 250 Flanged



## Valve Specifications

Service	chilled or hot water, 60% glycol, steam	
Flow characteristic	equal percentage	
Action	stem up - open A to AB	
Sizes	2½", 3"	
Type of end fitting	250 lb flanged	
Materials:		
Body	iron	
Seat	stainless steel	
Stem	stainless steel	
Plug	stainless steel	
Packing	TFE V-ring	
ANSI Class	ANSI 250	
Leakage	Class III	
Max Water Inlet	250 psi (1724 kPa) @ 350°F	
Max Steam Inlet	G6S Rotary	100 psi (680 kPa)
	G6S NV	50 psi (345 kPa)
Media Temp - Water	32°F to 350°F (0°C to 176°C)	
	Steam	32°F to 338°F (0°C to 170°C) Rotary 20°F to 298°F (-7°C to 148°C) NV
Maximum ΔP:		
Water	50 psi (345 kPa)	
Steam	50 psi (345 kPa)	
Rangeability	50:1	



## Electronic Fail-Safe Actuators



ACTUATOR PART #		GKB24-3-X1	GKX24-MFT-X1	2* GKX24-MFT-X1
Control type		On/Off, Floating Point	Proportional / MFT	Proportional / MFT
Manual override		•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds
	fail-safe	35 seconds	35 seconds	35 seconds
Noise level		<45 dB(A)	<45 dB(A)	<45 dB(A)

## ELECTRICAL CONNECTION:

3 ft, cable, ½" conduit fitting	•	•	•
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Globe Valve Model #	Cv Rating	Valve Nominal Size		Close-Off ANSI III			
		Inches	Flanged Type				

## G6...S-250 2-WAY GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G665S-250	65	2½	ANSI 250	113	\$3,508.00	\$3,886.00	
G680S-250	90	3	ANSI 250	78	\$3,908.00	\$4,286.00	
G665S-250	65	2½	ANSI 250	176			\$5,302.00
G680S-250	90	3	ANSI 250	121			\$5,702.00

## MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES			GM DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price
	V-Code	N-Code	A-Code					
V-10001	N01		P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02		P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29		P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	mixing: stem up - open B to AB diverting: stem up - open AB to B
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	125 lb. flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034 kPa)
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Maximum ΔP:	
Water	25 psi (172 kPa)
Rangeability	50:1



### Non-Spring Return Actuators



ACTUATOR PART #	NVG24-MFT US	GMB24-3-X1	GMX24-MFT-X1	2*GMB24-3-X1	2*GMX24-MFT-X1
Control type	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•	•
Running time	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<35 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)

### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•
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Globe Valve Model #	C <sub>v</sub> Rating	Valve Nominal Size		Close-off ANSI III					
		Inches	Flanged Type						

### G7...3-WAY MIXING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G765	68	2½	ANSI 125	62	\$1,822.00				
G780	91	3	ANSI 125	42	\$2,022.00				
G765	68	2½	ANSI 125	113		\$2,004.00	\$2,248.00		
G780	91	3	ANSI 125	78		\$2,190.00	\$2,446.00		
G7100	190	4	ANSI 125	19		\$2,644.00	\$2,878.00		
G765	68	2½	ANSI 125	150				\$2,512.00	\$2,932.00
G780	91	3	ANSI 125	121				\$2,704.00	\$3,124.00
G7100	190	4	ANSI 125	31				\$3,162.00	\$3,582.00
G7125	280	5	ANSI 125	19				\$4,772.00	\$5,158.00
G7150	340	6	ANSI 125	13				\$5,370.00	\$5,738.00

### G7...D 3-WAY DIVERTING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G765D	68	2½	ANSI 125	100	\$3,784.00				
G780D	85	3	ANSI 125	100	\$4,326.00				
G7100D	154	4	ANSI 125	100	\$5,004.00				
G765D	68	2½	ANSI 125	100		\$4,114.00	\$4,296.00		
G780D	85	3	ANSI 125	100		\$4,610.00	\$4,824.00		
G7100D	154	4	ANSI 125	100		\$5,320.00	\$5,534.00		
G7125D	195	5	ANSI 125	100		\$6,884.00	\$7,102.00		
G7150D	248	6	ANSI 125	100		\$9,024.00	\$9,258.00		

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		GM DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price	
V-10001	N01		P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02		P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29		P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

# G7...(D) Series Flanged Globe Valve, Spring Return Actuators

3-way Valve with Bronze Trim - ANSI 125 Flanged, Mixing and Diverting



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	mixing: stem up - open B to AB diverting: stem up - open AB to B
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	125 lb. flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034 kPa)
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Maximum ΔP: Water	25 psi (172 kPa)
Rangeability	50:1



## Spring Return Actuators



ACTUATOR PART #		AF24 US	AFX24-MFT-X1	2* AF24 US	2* AFX24-MFT-X1
Control type		On/Off	Proportional/MFT	On/Off	Proportional/MFT
Manual override		•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds
	spring	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Noise level		≤45 dB(A)	≤40 dB(A)	≤45 dB(A)	≤40 dB(A)

## ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•
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Globe Valve Model #	C <sub>v</sub> Rating	Valve Nominal Size Inches	Flanged Type	Close-off ANSI III
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## G7... 3-WAY MIXING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS

G765	68	2½	ANSI 125	36	\$2,004.00		
G765	68	2½	ANSI 125	59		\$2,534.00	
G765	68	2½	ANSI 125	51	\$2,162.00		
G765	68	2½	ANSI 125	82			\$2,842.00
G780	91	3	ANSI 125	24	\$2,190.00		
G780	91	3	ANSI 125	34	\$2,356.00		
G780	91	3	ANSI 125	40		\$2,722.00	
G780	91	3	ANSI 125	56			\$3,054.00

## G7...D 3-WAY DIVERTING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS

G765D	68	2½	ANSI 125	100	\$4,078.00	\$4,256.00	
G780D	85	3	ANSI 125	100	\$4,594.00	\$4,760.00	
G7100D	154	4	ANSI 125	100	\$5,300.00	\$5,480.00	
G7125D	195	5	ANSI 125	100			\$7,330.00
G7150D	248	6	ANSI 125	100			\$9,472.00

For fail safe operation where AF actuator is not available or Close-off is too low, use GM actuator with NSV battery backup.  
2\* designates tandem.

## MULTI-FUNCTION TECHNOLOGY

AF DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
		P-10001	A01	2-10 VDC	150	2-10 VDC
	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

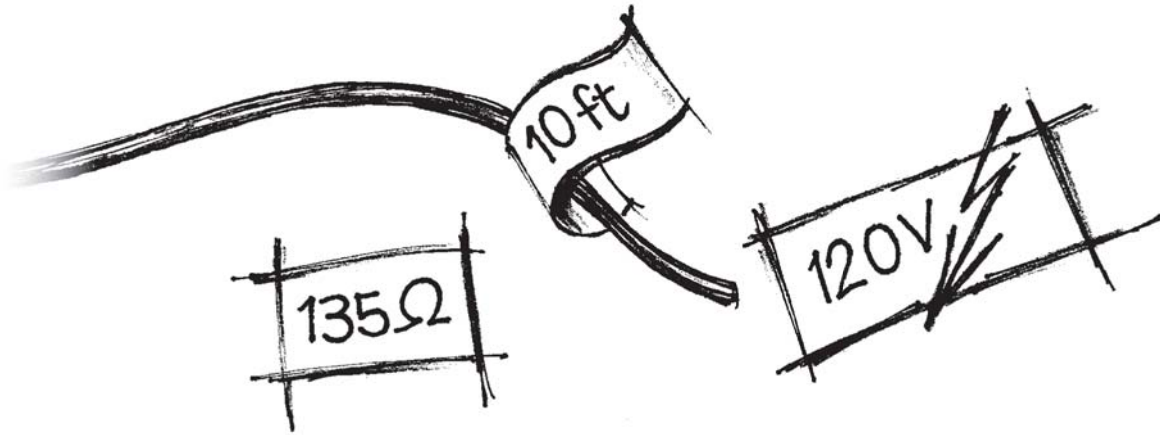
2\* designates tandem.

800-543-9038 USA

866-805-7089 CANADA

203-791-8396 LATIN AMERICA

GLOBE VALVES



### Spring Return Actuator Options



OPTIONS	AF24-S US	AF120 US	AF120-S US	AFX24-MFT-S-X1	AFX24-MFT95-X1	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AFX24-MFT-S-X1	
120 VAC power supply		•	•				•	•		
Built-in auxiliary switch	•		•	•		•		•	•	
0-135 Ω control					•					
<b>Globe Valve Model #</b>										
<b>C<sub>v</sub> Rating</b>										
<b>G7... 3-WAY MIXING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>										
G765	68	\$2,088.00	\$2,056.00	\$2,144.00	\$2,250.00	\$2,184.00	\$2,620.00	\$2,642.00	\$2,726.00	\$2,926.00
G780	91	\$2,278.00	\$2,246.00	\$2,332.00	\$2,442.00	\$2,376.00	\$2,808.00	\$2,832.00	\$2,918.00	\$3,138.00
<b>G7...D 3-WAY DIVERTING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>										
G765D	68	\$4,164.00	\$4,134.00	\$4,220.00	\$4,346.00	\$4,276.00				
G780D	85	\$4,682.00	\$4,650.00	\$4,736.00	\$4,848.00	\$4,782.00				
G7100D	154	\$5,386.00	\$5,352.00	\$5,440.00	\$5,568.00	\$5,504.00				
G7125D	195						\$7,416.00	\$7,440.00	\$7,526.00	\$7,770.00
G7150D	248						\$9,558.00	\$9,580.00	\$9,664.00	\$9,964.00

Note: (-S) models with tandem actuators only have one switch.

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GLOBE VALVES

# G7...(D) Series Flanged Globe Valve, Electronic Fail-Safe Actuators

3-way Valve with Bronze Trim - ANSI 125 Flanged, Mixing and Diverting



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	mixing: stem up - open B to AB diverting: stem up - open AB to B
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	125 lb. flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034 kPa)
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Maximum ΔP:	
Water	25 psi (172 kPa)
Rangeability	50:1



## Electronic Fail-Safe Actuators



ACTUATOR PART #		GKB24-3-X1	GKX24-MFT-X1	2* GKX24-MFT-X1
Control type		On/Off, Floating Point	Proportional/MFT	Proportional/MFT
Manual override		•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds
	fail-safe	35 seconds	35 seconds	35 seconds
Noise level		<45 dB(A)	<45 dB(A)	<45 dB(A)

## ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•
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### Valve Nominal Size

Globe Valve Model #	Cv Rating	Inches	Flanged Type	Close-off ANSI III
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### G7...3-WAY MIXING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G765	68	2½	ANSI 125	113	\$2,676.00	\$3,054.00	
G780	91	3	ANSI 125	78	\$2,888.00	\$3,266.00	
G7100	190	4	ANSI 125	19	\$3,228.00	\$3,672.00	
G765	68	2½	ANSI 125	150			\$4,470.00
G780	91	3	ANSI 125	121			\$4,682.00
G7100	190	4	ANSI 125	31			\$5,170.00
G7125	280	5	ANSI 125	19			\$6,746.00
G7150	340	6	ANSI 125	13			\$7,326.00

### G7...D 3-WAY DIVERTING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G765D	68	2½	ANSI 125	100	\$4,698.00	\$5,090.00	
G780D	85	3	ANSI 125	100	\$5,196.00	\$5,574.00	
G7100D	154	4	ANSI 125	100	\$5,904.00	\$6,328.00	
G7125D	195	5	ANSI 125	100	\$7,518.00	\$7,896.00	
G7150D	248	6	ANSI 125	100	\$9,698.00	\$10,076.00	

## MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		GM DESCRIPTION	Control Input		Running Time	Built-in Feedback	List Price
V-10001	N01		P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02		P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29		P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	mixing: stem up - open B to AB diverting: stem up - open AB to B
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	125 lb. flanged
Materials:	
Body	iron
Seat	stainless steel
Stem	stainless steel
Plug	stainless steel
Packing	TFE V-ring
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034 kPa) @ 250°F
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Maximum ΔP:	
Water	50 psi (340 kPa)
Rangeability	50:1



### Non-Spring Return Actuators



ACTUATOR PART #	NVG24-MFT US	GMB24-3-X1	GMX24-MFT-X1	2*GMB24-3-X1	2*GMX24-MFT-X1
Control type	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•	•
Running time	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<35 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)

### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•
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Valve Nominal Size				
Globe Valve Model #	C <sub>v</sub> Rating	Inches	Flanged Type	Close-off ANSI III

### G7...S 3-WAY MIXING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G765S	68	2½	ANSI 125	62	\$2,800.00			
G780S	91	3	ANSI 125	42	\$3,108.00			
G765S	68	2½	ANSI 125	113		\$2,658.00	\$2,888.00	
G780S	91	3	ANSI 125	78		\$3,146.00	\$3,396.00	
G7100S	190	4	ANSI 125	19		\$3,770.00	\$4,018.00	
G765S	68	2½	ANSI 125	150				\$3,146.00
G780S	91	3	ANSI 125	121				\$3,650.00
G7100S	190	4	ANSI 125	31				\$4,290.00
G7125S	280	5	ANSI 125	19				\$6,430.00
G7150S	340	6	ANSI 125	13				\$7,920.00

### G7...DS 3-WAY DIVERTING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G765DS	68	2½	ANSI 125	100	\$5,730.00			
G780DS	85	3	ANSI 125	100	\$6,554.00			
G7100DS	154	4	ANSI 125	100	\$7,660.00			
G765DS	68	2½	ANSI 125	100		\$5,910.00	\$6,168.00	
G780DS	85	3	ANSI 125	100		\$6,746.00	\$6,992.00	
G7100DS	154	4	ANSI 125	100		\$7,840.00	\$8,096.00	
G7125DS	195	5	ANSI 125	100		\$10,964.00	\$11,226.00	
G7150DS	248	6	ANSI 125	100		\$12,854.00	\$13,100.00	

### MULTI-FUNCTION TECHNOLOGY

P-CODES		Control Input		Running Time	Built-in Feedback	List Price		
NV DESCRIPTION	V-10001	GM DESCRIPTION	P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
	V-10002		P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
	V-10028		P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
	V-10063		P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
	V-10064		P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
	V-20002		P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
	V-20003		P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
	V-30001		P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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GLOBE VALVES

# G7...S(DS) Series Flanged Globe Valve, Spring Return Actuators

3-way Valve with Stainless Steel Trim – ANSI 125 Flanged, Mixing and Diverting



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	mixing: stem up - open B to AB diverting: stem up - open AB to B
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	125 lb flanged
Materials:	
Body	iron
Seat	stainless steel
Stem	stainless steel
Plug	stainless steel
Packing	TFE V-ring
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034 kPa) @ 250°F
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Maximum ΔP: Water	50 psi (340 kPa)
Rangeability	50:1



## Spring Return Actuators



ACTUATOR PART #		AF24 US	AFX24-MFT-X1	2*AF24 US	2*AFX24-MFT-X1
Control type		On/Off	Proportional/MFT	On/Off	Proportional/MFT
Manual override		•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds
	spring	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Noise level		≤45 dB(A)	≤40 dB(A)	≤45 dB(A)	≤40 dB(A)

## ELECTRICAL CONNECTION:

3 ft, cable, ½" conduit fitting

Globe Valve Model #	Cv Rating	Valve Nominal Size Inches	Flanged Type	Close-Off ANSI III			
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## G7...S 3-WAY MIXING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS

G765S	68	2½"	ANSI 125	36	\$2,674.00		
G765S	68	2½"	ANSI 125	59		\$3,172.00	
G765S	68	2½"	ANSI 125	51			\$2,872.00
G765S	68	2½"	ANSI 125	82			\$3,658.00
G780S	91	3"	ANSI 125	24	\$3,156.00		
G780S	91	3"	ANSI 125	34		\$3,674.00	
G780S	91	3"	ANSI 125	40		\$3,368.00	
G780S	91	3"	ANSI 125	56			\$4,074.00

## G7...DS 3-WAY DIVERTING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS

G765DS	68	2½"	ANSI 125	100	\$5,934.00	\$6,132.00	
G780DS	85	3"	ANSI 125	100	\$6,756.00	\$6,958.00	
G7100DS	154	4"	ANSI 125	100	\$7,858.00	\$8,062.00	
G7125DS	195	5"	ANSI 125	100			\$11,498.00
G7150DS	248	6"	ANSI 125	100			\$13,358.00
							\$13,756.00

Note: For fail safe operation where AF actuator is not available or close-off is too low, use GM actuator with NSV battery backup.

## MULTI-FUNCTION TECHNOLOGY

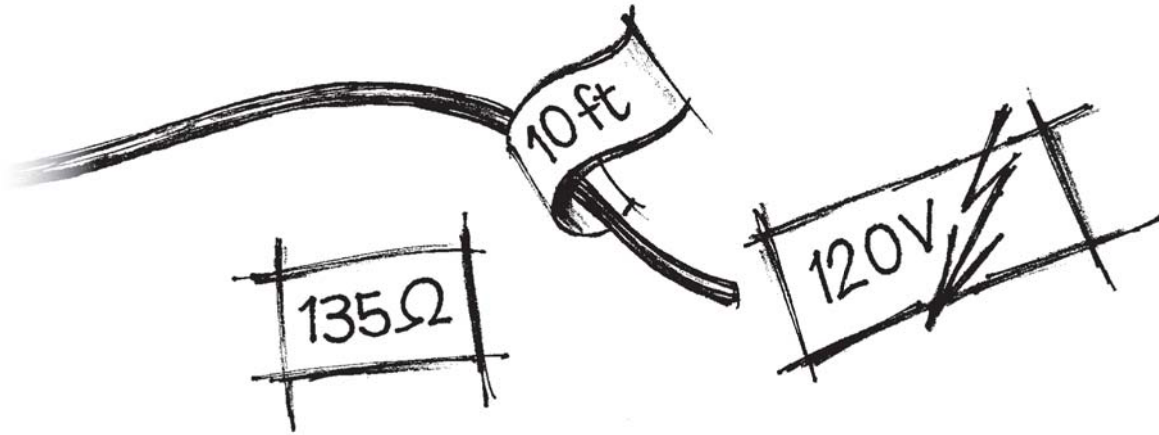
AF DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
	P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	P-20002	W02	0.02-5.00 sec. PWM	150	2-10 VDC	No Charge
	P-20003	W03	0.10-25.5 sec. PWM	150	2-10 VDC	No Charge
	P-30001	F01	Floating Point	150	2-10 VDC	No Charge

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Note: Most popular configurations available at no additional cost.

2\* designates tandem.

GLOBE VALVES



### Spring Return Actuator Options



OPTIONS	AF24-S US	AF120 US	AF120-S US	AFX24-MFT-S-X1	AFX24-MFT95-X1	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AFX24-MFT-S-X1	
120 VAC power supply		•	•	•			•	•	•	
Built-in auxiliary switch	•		•	•		•		•	•	
0-135 Ω control					•					
<b>Globe Valve Model #</b>										
<b>C<sub>v</sub> Rating</b>										
<b>G7...S 3-WAY MIXING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>										
G765S	68	\$2,762.00	\$2,726.00	\$2,812.00	\$2,960.00	\$2,892.00	\$3,258.00	\$3,280.00	\$3,368.00	\$3,658.00
G780S	91	\$3,242.00	\$3,210.00	\$3,296.00	\$3,452.00	\$3,368.00	\$3,762.00	\$3,784.00	\$3,870.00	\$4,160.00
<b>G7...DS 3-WAY DIVERTING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>										
G765DS	68	\$6,020.00	\$5,986.00	\$6,074.00	\$6,220.00	\$6,154.00				
G780DS	85	\$6,842.00	\$6,810.00	\$6,896.00	\$7,044.00	\$6,762.00				
G7100DS	154	\$7,914.00	\$7,914.00	\$8,000.00	\$8,148.00	\$8,084.00				
G7125DS	195						\$11,584.00	\$11,604.00	\$11,690.00	\$11,982.00
G7150DS	248						\$13,442.00	\$13,466.00	\$13,550.00	\$13,842.00

Note: (-S) models with tandem actuators only have one switch.

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GLOBE VALVES



# G7...S(DS) Series Flanged Globe Valves, Electronic Fail-Safe Actuators

3-way Valve with Stainless Steel Trim - ANSI 125 Flanged, Mixing and Diverting



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	mixing: stem up - open B to AB diverting: stem up - open AB to B
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	125 lb. flanged
Materials:	
Body	iron
Seat	stainless steel
Stem	stainless steel
Plug	stainless steel
Packing	TFE V-ring
ANSI Class	ANSI 125
Leakage	Class III
Max Water Inlet	150 psi (1034 kPa) @ 250°F
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Maximum ΔP:	
Water	50 psi (340 kPa)
Rangeability	50:1



## Electronic Fail-Safe Actuators



ACTUATOR PART #	GKB24-3-X1	GKX24-MFT-X1	2* GKX24-MFT-X1
Control type	On/Off, Floating Point	Proportional/MFT	Proportional/MFT
Manual override	•	•	•
Running time	motor	150 seconds	150 seconds
	fail-safe	35 seconds	35 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)

## ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•
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Globe Valve Model #	Cv Rating	Valve Nominal Size			Close-off ANSI III
		Inches	Flanged Type		

## G7...S 3-WAY MIXING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G765S	68	2½	ANSI 125	113	\$3,492.00	\$3,870.00	
G780S	91	3	ANSI 125	78	\$3,908.00	\$4,286.00	
G7100S	190	4	ANSI 125	19	\$4,354.00	\$4,812.00	
G765S	68	2½	ANSI 125	150			\$5,286.00
G780S	91	3	ANSI 125	121			\$5,702.00
G7100S	190	4	ANSI 125	31			\$6,374.00
G7125S	280	5	ANSI 125	19			\$8,530.00
G7150S	340	6	ANSI 125	13			\$9,968.00

## G7...DS 3-WAY DIVERTING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G765DS	68	2½	ANSI 125	100	\$6,752.00	\$6,962.00	
G780DS	85	3	ANSI 125	100	\$7,394.00	\$7,772.00	
G7100DS	154	4	ANSI 125	100	\$8,424.00	\$8,890.00	
G7125DS	195	5	ANSI 125	100	\$11,728.00	\$12,106.00	
G7150DS	248	6	ANSI 125	100	\$13,590.00	\$13,968.00	

## MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES			Control Input	Running Time	Built-in Feedback	List Price
V-10001	P-10001	A01		2-10 VDC	150 seconds	2-10 VDC	No Charge
V-10002	P-10002	A02		0-10 VDC	150 seconds	0-10 VDC	No Charge
V-10028	P-10028	A28		0-10 VDC	100 seconds	0-10 VDC	No Charge
V-10063	P-10063	A63		0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
V-10064	P-10064	A64		5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
V-20002	P-20002	W02		0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
V-20003	P-20003	W03		0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
V-30001	P-30001	F01		Floating Point	150 seconds	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	mixing: stem up - open B to AB
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	250 lb flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 250
Leakage	Class III
Max Water Inlet	150 psi (1034 kPa) @ 250°F
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Ambient Temp	32°F to 122°F (0°C to 50°C)
Maximum ΔP:	
Water	25 psi (172 kPa)
Rangeability	50:1



### Non-Spring Return Actuators



ACTUATOR PART #	NVG24-MFT US	GMB24-3-X1	GMX24-MFT-X1	2*GMB24-3-X1	2*GMX24-MFT-X1
Control type	Proportional/MFT	On/Off, Floating Point	Proportional/MFT	On/Off, Floating Point	Proportional/MFT
Manual override	•	•	•	•	•
Running time	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<35 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)

### ELECTRICAL CONNECTION:

3 ft, cable, ½" conduit fitting	•	•	•	•	•
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Globe Valve Model #	Cv Rating	Valve Nominal Size		
		Inches	Flanged Type	Close-Off ANSI III

G7...-250 3-WAY MIXING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS					
G765-250	68	2½	ANSI 250	62	\$2,534.00
G780-250	91	3	ANSI 250	42	\$2,920.00
G765-250	68	2½	ANSI 250	113	
G780-250	91	3	ANSI 250	78	\$2,766.00
G7100-250	190	4	ANSI 250	19	\$3,162.00
G765-250	68	2½	ANSI 250	176	\$4,490.00
G780-250	91	3	ANSI 250	121	\$2,978.00
G7100-250	190	4	ANSI 250	31	\$3,378.00
G7125-250	280	5	ANSI 250	19	\$4,714.00
G7150-250	340	6	ANSI 250	13	
					\$3,700.00
					\$4,020.00
					\$3,766.00
					\$4,086.00
					\$4,976.00
					\$5,422.00
					\$7,520.00
					\$7,970.00
					\$8,736.00
					\$9,182.00

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES			GM DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price
	V	N	P					
V-10001	N01	P-10001	A01		2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02	P-10002	A02		0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E	P-10028	A28		0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K	P-10063	A63		0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L	P-10064	A64		5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U	P-20002	W02		0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V	P-20003	W03		0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24	P-30001	F01		Floating Point	150	2-10 VDC	No Charge
V-40002	N29	P-40002	J02		On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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GLOBE VALVES

# G7...-250 Series Flanged Globe Valve, Spring Return Actuators

3-way Valve with Bronze Trim – ANSI 250 Flanged, Mixing



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	mixing: stem up - open B to AB
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	250 lb flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 250
Leakage	Class III
Max Water Inlet	150 psi (1034 kPa) @ 250°
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Ambient Temp	32°F to 122°F (0°C to 50°C)
Maximum ΔP:	
Water	25 psi (172 kPa)
Rangeability	50:1



## Spring Return Actuators



ACTUATOR PART #		AF24 US	AFX24-MFT-X1	2*AF24 US	2*AFX24-MFT-X1
Control type		On/Off	Proportional / MFT	On/Off	Proportional / MFT
Manual override		•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds
	spring	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Noise level		≤45 dB(A)	≤40 dB(A)	≤45 dB(A)	≤40 dB(A)

## ELECTRICAL CONNECTION:

3 ft. cable, ½" conduit fitting	•	•	•	•
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Globe Valve Model #	Cv Rating	Valve Nominal Size		Close-Off ANSI III				
		Inches	Flanged Type					
<b>G7...-250 3-WAY MIXING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>								
G765-250	68	2½	ANSI 250	36	\$2,652.00			
G765-250	68	2½	ANSI 250	59			\$3,184.00	
G765-250	68	2½	ANSI 250	51		\$2,850.00		
G765-250	68	2½	ANSI 250	82				\$3,566.00
G780-250	91	3	ANSI 250	24	\$3,056.00			
G780-250	91	3	ANSI 250	40			\$3,674.00	
G780-250	91	3	ANSI 250	34		\$3,342.00		
G780-250	91	3	ANSI 250	56				\$4,074.00

Note: For fail safe operation where AF actuator is not available or close-off is too low, use GM actuator with NSV battery backup.

## MULTI-FUNCTION TECHNOLOGY

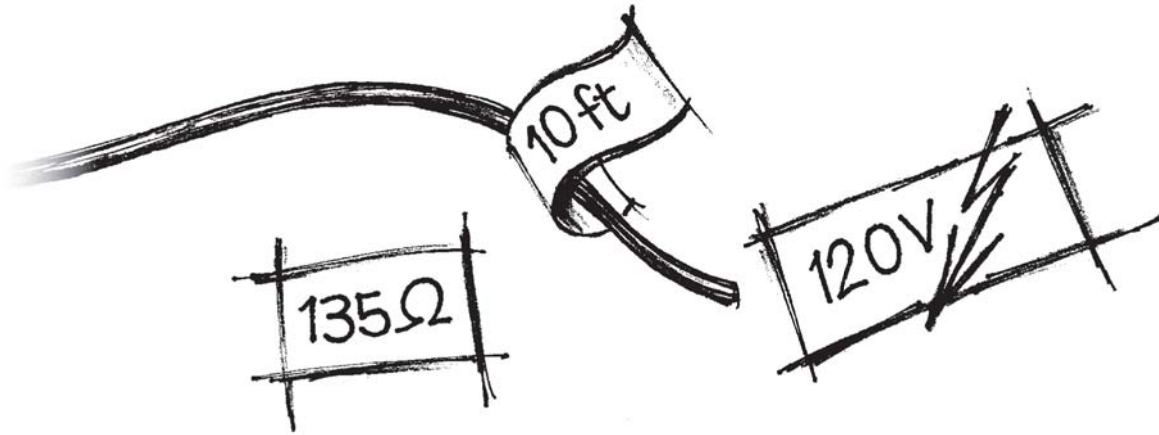
AF DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
		P-10001	A01	2-10 VDC	150	2-10 VDC
	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

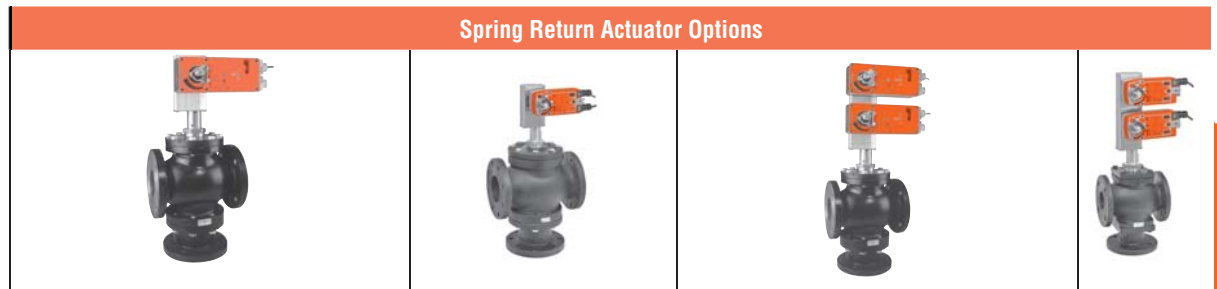
Most popular configurations available at no additional cost.

2\* designates tandem.

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### Spring Return Actuator Options



OPTIONS	AF24-S US	AF120 US	AF120-S US	AFX24-MFT-S-X1	AFX24-MFT95-X1	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AFX24-MFT-S-X1
120 VAC power supply		•	•	•			•	•	•
Built-in auxiliary switch	•		•	•		•		•	•
0-135 Ω control					•				
<b>Globe Valve Model #</b>									
<b>Cv Rating</b>									

G7...-250 3-WAY MIXING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS										
G765-250	68	\$2,818.00	\$2,784.00	\$2,870.00	\$2,936.00	\$2,870.00	\$3,368.00	\$3,386.00	\$3,472.00	\$3,760.00
G780-250	85	\$3,234.00	\$3,200.00	\$3,286.00	\$3,428.00	\$3,362.00	\$3,760.00	\$3,780.00	\$3,870.00	\$4,160.00

Note: (-S) models with tandem actuators only have one switch.

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GLOBE VALVES

# G7...-250 Series Flanged Globe Valve, Electronic Fail-Safe Actuators

3-way Valve with Bronze Trim – ANSI 250 Flanged, Mixing



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	mixing: stem up - open B to AB
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	250 lb flanged
Materials:	
Body	iron
Seat	bronze
Stem	stainless steel
Plug	bronze
Packing	NLP
ANSI Class	ANSI 250
Leakage	Class III
Max Water Inlet	150 psi (1034 kPa) @ 250°F
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Ambient Temp	32°F to 122°F (0°C to 50°C)
Maximum ΔP:	
Water	25 psi (172 kPa)
Rangeability	50:1



## Electronic Fail-Safe Actuators



ACTUATOR PART #	GKB24-3-X1	GKX24-MFT-X1	2* GKX24-MFT-X1
Control type	On/Off, Floating	Proportional/MFT	Proportional/MFT
Manual override	•	•	•
Running time	150 seconds	150 seconds	150 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)

### ELECTRICAL CONNECTION:

3 ft. cable, ½" conduit fitting	•	•	•
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Globe Valve Model #	Cv Rating	Valve Nominal Size		
		Inches	Flanged Type	Close-Off ANSI III

### G7...-250 3-WAY MIXING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G765-250	68	2½	ANSI 250	113	\$3,400.00	\$3,054.00	
G780-250	91	3	ANSI 250	78	\$3,908.00	\$4,286.00	
G7100-250	190	4	ANSI 250	19	\$5,074.00	\$5,508.00	
G765-250	68	2½	ANSI 250	176			\$5,194.00
G780-250	91	3	ANSI 250	121			\$5,702.00
G7100-250	190	4	ANSI 250	31			\$7,010.00
G7125-250	280	5	ANSI 250	19			\$9,558.00
G7150-250	340	6	ANSI 250	13			\$10,770.00

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES			Control Input	Running Time	Built-in Feedback	List Price
	V-Code	N-Code	A-Code				
V-10001	N01	P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	mixing: stem up - open B to AB diverting: stem up - open AB to B
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	250 lb flanged
Materials:	
Body	iron
Seat	stainless steel
Stem	stainless steel
Plug	stainless steel
Packing	TFE V-ring
ANSI Class	ANSI 250
Leakage	Class III
Max Water Inlet	250 psi (1734 kPa) @ 350°F
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Maximum ΔP:	
Water	50 psi (340 kPa)
Rangeability	50:1



### Non-Spring Return Actuators



ACTUATOR PART #	NVG24-MFT US	GMB24-3-X1	GMX24-MFT-X1	2*GMB24-3-X1	2*GMX24-MFT-X1
Control type	Proportional / MFT	On/Off, Floating	Proportional / MFT	On/Off, Floating	Proportional / MFT
Manual override	•	•	•	•	•
Running time	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<35 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)

### ELECTRICAL CONNECTION:

3 ft. cable, ½" conduit fitting	•	•	•	•	•
Covered terminal strip	•				

Globe Valve Model #	Cv Rating	Valve Nominal Size		Close-Off ANSI III
		Inches	Flanged Type	

### G7...S-250 3-WAY MIXING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G765S-250	68	2½	ANSI 250	62	\$3,014.00			
G780S-250	91	3	ANSI 250	42	\$3,408.00			
G765S-250	68	2½	ANSI 250	113		\$2,920.00	\$3,170.00	
G780S-250	91	3	ANSI 250	78		\$3,372.00	\$3,618.00	
G7100S-250	190	4	ANSI 250	19		\$5,254.00	\$5,512.00	
G765S-250	68	2½	ANSI 250	176				\$3,404.00
G780S-250	91	3	ANSI 250	121				\$3,854.00
G7100S-250	190	4	ANSI 250	31				\$5,750.00
G7125S-250	280	5	ANSI 250	19				\$8,510.00
G7150S-250	340	6	ANSI 250	13				\$8,864.00

### G7...DS-250 3-WAY DIVERTING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G765DS-250	68	2½	ANSI 250	100	\$6,794.00			
G780DS-250	85	3	ANSI 250	100	\$7,794.00			
G7100DS-250	154	4	ANSI 250	100	\$9,102.00			
G765DS-250	68	2½	ANSI 250	100		\$6,986.00	\$7,234.00	
G780DS-250	85	3	ANSI 250	100		\$7,986.00	\$8,206.00	
G7100DS-250	154	4	ANSI 250	100		\$9,314.00	\$9,552.00	
G7125DS-250	195	5	ANSI 250	100		\$13,316.00	\$12,480.00	
G7150DS-250	248	6	ANSI 250	100		\$16,028.00	\$16,278.00	

### MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		GM DESCRIPTION	Control Input	Running Time	Built-in Feedback	List Price	
	V	N						
V-10001	N01		P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02		P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29		P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost. 2\* designates tandem.

# G7...S(DS) -250 Series Flanged Globe Valve, Spring Return Actuators

3-way Valve with Stainless Steel Trim – ANSI 250 Flanged, Mixing and Diverting



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	mixing: stem up - open B to AB diverting: stem up - open AB to B
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	250 lb flanged
Materials:	
Body	iron
Seat	stainless steel
Stem	stainless steel
Plug	stainless steel
Packing	TFE V-ring
ANSI Class	ANSI 250
Leakage	Class III
Max Water Inlet	250 psi (1724 kPa) @ 350°F
Media Temp - Water	32°F to 350°F (0°C to 176°C)
Maximum ΔP: Water	50 psi (340 kPa)
Rangeability	50:1



## Spring Return Actuators



ACTUATOR PART #		AF24 US	AFX24-MFT-X1	2*AF24 US	2*AFX24-MFT-X1
Control type		On/Off	Proportional / MFT	On/Off	Proportional / MFT
Manual override		•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds
	spring	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Noise level		≤45 dB(A)	≤40 dB(A)	≤45 dB(A)	≤40 dB(A)

## ELECTRICAL CONNECTION:

3 ft. cable, ½" conduit fitting	•	•	•	•
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Globe Valve Model #	Cv Rating	Valve Nominal Size			Close-Off ANSI III
		Inches	Flanged Type		

## G7...S-250 3-WAY MIXING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS

G765S-250	68	2½	ANSI 250	36	\$2,922.00		
G765S-250	68	2½	ANSI 250	59			
G765S-250	68	2½	ANSI 250	51		\$3,124.00	
G765S-250	68	2½	ANSI 250	82			\$3,824.00
G780S-250	91	3	ANSI 250	24	\$3,374.00		
G780S-250	91	3	ANSI 250	40			\$3,876.00
G780S-250	91	3	ANSI 250	34		\$3,368.00	
G780S-250	91	3	ANSI 250	56			\$4,074.00

## G7...DS-250 3-WAY DIVERTING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS

G765DS-250	68	2½	ANSI 250	100	\$6,994.00	\$7,196.00	
G780DS-250	85	3	ANSI 250	100	\$8,002.00	\$8,188.00	
G7100DS-250	154	4	ANSI 250	100	\$9,314.00	\$9,522.00	
G7125DS-250	195	5	ANSI 250	100			\$12,744.00
G7150DS-250	248	6	ANSI 250	100			\$16,536.00
							\$16,934.00

For fail safe operation where AF actuator is not available or close-off is too low, use pressure compensated globe valves.

## MULTI-FUNCTION TECHNOLOGY

AF DESCRIPTION	P-CODES		Control Input	Running Time	Built-in Feedback	List Price
		P-10001	A01	2-10 VDC	150	2-10 VDC
	P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
	P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
	P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
	P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
	P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
	P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
	P-30001	F01	Floating Point	150	2-10 VDC	No Charge
	P-40002	J02	On/Off	150	2-10 VDC	No Charge

Example: AFX24-MFT-X1 is the basic model. Add the P... pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Most popular configurations available at no additional cost.

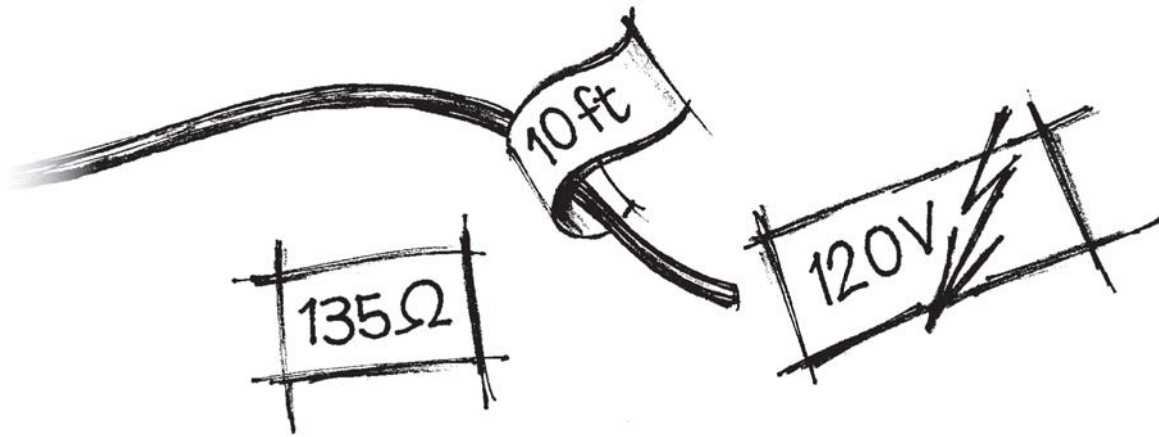
2\* designates tandem.

800-543-9038 USA

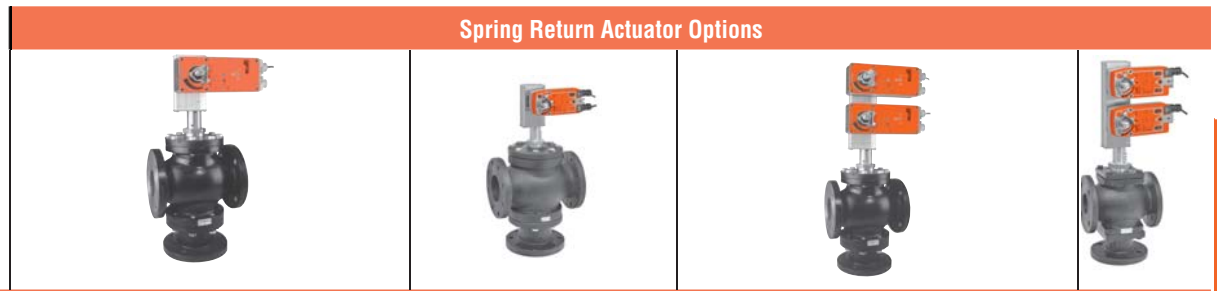
866-805-7089 CANADA

203-791-8396 LATIN AMERICA

GLOBE VALVES



### Spring Return Actuator Options



OPTIONS	AF24-S US	AF120 US	AF120-S US	AFX24-MFT-X1	AFX24-MFT95-X1	2*AF24-S US	2*AF120 US	2*AF120-S US	2*AFX24-MFT-S-X1	
120 VAC power supply		•	•	•		•	•	•	•	
Built-in auxiliary switch	•		•	•		•		•	•	
0-135 Ω control					•					
<b>Globe Valve Model #</b>										
<b>C<sub>v</sub> Rating</b>										
<b>G7...S-250 3-WAY MIXING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>										
G765S-250	68	\$3,008.00	\$2,978.00	\$3,064.00	\$3,124.00	\$3,392.00				
G780S-250	91	\$3,458.00	\$3,426.00	\$3,514.00	\$3,368.00	\$3,868.00				
G765S-250	68					\$3,516.00	\$3,536.00	\$3,624.00	\$3,912.00	
G780S-250	91					\$3,962.00	\$3,986.00	\$4,072.00	\$4,362.00	
<b>G7...DS 3-WAY DIVERTING FLANGED GLOBE VALVE WITH SPRING RETURN ACTUATORS</b>										
G765DS-250	68	\$7,084.00	\$7,050.00	\$7,134.00	\$7,196.00	\$7,220.00				
G780DS-250	85	\$8,088.00	\$8,056.00	\$8,142.00	\$8,188.00	\$8,210.00				
G7100DS-250	154	\$9,400.00	\$9,368.00	\$9,454.00	\$9,522.00	\$9,544.00				
G7125DS-250	195						\$12,830.00	\$12,854.00	\$12,940.00	
G7150DS-250	248						\$16,624.00	\$16,644.00	\$16,730.00	

Note: (-S) models with tandem actuators only have one switch.

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GLOBE VALVES



# G7...S(DS)-250 Series Flanged Globe Valve, Electronic Fail-Safe Actuators

3-way Valve with Stainless Steel Trim – ANSI 250 Flanged, Mixing and Diverting



## Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Action	mixing: stem up - open B to AB diverting: stem up - open AB to B
Sizes	2½", 3", 4", 5", 6"
Type of end fitting	250 lb flanged
Materials:	
Body	iron
Seat	stainless steel
Stem	stainless steel
Plug	stainless steel
Packing	TFE V-ring
ANSI Class	ANSI 250
Leakage	Class III
Max Water Inlet	250 psi (1734 kPa) @ 350°F
Media Temp - Water	32°F to 300°F (0°C to 148°C)
Maximum ΔP:	
Water	50 psi (340 kPa)
Rangeability	50:1



## Electronic Fail-Safe Actuators



ACTUATOR PART #		GKB24-3-X1	GKX24-MFT-X1	2* GKX24-MFT-X1
Control type		On/Off, Floating Point	Proportional / MFT	Proportional / MFT
Manual override		•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds
	fail-safe	35 seconds	35 seconds	35 seconds
Noise level		<45 dB(A)	<45 dB(A)	<45 dB(A)

## ELECTRICAL CONNECTION:

3 ft, cable, ½" conduit fitting	•	•	•
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Globe Valve Model #	Cv Rating	Valve Nominal Size		Close-Off ANSI III			
		Inches	Flanged Type				

## G7...S-250 3-WAY MIXING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G765S-250	68	2½	ANSI 250	113	\$3,658.00	\$4,036.00	
G780S-250	91	3	ANSI 250	78	\$3,902.00	\$4,280.00	
G7100S-250	190	4	ANSI 250	19	\$5,796.00	\$6,174.00	
G765S-250	68	2½	ANSI 250	176			\$5,452.00
G780S-250	91	3	ANSI 250	121			\$5,702.00
G7100S-250	190	4	ANSI 250	31			\$7,834.00
G7125S-250	280	5	ANSI 250	19			\$10,602.00
G7150S-250	340	6	ANSI 250	13			\$10,948.00

## G7...DS-250 3-WAY DIVERTING FLANGED GLOBE VALVE WITH NON-SPRING RETURN ACTUATORS

G765DS-250	68	2½	ANSI 250	100	\$7,570.00	\$8,028.00	
G780DS-250	85	3	ANSI 250	100	\$8,624.00	\$9,002.00	
G7100DS-250	154	4	ANSI 250	100	\$9,630.00	\$9,886.00	
G7125DS-250	195	5	ANSI 250	100	\$12,980.00	\$13,358.00	
G7150DS-250	248	6	ANSI 250	100	\$16,768.00	\$17,146.00	

## MULTI-FUNCTION TECHNOLOGY

NV DESCRIPTION	P-CODES		GM DESCRIPTION	Control Input		Running Time	Built-in Feedback	List Price
	V	N		P	A			
V-10001	N01		P-10001	A01	2-10 VDC	150	2-10 VDC	No Charge
V-10002	N02		P-10002	A02	0-10 VDC	150	0-10 VDC	No Charge
V-10028	N1E		P-10028	A28	0-10 VDC	100	0-10 VDC	No Charge
V-10063	N1K		P-10063	A63	0.5-4.5 VDC	150	0.5-4.5 VDC	No Charge
V-10064	N1L		P-10064	A64	5.5-10 VDC	150	5.5-10 VDC	No Charge
V-20002	N1U		P-20002	W02	0.02-5.00 seconds PWM	150	2-10 VDC	No Charge
V-20003	N1V		P-20003	W03	0.10-25.5 seconds PWM	150	2-10 VDC	No Charge
V-30001	N24		P-30001	F01	Floating Point	150	2-10 VDC	No Charge
V-40002	N29		P-40002	J02	On/Off	150	2-10 VDC	No Charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes. Most popular configurations available at no additional cost.

2\* designates tandem.

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WEATHERSHIELDS	Non-Spring Return					Spring Return				List Price
	NV	LM	NM	AM	GM	NVF	LF	NF	AF	
	<b>ZS-NV-10</b>	•					•			\$190.00
	<b>ZS-SPGV-60</b> LF series on G2/G3 Globe Valve						•			\$262.00
	<b>ZS-SPGV-70</b> LM series on G2/G3 Globe Valve		•							\$262.00
	<b>ZS-SPGV-80</b> NM series on G2/G3 Globe Valve			•						\$262.00
	<b>ZS-SPGV-30</b> AM series on G2/G3 Globe Valve				•					\$244.00
	<b>ZS-SPGV-10</b> Dual AF series on Flanged Globe Valve								•	\$262.00
	<b>ZS-SPGV-20</b> Single AF series on G2/G3 and Flanged Globe Valve							•	•	\$262.00
	<b>ZS-SPGV-40</b> Single GM series on Flanged Globe Valve					•				\$262.00
	<b>ZS-SPGV-50</b> Dual GM series on Flanged Globe Valve					•				\$262.00
AUXILIARY SWITCHES & POTENTIOMETERS										
	<b>S1A</b> Auxiliary switch - 1x SPDT, 3A (0.5A Inductive) @ 250 VAC		•	•	•	•				\$74.00
	<b>S2A</b> Auxiliary switch - 1x SPDT, 3A (0.5A Inductive) @ 250 VAC		•	•	•	•				\$110.00
	<b>P140A</b> Feedback potentiometer 140 Ω		•	•	•	•				\$122.00
	<b>P500A</b> Feedback potentiometer 500 Ω		•	•	•	•				\$122.00
	<b>P1000A</b> Feedback potentiometer 1000 Ω		•	•	•	•				\$122.00
	<b>P2800A</b> Feedback potentiometer 2800 Ω		•	•	•	•				\$122.00
	<b>P5000A</b> Feedback potentiometer 5000 Ω		•	•	•	•				\$122.00
	<b>P10000A</b> Feedback potentiometer 10000 Ω		•	•	•	•				\$122.00
BATTERY BACKUPS										
	<b>NSV24 US</b> Battery backup module		•	•	•	•				\$692.00
	<b>NSV-BAT</b> 12VDC 1.2 AH battery (2 required)		•	•	•	•				\$106.00

GLOBE VALVES

Note: Each NSV-24 US requires 2 NSV-BAT.

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# 13

## BUTTERFLY VALVES

STANDARD PERFORMANCE -HD(U) SERIES  
HIGH PERFORMANCE -SHP SERIES

- Standard and high performance butterfly valves to meet the wide range of commercial and industrial HVAC applications.
- Advanced seat and disc design(s) provide a bubble tight shutoff capability at each valve's rated temperature/pressure while maintaining a low seating torque.
- Belimo standard and industrial NEMA 4 actuators to ensure control in a variety of environments.
- Incorporates a five bushing design to completely isolate the valve shaft from the body that results in better control.
- Stainless steel disc and shaft are standard for superior strength, durability and long lasting operation.

### Applications

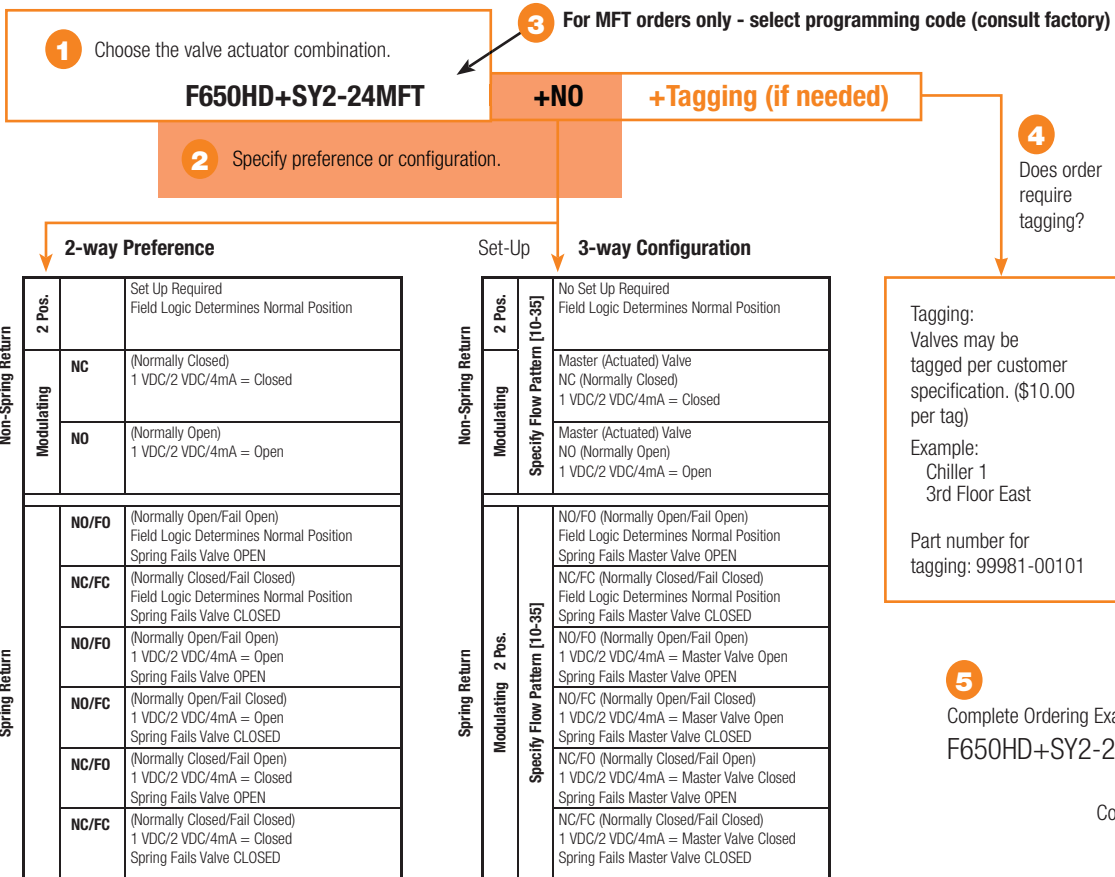
The comprehensive line of butterfly valves is available in sizes 2" to 30" and fulfills the requirement of commercial and industrial HVAC applications requiring positive shutoff for liquids. Applications include chiller isolation, cooling tower isolation, change-over systems, large air handler coil control and bypass including related process control.



# Butterfly Valve Nomenclature

F6	50	HD	SY2	-24	MFT	
<b>Valve</b> F6 = 2-way F7 = 3-way	<b>Valve Size</b> 50-750 = 2" to 30"	<b>Trim Material</b> <b>HDU</b> = Stainless Disc, Cast Ductile Iron Full Lug Body, EPDM Liner, Bubble Tight Close-Off to 50 psi <b>HD</b> = Stainless Disc, Cast Ductile Iron Full Lug Body, EPDM Liner, Bubble Tight Close-Off to 200 psi (2" to 12"), 150 psi (14"+) <b>-150SHP</b> = ANSI Class 150, Stainless Disc, Cast Steel Full Lug Body, RPTFE Seat, Bubble Tight Close-off up to 285 psi <b>-300SHP</b> = ANSI Class 150, Stainless Disc, Cast Steel Full Lug Body, RPTFE Seat, Bubble Tight Close-off up to 600 psi	<b>Actuator Type</b> Non-Spring Return GMB(X) SY... Spring Return AF...	<b>Power Supply</b> -24 = 24 VAC/DC -110 = 110/120 VAC -120 = 120 VAC -230 = 230 VAC	<b>Control</b> Blank = On/Off -3X1 = On/Off, Floating Point MFT or MFTX1 = Multi-Function Technology	-S = Built-in Auxiliary Switch

## Ordering Example



# Control Valve Product Range

## Electronic Butterfly Valve Product Range Standard Performance – Resilient Seat, 2-way and 3-way Valves



C <sub>v</sub> 90°	C <sub>v</sub> 60°	2-way			Suitable Actuators							
		Valve Nominal Size		Type	Spring Return		Non-Spring Return					
		IN	DN [mm]	2-way	HDU	HD	HDU	HD	HDU	HD	HDU	HD
115	44	2"	50	F650HD(U)	AF Series	AF Series	AM Series	AM	GM	GM	SY Series	SY Series
196	75	2½"	65	F665HD(U)								
302	116	3"	80	F680HD(U)								
600	230	4"	100	F6100HD(U)								
1022	392	5"	125	F6125HD(U)								
1579	605	6"	150	F6150HD(U)								
3136	1202	8"	200	F6200HD(U)								
5340	2047	10"	250	F6250HD(U)								
8250	3162	12"	300	F6300HD(U)								
11917	4568	14"	350	F6350HD								
16388	6282	16"	400	F6400HD								
21705	8320	18"	450	F6450HD								
27908	10698	20"	500	F6500HD								
43116	16528	24"	600	F6600HD								
73426	28146	30"	750	F6750HD								

C <sub>v</sub> 90°	C <sub>v</sub> 60°	3-way			Suitable Actuators							
		Valve Nominal Size		Type	Spring Return		Non-Spring Return					
		IN	DN [mm]	3-way	HDU	HD	HDU	HD	HDU	HD	HDU	HD
115	44	2"	50	F750HD(U)	AF Series	AF Series	AM	AM	GM Series	GM Series	SY Series	SY Series
196	75	2½"	65	F765HD(U)								
302	116	3"	80	F780HD(U)								
600	230	4"	100	F7100HD(U)								
1022	392	5"	125	F7125HD(U)								
1579	605	6"	150	F7150HD(U)								
3136	1202	8"	200	F7200HD(U)								
5340	2047	10"	250	F7250HD(U)								
8250	3162	12"	300	F7300HD(U)								
11917	4568	14"	350	F7350HD								
16388	6282	16"	400	F7400HD								
21705	8320	18"	450	F7450HD								
27908	10698	20"	500	F7500HD								
43116	16528	24"	600	F7600HD								

### Applications

These valves are designed to meet the needs of commercial and industrial HVAC applications requiring positive shutoff for liquids. Applications include chiller isolation, cooling tower isolation, change-over systems, large air handler coil control and bypass including related process control.

### Mode of Operation

Butterfly valves allow higher flows with relatively low pressure loss from the valves, and are typically used for isolation or flow control for valve openings between 30 to 70 degrees of full open. At valve openings greater than 70 degrees, the pressure loss of a butterfly valve is too low to produce any significant effect on flow or the energy loss of a flow system. Butterfly valves can be controlled with a maintenance-free electronic actuator or manually with an ergonomic, wear-free plastic handle or gear operator.

### Product Features

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

### Actuator Specifications

Control type	On/Off, Floating Point, Proportional, 2-10 VDC Multi-Function Technology (MFT)
Manual override	all models
Electrical connection	3 ft [1m] cable with ½" conduit fitting, 2 (½") conduits (SY)

### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	F6 modified equal percentage F7 modified linear
Action	90° rotation
Sizes	2" to 30"
Type of end fitting	ANSI Class 125/150 lb. flanged
Materials	Body: ductile iron Disc: 304 stainless steel Seat: EPDM Body pressure: ASME/ANSI Class 125 Shaft: 416 stainless steel
Media temp range	-22°F to 250°F (-30°C to 120°C)
Close-off pressure	HDU: 50 psi HD: 200 psi, 2" to 12" 150 psi, 14" to 30"
Leakage	bubble tight shut-off

# Control Valve Product Range

## Electronic Butterfly Valve Product Range High Performance - RTFE Seat, 2-way and 3-way valves

C <sub>v</sub> 90°	C <sub>v</sub> 60°	2-way Valves			Suitable Actuators					
		Valve Nominal Size	Type		Spring Return		Non-Spring Return			
			Inches	ANSI 150 2-way	ANSI 300 2-way	150	300	150	300	150
102	56	2"	F650-150SHP	F650-300SHP	AF Series	AF Series	GM Series	GM Series	SY Series	SY Series
146	80	2½"	F665-150SHP	F665-300SHP						
228	125	3"	F680-150SHP	F680-300SHP						
451	248	4"	F6100-150SHP	F6100-300SHP						
714	392	5"	F6125-150SHP	F6125-300SHP						
1103	607	6"	F6150-150SHP	F6150-300SHP						
2064	1135	8"	F6200-150SHP	F6200-300SHP						
3517	1934	10"	F6250-150SHP	F6250-300SHP						
4837	2660	12"	F6300-150SHP	F6300-300SHP						
6857	3592	14"	F6350-150SHP	F6350-300SHP						
9287	4865	16"	F6400-150SHP	F6400-300SHP						
11400	6270	18"	F6450-150SHP	F6450-300SHP						
14420	7590	20"	F6500-150SHP	F6500-300SHP						
22050	11550	24"	F6600-150SHP	F6600-300SHP						
34388	18012	30"	F6750-150SHP	n/a						

Note: C<sub>v</sub> values listed for ANSI Class 150 Butterfly Valves. Please consult the technical documentation for ANSI Class 300 C<sub>v</sub> values and configurations.

C <sub>v</sub> 90°	C <sub>v</sub> 60°	3-way Valves			Suitable Actuators					
		Valve Nominal Size	Type		Spring Return		Non-Spring Return			
			Inches	ANSI 150 3-way	ANSI 300 3-way	150	300	150	300	150
102	56	2"	F750-150SHP	F750-300SHP	AF Series		GM Series	GM Series	SY Series	SY Series
146	80	2½"	F765-150SHP	F765-300SHP						
228	125	3"	F780-150SHP	F780-300SHP						
451	248	4"	F7100-150SHP	F7100-300SHP						
714	392	5"	F7125-150SHP	F7125-300SHP						
1103	607	6"	F7150-150SHP	F7150-300SHP						
2064	1135	8"	F7200-150SHP	F7200-300SHP						
3517	1934	10"	F7250-150SHP	F6250-300SHP						
4837	2660	12"	F7300-150SHP	F7300-300SHP						
6857	3592	14"	F7350-150SHP	F7350-300SHP						
9287	4865	16"	F7400-150SHP	F7400-300SHP						
11500	3270	18"	F7450-150SHP	F7450-300SHP						
14420	7590	20"	F7500-150SHP	F7500-300SHP						
22050	11550	24"	F7600-150SHP	F7600-300SHP						

Note: C<sub>v</sub> values listed for ANSI Class 150 Butterfly Valves. Please consult the technical documentation for ANSI Class 300 C<sub>v</sub> values and configurations.



### Applications

These valves are designed to meet the needs of commercial and industrial HVAC applications requiring positive shutoff for liquids at higher pressure and temperatures. Applications include chiller isolation, cooling tower isolation, change-over systems, large air handler coil control and bypass including related process control.

### Mode of Operation

Butterfly valves allow higher flows with relatively low pressure loss from the valves, and are typically used for isolation or flow control for valve openings between 30 to 70 degrees of full open. At valve openings greater than 70 degrees, the pressure loss of a butterfly valve is too low to produce any significant effect on flow or the energy loss of a flow system. Butterfly valves can be controlled with a maintenance-free electronic actuator or manually with an ergonomic, wear-free plastic handle or gear operator.

### Product Features

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

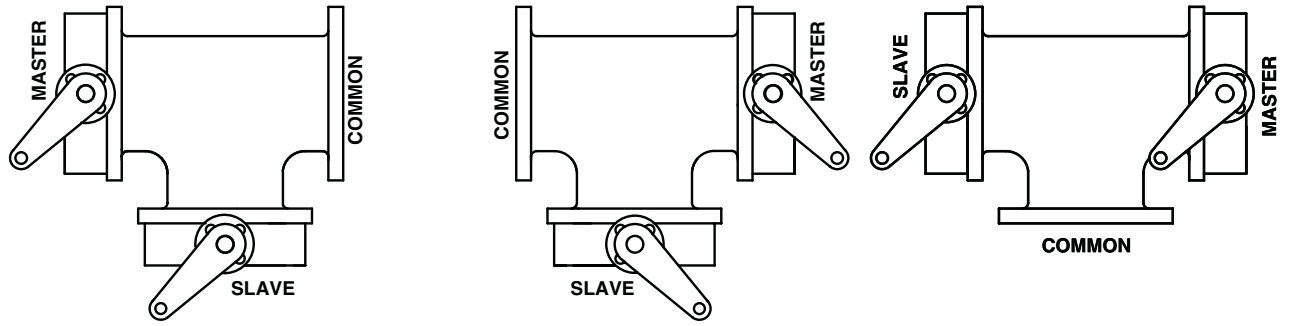
### Actuator Specifications

Control type	On/Off, Floating Point, Proportional, 2-10 VDC Multi-Function Technology (MFT)
Manual override	all models
Electrical connection	3 ft [1m] cable with ½" conduit fitting, 2 (½") conduits (SY)

### Valve Specifications

Service	chilled or hot water, 60% glycol, steam to 50 psi
Flow characteristic	modified equal percentage, unidirectional
Action	quarter turn, mechanically limited
Sizes	2" to 30"
Type of end fitting	ANSI Class 150/300 flanged
Materials	
Body	carbon steel full lug
Disc	316 stainless steel
Seat	RPTFE
Body pressure	ASME/ANSI Class 150/300
Shaft	17-4 PH stainless
Media temp range	-20°F to 400°F (-30°C to 204°C)
Close-off pressure	ANSI Class 150 to 285 psi @ 100°F ANSI Class 300 to 725 psi @ 100°F
Leakage	bubble tight shut-off

D163



CONFIG CODE	ON/OFF OR MOD@2VDC MASTER VALVE IS	MASTER VALVE @ FAIL
X10	OPEN	NON-FAIL
X11	OPEN	OPEN
X12	OPEN	CLOSED
X13	CLOSED	NON-FAIL
X14	CLOSED	OPEN
X15	CLOSED	CLOSED

CONFIG CODE	ON/OFF OR MOD@2VDC MASTER VALVE IS	MASTER VALVE @ FAIL
X20	OPEN	NON-FAIL
X21	OPEN	OPEN
X22	OPEN	CLOSED
X23	CLOSED	NON-FAIL
X24	CLOSED	OPEN
X25	CLOSED	CLOSED

CONFIG CODE	ON/OFF OR MOD@2VDC MASTER VALVE IS	MASTER VALVE @ FAIL
X30	OPEN	NON-FAIL
X31	OPEN	OPEN
X32	OPEN	CLOSED
X33	CLOSED	NON-FAIL
X34	CLOSED	OPEN
X35	CLOSED	CLOSED

**X Specifies Bi-Directional Flow Capability**

**Notes:**

1. Slave Valve operates inversely of the Master Valve.
2. The Master Valve is always located on the run.
3. The Slave Valve may also have an actuator if required (Direct Coupled).
4. On/Off actuator normal position is a function of field logic.
5. Proportional actuator normal position is a function of the CCW/CW switch.
6. All 3-way assemblies are designed for 90 degree actuator rotation.

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**Flow in Std Weight Pipe (Fluid Velocity in GPM). Use with Resilient Seat BF Valves.**

SIZE	2 FPS	4 FPS	6 FPS	8 FPS	10 FPS	12 FPS	14 FPS X	16 FPS X
2"	19	39	59	78	98	117	137	157
2½"	30	61	92	122	153	184	214	245
3"	44	88	132	176	220	264	308	353
4"	78	157	235	313	392	470	548	627
5"	122	245	367	490	612	734	857	979
6"	176	352	529	705	881	1058	1234	1410
8"	313	627	940	1253	1567	1880	2193	2507
10"	490	979	1469	1958	2448	2738	3427	3917
12"	705	1410	2115	2820	3525	4230	4935	5640
14"	959	1919	2879	3838	4798	5758	6717	7677
16"	1253	2507	3760	5013	6267	7520	8774	10027
18"	1586	3173	4759	6345	7931	9518	11104	12690
20"	1958	3917	5875	7834	9792	11750	13709	15668
24"	2820	5640	8460	11280	14100	16921	19741	22561
30"	4406	8813	13220	17625	22032	26438	30845	35251

It is not recommended to exceed 12 feet per second through resilient seat butterfly valves.

Velocities greater than 12 fps may damage the valve liner and disc.

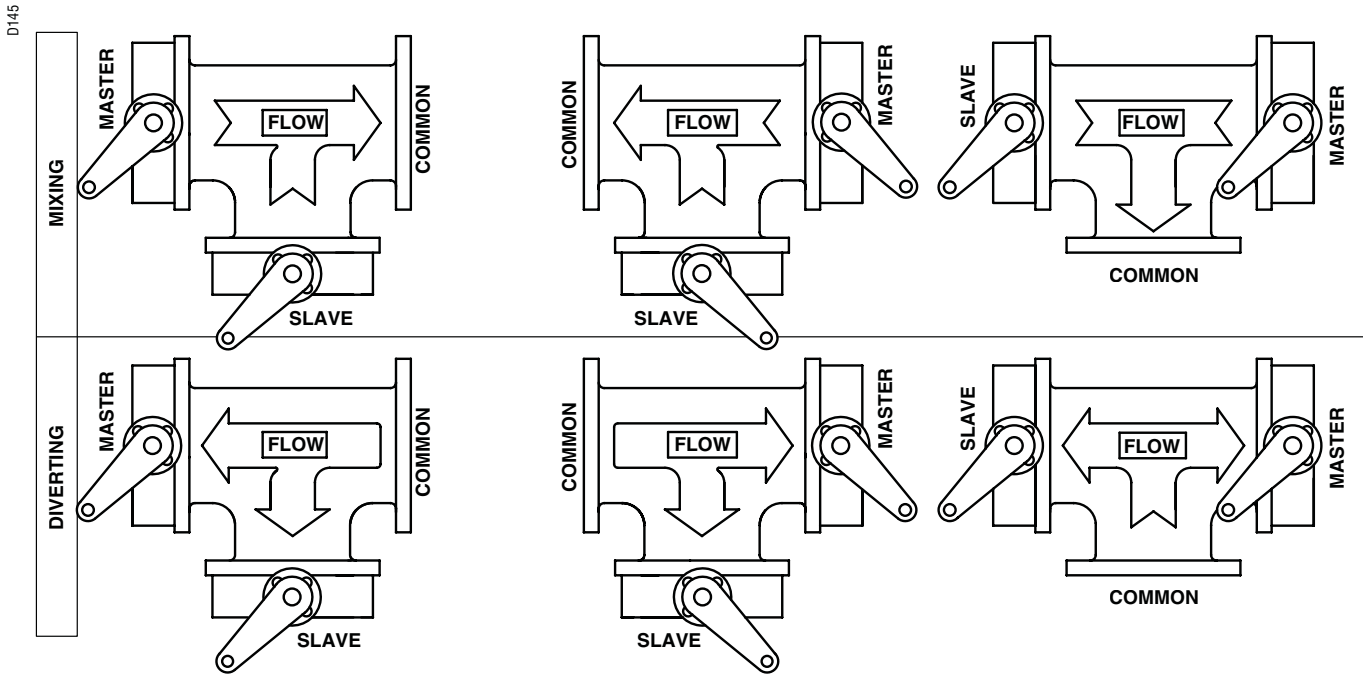
If the maximum recommended velocity is exceeded, the valve may be damaged and/or the torque increased potentially exceeding the actuators capacity.

# Butterfly Valve Selection-Velocity Chart

150 SHP/300 SHP Series Valves



## SHP Series Valves are Flow Direction Specific.



CONFIG CODE	ON/OFF OR MOD@2VDC MASTER VALVE IS	MASTER VALVE @ FAIL
M(D)10	OPEN	NON-FAIL
M(D)11	OPEN	OPEN
M(D)12	OPEN	CLOSED
M(D)13	CLOSED	NON-FAIL
M(D)14	CLOSED	OPEN
M(D)15	CLOSED	CLOSED

CONFIG CODE	ON/OFF OR MOD@2VDC MASTER VALVE IS	MASTER VALVE @ FAIL
M(D)20	OPEN	NON-FAIL
M(D)21	OPEN	OPEN
M(D)22	OPEN	CLOSED
M(D)23	CLOSED	NON-FAIL
M(D)24	CLOSED	OPEN
M(D)25	CLOSED	CLOSED

CONFIG CODE	ON/OFF OR MOD@2VDC MASTER VALVE IS	MASTER VALVE @ FAIL
M(D)30	OPEN	NON-FAIL
M(D)31	OPEN	OPEN
M(D)32	OPEN	CLOSED
M(D)33	CLOSED	NON-FAIL
M(D)34	CLOSED	OPEN
M(D)35	CLOSED	CLOSED

**M** Specifies MIXING, **D** Specifies DIVERTING

**Notes:**

1. Slave Valve operates inversely of the Master Valve.
2. The Master Valve is always located on the run.
3. The Slave Valve may also have an actuator if required (Direct Coupled).
4. On/Off actuator normal position is a function of field logic.
5. Proportional actuator normal position is a function of the CCW/CW switch.
6. All 3-way assemblies are designed for 90 degree actuator rotation.

### Flow in Std Weight Pipe (Fluid Velocity in GPM). Use with SHP Series BF Valves.

SIZE	4 FPS	8 FPS	12 FPS	16 FPS	20 FPS	24 FPS	28 FPS	32 FPS	36 FPS X
2"	39	78	118	157	196	235	274	313	353
2½"	61	122	184	245	306	367	428	490	551
3"	88	176	264	353	441	529	617	705	793
4"	157	313	470	627	783	940	1097	1253	1410
5"	245	490	734	979	1224	1469	1714	1958	2203
6"	352	705	1058	1410	1763	2115	2468	2820	3173
8"	627	1253	1880	2507	3133	3760	4387	5013	5640
10"	979	1958	2938	3917	4896	5875	6854	7834	8813
12"	1410	2820	4230	5640	7050	8460	9870	11280	12690
14"	1919	3838	5738	7677	9596	11515	13435	15354	17273
16"	2507	5013	7520	10027	12534	15040	17547	20054	22561
18"	3173	6345	9518	12690	15863	19036	22208	25381	28553
20"	3917	7834	11750	15667	19584	23501	27418	31334	35251
24"	5640	11280	16921	22561	28201	33841	39481	45121	50762
30"	8813	17625	26438	35251	44064	52877	61689	70502	79315

It is not recommended to exceed 32 feet per second through high performance butterfly valves. Velocities greater than 32 fps may damage the valve.

BUTTERFLY VALVES





## SY Series Actuators

SERIES	MODEL	Run Time(s) 90°@60Hz	Power Supply	Duty Cycle	CONTROL			Feedback	List Price
					Proportional	3 Point	On/Off		
SY1	SY1-110	12 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$796.00
	SY1-24	12 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$796.00
	SY1-220	12 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$796.00
	SY1-110P	12 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$2,878.00
	SY1-24P	12 seconds	24 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$2,878.00
	SY1-220P	12 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$2,878.00
SY2	SY2-110	15 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,008.00
	SY2-24	15 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,008.00
	SY2-220	15 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,038.00
	SY2-120MFT	15 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$4,092.00
	SY2-24MFT	15 seconds	24 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$4,092.00
	SY2-230MFT	15 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$4,092.00
SY3	SY3-110	22 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$13,260.00
	SY3-24	22 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,288.00
	SY3-220	22 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,288.00
	SY3-24MFT	22 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$4,382.00
	SY3-120MFT	22 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$4,382.00
	SY3-230MFT	22 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$4,382.00
SY4	SY4-110	16 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$6,340.00
	SY4-24	16 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$5,436.00
	SY4-220	16 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,892.00
	SY4-24MFT	16 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$5,312.00
	SY4-120MFT	16 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$5,312.00
	SY4-230MFT	16 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$5,312.00
SY5	SY5-110	22 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$4,110.00
	SY5-24	22 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,288.00
	SY5-220	22 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$3,314.00
	SY5-24MFT	22 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$5,732.00
	SY5-120MFT	22 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$5,732.00
	SY5-230MFT	22 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$5,732.00
SY6	SY6-110	28 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$13,230.00
	SY6-220	28 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$3,950.00
	SY6-120MFT	28 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$6,368.00
	SY6-230MFT	28 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$6,368.00
SY7	SY7-110	46 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$4,728.00
	SY7-220	46 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$4,728.00
	SY7-120MFT	46 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$7,082.00
	SY7-230MFT	46 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$7,082.00
SY8	SY8-110	46 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$6,340.00
	SY8-220	46 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$3,314.00
	SY8-120MFT	46 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$8,670.00
	SY8-230MFT	46 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$8,670.00

Proportional actuators will accept 0-10 VDC, 2-10 VDC, or 4-20 mA control signals as standard.

All SY actuators are non-spring return, but can be used with NSV-SY back up systems for fail-safe applications.

These products carry a two year warranty when sold as part of an assembly or with a UFLK retrofit kit.



## SY Series Actuators

SERIES	MODEL	Run Time(s) 90°@60Hz	Power Supply	Duty Cycle	CONTROL				List Price
					Proportional	3 Point	On/Off	Feedback	
SY9	SY9-110	58 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$7,846.00
	SY9-220	58 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$7,846.00
	SY9-120MFT	58 seconds	120 VAC ±10%, 50/60 Hz	50%	•			2-10 VDC/4-20 mA	\$10,196.00
	SY9-230MFT	58 seconds	230 VAC ±10%, 50/60 Hz	50%	•			2-10 VDC/4-20 mA	\$10,196.00
SY10	SY10-110	58 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$8,226.00
	SY10-220	58 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$8,226.00
	SY10-120MFT	58 seconds	120 VAC ±10%, 50/60 Hz	50%	•			2-10 VDC/4-20 mA	\$10,576.00
	SY10-230MFT	58 seconds	230 VAC ±10%, 50/60 Hz	50%	•			2-10 VDC/4-20 mA	\$10,576.00
SY11	SY11-110	58 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$10,902.00
	SY11-220	58 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$10,902.00
	SY11-120MFT	58 seconds	120 VAC ±10%, 50/60 Hz	50%	•			2-10 VDC/4-20 mA	\$13,256.00
	SY11-230MFT	58 seconds	230 VAC ±10%, 50/60 Hz	50%	•			2-10 VDC/4-20 mA	\$13,256.00
SY12	SY12-110	58 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$11,670.00
	SY12-220	58 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$11,670.00
	SY12-120MFT	58 seconds	120 VAC ±10%, 50/60 Hz	50%	•			2-10 VDC/4-20 mA	\$13,870.00
	SY12-230MFT	58 seconds	230 VAC ±10%, 50/60 Hz	50%	•			2-10 VDC/4-20 mA	\$13,838.00

Proportional actuators will accept 0-10 VDC, 2-10 VDC, or 4-20 mA control signals as standard.

All SY actuators are non-spring return, but can be used with NSV-SY back up systems for fail-safe applications.

These products carry a two year warranty when sold as part of an assembly or with a UFLK retrofit kit.

## SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	ACL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

\*Available only on -24MFT actuators.

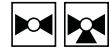
### Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HDU) modified linear (F7...HDU)		
Action	90° rotation		
Sizes	2", 2½", 3", 4", 5", 6"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seat	EPDM	Middle bushings	RPTFE
Body pressure	200 psi at -30°F to +275°F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	-22°F to +250°F [-30°C to +120°C]		
Operating ambient temperature range	-22°F to +122°F [-30°C to +50°C]		
Close-off pressure	50 psi		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		



GM...

2\*GM...



### F6HDU 2-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #	AMB24-3-X1		AMX24-MFT-X1		GMB24-3-X1		GMX24-MFT-X1		2*GMB24-3-X1		2*GMX24-MFT-X1	
Control type	On/Off, Floating Pt.		Proportional/MFT †		On/Off, Floating Pt.		Proportional/MFT †		On/Off, Floating Pt.		Proportional/MFT †	
Manual override	•		•		•		•		•		•	
Running time	95 seconds		150 seconds		150 seconds		150 seconds		150 seconds		150 seconds	
Noise level	<45 dB(A)		<45 dB(A)		<45 dB(A)		<45 dB(A)		<45 dB(A)		<45 dB(A)	
<b>ELECTRICAL CONNECTION:</b>												
3 ft cable, ½" conduit fitting												
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Inches</b>	<b>Nominal DN/mm</b>	<b>Size</b>	<b>Close-off psi</b>						
F650HDU	115	44	2"	50	50	50	\$586.00	\$720.00				
F665HDU	196	75	2½"	65	50	50	\$618.00	\$750.00				
F680HDU	302	116	3"	80	50	50	\$630.00	\$764.00				
F6100HDU	600	230	4"	100	50	50			\$820.00	\$896.00		
F6125HDU	1022	392	5"	125	50	50			\$912.00	\$992.00		
F6150HDU	1579	605	6"	150	50	50					\$1,458.00	\$1,618.00

### F7HDU 3-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #	AMB24-3-X1		AMX24-MFT-X1		GMB24-3-X1		GMX24-MFT-X1		2*GMB24-3-X1		2*GMX24-MFT-X1	
Control type	On/Off, Floating Pt.		Proportional/MFT †		On/Off, Floating Pt.		Proportional/MFT †		On/Off, Floating Pt.		Proportional/MFT †	
Manual override	•		•		•		•		•		•	
Running time	95 seconds		150 seconds		150 seconds		150 seconds		150 seconds		150 seconds	
Noise level	<45 dB(A)		<45 dB(A)		<45 dB(A)		<45 dB(A)		<45 dB(A)		<45 dB(A)	
<b>ELECTRICAL CONNECTION:</b>												
3 ft cable, ½" conduit fitting												
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Inches</b>	<b>Nominal DN/mm</b>	<b>Size</b>	<b>Close-off psi</b>						
F750HDU	115	44	2"	50	50	50	\$1,182.00	\$1,334.00				
F765HDU	196	75	2½"	65	50	50	\$1,326.00	\$1,530.00				
F780HDU	302	116	3"	80	50	50			\$1,474.00	\$1,656.00		
F7100HDU	600	230	4"	100	50	50					\$2,262.00	\$2,454.00
F7125HDU	1022	392	5"	125	50	50					\$2,516.00	\$2,680.00
F7150HDU	1579	605	6"	150	50	50					\$2,602.00	\$2,828.00

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators.

### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

# F6/F7 HDU Series Butterfly Valves, Fail-Safe Actuators

Undercut Disc, 50 Psi Close-Off



## Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HDU) modified linear (F7...HDU)		
Action	90° rotation		
Sizes	2", 2½", 3", 4", 5", 6"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seats	EPDM	Middle bushings	RPTFE
Body pressure	200 psi at -30°F to +275°F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Body rating	for use with ANSI Class 125/150 Flanges		
Media temperature range	-22°F to +250°F [-30°C to +120°C]		
Operating ambient temperature range	-22°F to +122°F [-30°C to +50°C]		
Close-off pressure	50 psi		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		



GK...

2\*AF...



## F6HDU 2-way Butterfly Valve with Spring Return Actuators

ACTUATOR PART #	AF24 US	AFX24-MFT-X1	2*AF24 US	2*AFX24-MFT-X1	GKB24-3-X1	GKX24-MFT-X1	2*GKB24-3-X1	2*GKX24-MFT-X1
Control type	On/Off	Proportional/MFT †	On/Off	Proportional/MFT †	On/Off, Floating Point	Proportional/MFT †	On/Off, Floating Point	Proportional/MFT †
Manual override	•	•	•	•	•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
	spring	<20 seconds	<20 seconds	<20 seconds	<20 seconds			
fail-safe					35 seconds	35 seconds	35 seconds	35 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)

### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•	•	•	•
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Butterfly Valve Model #	Cv 90°	Cv 60°	Valve Nominal Size Inches	DN/mm	Close-off psi							
F650HDU	115	44	2"	50	50	\$750.00	\$882.00					
F665HDU	196	75	2½"	65	50	\$780.00	\$902.00					
F680HDU	302	116	3"	80	50			\$1,004.00	\$1,546.00			
F6100HDU	600	230	4"	100	50			\$1,332.00	\$1,618.00	\$1,434.00	\$1,690.00	
F6125HDU	1022	392	5"	125	50			\$1,406.00	\$1,688.00	\$2,140.00	\$2,580.00	
F6150HDU	1579	605	6"	150	50						\$2,686.00	\$3,206.00

## F7HDU 3-way Butterfly Valve with Spring Return Actuators

ACTUATOR PART #	AF24 US	AFX24-MFT-X1	2*AF24 US	2*AFX24-MFT-X1	GKB24-3-X1	GKX24-MFT-X1	2*GKB24-3-X1	2*GKX24-MFT-X1
Butterfly Valve Model #								
F750HDU	\$1,398.00	\$1,650.00						
F765HDU			\$2,056.00	\$2,464.00				
F780HDU			\$2,108.00	\$2,540.00	\$2,088.00	\$2,450.00		
F7100HDU							\$3,490.00	\$4,042.00
F7125HDU							\$3,744.00	\$4,268.00
F7150HDU							\$3,830.00	\$4,416.00

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators. Note: Specify configuration.

OPTIONS	AF24-S US	AFX24-MFT-S-X1	AF120 US	AF120-S US	2*AF24-S US	2*AFX24-MFT-S-X1	2*AF120 US	2*AF120-S US
120 VAC power supply			•	•			•	•
Built-in auxiliary switch	•	•			•	•		•
<b>F6HDU 2-way Butterfly Valve with Spring Return</b>								
F650HDU	\$838.00	\$968.00	\$802.00	\$890.00				
F665HDU	\$866.00	\$990.00	\$834.00	\$918.00				
F680HDU					\$1,092.00	\$1,632.00	\$1,112.00	\$1,198.00
F6100HDU					\$1,418.00	\$1,706.00	\$1,440.00	\$1,524.00
F6125HDU					\$1,774.00	\$1,774.00	\$1,514.00	\$1,602.00
<b>F7HDU 3-way Butterfly Valve with Spring Return</b>								
F750HDU	\$1,486.00	\$1,738.00	\$1,452.00	\$1,540.00				
F765HDU					\$2,142.00	\$2,550.00	\$2,164.00	\$2,252.00
F780HDU					\$2,196.00	\$2,628.00	\$2,216.00	\$2,304.00

### Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HDU) modified linear (F7...HDU)		
Action	90° rotation		
Sizes	2", 2½", 3", 4", 5", 6"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seat	EPDM	Middle bushings	RPTFE
Body pressure	200 psi at -30°F to +275°F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	-22°F to +250°F [-30°C to +120°C]		
Operating ambient temperature range	-22°F to +122°F [-30°C to +50°C]		
Close-off pressure	50 psi		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		



Available July 2010



### F6HDU 2-way Butterfly Valve with NEMA 4 Non-Spring Return Actuators

ACTUATOR PART #	GRCX24-3-T-5 N4		GRX24-MFT-T-5 N4		GRCX24-3-T-7 N4		GRX24-MFT-T-7 N4	
Control type	On/Off, Floating Pt.		Proportional/MFT†		On/Off, Floating Pt.		Proportional/MFT†	
Manual override	•		•		•		•	
Running time	35 seconds		150 seconds		35 seconds		150 seconds	
Noise level	<45 dB(A)		<45 dB(A)		<45 dB(A)		<45 dB(A)	
<b>ELECTRICAL CONNECTION:</b>								
One (1) ½" conduit fitting	•		•		•		•	
Covered terminal strip	•		•		•		•	
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>			
F650HDU	115	44	2"	50	50	\$1,248.00	\$1,342.00	
F665HDU	196	75	2½"	65	50	\$1,308.00	\$1,388.00	
F680HDU	302	116	3"	80	50	\$1,384.00	\$1,480.00	
F6100HDU	600	230	4"	100	50			\$1,462.00
F6125HDU	1022	392	5"	125	50			\$1,520.00
								\$1,590.00
								\$1,628.00

### F7HDU 3-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #	GMCX24-3-T N4-X1		GMX24-MFT-T N4-X1		2*GMCX24-3-T N4-X1		2*GMX24-MFT-T N4-X1	
Control type	On/Off, Floating Pt.		Proportional/MFT†		On/Off, Floating Pt.		Proportional/MFT†	
Manual override	•		•		•		•	
Running time	35 seconds		150 seconds		35 seconds		150 seconds	
Noise level	<45 dB(A)		<45 dB(A)		<45 dB(A)		<45 dB(A)	
<b>ELECTRICAL CONNECTION:</b>								
One (1) ½" conduit fitting	•		•		•		•	
Covered terminal strip	•		•		•		•	
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>			
F750HDU	115	44	2"	50	50	\$1,948.00	\$2,170.00	
F765HDU	196	75	2½"	65	50	\$2,058.00	\$2,154.00	
F780HDU	302	116	3"	80	50	\$2,124.00	\$2,264.00	
F7100HDU	600	230	4"	100	50			\$3,710.00
F7125HDU	1022	392	5"	125	50			\$3,982.00
F7150HDU	1579	605	6"	150	50			\$4,306.00
								\$4,126.00
								\$4,352.00
								\$4,586.00

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators.

### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

# F6/F7 HDU Series Butterfly Valve, Non-Spring Return Actuators

DR With NEMA 2 & NEMA 4 Actuator - Undercut Disc, 50 Psi Close-Off



## Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HDU) modified linear (F7...HDU)		
Action	90° rotation		
Sizes	6"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seat	EPDM	Middle bushings	RPTFE
Body pressure	200 psi at -30°F to +275°F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	-22°F to +250°F [-30°C to +120°C]		
Operating ambient temperature range	-22°F to +122°F [-30°C to +50°C]		
Close-off pressure	50 psi		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		



Available July 2010



## F6HDU 2-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #	DRCX24-3-T-7 N4	DRX24-MFT-T-7 N4	DRCX24-3-T-7	DRX24-MFT-T-7
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•
Running time	35 seconds	150 seconds	35 seconds	150 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>				
One (1) ½" conduit fitting	•	•	•	•
Covered terminal strip	•	•	•	•
<b>Butterfly Valve</b>	<b>Cv</b>	<b>Cv</b>	<b>Valve Nominal Size</b>	<b>Close-off</b>
<b>Model #</b>	<b>90°</b>	<b>60°</b>	<b>Inches</b>	<b>psi</b>
F6150HDU	1579	605	6" 150	50
	\$2,230.00	\$2,406.00	\$1,702.00	\$1,832.00

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators.

## MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

BUTTERFLY VALVES

L30056 - 04/10 - Subject to change. © Belimo Aircontrols (USA), Inc.

### Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HD) modified linear (F7...HD)		
Action	90° rotation		
Sizes	2", 2½", 3", 4"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seats	EPDM	Middle bushings	RPTFE
Body pressure	200 psi at -30°F to 275°F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	-22°F to +250°F [-30°C to +120°C]		
Operating ambient temperature range	-22°F to +122°F [-30°C to +50°C]		
Close-off pressure	200 psi		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		



### F6HD 2-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #	AMB24-3-X1	AMX24-MFT-X1	GMB24-3-X1	GMX24-MFT-X1	2*GMB24-3-X1	2*GMX24-MFT-X1
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•	•	•
Running time	95 seconds	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>						
3 ft cable, ½" conduit fitting	•	•	•	•	•	•
<b>Butterfly Valve</b>	<b>C<sub>v</sub></b>	<b>C<sub>v</sub></b>	<b>Valve Nominal Size</b>	<b>Close-off</b>		
<b>Model #</b>	<b>90°</b>	<b>60°</b>	<b>Inches DN/mm</b>	<b>psi</b>		
F650HD	115	44	2" 50	200	\$608.00	\$726.00
F665HD	196	75	2½" 65	200	\$626.00	\$756.00
F680HD	302	116	3" 80	200		
F6100HD	600	230	4" 100	200		
					\$1,334.00	\$1,496.00

### F7HD 3-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #	AMB24-3-X1	AMX24-MFT-X1	GMB24-3-X1	GMX24-MFT-X1	2*GMB24-3-X1	2*GMX24-MFT-X1
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•	•	•
Running time	95 seconds	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>						
3 ft cable, ½" conduit fitting	•	•	•	•	•	•
<b>Butterfly Valve</b>	<b>C<sub>v</sub></b>	<b>C<sub>v</sub></b>	<b>Valve Nominal Size</b>	<b>Close-off</b>		
<b>Model #</b>	<b>90°</b>	<b>60°</b>	<b>Inches DN/mm</b>	<b>psi</b>		
F750HD	115	44	2" 50	200	\$1,214.00	\$1,378.00
F765HD	196	75	2½" 65	200		
F780HD	302	116	3" 80	200		
F7100HD	600	230	4" 100	200		
					\$1,464.00	\$1,656.00
					\$1,836.00	\$2,258.00
					\$2,278.00	\$2,570.00

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators. Note: Specify configuration.

### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

# F6/F7 HD Series Butterfly Valve, Electronic Fail-Safe Actuators

Full Rated Disc



## Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HD) modified linear (F7...HD)		
Action	90° rotation		
Sizes	2", 2½", 3", 4"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seats	EPDM	Middle bushings	RPTFE
Body pressure	200 psi at -30°F to +275°F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Body rating	for use with ANSI Class 125 Flanges		
Media temperature range	-22° F to +250° F [-30°C to +120°C]		
Operating ambient temperature range	-22° F to +122° F [-30°C to +50°C]		
Close-off pressure	200 psi		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		



GK...

2\*AF...



## F6HD 2-way Butterfly Valve with Spring Return Actuators

ACTUATOR PART #	AF24 US	AFX24-MFT-X1	2*AF24 US	2*AFX24-MFT-X1	GKB24-3-X1	GKX24-MFT-X1	2*GKB24-3-X1	2*GKX24-MFT-X1
Control type	On/Off	Proportional/MFT†	On/Off	Proportional/MFT†	On/Off Floating Point	Proportional/MFT†	On/Off, Floating Point	Proportional/MFT†
Manual override	•	•	•	•	•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
	spring	<20 seconds	<20 seconds	<20 seconds	<20 seconds			
	fail-safe				35 seconds	35 seconds	35 seconds	35 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>								
3 ft cable, ½" conduit fitting	•	•	•	•	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>			
F650HD	115	44	2"	50	200	\$810.00	\$994.00	
F665HD	196	75	2½"	65	200		\$990.00	\$1,212.00
F680HD	302	116	3"	80	200		\$1,272.00	\$1,654.00
F6100HD	600	230	4"	100	200			\$1,478.00
								\$1,724.00
								\$2,562.00
								\$3,084.00

## F7HD 3-way Butterfly Valve with Spring Return Actuators

ACTUATOR PART #	AF24 US	AF24-MFT US	2*AF24 US	2*AF24-MFT US	GKB24-3-X1	GKX24-MFT-X1	2*GKB24-3-X1	2*GKX24-MFT-X1
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>			
F750HD	115	44	2"	50	200	\$1,424.00	\$1,664.00	
F765HD	196	75	2½"	65	200		\$2,086.00	\$2,540.00
F780HD	302	116	3"	80	200		\$2,078.00	\$2,450.00
F7100HD	600	230	4"	100	200			\$3,064.00
								\$3,846.00
								\$3,506.00
								\$4,158.00

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators. Note: Specify configuration.

OPTIONS	AF24-S US	AFX24-MFT-S-X1	AF120 US	AF120-S US	2*AF24-S US	2*AFX24-MFT-S-X1	2*AF120 US	2*AF120-S US
120 VAC power supply			•	•			•	•
Built-in auxiliary switch	•	•		•	•	•		•
<b>F6HD 2-way Butterfly Valve with Spring Return</b>								
F650HD	\$898.00	\$1,080.00	\$866.00	\$954.00				
F665HD					\$1,076.00	\$1,298.00	\$1,098.00	\$1,184.00
F680HD					\$1,360.00	\$1,742.00	\$1,380.00	\$1,466.00
<b>F7HD 3-way Butterfly Valve with Spring Return</b>								
F750HD	\$1,510.00	\$1,752.00	\$1,480.00	\$1,566.00				
F765HD					\$2,172.00	\$2,628.00	\$2,194.00	\$2,278.00

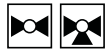


### Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HD) modified linear (F7...HD)		
Action	90° rotation		
Sizes	2", 2½", 3", 4"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seats	EPDM	Middle bushings	RPTFE
Body pressure	200 psi at -30°F to 275°F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	-22°F to +250°F [-30°C to +120°C]		
Operating ambient temperature range	-22°F to +122°F [-30°C to +50°C]		
Close-off pressure	200 psi		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		



Available July 2010



### F6HD 2-way Butterfly Valve with Nema 4 Non-Spring Return Actuators

ACTUATOR PART #	GRCX24-3-T-5 N4					GRX24-MFT-T-5 N4				
Control type	On/Off, Floating Pt.					Proportional/MFT †				
Manual override	•					•				
Running time	35 seconds					150 seconds				
Noise level	<45 dB(A)					<45 dB(A)				
<b>ELECTRICAL CONNECTION:</b>										
½" conduit fitting	•					•				
Covered terminal strip	•					•				
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Inches</b>	<b>Nominal DN/mm</b>	<b>Close-off psi</b>					
F650HD	115	44	2"	50	200	\$1,254.00				\$1,562.00
F665HD	196	75	2½"	65	200	\$1,436.00				\$1,744.00
F680HD	302	116	3"	80	200	\$1,458.00				\$1,766.00

### F7HD 3-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #	GMCX24-3-T N4-X1					GMX24-MFT-T N4-X1					2*GMCX24-3-T N4-X1					2*GMX24-MFT-T N4-X1				
Control type	On/Off, Floating Pt.					Proportional/MFT†					On/Off, Floating Pt.					Proportional/MFT†				
Manual override	•					•					•					•				
Running time	35 seconds					150 seconds					35 seconds					150 seconds				
Noise level	<45 dB(A)					<45 dB(A)					<45 dB(A)					<45 dB(A)				
<b>ELECTRICAL CONNECTION:</b>																				
One (1) ½" conduit fitting	•					•					•					•				
Covered terminal strip	•					•					•					•				
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Inches</b>	<b>Nominal DN/mm</b>	<b>Close-off psi</b>															
F750HD	115	44	2"	50	200	\$1,906.00				\$2,214.00										
F765HD	196	75	2½"	65	200	\$2,184.00				\$2,492.00										
F780HD	302	116	3"	80	200							\$3,314.00							\$3,930.00	
F7100HD	600	230	4"	100	200							\$3,626.00							\$4,242.00	

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators. Note: Specify configuration.

### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

# F6/F7 HD Series Butterfly Valve, Non-Spring Return Actuators

DR With NEMA 2 & NEMA 4 Industrial Actuator - Full Rated Disc, 200 Psi Close-Off



## Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HD) modified linear (F7...HD)		
Action	90° rotation		
Sizes	4"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seats	EPDM	Middle bushings	RPTFE
Body pressure	200 psi at -30°F to 275°F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	-22°F to +250°F [-30°C to +120°C]		
Operating ambient temperature range	-22°F to +122°F [-30°C to +50°C]		
Close-off pressure	200 psi		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		



Available July 2010



## F6HD 2-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #	DRCX24-3-T-7 N4		DRX24-MFT-T-7 N4		DRC24-3-T-7		DRX24-MFT-T-7		
Control type	On/Off, Floating Pt.		Proportional/MFT †		On/Off, Floating Pt.		Proportional/MFT †		
Manual override	•		•		•		•		
Running time	35 seconds		150 seconds		35 seconds		150 seconds		
Noise level	<45 dB(A)		<45 dB(A)		<45 dB(A)		<45 dB(A)		
<b>ELECTRICAL CONNECTION:</b>									
½" conduit fitting	•		•		•		•		
Covered terminal strip	•		•		•		•		
<b>Butterfly Valve</b>	<b>C<sub>v</sub></b>	<b>C<sub>v</sub></b>	<b>Valve</b>	<b>Nominal Size</b>	<b>Close-off</b>				
<b>Model #</b>	<b>90°</b>	<b>60°</b>	<b>Inches</b>	<b>DN/mm</b>	<b>psi</b>				
F6100HD	600	230	4"	100	200	\$1,682.00	\$1,858.00	\$1,210.00	\$1,386.00

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators. Note: Specify configuration.

## MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Most popular configurations are available at no additional cost.  
All other configurations carry a \$34.00 list price.

BUTTERFLY VALVES

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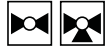
### Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HDU) modified linear (F7...HDU)		
Action	90° rotation		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seats	EPDM	Middle bushings	RPTFE
Body pressure	200 psi at -30° F to +275° F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	-22°F to +250°F [-30°C to +120°C]		
Operating ambient temperature range	-22°F to +150°F [-30°C to +65°C]		
Close-off pressure	50 psi		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		



F6 SY...

F7 SY...



### F6HDU 2-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY1-24, SY1-110, SY1-220	SY1-24P, SY1-110P	SY2-24, SY2-110, SY2-220	SY2-24MFT, SY2-120MFT, SY2-230MFT
Control type	On/Off, Floating Pt.	Proportional	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•
Running time	12 seconds	12 seconds	15 seconds	15 seconds
<b>ELECTRICAL CONNECTION:</b>				
Two (2) ½" conduit fittings	•	•	•	•
Covered terminal strip	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Nominal Size Inches</b>	<b>Close-off DN/mm psi</b>
F650HDU	115	44	2"	50 50
F665HDU	196	75	2½"	65 50
F680HDU	302	116	3"	80 50
F6100HDU	600	230	4"	100 50
F6125HDU	1022	392	5"	125 50
F6150HDU	1579	605	6"	150 50
	\$2,008.00	\$3,176.00		
	\$2,026.00	\$3,188.00		
	\$2,062.00	\$3,206.00		
			\$2,354.00	\$3,526.00
			\$2,448.00	\$3,618.00
			\$3,086.00	\$4,130.00

Please add desired voltage to model number. Example: F6200HDU+SY3-24.

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

### F7HDU 3-way Butterfly Valve with NEMA 4X Industrial Style Actuators

ACTUATOR PART #	SY1-24, SY1-110, SY1-220	SY1-24P, SY1-110P	SY2-24, SY2-110, SY2-220	SY2-24MFT, SY2-120MFT, SY2-230MFT
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Nominal Size Inches</b>	<b>Close-off DN/mm psi</b>
F750HDU	115	44	2"	50 50
F765HDU	196	75	2½"	65 50
F780HDU	302	116	3"	80 50
F7100HDU	600	230	4"	100 50
F7125HDU	1022	392	5"	125 50
F7150HDU	1579	605	6"	150 50
	\$3,318.00	\$4,462.00		
	\$3,348.00	\$4,536.00		
			\$3,668.00	\$4,708.00
			\$3,906.00	\$5,178.00
			\$4,344.00	\$5,490.00
			\$4,914.00	\$6,232.00

Please add desired voltage to model number. Ex: F7300HDU+SY4-120MFT. Note: Specify configuration.

### SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	ACL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

\*Available only on -24MFT actuators.

# F6/F7 HDU Series Butterfly Valve, Non-Spring Return Actuators

With NEMA 4X Industrial Actuator - Undercut Disc



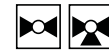
## Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HDU) modified linear (F7...HDU)		
Action	90° rotation		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seats	EPDM	Middle bushings	RPTFE
Body pressure	200 psi at -30° F to 275° F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	-22°F to +250°F [-30°C to +120°C]		
Operating ambient temperature range	-22°F to +150°F [-30°C to +65°C]		
Close-off pressure	50 psi		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		



F6 SY...

F7 SY...



## F6HDU 2-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY3-24, SY3-110, SY3-220	SY3-24MFT, SY3-120MFT, SY3-230MFT	SY4-24, SY4-110, SY4-220	SY4-24MFT, SY4-120MFT, SY4-230MFT
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•
Running time	22 seconds	22 seconds	16 seconds	16 seconds
<b>ELECTRICAL CONNECTION:</b>				
Two (2) ½" conduit fittings	•	•	•	•
Covered terminal strip	•	•	•	•
<b>Butterfly Valve</b>	<b>C<sub>v</sub></b>	<b>C<sub>v</sub></b>	<b>Valve Nominal Size</b>	<b>Close-off</b>
<b>Model #</b>	<b>90°</b>	<b>60°</b>	<b>Inches</b>	<b>DN/mm</b>
				<b>psi</b>
F6200HDU	3136	1202	8"	200
				50
				\$3,258.00
F6250HDU	5340	2047	10"	250
				50
				\$4,152.00
F6300HDU	8250	3062	12"	300
				50
				\$5,952.00
				\$7,120.00

Please add desired voltage to model number. Example: F6200HDU+SY3-24.

## F7HDU 3-way Butterfly Valve with NEMA 4X Industrial Style Actuators

ACTUATOR PART #	SY3-24, SY3-110, SY3-220	SY3-24MFT, SY3-120MFT, SY3-230MFT	SY4-24, SY4-110, SY4-220	SY4-24MFT, SY4-120MFT, SY4-230MFT
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•
Running time	22 seconds	22 seconds	16 seconds	16 seconds
<b>Butterfly Valve</b>	<b>C<sub>v</sub></b>	<b>C<sub>v</sub></b>	<b>Valve Nominal Size</b>	<b>Close-off</b>
<b>Model #</b>	<b>90°</b>	<b>60°</b>	<b>Inches</b>	<b>DN/mm</b>
				<b>psi</b>
F7200HDU	3136	1202	8"	200
				50
				\$6,202.00
F7250HDU	5340	2047	10"	250
				50
				\$7,440.00
F7300HDU	8250	3062	12"	300
				50
				\$10,308.00
				\$11,694.00

Please add desired voltage to model number. Ex: F7300HDU+SY4-120MFT. Note: Specify configuration.

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

## SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	ACL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

\* Available only on -24MFT actuators.

### Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HD) modified linear (F7...HD)		
Action	90° rotation		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seats	EPDM	Middle bushings	RPTFE
Body pressure	200 psi at -30°F to +275°F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Flange	For use with ANSI Class 125/150 Flanges		
Media temperature range	-22°F to +250°F [-30°C to +120°C]		
Operating ambient temperature range	-22°F to +150°F [-30°C to +65°C]		
Close-off pressure	200 psi		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		



F6 SY...



### F6HD 2-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY2-24, SY2-110, SY2-220	SY2-24MFT, SY2-120-MFT, SY2-230MFT	SY3-24, SY3-110, SY3-220	SY3-24MFT, SY3-120-MFT, SY3-230MFT	SY4-24, SY4-110, SY4-220
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.
Manual override	•	•	•	•	•
Running time	15 seconds	15 seconds	22 seconds	22 seconds	16 seconds
<b>ELECTRICAL CONNECTION:</b>					
Two (2) ½" conduit fittings	•	•	•	•	•
Covered terminal strip	•	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>
F650HD	115	44	2"	50	200
F665HD	196	75	2½"	65	200
F680HD	302	116	3"	80	200
F6100HD	600	230	4"	100	200
F6125HD	1022	392	5"	125	200
F6150HD	1579	605	6"	150	200
F6200HD	3136	1202	8"	200	200
F6250HD	5340	2047	10"	250	200
F6300HD	8250	3062	12"	300	200
	\$2,252.00	\$3,512.00			
	\$2,262.00	\$3,522.00			
	\$2,280.00	\$3,558.00			
	\$2,360.00	\$3,626.00			
	\$2,982.00	\$4,262.00			
			\$3,108.00	\$4,362.00	
					\$4,512.00
					\$5,536.00
					\$6,702.00

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

### SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	AGL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

\*Available only on -24MFT actuators.

# F6 HD Series Butterfly Valve, Non-Spring Return Actuators

With NEMA 4X Industrial Actuator - Full Rated Disc



## Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HD) modified linear (F7...HD)		
Action	90° rotation		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seats	EPDM	Middle bushings	RPTFE
Body pressure	200 psi at -30°F to +275°F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	-22°F to +250°F [-30°C to +120°C]		
Operating ambient temperature range	-22°F to +150°F [-30°C to +65°C]		
Close-off pressure	200 psi (2"-12") and 150 psi (14"-30")		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		



F6 SY...



## F6HD 2-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY4-24MFT, SY4-120MFT, SY4-230MFT	SY5-24, SY5-110, SY5-220	SY5-24MFT, SY5-120MFT, SY5-230MFT	SY6-110, SY6-220	SY6-120MFT, SY6-230MFT	SY8-110, SY8-220
Control type	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.
Manual override	•	•	•	•	•	•
Running time	16 seconds	22 seconds	22 seconds	28 seconds	28 seconds	46 seconds
<b>ELECTRICAL CONNECTION:</b>						
Two (2) ½" conduit fittings	•	•	•	•	•	•
Covered terminal strip	•	•	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>	
F6200HD	3136	1202	8"	200	200	\$5,808.00
F6250HD	5340	2047	10"	250	200	\$6,782.00
F6300HD	8250	3062	12"	300	200	\$8,094.00
F6350HD	11917	4568	14"	350	150	
F6400HD	16388	6282	16"	400	150	\$7,356.00
F6450HD	21705	8320	18"	450	150	\$9,994.00
F6500HD	27908	10698	20"	500	150	\$10,084.00
						\$11,218.00
						\$12,398.00
						\$14,978.00

ACTUATOR PART #	SY8-120MFT, SY8-230MFT	SY11-110, SY11-220	SY11-120MFT, SY11-230MFT	SY12-110, SY12-220	SY12-120MFT, SY12-230MFT	
Control type	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	
Manual override	•	•	•	•	•	
Running time	46 seconds	58 seconds	58 seconds	58 seconds	58 seconds	
<b>ELECTRICAL CONNECTION:</b>						
Two (2) ½" conduit fittings	•	•	•	•	•	
Covered terminal strip	•	•	•	•	•	
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>	
F6450HD	21705	8320	18"	450	150	\$13,788.00
F6500HD	27908	10698	20"	500	150	\$16,676.00
F6600HD	43116	16528	24"	600	150	\$24,746.00
F6750HD	73426	28146	30"	750	150	\$26,976.00
						\$40,730.00
						\$41,470.00

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

BUTTERFLY VALVES

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### Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HD) modified linear (F7...HD)		
Action	90° rotation		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seats	EPDM	Middle bushings	RPTFE
Body pressure	200 psi at -30°F to +275°F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	-22°F to +250°F [-30°C to +120°C]		
Operating ambient temperature range	-22°F to +150°F [-30°C to +65°C]		
Close-off pressure	200 psi (2"-12") and 150 psi (14"-24")		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		



F7 SY...



### F7HD 3-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY2-24, SY2-110, SY2-220	SY2-24MFT, SY2-120MFT, SY2-230MFT	SY3-24, SY3-110, SY3-220	SY3-24MFT, SY3-120MFT, SY3-230-MFT	SY4-24, SY4-110, SY4-220
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.
Manual override	•	•	•	•	•
Running time	15 seconds	15 seconds	22 seconds	22 seconds	16 seconds
<b>ELECTRICAL CONNECTION:</b>					
Two (2) ½" conduit fittings	•	•	•	•	•
Covered terminal strip	•	•	•	•	•
<b>Butterfly Valve</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size</b>	<b>Close-off</b>	
<b>Model #</b>	<b>Inches</b>	<b>DN/mm</b>	<b>psi</b>		
F750HD	115	44	2" 50	200	\$3,528.00
F765HD	196	75	2½" 65	200	\$3,632.00
F780HD	302	116	3" 80	200	\$3,676.00
F7100HD	600	230	4" 100	200	\$4,506.00
F7125HD	1022	392	5" 125	200	\$4,724.00
F7150HD	1579	605	6" 150	200	\$5,446.00
F7200HD	3136	1202	8" 200	200	\$6,048.00
F7250HD	5340	2047	10" 250	200	\$6,650.00
					\$6,842.00
					\$9,196.00

ACTUATOR PART #	SY4-24MFT, SY4-120MFT, SY4-230MFT	SY5-24, SY5-110, SY5-220	SY5-24MFT, SY5-120MFT, SY5-230MFT	SY6-110, SY6-220	SY6-120MFT, SY6-230MFT
Control type	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•	•
Running time	16 seconds	22 seconds	22 seconds	28 seconds	28 seconds
<b>ELECTRICAL CONNECTION:</b>					
Two (2) ½" conduit fittings	•	•	•	•	•
Covered terminal strip	•	•	•	•	•
<b>Butterfly Valve</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size</b>	<b>Close-off</b>	
<b>Model #</b>	<b>Inches</b>	<b>DN/mm</b>	<b>psi</b>		
F7200HD	3136	1202	8" 200	200	\$8,176.00
F7250HD	5340	2047	10" 250	200	\$10,410.00
F7300HD	8250	3062	12" 300	200	\$10,910.00
F7350HD	11917	3062	14" 350	150	\$12,084.00
					\$17,802.00
					\$18,926.00

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

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BUTTERFLY VALVES

# F7 HD Series Butterfly Valve, Non-Spring Return Actuators

With NEMA 4X Industrial Actuator - Full Rated Disc



## Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...HD) modified linear (F7...HD)		
Action	90° rotation		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24"		
Type of end fitting	125/150 lb. flanged, ASME B16.1		
Materials:			
Body	ductile iron, ASTM A536	O-ring	EPDM
Disc	304 stainless steel	Upper bushing	RPTFE
Seats	EPDM	Middle bushing	RPTFE
Body pressure	200 psi at -30°F to +275°F	Lower bushing	RPTFE
Shaft	416 stainless steel		
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	-22°F to +250°F [-30°C to +120°C]		
Operating ambient temperature range	-22°F to +150°F [-30°C to +65°C]		
Close-off pressure	200 psi (2"-12") and 150 psi (14"-24")		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	12 FPS		
Body pressure rating	PN16 (232 psi, 16 bar)		

F7 SY...



## F7HD 3-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY7-110, SY7-220	SY7-120MFT, SY7-230MFT	SY8-110, SY8-220	SY8-120MFT, SY8-230MFT	SY9-110, SY9-220	SY9-120MFT, SY9-230MFT	SY12-110, SY12-220	SY12-120- MFT, SY12- 230MFT
Control type	On/Off, Floating Pt.	Proportional/ MFT†	On/Off, Floating Pt.	Proportional/ MFT†	On/Off, Floating Pt.	Proportional/ MFT†	On/Off, Floating Pt.	Proportional/ MFT†
Manual override	•	•	•	•	•	•	•	•
Running time	46 seconds	46 seconds	46 seconds	46 seconds	58 seconds	58 seconds	58 seconds	58 seconds
<b>ELECTRICAL CONNECTION:</b>								
Two (2) ½" conduit fittings	•	•	•	•	•	•	•	•
Covered terminal strip	•	•	•	•	•	•	•	•
<b>Butterfly Valve</b>	<b>Cv</b>	<b>Cv</b>	<b>Valve Nominal Size</b>	<b>Close-off</b>				
<b>Model #</b>	<b>90°</b>	<b>60°</b>	<b>Inches</b>	<b>DN/mm</b>	<b>psi</b>			
F7400HD	16388	6282	16"	400	150	\$20,580.00	\$21,526.00	
F7450HD	21705	8320	18"	450	150		\$31,734.00	\$34,698.00
F7500HD	27908	10698	20"	500	150			\$38,900.00
F7600HD	43116	16528	24"	600	150			\$41,830.00
								\$48,930.00
								\$51,888.00

## SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	ACL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price. Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

\*Available only on -24MFT actuators.



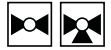
### Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...150SHP) modified linear (F7...150SHP)		
Action	90° rotation		
Sizes	2", 2½", 3", 4"		
Type of end fitting	125/150 lb. flanged		
Materials:			
Body	Carbon steel full lug	Shaft	17-4 PH stainless
Disc	316 stainless steel	Gland Seal	PTFE
Seats	RPTFE	Bushings	glass backed PTFE
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	ANSI Class 150 limitations		
Operating ambient temperature range	-22°F to +122°F [-30°C to +50°C]		
Close-off pressure	285 psi @ 100°F		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 150 limitations		



F6 GM...

F7 2\*GM...



### F6...150SHP 2-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #	GMB24-3-X1		GMX24-MFT-X1		2*GMB24-3-X1		2*GMX24-MFT-X1	
Control type	On/Off, Floating Pt.		Proportional		On/Off, Floating Pt.		Proportional	
Manual override	•		•		•		•	
Running time	150 seconds		90 seconds		150 seconds		90 seconds	
Noise level	<45 dB(A)		<45 dB(A)		<45 dB(A)		<45 dB(A)	
<b>ELECTRICAL CONNECTION:</b>								
3 ft cable, ½" conduit fitting								
Butterfly Valve Model #	C <sub>V</sub> 90°	C <sub>V</sub> 60°	Valve Nominal Size Inches	DN/mm	Close-off psi			
F650-150SHP	102	56	2"	50	285	\$2,888.00	\$3,000.00	
F665-150SHP	146	80	2½"	65	285	\$2,904.00	\$3,014.00	
F680-150SHP	228	125	3"	80	285	\$2,922.00	\$3,036.00	
F6100-150SHP	451	248	4"	100	150	\$3,534.00	\$3,646.00	
F6100-150SHP	451	248	4"	100	285			\$3,790.00 \$4,086.00

### F7...150SHP 3-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #	GMB24-3-X1		GMX24-MFT-X1		2*GMB24-3-X1		2*GMX24-MFT-X1	
Butterfly Valve Model #	C <sub>V</sub> 90°	C <sub>V</sub> 60°	Valve Nominal Size Inches	DN/mm	Close-off psi			
F750-150SHP	102	56	2"	50	150	\$5,838.00	\$5,944.00	
F765-150SHP	146	80	2½"	65	150	\$5,988.00	\$6,094.00	
F780-150SHP	228	125	3"	80	150	\$5,998.00	\$6,104.00	
F750-150SHP	102	56	2"	50	285			\$6,154.00 \$6,374.00
F765-150SHP	146	80	2½"	65	285			\$6,306.00 \$6,526.00
F780-150SHP	228	125	3"	80	285			\$6,342.00 \$6,564.00

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators. Note: Specify configuration.

### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

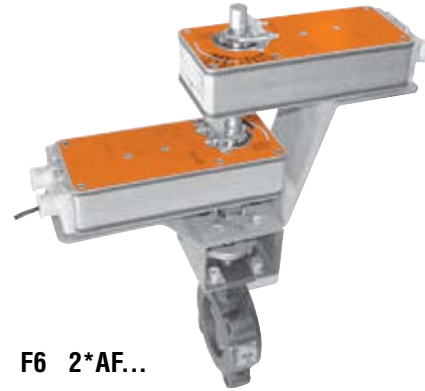
# F6/F7 ANSI Class 150, Spring Return and Electronic Fail-Safe Actuators

Reinforced Teflon® Seat, 316 Stainless Disc

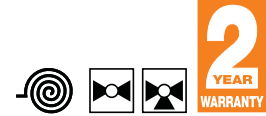


## Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified equal percentage (F6...150SHP) modified linear (F7...150SHP)		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4"		
Type of end fitting	125/150 lb. flanged		
Materials:			
Body	Carbon steel full lug	Shaft	17-4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	ANSI Class 150 limitations		
Operating ambient temperature range	-22°F to +122°F [-30°C to +50°C]		
Close-off pressure	285 psi @ 100°F		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 150 limitations		



F6 2\*AF...



## F6 ANSI Class 150 2-way Butterfly Valve with Spring Return Actuators

ACTUATOR PART #	2*AF24 US	2*AFX24-MFT-X1	GKB24-3-X1	GKX24-MFT-X1	2*GKB24-3-X1	2*GKX24-MFT-X1
Control type	On/Off	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	.	.	.	.	.	.
Running time	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)
<b>ELECTRICAL CONNECTION:</b>						
3 ft cable, ½" conduit fitting	.	.	.	.	.	.
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>	
F650-150SHP	102	56	2"	50	285	\$3,240.00
F665-150SHP	146	80	2½"	65	285	\$3,256.00
F680-150SHP	228	125	3"	80	285	\$3,276.00
F6100-150SHP	451	248	4"	100	150	\$3,886.00
F6100-150SHP	451	248	4"	100	285	\$4,002.00
						\$4,148.00
						\$4,440.00
						\$5,018.00
						\$5,674.00

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators. Note: Specify configuration.

## F7...150SHP 3-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #	GKB24-3-X1		GKX24-MFT-X1		2*GKB24-3-X1		2*GKX24-MFT-X1		
Butterfly Valve Model #	C <sub>v</sub> 90°	C <sub>v</sub> 60°	Valve Nominal Size Inches	DN/mm	Close-off psi				
F750-150SHP	102	56	2"	50	150	\$6,452.00		\$6,738.00	
F765-150SHP	146	80	2½"	65	150	\$6,602.00		\$6,888.00	
F780-150SHP	228	125	3"	80	150	\$6,612.00		\$6,898.00	
F750-150SHP	102	56	2"	50	285			\$7,382.00	\$7,962.00
F765-150SHP	146	80	2½"	65	285			\$7,534.00	\$8,114.00
F780-150SHP	228	125	3"	80	285			\$7,570.00	\$8,152.00

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators. Note: Specify configuration.

## MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

Example: AF24-MFT US is the basic model. Add the programming code pre-set MFT configuration number and list price to the actuator when ordering, as needed.

Note: Most popular configurations available at no additional cost.

OPTIONS	2*AF24-S US	2*AFX24-MFT-S-X1	2*AF120 US	2*AF120-S US	2*AFX24-MFT95-X1
120 VAC power supply			.	.	.
Built-in auxiliary switch**	.	.	.	.	.
0-135 Ω input					.

Butterfly Valve Model #	2*AF24-S US	2*AFX24-MFT-S-X1	2*AF120 US	2*AF120-S US	2*AFX24-MFT95-X1
F650-150SHP	\$3,324.00	\$3,442.00	\$3,348.00	\$3,434.00	\$3,378.00
F665-150SHP	\$3,342.00	\$3,460.00	\$3,362.00	\$3,450.00	\$3,396.00
F680-150SHP	\$3,360.00	\$3,478.00	\$3,384.00	\$3,468.00	\$3,412.00
F6100-150SHP	\$3,970.00	\$4,088.00	\$3,994.00	\$4,080.00	\$4,022.00

\*\* For tandem actuators – only one of the two actuators is provided with switch.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

### Valve Specifications

Service	chilled, hot water, 60% glycol		
Flow characteristic	modified equal percentage (F6...150SHP) modified linear (F7...150SHP)		
Action	90° rotation		
Sizes	2", 2½", 3", 4"		
Type of end fitting	125/150 lb. flanged		
Materials:			
Body	Carbon steel full lug	Shaft	17-4 PH stainless
Disc	316 stainless steel	Gland Seal	PTFE
Seats	RPTFE	Bushings	glass backed PTFE
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	ANSI Class 150 limitations		
Operating ambient temperature range	-22°F to +122°F [-30°C to +50°C]		
Close-off pressure	285 psi @ 100°F		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 150 limitations		



Available July 2010



### F6...150SHP 2-way Butterfly Valve with Nema 4 Non-Spring Return Actuators

ACTUATOR PART #	GMCX24-3-T N4-X1			GMX24-MFT-T N4-X1		
Control type	On/Off, Floating Pt.			Proportional		
Manual override	•			•		
Running time	35 seconds			150 seconds		
Noise level	<45 dB(A)			<45 dB(A)		
<b>ELECTRICAL CONNECTION:</b>						
One (1) ½" conduit fitting	•			•		
Covered terminal strip	•			•		
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Nominal Size Inches DN/mm</b>	<b>Close-off psi</b>		
F650-150SHP	102	56	2" 50	285	\$4,240.00	\$4,360.00
F665-150SHP	146	80	2½" 65	285	\$4,312.00	\$4,426.00
F680-150SHP	228	125	3" 80	285	\$4,414.00	\$4,530.00
F6100-150SHP	451	248	4" 100	150	\$4,574.00	\$4,782.00

### F7...150SHP 3-way Butterfly Valve with Non-Spring Actuators

ACTUATOR PART #	GMCX24-3-T N4-X1			GMX24-MFT-T N4-X1		2*GMCX24-3-T N4-X1		2*GMX24-MFT-T N4-X1	
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Nominal Size Inches DN/mm</b>	<b>Close-off psi</b>					
F750-150SHP	102	56	2" 50	150	\$7,102.00	\$7,214.00			
F765-150SHP	146	80	2½" 65	150	\$7,390.00	\$7,506.00			
F780-150SHP	228	125	3" 80	150	\$7,510.00	\$7,630.00			
F750-150SHP	102	56	2" 50	285			\$8,010.00	\$8,240.00	
F765-150SHP	146	80	2½" 65	285			\$8,188.00	\$8,426.00	
F780-150SHP	228	125	3" 80	285			\$8,468.00	\$8,698.00	
F7100-150SHP	451	248	4" 100	150			\$8,638.00	\$8,878.00	

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators. Note: Specify configuration.

### MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

# F6 ANSI Class 150, Non-Spring Return Actuators

With NEMA 4X Industrial Actuator - Reinforced Teflon® Seat, 316 Stainless Disc



## Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified equal percentage (F6...150SHP) modified linear (F7...150SHP)		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30"		
Type of end fitting	125/150 lb. flanged		
Materials:			
Body	Carbon steel full lug	Shaft	17-4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	ANSI Class 150 limitations		
Operating ambient temperature range	-22°F to +150°F [-30°C to +65°C]		
Close-off pressure	285 psi @ 100°F		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 150 limitations		



F6 SY...



## F6...150SHP 2-way Butterfly Valve with NEMA 4X Industrial Style Actuators

ACTUATOR PART #	SY2-24, SY2-110, SY2-220	SY2-24MFT, SY2-120MFT, SY2-230MFT	SY3-24, SY3-110, SY3-220	SY3-24MFT, SY3-120MFT, SY3-230MFT	SY4-24, SY4-110, SY4-220	SY4-24MFT, SY4-120MFT, SY4-230MFT
Control type	On/Off, Floating Pt.	Proportional/ MFT†	On/Off, Floating Pt.	Proportional/ MFT†	On/Off, Floating Pt.	Proportional/ MFT†
Manual override	•	•	•	•	•	•
Running time	15 seconds	15 seconds	22 seconds	22 seconds	16 seconds	16 seconds
<b>ELECTRICAL CONNECTION:</b>						
Two (2) ½" conduit fittings	•	•	•	•	•	•
Covered terminal strip	•	•	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>	
F650-150SHP	102	56	2"	50	285	\$4,578.00
F665-150SHP	146	80	2½"	65	285	\$4,598.00
F680-150SHP	228	125	3"	80	285	\$4,616.00
F6100-150SHP	451	248	4"	100	285	\$5,226.00
F6125-150SHP	714	392	5"	125	285	\$6,512.00
F6150-150SHP	1103	607	6"	150	285	\$6,548.00
F6200-150SHP	2064	1135	8"	200	150	\$7,896.00
F6200-150SHP	2064	1135	8"	200	285	\$9,626.00
F6250-150SHP	3517	1934	10"	250	285	\$8,394.00
F6300-150SHP	4837	2660	12"	300	150	\$11,368.00
F6300-150SHP						\$13,356.00
F6300-150SHP						\$15,886.00

Please add desired voltage to model number. Ex: F6500-150SHP+SY9-110. Note: Specify configuration.

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

## SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	ACL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

\*Available only on -24MFT actuators.

### Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified equal percentage (F6...150SHP) modified linear (F7...150SHP)		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30"		
Type of end fitting	125/150 lb. flanged		
Materials:			
Body	Carbon steel full lug	Shaft	17-4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Flange	for use with ANSI Class 125/150 Flanges		
Media temperature range	ANSI Class 150 limitations		
Operating ambient temperature range	-22°F to +150°F [-30°C to +65°C]		
Close-off pressure	285 psi @ 100°F		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 150 limitations		



F6 SY...



### F6...150SHP 2-way Butterfly Valve with NEMA 4X Industrial Style Actuators

ACTUATOR PART #	SY5-24, SY5-110, SY5-220	SY5-24MFT, SY5-120MFT, SY5-230MFT	SY7-110, SY7-220	SY7-120MFT, SY7-230MFT	SY8-110, SY8-220	SY8-120MFT, SY8-230MFT
Control type	On/Off, Floating Pt.	Proportional/ MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•	•	•
Running time	22 seconds	22 seconds	46 seconds	46 seconds	46 seconds	46 seconds
<b>ELECTRICAL CONNECTION:</b>						
Two (2) ½" conduit fittings	•	•	•	•	•	•
Covered terminal strip	•	•	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>	
F6300-150SHP	4837	2660	12"	300	285	\$14,236.00
F6350-150SHP	6857	3592	14"	350	150	\$17,712.00
F6350-150SHP	6857	3592	14"	350	285	
F6400-150SHP	9287	4865	16"	400	285	\$18,864.00
F6450-150SHP	11500	3270	18"	450	150	\$20,800.00
F6450-150SHP	11500	3270	18"	450	285	\$26,150.00
F6500-150SHP	14420	7590	20"	500	150	\$30,330.00
F6500-150SHP	14420	7590	20"	500	285	\$32,268.00
						\$31,628.00
						\$33,570.00
						\$38,614.00
						\$40,552.00

ACTUATOR PART #	SY9-110, SY9-220	SY9-120MFT, SY9-230MFT	SY10-110, SY10-220	SY10-120MFT, SY10-230MFT	SY12-110, SY12-220	SY12-120MFT, SY12-230MFT
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•	•	•
Running time	58 seconds	58 seconds	58 seconds	58 seconds	58 seconds	58 seconds
<b>ELECTRICAL CONNECTION:</b>						
Two (2) ½" conduit fittings	•	•	•	•	•	•
Covered terminal strip	•	•	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>	
F6500-150SHP	14420	7590	20"	500	285	\$39,858.00
F6600-150SHP	22050	11550	24"	600	150	\$41,798.00
F6750-150SHP	34388	18012	30"	750	125	\$53,314.00
						\$55,254.00
						\$92,784.00
						\$94,534.00

Please add desired voltage to model number. Ex: F6500-150SHP+SY9-120MFT. Note: Specify configuration.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

# F7 ANSI Class 150, Non-Spring Return Actuators

With NEMA 4X Industrial Actuator - Reinforced Teflon® Seat, 316 Stainless Disc



## Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified linear (F7...150SHP), unidirectional		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24"		
Materials:			
Body	Carbon steel full lug	Shaft	17-4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Type of end fitting	125/150 lb. flanged		
Body pressure	ANSI Class 150 rated		
Flange	for use with ANSI Class 125/150 flanges		
Media temperature range	ANSI Class 150 limitations		
Operating ambient temperature range	-22°F to +150° F [-30°C to +65°C]		
Close-off pressure	285 psi @ 100°F		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 150 limitations		



F7 SY...



## F7...150SHP 3-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY2-24, SY2-110, SY2-220	SY2-24MFT, SY2-120MFT, SY2-230MFT	SY3-24, SY3-110, SY3-220	SY3-24MFT, SY3-120MFT, SY3-230MFT	SY4-24, SY4-110, SY4-220	SY4-24MFT, SY4-120MFT, SY4-230MFT
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•	•	•
Running time	15 seconds	15 seconds	22 seconds	22 seconds	16 seconds	16 seconds
<b>ELECTRICAL CONNECTION:</b>						
Two (2) ½" conduit fittings	•	•	•	•	•	•
Covered terminal strip	•	•	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>	
F750-150SHP	102	56	2"	50	285	\$7,546.00 \$9,264.00
F765-150SHP	146	80	2½"	65	285	\$7,700.00 \$9,418.00
F780-150SHP	228	125	3"	80	285	\$7,710.00 \$9,426.00
F7100-150SHP	451	248	4"	100	285	\$9,084.00 \$10,796.00
F7125-150SHP	714	392	5"	125	285	\$12,206.00 \$13,932.00
F7150-150SHP	1103	607	6"	150	285	\$12,214.00 \$13,940.00
F7200-150SHP	2064	1135	8"	200	285	\$15,718.00 \$17,708.00
F7250-150SHP	3517	1934	10"	250	150	\$22,770.00 \$24,760.00

ACTUATOR PART #	SY5-24, SY5-110, SY5-220	SY5-24MFT, SY5-120MFT, SY5-230MFT	SY7-110, SY7-220	SY7-120MFT, SY7-230MFT	SY8-110, SY8-220	SY8-120MFT, SY8-230MFT
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•	•	•
Running time	22 seconds	22 seconds	46 seconds	46 seconds	46 seconds	46 seconds
<b>ELECTRICAL CONNECTION:</b>						
Two (2) ½" conduit fittings	•	•	•	•	•	•
Covered terminal strip	•	•	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>	
F7250-150SHP	3517	1934	10"	250	285	\$23,114.00 \$25,108.00
F7300-150SHP	4837	2660	12"	300	150	\$29,440.00 \$31,430.00
F7300-150SHP	4837	2660	12"	300	285	\$30,592.00 \$32,530.00
F7350-150SHP	6857	3592	14"	350	285	\$40,790.00 \$42,730.00
F7400-150SHP	9287	4865	16"	400	150	\$57,450.00 \$59,390.00
F7450-150SHP	11500	3270	18"	450	150	\$69,034.00 \$70,972.00

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

BUTTERFLY VALVES

L30056 - 04/10 - Subject to change. © Belimo Aircontrols (USA), Inc.

### Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified linear (F7...150SHP), unidirectional		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24"		
Materials:			
Body	Carbon steel full lug	Shaft	17-4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Type of end fitting	125/150 lb. flanged		
Body Pressure	ANSI Class 150 rated		
Flange	for use with ANSI Class 125/150 flanges		
Media temperature range	ANSI Class 150 limitations		
Operating ambient temperature range	-22°F to +150° F [-30°C to +65°C]		
Close-off pressure	285 psi @ 100°F		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 150 limitations		



F7 SY...



### F7...150SHP 3-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY9-110, SY9-220	SY9-120MFT, SY9-230MFT	SY10-110, SY10-220	SY10-120MFT, SY10-230MFT
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•
Running time	58 seconds	58 seconds	58 seconds	58 seconds
<b>ELECTRICAL CONNECTION:</b>				
Two (2) ½" conduit fittings	•	•	•	•
Covered terminal strip	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Nominal Size Inches</b>	<b>Close-off DN/mm psi</b>
F7400-150SHP	9287	4865	16"	400 285
F7450-150SHP	11500	3270	18"	450 285
F7500-150SHP	14420	7590	20"	500 150
	\$59,994.00	\$61,934.00		\$70,590.00 \$72,530.00
	\$88,960.00	\$90,900.00		

ACTUATOR PART #	SY11-110, SY11-220	SY11-120MFT, SY11-230MFT	SY12-110, SY12-220	SY12-120MFT, SY12-230MFT
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•
Running time	58 seconds	58 seconds	58 seconds	58 seconds
<b>ELECTRICAL CONNECTION:</b>				
Two (2) ½" conduit fittings	•	•	•	•
Covered terminal strip	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Nominal Size Inches</b>	<b>Close-off DN/mm psi</b>
F7500-150SHP	14420	7590	20"	500 285
F7600-150SHP	22050	11550	24"	600 150
	\$91,458.00	\$93,398.00		\$128,480.00 \$130,418.00

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators. Note: Specify configuration.

### SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	ACL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

\*Available only on -24MFT actuators.

# F6/F7 ANSI 300 Class, Non-Spring Return Actuators

Reinforced Teflon® Seat, 316 Stainless Disc



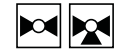
## Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified equal percentage (F6...300SHP), unidirectional modified linear (F7...300 SHP)		
Recommended install	SUS (seat up stream)		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4"		
Type of end fitting	ANSI Class 250/300 flanged		
Materials:			
Body	Carbon steel full lug	Shaft	17 - 4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Body pressure	ANSI Class 300 rated		
Flange	for use with ANSI Class 250/300 flanges		
Media temperature range	ANSI Class 300 limitations		
Operating ambient temperature range	-22°F to +122°F [-30°C to +50°C]		
Close-off pressure	725 psi @ 100°F		
Rangeability	10:1 (for 30°F to 70°F)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 300 limitations		



F6 GM...

F7 2\*GM...



## F6...300SHP 2-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #	GMB24-3-X1		GMX24-MFT-X1		2*GMB24-3-X1		2*GMX24-MFT-X1	
Control type	On/Off, Floating Pt.		Proportional/MFT†		On/Off, Floating Pt.		Proportional/MFT†	
Manual override	•		•		•		•	
Running time	150 seconds		90 seconds		150 seconds		90 seconds	
Noise level	<45 dB(A)		<45 dB(A)		<45 dB(A)		<45 dB(A)	
<b>ELECTRICAL CONNECTION:</b>								
Two (2) ½" conduit fittings	•		•		•		•	
Covered terminal strip	•		•		•		•	
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>			
F650-300SHP	100	52	2"	50	285	\$3,232.00	\$3,342.00	
F665-300SHP	143	75	2½"	65	285	\$3,246.00	\$3,360.00	
F680-300SHP	117	223	3"	80	285	\$3,268.00	\$3,378.00	
F6100-300SHP	435	228	4"	100	150	\$3,786.00	\$3,896.00	
F650-300SHP	100	52	2"	50	400			\$3,562.00
F665-300SHP	143	75	2½"	65	400			\$3,582.00
F680-300SHP	117	223	3"	80	400			\$3,596.00
F6100-300SHP	435	228	4"	100	285			\$4,114.00

## F7...300SHP 3-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #						2*GMB24-3-X1		2*GMX24-MFT-X1	
F750-300SHP	100	52	2"	50	285	\$7,366.00		\$7,586.00	
F765-300SHP	143	75	2½"	65	285	\$7,666.00		\$8,772.00	
F780-300SHP	223	117	3"	80	285	\$8,740.00		\$8,960.00	
F7100-300SHP	435	228	4"	100	150	\$10,840.00		\$11,052.00	

## MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

All other configurations carry a \$34.00 list price.

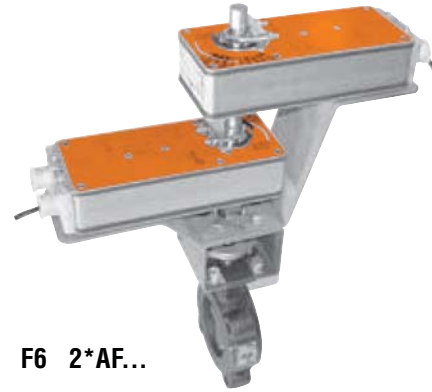
Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators. Note: Specify configuration.



### Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified equal percentage (F6...300SHP), unidirectional		
Recommended install	SUS (seat up stream)		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4"		
Type of end fitting	ANSI Class 250/300 flanged		
Materials:			
Body	Carbon steel full lug	Shaft	17 - 4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Body pressure	ANSI Class 300 rated		
Flange	for use with ANSI Class 250/300 flanges		
Media temperature range	ANSI Class 300 limitations		
Operating ambient temperature range	-22°F to +122°F [-30°C to +50°C]		
Close-off pressure	725 psi @ 100°F		
Rangeability	10:1 (for 30°F to 70°F)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 300 limitations		



F6 2\*AF...



### F6...300SHP 2-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #	2*AF24 US	2*AFX24-MFT-X1	GKB24-3-X1	GKX24-MFT-X1	2*GKB24-3-X1	2*GKX24-MFT-X1
Control type	On/Off	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•	•	•
Running time	motor	150 seconds	150 seconds	150 seconds	150 seconds	150 seconds
	spring	<20 seconds	<20 seconds	<20 seconds	<20 seconds	<20 seconds
Noise level	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)	<45 dB(A)

#### ELECTRICAL CONNECTION:

3 ft cable, ½" conduit fitting	•	•	•	•	•	•
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Butterfly Valve Model #	C <sub>v</sub> 90°	C <sub>v</sub> 60°	Valve Nominal Size Inches	DN/mm	Close-off psi	2*AF24 US	2*AFX24-MFT-X1	GKB24-3-X1	GKX24-MFT-X1	2*GKB24-3-X1	2*GKX24-MFT-X1
F650-300SHP	100	52	2"	50	150	\$3,582.00	\$3,702.00				
F665-300SHP	143	75	2½"	65	150	\$3,600.00	\$3,716.00				
F680-300SHP	223	117	3"	80	150	\$3,618.00	\$3,734.00				
F6100-300SHP	435	228	4"	100	150	\$4,136.00	\$4,252.00	\$4,400.00	\$4,690.00		
F650-300SHP	100	52	2"	50	285			\$3,846.00	\$4,136.00		
F665-300SHP	143	75	2½"	65	285			\$3,860.00	\$4,154.00		
F680-300SHP	223	117	3"	80	285			\$3,882.00	\$4,172.00		
F6100-300SHP	435	228	4"	100	285					\$5,342.00	\$5,924.00
F650-300SHP	100	52	2"	50	400					\$4,790.00	\$5,362.00
F665-300SHP	143	75	2½"	65	400					\$4,810.00	\$5,382.00
F680-300SHP	117	223	3"	80	400					\$4,824.00	\$5,396.00

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators. Note: Specify configuration.

### F7...300SHP 3-way Butterfly Valve with Non-Spring Return Actuators

ACTUATOR PART #						2*GKB24-3-X1	2*GKX24-MFT-X1
F750-300SHP	100	52	2"	50	285	\$8,594.00	\$9,174.00
F765-300SHP	143	75	2½"	65	285	\$8,894.00	\$10,360.00
F780-300SHP	223	117	3"	80	285	\$9,968.00	\$10,548.00
F7100-300SHP	435	228	4"	100	150	\$12,068.00	\$12,640.00

OPTIONS	2*AF24-S US	2*AF24-MFT-S-X1	2*AF120 US	2*AF120-S US
120 VAC power supply			•	•
Built-in auxiliary switch	•	•		•
Butterfly Valve Model #				
F650-300SHP	\$3,666.00	\$3,788.00	\$3,686.00	\$3,770.00
F665-300SHP	\$3,686.00	\$3,802.00	\$3,704.00	\$3,790.00
F680-300SHP	\$3,704.00	\$3,820.00	\$3,722.00	\$3,808.00
F6100-300SHP	\$4,222.00	\$4,338.00	\$4,240.00	\$4,326.00

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BUTTERFLY VALVES

# F6/F7 ANSI 300 Class, Non-Spring Return Actuators

With NEMA 4 Actuator - Reinforced Teflon® Seat, 316 Stainless Disc



## Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified equal percentage (F6...300SHP), unidirectional modified linear (F7...300 SHP)		
Recommended install	SUS (seat up stream)		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4"		
Type of end fitting	ANSI Class 250/300 flanged		
Materials:			
Body	Carbon steel full lug	Shaft	17 - 4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Body pressure	ANSI Class 300 rated		
Flange	for use with ANSI Class 250/300 flanges		
Media temperature range	ANSI Class 300 limitations		
Operating ambient temperature range	-22°F to +122°F [-30°C to +50°C]		
Close-off pressure	725 psi @ 100°F		
Rangeability	10:1 (for 30°F to 70°F)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 300 limitations		



Available July 2010



## F6...300SHP 2-way Butterfly Valve with NEMA 4 Non-Spring Return Actuators

ACTUATOR PART #	GMCX24-3-T N4-X1				GMX24-MFT-T N4-X1			
Control type	On/Off, Floating Pt.				Proportional/MFT†			
Manual override	•				•			
Running time	35 seconds				150 seconds			
Noise level	<45 dB(A)				<45 dB(A)			
<b>ELECTRICAL CONNECTION:</b>								
½" conduit fitting	•				•			
Covered terminal strip	•				•			
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>			
F650-300SHP	100	52	2"	50	285	\$4,358.00		\$4,572.00
F665-300SHP	143	75	2½"	65	285	\$4,590.00		\$4,798.00
F680-300SHP	117	223	3"	80	285	\$4,830.00		\$5,042.00
F6100-300SHP	435	228	4"	100	150	\$5,148.00		\$5,360.00

## F7...300SHP 3-way Butterfly Valve with NEMA 4 Non-Spring Return Actuators

ACTUATOR PART #	2*GMCX24-3-T N4-X1					2*GMX24-MFT-T N4-X1				
F750-300SHP	100	52	2"	50	285	\$9,230.00				\$9,452.00
F765-300SHP	143	75	2½"	65	285	\$11,698.00				\$11,934.00
F780-300SHP	223	117	3"	80	285	\$12,096.00				\$12,328.00
F7100-300SHP	435	228	4"	100	150	\$11,678.00				\$11,890.00

† Specify when ordering Proportional (P-10001) 2-10 VDC, Floating Pt. (P-30001), On/Off (P-40002) for MFT actuators. Note: Specify configuration.

## MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Running Time	Built-in Feedback	List Price
P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	No Charge
P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	No Charge
P-10028	A28	0-10 VDC	100 seconds	0-10 VDC	No Charge
P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	No Charge
P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	No Charge
P-20002	W02	0.02-5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	No Charge
P-30001	F01	Floating Point	150 seconds	2-10 VDC	No Charge
P-40002	J02	On/Off	150 seconds	2-10 VDC	No Charge

All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

BUTTERFLY VALVES

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### Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified equal percentage (F6...300SHP), unidirectional		
Recommended install	SUS (seat up stream)		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24"		
Materials:			
Body	Carbon steel full lug	Shaft	17 - 4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Type of end fitting	ANSI Class 250/300 flanged		
Body pressure	ANSI Class 300 rated		
Flange	for use with ANSI Class 250/300 flanges		
Media temperature range	ANSI Class 300 limitations		
Operating ambient temperature range	-22°F to +150°F [-30°C to +65°C]		
Close-off pressure	725 psi @ 100°F		
Rangeability	10:1 (for 30°F to 70°F)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 300 limitations		



F6 SY...



### F6...300SHP 2-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY2-24, SY2-110, SY2-220	SY2-24MFT, SY2-120MFT, SY2-230MFT	SY3-24, SY3-110, SY3-220	SY3-24MFT, SY3-120MFT, SY3-230MFT	SY4-24, SY4-110, SY4-220	SY4-24MFT, SY4-120MFT, SY4-230MFT
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•	•	•
Running time	15 seconds	15 seconds	22 seconds	22 seconds	16 seconds	16 seconds
<b>ELECTRICAL CONNECTION:</b>						
Two (2) ½" conduit fittings	•	•	•	•	•	•
Covered terminal strip	•	•	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>	
F650-300SHP	100	52	2"	50	600	\$4,924.00
F665-300SHP	143	75	2½"	65	600	\$4,940.00
F680-300SHP	223	117	3"	80	600	\$4,958.00
F6100-300SHP	435	228	4"	100	600	\$5,476.00
F6125-300SHP	688	361	5"	125	285	\$7,180.00
F6125-300SHP	688	361	5"	125	600	\$7,180.00
F6150-300SHP	1041	546	6"	150	285	\$7,218.00
F6150-300SHP	1041	546	6"	150	600	\$7,218.00
F6200-300SHP	1911	1001	8"	200	150	\$9,416.00
F6200-300SHP	1911	1001	8"	200	600	\$9,416.00
F6250-300SHP	3194	1673	10"	250	285	\$14,386.00
F6300-300SHP	4428	2319	12"	300	150	\$18,410.00
						\$6,642.00
						\$6,658.00
						\$6,678.00
						\$7,194.00
						\$8,900.00
						\$7,408.00
						\$9,136.00
						\$10,020.00
						\$7,444.00
						\$9,174.00
						\$9,914.00
						\$11,148.00
						\$14,386.00
						\$11,906.00
						\$16,376.00
						\$20,404.00

Please add desired voltage to model number. Ex: F680-300SHP+SY2-120MFT. Note: Specify configuration. Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

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BUTTERFLY VALVES

# F6 ANSI 300 Class, Non-Spring Return Actuators

With NEMA 4X Industrial Actuator - Reinforced Teflon® Seat, 316 Stainless Disc



## Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified equal percentage (F6...300SHP), unidirectional		
Recommended install	SUS (seat up stream)		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24"		
Materials:			
Body	Carbon steel full lug	Shaft	17 - 4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Type of end fitting	ANSI Class 250/300 flanged		
Body pressure	ANSI Class 300 rated		
Flange	for use with ANSI Class 250/300 flanges		
Media temperature range	ANSI Class 300 limitations		
Operating ambient temperature range	-22°F to +150°F [-30°C to +65°C]		
Close-off pressure	725 psi @ 100°F		
Rangeability	10:1 (for 30°F to 70°F)		
Maximum velocity	32 FPS		
Body Pressure Rating	ANSI Class 300 limitations		



F6 SY...



## F6...300SHP 2-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY5-24, SY5-110, SY5-220	SY5-24MFT, SY5-120MFT, SY5-230MFT	SY7-110, SY7-220	SY7-120MFT, SY7-230MFT	SY8-110, SY8-220	SY8-120MFT, SY8-230MFT
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•	•	•
Running time	22 seconds	22 seconds	46 seconds	46 seconds	46 seconds	46 seconds
<b>ELECTRICAL CONNECTION:</b>						
Two (2) ½" conduit fittings	•	•	•	•	•	•
Covered terminal strip	•	•	•	•	•	•
<b>Butterfly Valve</b>	<b>C<sub>v</sub></b>	<b>C<sub>v</sub></b>	<b>Valve Nominal Size</b>		<b>Close-off</b>	
<b>Model #</b>	<b>90°</b>	<b>60°</b>	<b>Inches</b>	<b>DN/mm</b>	<b>psi</b>	
F6250-300SHP	3194	1673	10"	250	400	\$14,726.00
F6250-300SHP	3194	1673	10"	250	600	\$16,718.00
F6300-300SHP	4428	2319	12"	300	285	\$18,752.00
F6300-300SHP	4428	2319	12"	300	600	\$20,746.00
F6350-300SHP	5702	2986	14"	350	150	\$19,904.00
F6350-300SHP	5702	2986	14"	350	400	\$32,382.00
F6350-300SHP	5702	2986	14"	350	600	\$31,542.00
F6400-300SHP	8243	3988	16"	400	150	\$33,576.00
F6400-300SHP	8243	3988	16"	400	285	\$35,514.00
F6450-300SHP	9712	5088	18"	450	150	\$34,874.00
F6450-300SHP	9712	5088	18"	450	285	\$42,888.00
F6500-300SHP	10658	5775	20"	500	150	\$44,826.00
						\$32,840.00
						\$34,780.00
						\$36,814.00
						\$46,128.00
						\$59,108.00

Please add desired voltage to model number. Ex: F6300-300SHP+SY5-120MFT. Note: Specify configuration.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

BUTTERFLY VALVES

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### Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified equal percentage (F6...300SHP), unidirectional		
Recommended install	SUS (seat up stream)		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24"		
Materials:			
Body	Carbon steel full lug	Shaft	17 - 4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Type of end fitting	ANSI Class 250/300 flanged		
Body pressure	ANSI Class 300 rated		
Flange	for use with ANSI Class 250/300 flanges		
Media temperature range	ANSI Class 300 limitations		
Operating ambient temperature range	-22°F to +150°F [-30°C to +65°C]		
Close-off pressure	725 psi @ 100°F		
Rangeability	10:1 (for 30°F to 70°F)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 300 limitations		



F6 SY...



### F6...300SHP 2-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY9-110, SY9-220	SY9-120MFT, SY9-230MFT	SY10-110, SY10-220	SY10-120MFT, SY10-230MFT	SY11-110, SY11-220	SY11-120MFT, SY11-230MFT
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•	•	•
Running time	58 seconds	58 seconds	58 seconds	58 seconds	58 seconds	58 seconds
<b>ELECTRICAL CONNECTION:</b>						
Two (2) ½" conduit fittings	•	•	•	•	•	•
Covered terminal strip	•	•	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>Cv 90°</b>	<b>Cv 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>	
F6400-300SHP	8243	3988	16"	400	400	\$36,112.00
F6400-300SHP	8243	3988	16"	400	600	\$38,058.00
F6450-300SHP	9712	5088	18"	450	400	\$45,434.00
F6450-300SHP	9712	5088	18"	450	600	\$47,372.00
F6500-300SHP	10658	5775	20"	500	285	\$58,722.00
F6500-300SHP	10658	5775	20"	500	400	\$60,664.00
F6600-300SHP	16205	8855	24"	600	150	\$73,048.00
F6600-300SHP	16205	8855	24"	600	400	\$74,986.00

Please add desired voltage to model number. Ex: F6500-300SHP+SY10-110. Note: Specify configuration.

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

### SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	ACL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

\*Available only on -24MFT actuators.

# F7 ANSI 300 Class, Non-Spring Return Actuators

With NEMA 4X Industrial Actuator - Reinforced Teflon® Seat, 316 Stainless Disc



## Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified linear (F7...300SHP), unidirectional		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24"		
Materials:			
Body	Carbon steel full lug	Shaft	17-4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Type of end fitting	ANSI Class 250/300 flanged		
Body pressure	ANSI Class 300 rated		
Flange	for use with ANSI Class 250/300 flanges		
Media temperature range	ANSI Class 300 limitations		
Operating ambient temperature range	-22°F to +150° F [-30°C to +65°C]		
Close-off pressure	725 psi @ 100°F		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 300 limitations		



F7 SY...



## F7...300SHP 3-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY2-24, SY2-110, SY2-220	SY2-24MFT, SY2-120MFT, SY2-230MFT	SY3-24, SY3-110, SY3-220	SY3-24MFT, SY3-120MFT, SY3-230MFT	SY4-24, SY4-110, SY4-220	SY4-24MFT, SY4-120MFT, SY4-230MFT
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•	•	•
Running time	15 seconds	15 seconds	22 seconds	22 seconds	16 seconds	16 seconds
<b>ELECTRICAL CONNECTION:</b>						
Two (2) ½" conduit fittings	•	•	•	•	•	•
Covered terminal strip	•	•	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>	
F750-300SHP	100	52	2"	50	400	\$9,500.00 \$11,214.00
F750-300SHP	100	52	2"	50	600	\$9,726.00 \$11,456.00
F765-300SHP	143	75	2½"	65	400	\$13,630.00 \$15,306.00
F765-300SHP	143	75	2½"	65	600	\$13,858.00 \$15,586.00
F780-300SHP	223	117	3"	80	400	\$10,850.00 \$12,566.00
F780-300SHP	223	117	3"	80	600	\$11,074.00 \$12,804.00
F7100-300SHP	435	228	4"	100	285	\$12,936.00 \$14,662.00
F7100-300SHP	435	228	4"	100	600	\$13,172.00 \$14,902.00
F7125-300SHP	688	361	5"	125	285	\$21,092.00 \$22,822.00
F7125-300SHP	688	361	5"	125	600	\$21,588.00 \$23,580.00
F7150-300SHP	1041	546	6"	150	285	\$18,510.00 \$20,240.00
F7150-300SHP	1041	546	6"	150	600	\$19,006.00 \$20,996.00
F7200-300SHP	1911	1001	8"	200	400	\$26,066.00 \$28,058.00
F7250-300SHP	3194	1673	10"	250	150	\$37,722.00 \$39,714.00

Please add desired voltage to model number. Ex: F750-300SHP+SY2-24. Note: Specify configuration.

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

BUTTERFLY VALVES

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### Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified linear (F7...300SHP), unidirectional		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24"		
Materials:			
Body	Carbon steel full lug	Shaft	17-4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Type of end fitting	ANSI Class 250/300 flanged		
Body pressure	ANSI Class 300 rated		
Flange	for use with ANSI Class 250/300 flanges		
Media temperature range	ANSI Class 300 limitations		
Operating ambient temperature range	-22°F to +150° F [-30°C to +65°C]		
Close-off pressure	725 psi @ 100°F		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 300 limitations		



F7 SY...



### F7...300SHP 3-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY5-24, SY5-110, SY5-220	SY5-24MFT, SY5-120MFT, SY5-230MFT	SY7-110, SY7-220	SY7-120MFT, SY7-230MFT	SY8-110, SY8-220	SY8-120MFT, SY8-230MFT
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•	•	•
Running time	22 seconds	22 seconds	46 seconds	46 seconds	46 seconds	46 seconds
<b>ELECTRICAL CONNECTION:</b>						
Two (2) ½" conduit fittings	•	•	•	•	•	•
Covered terminal strip	•	•	•	•	•	•
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size Inches</b>	<b>DN/mm</b>	<b>Close-off psi</b>	
F7200-300SHP	1911	1001	8"	200	600	\$26,408.00
F7250-300SHP	3194	1673	10"	250	285	\$38,066.00
F7250-300SHP	3194	1673	10"	250	600	\$39,216.00
F7300-300SHP	4428	2319	12"	300	150	\$50,672.00
F7300-300SHP	4428	2319	12"	300	400	\$51,824.00
F7300-300SHP	4428	2319	12"	300	600	\$53,764.00
F7350-300SHP	5702	2986	14"	350	150	\$80,628.00
F7350-300SHP	5702	2986	14"	350	400	\$82,570.00
F7400-300SHP	8243	3988	16"	400	150	\$89,976.00
F7450-300SHP	9712	5088	18"	450	150	\$91,916.00
						\$116,036.00
						\$117,974.00

Please add desired voltage to model number. Ex: F750-300SHP+SY2-24MFT. Note: Specify configuration.

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

# F7 ANSI 300 Class, Non-Spring Return Actuators

With NEMA 4X Industrial Actuator - Reinforced Teflon® Seat, 316 Stainless Disc



## Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified linear (F7...300SHP), unidirectional		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24"		
Materials:			
Body	Carbon steel full lug	Shaft	17-4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Type of end fitting	ANSI Class 250/300 flanged		
Body pressure	ANSI Class 300 rated		
Flange	for use with ANSI Class 250/300 flanges		
Media temperature range	ANSI Class 300 limitations		
Operating ambient temperature range	-22°F to +150° F [-30°C to +65°C]		
Close-off pressure	725 psi @ 100°F		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 300 limitations		



F7 SY...



## F7...300SHP 3-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY9-110, SY9-220		SY9-120MFT, SY9-230MFT		SY10-110, SY10-220		SY10-120MFT, SY10-230MFT	
Control type	On/Off, Floating Pt.		Proportional/MFT†		On/Off, Floating Pt.		Proportional/MFT†	
Manual override	•		•		•		•	
Running time	58 seconds		58 seconds		58 seconds		58 seconds	
<b>ELECTRICAL CONNECTION:</b>								
Two (2) ½" conduit fittings	•		•		•		•	
Covered terminal strip	•		•		•		•	
<b>Butterfly Valve Model #</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Inches</b>	<b>Nominal DN/mm</b>	<b>Size</b>	<b>Close-off psi</b>		
F7350-300SHP	5702	2986	14"	350	600			
F7400-300SHP	8243	3988	16"	400	285	\$92,522.00	\$94,458.00	\$83,486.00
F7400-300SHP	8243	3988	16"	400	400			\$92,832.00
F7450-300SHP	9712	5088	18"	450	285			\$117,950.00
F7500-300SHP	10658	5775	20"	500	150	\$154,896.00	\$156,834.00	\$122,450.00

Please add desired voltage to model number. Ex: F750-300SHP+SY2-24. Note: Specify configuration.

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

BUTTERFLY VALVES

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### Valve Specifications

Service	chilled, hot water, 60% glycol, steam to 50 psi		
Flow characteristic	modified linear (F7...300SHP), unidirectional		
Action	quarter turn, mechanically limited		
Sizes	2", 2½", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24"		
Materials:			
Body	Carbon steel full lug	Shaft	17-4 PH stainless
Disc	316 stainless steel	Gland Seal	TFE
Seats	RTFE	Bushings	glass backed PTFE
Type of end fitting	ANSI Class 250/300 flanged		
Body pressure	ANSI Class 300 rated		
Flange	For use with ANSI Class 250/300 flanges		
Media temperature range	ANSI Class 300 limitations		
Operating ambient temperature range	-22°F to +150° F [-30°C to +65°C]		
Close-off pressure	725 psi @ 100°F		
Rangeability	10:1 (for 30° to 70° range)		
Maximum velocity	32 FPS		
Body pressure rating	ANSI Class 300 limitations		



F7 SY...



### F7...300SHP 3-way Butterfly Valve with NEMA 4X Industrial Actuators

ACTUATOR PART #	SY11-110, SY11-220	SY11-120MFT, SY11-230MFT	SY12-110, SY12-220	SY12-120MFT, SY12-230MFT
Control type	On/Off, Floating Pt.	Proportional/MFT†	On/Off, Floating Pt.	Proportional/MFT†
Manual override	•	•	•	•
Running time	58 seconds	58 seconds	58 seconds	58 seconds
<b>ELECTRICAL CONNECTION:</b>				
Two (2) ½" conduit fittings	•	•	•	•
Covered terminal strip	•	•	•	•
<b>Butterfly Valve</b>	<b>C<sub>v</sub> 90°</b>	<b>C<sub>v</sub> 60°</b>	<b>Valve Nominal Size Inches</b>	<b>Close-off DN/mm psi</b>
F7400-300SHP	8243	3988	16"	400 600
F7450-300SHP	9712	5088	18"	450 400
F7500-300SHP	10658	5775	20"	500 285
F7600-300SHP	16205	8855	24"	600 150
		\$119,776.00	\$121,716.00	\$95,640.00
				\$97,576.00
				\$158,014.00
				\$159,954.00
				\$208,756.00
				\$210,696.00

Please add desired voltage to model number. Ex: F750-300SHP+SY2-24MFT. Note: Specify configuration.

† Specify when ordering Proportional SY MFT actuators. Note: Specify configuration.

### SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2-10V	2-10V	stop	actuator(s) constant	No Charge
MFT	ACF	0.5-10V	0.5-10V	stop	actuator(s) constant	No Charge
MFT	ACG	4-20mA	4-20mA	stop	actuator(s) constant	No Charge
MFT	ACH	4-20mA	2-10V	stop	actuator(s) constant	No Charge
MFT	W3E	0.02-5.00 seconds PWM*	2-10V	stop	actuator(s) constant	No Charge
MFT	ACJ	2-10V	2-10V	open	actuator(s) constant	No Charge
MFT	ACK	0.5-10V	0.5-10V	open	actuator(s) constant	No Charge
MFT	ACL	4-20mA	4-20mA	open	actuator(s) constant	No Charge
MFT	ACM	4-20mA	2-10V	open	actuator(s) constant	No Charge
MFT	ACN	2-10V	2-10V	close	actuator(s) constant	No Charge
MFT	ACP	0.5-10V	0.5-10V	close	actuator(s) constant	No Charge
MFT	ACR	4-20mA	4-20mA	close	actuator(s) constant	No Charge
MFT	ACS	4-20mA	2-10V	close	actuator(s) constant	No Charge

Most popular configurations are available at no additional cost. All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

\* Available only on -24MFT actuators.

# Valve Accessories



## Butterfly Valves





		NON-SPRING RETURN ACTUATORS			SPRING RETURN ACTUATORS	LIST PRICE
		AM	GM	SY	AF	
<b>WEATHERSHIELDS</b>						
	<b>ZS-BFV-10</b> AM Series for F6, F7 HD(U)	•				\$262.00
	<b>ZS-BFV-20</b> GM Series for F6, F7 HD(U)		•			\$262.00
	<b>ZS-BFV-30</b> AF Series for F6, F7 HD(U)				•	\$262.00
	<b>ZS-BFV-60</b> Dual GM Series for F6 HD(U) (4" - 6")		•			\$464.00
	<b>ZS-BFV-70</b> Dual AF Series for F6 HD(U) (2.5" - 3")				•	\$464.00
	<b>ZS-BFV-80</b> Dual AF Series for F6 HD(U) (4", 5")				•	\$464.00
	<b>ZS-BFV-90</b> Dual AF/GM Series for F7 HD(U) below 4" (specify Valve size)		•		•	\$464.00
	<b>ZS-BFV-100</b> Dual GM Series for F7 HD(U) (4" - 6", 2 required)		•			\$464.00
<b>ELECTRIC DISCONNECT</b>						
	<b>SY-HOA-110</b> Local Electric Disconnect SY2-SY12 110V - 2 Position			•		\$548.00
	<b>SY-HOA-110P</b> Local Electric Disconnect SY2-SY12 110V - Proportional			•		\$548.00
	<b>SY-HOA-24</b> Local Electric Disconnect SY2-SY12 24V - 2 Position			•		\$548.00
	<b>SY-HOA-24P</b> Local Electric Disconnect SY2-SY12- 24 Proportional			•		\$548.00
<b>AUXILIARY SWITCHES &amp; POTENTIOMETERS</b>						
	<b>SY-1000-FB01</b> 1000 Ω Feedback Potentiometer 2 Position, Factory Installed Option Only			•		\$236.00
	<b>SY-1000-FB02</b> 1000 Ω Feedback Potentiometer Proportional, Factory Installed Option Only (Proportional Models SYx...-P, SR or MFT)			•		\$236.00
<b>PROGRAMMING TOOLS</b>						
	<b>MFT-P US</b> Belimo MFT Configuration Software (V3.X) Includes: PC Tool software and MFT-LBL Kit US (interface cables [ZIP-RS232 US and ZIP-USB-MP] not included)	•	•	•	•	\$140.00
<b>INTERFACES, CABLES</b>						
	<b>ZIP-USB-MP US</b> PC-Interface: Compact Unit for use with USB port and "ZK" Style Cable Adapter (ZK Cable Below Purchased Separately)	•	•	•	•	\$490.00
	<b>ZK1-GEN</b> Cable for Use with ZIP-USB-MP US to Connect to New Generation Non-Spring Return Actuator via Diagnostic/ Programming Socket	•	•			\$72.00
	<b>ZK2-GEN</b> Cable for Use with ZIP-USB-MP US to Connect with Spring and Non-Spring Return Actuators Not Equipped with Diagnostic/ Programming Socket	•	•	•		\$42.00

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		NON-SPRING RETURN ACTUATORS			SPRING RETURN ACTUATORS	LIST PRICE
		AM	GM	SY	AF	
<b>INTERFACES, CABLES</b>						
	<b>ZK3-GEN</b> Cable to Connect ZIP-RS232 US and MFT-H SET US to New Generation Non-Spring Return Actuator via Diagnostic/ Programming Socket	•	•			\$110.00
	<b>ZK6-GEN</b> Cable for Use with ZIP-USB-MP US to Connect to SY Actuator via RJII Port			•		\$44.00

		NON-SPRING RETURN ACTUATORS			SPRING RETURN ACTUATORS	LIST PRICE
		AM	GM	SY	AF	
<b>BATTERY BACKUP</b>						
	<b>NSV24 US</b> Battery backup module	•	•			\$492.00
	<b>NSV-BAT US</b> 12VDC 1.2 AH battery (2 required)	•	•			\$106.00
	<b>NSV-SY-01</b> Battery Backup System for SY1-SY6 2 Position - 110 VAC			•		\$3,718.00
	<b>NSV-SY-02</b> Battery Backup System for SY1-SY6 Proportional - 120 VAC			•		\$3,886.00
	<b>NSV-SY-03</b> Battery Backup System for SY-7 2 Position - 110 VAC			•		\$3,986.00
	<b>NSV-SY-04</b> Battery Backup System for SY-7 Proportional - 110 VAC			•		\$4,158.00
	<b>NSV-SY-05</b> Battery Backup System for SY8-SY12 2 Position - 110 VAC			•		\$6,304.00
	<b>NSV-SY-06</b> Battery Backup System for SY8-SY12 Proportional - 120 VAC			•		\$6,476.00
	<b>NSV-SY-11</b> Battery Backup System for SY1-SY5 2 Position - 24 VAC			•		\$4,338.00
	<b>NSV-SY-12</b> Battery Backup System for SY1-SY5 Proportional - 24 VAC			•		\$4,452.00
	<b>NSV-SY-21</b> Battery Backup System for SY1-SY6 2 Position - 220 VAC			•		\$4,282.00
	<b>NSV-SY-22</b> Battery Backup System for SY1-SY6 Proportional - 230 VAC			•		\$4,394.00
	<b>NSV-SY-23</b> Battery Backup System for SY7-SY9 2 Position - 220 VAC			•		\$4,462.00
	<b>NSV-SY-24</b> Battery Backup System for SY7-SY9 Proportional - 230 VAC			•		\$4,570.00
<b>NSV-SY-25</b> Battery Backup System for SY10-SY12 2 Position - 220 VAC			•		\$7,432.00	
<b>NSV-SY-26</b> Battery Backup System for SY10-SY12 Proportional - 230 VAC			•		\$7,546.00	


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BUTTERFLY VALVES


# Valve Accessories

## Butterfly Valves



HANDWHEELS	NON-SPRING RETURN ACTUATORS			SPRING RETURN ACTUATORS	LIST PRICE	
	AM	GM	SY	AF		
			•		\$42.00	
	<b>ZG-SY23</b> SY2-SY3 Handwheel (replacement only)					
	<b>ZG-SY46</b> SY4-SY6 Handwheel (replacement only)			•		\$58.00
	<b>ZG-SY78</b> SY7-SY8 Handwheel (replacement only)			•		\$186.00
	<b>ZG-SY912</b> SY9-SY12 Handwheel (replacement only)			•		\$204.00

MANUAL HANDLES	VALVE HD	LIST PRICE
	<b>F650HD+HND01</b> 2" HD Series Valve with Manual Handle Ductile Iron, 200 psi close-off, C <sub>v</sub> 115	• \$206.00
	<b>F665HD+HND01</b> 2.5" HD Series Valve with Manual Handle Ductile Iron, 200 psi close-off, C <sub>v</sub> 196	• \$220.00
	<b>F680HD+HND01</b> 3" HD Series Valve with Manual Handle Ductile Iron, 200 psi close-off, C <sub>v</sub> 302	• \$242.00
	<b>F6100HD+HND02</b> 4" HD Series Valve with Manual Handle Ductile Iron, 200 psi close-off, C <sub>v</sub> 600	• \$320.00
	<b>F6125HD+HND02</b> 5" HD Series Valve with Manual Handle Ductile Iron, 200 psi close-off, C <sub>v</sub> 1022	• \$462.00
	<b>F6150HD+HND02</b> 6" HD Series Valve with Manual Handle Ductile Iron, 200 psi close-off, C <sub>v</sub> 1579	• \$540.00
	<b>F6200HD+HND03</b> 8" HD Series Valve with Manual Handle Ductile Iron, 200 psi close-off, C <sub>v</sub> 3136	• \$798.00

GEAR OPERATORS	VALVE HD	LIST PRICE
	<b>F650HD+GW01</b> 2" HD Series Valve with Manual Gear Operator Ductile Iron, 200 psi close-off, C <sub>v</sub> 115	• \$320.00
	<b>F665HD+GW01</b> 2.5" HD Series Valve with Manual Gear Operator Ductile Iron, 200 psi close-off, C <sub>v</sub> 196	• \$420.00
	<b>F680HD+GW01</b> 3" HD Series Valve with Manual Gear Operator Ductile Iron, 200 psi close-off, C <sub>v</sub> 302	• \$460.00
	<b>F6100HD+GW02</b> 4" HD Series Valve with Manual Gear Operator Ductile Iron, 200 psi close-off, C <sub>v</sub> 600	• \$532.00
	<b>F6125HD+GW02</b> 5" HD Series Valve with Manual Gear Operator Ductile Iron, 200 psi close-off, C <sub>v</sub> 1022	• \$630.00
	<b>F6150HD+GW02</b> 6" HD Series Valve with Manual Gear Operator Ductile Iron, 200 psi close-off, C <sub>v</sub> 1579	• \$676.00
	<b>F6200HD+GW03</b> 8" HD Series Valve with Manual Gear Operator Ductile Iron, 200 psi close-off, C <sub>v</sub> 3136	• \$1,008.00
	<b>F6250HD+GW03</b> 10" HD Series Valve with Manual Gear Operator Ductile Iron, 200 psi close-off, C <sub>v</sub> 5340	• \$1,340.00
	<b>F6300HD+GW04</b> 12" HD Series Valve with Manual Gear Operator Ductile Iron, 200 psi close-off, C <sub>v</sub> 8250	• \$1,920.00
	<b>F6350HD+GW04</b> 14" HD Series Valve with Manual Gear Operator Ductile Iron, 150 psi close-off, C <sub>v</sub> 11917	• \$2,482.00
	<b>F6400HD+GW05</b> 16" HD Series Valve with Manual Gear Operator Ductile Iron, 150 psi close-off, C <sub>v</sub> 16388	• \$4,230.00
	<b>F6450HD+GW06</b> 18" HD Series Valve with Manual Gear Operator Ductile Iron, 150 psi close-off, C <sub>v</sub> 21705	• \$5,096.00
	<b>F6500HD+GW07</b> 20" HD Series Valve with Manual Gear Operator Ductile Iron, 150 psi close-off, C <sub>v</sub> 27908	• \$7,320.00
	<b>F6600HD+GW08</b> 24" HD Series Valve with Manual Gear Operator Ductile Iron, 150 psi close-off, C <sub>v</sub> 43116	• \$12,310.00
	<b>F6750HD+GW09</b> 30" HD Series Valve with Manual Gear Operator Ductile Iron, 150 psi close-off, C <sub>v</sub> 73426	• \$23,500.00

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**MANUAL HANDLES**


	<b>VALVE 150SHP</b>	<b>LIST PRICE</b>
<b>F650-150SHP+HND05</b> 2" SHP Series Valve with Manual Handle Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 102	•	\$2,650.00
<b>F665-150SHP+HND05</b> 2.5" SHP Series Valve with Manual Handle Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 146	•	\$2,690.00
<b>F680-150SHP+HND06</b> 3" SHP Series Valve with Manual Handle Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 228	•	\$2,748.00
<b>F6100-150SHP+HND06</b> 4" SHP Series Valve with Manual Handle Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 451	•	\$2,928.00
<b>F6125-150SHP+HND07</b> 5" SHP Series Valve with Manual Handle Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 714	•	\$4,700.00
<b>F6150-150SHP+HND07</b> 6" SHP Series Valve with Manual Handle Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 1103	•	\$4,294.00
<b>F6200-150SHP+HND08</b> 8" SHP Series Valve with Manual Handle Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 2064	•	\$5,492.00

**GEAR OPERATORS**


<b>F650-150SHP+GW10</b> 2" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 102	•	\$3,600.00
<b>F665-150SHP+GW10</b> 2.5" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 146	•	\$3,680.00
<b>F680-150SHP+GW11</b> 3" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 228	•	\$3,736.00
<b>F6100-150SHP+GW11</b> 4" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 451	•	\$3,850.00
<b>F6125-150SHP+GW12</b> 5" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 714	•	\$5,300.00
<b>F6150-150SHP+GW12</b> 6" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 1103	•	\$5,380.00
<b>F6200-150SHP+GW13</b> 8" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 2064	•	\$6,364.00
<b>F6250-150SHP+GW15</b> 10" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 3517	•	\$9,468.00
<b>F6300-150SHP+GW17</b> 12" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 4837	•	\$12,470.00
<b>F6350-150SHP+GW19</b> 14" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 6857	•	\$16,486.00
<b>F6400-150SHP+GW21</b> 16" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 9287	•	\$23,398.00
<b>F6450-150SHP+GW23</b> 18" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 11500	•	\$27,276.00
<b>F6500-150SHP+GW25</b> 20" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 14420	•	\$36,600.00
<b>F6600-150SHP+GW27</b> 24" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 22050	•	\$50,800.00
<b>F6750-150SHP+GW29</b> 30" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 150 close-off limitations, C <sub>v</sub> 34388	•	\$91,200.00

# Valve Accessories

## Butterfly Valves



### MANUAL HANDLES



<b>F650-300SHP+HND05</b> 2" SHP Series Valve with Manual Handle Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 100	•	\$3,084.00
<b>F665-300SHP+HND05</b> 2.5" SHP Series Valve with Manual Handle Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 143	•	\$3,104.00
<b>F680-300SHP+HND06</b> 3" SHP Series Valve with Manual Handle Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 223	•	\$2,854.00
<b>F6100-300SHP+HND06</b> 4" SHP Series Valve with Manual Handle Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 435	•	\$3,054.00
<b>F6125-300SHP+HND07</b> 5" SHP Series Valve with Manual Handle Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 688	•	\$5,334.00
<b>F6150-300SHP+HND08</b> 6" SHP Series Valve with Manual Handle Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 1041	•	\$4,316.00

### VALVE 300SHP

### LIST PRICE

### GEAR OPERATORS



<b>F650-300SHP+GW10</b> 2" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 100	•	\$3,798.00
<b>F665-300SHP+GW10</b> 2.5" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 143	•	\$3,818.00
<b>F680-300SHP+GW11</b> 3" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 223	•	\$3,568.00
<b>F6100-300SHP+GW11</b> 4" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 435	•	\$3,762.00
<b>F6125-300SHP+GW12</b> 5" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 688	•	\$6,030.00
<b>F6150-300SHP+GW13</b> 6" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 1041	•	\$5,012.00
<b>F6200-300SHP+GW14</b> 8" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 1911	•	\$6,674.00
<b>F6250-300SHP+GW16</b> 10" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 3194	•	\$11,068.00
<b>F6300-300SHP+GW18</b> 12" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 4428	•	\$14,616.00
<b>F6350-300SHP+GW20</b> 14" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 5702	•	\$25,828.00
<b>F6400-300SHP+GW22</b> 16" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 8243	•	\$30,524.00
<b>F6450-300SHP+GW24</b> 18" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 9712	•	\$38,850.00
<b>F6500-300SHP+GW26</b> 20" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 10658	•	\$49,626.00
<b>F6600-300SHP+GW28</b> 24" SHP Series Valve with Manual Gear Operator Cast Steel, ANSI 300 close-off limitations, C <sub>v</sub> 16205	•	\$72,842.00

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# 14

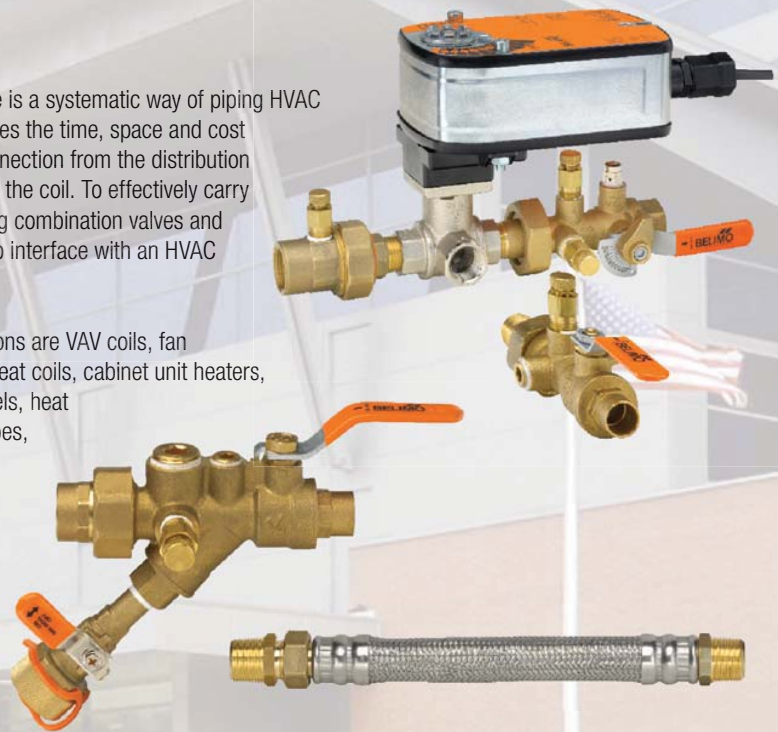
## PIPE PACKAGES

- Simple computer selection software makes building proper kit a snap
- One point of ordering providing reliable solutions with fast delivery
- Full port design minimizes terminal unit piping pressure drop
- Eliminates numerous piping connections saving time and money
- 100% tested for guaranteed results

### Applications

The Belimo Pipe Package is a systematic way of piping HVAC terminal units, that reduces the time, space and cost required to make the connection from the distribution piping in the building and the coil. To effectively carry this out, Belimo is offering combination valves and unions that are created to interface with an HVAC terminal unit.

Typical terminal installations are VAV coils, fan coils, unit ventilators, reheat coils, cabinet unit heaters, air handlers, radiant panels, heat pumps, duct coils, fin tubes, and convectors.



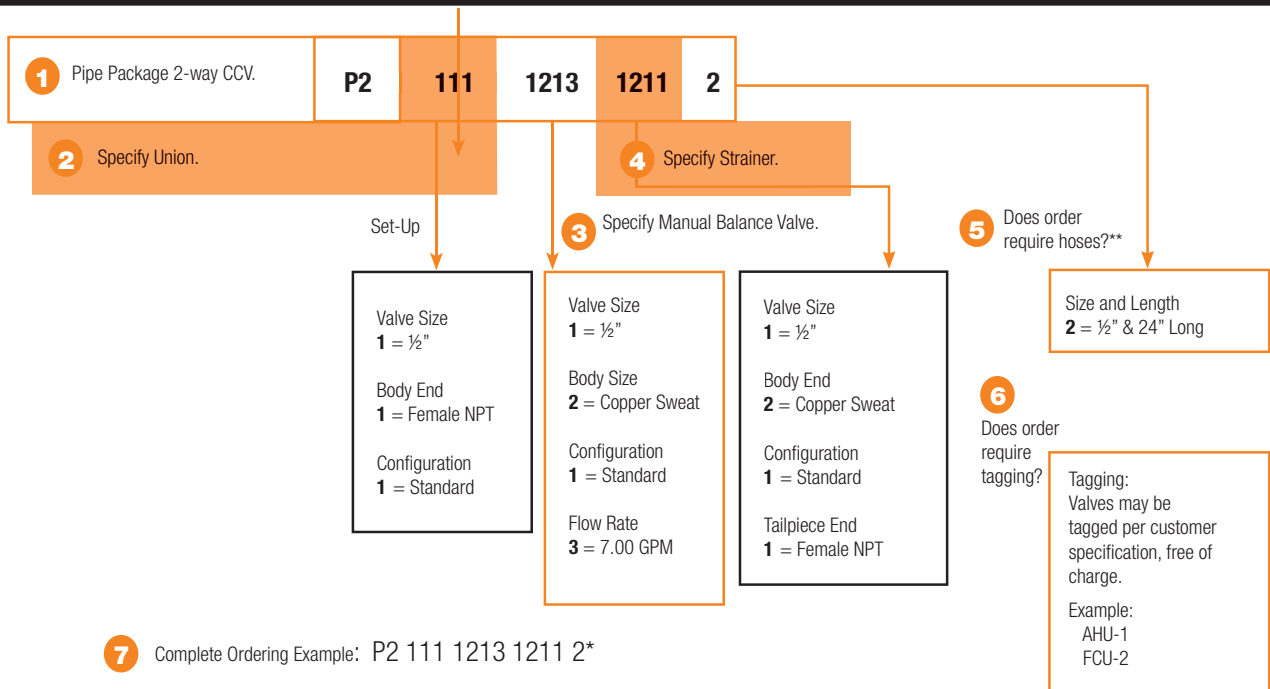
# Pipe Package Nomenclature

P 2	1 1 1	1 2 1 3	1 2 1 1	2
<b>Pipe Package</b> P = Pipe Package <b>Valve Type</b> P = PICCV 2 = 2-way CCV 3 = 3-way CCV Z = Zone	<b>Union</b> <b>Valve Size</b> 1 = 1/2" 2 = 3/4" 3 = 1" 4 = 1" to 3/4" 5 = 3/4" to 1/2" <b>Body End*</b> 1 = Female NPT 2 = Copper Sweat 3 = Male NPT <b>Configuration</b> 1 = Standard <b>Tailpiece End</b> Male NPT Male NPT Male NPT	<b>Isolation Valve ♦ / Manual Balance Valve</b> <b>Valve Size</b> 1 = 1/2" 2 = 3/4" 3 = 1" 4 = 1" to 3/4" 5 = 3/4" to 1/2" <b>Body End</b> 1 = Female NPT 2 = Copper Sweat <b>Configuration</b> 1 = Standard <b>Tailpiece End</b> Male NPT Male NPT <b>Flow Rate</b> 0 = No Setting+ 1 = 1.30 GPM (1/2" - 3/4") 2 = 2.65 GPM (1/2" - 3/4") 3 = 7.00 GPM (1/2" - 3/4") 4 = 7.00 GPM (1") 5 = 17.50 GPM (1")	<b>Strainer</b> <b>Valve Size</b> 0 = No Strainer 1 = 1/2" 2 = 3/4" 3 = 1" 4 = 1" to 3/4" 5 = 3/4" to 1/2" <b>Body End</b> 0 = No Strainer 1 = Female NPT 2 = Copper Sweat <b>Configuration</b> 0 = No Strainer 1 = Standard <b>Tailpiece End*</b> 0 = No Strainer 1 = Female NPT 2 = Copper Sweat 3 = Male NPT	<b>Hose**</b> <b>Size &amp; Length</b> 0 = No Hose 1 = 1/2" (12" length) 2 = 1/2" (24" length) 3 = 3/4" (12" length) 4 = 3/4" (24" length) 5 = 1" (12" length) 6 = 1" (24" length)

Only standard sizes are shown. Consult factory for sizes 1 1/4" to 2".

+This setting is used for Isolation valves only. Isolation Valves are used for PICCV versions only. Manual Balance Valves are used for CCV and Zone valves versions only.  
 \*Union body end needs to be Female NPT if ordering hoses. Strainer tailpiece end needs to be Female NPT if ordering hoses.  
 ♦ Isolation Bypass Valve for 3 way CCV is automatically included in the reorder number.

## Ordering Example: 2-Way CCV



\* Pipe package only. Does not include Belimo valve and actuator.  
 \*\* Hoses are optional.



# Pipe Package Price Matrix Nomenclature

<b>P 2</b>	<b>1 2 1</b>	<b>1 2 1 3</b>	<b>1 2 1 1</b>	<b>2</b>
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## Pipe Package Union

Valve Type	Valve Size = List Price
P = PICCV	1/2" = \$64.00
2 = 2-way CCV	3/4" = \$74.00
3 = 3-way CCV	1" = \$96.00
Z = Zone	1" to 3/4" = \$96.00
	3/4" to 1/2" = \$74.00

## Isolation Valve

Valve Size = Price List
1/2" = \$114.00
3/4" = \$130.00
1" = \$192.00
1" to 3/4" = \$192.00
3/4" to 1/2" = \$130.00

## Strainer

Valve Size = List Price
1/2" = \$154.00
3/4" = \$188.00
1" = \$210.00
1" to 3/4" = \$210.00
3/4" to 1/2" = \$188.00

## Hose (set of two)

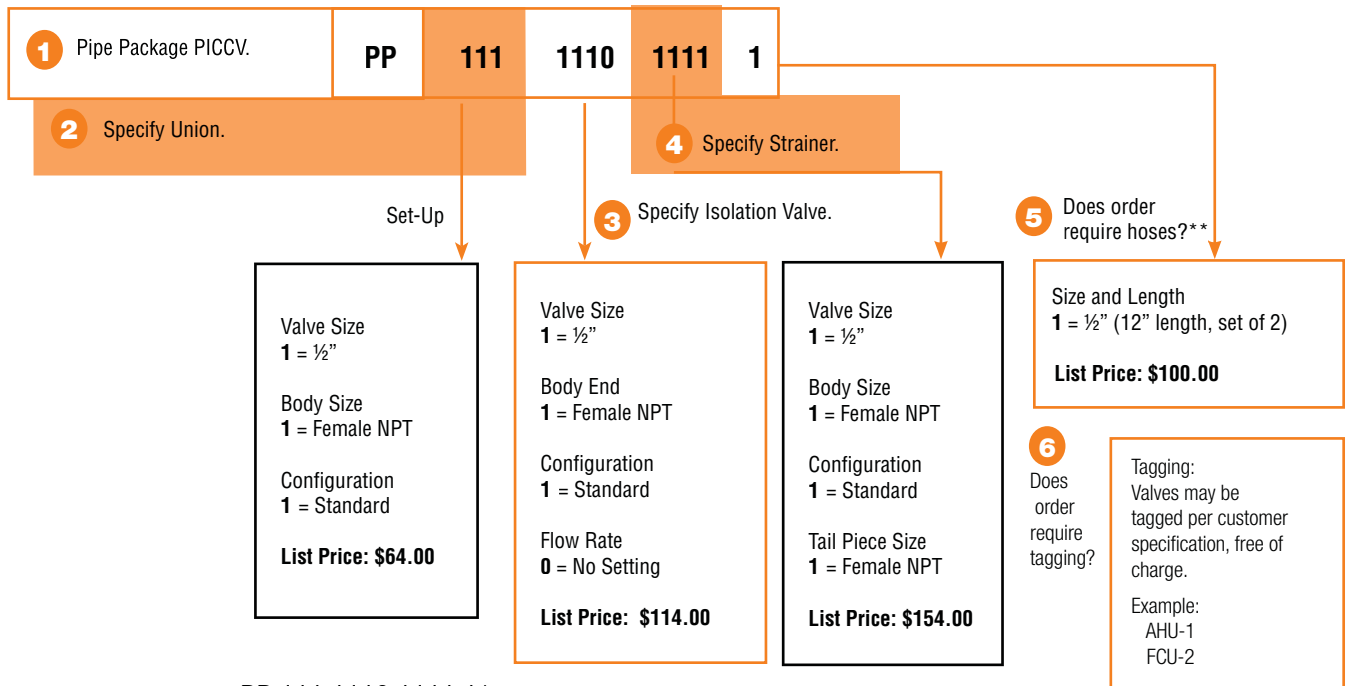
Valve Size = List Price
1/2" (12") = \$100.00
1/2" (24") = \$124.00
3/4" (12") = \$156.00
3/4" (24") = \$200.00
1" (12") = \$296.00
1" (24") = \$344.00

## Manual Balance Valve

### Valve Size(Flow Rate) = List Price

1/2" (1.30 GPM) = \$192.00
3/4" (1.30 GPM) = \$196.00
3/4" to 1/2" (1.30 GPM) = \$194.00
1/2" (2.65 GPM) = \$192.00
3/4" (2.65 GPM) = \$196.00
3/4" to 1/2" (2.65 GPM) = \$194.00
1/2" (7.00 GPM) = \$192.00
3/4" (7.00 GPM) = \$196.00
3/4" to 1/2" (7.00 GPM) = \$194.00
1" (7.00 GPM) = \$298.00
1" to 3/4" (7.00 GPM) = \$298.00
1" (17.50 GPM) = \$298.00
1" to 3/4" (17.50 GPM) = \$298.00

## ORDERING EXAMPLE: PICCV



\* Pipe package only. Does not include Belimo valve and actuator.  
\*\* Hoses are optional.

### Union Valve Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union Nut	forged brass
Tailpiece	forged brass
Gasket	EPDM
Insulator	glass reinforced nylon
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½" to 2"	400 psi
Component temp.	250°F maximum
Media temp. range	0°F to 212°F [-18°C to +100°C]
Leakage	0%

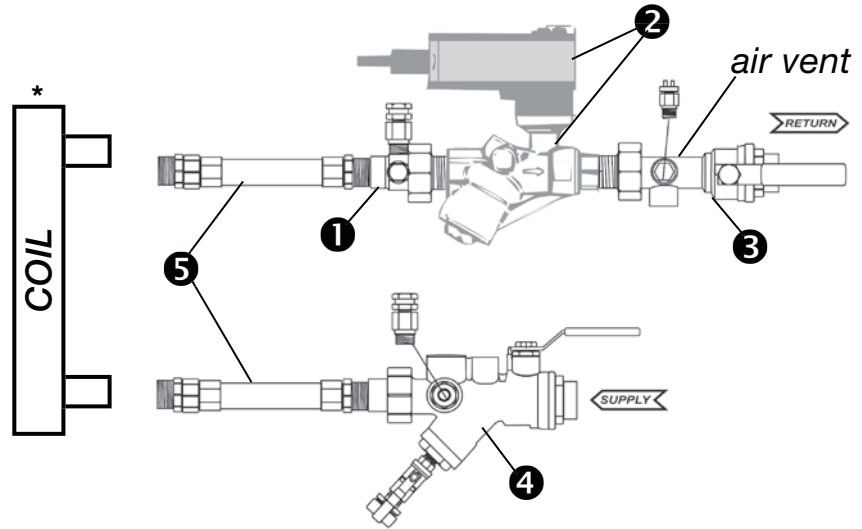
### Isolation Valve Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Gland Nut	extruded brass
Ball	chrome plated/hot forged brass
Stem	extruded brass
Union Nut	forged brass
Tailpiece	forged brass
Seats	Virgin PTFE
Packing	Virgin PTFE
Stem O-Rings	Viton
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½" to ¾"	600 psi
1" to 2"	500 psi
Component temp.	300°F maximum
Media temp. range	0°F to 212°F [-18°C to +100°C]
Leakage	0%

### Strainer Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union Nut	forged brass
Ball	chrome plated/forged brass
Stem & Gland Nut	forged brass
Tailpiece	forged brass
Seals & Packing	PTFE
Stem O-Rings	Viton
Strainer Screen	304 stainless steel / 20 mesh standard
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½" to 2"	600 psi
Component temp.	325°F maximum
Media temp. range	0°F to 212°F [-18°C to +100°C]
Leakage	0%

\* Please notify customer service if you wish to order a supply side package. Return side packages are standard.



### PICCV (½", ¾" and 1")

- ❶ Union
- ❷ Belimo Valve and Actuator
- ❸ Isolation Valve
- ❹ Strainer or Isolation Valve (Strainer Shown)
- ❺ Optional hoses are available

### Hose Technical Specifications

External Braiding	stainless steel AISI 304
Crimping Ferrules	stainless steel AISI 304
Connectors	machined brass
Fiber Gasket	BA-U fiber washer
Core	formulated EPDM
Operating & Burst Pressure Rating	
1/2"	375 psi operating 1500 psi burst pressure
3/4"	300 psi operating 1200 psi burst pressure
1"	225 psi operating 900 psi burst pressure
1 1/4"	200 psi operating 800 psi burst pressure
1 1/2"	175 psi operating 600 psi burst pressure
2"	150 psi operating 500 psi burst pressure
Component temp.	5°F to 230°F [-15°C to +110°C] Less than 41°F with use of Glycol additive.

**Please Note: PICCV packages have a 5-year warranty. Minimum 75% restock fee pending inspection.**



**SMARTCODE ORDER NOMENCLATURE**  
**COMPONENT ORDER NOMENCLATURE**

EXAMPLE: PP	PP	211	2110	2111	3
		Union PPU211	Isolation PPV2110	Strainer PPS2111	Hose PHOSE3



**Extension packages available.**  
**Call Technical Support at 800-543-9038 if you require extensions for handles, P/T ports and air vents.**

PIPE PACKAGE SMARTCODE (PICCV)		UNION		ISOLATION VALVE		STRAINER		LIST PRICE
Pipe Package Part # (2-way PICCV) without Hoses	Valve Nominal Size Inches DN (mm)	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
*PP 111 1110 1111 0	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	\$332.00
PP 121 1210 1212 0	1/2 15	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	Sweat/Sweat	\$332.00
PP 131 1110 1113 0	1/2 15	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	\$332.00
PP 131 1210 1213 0	1/2 15	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$332.00
PP 211 2110 2111 0	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$392.00
PP 221 2210 2212 0	3/4 20	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	Sweat/Sweat	\$392.00
PP 231 2110 2113 0	3/4 20	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	\$392.00
PP 231 2210 2213 0	3/4 20	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$392.00
PP 311 3110 3111 0	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$498.00
PP 321 3210 3212 0	1 25	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	Sweat/Sweat	\$498.00
PP 331 3110 3113 0	1 25	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	\$498.00
PP 331 3210 3213 0	1 25	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/Sweat	Sweat/Sweat	\$498.00

PIPE PACKAGE SMARTCODE (PICCV)		UNION		ISOLATION VALVE		STRAINER		LIST PRICE
Pipe Package Part # (2-way PICCV) with 12" Hoses	Valve Nominal Size Inches DN (mm)	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
PP 111 1110 1111 1	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$432.00
PP 111 1210 1211 1	1/2 15	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$432.00
PP 211 2110 2111 3	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$548.00
PP 211 2210 2211 3	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$548.00
PP 311 3110 3111 5	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$794.00
PP 311 3210 3211 5	1 25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$794.00

PIPE PACKAGE SMARTCODE (PICCV)		UNION		ISOLATION VALVE		STRAINER		LIST PRICE
Pipe Package Part # (2-way PICCV) with 24" Hoses	Valve Nominal Size Inches DN (mm)	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
PP 111 1110 1111 2	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$456.00
PP 111 1210 1211 2	1/2 15	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$456.00
PP 211 2110 2111 4	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$592.00
PP 211 2210 2211 4	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$592.00
PP 311 3110 3111 6	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$842.00
PP 311 3210 3211 6	1 25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$842.00

Note: Pipe package model # does not include PICCV and Actuator. These must be ordered separately.  
 \*For No Strainer Option, in this example PP 111 1110 1111 0, add 0000 in place of 1111, for all the above part numbers.  
 All combinations of reorder numbers are not reflected above. Please use the nomenclature or download the software at [www.belimo.us](http://www.belimo.us) to configure other possible combinations.  
 If ordering hoses, tailpiece end of the Strainer can only be ordered in F-NPT, to mate with M-NPT hose end.  
 If ordering hoses, body end of the Union can only be ordered in F-NPT, to mate with M-NPT hose end.  
 Hoses come in sets of 2. They are not sold separately.

### Union Valve Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union Nut	forged brass
Tailpiece	forged brass
Gasket	EPDM
Insulator	glass reinforced nylon
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½" to 2"	400 psi
Component temp.	250°F maximum
Media temp. range	0°F to 212°F [-18°C to +100°C]
Leakage	0%

### Manual Balance Valve Technical Specifications

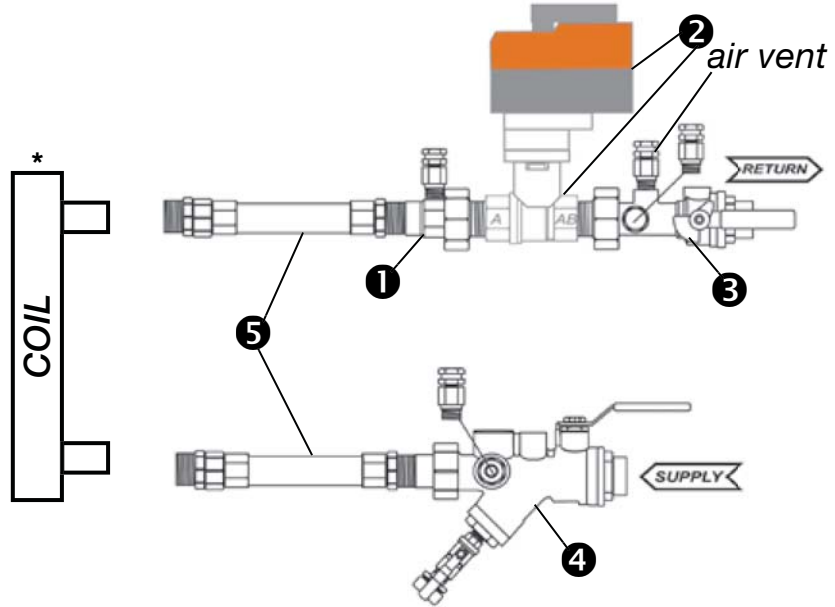
Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Ball	chrome plated/forged brass
Stem	extruded brass
Union	forged brass
Tailpiece	forged brass
Gland Nut	extruded brass
Seats & Packing	Virgin PTFE
O-Rings	Viton
Venturi	extruded brass
Readout port body & cap	extruded brass
Readout port seal	Nordel
Memory Stop	forged brass
Pressure/temperature ratings:	
½" to 2"	400 psi
Component temp.	300°F maximum
Media temp. range	0°F to 212°F [-18°C to +100°C]
Leakage	0%

### Strainer Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union Nut	forged brass
Ball	chrome plated/forged brass
Stem & Gland Nut	forged brass
Tailpiece	forged brass
Seats & Packing	PTFE
Stem O-Rings	Viton
Strainer Screen	304 stainless steel / 20 mesh standard
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½" to 2"	600 psi
Component temp.	325°F maximum
Media temp. range	0°F to 212°F [-18°C to +100°C]
Leakage	0%
Leakage	0%

### Hose Technical Specifications

External Braiding	stainless steel AISI 304
Crimping Ferrules	stainless steel AISI 304
Connectors	machined brass
Fiber Gasket	BA-U fiber washer
Core	formulated EPDM
Operating & Burst Pressure Rating	
1/2"	375 psi operating 1500 psi burst pressure
3/4"	300 psi operating 1200 psi burst pressure
1"	225 psi operating 900 psi burst pressure
1 1/4"	200 psi operating 800 psi burst pressure
1 1/2"	175 psi operating 600 psi burst pressure
2"	150 psi operating 500 burst pressure
Component temp.	5°F to 230°F [-15°C to +110°C] Less than 41°F with use of Glycol additive.



### 2-way CCV (½", ¾" and 1")

- ❶ Union
- ❷ Belimo Valve and Actuator
- ❸ Manual Balance Valve
- ❹ Strainer
- ❺ Optional hoses are available

\* Please notify customer service if you wish to order a supply side package. Return side packages are standard.

Please Note: 2-way CCV Pipe Packages have a 5-year warranty. Minimum 75% restock fee pending inspection.

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**SMARTCODE ORDER NOMENCLATURE**  
**COMPONENT ORDER NOMENCLATURE**

<b>EXAMPLE:</b> P2	<b>111</b>	<b>1111</b>	<b>1111</b>	<b>1</b>
	<b>Union</b> PPU111	<b>MBV</b> PPL1111	<b>Strainer</b> PPS1111	<b>Hose</b> PHOSE1



Extension packages available.  
Call Technical Support at 800-543-9038 if you require  
extensions for handles, P/T ports and air vents.

PIPE PACKAGE SMARTCODE (CCV)		UNION		MANUAL BALANCE VALVE	STRAINER	LIST PRICE
Pipe Package Model # (2-way CCV) without Hoses	Valve Nominal Size Inches DN (mm)	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
P2 111 1111 1111 0	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$410.00
P2 121 1112 1212 0	1/2 15	Sweat/M-NPT	F-NPT/M-NPT	Sweat/Sweat	Sweat/Sweat	\$410.00
P2 131 1113 1113 0	1/2 15	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	\$410.00
P2 131 1211 1213 0	1/2 15	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$410.00
P2 131 1212 1213 0	1/2 15	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$410.00
P2 131 1213 1213 0	1/2 15	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$410.00
P2 211 2111 2111 0	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$458.00
P2 221 2112 2212 0	3/4 20	Sweat/M-NPT	F-NPT/M-NPT	Sweat/Sweat	Sweat/Sweat	\$458.00
P2 231 2113 2113 0	3/4 20	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	\$458.00
P2 231 2211 2213 0	3/4 20	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$458.00
P2 231 2212 2213 0	3/4 20	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$458.00
P2 231 2213 2213 0	3/4 20	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$458.00
P2 311 3114 3111 0	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$604.00
P2 321 3114 3212 0	1 25	Sweat/M-NPT	F-NPT/M-NPT	Sweat/Sweat	Sweat/Sweat	\$604.00
P2 331 3115 3113 0	1 25	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	\$604.00
P2 311 3115 3213 0	1 25	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$604.00
P2 321 3214 3213 0	1 25	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$604.00
P2 331 3215 3213 0	1 25	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$604.00

PIPE PACKAGE SMARTCODE (CCV)		UNION		MANUAL BALANCE VALVE	STRAINER	LIST PRICE
Pipe Package Model # (2-way CCV) with 12" Hoses	Valve Nominal Size Inches DN (mm)	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
P2 111 1111 1111 1	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$510.00
P2 111 1112 1211 1	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$510.00
P2 111 1113 1111 1	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$510.00
P2 111 1211 1211 1	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$510.00
P2 111 1212 1111 1	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$510.00
P2 111 1213 1211 1	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$510.00
P2 211 2111 2111 3	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$614.00
P2 211 2112 2211 3	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$614.00
P2 211 2113 2111 3	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$614.00
P2 211 2211 2211 3	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$614.00
P2 211 2212 2111 3	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$614.00
P2 211 2213 2211 3	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$614.00
P2 311 3114 3111 5	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$900.00
P2 311 3115 3211 5	1 25	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$900.00
P2 311 3214 3111 5	1 25	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$900.00
P2 311 3215 3211 5	1 25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$900.00

PIPE PACKAGE SMARTCODE (CCV)		UNION		MANUAL BALANCE VALVE	STRAINER	LIST PRICE
Pipe Package Model # (2-way CCV) with 24" Hoses	Valve Nominal Size Inches DN (mm)	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
P2 111 1111 1111 2	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$534.00
P2 111 1112 1211 2	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$534.00
P2 111 1113 1111 2	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$534.00
P2 111 1211 1211 2	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$534.00
P2 111 1212 1111 2	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$534.00
P2 111 1213 1211 2	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$534.00
P2 211 2111 2111 4	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$658.00
P2 211 2112 2211 4	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$658.00
P2 211 2113 2111 4	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$658.00
P2 211 2211 2211 4	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$658.00
P2 211 2212 2111 4	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$658.00
P2 211 2213 2211 4	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$658.00
P2 311 3114 3111 6	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$948.00
P2 311 3115 3211 6	1 25	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$948.00
P2 311 3214 3111 6	1 25	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$948.00
P2 311 3215 3211 6	1 25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$948.00

Note: Pipe package model # does not include CCV and Actuator. These must be ordered separately.  
All combinations of reorder numbers are not reflected above. Please use the nomenclature or download the software at [www.belimo.us](http://www.belimo.us) to configure other possible combinations.  
If ordering hoses, tailpiece end of the Strainer can only be ordered in F-NPT, to mate with M-NPT hose end.  
If ordering hoses, body end of the Union can only be ordered in F-NPT, to mate with M-NPT hose end.  
Hoses come in sets of 2. They are not sold separately.

# Pipe Package for 3-way CCVs



## Union Valve Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union Nut	forged brass
Tailpiece	forged brass
Gasket	EPDM
Insulator	glass reinforced nylon
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½" to 2"	400 psi
Component temp.	250°F maximum
Media temp. range	0°F to 212°F [-18°C to +100°C]
Leakage	0%

## Manual Balance Valve Technical Specifications

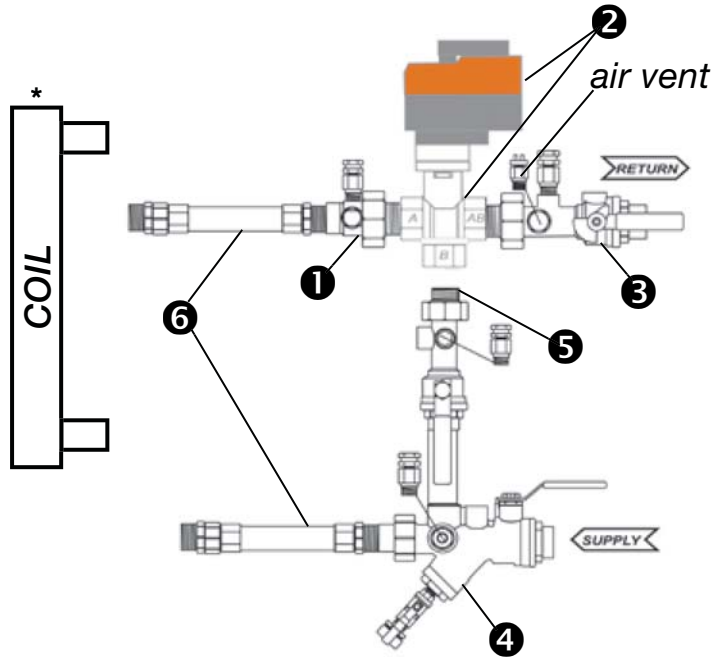
Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Ball	chrome plated/forged brass
Stem	extruded brass
Union	forged brass
Tailpiece	forged brass
Gland Nut	extruded brass
Seats & Packing	Virgin PTFE
O-Rings	Viton
Venturi	extruded brass
Readout port body & cap	extruded brass
Readout port seal	Nordel
Memory Stop	forged brass
Pressure/temperature ratings:	
½" to 2"	400 psi
Component temp.	300°F maximum
Media temp. range	0°F to 212°F [-18°C to +100°C]
Leakage	0%

## Strainer Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union Nut	forged brass
Ball	chrome plated/forged brass
Stem & Gland Nut	forged brass
Tailpiece	forged brass
Seals & Packing	PTFE
Stem O-Rings	Viton
Strainer Screen	304 stainless steel / 20 mesh standard
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½" to 2"	600 psi
Component temp.	325°F maximum
Media temp. range	0°F to 212°F [-18°C to +100°C]
Leakage	0%

\* Please notify customer service if you wish to order a supply side package. Return side packages are standard.

Please Note: 2-way CCV Pipe Packages have a 5-year warranty. Minimum 75% restock fee pending inspection.



## 3-way CCV (½", ¾" and 1")

- ① Union
- ② Belimo Valve and Actuator
- ③ Manual Balance Valve
- ④ Strainer
- ⑤ Isolation Valve
- ⑥ Optional hoses are available

Note: Extra piping for Isolation Valve to CCV and Strainer maybe required.

## Isolation Valve Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Gland Nut	extruded brass
Ball	chrome plated/hot forged brass
Stem	extruded brass
Union Nut	forged brass
Tailpiece	forged brass
Seats	Virgin PTFE
Packing	Virgin PTFE
Stem O-Rings	Viton
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½" to ¾"	600 psi
1" to 2"	500 psi
Component temp.	300°F maximum
Media temp. range	0°F to 212°F [-18°C to +100°C]
Leakage	0%

## Hose Technical Specifications

External Braiding	stainless steel AISI 304
Crimping Ferrules	stainless steel AISI 304
Connectors	machined brass
Fiber Gasket	BA-U fiber washer
Core	formulated EPDM
Operating & Burst Pressure Rating	
1/2"	375 psi operating 1500 psi burst pressure
3/4"	300 psi operating 1200 psi burst pressure
1"	225 psi operating 900 psi burst pressure
1 1/4"	200 psi operating 800 psi burst pressure
1 1/2"	175 psi operating 600 psi burst pressure
2"	150 psi operating 500 burst pressure
Component temp.	5°F to 230°F [-15°C to +110°C] Less than 41°F with use of Glycol additive.

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**SMARTCODE ORDER NOMENCLATURE**  
**COMPONENT ORDER NOMENCLATURE**

<b>EXAMPLE:</b>	<b>311</b>	<b>3114</b>	<b>3111</b>	<b>5</b>
<b>P3</b>	<b>Union PPU311</b>	<b>MBV PPL3114</b>	<b>Strainer PPS3111</b>	<b>Hose PHOSE5</b>



**Extension packages available.**  
**Call Technical Support at 800-543-9038 if you require extensions for handles, P/T ports and air vents.**

PIPE PACKAGE SMARTCODE (CCV)		UNION	MANUAL BALANCE VALVE	STRAINER	LIST PRICE
Pipe Package Model # (3-way CCV) without Hoses	Valve Nominal Size Inches DN (mm)	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
P3 111 1111 1111 0	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$524.00
P3 121 1112 1212 0	1/2 15	Sweat/M-NPT	F-NPT/M-NPT	Sweat/Sweat	\$524.00
P3 131 1113 1113 0	1/2 15	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	\$524.00
P3 131 1211 1213 0	1/2 15	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$524.00
P3 131 1212 1213 0	1/2 15	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$524.00
P3 131 1213 1213 0	1/2 15	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$524.00
P3 211 2111 2111 0	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$588.00
P3 221 2112 2212 0	3/4 20	Sweat/M-NPT	F-NPT/M-NPT	Sweat/Sweat	\$588.00
P3 231 2113 2113 0	3/4 20	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	\$588.00
P3 231 2211 2213 0	3/4 20	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$588.00
P3 231 2212 2213 0	3/4 20	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$588.00
P3 231 2213 2213 0	3/4 20	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$588.00
P3 311 3114 3111 0	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$796.00
P3 321 3114 3212 0	1 25	Sweat/M-NPT	F-NPT/M-NPT	Sweat/Sweat	\$796.00
P3 331 3115 3113 0	1 25	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	\$796.00
P3 311 3115 3213 0	1 25	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/M-NPT	\$796.00
P3 321 3214 3213 0	1 25	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$796.00
P3 331 3215 3213 0	1 25	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$796.00

PIPE PACKAGE SMARTCODE (CCV)		UNION	MANUAL BALANCE VALVE	STRAINER	LIST PRICE
Pipe Package Model # (3-way CCV) with 12" Hoses	Valve Nominal Size Inches DN (mm)	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
P3 111 1111 1111 1	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$638.00
P3 111 1112 1211 1	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	\$624.00
P3 111 1113 1111 1	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$624.00
P3 111 1211 1211 1	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	\$624.00
P3 111 1212 1111 1	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	\$624.00
P3 111 1213 1211 1	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	\$624.00
P3 211 2111 2111 3	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$744.00
P3 211 2112 2211 3	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	\$744.00
P3 211 2113 2111 3	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$744.00
P3 211 2211 2211 3	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	\$744.00
P3 211 2212 2111 3	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	\$744.00
P3 211 2213 2211 3	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	\$744.00
P3 311 3114 3111 5	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$1,092.00
P3 311 3115 3211 5	1 25	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	\$1,092.00
P3 311 3214 3111 5	1 25	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	\$1,092.00
P3 311 3215 3211 5	1 25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	\$1,092.00

PIPE PACKAGE SMARTCODE (CCV)		UNION	MANUAL BALANCE VALVE	STRAINER	LIST PRICE
Pipe Package Model # (3-way CCV) with 24" Hoses	Valve Nominal Size Inches DN (mm)	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
P3 111 1111 1111 2	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$648.00
P3 111 1112 1211 2	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	\$648.00
P3 111 1113 1111 2	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$648.00
P3 111 1211 1211 2	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	\$648.00
P3 111 1212 1111 2	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	\$648.00
P3 111 1213 1211 2	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	\$648.00
P3 211 2111 2111 4	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$788.00
P3 211 2112 2211 4	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	\$788.00
P3 211 2113 2111 4	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$788.00
P3 211 2211 2211 4	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	\$788.00
P3 211 2212 2111 4	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	\$788.00
P3 211 2213 2211 4	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	\$788.00
P3 311 3114 3111 6	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	\$1,140.00
P3 311 3115 3211 6	1 25	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	\$1,140.00
P3 311 3214 3111 6	1 25	F-NPT/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	\$1,140.00
P3 311 3215 3211 6	1 25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/F-NPT	\$1,140.00

Note: Pipe package model # does not include CCV and Actuator. These must be ordered separately.  
All combinations of reorder numbers are not reflected above. Please use the nomenclature or download the software at [www.belimo.us](http://www.belimo.us) to configure other possible combinations.  
If ordering hoses, tailpiece end of the Strainer can only be ordered in F-NPT, to mate with M-NPT hose end.  
If ordering hoses, body end of the Union can only be ordered in F-NPT, to mate with M-NPT hose end.  
Hoses come in sets of 2. They are not sold separately.  
Reorder number includes Bypass Isolation Valve

### Union Valve Technical Specifications

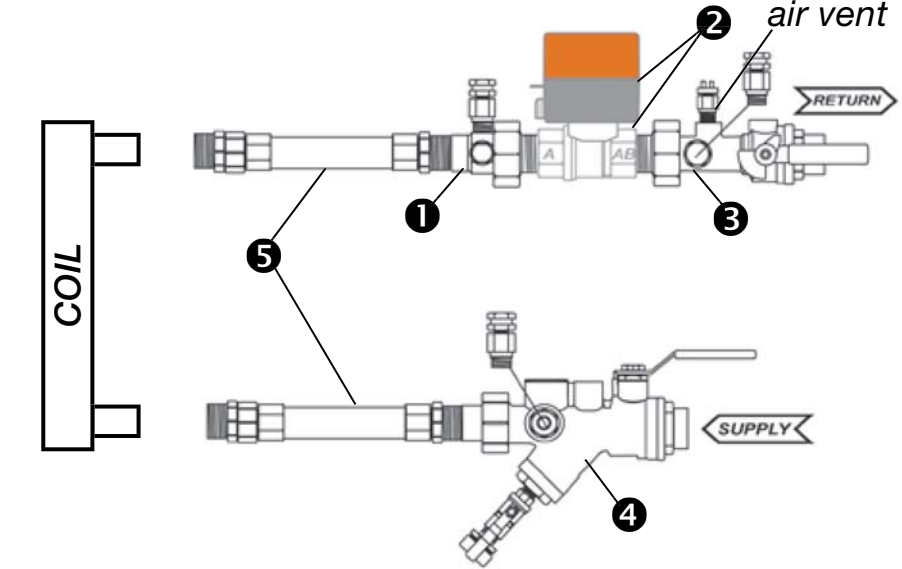
Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union Nut	forged brass
Tailpiece	forged brass
Gasket	EPDM
Insulator	glass reinforced nylon
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½" to 2"	400 psi
Component temp.	250°F maximum
Media temp. range	0°F to 212°F [-18°C to +100°C]
Leakage	0%

### Manual Balance Valve Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Ball	chrome plated/forged brass
Stem	extruded brass
Union	forged brass
Tailpiece	forged brass
Gland Nut	extruded brass
Seats & Packing	Virgin PTFE
O-Rings	Viton
Venturi	extruded brass
Readout port body & cap	extruded brass
Readout port seal	Nordel
Memory Stop	forged brass
Pressure/temperature ratings:	
½" to 2"	400 psi
Component temp.	300°F maximum
Media temp. range	0°F to 212°F [-18°C to +100°C]
Leakage	0%
Media temp. range	0°F to 212°F [-18°C to +100°C]

### Strainer Technical Specifications

Service	chilled or hot water, 60% glycol
Sizes	½", ¾", 1", 1¼", 1½", 2"
Materials:	
Body	forged brass
Union Nut	forged brass
Ball	chrome plated/forged brass
Stem & Gland Nut	forged brass
Tailpiece	forged brass
Seats & Packing	PTFE
Stem O-Rings	Viton
Strainer Screen	304 stainless steel / 20 mesh standard
Readout port body & cap	extruded brass
Readout port seal	Nordel
Pressure/temperature ratings:	
½" to 2"	600 psi
Component temp.	325°F maximum
Media temp. range	0°F to 212°F [-18°C to +100°C]
Leakage	0%



### 2-way Zone Valve (½", ¾" and 1")

- ❶ Union
- ❷ Belimo Valve and Actuator
- ❸ Manual Balance Valve
- ❹ Strainer
- ❺ Optional hoses are available

### Hose Technical Specifications

External Braiding	stainless steel AISI 304
Crimping Ferrules	stainless steel AISI 304
Connectors	machined brass
Fiber Gasket	BA-U fiber washer
Core	formulated EPDM
Operating & Burst Pressure Rating	
½"	375 psi operating 1500 psi burst pressure
¾"	300 psi operating 1200 psi burst pressure
1"	225 psi operating 900 psi burst pressure
1 ¼"	200 psi operating 800 psi burst pressure
1 ½"	175 psi operating 600 psi burst pressure
2"	150 psi operating 500 psi burst pressure
Component temp.	5°F to 230°F [-15°C to +110°C] Less than 41°F with use of Glycol additive.

**Please Note: 2-way Zone Valve Pipe Packages have a 2-year warranty. Minimum 75% restock fee pending inspection.**





SMARTCODE ORDER NOMENCLATURE  
COMPONENT ORDER NOMENCLATURE

EXAMPLE: PZ	111	1111	1111	0
	Union PPU111	MBV PPL1111	Strainer PPS1111	No Hose



Extension packages available.  
Call Technical Support at 800-543-9038 if you require  
extensions for handles, P/T ports and air vents.

PIPE PACKAGE SMARTCODE (ZONE)		UNION		MANUAL BALANCE VALVE		STRAINER		LIST PRICE
Pipe Package Model # (2-way Zone) without hose	Valve Nominal Size Inches DN (mm)	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
PZ 111 1111 1111 0	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$410.00
PZ 121 1112 1212 0	1/2 15	Sweat/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/Sweat	Sweat/Sweat	\$410.00
PZ 131 1113 1113 0	1/2 15	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	\$410.00
PZ 131 1211 1213 0	1/2 15	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$410.00
PZ 131 1212 1213 0	1/2 15	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$410.00
PZ 131 1213 1213 0	1/2 15	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$410.00
PZ 211 2111 2111 0	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$458.00
PZ 221 2112 2212 0	3/4 20	Sweat/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/Sweat	Sweat/Sweat	\$458.00
PZ 231 2113 2113 0	3/4 20	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	\$458.00
PZ 231 2211 2213 0	3/4 20	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$458.00
PZ 231 2212 2213 0	3/4 20	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$458.00
PZ 231 2213 2213 0	3/4 20	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$458.00
PZ 311 3114 3111 0	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$604.00
PZ 321 3114 3212 0	1 25	Sweat/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/Sweat	Sweat/Sweat	\$604.00
PZ 331 3115 3113 0	1 25	M-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	\$604.00
PZ 311 3115 3213 0	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$604.00
PZ 321 3214 3213 0	1 25	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$604.00
PZ 331 3215 3213 0	1 25	M-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	\$604.00

PIPE PACKAGE SMARTCODE (ZONE)		UNION		MANUAL BALANCE VALVE		STRAINER		LIST PRICE
Pipe Package Model # (2-way Zone) with 12" hose	Valve Nominal Size Inches DN (mm)	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
PZ 111 1111 1111 1	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$510.00
PZ 111 1112 1211 1	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$510.00
PZ 111 1113 1111 1	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$510.00
PZ 111 1211 1211 1	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$510.00
PZ 111 1212 1111 1	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$510.00
PZ 111 1213 1211 1	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$510.00
PZ 211 2111 2111 3	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$614.00
PZ 211 2112 2211 3	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$614.00
PZ 211 2113 2111 3	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$614.00
PZ 211 2211 2211 3	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$614.00
PZ 211 2212 2111 3	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$614.00
PZ 211 2213 2211 3	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$614.00
PZ 311 3114 3111 5	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$900.00
PZ 311 3115 3211 5	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$900.00
PZ 311 3214 3111 5	1 25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$900.00
PZ 311 3215 3211 5	1 25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$900.00

PIPE PACKAGE SMARTCODE (ZONE)		UNION		MANUAL BALANCE VALVE		STRAINER		LIST PRICE
Pipe Package Model # (2-way Zone) with 24" hose	Valve Nominal Size Inches DN (mm)	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	Body End/ Tailpiece End	
PZ 111 1111 1111 2	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$534.00
PZ 111 1112 1211 2	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$534.00
PZ 111 1113 1111 2	1/2 15	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$534.00
PZ 111 1211 1211 2	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$534.00
PZ 111 1212 1111 2	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$534.00
PZ 111 1213 1211 2	1/2 15	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$534.00
PZ 211 2111 2111 4	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$658.00
PZ 211 2112 2211 4	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$658.00
PZ 211 2113 2111 4	3/4 20	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$658.00
PZ 211 2211 2211 4	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$658.00
PZ 211 2212 2111 4	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$658.00
PZ 211 2213 2211 4	3/4 20	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$658.00
PZ 311 3114 3111 6	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$948.00
PZ 311 3115 3211 6	1 25	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	F-NPT/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$948.00
PZ 311 3214 3111 6	1 25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	F-NPT/F-NPT	F-NPT/F-NPT	\$948.00
PZ 311 3215 3211 6	1 25	F-NPT/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/M-NPT	Sweat/F-NPT	Sweat/F-NPT	\$948.00

Note: Pipe package model # does not include Zone Valve and Actuator. These must be ordered separately.  
All combinations of reorder numbers are not reflected above. Please use the nomenclature or download the software at [www.belimo.us](http://www.belimo.us) to configure other possible combinations.  
If ordering hoses, tailpiece end of the Strainer can only be ordered in F-NPT, to mate with M-NPT hose end.  
If ordering hoses, body end of the Union can only be ordered in F-NPT, to mate with M-NPT hose end.  
Hoses come in sets of 2. They are not sold separately.

# Increase efficiency through online selection.

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provides a fast, user-friendly and flexible means for accurately sizing and selecting control valves for hydronic and steam applications in HVAC systems. In addition, you can select an assembled pipe package for your control valve or individual pipe package components for your hydronic hot and chilled water systems. Software capabilities include:

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- Generating valve/actuator and/or pipe package submittal data for a project
- Printing project data, valve data, pipe pkg drawings, and pricing
- Exporting project data and selected products to Excel data format
- Saving projects in .xls or .bel file format for future editing or ordering
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- Effective, easy retrofit solutions for valves and damper actuators.
- Quickly and conveniently upfitted without any interruption in service.
- Cutting-edge technology and value offering the quality and reliability for your entire system.
- Simple ways to retrofit with quality Belimo actuators; whether your existing system is electronic or pneumatic.
- Custom design offerings providing cost effective linkage solutions.

### Applications

Valves and actuators are responsible for ensuring reliable functioning of HVAC systems all over the world. Damaged actuators or valves in a HVAC system used to create a large field issue. Replacing the valve along with the actuator is not always a sensible solution. Taking a system off-line to replace numerous valves is not only laborious, it's expensive. Facilities can lose thousands of dollars a day during maintenance shut-down. With retrofit solutions, this problem simply goes away. Valves and actuators can be quickly and conveniently upfitted without any interruption in service.



## Retrofit Solutions Nomenclature

U	G	L	K	XXXX
<b>Universal</b>	<b>Valve Type</b> G = Globe F = Butterfly NV = NV Series for globe valves	<b>Linkage</b> SP = Special Order  Blank for NV	<b>Kit</b> Blank for Special Order  Blank for NV	Dependent upon valve you are selecting to retrofit

### Ordering Example

1

Select linkage solution based on the **Valve Number, Configuration, and Size**; select the proper **Linkage Solution** for your valve.

#### UGLK1214

Example: **Siemens Series #658, 2-Way, 1 1/4" valve** to be retrofitted.

Choose correct kit **UGLK1214**.

2

Verify close-off is suitable for application. Looking at the **UGLK1214**, the **NF Series** actuator will provide **156 psi close-off** for the **1 1/4" valve**.

3

Select actuator based on needed control type. Decide between **NFB24** and **NFB24-MFT**.

4

Complete Ordering Example:  
Item 1: **UGLK1214**  
Item 2: **NFB24-MFT**

### Siemens\Landis\Powers 591, 599 and 658 Series Valves - NPT Bodies Actuator Selection Guide

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off pat (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price		
658 Series	2-way	1"	NPT	N/a	No	120	(blank)	LM	UGLK1350	\$340.00		
						229	(blank)	NV	UNV-004	\$94.00		
						244	(blank)	NM	UGLK1350	\$340.00		
						250	(blank)	AM	UGLK1214	\$466.00		
								NVG	UNV-004	\$94.00		
							Yes	LF	UGLK1350	\$340.00		
		1 1/4"	NPT	N/a	No	183	(blank)	NVF	UNV-004	\$94.00		
	244					(blank)	NF	UGLK1214	\$466.00			
	250					(blank)	AF	UGLK1214	\$466.00			
	78					(blank)	LM	UGLK1350	\$340.00			
	147					(blank)	NV	UNV-004	\$94.00			
	156					(blank)	NM	UGLK1350	\$340.00			
591 Series	2-way	1"	NPT	N/a	No	235	(blank)	NVG	UNV-004	\$94.00		
						250	(blank)	AM	UGLK1214	\$466.00		
							Yes	LF	UGLK1350	\$340.00		
						117	(blank)	NVF	UNV-004	\$94.00		
						156	(blank)	NF	UGLK1214	\$466.00		
						231	250	AF	UGLK1214	\$466.00		
	3-way	1 1/2"	NPT	N/a	No	250	(blank)	LM	UGLK1350	\$360.00		
							(blank)	AM	UGLK1214	\$444.00		
								NV	UNV-004	\$92.00		
							Yes	250	(blank)	LF	UGLK1350	\$360.00
									NF	UGLK1214	\$444.00	

Model	Control Input	Feedback	Power Supply	Running Time(s)		VA Rating	Auxiliary Switch	Cable Length	List Price	
				Ⓜ	ⓂⓂ					
<b>BASIC PRODUCTS</b>										
NFB24	On/Off	-	24 VAC/DC	<75	20	8.5	-	3 ft.	\$366.00	
NFB24-S	On/Off	-	24 VAC/DC	<75	20	8.5	Built-in	3 ft.	\$454.00	
NFBUP	On/Off	-	24-240 VACu	<75	20	9.5	-	3 ft.	\$414.00	
NFBUP-S	On/Off	-	24-240 VACu	<75	20	9.5	Built-in	3 ft.	\$502.00	
NFB24-SR	2-10 VDC	2-10 VDC	24 VAC/DC	95	<20	6	-	3 ft.	\$488.00	
NFB24-SR-S	2-10 VDC	2-10 VDC	24 VAC/DC	95	<20	6	Built-in	3 ft.	\$576.00	
NFB24-MFT	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	9	-	3 ft.	\$544.00	
NFB24-MFT-S	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	9	Built-in	3 ft.	\$632.00	
<b>CUSTOMIZE PRODUCTS REORDER #</b>										
NFB24	On/Off	-	24 VAC/DC	<75	20	8.5	-	3 ft.	\$366.00	
NFB24-S	On/Off	-	24 VAC/DC	<75	20	8.5	Built-in	3 ft.	\$454.00	
NFBUP	On/Off	-	24-240 VACu	<75	20	9.5	-	3 ft.	\$414.00	
NFBUP-S	On/Off	-	24-240 VACu	<75	20	9.5	Built-in	3 ft.	\$502.00	
NFB24-SR	2-10 VDC	2-10 VDC	24 VAC/DC	95	<20	6	-	3 ft.	\$488.00	
NFB24-SR-S	2-10 VDC	2-10 VDC	24 VAC/DC	95	<20	6	Built-in	3 ft.	\$576.00	
NFB24-MFT	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	9	-	3 ft.	\$544.00	
NFB24-MFT-S	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	9	Built-in	3 ft.	\$632.00	
NFX24-SR	NF400 1A3 HD1**	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95 seconds	<20	6	-	10 ft.	\$454.00
NFX24-SR-S	NF400 1A5 HD1**	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95 seconds	<20	6	-	10 ft.	\$454.00
NFX24-SR-S	NF400 1A3 HD1**	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95 seconds	<20	6	Built-in	10 ft.	\$542.00
NFX24-SR-S	NF400 1A5 HD1**	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	95 seconds	<20	6	Built-in	10 ft.	\$542.00

## Why Retrofitting Makes Sense

Valves and actuators are responsible for ensuring reliable functioning hydronic and air control HVAC systems all over the world. With innovative technology, verified quality and easy handling during installations and operation, they boost the performance and efficiency of integrated building technology.

Are you in need of a solution for a broken linkage, leaky hydraulic actuator, non-functioning electric or pneumatic actuator? Do you have a need for replacing a non-functioning application within a day or so?

Belimo provides airside and waterside retrofit application solutions, with direct coupled or remote access linkages, and efficient actuators.

Damaged linkages and/or actuators resulting in non-functioning HVAC system applications, used to mean a loss of properly functioning systems leading to a degradation of energy efficiency, consumer comfort, time, and labor. Replacing a valve along with the actuator, or trying to determine how to fix an airside linkage, is not always a sensible solution. Taking a system off-line to replace various components is not only laborious, it's expensive. Facilities can lose thousands of dollars a day during maintenance shut-down. With retrofit solutions, this problem simply goes away. Valves and Damper applications can be quickly and conveniently restored without any interruption in service. In fact, entire systems can often be updated in a day. A poorly functioning or even non-functioning system can be transformed into a high functioning, more efficient system.

Belimo provides many retrofits that are compatible with all major control systems, so there is no need to replace other system controls. MFT Technology is also available and can be re-programmed to suit your controller needs with just one MFT model actuator.

In addition, Belimo's design team is ready and willing to customize a solution for non-standard retrofit solutions. As always, please call Belimo at 800-543-9038 for assistance in fulfilling your retrofit application requirements.



Assisi Heights, Rochester, Minnesota



The Problem



The Solution

# Retrofit and Replacement

## How to Select an Actuator for damper retrofit



The “10 questions” method for sizing and selection shown below is recommended as the best method for your actuation requirements. Use the “Application Data” column in this chart as a worksheet to help in the selection process. This data, along with the “Actuator Product Range” charts in Sections 1 thru 3 allow for the best selection of a Belimo actuator.

APPLICATION INFO		APPLICATION DATA
<b>1</b>	<b>What is the total area of the damper?</b>	_____ sq. ft.
<b>2</b>	<b>Opposed blade or Parallel blade control construction?</b> <p>Opposed Blade w/o seals 3 in-lb/sq feet*</p> <p>Opposed Blade w/ seals 5 in-lb/sq feet</p> <p>Parallel Blade w/o seals 4 in-lb/sq feet</p> <p>Parallel Blade w/ seals 7 in-lb/sq feet</p> <p>*Less than 1,000 feet per minute</p>	<input type="checkbox"/> Opposed Blade <input type="checkbox"/> Parallel Blade
<b>3</b>	<b>Are there blade and edge seals on the damper?</b> <p>This will impact the proper selection as the seals add resistance requiring more torque. If unknown, use a worst case scenario, parallel blade with seals.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>4</b>	<b>For the damper in question, what does the manufacturer specify as the torque rating?</b> <p>If this information is not available refer to the “typical damper requirements and sizing” chart below.</p>	_____ in-lb/sq. ft.
<b>5</b>	<b>What is the air velocity, static pressure, or design CFM?</b> <p>Systems above 1,000 FPM require additional actuator torque</p>	_____ W.G. _____ CFM _____ FPM

ACTUATOR REQUIREMENTS		APPLICATION DATA
<b>6</b>	<b>Is fail-safe actuation required?</b> <p>Consider the application. Is the actuator and/or damper exposed to outside air? If yes, use spring return.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>7</b>	<b>What is the supply voltage to the actuator?</b> <p>Do you need a step down transformer?</p> <p>If replacing an oil immersed gear train actuator, is the transformer in the defective actuator? You may need to purchase one.</p> <ul style="list-style-type: none"> <li>• 24 VAC/DC</li> <li>• 120 VAC</li> <li>• 230 VAC single phase</li> </ul>	<input type="checkbox"/> 24 VAC <input type="checkbox"/> 120 VAC <input type="checkbox"/> 230 VAC
<b>8</b>	<b>What is the control signal to the actuator?</b> <ul style="list-style-type: none"> <li>• 2 position</li> <li>• Floating point</li> <li>• Modulating</li> <li>• Sequencing</li> <li>• “Non-standard” voltage signals</li> </ul> <p>This will be a critical component to the selection of an actuator. Consider the ...MFT actuator product range and the flexibility of its application.</p>	<input type="checkbox"/> On/Off <input type="checkbox"/> Floating Point <input type="checkbox"/> 2-10 VDC <input type="checkbox"/> 0-10 VDC <input type="checkbox"/> 4-20 mA <input type="checkbox"/> PWM _____ range <input type="checkbox"/> Other (MFT)
<b>9</b>	<b>Can you direct couple to a damper shaft?</b> <p>Direct-coupling has become the industry standard. Some retrofit applications do not allow direct coupling. Refer to the Belimo “Mounting &amp; Methods Guide” for application details.</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, see accessories page
<b>10</b>	<b>Are there additional accessories required?</b> <p>For example, some applications require the addition of an auxiliary switch for proof of position; a retrofit application may require an additional mounting bracket and linkage kit. We advise that you identify these needs prior to leaving the job site or ordering products.</p>	<input type="checkbox"/> No <input type="checkbox"/> Yes, see accessories section or actuator series for details

## TYPICAL DAMPER REQUIREMENTS AND SIZING

Square Damper (with square shape):  $ft^2 = h \times w / 144$ ; (h= height, w= width, in inches)

EXAMPLE: Damper Area (8 ft<sup>2</sup>) x Rated Torque Loading of Damper (4 in-lb/ft<sup>2</sup>) = Total in-lb Required (32 in-lb) **Belimo LF 35 in-lb/ LM 45 in-lb actuators**

DAMPER BLADE TYPE	Torque Loading in-lb/ft <sup>2</sup>		
	< 1000 FPM	1000-2500 FPM	2500-3500 FPM
Parallel blade/edge seals	7 (Typical)	10.5	14
Opposed blade/edge seals	5 (Typical)	7.5	10
Parallel blade/no edge seals	4	6	8
Opposed blade/no edge seals	3	4.5	6
Round	10	14	20

**TYPICAL DAMPER REQUIREMENTS AND SIZING EXAMPLE:**

APPLICATION REQUIREMENTS	RECTANGULAR DAMPER	ROUND DAMPER
Damper Length	24"	
Damper Width	12"	
Damper (Round)		12"
Blade Type	Opposed	Round
Edge Seals	Edge Seals	
Design CFM	1800 CFM	700 CFM
Fail Safe	Yes	Yes
Supply Voltage	24 Volt	24 Volt
Control Signal	2-10 VDC	2-10 VDC
<b>CALCULATIONS</b>		
Damper Area (sq inches)	24" x 12" = 288 in <sup>2</sup>	$\pi r^2 = 113.04 \text{ in}^2$
Damper Area (sq feet)*	288 in <sup>2</sup> x 1ft/12 in x 1ft/12 in = 2 ft <sup>2</sup>	113.04 in <sup>2</sup> / 1ft/12in x 1ft/12in = .785 ft <sup>2</sup>
Velocity	1800 ft <sup>3</sup> /min / 2 ft <sup>2</sup> = 900 ft/min See chart under <1000 FPM (ft/min)	700 ft <sup>3</sup> /min / .785 ft <sup>2</sup> = 892 ft/min See chart under <1000 FPM (ft/min)
Rated Torque Loading (in-lb/ft <sup>2</sup> )**	Select 5 in-lbs/ft <sup>2</sup> for Opposed Blade/Edge Seals	Select 10 in-lbs/ft <sup>2</sup> for Round Damper
<b>EXAMPLE EQUATION</b>		
	<b>*Damper Area (sq ft) x **Rated Torque Loading of Damper (in-lbs/ft<sup>2</sup>) = Total in-lb Required</b>	
	2 ft <sup>2</sup> x 5 in-lbs/ft <sup>2</sup> = 10 in-lbs Belimo LF24-SR US @ 35 in-lbs	.785 ft <sup>2</sup> x 10 in-lbs/ft <sup>2</sup> = 7.85 in-lbs Belimo LF24-SR US @ 35 in-lbs

**CONTROL SIGNAL OVERVIEW**

Belimo actuators are compatible with many control inputs and all direct digital control (DDC) systems. There are many signals to select from with today's controllers.

What does 'on/off', 'open-close', '3-point', 'tri-state', 'floating point', 'proportional modulation', 'phase cut', 'PWM' or 'MFT' mean?

**Belimo will help you understand more on this control signal jungle with a quick overview:**

**On/Off or Open-Close:** The actuator is able to drive either to its full open position, or to its full closed position. The same indication is used for spring return type actuators. Where the actuator will drive to its full open position and spring return to its zero position. This can also be reversed.

**3-point, Tri-State, Floating Point:** The actuator has both clockwise (CW) and counter-clockwise (CCW) control inputs. One drives the actuator to its open, the other to its close position. If there is no signal (Null point) on either input the actuator simply stays in its last position.

**Proportional Control:** The actuator drives proportional to its control input and modulates throughout its angle of rotation. This control type is usually a variation of VDC. Common values are:

0-10 VDC      2-10 VDC

It is common to also have a 0-20/4-20 mA output from a controller. This can be very easily converted to 0-10 VDC or 2-10 VDC with a 500 Ω resistor.

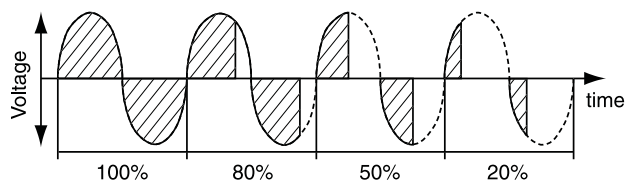
**Pulse Width Modulation (PWM):** The actuator drives to a specified position according to a pulse duration, the "length" of signal. The pulse can originate from a dry contact closure or a triac sink or source controller. An example of PWM control:

Time base: 0 to 10 seconds

Output pulse: 5 seconds

Actuator position: 50%

**Phasecut:** An actuator drives depending on the power result of a remaining wave. This signal type cuts the amplitude of the wave and the actuator recognizes this signal as a proportional movement.



**Multi-Functional Technology (MFT):** This technology was developed by Belimo for incorporation into our damper and valve actuator. MFT provides the ability to program characteristics of the actuator. Some of the key characteristics to change are:

**CONTROL INPUT**  
selectable On/Off, VDC, PWM or Floating point

**MOTION VALUES**  
selectable Running time adjustment

**FEEDBACK**  
selectable feedback values

# Replacement of Discontinued Belimo Products

When replacing an actuator, whether Belimo or other, be sure to consider the application parameters before selecting the replacement. The new product may not be the best fit for the application.

An example would be an existing SM24-SR US mounted to a valve linkage. The direct replacement of the actuator is the AMX24-MFT. However, the SM... and AM... are different lengths, the linkage would need to be replaced as well. When retrofitting or replacing actuators, it is always best to select the new product based on application parameters. This ensures the selected actuator is fit for the application. Never only use a part number cross-reference when replacing defective actuators.

SPRING RETURN			
DISCONTINUED	CORRECT REPLACEMENT	DISCONTINUED	CORRECT REPLACEMENT
LF24-SR-MP US	LF24-MFT-20 US	AFR24-3 US	AFB24-MFT + P-300...
LF24-SR-S-MP US	LF24-MFT-S-20 US	AF24-3-S US	AFB24-MFT-S + P-300...
NF230 US	NFBUP	AFR24-3-S US	AFB24-MFT-S + P-300...
NF230-S US	NFBUP-S	AFR24-SR US	AF24-SR US
SF24 US	AF24 US	AF24-SR-S US	AFB24-MFT-S + P-100...
SF24-S US	AF24-S US	AF24-SR95 US	AFB24-MFT95
SF120 US	AF120 US	AF24-PWM US	AFB24-MFT + P-200...
SF120-S US	AF120-S US	AF24-SR US*	AF24-PC US if phasecut is needed
FM24 US	AF24 US	AF24-MFT US	AFB24-MFT
FM24-SR US	AF24-SR US	AF24-MFT-S US	AFB24-MFT-S
FM24-SR90 US	AFB24-MFT95	AF24-MFT95 US	AFB24-MFT95
FM24-SR95 US	AFB24-MFT95	NF24 US	NFB24
FS24	AF24 US	NF24-S US	NFB24-S
FS24-S	AF24-S US	NF24-S2 US	NFB24-S
AFR24 US	AF24 US	NF120 US	NFBUP
AFR24-S US	AF24-S US	NF120-S US	NFBUP-S
AFR120 US	AF120 US	NF24-SR US	NFB24-SR
AFR120-S US	AF120-S US	NF24-SR-S US	NFB24-SR-S
AF24-3 US	AFB24-MFT + P-300...	NF24-MFT US	NFB24-MFT

NON-SPRING RETURN			
DISCONTINUED	CORRECT REPLACEMENT	DISCONTINUED	CORRECT REPLACEMENT
LM24-SR US	LMB24-SR	AM24 US	AMB24-3
LM24-SR.1 US	LMB24-SR.1	AM24-S US	AMB24-3-S
LM24-SR-2.0 US	LMB24-SR	AM24-SR US	AMB24-SR
LM24-SR-T US	LMB24-SR-T	AM24-PWM-A US	AMX24-MFT + # AM100 1C1 W02
LM24-SR-T.1 US	LMB24-SR-T.1	AM24-PWM-B US	AMX24-MFT + # AM100 1C1 W03
LM24-SR-T-2.0 US	LMB24-SR-T	AM24-PWM-C US	AMX24-MFT + # AM100 1C1 W01
LMC24-SR US	LMCB24-SR	AM24-SRS-A US	AMX24-MFT + # AM100 1C1 A04
LM24-MFT US	LMX24-MFT + # LM100 1C1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	AM24-SRS-B US	AMX24-MFT + # AM100 1C1 A05
LM24-MFT.1 US	LMX24-MFT+ # LM100 1C1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	AM24-SRS-C US	AMX24-MFT + # AM100 1C1 A06
NM24 US	NMB24-3	AM24-PC US	AMX24-PC + # AM0N0 1C1
NM24-1 US	NMB24-3	AM24-MFT US	AMX24-MFT + # AM100 1C1...
NM24 EU	NMB24-3	AM24-MFT 95 US	AMX24-MFT95 + # AM0L0 1C1 R01
NM24-1/200 US	NMX24-3 + # NM00 1C3 000	SM24 US	AMB24-3
NM24-1/300 US	NMX24-3 + # NM00 1C3 000	SM24-S US	AMX24-MFT + # AM110 1C1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> + S1A/S2A
NM24-SR US	NMB24-SR	SM24-SR US	AMB24-SR
NM24-SRS US	NMX24-MFT + # NM100 1C1 A <input type="checkbox"/> <input type="checkbox"/>	SM24-SR US	AMX24-PC if phasecut is needed
NM24-PWM US	NMX24-MFT + # NM100 1C1 W <input type="checkbox"/> <input type="checkbox"/>	SM24-SRS US	AMX24-MFT + # AM100 1C1 A <input type="checkbox"/> <input type="checkbox"/>
NM24-MFT US	NMX24-MFT + # NM100 1C1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	SM24-SR94 US	AMX24-MFT95 + # AM0L0 1C1 R01
NM24-MFT.1 US	NMX24-MFT + # NM100 1C1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	GM24 US	GMB24-3
NMQ24-MFT US	NMQ24-MFT	GM24-SR US	GMB24-SR
NMV24-D US	NMV-D2M US, contact Belimo for support	GM24-SR US	GMX24-PC if phasecut is needed
NMV24-V US	NMV-D2M US, contact Belimo for support	GM24-MFT US	GMX24-MFT+ # GM110 1C1 A <input type="checkbox"/> <input type="checkbox"/>

† For correct reorder # please call Belimo customer service at 800-543-9038.

\* Purchased before May 2003.

Placeholder for custom options.



# Replacement of Discontinued Belimo Valve Products

When replacing an actuator, whether Belimo or other, be sure to consider the application parameters before selecting the replacement. The new product may not be the best fit for the application.

An example would be an existing MAR actuator mounted to a valve linkage. The direct replacement of the actuator would be the SY series actuator. However, the MAR and the SY have different linkage construction, and the linkage would need to be replaced as well. When retrofitting or replacing actuators, it is always best to select the new product based on application parameters. This ensures the selected actuator is fit for the application. Please consider the parameters when cross-referencing.

**Please consult Belimo for assistance with valve actuator replacement.**

SPRING RETURN	
DISCONTINUED MODEL #	REPLACEMENT
LF24-SR-MP US	LF24-MFT-20 US
LF24-SR-S-MP US	LF24-MFT-S-20 US
AF24-3 US	AFX24-MFT + P-300..
AF24-3-S US	AFX24-MFT-S + P-300..
AF24-SR-S US	AFX24-MFT-S + P-100..
AF24-SR95 US	AFB24-MFT95
AF24-PWM US	AFX24-MFT + P-200..

NON-SPRING RETURN	
DISCONTINUED MODEL #	REPLACEMENT
LV24 US	CCV with LR... or TR....
LV24/200 US	CCV with LR... or TR....
LV24/300 US	CCV with LR... or TR....
LV24-3 US	CCV with LR... or TR....
LV24-1 US	CCV with LR... or TR....
LV24-1/200 US	CCV with LR... or TR....
LV24-1/300 US	CCV with LR... or TR....
LV24-3-1 US	CCV with LR... or TR....
LV24-SR US	CCV with LR... or TR....
LV24-SR/200 US	CCV with LR... or TR....
LV24-SR/300 US	CCV with LR... or TR....
LV24-SR-1 US	CCV with LR... or TR....
LV24-SR-1/200 US	CCV with LR... or TR....
LV24-SR-1/300 US	CCV with LR... or TR....
LV24-SR-1-2.0 US	CCV with LR... or TR....
LV24-SR-1-2.0/200 US	CCV with LR... or TR....
LV24-SR-1-2.0/300 US	CCV with LR... or TR....
LR24 US	LRB24-3
LR24-MFT US	LRX24-MFT + # LR100 RC1 □ □ □
LR24/200 US	LRX24-3 + # LR000 RC3 002
LR24/300 US	LRX24-3 + # LR000 RC3 002
LR24-1 US	LRB24-3
LR24-1/200 US	LRX24-3 + # LR000 RC3 002
LR24-1/300 US	LRB24-3 + # LR000 RC3 002
LR24-3-1 US	LRB24-3
LR24-3-1/200 US	LRX24-3 + # LR000 RC3 002
LR24-3-1/300 US	LRX24-3 + # LR000 RC3 002
LR24-SR/200 US	LRX24-SR + # LR030 RC3 002
LR24-SR/300 US	LRX24-SR + # LR030 RC3 002
LR24-SR-1 US	LRB24-SR
LR24-SR-1/200 US	LRX24-SR + # LR030 RC3 002
LR24-SR-1/300 US	LRX24-SR + # LR030 RC3 002
LR24-SR-1-2.0 US	LRB24-SR
LR24-SR-1-2.0/200 US	LRX24-SR + # LR030 RC3 002
LR24-SR-1-2.0/300 US	LRX24-SR + # LR030 RC3 002
LR24-SR-2.0 US	LRB24-SR
LR24-SR-2.0/200 US	LRX24-SR + # LR030 RC3 002
LR24-SR-2.0/300 US	LRX24-SR + # LR030 RC3 002
LR24-MFT/200 US	LRX24-MFT + # LR100 RC3 □ □ □
LR24-MFT/300 US	LRX24-MFT + # LR100 RC3 □ □ □

□ Placeholder for custom options.  
\*Consider ambient temperature for application.

NON-SPRING RETURN	
DISCONTINUED MODEL #	REPLACEMENT
NR24-3 US*	LRB24-3
NR24-SR US*	LRX24-MFT + # LR100 RC1 □ □ □
NM24 US	ARB24-3
NM24-SR US	ARX24-SR + # AR030 RC1 □ □ □
NM24-MFT US	ARX24-MFT + # AR100 RC1A □ □ □
NM24-SRS US	ARX24-MFT + # AR100 RC1W □ □ □
AM24 US	ARB24-3
AM24-S US	ARB24-S US
AM24-MFT US	ARX24-MFT + # AR100 RC1 □ □ □

NON-SPRING RETURN – 24 VAC		NON-SPRING RETURN – 24 VAC	
DISCONTINUED MODEL	Torque	REPLACEMENT	Torque
MAR100B-24V	1,500	SY4-24	3,560
MAR160-B-24V	2,000	SY4-24	3,560
MAR100BP-24V	1,800	SY4-24MFT	3,560
MAR160-BP-24V	2,500	SY4-24MFT	3,560
MAR250-60-24V	5,000	SY5-24	4,450
MAR250-60P-24V	5,000	SY5-24MFT	4,450

\*Linkage may need to be changed also.

NON-SPRING RETURN – 110 VAC		NON-SPRING RETURN – 110 VAC	
DISCONTINUED MODEL	Torque	REPLACEMENT	Torque
MAR95-15B	1,000	SY3-110	1,335
MAR95-15BP	1,000	SY3-120MFT	1,335
MAR100B	1,500	SY4-110	3,559
MAR160B	2,000	SY4-110	3,560
MAR100BP	1,800	SY4-120MFT	3,560
MAR160-BP	2,500	SY4-120MFT	3,560
MAR250-30	5,000	SY5-110	4,450
MAR250-30P	5,000	SY5-120MFT	4,450
		SY6-110	6,450
		SY6-120MFT	6,450
MAR800-30	10,000	SY7-110	9,790
MAR800-30P	10,000	SY7-120MFT	9,790
		SY8-110	13,350
		SY8-120MFT	13,350
MAR1600-70	21,000	SY10-110	22,250
MAR1600-70P	21,000	SY10-120MFT	22,250
MAR4000-70	48,000	SY12-110	31,150
MAR4000-70P	48,000	SY12-120MFT	31,150

\*Linkage may need to be changed also.

SPRING RETURN – 110 VAC		NON-SPRING RETURN – 110 VAC	
DISCONTINUED MODEL	Torque	REPLACEMENT	Torque & Battery System
Sure49-30-CW	600	SY3-110	1,335 + NSV-SY-01
Sure100-30-CW	1,200	SY3-110	1,335 + NSV-SY-01
Sure49-30P-CW	600	SY3-120MFT	1,335 + NSV-SY-02
Sure100-30P-CW	1,200	SY3-120MFT	1,335 + NSV-SY-02

\*Linkage may need to be changed also.

L30056 - 04/10 - Subject to change. © Belimo Aircontrols (USA), Inc.

RETROFIT SOLUTIONS

# Discontinued Models

## Zone Valves



ZONE VALVES*				REPLACEMENT			
DISCONTINUED MODEL #	Size	C <sub>v</sub> Rating	Close-off		Size	C <sub>v</sub> Rating	Close-off
Z214T+SEF24 NO	½"	2.3	43.5	ZONE215N-10+ZONE24NO	½"	1	75
Z215T+SEF24 NO	½"	3.7	30	ZONE215N-25+ZONE24NO	½"	2.5	50
Z220T+SEF24 NO	¾"	3.7	30	ZONE215N-35+ZONE24NO	½"	3.5	30
Z214T+SEF120 NO	½"	2.3	43.5	ZONE220N-35+ZONE24NO	¾"	3.5	30
Z215T+SEF120 NO	½"	3.7	30	ZONE220N-50+ZONE24NO	¾"	5	25
Z220T+SEF120 NO	¾"	3.7	30	ZONE215N-10+ZONE120NO	½"	1	75
Z214T+SEF24 NC	½"	2.3	43.5	ZONE215N-25+ZONE120NO	½"	2.5	50
Z215T+SEF24 NC	½"	3.7	30	ZONE215N-35+ZONE120NO	½"	3.5	30
Z220T+SEF24 NC	¾"	3.7	30	ZONE220N-35+ZONE120NO	¾"	3.5	30
Z214T+SEF120 NC	½"	2.3	43.5	ZONE220N-50+ZONE120NO	¾"	5	25
Z215T+SEF120 NC	½"	3.7	30	ZONE215N-10+ZONE24NC	½"	1	75
Z220T+SEF120 NC	¾"	3.7	30	ZONE215N-25+ZONE24NC	½"	2.5	50
Z214T+SEF24 NC	½"	2.3	43.5	ZONE215N-35+ZONE24NC	½"	3.5	30
Z215T+SEF24 NC	½"	3.7	30	ZONE220N-35+ZONE24NC	¾"	3.5	30
Z220T+SEF24 NC	¾"	3.7	30	ZONE220N-50+ZONE24NC	¾"	5	25
Z214T+SEF120 NC	½"	2.3	43.5	ZONE215N-10+ZONE120NC	½"	1	75
Z215T+SEF120 NC	½"	3.7	30	ZONE215N-25+ZONE120NC	½"	2.5	50
Z220T+SEF120 NC	¾"	3.7	30	ZONE215N-35+ZONE120NC	½"	3.5	30
Z315T+SEF24 NC	½"	5	30	ZONE220N-35+ZONE120NC	¾"	3.5	30
Z315T+SEF120 NC	½"	5	30	ZONE220N-50+ZONE120NC	¾"	5	25
Z320T+SEF24 NC	¾"	5.4	30	ZONE315N-10+ZONE24NC	½"	1	75
Z320T+SEF120 NC	¾"	5.4	30	ZONE315N-25+ZONE24NC	½"	2.5	50
Z814T+SEF24 NO	½"	2.3	43.5	ZONE315N-35+ZONE24NC	½"	3.5	30
Z815T+SEF24 NO	½"	3.7	30	ZONE315N-10+ZONE120NC	½"	1	75
Z820T+SEF24 NO	¾"	3.7	30	ZONE315N-25+ZONE120NC	½"	2.5	50
Z814T+SEF120 NO	½"	2.3	43.5	ZONE315N-35+ZONE120NC	½"	3.5	30
Z815T+SEF120 NO	½"	3.7	30	ZONE320N-35+ZONE24NC	¾"	3.5	30
Z820T+SEF120 NO	¾"	3.7	30	ZONE320N-50+ZONE24NC	¾"	5	25
Z814T+SEF24 NC	½"	2.3	43.5	ZONE320N-35+ZONE120NC	¾"	3.5	30
Z815T+SEF24 NC	½"	3.7	30	ZONE320N-50+ZONE120NC	¾"	5	25
Z820T+SEF24 NC	¾"	3.7	30	ZONE215S-10+ZONE24NC	½"	1	75
Z814T+SEF120 NC	½"	2.3	43.5	ZONE215S-25+ZONE24NC	½"	2.5	50
Z815T+SEF120 NC	½"	3.7	30	ZONE215S-35+ZONE24NO	½"	3.5	30
Z820T+SEF120 NC	¾"	3.7	30	ZONE220S-35+ZONE24NO	¾"	3.5	30
Z915T+SEF24 NC	½"	5	30	ZONE220S-50+ZONE24NO	¾"	5	25
Z915T+SEF120 NC	½"	5	30	ZONE215S-10+ZONE120NO	½"	1	75
Z920T+SEF24 NC	¾"	5.4	30	ZONE215S-25+ZONE120NO	½"	2.5	50
Z920T+SEF120 NC	¾"	5.4	30	ZONE215S-35+ZONE120NO	½"	3.5	30
				ZONE220S-35+ZONE120NO	¾"	3.5	30
				ZONE220S-50+ZONE120NO	¾"	5	25
				ZONE215S-10+ZONE24NC	½"	1	75
				ZONE215S-25+ZONE24NC	½"	2.5	50
				ZONE215S-35+ZONE24NC	½"	3.5	30
				ZONE315S-10+ZONE120NC	½"	1	75
				ZONE315S-25+ZONE120NC	½"	2.5	50
				ZONE315S-35+ZONE120NC	½"	3.5	30
				ZONE320S-35+ZONE24NC	¾"	3.5	30
				ZONE320S-50+ZONE24NC	¾"	5	25
				ZONE320S-35+ZONE120NC	¾"	3.5	30
				ZONE320S-50+ZONE120NC	¾"	5	25

\*Please Note: The recommended replacements must be considered depending on the C<sub>v</sub> rating and Close-off requirement involving your application.

L30056 - 04/10 - Subject to change. © Belimo Aircontrols (USA), Inc.

### Auxiliary Switches

add S2A	2 auxiliary switches (add-on)
add S1A	1 auxiliary switch (add-on)
1	1 auxiliary switch (built-in)
2	2 auxiliary switches (built-in)

Legend	
HONEYWELL "WHITE"	BELIMO

† Belimo 24V actuators are AC/DC

### Model Numbers

HONEYWELL	BELIMO	Spring Return	Control Signal		Power †		Torque (in-lb)		Feedback		Auxiliary Switches		Timing (seconds)	
M4185A1001	NFBUP	Yes	On/Off	On/Off	120	24-240	60	90					30-60	<75
M4185B1009	NFBUP-S	Yes	On/Off	On/Off	120	24-240	60	90			1	2	30-60	<75
M4185B1058	NFBUP-S	Yes	On/Off	On/Off	100-230	24-240	60	90			1	2	30-60	<75
M4185C1007	NFBUP-S	Yes	On/Off	On/Off	120	24-240	60	90			2	2	30-60	<75
M6184A1015	AMB24-3	No	Floating	On/Off, Floating	24	24	150	180					30-60	150
M6184A1023	NMCX120-3	No	Floating	On/Off, Floating	120	120	75	90					15-30	45
M6184D1001	NMBC24-3	No	Floating	On/Off, Floating	24	24	75	90					15-30	45
M6184D1035	AMCX24-MFT	No	Floating	On/Off, Floating	24	24	150	180		2-10 VDC			30-60	35-adj
M6184D1068	AMX24-MFT	No	Floating	On/Off, Floating	24	24	150	180		2-10 VDC			120-240	150-adj
M6184F1014	AMCX24-MFT	No	Floating	On/Off, Floating	24	24	150	180		2-10 VDC	2	add S2A	30-60	35-adj
M6194B1011	GMB24-3	No	Floating	On/Off, Floating	24	24	300	360			1	add S1A	60-120	150
M6194D1017	GMB24-3	No	Floating	On/Off, Floating	24	24	300	360					120-240	150
M6194E1006	GMB24-3	No	Floating	On/Off, Floating	24	24	300	360			1	add S1A	120-240	150
M6284A1055	AMCX24-MFT*	No	Floating	On/Off, Floating	120	120	150	180		2-10 VDC			30-60	35-adj
M6284D1000	AMCX24-MFT	No	Floating	On/Off, Floating	24	24	150	180		2-10 VDC			30-60	35-adj
M6284F1013	AMCX24-MFT	No	Floating	On/Off, Floating	24	24	150	180		2-10 VDC	2	add S2A	30-60	35-adj
M6285A1005	NFB24	Yes	Floating	On/Off, Floating	24	24	60	90					30-60	<75
M6285C1001	NFB24-S	Yes	Floating	On/Off, Floating	24	24	60	90			2	2	30-60	<75
M6294D1008	GMB24-3	No	Floating	On/Off, Floating	24	24	300	360					120-240	150
M7164A1017	LMCB24-SR	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	35	45		2-10 VDC			30-60	35
M7164G1030	LMCB120-SR**	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	120	120	35	45		2-10 VDC			30-60	35
M7215A1008	LF24-SR US	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	25	35	2-10 VDC	2-10 VDC			90	95
M7284A1004	AMCX24-MFT	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	120	150	180		2-10 VDC			30-60	35-adj
M7284A1012	AMCX24-MFT**	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	120	150	180		2-10 VDC			30-60	35-adj
M7284A1038	AMCX24-MFT	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	120	75	180		2-10 VDC			15-30	35-adj
M7284A1079	AMCX24-MFT	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	150	180		2-10 VDC			30-60	35-adj
M7284C1000	AMCX24-MFT	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	120	150	180		2-10 VDC	2	add S2A	30-60	35-adj
M7284C1059	AMCX24-MFT	No	On/Off, Floating	On/Off, Floating	24	24	150	180		2-10 VDC	2	add S2A	30	35-adj
M7284C1067	AMCX24-MFT	No	On/Off, Floating	On/Off, Floating	24	24	150	180		2-10 VDC	2	add S2A	60	35-adj
M7284Q1009	AMCX24-MFT	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	120	150	180		2-10 VDC	2	add S2A	30-60	35-adj
M7284Q1033	AMCX24-MFT	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	150	180		2-10 VDC	2	add S2A	30	35-adj
M7284Q1041	AMCX24-MFT	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	150	180		2-10 VDC	2	add S2A	60	35-adj
M7285A1003	NFB24-MFT*	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	24	50	90		2-10 VDC			30-60	150-adj
M7285A1045	NFB24-MFT	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	50	90		2-10 VDC			30-60	150-adj
M7285C1009	NFB24-MFT-S*	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	24	50	90		2-10 VDC	2	2	30-60	150-adj
M7285Q1008	NFB24-MFT-S*	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	24	50	90		2-10 VDC	2	2	30-60	150-adj
M7286G1009	NFB24-MFT	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	60	90		2-10 VDC			30-60	150-adj
M7294A1010	GMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	300	360		2-10 VDC			60-120	150
M7294Q1007	GMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	120	300	360		2-10 VDC	2	add S2A	60-120	150
M7415A1006	LF24-ECON-R03 US	Yes	Thermistor, 3000 ohm NTC	Thermistor, 3000 ohm NTC	24	24	25	35	2-10 VDC	2-10 VDC			90	95
M7415B1004	LF24-ECON-R03 US	Yes	Thermistor, 3000 ohm NTC	Thermistor, 3000 ohm NTC	24	24	25	35	2-10 VDC	2-10 VDC			90	150
M7685A1025	NFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	60	90		2-10 VDC			30-60	150-adj
M8185D1006	AMCX24-MFT	Yes	On/Off	On/Off	24	24	60	180		2-10 VDC			30-60	35-adj
M8405A1006	LF24-SR-E US	Yes	On/Off, Floating	2-10 vdc, 4-20 ma	24	24	25	35	2-10 VDC	2-10 VDC			90	150
M9164A1005	LMX24-MFT95*	No	0-135 ohm	0-135 ohm	120	120	35	45		2-10 VDC			30-60	150
M9164A1013	LMX24-MFT95*	No	0-135 ohm	0-135 ohm	100-230	230	35	45		2-10 VDC			30-60	150
M9164A1013	LMX24-MFT95*	No	0-135 ohm	0-135 ohm	100-230	120	35	45		2-10 VDC			30-60	150
M9164A1070	LMX24-MFT95	No	0-135 ohm	0-135 ohm	24	24	35	45		2-10 VDC			30-60	150
M9164C1001	LMX24-MFT95	No	0-135 ohm	0-135 ohm	24	24	35	45		2-10 VDC	2	add S2A	30-60	150

\* Add 120/24 volt transformer.

\*\* Belimo actuators are 90° max rotation.

HONEYWELL	BELIMO	Spring Return	Control Signal		Power +		Torque (in-lb)		Feedback		Auxiliary Switches		Timing (seconds)	
M9164C1068	LMX24-MFT95*	No	0-135 ohm	0-135 ohm	120	120	35	45		2-10 VDC	2	add S2A	30-60	150
M9164D1009	LMX24-MFT95	No	0-135 ohm	0-135 ohm	24	24	35	45		2-10 VDC			30-60	150
M9174B1027	NMX24-MFT95*	No	0-135 ohm	0-135 ohm	120	120	75	90		2-10 VDC	1	add S1A	30-60	150
M9174C1025	NMX24-MFT95*	No	0-135 ohm	0-135 ohm	120	120	75	90		2-10 VDC	2	add S2A	30-60	150
M9174C1033	NMX24-MFT95**	No	0-135 ohm	0-135 ohm	120	120	75	90		2-10 VDC	2	add S2A	30-60	150
M9174D1007	NMX24-MFT95	No	0-135 ohm	0-135 ohm	24	24	75	90		2-10 VDC			30-60	150
M9184A1019	AMX24-MFT95	No	0-135 ohm	0-135 ohm	24	24	150	180		2-10 VDC			30-60	150
M9184C1031	AMX24-MFT95	No	0-135 ohm	0-135 ohm	24	24	150	180		2-10 VDC	2	add S2A	30-60	150
M9184D1005	NMX24-MFT95	No	0-135 ohm	0-135 ohm	24	24	75	90		2-10 VDC			15-30	150
M9184D1021	AMX24-MFT95	No	0-135 ohm	0-135 ohm	24	24	150	180		2-10 VDC			30-60	150
M9184F1034	AMX24-MFT95 US	No	0-135 ohm	0-135 ohm	24	24	150	180		2-10 VDC	2	add S2A	30-60	150
M9185A1018	AFB24-MFT95	Yes	0-135 ohm	0-135 ohm	24	24	60	180		2-10 VDC			30-60	150-adj
M9185C1006	AFB24-MFT95-S	Yes	0-135 ohm	0-135 ohm	24	24	60	180		2-10 VDC	2	2	30-60	150-adj
M9185D1004	AFB24-MFT95	Yes	0-135 ohm	0-135 ohm	24	24	60	180		2-10 VDC			30-60	150-adj
M9185E1019	AFB24-MFT95-S	Yes	0-135 ohm	0-135 ohm	24	24	60	180		2-10 VDC	1	2	30-60	150-adj
M9186G1006	AFB24-MFT95	Yes	0-135 ohm	0-135 ohm	24	24	60	180		2-10 VDC			30-60	150-adj
M9194D1003	GMX24-MFT95	No	0-135 ohm	0-135 ohm	24	24	300	360		2-10 VDC			120-240	150
M9194E1000	GMX24-MFT95	No	0-135 ohm	0-135 ohm	24	24	300	360		2-10 VDC	1	add S1A	120-240	150
ML4105A1000	FSLF120 US	Yes	On/Off	On/Off	120	120	30-40	30					25	15
ML4105B1009	FSNF120 US	Yes	On/Off	On/Off	120	120	30-40	30					25	15
ML4105C1008	FSLF230 US	Yes	On/Off	On/Off	230	230	30-40	30					25	15
ML4105D1007	FSNF230 US	Yes	On/Off	On/Off	230	230	30-40	30					25	15
ML4115A,B	FSLF120 US	Yes	On/Off	On/Off	120	120	30-40	30					25	15
ML4115C,D	FSLF230 US	Yes	On/Off	On/Off	230	230	30-40	30					25	15
ML4125A1008	FSAF120 US	Yes	On/Off	On/Off	120	120	100	133					25	20
ML4125B1007	FSAF120 US	Yes	On/Off	On/Off	120	120	100	133					25	20 †
ML4125C1006	FSAF230 US	Yes	On/Off	On/Off	230	230	100	133					25	20 †
ML4125D1005	FSAF230 US	Yes	On/Off	On/Off	230	230	100	133					25	20 †
ML4135A1007	FSNF120 US	Yes	On/Off	On/Off	120	120	40	70					15-25	15
ML4135B1006	FSNF120 US	Yes	On/Off	On/Off	120	120	40	70					15-25	15
ML4202	FSLF120 US	Yes	On/Off	On/Off	120	120	20	30					25	15
ML4302	FSLF120 US	Yes	On/Off	On/Off	120	120	20	30					25	15
ML4702	FSLF230 US	Yes	On/Off	On/Off	230	230	20	30					25	15
ML4802	FSLF230 US	Yes	On/Off	On/Off	230	230	20	30					25	15
ML48125A1004	FSAF120 US	Yes	On/Off	On/Off	120	120	100	133					25	20 †
ML6131B2001	LMCB24-3-T	No	On/Off, Floating	On/Off, Floating	24	24	6	45					15	35
ML6161A2008	LMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	35	45		2-10 VDC			90	95
ML6161A2009	LMB24-3-P5-T	No	On/Off, Floating	On/Off, Floating	24	24	35	45	2k Ω	5k Ω			90	95
ML6161B2024	LMB24-3-T	No	On/Off, Floating	On/Off, Floating	24	24	35	45					90	95
ML6161B2024	LMB24-3-T	No	On/Off, Floating	On/Off, Floating	24	24	35	45					90	95
ML6174A2002	NMB24-3	No	Floating	Floating	24	24	70	90					90	95
ML6174A2010	AMB24-3	No	Floating	Floating	24	24	70	180					180	95
ML6174B2019	NMB24-3	No	Floating	Floating	24	24	70	90					90	95
ML6174B2019	NMB24-3	No	On/Off, Floating	On/Off, Floating	24	24	90	90					90	95
ML6174D2009	NMB24-3	No	Floating	Floating	24	24	70	90					90	95
ML6174E2008	NMB24-3	No	Floating	Floating	24	24	70	90					90	95
ML7161A2008	LMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	35	45		2-10 VDC			90	95
ML7161A2008	LMB-24-SR-T	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	35	45		2-10 VDC			90	95
ML7174A2001	NMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	70	90		2-10 VDC			90	95
ML7174A2019	NMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	70	90	2-10 VDC	2-10 VDC			90	95
ML7174E2007	NMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	70	90	2-10 VDC	2-10 VDC			90	95
ML8105A1006	FSLF24 US	Yes	On/Off	On/Off	24	24	30	30					25	20
ML8105B1005	FSLF24 US	Yes	On/Off	On/Off	24	24	30	30					25	15
ML8115A1005	FSLF24 US	Yes	On/Off	On/Off	24	24	30	30					15	15
ML8115B1004	FSLF24 US	Yes	On/Off	On/Off	24	24	30	30					15	15
ML8125A,B	FSAF24 US	Yes	On/Off	On/Off	24	24	100	133					25-40	20 †
ML8135A1003	FSNF24 US	Yes	On/Off	On/Off	24	24	40	70					15-25	15
ML8135B1002	FSNF24 US	Yes	On/Off	On/Off	24	24	100	133					15	15
ML8202	FSLF24 US	Yes	On/Off	On/Off	24	24	20	30					25	15
ML8302	FSLF24 US	Yes	On/Off	On/Off	24	24	20	30					25	15
MN6120A1002	AMB24-3	No	On/Off, Floating	On/Off, Floating	24	24	175	180					90	95
MN6120A1200	AMB24-3	No	On/Off, Floating	On/Off, Floating	24	24	175	180			2	add S2A	90	95
MN6134A1003	GMB24-3	No	On/Off, Floating	On/Off, Floating	24	24	300	360					90	150
MN6134A1003	GMB24-3	No	On/Off, Floating	On/Off, Floating	24	24	300	360					90	150
MN7220A2007	AMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	175	180	2-10 VDC	2-10 VDC			90	95

\* Add 120/24 volt transformer.

\*\* Belimo actuators are 90° max rotation.

HONEYWELL	BELIMO	Spring Return	Control Signal		Power +		Torque (in-lb)		Feedback		Auxiliary Switches		Timing (seconds)	
			2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	300	360	2-10 VDC	2-10 VDC			90	150
MN7234A2008	GMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	300	360	2-10 VDC	2-10 VDC			90	150
MS4105A1002	LF230 US	Yes	On/Off	On/Off	100-250	230	35	35					90	40-75
MS4105A1002	LF120 US	Yes	On/Off	On/Off	100-250	120	35	35					90	40-75
MS4110A1002	NFBUP	Yes	On/Off, Floating	On/Off	100-250	24-240	88	90					90	<75
MS4110A1002	NFBUP	Yes	On/Off, Floating	On/Off	100-250	24-240	88	90					90	<75
MS4110A1200	LF120-S US	Yes	On/Off	On/Off	100-250	120	35	35			2	1	90	40-75
MS4110A1200	LF230-S US	Yes	On/Off	On/Off	100-250	230	35	35			2	1	90	40-75
MS4120A1001	AF230 US**	Yes	On/Off	On/Off	100-250	230	175	133					90	150
MS4120A1001	AF120 US**	Yes	On/Off	On/Off	100-250	120	175	133					90	150
MS4120A1209	AF120-S US**	Yes	On/Off	On/Off	100-250	120	175	133			2	1	90	150
MS4120A1209	AF230-S US**	Yes	On/Off	On/Off	100-250	230	175	133			2	1	90	150
MS4120F1006	FSAF120 US**	Yes	On/Off	On/Off	120	120	175	133					25	20 †
MS4209F1007	FSNF120 US	Yes	On/Off	On/Off	120	120	80	70					25	15
MS4309F1005	FSNF120 US	Yes	On/Off	On/Off	120	120	80	70					25	15
MS4620F1005	FSAF230 US**	Yes	On/Off	On/Off	230	230	175	133					25	20 †
MS4709F1014	FSNF230 US	Yes	On/Off	On/Off	230	230	80	70					25	15
MS4809F1012	FSNF230 US	Yes	On/Off	On/Off	230	230	80	70					25	15
MS7150A2206	LF24-SR-S	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	44	35	2-10 VDC	2-10 VDC	2	1	90	40-75
MS7505A2008	LFC24-3-R US	Yes	2-10 vdc, 4-20 ma, Floating, On/Off	Floating	24	24	44	35	2-10 VDC	2-10 VDC			90	90
MS7510A2008	NFB24-MFT	Yes	2-10 vdc, 4-20 ma, Floating, On/Off	MFT, 2-10 vdc default	24	24	88	90	2-10 VDC	2-10 VDC			90	150-adj
MS7510A2206	LF24-MFT-S US	Yes	2-10 vdc, 4-20 ma, Floating, On/Off	MFT, 2-10 vdc default	24	24	88	35	2-10 VDC	2-10 VDC	2	1	90	150
MS7520A2007	AFB24-MFT	Yes	2-10 vdc, 4-20 ma, Floating, On/Off	MFT, 2-10 vdc default	24	24	175	180	2-10 VDC	2-10 VDC			90	150-adj
MS7520A2205	AFB24-MFT-S	Yes	2-10 vdc, 4-20 ma, Floating, On/Off	MFT, 2-10 vdc default	24	24	175	180	2-10 VDC	2-10 VDC	2	2	90	150-adj
MS8105A1008	LF24 US	Yes	MFT, 2-10 vdc default	On/Off, Floating	24	24	44	35					90	40-75
MS8110A1008	NFB24	Yes	On/Off, Floating	On/Off	24	24	88	90					90	<75
MS8110A1206	NFB24-S	Yes	On/Off, Floating	On/Off	24	24	88	90			2	2	90	150
MS8120A1007	AF24 US	Yes	On/Off	On/Off	24	24	175	133					90	150
MS8120A1205	AF24-S US	Yes	On/Off	On/Off	24	24	175	133			2	1	90	150
MS8120F1200	FSAF24 US**	Yes	On/Off	On/Off	24	24	175	133					25	20 †
MS8209F1003	FSNF24 US	Yes	On/Off	On/Off	24	24	80	70					25	<15
MS8309F1001	FSNF24 US	No	On/Off	On/Off	24	24	80	70					25	<15

\*\* May require 2 Belimo actuators.

### Auxiliary Switches

add S2A	2 auxiliary switches (add-on)
add S1A	1 auxiliary switch (add-on)
1	1 auxiliary switch (built-in)
2	2 auxiliary switches (built-in)

Legend	
INVENSY "WHITE"	BELIMO

+ Belimo 24V actuators are AC/DC

### Model Numbers

INVENSY	BELIMO	Spring Return	Control Signal		Power +		Torque (in-lb)		Feedback	Auxiliary Switches		Timing (seconds)	
MA-220, 230	FSNF120 US	Yes	On/Off	On/Off	120	120		70					15
MA-305	TF24 US*	Yes	On/Off	On/Off	24	24	16	18					75
MA-305	TF24-MFT US*	Yes	On/Off	On/Off	24	24	16	18		2-10 VDC			150-adj
MA-305-500	TF24-S US*	Yes	On/Off	On/Off	24	24	16	18			1	1	75
MA-305-500	TF24-MFT-S US*	Yes	On/Off	On/Off	24	24	16	18		2-10 VDC	1	1	150-adj
MA-318	FSNF24 US*	Yes	On/Off	On/Off	24	24		70					15
MA-318	NFB24*	Yes	On/Off	On/Off	120	120	60	90					<75
MA-318-500	NFB24-S*	Yes	On/Off	On/Off	230	230	60	90			1	2	75
MA-405	TF120 US*	Yes	On/Off	On/Off	120	120	16	18					75
MA-405	TFC120-S US*	Yes	On/Off	On/Off	120	120	16	18				1	<30
MA-405-500	TF120-S US*	Yes	On/Off	On/Off	120	120	16	18			1	1	75
MA-405-500	TFC120-S US*	Yes	On/Off	On/Off	120	120	16	18			1	1	<30
MA40-7040	LF120 US	Yes	On/Off	On/Off	120	120	35	35					50 40-75
MA40-7040-501	LF120-S US	Yes	On/Off	On/Off	120	120	35	35			1	1	50 40-75
MA40-7041	LF230 US	Yes	On/Off	On/Off	230	230	35	35					50 40-75
MA40-7041-501	LF230-S US	Yes	On/Off	On/Off	230	230	35	35			1	1	50 40-75
MA40-7043	LF24 US	Yes	On/Off	On/Off	24	24	35	35					50 40-75
MA40-7043-501	LF24-S US	Yes	On/Off	On/Off	24	24	35	35			1	1	50 40-75
MA40-7151	AF230 US	Yes	On/Off	On/Off	230	230	133	133					190 150
MA40-7070	NFBUP	Yes	On/Off	On/Off	120	24-240	60	90					80 <75
MA40-7070-502	NFBUP-S	Yes	On/Off	On/Off	120	24-240	60	90			2	2	80 <75
MA40-7071	AF230 US	Yes	On/Off	On/Off	230	230	60	133					80 150
MA40-7071-502	AF230-S US	Yes	On/Off	On/Off	230	230	60	133			2	2	80 150
MA40-7073	NFB24	Yes	On/Off	On/Off	24	24	60	90					80 <75
MA40-7073-502	NFB24-S	Yes	On/Off	On/Off	24	24	60	90			2	2	80 75
MA40-7150	AF120 US	Yes	On/Off	On/Off	120	120	133	133					190 150
MA40-7150-502	AF120-S US	Yes	On/Off	On/Off	120	120	133	133			2	2	190 150
MA40-7153	AF24 US	Yes	On/Off	On/Off	24	24	133	133					190 150
MA40-7153-502	AF24-S US	Yes	On/Off	On/Off	24	24	133	133			2	2	190 150
MA40-7170	AF120 US	Yes	On/Off	On/Off	120	120	150	133					145 150
MA40-7171	AF230 US	Yes	On/Off	On/Off	230	230	150	133					145 150
MA40-7173	AF24 US	Yes	On/Off	On/Off	24	24	150	133					145 150
MA-416	NFBUP*	Yes	On/Off	On/Off	208	24-240	60	90					104 <75
MA-416-500	NFBUP-S*	Yes	On/Off	On/Off	208	24-240	60	90			1	2	104 <75
MA41-7073	NFB24	Yes	On/Off	On/Off	24	24		90					<75
MA-418	FSNF120 US*	Yes	On/Off	On/Off	120	120	60	70					15
MA-418-500	NFBUP-S*	Yes	On/Off	On/Off	120	24-240	60	90			1	2	<75
MA-419	NFBUP*	Yes	On/Off	On/Off	240	24-240	60	90					120 <75
MA-419-500	NFBUP-S*	Yes	On/Off	On/Off	240	24-240	60	90			1	2	120 <75
MA40-7151-502	AF230-S US	Yes	On/Off	On/Off	230	230	133	133			2	2	190 150
MA5-419	NFBUP	Yes	On/Off	On/Off	240	24-240	60	90					120 <75
MA5-419-500	NFBUP-S	Yes	On/Off	On/Off	240	24-240	60	90			1	2	120 <75
MC-351	GMB24-3	No	On/Off	On/Off, Floating	24	24	220	360					70 95
MC-421	GMB24-MFT	No	On/Off	MFT, 2-10 vdc default	24	24	175	360		2-10 VDC			20 150-adj
MC-431	GMB24-MFT	No	On/Off	MFT, 2-10 vdc default	24	24	220	360		2-10 VDC			30 150-adj
MC-4311	GMB24-MFT	No	On/Off	MFT, 2-10 vdc default	24	24	220	360		2-10 VDC			30 150-adj
MC5-4311	GMB24-MFT	No	On/Off	MFT, 2-10 vdc default	24	24	220	360		2-10 VDC			36 150-adj
MF40-6043	LMB24-3	No	Floating	Floating	24	24	35	45					<90 95
MF40-6043-502	LMB24-3	No	Floating	Floating	24	24	35	45			2	add S2A	<90 95
MF40-6043-510	LMB24-3	No	Floating	Floating	24	24	35	45					<90 95
MF40-6083	NMB24-3	No	Floating	Floating	24	24	70	90					120 95
MF40-6153	AMB24-3	No	Floating	Floating	24	24	133	180					120 95
MF40-7043	LF24-3 US	Yes	Floating	Floating	24	24	35	35	2-10 VDC				130 150
MF40-7043-501	LF24-3-S US	Yes	Floating	Floating	24	24	35	35			1	1	195 150

\* Belimo actuators are 90° max rotation.

INVENSYS	BELIMO	Spring Return	Control Signal		Power +		Torque (in-lb)		Feedback		Auxiliary Switches		Timing (seconds)	
MF40-7073	NFB24-MFT	Yes	Floating	MFT, 2-10 vdc default	24	24	60	90		2-10 VDC			190	150-adj
MF40-7073-502	NFB24-MFT-S	Yes	Floating	MFT, 2-10 vdc default	24	24	60	90		2-10 VDC	2	2	195	150-adj
MF40-7153	AFB24-MFT	Yes	Floating	MFT, 2-10 vdc default	24	24	133	180		2-10 VDC			190	150-adj
MF40-7153-502	AFB24-MFT-S	Yes	Floating	MFT, 2-10 vdc default	24	24	133	180		2-10 VDC	2	2	190	150-adj
MF40-7173	AFB24-MFT	Yes	Floating	MFT, 2-10 vdc default	24	24	150	180		2-10 VDC			145	150-adj
MF41-6043	LMB24-3	No	Floating	Floating	24	24	35	45					90	95
MF41-6043-502	LMB24-3	No	Floating	Floating	24	24	35	45			2	add S2A	90	95
MF41-6043-510	LMB24-3-P10-T	No	Floating	Floating	24	24	35	45	1k Ω	10k Ω			90	95
MF41-6083	NMB24-3	No	Floating	Floating	24	24	70	90					90	95
MF41-6083-502	NMB24-3	No	Floating	Floating	24	24	70	90			2	add S2A	90	95
MF41-6153	AMB24-3	No	Floating	Floating	24	24	133	180					90	95
MF41-6343	GMB24-3	No	Floating	Floating	24	24	300	360					90	95
MF41-7073	NFB24-MFT	Yes	Floating	MFT, 2-10 vdc default	24	24	60	90		2-10 VDC			195	150-adj
MF41-7073-502	NFB24-MFT-S	Yes	Floating	MFT, 2-10 vdc default	24	24	60	90		2-10 VDC	2	2	195	150-adj
MF41-7153	AFB24-MFT	Yes	Floating	MFT, 2-10 vdc default	24	24	133	180		2-10 VDC			190	150-adj
MF41-7153-502	AFB24-MFT-S	Yes	Floating	MFT, 2-10 vdc default	24	24	133	180		2-10 VDC	2	2	190	150-adj
MF-6343	GMB24-3	No	Floating	Floating	24	24	300	360					145	150
MM-400	LMCB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	150	45		2-10 VDC			50	35
MM-400-002	LMCB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	150	45		2-10 VDC	2	add S2A	50	35
MM-500	NFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	50	90		2-10 VDC			55	150-adj
MM-500-002	NFB24-MFT-S	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	50	90		2-10 VDC	2	2	55	150-adj
MMR-400	LMCB-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	150	45		2-10 VDC			50	35
MMR-400-002	LMCB-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	150	45		2-10 VDC	2	add S2A	50	35
MMR-500	NFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	50	90		2-10 VDC			55	150-adj
MMR-500-002	NFB24-MFT-S	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	50	90		2-10 VDC	2	2	55	150-adj
MP-361	NFB24-SR-S	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	50	90		2-10 VDC	1	2	90	150
MP-361-600	NFB24-MFT-S	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	50	90		2-10 VDC	1	2	90	150-adj
MP-361-691	NFB24-MFT-S	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	50	90		2-10 VDC	1	2	90	150-adj
MP-371	NFB24-SR-S	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	50	90		2-10 VDC	1	2	90	150
MP-371-600	NFB24-MFT-S	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	50	90		2-10 VDC	1	2	90	150-adj
MP-371-602	NFB24-MFT-S	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	50	90		2-10 VDC	1	2	90	150-adj
MP-381	GMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	220	360		2-10 VDC	1	add S1A	130	150
MP-382	GMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	220	360		2-10 VDC	1	add S1A	130	150
MP-421	NMX24-MFT*	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	120	120	60	90		2-10 VDC	1	add S1A	25	150-adj
MP-422	NMX24-MFT*	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	120	120	60	90		2-10 VDC	1	add S1A	25-250	150-adj
MP-424	NMX24-MFT*	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	120	120	60	90		2-10 VDC	1	add S1A	13-130	150-adj
MP-451	NMX24-MFT*	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	120	120	80	90		2-10 VDC	1	add S1A	80	150-adj
MP-453	GMX24-MFT*	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	120	120	220	360		2-10 VDC	1	add S1A	40	150-adj
MP-465	NFB24-SR-S	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	24	50	90		2-10 VDC	1	2	50	150-adj
MP-475	NFB24-SR-S	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	24	50	90		2-10 VDC	1	2	50	150-adj
MP-481	AMX24-MFT*	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	120	120	130	180		2-10 VDC	1	add S1A	130	150-adj
MP-483	NMX24-MFT*	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	120	120	65	90		2-10 VDC	1	add S1A	65	150-adj
MP-485	AMX24-MFT*	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	120	120	130	180		2-10 VDC	1	add S1A	130	150-adj

\* Add 120/24 volt transformer.

INVENSY	BELIMO	Spring Return	Control Signal		Power +		Torque (in-lb)		Feedback		Auxiliary Switches		Timing (seconds)	
MP-495	AMX24-MFT*	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	120	120	130	180		2-10 VDC	1	add S1A	130	150-adj
MP-5233	TF24-MFT US	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	19	18		2-10 VDC			60	150-adj
MP-5433	TF24-MFT US	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	120	24	19	18		2-10 VDC			60	150-adj
MP-5613	TF24-MFT US	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24		18		2-10 VDC			60	150-adj
MS-1233	TF24-MFT US	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	20	18		2-10 VDC			225	150-adj
MS-1233-002	TF24-MFT US	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	20	18		2-10 VDC			225	150-adj
MS-1233-100	TF24-MFT US	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	20	18		2-10 VDC			225	150-adj
MS-1233-102	TF24-MFT US	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	20	17		2-10 VDC			225	150-adj
MS40-7171	AF24-SR US	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	150	133	2-10 VDC	2-10 VDC			145	150
MS40-7043	LF24-SR US	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	35	35	2-10 VDC	2-10 VDC			130	150
MS40-7043-501	LF24-SR-S US	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	35	35	2-10 VDC	2-10 VDC	1	1	130	150
MS40-7073-502	NFB24-SR-S	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	60	90	2-10 VDC	2-10 VDC	2	2	130	150
MS40-7153	AF24-SR US	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	133	133	2-10 VDC	2-10 VDC			130	150
MS40-7153-502	AFB24-MFT-S	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	133	180	2-10 VDC	2-10 VDC	2	2	195	150-adj
MS40-7170	AF24-SR US	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	24	150	133	2-10 VDC	2-10 VDC			145	150
MS40-7173	AF24-SR US	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	150	133	2-10 VDC	2-10 VDC			145	150
MS41-6043	LMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	35	45	2-10 VDC	2-10 VDC				35
MS41-6043-502	LMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	35	45	2-10 VDC	2-10 VDC				150-adj
MS41-6043-520	LMB24-MFT	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	35	45	2-10 VDC	2-10 VDC				150-adj
MS41-6043-522	LMB24-MFT	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	35	45	2-10 VDC	2-10 VDC				150-adj
MS41-6083	NMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	70	90	2-10 VDC	2-10 VDC			150	95
MS41-6083-502	NMB24-MFT	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	70	90	2-10 VDC	2-10 VDC			150	150-adj
MS41-6083-520	NMB24-MFT	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	70	90	2-10 VDC	2-10 VDC			150	150-adj
MS41-6083-522	NMB24-MFT	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	70	90	2-10 VDC	2-10 VDC			150	150-adj
MS41-6153	AMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	133	180	2-10 VDC	2-10 VDC				95
MS41-6343	GMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	300	360	2-10 VDC	2-10 VDC				150
MS41-7073	NFB24-SR	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	60	90	2-10 VDC	2-10 VDC			195	95
MS41-7153	AF24-SR US	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	133	133	2-10 VDC	2-10 VDC			190	150
MS4709F	FSNF230 US	Yes	On/Off	On/Off	230	230		70					90	15
MS4809F	FSNF230 US	Yes	On/Off	On/Off	230	230		70					90	15
MS50-E2001	AFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	150	180		2-10 VDC			145	150-adj
MS50-E2101	AFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	150	180		2-10 VDC			145	150-adj
MS50-E2301	AFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	150	180		2-10 VDC			145	150-adj
MS50-H2001	GMB24-MFT	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	300	360		2-10 VDC			145	150-adj
MS50-H2101	GMB24-MFT	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	300	360		2-10 VDC			145	150-adj
MS50-H2301	GMB24-MFT	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	300	360		2-10 VDC			145	150-adj
MS8209F	FSNF24 US	Yes	On/Off	On/Off	24	24	80	70					25	15
MS8309F	FSNF24 US	Yes	On/Off	On/Off	24	24	80	70					25	15

\* Add 120/24 volt transformer.

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**Auxiliary Switches**

add S2A	2 auxiliary switches (add-on)
add S1A	1 auxiliary switch (add-on)
1	1 auxiliary switch (built-in)
2	2 auxiliary switches (built-in)

Legend	
<b>JOHNSON CONTROLS "WHITE"</b>	<b>BELIMO</b>

† Belimo 24V actuators are AC/DC

**Model Numbers**

JOHNSON CONTROLS	BELIMO	Spring Return	Control Signal		Power †		Torque (in-lb)		Feedback		Auxiliary Switches		Timing (seconds)	
			On/Off, Floating	On/Off, Floating	120	120	25	35			1	1		
M110AAB-1	LF120-S US	Yes	On/Off, Floating	On/Off	120	120	25	35			1	1		40-75
M110AGA-1	LF24-3 US	Yes	On/Off, Floating	On/Off, Floating	24	24	25	35						150
M110AGB-1	LF24-3-S US	Yes	On/Off, Floating	On/Off, Floating	24	24	25	35			1	1		150
M110GGA-3	LF24-MFT US	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	25	35	2-10 VDC	2-10 VDC				150-adj
M110JGA-1	LF24-MFT US	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	25	35	2-10 VDC	2-10 VDC				150-adj
M110JGB-1	LF24-MFT-S US	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	25	35	2-10 VDC	2-10 VDC	1	1		150-adj
M120AAA-1	LMB120-3	No	On/Off, Floating	On/Off, Floating	120	120	35	45						95
M120AAC-1	LMB120-3	No	On/Off, Floating	On/Off, Floating	120	120	35	45			2	add S2A		150-adj
M120AGA-1	LMB24-3	No	On/Off, Floating	On/Off, Floating	24	24	35	45						95
M120GGA-3	LMB24-MFT	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	35	45	2-10 VDC	2-10 VDC				150-adj
M120JAA-1	LMB120-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	120	35	45	2-10 VDC	2-10 VDC				95
M120JAC-1	LMB120-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	120	35	45	2-10 VDC	2-10 VDC	2	add S2A		95
M120JGA-1	LMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	35	45	2-10 VDC	2-10 VDC				95
M120MGA-1	LMX24-MFT95	No	0-135 ohm	MFT, 2-10 vdc default	24	24	35	45						95
M130AAA-1	NFBUP	Yes	On/Off, Floating	On/Off	120	24-240	50	90						<75
M130AAB-1	NFBUP-S	Yes	On/Off, Floating	On/Off	120	24-240	50	90			1	2		<75
M130AGA-1	NFB24	Yes	On/Off, Floating	On/Off	24	24	50	90						<75
M130AGB-1	NFB24-S	Yes	On/Off, Floating	On/Off	24	24	50	90			1	2		<75
M130GGA-3	NFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	50	90	2-10 VDC	2-10 VDC				150-adj
M130JGA-1	NFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	50	90	2-10 VDC	2-10 VDC				150-adj
M130JGB-1	NFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	50	90	2-10 VDC	2-10 VDC	1			150-adj
M130JGC-1	NFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	50	90	2-10 VDC	2-10 VDC	2			150-adj
M130MGA-1	AFB24-MFT95	Yes	0-135 ohm	0-135 ohm	24	24	50	180	2-10 VDC	2-10 VDC				150-adj
M140AAA-1	LMB120-3	No	On/Off, Floating	On/Off, Floating	120	120	75	45						95
M140AGA-1	LMB24-3	No	On/Off, Floating	On/Off, Floating	24	24	75	45						95
M140GGA-3	LMB24-MFT	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	75	45	2-10 VDC	2-10 VDC				95
M140JAA-1	LMB120-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	120	120	75	45	2-10 VDC	2-10 VDC				95
M140JGA-1	LMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	75	45	2-10 VDC	2-10 VDC				150-adj
M150AAA-1	AMB120-3	No	On/Off, Floating	On/Off, Floating	120	120	150	180						95
M150AAB-1	AMB120-3	No	On/Off, Floating	On/Off, Floating	120	120	150	180			1	add S1A		95
M150AGA-1	AMB24-3	No	On/Off, Floating	On/Off, Floating	24	24	150	180						95
M150AGB-1	AMB24-3	No	On/Off, Floating	On/Off, Floating	24	24	150	180			1	add S1A		95
M150GGA-3	AMB24-MFT	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	150	180	2-10 VDC	2-10 VDC				150-adj
M150JGA-1	AMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	150	180	2-10 VDC	2-10 VDC				95
M150JGB-1	AMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	150	180	2-10 VDC	2-10 VDC	1	add S1A		95
M150JGC-1	AMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	150	180	2-10 VDC	2-10 VDC	2	add S2A		95
M150MGA-1	AMB24-MFT	No	0-135 ohm	MFT, 2-10 vdc default	24	24	150	180	2-10 VDC	2-10 VDC				150-adj
M9108-GGA-2	NMCB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	70	90		2-10 VDC			60	45
M9101-AGA-2N	LMB24-3-T	No	Floating	Floating	24	24	10	45					15	95
M9104-AGA-2N	LMB24-3-T	No	On/Off, Floating	Floating	24	24	35	45					90	95
M9104-AGA-2N	LMB24-3	No	Floating	Floating	24	24	35	45					90	95
M9106-AGA-2	LMB24-3	No	Floating	Floating	24	24	53	45					60	95
M9106-AGA-2N01	LMCB24-3	No	On/Off, Floating	Floating	24	24	53	45					60	35
M9106-AGA-2N01	LMCB24-3-T	No	Floating	Floating	24	24	53	45					60	35
M9106-AGA-2N02	LMB24-MFT	No	On/Off, Floating	MFT, 2-10 vdc default	24	24	53	45		2-10 VDC			120	150-adj
M9106-AGA-2N02	LMX24-MFT	No	Floating	MFT, 2-10 vdc default	24	24	53	45		2-10 VDC			120	150-adj

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RETROFIT SOLUTIONS

JOHNSON CONTROLS	BELIMO	Spring Return	Control Signal		Power +		Torque (in-lb)		Feedback	Auxiliary Switches		Timing (seconds)		
M9106-AGC-2	LMB24-3	No	Floating	Floating	24	24	53	45			2	add S2A	60	95
M9106-AGF-2	LMB24-3-P10-T	No	Floating	Floating	24	24	53	45	10k Ω				60	95
M9106-GGA-2	LMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	53	45	2-10 VDC				60	95
M9106-IGA-2	LMB24-MFT	No	Floating	Floating	24	24	53	45	2-10 VDC				60	150-adj
M9108-AGA-2	NMCB24-3	No	Floating	Floating	24	24	70	90					25-50	45
M9108-AGC-2	NMCB24-3	No	Floating	Floating	24	24	70	90			2	add S2A	25-50	45
M9108-GGC-2	NMCB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	70	90	2-10 VDC		2	add S2A	25-50	45
M9108-HGA-2	NMB24-MFT	No	2-10 vdc w/ adj. start and span	MFT, 2-10 vdc default	24	24	70	90	2-10 VDC				25-50	150-adj
M9108-HGC-2	NMB24-MFT	No	2-10 vdc w/ adj. start and span	MFT, 2-10 vdc default	24	24	70	90	2-10 VDC		2	add S2A	25-50	150-adj
M9109-AGA-2	NMB24-3	No	Floating	Floating	24	24	80	90					60	95
M9109-AGC-2	NMB24-3	No	Floating	Floating	24	24	80	90			2	add S2A	60	95
M9109-GGA-2	NMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	80	90	2-10 VDC				60	95
M9109-GGC-2	NMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	80	90	2-10 VDC		2	add S2A	60	95
M9116-AGA-2	AMB24-3	No	Floating	On/Off, Floating	24	24	140	180	0-10 VDC				70-115	95
M9116-AGA-2	AMB24-3	No	Floating	Floating	24	24	140	180					70-115	95
M9116-AGC-2	AMB24-3-S	No	Floating	On/Off, Floating	24	24	140	180	0-10 VDC		2	add S2A	70-115	95
M9116-AGC-2	AMB24-3	No	Floating	Floating	24	24	140	180			2	add S2A	70-115	95
M9116-AGD-2	AMB24-3 + P140A	No	Floating	On/Off, Floating	24	24	140	180	0-10 VDC	0-140 Ω			70-115	95
M9116-AGE-2	AMB24-3 + P1000A	No	Floating	On/Off, Floating	24	24	140	180	0-10 VDC	0-1000 Ω			70-115	95
M9116-AGE-2	AMB24-3 + P1000A	No	Floating	Floating	24	24	140	180		0-1000 W			70-115	95
M9116-GGA-2	AMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	140	180	0-10 VDC	2-10 VDC			70-115	95
M9116-GGA-2	AMB24-MFT	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	140	180	0-10 VDC	2-10 VDC			70-115	95
M9116-GGC-2	AMB24-SR-S	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	140	180	0-10 VDC	2-10 VDC	2	add S2A	70-115	95
M9116-GGC-2	AMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	140	180		2-10 VDC	2	add S2A	70-115	95
M9116-HGA-2	AMB24-MFT	No	2-10 vdc w/ adj. start and span	MFT, 2-10 vdc default	24	24	140	180	0-10 VDC	2-10 VDC			70-115	150-adj
M9116-HGA-2	AMB24-MFT	No	2-10 vdc w/ adj. start and span	MFT, 2-10 vdc default	24	24	140	180		2-10 VDC			70-115	95
M9116-HGC-2	AMB24-MFT	No	2-10 vdc w/ adj. start and span	MFT, 2-10 vdc default	24	24	140	180	0-10 VDC	2-10 VDC	2		70-115	150-adj
M9124-AGA-2	GMB24-3	No	Floating	On/Off, Floating	24	24	210	360					115-175	150
M9124-AGC-2	GMB24-3	No	Floating	On/Off, Floating	24	24	210	360			2	add S2A	70-130	150
M9124-AGD-2	GMB24-3 + P140A	No	Floating	On/Off, Floating	24	24	210	360		0-140 W			115-175	150
M9124-AGE-2	GMB24-3 + P1000A	No	Floating	On/Off, Floating	24	24	210	360		0-1000 W			70-130	150
M9124-GGA-2	GMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	210	360		2-10 VDC			70-130	150
M9124-HGA-2	GMB24-MFT	No	2-10 vdc w/ adj. start and span	MFT, 2-10 vdc default	24	24	210	360		2-10 VDC			70-130	150-adj
M9124-HGC-2	GMB24-MFT	No	2-10 vdc w/ adj. start and span	MFT, 2-10 vdc default	24	24	210	360	2-10 VDC		2	add S2A	70-130	150-adj
M9132-AGA-2	GMB24-3	No	Floating	On/Off, Floating	24	24	280	360					115-205	150
M9132-AGC-2	GMB24-3	No	Floating	On/Off, Floating	24	24	280	360			2	add S2A	70-130	150
M9132-AGE-2	GMB24-3 + P1000A	No	Floating	On/Off, Floating	24	24	280	360		0-1000 W			115-205	150
M9132-GGA-2	GMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	280	360		2-10 VDC			70-130	150
M9132-GGC-2	GMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	280	360		2-10 VDC	2	add S2A	70-130	150
M9206-AGA-2	NFB24-MFT	Yes	Floating	MFT, 2-10 vdc default	24	24	53	90	2-10 VDC				90	150-adj
M9206-AGC-2	NFB24-MFT	Yes	Floating	MFT, 2-10 vdc default	24	24	53	90	2-10 VDC		2		90	150-adj
M9206-BAA-2S	NFB24	Yes	On/Off	On/Off	120	24	53	90					90	<75
M9206-BAA-2S	NFBUP	Yes	On/Off	On/Off	120	24-240	53	90					90	<75
M9206-BAC-2S	NFB24-S	Yes	On/Off	On/Off	120	24	53	90			2	2	90	<75
M9206-BAC-2S	NFBUP-S	Yes	On/Off	On/Off	120	24-240	53	90			2	2	90	<75
M9206-BGA-2S	NFB24	Yes	On/Off	On/Off	24	24	53	90					60	<75
M9206-BGB-2S	NFB24-S	Yes	On/Off	On/Off	24	24	53	90			1	2	60	<75
M9206-BGC-2	NFB24-S	Yes	On/Off	On/Off	24	24	53	90			2	2	60	<75
M9206-GGA-2	NFB24-SR	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	53	90	2-10 VDC				60	95
M9206-GGA-2MP	LF24-MFT-20 US	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	53	35	2-10 VDC				90	150-adj
M9206-GGC-2	LF24-SR-S US	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	53	35	2-10 VDC		2	1	90	40-75
M9206-GGC-2MP	LF24-MFT-S-20 US	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	53	35	2-10 VDC		2	1	90	150-adj
M9216-AGA-2	AFB24-MFT	Yes	Floating	MFT, 2-10 vdc default	24	24	140	180	2-10 VDC				70-130	150-adj
M9216-AGC-2	AFB24-MFT-S	Yes	Floating	MFT, 2-10 vdc default	24	24	140	180	2-10 VDC		2	2	70-130	150-adj
M9216-BAA-2	AF24 US	Yes	On/Off	On/Off	120	24	140	133					70-130	150

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JOHNSON CONTROLS	BELIMO	Spring Return	Control Signal		Power +		Torque (in-lb)		Feedback		Auxiliary Switches		Timing (seconds)	
M9216-BAA-2	AF120 US	Yes	On/Off	On/Off	120	120	140	133					70-130	150
M9216-BAC-2	AF24-S US	Yes	On/Off	On/Off	120	24	140	133			2	2	70-115	150
M9216-BAC-2	AF120-S US	Yes	On/Off	On/Off	120	120	140	133			2	2	70-115	150
M9216-BGA-2	AF24 US	Yes	On/Off	On/Off	24	24	140	133					70-130	150
M9216-BGC-2	AF24-S US	Yes	On/Off	On/Off	24	24	140	133			2	2	70-130	150
M9216-GGA-2	AF24-SR US	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	140	133		2-10 VDC			70-130	150
M9216-GGC-2	AFB24-MFT-S	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	140	180		2-10 VDC	2	2	70-130	150-adj
M9216-HGA-2	AFB24-MFT	Yes	2-10 vdc w/ adj. start and span	MFT, 2-10 vdc default	24	24	140	180		2-10 VDC			70-130	150-adj
M9216-HGC-2	AFB24-MFT-S	Yes	2-10 vdc w/ adj. start and span	MFT, 2-10 vdc default	24	24	140	180		2-10 VDC	2	2	70-130	150-adj
M9216-JGA-2	AFB24-MFT95	Yes	Floating	0-135 ohm	24	24	140	180		2-10 VDC			70-130	150-adj

**Auxiliary Switches**

add S2A	2 auxiliary switches (add-on)
add S1A	1 auxiliary switch (add-on)
1	1 auxiliary switch (built-in)
2	2 auxiliary switches (built-in)

Legend	
SIEMENS "WHITE"	BELIMO

† Belimo 24V actuators are AC/DC

**Model Numbers**

SIEMENS	BELIMO	Spring Return	Control Signal		Power †		Torque (in-lb)		Feedback		Auxiliary Switches		Timing (seconds)	
GBB151.1U	AMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	177	180		2-10 VDC			150	95
GBB156.1U	AMB24-SR	No	On/Off	2-10 vdc, 4-20 ma	24	24	177	180		2-10 VDC	2	add S2A	150	95
GBB161.1U	AMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	177	180	2-10 VDC	2-10 VDC			150	95
GBB163.1U	AMB24-MFT	No	2-10 vdc w/ adj. start and span	MFT, 2-10 vdc default	24	24	177	180	2-10 VDC	2-10 VDC			150	95
GBB164.1U	AMB24-MFT	No	2-10 vdc w/ adj. start and span	MFT, 2-10 vdc default	24	24	177	180	2-10 VDC	2-10 VDC		add S2A	150	95
GBB166.1U	AMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	177	180	2-10 VDC	2-10 VDC	2		150	95
GBB171.1U	AMB24-3	No	On/Off	On/Off, Floating	24	24	177	180					150	95
GBB175.1U	AMB24-SR	No	On/Off	2-10 vdc, 4-20 ma	24	24	177	180		2-10 VDC			150	95
GCA121.1U	AF24 US	Yes	On/Off	On/Off	24	24	142	133					90	150
GCA126.1U	AF24-S US	Yes	On/Off	On/Off	24	24	142	133			2	2	90	150
GCA131.1P	AFB24-MFT	Yes	On/Off	MFT, 2-10 vdc default	24	24	142	180		2-10 VDC			90	150-adj
GCA135.1U	AFB24-MFT-S	Yes	On/Off	MFT, 2-10 vdc default	24	24	142	180		2-10 VDC	2	2	90	150-adj
GCA151.1U	AF24-SR US	Yes	4-20 ma	2-10 vdc, 4-20 ma	24	24	142	133		2-10 VDC			90	150
GCA156.1U	AFB24-MFT-S	Yes	4-20 ma	MFT, 2-10 vdc default	24	24	142	180		2-10 VDC	2	2	90	150-adj
GCA161.1U	AFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	142	180	2-10 VDC	2-10 VDC			90	150-adj
GCA163.1U	AFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	142	180	2-10 VDC	2-10 VDC			90	150-adj
GCA164.1U	AFB24-MFT-S	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	142	180	2-10 VDC	2-10 VDC	2	2	90	150-adj
GCA166.1U	AFB24-MFT-S	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	142	180	2-10 VDC	2-10 VDC	2	2	90	150-adj
GCA166.1U	AF24-SR-S US	Yes	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	142	133	2-10 VDC	2-10 VDC	2	2	90	150
GCA221.1U	AF120 US	Yes	On/Off	On/Off	120	120	142	133					90	150
GCA226.1U	AF120-S US	Yes	On/Off	On/Off	120	120	142	133			2	2	90	150
GDE131.1P	LMB24-SR	No	3 position	2-10 vdc, 4-20 ma	24	24	44	45		2-10 VDC			90	95
GDE136.1P	LMB24-3	No	3 position	On/Off, Floating	24	24	44	45			2	add S2A	90	95
GDE161.1P	LMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	44	45		2-10 VDC			90	95
GDE163.1P	LMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	44	45		2-10 VDC			90	95
GDE164.1P	LMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	44	45		2-10 VDC	2	add S2A	90	95
GDE166.1P	LMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	44	45		2-10 VDC	2	add S2A	90	95
GEB131.1U	LMB24-3	No	3 position	On/Off, Floating	24	24	44	45					90	95
GGD121.1U	FSAF24 US	Yes	On/Off	On/Off	24	24	142	133					15	<75
GGD121.3U	FSAF24 US	Yes	On/Off	On/Off	24	24	142	133					15	<75
GGD221.1U	FSAF120 US	Yes	On/Off	On/Off	115	120	142	133					15	<75
GGD221.3U	FSAF120 US	Yes	On/Off	On/Off	115	120	142	133					15	<75
GGD321.1U	FSAF230 US	Yes	On/Off	On/Off	230	230	142	133					15	<75
GIB151.1U	GMB-SR	No	4-20 ma	2-10 vdc, 4-20 ma	24	24	310	360		2-10 VDC			150	150
GIB156.1U	GMB-SR	No	4-20 ma	2-10 vdc, 4-20 ma	24	24	310	360		2-10 VDC	2	add S2A	150	150
GIB161.1U	GMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	310	360	2-10 VDC	2-10 VDC			150	150
GIB163.1U	GMB24-MFT	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	310	360	2-10 VDC	2-10 VDC			150	150
GIB164.1U	GMB-MFT	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	310	360	2-10 VDC	2-10 VDC	2	add S2A	150	150
GIB166.1U	GMB-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	310	360	2-10 VDC	2-10 VDC	2	add S2A	150	150
GIB171.1U	GMB24-3	No	On/Off, Floating	On/Off, Floating	24	24	310	360					150	150
GIB171.1U	GMB24-3	No	On/Off, Floating	On/Off, Floating	24	24	310	360					150	150
GIB175.1U	GMB24-3	No	On/Off, Floating	On/Off, Floating	24	24	310	360			2	add S2A	150	150
GLB131.1P	GMB24-3	No	3 position	On/Off, Floating	24	24	88	360					150	150
GLB136.1P	GMB24-3	No	3 position	On/Off, Floating	24	24	88	360			2	add S2A	150	150
GLB161.1P	GMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	88	360	2-10 VDC	2-10 VDC			150	150
GLB163.1P	NMB24-MFT	No	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	88	90	2-10 VDC	2-10 VDC			150	150
GLB164.1P	GMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	88	360	2-10 VDC	2-10 VDC	2	add S2A	150	159
GLB166.1P	GMB24-SR	No	2-10 vdc, 4-20 ma	2-10 vdc, 4-20 ma	24	24	88	360	2-10 VDC	2-10 VDC	2	add S2A	150	150

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RETROFIT SOLUTIONS

SIEMENS	BELIMO	Spring Return	Control Signal		Power +		Torque (in-lb)		Feedback		Auxiliary Switches		Timing (seconds)	
GMA121.1U	NFB24-S	Yes	On/Off	On/Off	24	24	62	90					90	75
GMA126.1U	NFB24-S	Yes	On/Off	On/Off	24	24	62	90			2	2	90	75
GMA131.1U	NFB24-MFT	Yes	3 position	MFT, 2-10 vdc default	24	24	62	90		2-10 VDC			90	150-adj
GMA136.1U	NFB24-MFT-S	Yes	3 position	MFT, 2-10 vdc default	24	24	62	90		2-10 VDC	2	2	90	150-adj
GMA161.1U	NFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	62	90	2-10 VDC	2-10 VDC			90	150-adj
GMA163.1U	NFB24-MFT	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	62	90	2-10 VDC	2-10 VDC			90	150-adj
GMA166.1U	NFB24-MFT-S	Yes	2-10 vdc, 4-20 ma	MFT, 2-10 vdc default	24	24	62	90	2-10 VDC	2-10 VDC	2	2	90	150-adj
GMA221.1U	NFBUP	Yes	On/Off	On/Off	120	24-240	62	90					90	<75
GMA226.1U	NFBUP-S	Yes	On/Off	On/Off	120	24-240	62	90			2	2	90	<75

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**CONTROL SIGNAL-BASED RETROFIT SOLUTIONS**

**Honeywell Series 90, 0-135 Ω, use:**

Model	Torque
AFB(X)24-MFT95	180 in-lb
LMX24-MFT95	45 in-lb
NMX24-MFT95	90 in-lb
AMX24-MFT95	180 in-lb
GMX24-MFT95	360 in-lb

**Barber Colman - MP..., 6-9 V, use:**

Model	Torque
LF24-MFT-20 US	35 in-lb
LF24-MFT-S-20 US	35 in-lb

**Staefa Control - 0-10 V phasecut, use:**

Model	Torque
AF24-PC US	133 in-lb
LMX24-PC	45 in-lb
NMX24-PC	90 in-lb
AMX24-PC	180 in-lb
GMX24-PC	360 in-lb



AFB24-MFT...



AMX24-MFT...



LF24-MFT...

# Retrofit Solutions, Non-Direct Coupled

## Crank Arm Adaptor Kits and Universal Mounting



The best replacement solution for non-direct products is to replace the existing product with a direct-coupled solution. If direct coupling is not possible, Belimo offers specific retrofit solutions.

### ZG-AF108

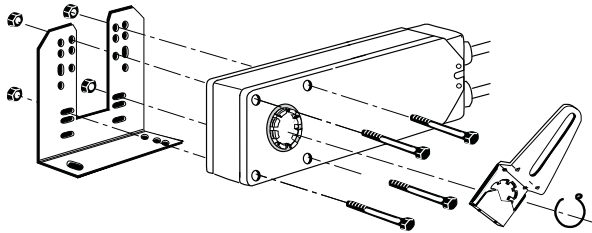
### Crank arm Adaptor Kit

**\$72.00**

The ZG-108 is provided with hole patterns to mount the AF series actuators in either a horizontal or vertical position to meet space requirements.

The ZG-AF108 Crank Arm Adaptor Kit includes:  
 ZG-108 Mounting Bracket  
 KH-AF Crank Arm with Retaining Ring  
 Mounting Hardware

**Note:** May require crank Arm and ball joints



The ZG-108 Mounting Bracket is designed to mount the AF series actuator in the same mounting locations as common foot mounted, crank Arm style actuators. Hole patterns in the base match common Honeywell™, Siebe™ (Barber Colman™), and Johnson Controls™ actuators for easy retrofit.

Use when replacing these actuators

<b>Honeywell</b>	<b>M91...</b>	<b>M945...</b>
	<b>M955...</b>	<b>M965...</b>
	<b>M975...</b>	<b>M8...</b>
<b>Johnson</b>	<b>M110...</b>	<b>M140...</b>
	<b>M120...</b>	<b>M150...</b>
	<b>M130...</b>	
<b>Barber Colman</b>	<b>MA3...</b>	<b>MA4...</b>
	<b>MA5...</b>	

### ZG-AF US

### Crank Arm Adaptor Kit

**\$68.00**



The ZG-AF US Crank Arm Adaptor Kit includes:  
 KH-AF Crank Arm  
 Standoff Brackets and Mounting Feet  
 Mounting Hardware  
 KG8 Ball Joints

The following Universal Mounting Brackets are needed to fully convert to crank Arm operation:

<b>ZG-100</b>	<b>\$ 74.00</b>	<b>ZG-101</b>	<b>\$ 74.00</b>
---------------	-----------------	---------------	-----------------

The ZG-100 and ZG-101 Universal Mounting Brackets are designed for applications where the actuator cannot be mounted directly to the shaft, and no proper mounting surface is available. It may be used for outside or inside the duct mounting, fastened to the ductwork or directly to the damper assembly. It may also be used to mount to other surfaces rather than the duct.

The ZG-100 and ZG-101 are provided with pre-punched hole patterns for the AM, SM, GM, and AF series actuators. The ZG-100 hole pattern layout allows mounting these actuators in three different mounting orientations.

### ZG-106

### Universal Mounting Bracket

**\$40.00 each**

### ZG-107

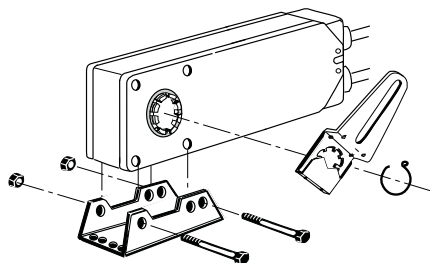
### Universal Mounting Bracket

**\$40.00 each**

The ZG-106 and ZG-107 is provided with hole patterns to mount the AF series actuators in either a horizontal or vertical position to meet space requirements.

The KH-AF crank Arm is required to fully convert the AF for C-rank Arm operation.

**KH-AF \$ 22.00**



The ZG-106 and ZG-107 are designed to mount the AF series actuators in the same mounting locations as common foot mounted, crank Arm style actuators. Hole patterns in the base match common Honeywell™, Siebe™ (Barber Colman™), and Johnson Controls™ actuators for easy retrofit.

The ZG-106 is designed to place the KH-AF crank Arm in the same relative position as the Honeywell™ Mod IV actuators. The ZG-107 is designed to place the crank Arm in the same relative position as the Honeywell™ Mod III actuators.

Use the ZG-106 when replacing these actuators

<b>Honeywell</b>	<b>Mod IV</b>	
	<b>M91...</b>	<b>M945...</b>
	<b>M955...</b>	<b>M965...</b>
	<b>M975...</b>	<b>M8...</b>

Use the ZG-107 when replacing this actuators

<b>Honeywell</b>	<b>Mod III</b>
------------------	----------------



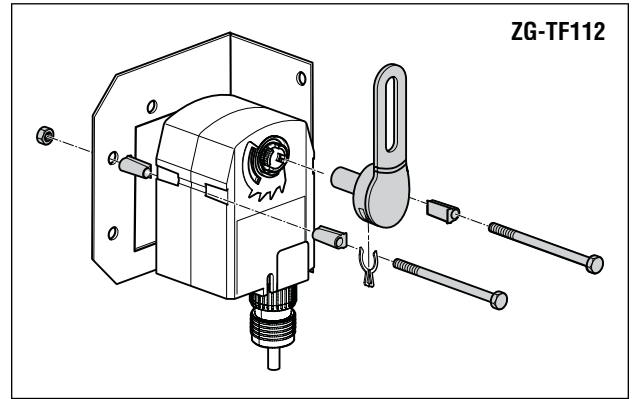
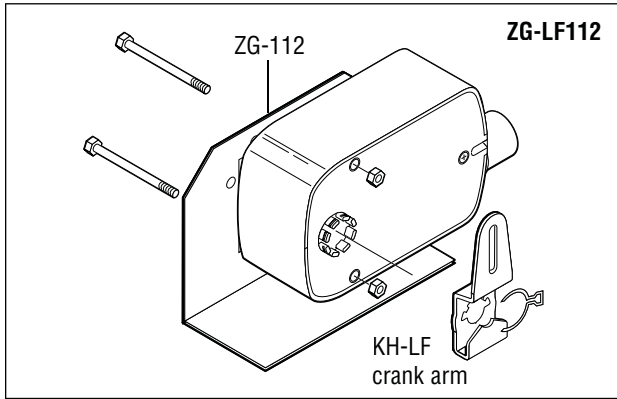
ZG-LF112	Crank Arm Adaptor Kit	\$48.00
ZG-TF112	Crank Arm Adaptor Kit	\$50.00

The ZG-LF112 Crank Arm Adaptor Kit includes:  
 ZG-112 Mounting Bracket  
 KH-LF Crank Arm  
 Mounting Hardware

The ZG-TF112 Crank Arm Adaptor Kit includes:  
 ZG-113 Mounting Bracket  
 KH-TF-1 Crank Arm  
 Mounting Hardware

**Note:** May require crank Arm and ball joints

**Note:** May require crank Arm and ball joints



The ZG-112/113 is provided with hole patterns to mount the LF and TF series actuators in either a horizontal or vertical position to meet space requirements.

Use when replacing these actuators

The ZG-112/113 Mounting Bracket is designed to mount the LF and TF series actuator in the same mounting locations as common foot mounted, crank Arm style actuators. Hole patterns in the base match common Honeywell™, Siebe™ (Barber Colman™), and Johnson Controls™ actuators for easy retrofit.

**Honeywell** M84...  
M7...

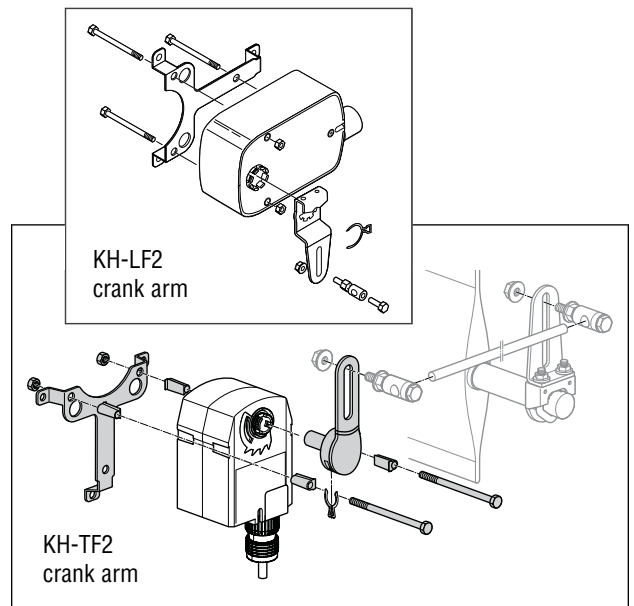
ZG-LF2	Crank Arm Adaptor Kit	\$56.00
ZG-TF2	Crank Arm Adaptor Kit	\$42.00

The ZG-LF2 and ZG-TF2 Crank Arm Adaptor Kits can be used to replace foot mounted, crank Arm style actuators. The ZG-LF2 allows for easy retrofit of Honeywell™, Siebe™ (Barber Colman™), and Johnson Controls™ actuators.

The ZG-LF2 Crank Arm Adaptor Kit includes:  
 T Mounting Bracket  
 KH-LF Crank Arm  
 Mounting Hardware

The ZG-TF2 Crank Arm Adaptor Kit includes:  
 T Mounting Bracket  
 KH-TF-1 Crank Arm  
 Mounting Hardware

**Note:** May require additional damper shaft crank Arm and ball joints



# Retrofit Solutions, Non-Direct Coupled

Crank Arm Adaptor Kits and Universal Mounting



<b>ZG-GMA</b>	<b>GM Crank Arm Adaptor Kit</b>	<b>\$80.00</b>
<b>ZG-NMA</b>	<b>NM and AM Crank Arm Adaptor Kit</b>	<b>\$54.00</b>

The ZG-GMA and ZG-NMA Crank Arm Adaptor Kit includes:  
Crank Arm  
KG10 Ball Joints  
Front and Rear Fixing Attachment  
Mounting Hardware



The following Universal Mounting Brackets are needed to fully convert to crank Arm operation:

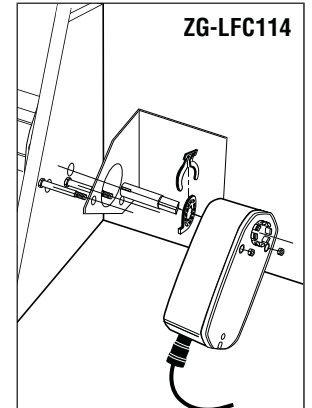
<b>ZG-100</b>	<b>\$74.00</b>	<b>ZG-101</b>	<b>\$74.00</b>
<b>ZG-103</b>	<b>\$54.00</b>	<b>ZG-104</b>	<b>\$54.00</b>

The ZG-100, ZG-101, ZG-103, and ZG-104 Universal Mounting Brackets are designed for applications where the actuator cannot be mounted directly to the shaft, and no proper mounting surface is available. It may be used for outside or inside the duct mounting, fastened to the ductwork or directly to the damper assembly. It may also be used to mount to other surfaces rather than the duct.

The ZG-100, ZG-101, ZG-103, ZG-104 are provided with pre-punched hole patterns for the NM, AM, GM, NFB(X), and AFB(X) series actuators. The ZG-100 hole pattern layout allows mounting these actuators in three different, mounting orientations. The ZG-101, ZG-103, and ZG-104 hole pattern layout allows mounting these actuators in two different mounting orientations.

**INSTALLATION - BASED SOLUTIONS**

ZG-102	Dual actuator mounting bracket	\$ 72.00
ZG-LFC114	Mounting kit, specifically for Trane Voyager unit retrofit	\$ 90.00


**REPLACING AN M8405 ACTUATOR**

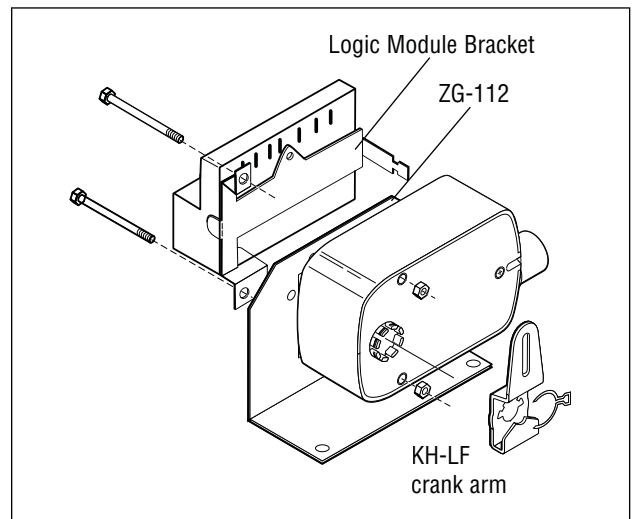
The three-position control functionality of the LF24-SR-E US allows direct replacement of a Honeywell M8405A foot mounted economizer actuator.

**Mounting**

For non-direct coupled applications use the logic module bracket (20477-00001), the KH-LF crank Arm, ZG-112 bracket, and a KG6 ball joint, if needed. The ZG-112 aligns the plane of the crank Arm with that of the Honeywell M8405A. ZG-112 has at least two mounting holes that match the M8405A foot pattern. The logic module mounting kit allows for attachment to the end of the LF24-SR-E US actuator. It provides for installation flexibility to place the module where space is available.

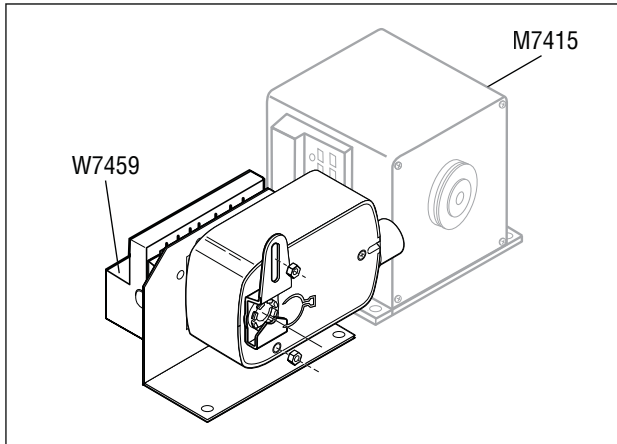
**Wiring**

For proper control logic wiring always refer to the controller manufactures documentation. See the Damper Technical Documentation for proper three position wiring.


**ZG-LF112 Crank Arm adaptor kit**

- Includes bracket and KH-LF crank Arm.
- Bracket and crank Arm used for replacement of Honeywell M8405 actuators. (20477-00001 sold separately)

REPLACING A HONEYWELL® M7415 ACTUATOR



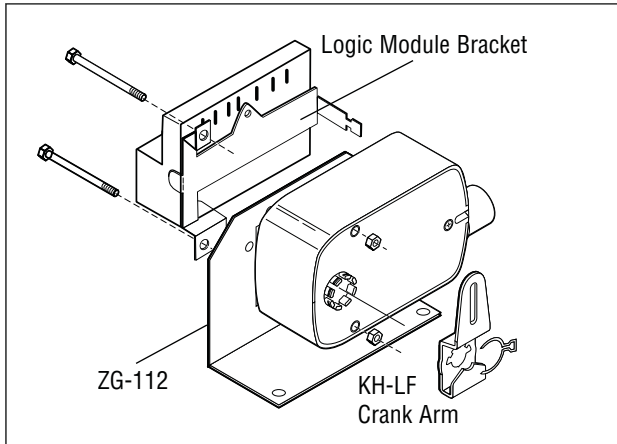
- Torque min. 35 in-lb, for control of air dampers
- Built-in adjustable min-position
- Integrated mixed air PI-control

**Application**

For proportional control of mixed air set point on economizer dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specifications.

The actuator is mounted directly to a damper shaft from 3/8" up to 1/2" in diameter by means of its universal clamp, 1/2" shaft centered at delivery. For shafts up to 3/4" use K6-1 accessory. A crank arm and several mounting brackets are available for applications where the actuator cannot be direct coupled to the damper shaft.

**Mounting**



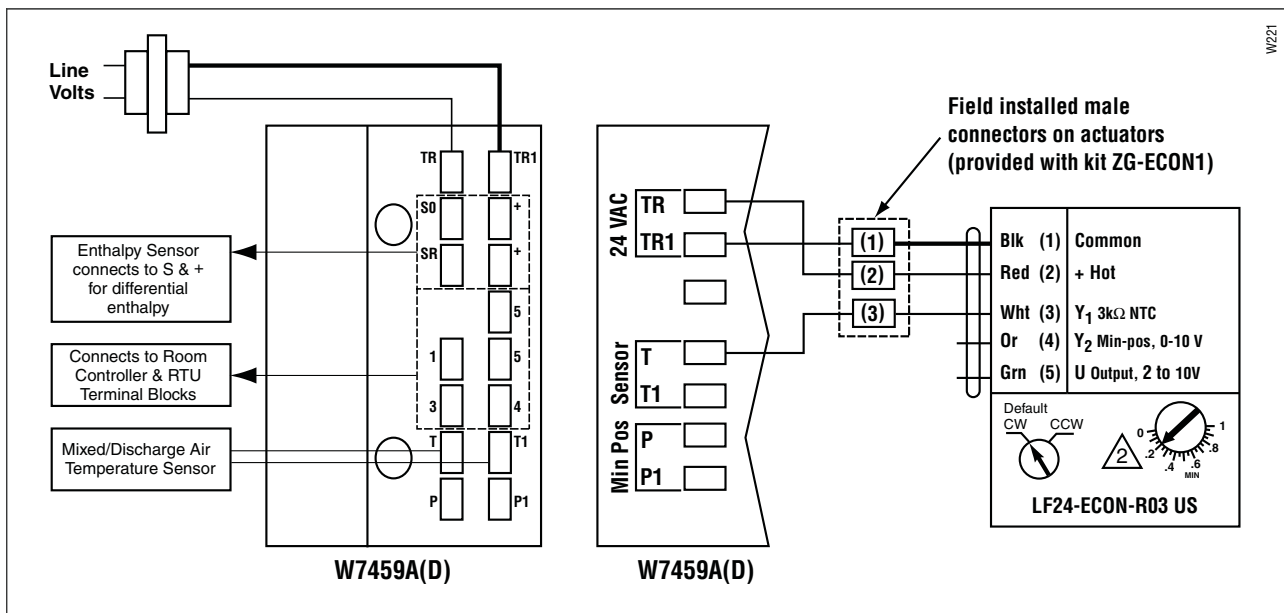
The actuator operates in response to 3 kΩ or 10 kΩ thermistor, which allows the LF24-ECON... to retrofit or replace Honeywell® M7415 actuators.

<b>LF24-ECON-R03 US</b>	<b>\$468.00</b>
<b>ZG-ECON1*</b>	<b>\$80.00</b>
(Includes ZG-112, KH-LF and 20477-00001)	
<b>ZG-ECON2**</b>	<b>\$64.00</b>
<b>ZG-112</b>	<b>\$30.00</b>
<b>KH-LF</b>	<b>\$22.00</b>
<b>20477-00001 Logic Module Bracket</b>	<b>\$48.00</b>

\* Kit includes KG6 ball joint and four male spade connectors

\*\* Same as ZG-ECON1 but with four female spade connectors and no 20477-00001 bracket

WIRING DIAGRAMS



W221

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**SELF ADAPTING STROKE**

The NV Series actuators, which are used with the UNV retro-fit kits (Figure 1), are stroke adapting actuators. In modulating applications, the actuator will recognize the stroke length requirement and automatically adjust the control signal for maximum resolution.

**RATINGS FOR STEAM APPLICATION**

The UNV-035 is rated for 50 psi inlet steam. All other UNV solutions are rated for 15 psi inlet steam.

All UGLK linkages can be used with Belimo actuators up to a maximum of 50 psi steam

For other applications between 50 psi and 100 psi inlet steam, please call Belimo Customer Service for assistance



Figure 1

**SPRING RETURN FUNCTION**

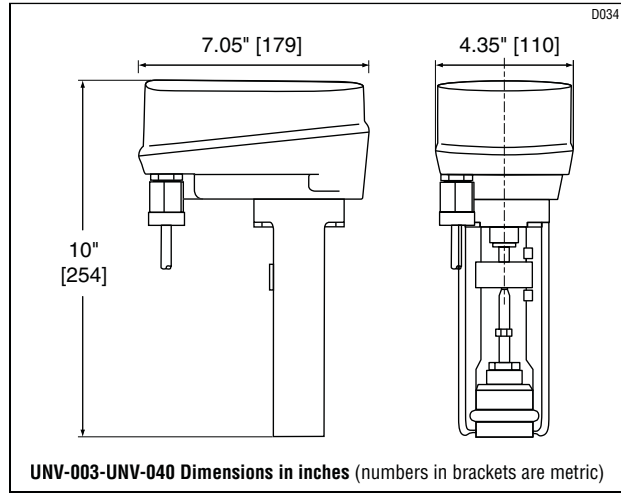
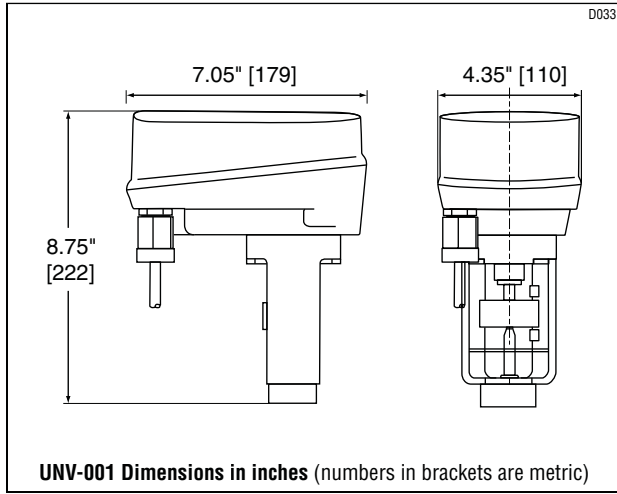
When ordering a UNV kit with an NV Series spring return actuator, you must know the required spring return direction. The NVF24-MFT US springs to the UP position and the NVF24-MFT-E US springs to the DOWN position.

If the required spring return direction is not known, a UGLK linkage (Figure 2) and spring return actuator may be selected. The rotary actuators can be turned over on the linkage and produce a spring return function in either direction.

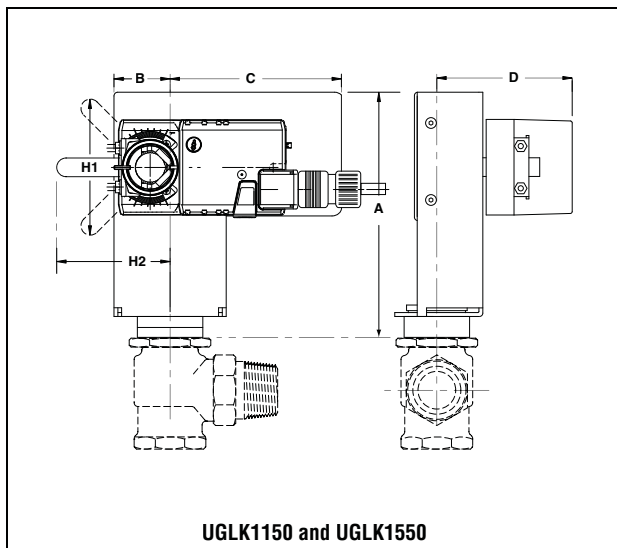
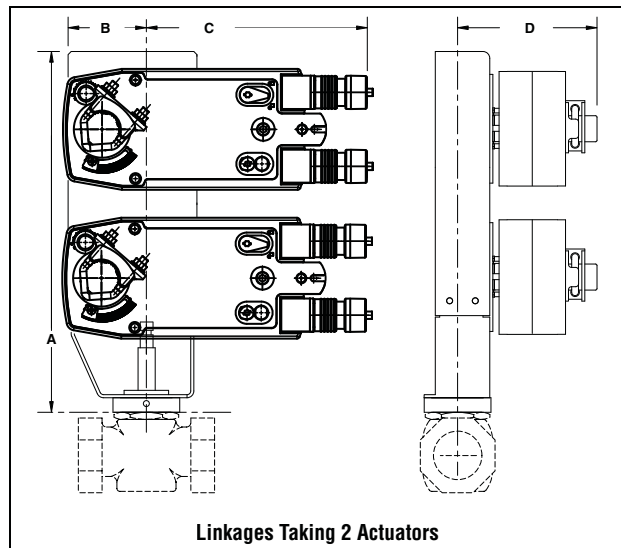
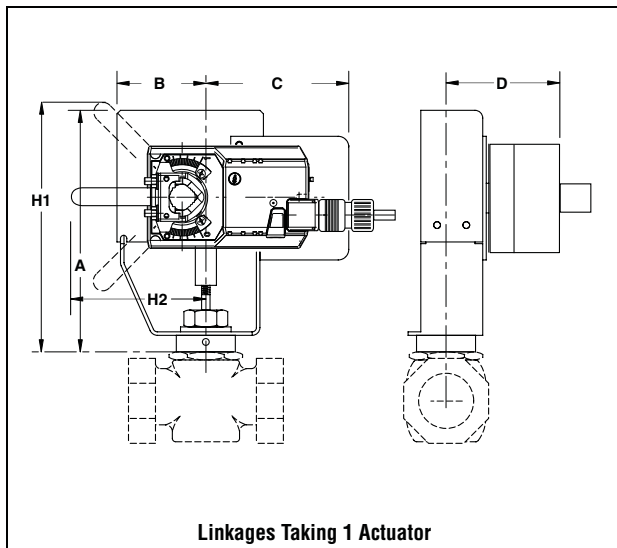


Figure 2

## MAXIMUM DIMENSIONS – UNV with NV Series Actuators



## MAXIMUM DIMENSIONS – UGLK Linkages with Rotary Actuators



### MAXIMUM DIMENSIONS

#### Linkages Taking 1 Actuator

A	7"-14" [356]	D	5" [127]
B	3" [76]	H1	9.5" [241]
C	9" [229]	H2	9.5"

#### Linkages Taking 2 Actuators

A	19" [483]	D	5" [127]
B	3" [76]		
C	9" [229]		

#### UGLK1150 and UGLK1550

A	6.5" [165]	D	4.0" [102]
B	1.5" [33]	H1	4.0" [102]
C	5.0" [127]	H2	3.5" [89]

## How to select a Globe Valve Retrofit Solution

Follow the four steps listed below when ordering a globe valve retrofit kit.

**Example:** Siemens 658 series, 1 1/4" valve, needing 90 psi close-off pressure and Spring Return actuation.

- 1** Based on the **Valve Number, Configuration and Size**, select the proper linkage or linkages for your valve.  
Some valves will have more than one linkage, use the actuator selection guide to determine the appropriate linkage for a given application. The 658 Series valve uses linkage **UGLK1350** or **UGLK1214**.
- 2** Use the actuator selection guide and your close-off pressure requirement to select the correct actuator series for your application. Looking at the **UGLK1350** there are no spring return actuators that will achieve 90 psi close-off for 1 1/4" valve. Looking at the **UGLK1214**, the NF Series actuator will provide **156 psi close-off** for the 1 1/4" valve.
- 3** Use the actuator listings to make your final actuator selection. Decide between **NFB24** and **NFB24-MFT**.  
**ACTUATOR NOT INCLUDED IN THE LIST PRICE OF THE LINKAGE.**
- 4** HOW TO ORDER: **Item 1 1pc UGLK1214 \$ 466.00**  
**Item 2 1pc NFB24-MFT \$ 544.00**



**1** Select linkage solution based on the **Valve Number, Configuration, and Size**; select the proper **Linkage Solution** for your valve.

### EXAMPLE PAGE Siemens\Landis\Powers 591, 599 and 658 Series Valves - NPT Bodies Actuator Selection Guide

**UGLK1214**  
Example: **Siemens Series #658, 2-Way, 1 1/4" valve** to be retrofitted.  
Choose correct kit **UGLK1214**.

**2** Verify close-off is suitable for application. Looking at the **UGLK1214**, the **NF Series actuator** will provide **156 psi close-off** for the 1 1/4" valve.

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
658 Series	2-way	1"	NPT	N/a	No	120	(blank)	LM	UGLK1350	\$340.00
						229	(blank)	NV	UNV-004	\$94.00
						244	(blank)	NM	UGLK1350	\$340.00
					Yes	250	(blank)	AM	UGLK1214	\$466.00
						95	(blank)	NVG	UNV-004	\$94.00
						183	(blank)	LF	UGLK1350	\$340.00
	1 1/4"	NPT	N/a	No	244	(blank)	NF	UGLK1214	\$466.00	
					250	(blank)	AF	UGLK1214	\$466.00	
					78	(blank)	LM	UGLK1350	\$340.00	
				Yes	147	(blank)	NV	UNV-004	\$94.00	
					156	(blank)	NM	UGLK1350	\$340.00	
					235	(blank)	NVG	UNV-004	\$94.00	
3-way	1/2"	NPT	N/a	No	250	(blank)	AM	UGLK1214	\$466.00	
					61	(blank)	LF	UGLK1350	\$340.00	
					117	(blank)	NV	UNV-004	\$94.00	
				Yes	156	(blank)	NF	UGLK1214	\$466.00	
					231	250	AF	UGLK1214	\$466.00	
					250	(blank)	LM	UGLK1350	\$340.00	
								AM	UGLK1214	\$466.00
								NV	UNV-004	\$94.00
								LF	UGLK1350	\$340.00
								NF	UGLK1214	\$466.00
								NV	UNV-004	\$94.00

**3** Select actuator based on needed control type. Decide between **NFB24** and **NFB24-MFT**.

**4** Complete Ordering Example:  
Item 1: **UGLK1214**  
Item 2: **NFB24-MFT**

Model	Spring Return Actuators									
	Control Input	Feedback	Power Supply	Running Time(s)			VA Rating	Auxiliary Switch	Cable Length	List Price
				M	⊕	♦♦				
<b>BASIC PRODUCTS</b>										
NFB24	On/Off	-	24 VAC/DC	<75	20	8.5	-	3 ft.	\$366.00	
NFB24-S	On/Off	-	24 VAC/DC	<75	20	8.5	Built-In	3 ft.	\$454.00	
NFBUP	On/Off	-	24-240 VACu	<75	20	9.5	-	3 ft.	\$414.00	
NFBUP-S	On/Off	-	24-240 VACu	<75	20	9.5	Built-In	3 ft.	\$502.00	
NFB24-SR	2-10 VDC	2-10 VDC	24 VAC/DC	95	<20	6	-	3 ft.	\$488.00	
NFB24-SR-S	2-10 VDC	2-10 VDC	24 VAC/DC	95	<20	6	Built-In	3 ft.	\$576.00	
NFB24-MFT	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	9	-	3 ft.	\$544.00	
NFB24-MFT-S	2-10 VDC	2-10 VDC	24 VAC/DC	150	<20	9	Built-In	3 ft.	\$632.00	
<b>CUSTOMIZE PRODUCTS</b>										
NFX24	NF200 1A1 003**	On/Off	24 VAC/DC	<75	20	8.5	-	3 ft.	\$366.00	
NFX24	NF200 1A3 003**	On/Off	24 VAC/DC	<75	20	8.5	-	10 ft.	\$394.00	
NFX24-S	NF220 1A1 003**	On/Off	24 VAC/DC	<75	20	8.5	Built-In	3 ft.	\$454.00	
NFX24-S	NF220 1A3 003**	On/Off	24 VAC/DC	<75	20	8.5	Built-In	10 ft.	\$504.00	
NFXUP	NF000 1A1 003**	On/Off	24-240 VACu	<75	20	9.5	-	3 ft.	\$414.00	
NFXUP	NF000 1A3 003**	On/Off	24-240 VACu	<75	20	9.5	-	10 ft.	\$442.00	
NFXUP-S	NF000 1A1 003**	On/Off	24-240 VACu	<75	20	9.5	Built-In	3 ft.	\$502.00	
NFXUP-S	NF000 1A3 003**	On/Off	24-240 VACu	<75	20	9.5	Built-In	10 ft.	\$552.00	
NFX24-SR	NF400 1A1 H01**	2-10 VDC (4-20mA*)	24 VAC/DC	95	<20	6	-	3 ft.	\$488.00	
NFX24-SR	NF400 1A3 H01**	2-10 VDC (4-20mA*)	24 VAC/DC	95	<20	6	-	10 ft.	\$516.00	
NFX24-SR-S	NF420 1A1 H01**	2-10 VDC (4-20mA*)	24 VAC/DC	95	<20	6	Built-In	3 ft.	\$576.00	
NFX24-SR-S	NF420 1A3 H01**	2-10 VDC (4-20mA*)	24 VAC/DC	95	<20	6	Built-In	10 ft.	\$576.00	

LINEAR ACTUATORS							
SERIES	MODEL	Spring Return	Control Input	Feedback Position	Power Supply	Standard Running Time	List Price
NVF Series	NVF24-MFT US	spring UP	Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC	150 seconds	\$632.00
	NVF24-MFT-E US	spring DOWN	Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC	150 seconds	\$632.00
NV Series	NV24-3 US		Floating Pt., On/Off		24 VAC/DC	150 seconds	\$482.00
	NV24-MFT US		Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC	150 seconds	\$540.00
NVG Series	NVG24-MFT US		Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC	150 seconds	\$632.00

ROTARY ACTUATORS								
SERIES	MODEL	Spring Return	Electronic Fail Safe	Control Input	Feedback Position	Power Supply	Standard Running Time	List Price
LF Series*	LF24 US	•		24 VAC/DC		24 VAC/DC	Consult Specifications	\$302.00
	LF24-MFT US	•		Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC		\$468.00
NF Series*	NFB24, NFX24	•		24 VAC/DC		24 VAC/DC		\$366.00
	NFB24-MFT, NFX24-MFT	•		Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC		\$544.00
AF Series*	AF24 US	•		24 VAC/DC		24 VAC/DC		\$438.00
	AFX24-MFT	•		Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC		\$602.00
LM Series*	LMB24-3-X1			Floating Pt., On/Off		24 VAC/DC		\$170.00
	LMX24-MFT-X1			Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC		\$332.00
NM Series*	NMB24-3-X1			24 VAC/DC		24 VAC/DC		\$214.00
	NMX24-MFT-X1			Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC		\$376.00
AM Series*	AMB24-3-X1			24 VAC/DC		24 VAC/DC		\$436.00
	AMX24-MFT-X1			Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC		\$468.00
GM Series*	GMB24-3-X1			24 VAC/DC		24 VAC/DC		\$424.00
	GMX24-MFT-X1			Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC		\$622.00
GK Series*	GKB24-3-X1		•	24 VAC/DC		24 VAC/DC		\$1,008.00
	GKX24-MFT-X1		•	Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC		\$1,386.00

\*Please consult the Damper sections for a full list of product offerings. Standard run times should be considered in the selection.

MULTI-FUNCTION TECHNOLOGY								
NV CODES	P-CODE			Control Input	Running Time	Built-in Feedback	List Price	
	V-CODE	N-CODE	P-CODE					
	V-10001	N01	P-10001	A01	2-10 VDC	150 seconds	2-10 VDC	no charge
	V-10002	N02	P-10002	A02	0-10 VDC	150 seconds	0-10 VDC	no charge
	V-10028	N1E	P-10028	A28	0-10 VDC	150 seconds	0-10 VDC	no charge
	V-10063	N1K	P-10063	A63	0.5-4.5 VDC	150 seconds	0.5-4.5 VDC	no charge
	V-10064	N1L	P-10064	A64	5.5-10 VDC	150 seconds	5.5-10 VDC	no charge
	V-20002	N1U	P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC	no charge
	V-20003	N1V	P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC	no charge
	V-30001	N24	P-30001	F01	Floating Pt.	150 seconds	2-10 VDC	no charge
	V-40002	N29	P-40002	J02	On/Off	150 seconds	2-10 VDC	no charge

Note: V-codes used for NV...Series actuator. All other MFT actuators use P-codes.

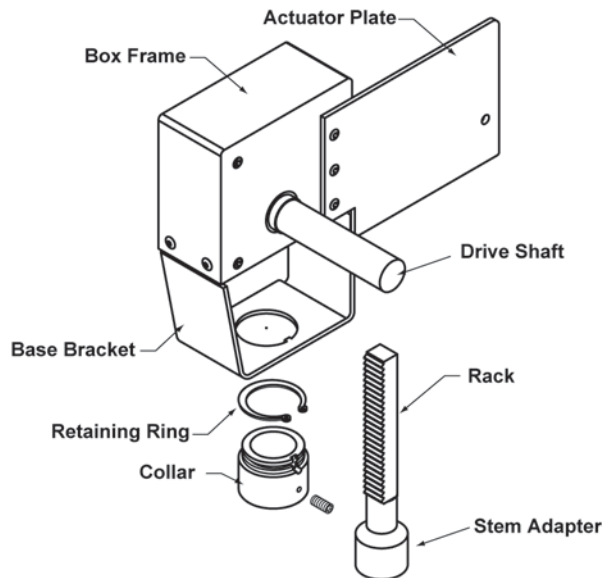
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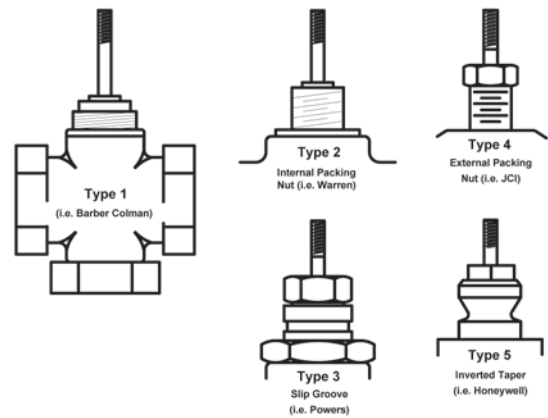
UGLK Collars			Most Commonly Used Valve Type					Price
Part Number	Inside Diameter	Description	Type 1	Type 2	Type 3	Type 4	Type 5	
UGLK-COL-1005	1.000"	3 setscrews, for frame type		•				\$175.00
UGLK-COL-1063	1.063"	3 setscrews, for frame type		•				\$175.00
UGLK-COL-1100	1.100"	3 setscrews, for frame type, counterbored top				•		\$175.00
UGLK-COL-1255	1.250"	3 setscrews, for frame type		•				\$175.00
UGLK-COL-1315	1.315"	3 setscrews, for frame type, can be used with VB7 with shim			•			\$175.00
UGLK-COL-1375	1.375"	3 setscrews, for frame type		•				\$175.00
UGLK-COL-BC10	1.250" - 16 Thd.	Fits Siebe VB7/VB9. Use on frame type only	•					\$175.00
UGLK-COL-HY02	1.375"	1 setscrew, for frame type					•	\$175.00
UGLK-COL-LG02	1.740"	1 setscrew, for frame type			•			\$175.00
UGLK-COL-LG04	1.740"	1 setscrew, for frame type			•			\$175.00
UGLK-COL-JC05	1.070"	3 setscrews, for frame type		•				\$175.00
UGLK-COL-JC06	1.562" - 14 Thd.	Threaded, brass		•				\$175.00
UGLK-COL-JC08	0.760"	3 setscrews, for frame type, counterbored top				•		\$175.00
UGLK-COL-JC15	1.070"	Ring, no setscrews		•				\$175.00
UGLK-COL-0880	0.880"	3 setscrews, for frame type, counterbored top				•		\$175.00
UGLK-COL-WNUT	1.375" - 20 Thd.	Replacement Warren nut. Will not go over damaged threads		•				\$175.00
UGLK-COL-AD01	1.250" - 16 Thd.	Fits Siebe VB7/VB9. For VB7 frame only	•					\$175.00
UGLK-COL-UNIV	Custom	3 setscrews, for frame type. Must be machined		•	•	•	•	\$306.25

UGLK Stem Adapters			Most Commonly Used Valve Type					Price
Part Number	Inside Diameter	Description	Type 1	Type 2	Type 3	Type 4	Type 5	
UGLK-STM-1800	1/4" - 28 Stem Thd.		•	•	•	•	•	\$87.50
UGLK-STM-1801	3/8" - 24 Stem Thd.		•	•	•	•	•	\$87.50
UGLK-STM-1802	1/2" - 20 Stem Thd.		•			•	•	\$87.50
UGLK-STM-1803	7/16" - 20 Stem Thd.						•	\$87.50
UGLK-STM-1501	3/8" - 24 Stem Thd.	For Warren FLG valves with UGLK		•				\$87.50
UGLK-STM-1805	3/8" OD Grooved	Landis 2.5-3" -599 Series			•			\$87.50
UGLK-STM-2305	1/2" OD Grooved	Landis 4-6" -599 Series			•			\$87.50
UGLK-STM-UNIV	Custom	Must be machined	•	•	•	•	•	\$140.00

UGLK Stem Adapters



UGLK Collars



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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price					
V5011 Series	2-way	1/2"	NPT	N/a	No	250	-	NV	UNV-006	\$120.00					
					Yes	250	-	NVF	UNV-006	\$120.00					
		3/4"	NPT	N/a	No	250	-	NV	UNV-006	\$120.00					
					Yes	250	-	NVF	UNV-006	\$120.00					
		1"	NPT	N/a	No	229	-	NV	UNV-006	\$120.00					
					Yes	250	-	NVG	UNV-006	\$120.00					
						Yes	183	-	NVF	UNV-006	\$120.00				
						No	147	-	NV	UNV-006	\$120.00				
		1 1/4"	NPT	N/a	N/a	No	235	-	NVG	UNV-006	\$120.00				
						Yes	117	-	NVF	UNV-006	\$120.00				
		1 1/2"	NPT	N/a	N/a	No	102	-	NV	UNV-006	\$120.00				
						Yes	160	-	NVG	UNV-006	\$120.00				
						Yes	82	-	NVF	UNV-006	\$120.00				
						No	57	-	NV	UNV-006	\$120.00				
		2"	NPT	N/a	N/a	No	90	-	NVG	UNV-006	\$120.00				
						Yes	46	-	NVF	UNV-006	\$120.00				
		2 1/2"	NPT	N/a	N/a	No	37	-	NV	UNV-006	\$120.00				
						Yes	59	-	NVG	UNV-006	\$120.00				
						Yes	29	-	NVF	UNV-006	\$120.00				
						No	25	-	NV	UNV-006	\$120.00				
		3"	NPT	N/a	N/a	No	41	-	NVG	UNV-006	\$120.00				
						Yes	20	-	NVF	UNV-006	\$120.00				
		V5011N Series	2-way	1/2"	NPT	N/a	No	250	-	LM	UGLK1806	\$432.00			
							Yes	250	-	NV	UNV-006	\$120.00			
												AM	UGLK1800	\$432.00	
												LF	UGLK1806	\$432.00	
												NF	UGLK1800	\$432.00	
												NVF	UNV-006	\$120.00	
3/4"	NPT			N/a	N/a	No	150	-	LM	UGLK1806	\$432.00				
						Yes	250	-	NM	UGLK1806	\$432.00				
													NV	UNV-006	\$120.00
													LF	UGLK1806	\$432.00
													NF	UGLK1800	\$432.00
													NVF	UNV-006	\$120.00
1"	NPT			N/a	N/a	No	85	-	LM	UGLK1806	\$432.00				
						Yes	67	-	LF	UGLK1806	\$432.00				
													NM	UGLK1806	\$432.00
													NV	UNV-006	\$120.00
													AM	UGLK1800	\$432.00
													NVG	UNV-006	\$120.00
													NF	UGLK1800	\$432.00
													NVF	UNV-006	\$120.00
1 1/4"	NPT			N/a	N/a	No	55	-	LM	UGLK1806	\$432.00				
						Yes	43	-	LF	UGLK1806	\$432.00				
													NM	UGLK1806	\$432.00
													NV	UNV-006	\$120.00
											NVG	UNV-006	\$120.00		
											AM	UGLK1800	\$432.00		
											LF	UGLK1806	\$432.00		
											NF	UGLK1800	\$432.00		
											NVF	UNV-006	\$120.00		
											AF	UGLK1800	\$432.00		
1 1/2"	NPT	N/a	N/a	No	38	-	LM	UGLK1806	\$432.00						
				Yes	30	-	LF	UGLK1806	\$432.00						
											NM	UGLK1806	\$432.00		
											NV	UNV-006	\$120.00		
											AM	UGLK1800	\$432.00		
											NVG	UNV-006	\$120.00		
											GM	UGLK1800	\$432.00		
											NF	UGLK1800	\$432.00		
											NVF	UNV-006	\$120.00		
											AF	UGLK1800	\$432.00		
											221	AF	UGLK1800	\$432.00	
											154	AF	UGLK1800	\$432.00	
											GK	UGLK1800	\$432.00		

All close-off pressures listed are approximate and based on valve condition and application.

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price		
V5011N Series	2-way	2"	NPT	N/a	No	22	-	LM	UGLK1806	\$432.00		
						43	-	NM	UGLK1806	\$432.00		
						57	-	NV	UNV-006	\$120.00		
						86	-	AM	UGLK1800	\$432.00		
						90	-	NVG	UNV-006	\$120.00		
					172	-	GM	UGLK1800	\$432.00			
					43	-	NF	UGLK1800	\$432.00			
					46	-	NVF	UNV-006	\$120.00			
					64	86	AF	UGLK1800	\$432.00			
					172	-	GK	UGLK1800	\$432.00			
		59	-	NVG	UNV-006	\$120.00						
		41	-	NVG	UNV-006	\$120.00						
		20	-	NVF	UNV-006	\$120.00						
		V5013 Series	3-way	½"	NPT	N/a	No	250	-	NV	UNV-006	\$120.00
								250	-	NVF	UNV-006	\$120.00
				250	-	NVF	UNV-006	\$120.00				
				250	-	NVG	UNV-006	\$120.00				
				183	-	NVF	UNV-006	\$120.00				
				235	-	NVG	UNV-006	\$120.00				
				117	-	NVF	UNV-006	\$120.00				
160	-			NVG	UNV-006	\$120.00						
82	-			NVF	UNV-006	\$120.00						
90	-			NVG	UNV-006	\$120.00						
46	-			NVF	UNV-006	\$120.00						
59	-			NVG	UNV-006	\$120.00						
29	-			NVF	UNV-006	\$120.00						
41	-			NVG	UNV-006	\$120.00						
20	-			NVF	UNV-006	\$120.00						

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price							
V5013N Series	3-way	½"	NPT	N/a	No	250	-	LM	UGLK1806	\$432.00							
								AM	UGLK1800	\$432.00							
								NV	UNV-006	\$120.00							
					Yes	250	-	LF	UGLK1806	\$432.00							
								NF	UGLK1800	\$432.00							
								NVF	UNV-006	\$120.00							
		¾"	NPT	N/a	No	150	-	LM	UGLK1806	\$432.00							
								250	NM	UGLK1806	\$432.00						
									NV	UNV-006	\$120.00						
					Yes	119	-	LF	UGLK1806	\$432.00							
								250	NF	UGLK1800	\$432.00						
									NVF	UNV-006	\$120.00						
		1"	NPT	N/a	No	85	-	LM	UGLK1806	\$432.00							
								NM	UGLK1806	\$432.00							
								NV	UNV-006	\$120.00							
								250	AM	UGLK1800	\$432.00						
									NVG	UNV-006	\$120.00						
									Yes	67	-	LF	UGLK1806	\$432.00			
					NF	UGLK1800	\$432.00										
					NVF	UNV-006	\$120.00										
					250	-	-	AF	UGLK1800	\$432.00							
								1¼"	NPT	N/a	No	55	-	LM	UGLK1806	\$432.00	
														110	NM	UGLK1806	\$432.00
															147	NV	UNV-006
		235	-	-				NVG			UNV-006	\$120.00					
								250			-	-	AM	UGLK1800		\$432.00	
					Yes	43	-						LF	UGLK1806	\$432.00		
		110	-	NF					UGLK1800	\$432.00							
				117				-	-	NVF	UNV-006	\$120.00					
		163	221		-	-	AF			UGLK1800	\$432.00						
				1½"			NPT	N/a	No	38	-	-	LM	UGLK1806	\$432.00		
		76	-		-	NM							UGLK1806	\$432.00			
						102							-	-	NV	UNV-006	\$120.00
		153	-		-										AM	UGLK1800	\$432.00
						160							-	-	NVG	UNV-006	\$120.00
		250	-		-										GM	UGLK1800	\$432.00
				Yes		30	-	-	LF	UGLK1806	\$432.00						
		77	-		-				NF	UGLK1800	\$432.00						
									82	-	-	NVF	UNV-006	\$120.00			
		113	154		-							-	AF	UGLK1800	\$432.00		
									250	-	-		-	GK	UGLK1800	\$432.00	
		2"	NPT		N/a							No		22	-	-	LM
				43		-	-	NM	UGLK1806	\$432.00							
								57	-	-	NV		UNV-006				\$120.00
				86		-	-				AM		UGLK1800				\$432.00
								90	-	-	NVG		UNV-006				\$120.00
				172		-	-				GM		UGLK1800				\$432.00
								Yes	17	-	-	LF	UGLK1806	\$432.00			
				43		-	-					NF	UGLK1800	\$432.00			
												46	-	-	NVF	UNV-006	\$120.00
				64		86	-								-	AF	UGLK1800
												172	-	-		-	GK
2½"	NPT			N/a		No	37								-		-
		59	-		-			NVG	UNV-006	\$120.00							
								Yes	29	-	-	NVF	UNV-006	\$120.00			
		3"	NPT		N/a	No	25					-	-	NV	UNV-006	\$120.00	
														41	-	-	NVG
		Yes						20	-	-	NVF						UNV-006

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V5011 (F1063, F1154, H1028, G1194)	2-way	1"	NPT	N/a	No	85	-	LM	UGLK1806	\$432.00
						172	-	NM	UGLK1806	\$432.00
						250	-	AM	UGLK1800	\$432.00
					Yes	67	-	LF	UGLK1806	\$432.00
						173	-	NF	UGLK1800	\$432.00
						250	-	AF	UGLK1800	\$432.00
V5011 (F1089, F1178, G1228)	2-way	1½"	NPT	N/a	No	38	-	LM	UGLK1806	\$432.00
						76	-	NM	UGLK1806	\$432.00
						153	-	AM	UGLK1800	\$432.00
						250	-	GM	UGLK1800	\$432.00
					Yes	30	-	LF	UGLK1806	\$432.00
						77	-	NF	UGLK1800	\$432.00
						113	154	AF	UGLK1800	\$432.00
						250	-	GK	UGLK1800	\$432.00
V5011 (F1097, F1188, G1103)	2-way	2"	NPT	N/a	No	17	-	LM	UGLK1806	\$432.00
						43	-	NM	UGLK1806	\$432.00
						86	-	AM	UGLK1800	\$432.00
						172	-	GM	UGLK1800	\$432.00
					Yes	17	-	LF	UGLK1800	\$432.00
						43	-	NF	UGLK1806	\$432.00
V5011 (H1028, G1194, J1023)	2-way	¾"	NPT	N/a	No	150	-	LM	UGLK1806	\$432.00
						250	-	NM	UGLK1806	\$432.00
						119	-	LF	UGLK1806	\$432.00
					Yes	250	-	NF	UGLK1800	\$432.00
						55	-	LM	UGLK1806	\$432.00
						110	-	NM	UGLK1806	\$432.00
V5011 (H1044, G1210, J1049)	2-way	1¼"	NPT	N/a	No	250	-	AM	UGLK1800	\$432.00
						43	-	LF	UGLK1806	\$432.00
						110	-	NF	UGLK1800	\$432.00
					Yes	163	221	AF	UGLK1800	\$432.00
						250	-	LM	UGLK1806	\$432.00
						250	-	AM	UGLK1800	\$432.00
V5011F (1014, 1022, 1030, 1048, 1121, 1139)	2-way	½"	NPT	N/a	No	250	-	LM	UGLK1806	\$432.00
						250	-	AM	UGLK1800	\$432.00
					Yes	250	-	LF	UGLK1806	\$432.00
						250	-	NF	UGLK1800	\$432.00
V5011F (1055, 1147)	2-way	¾"	NPT	N/a	No	150	-	LM	UGLK1806	\$432.00
						250	-	NM	UGLK1806	\$432.00
					Yes	119	-	LF	UGLK1806	\$432.00
						250	-	NF	UGLK1800	\$432.00
V5011F (1071, 1162)	2-way	1¼"	NPT	N/a	No	55	-	LM	UGLK1806	\$432.00
						110	-	NM	UGLK1806	\$432.00
						250	-	AM	UGLK1800	\$432.00
					Yes	43	-	LF	UGLK1806	\$432.00
						110	-	NF	UGLK1800	\$432.00
						163	221	AF	UGLK1800	\$432.00
V5011G (1137, 1145, 1152, 1160, 1178, 1186)	2-way	½"	NPT	N/a	No	250	-	LM	UGLK1806	\$432.00
						250	-	AM	UGLK1800	\$432.00
					Yes	250	-	LF	UGLK1806	\$432.00
						250	-	NF	UGLK1800	\$432.00
V5011H (1002, 1010)	2-way	½"	NPT	N/a	No	250	-	LM	UGLK1806	\$432.00
						250	-	AM	UGLK1800	\$432.00
					Yes	250	-	LF	UGLK1806	\$432.00
						250	-	NF	UGLK1800	\$432.00
V5011J (1012, 1079)	2-way	½"	NPT	N/a	No	250	-	LM	UGLK1806	\$432.00
						250	-	AM	UGLK1800	\$432.00
					Yes	250	-	LF	UGLK1806	\$432.00
						250	-	NF	UGLK1800	\$432.00
V5013F (1004, 1012, 1079)	3-way	½"	NPT	N/a	No	250	-	LM	UGLK1806	\$432.00
						250	-	AM	UGLK1800	\$432.00
					Yes	250	-	LF	UGLK1806	\$432.00
						250	-	NF	UGLK1800	\$432.00
V5013F (1020, 1087)	3-way	¾"	NPT	N/a	No	150	-	LM	UGLK1806	\$432.00
						250	-	NM	UGLK1806	\$432.00
					Yes	119	-	LF	UGLK1806	\$432.00
						250	-	NF	UGLK1800	\$432.00

All close-off pressures listed are approximate and based on valve condition and application.

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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V5013F (1038, 1095)	3-way	1"	NPT	N/a	No	85	-	LM	UGLK1806	\$432.00
						172	-	NM	UGLK1806	\$432.00
						250	-	AM	UGLK1800	\$432.00
					Yes	67	-	LF	UGLK1806	\$432.00
						173	-	NF	UGLK1800	\$432.00
						250	-	AF	UGLK1800	\$432.00
V5013F (1046, 1103)	3-way	1 1/4"	NPT	N/a	No	55	-	LM	UGLK1806	\$432.00
						110	-	NM	UGLK1806	\$432.00
						250	-	AM	UGLK1800	\$432.00
					Yes	43	-	LF	UGLK1806	\$432.00
						110	-	NF	UGLK1800	\$432.00
						163	221	AF	UGLK1800	\$432.00
V5013F (1053, 1111)	3-way	1 1/2"	NPT	N/a	No	38	-	LM	UGLK1806	\$432.00
						76	-	NM	UGLK1806	\$432.00
						153	-	AM	UGLK1800	\$432.00
					Yes	250	-	GM	UGLK1800	\$432.00
						30	-	LF	UGLK1806	\$432.00
						77	-	NF	UGLK1800	\$432.00
V5013F (1061, 1129)	3-way	2"	NPT	N/a	No	113	154	AF	UGLK1800	\$432.00
						250	-	GK	UGLK1800	\$432.00
						22	-	LM	UGLK1806	\$432.00
					Yes	43	-	NM	UGLK1806	\$432.00
						86	-	AM	UGLK1800	\$432.00
						172	-	GM	UGLK1800	\$432.00
V5045	2-way	1/2"	NPT	N/a	No	250	-	AM	UGLK1804	\$378.00
					Yes	250	-	NF	UGLK1804	\$378.00
		3/4"	NPT	N/a	Yes	250	-	NF	UGLK1804	\$378.00
					No	250	-	AM	UGLK1804	\$378.00
		1"	NPT	N/a	Yes	244	-	NF	UGLK1804	\$378.00
					No	250	-	AM	UGLK1804	\$378.00
		1 1/4"	NPT	N/a	Yes	156	-	NF	UGLK1804	\$378.00
					No	217	-	AM	UGLK1804	\$378.00
		1 1/2"	NPT	N/a	Yes	161	217	AF	UGLK1804	\$378.00
					No	122	-	AM	UGLK1804	\$378.00
		2"	NPT	N/a	Yes	90	122	AF	UGLK1804	\$378.00
					No	122	-	AM	UGLK1804	\$378.00

All close-off pressures listed are approximate and based on valve condition and application.



Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V3350 (A2009, A2017, B2007, C2013, D2003)	2-way	2½"	Flanged	N/a	No	55	-	AM	UGLK1800	\$432.00
						110	-	GM	UGLK1800	\$432.00
						130	-	2*GM	UGLK1870	\$610.00
					Yes	41	55	AF	UGLK1800	\$432.00
						82	110	2*AF	UGLK1870	\$610.00
						110	-	GK	UGLK1800	\$432.00
V3350 (A3007, A3015, B3005, C3011, D3001)	2-way	3"	Flanged	N/a	No	38	-	AM	UGLK1800	\$432.00
						108	-	GM	UGLK1800	\$432.00
						115	-	2*GM	UGLK1870	\$610.00
					Yes	28	38	AF	UGLK1800	\$432.00
						57	77	2*AF	UGLK1870	\$610.00
						108	-	GK	UGLK1800	\$432.00
V3350 (A4005, A4013, B4003, C4019, D4009)	2-way	4"	Flanged	N/a	No	11	-	AM	UGLK1802	\$496.00
						29	-	GM	UGLK1802	\$496.00
						40	-	2*GM	UGLK1872	\$614.00
					Yes	8	11	AF	UGLK1802	\$496.00
						16	22	2*AF	UGLK1872	\$614.00
						29	-	GK	UGLK1802	\$496.00
V3350 (A5002, A5010, B5000, C5016, D5006)	2-way	5"	Flanged	N/a	No	14	-	GM	UGLK1802	\$496.00
						25	-	2*GM	UGLK1872	\$614.00
						5	7	AF	UGLK1802	\$496.00
					Yes	11	14	2*AF	UGLK1872	\$614.00
						14	-	GK	UGLK1802	\$496.00
						25	-	2*GK	UGLK1872	\$614.00
V3350 (A6000, A6008, A6018, C6014, D6004)	2-way	6"	Flanged	N/a	No	11	-	GM	UGLK1802	\$496.00
						18	-	2*GM	UGLK1872	\$614.00
						7	10	2*AF	UGLK1872	\$614.00
					Yes	11	-	GK	UGLK1802	\$496.00
						18	-	2*GK	UGLK1872	\$614.00
						11	-	GM	UGLK1802	\$496.00
V3351 ( A4004, C4000, C4001)	2-way	4"	Flanged	N/a	No	11	-	AM	UGLK1802	\$496.00
						29	-	GM	UGLK1802	\$496.00
						40	-	2*GM	UGLK1872	\$614.00
					Yes	8	11	AF	UGLK1802	\$496.00
						16	22	2*AF	UGLK1872	\$614.00
						29	-	GK	UGLK1802	\$496.00
V3351 (A2008, C2005, D2002)	2-way	2½"	Flanged	N/a	No	55	-	AM	UGLK1800	\$432.00
						110	-	GM	UGLK1800	\$432.00
						130	-	2*GM	UGLK1870	\$610.00
					Yes	41	55	AF	UGLK1800	\$432.00
						82	110	2*AF	UGLK1870	\$610.00
						110	-	GK	UGLK1800	\$432.00
V3351 (A3006, C3002, C3003)	2-way	3"	Flanged	N/a	No	38	-	AM	UGLK1800	\$432.00
						108	-	GM	UGLK1800	\$432.00
						115	-	2*GM	UGLK1870	\$610.00
					Yes	28	38	AF	UGLK1800	\$432.00
						57	77	2*AF	UGLK1870	\$610.00
						108	-	GK	UGLK1800	\$432.00
V3351 (A5001, C5008, D5005)	2-way	5"	Flanged	N/a	No	14	-	GM	UGLK1802	\$496.00
						25	-	2*GM	UGLK1872	\$614.00
						5	7	AF	UGLK1802	\$496.00
					Yes	11	14	2*AF	UGLK1872	\$614.00
						14	-	GK	UGLK1802	\$496.00
						25	-	2*GK	UGLK1872	\$614.00
V3351 (A6009, C6005, C6006)	2-way	6"	Flanged	N/a	No	11	-	GM	UGLK1802	\$496.00
						18	-	2*GM	UGLK1872	\$614.00
						7	10	2*AF	UGLK1872	\$614.00
					Yes	11	-	GK	UGLK1802	\$496.00
						18	-	2*GK	UGLK1872	\$614.00
						11	-	GM	UGLK1802	\$496.00

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RETROFIT SOLUTIONS

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V3360E2008, V3361E2007	3-way	2½"	Flanged	N/a	No	55	-	AM	UGLK1800	\$432.00
						110	-	GM	UGLK1800	\$432.00
						130	-	2*GM	UGLK1870	\$610.00
					Yes	41	55	AF	UGLK1800	\$432.00
						82	110	2*AF	UGLK1870	\$610.00
						110	-	GK	UGLK1800	\$432.00
V3360E3006, V3361E3005	3-way	3"	Flanged	N/a	No	38	-	AM	UGLK1800	\$432.00
						108	-	GM	UGLK1800	\$432.00
						115	-	2*GM	UGLK1870	\$610.00
					Yes	28	38	AF	UGLK1800	\$432.00
						57	77	2*AF	UGLK1870	\$610.00
						108	-	GK	UGLK1800	\$432.00
V3360E4004, V3361E4003	3-way	4"	Flanged	N/a	No	11	-	AM	UGLK1802	\$496.00
						29	-	GM	UGLK1802	\$496.00
						40	-	2*GM	UGLK1872	\$614.00
					Yes	8	11	AF	UGLK1802	\$496.00
						16	22	2*AF	UGLK1872	\$614.00
						29	-	GK	UGLK1802	\$496.00
V3360E5001, V3361E5000	3-way	5"	Flanged	N/a	No	14	-	GM	UGLK1802	\$496.00
						25	-	2*GM	UGLK1872	\$614.00
						Yes	5	7	AF	UGLK1802
					11		14	2*AF	UGLK1872	\$614.00
					14		-	GK	UGLK1802	\$496.00
					V3360E6009, V3361E6008	3-way	6"	Flanged	N/a	No
18	-	2*GM	UGLK1872	\$614.00						
Yes	7	10	2*AF	UGLK1872						
	11	-	GK	UGLK1802						\$496.00
	18	-	2*GK	UGLK1872						\$614.00
V3450 (A2008, A2016, B2006, C2012, D2002)	2-way	2½"	Flanged	N/a						No
					110	-	GM	UGLK1800	\$432.00	
					130	-	2*GM	UGLK1870	\$610.00	
					Yes	41	55	AF	UGLK1800	\$432.00
						82	110	2*AF	UGLK1870	\$610.00
						110	-	GK	UGLK1800	\$432.00
V3450 (A3006, A3014, B3004, C3010, D3000)	2-way	3"	Flanged	N/a	No	38	-	AM	UGLK1800	\$432.00
						108	-	GM	UGLK1800	\$432.00
						115	-	2*GM	UGLK1870	\$610.00
					Yes	28	38	AF	UGLK1800	\$432.00
						57	77	2*AF	UGLK1870	\$610.00
						108	-	GK	UGLK1800	\$432.00
V3450 (A4004, A4012, B4002, C4018, D4008)	2-way	4"	Flanged	N/a	No	11	-	AM	UGLK1802	\$496.00
						29	-	GM	UGLK1802	\$496.00
						40	-	2*GM	UGLK1872	\$614.00
					Yes	8	11	AF	UGLK1802	\$496.00
						16	22	2*AF	UGLK1872	\$614.00
						29	-	GK	UGLK1802	\$496.00
V3450 (A5001, A5019, B5009, C5015, D5005)	2-way	5"	Flanged	N/a	No	14	-	GM	UGLK1802	\$496.00
						25	-	2*GM	UGLK1872	\$614.00
						Yes	5	7	AF	UGLK1802
					11		14	2*AF	UGLK1872	\$614.00
					14		-	GK	UGLK1802	\$496.00
					V3450 (A6009, A6007, A6017, C6013, D6003)	2-way	6"	Flanged	N/a	No
18	-	2*GM	UGLK1872	\$614.00						
Yes	7	10	2*AF	UGLK1872						
	11	-	GK	UGLK1802						\$496.00
	18	-	2*GK	UGLK1872						\$614.00

All close-off pressures listed are approximate and based on valve condition and application.





Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V3451 (A2007, C2003, C2004)	2-way	2½"	Flanged	N/a	No	55	-	AM	UGLK1800	\$432.00
						110	-	GM	UGLK1800	\$432.00
						130	-	2*GM	UGLK1870	\$610.00
					Yes	41	55	AF	UGLK1800	\$432.00
						82	110	2*AF	UGLK1870	\$610.00
						110	-	GK	UGLK1800	\$432.00
V3451 (A3005, C3001, C3002)	2-way	3"	Flanged	N/a	No	38	-	AM	UGLK1800	\$432.00
						108	-	GM	UGLK1800	\$432.00
						115	-	2*GM	UGLK1870	\$610.00
					Yes	28	38	AF	UGLK1800	\$432.00
						57	77	2*AF	UGLK1870	\$610.00
						108	-	GK	UGLK1800	\$432.00
V3451 (A4003, C4000, C4009)	2-way	4"	Flanged	N/a	No	11	-	AM	UGLK1802	\$496.00
						29	-	GM	UGLK1802	\$496.00
						40	-	2*GM	UGLK1872	\$614.00
					Yes	8	11	AF	UGLK1802	\$496.00
						16	22	2*AF	UGLK1872	\$614.00
						29	-	GK	UGLK1802	\$496.00
V3451 (A5000, C5006, C5007)	2-way	5"	Flanged	N/a	No	14	-	GM	UGLK1802	\$496.00
						25	-	2*GM	UGLK1872	\$614.00
						Yes	5	7	AF	UGLK1802
					11		14	2*AF	UGLK1872	\$614.00
					14		-	GK	UGLK1802	\$496.00
					V3451 (A6008, C6004, C6005)	2-way	6"	Flanged	N/a	No
18	-	2*GM	UGLK1872	\$614.00						
Yes	7	10	2*AF	UGLK1872						
	11	-	GK	UGLK1802						\$496.00
	18	-	2*GK	UGLK1872						\$614.00
V3460E2007, V3461E2006	3-way	2½"	Flanged	N/a						No
					110	-	GM	UGLK1800	\$432.00	
					130	-	2*GM	UGLK1870	\$610.00	
					Yes	41	55	AF	UGLK1800	\$432.00
						82	110	2*AF	UGLK1870	\$610.00
						110	-	GK	UGLK1800	\$432.00
V3460E3005, V3461E3004	3-way	3"	Flanged	N/a	No	38	-	AM	UGLK1800	\$432.00
						108	-	GM	UGLK1800	\$432.00
						115	-	2*GM	UGLK1870	\$610.00
					Yes	28	38	AF	UGLK1800	\$432.00
						57	77	2*AF	UGLK1870	\$610.00
						108	-	GK	UGLK1800	\$432.00
V3460E4003, V3461E4002	3-way	4"	Flanged	N/a	Yes	8	11	AF	UGLK1802	\$496.00
					No	11	-	AM	UGLK1802	\$496.00
V3460E4003, V3461E4003	3-way	4"	Flanged	N/a	No	29	-	GM	UGLK1802	\$496.00
					Yes	29	-	GK	UGLK1802	\$496.00
V3460E4003, V3461E4004	3-way	4"	Flanged	N/a	Yes	16	22	2*AF	UGLK1872	\$614.00
					No	40	-	2*GM	UGLK1872	\$614.00
V3460E4003, V3461E4005	3-way	4"	Flanged	N/a	Yes	16	22	2*AF	UGLK1872	\$614.00
					No	40	-	2*GM	UGLK1872	\$614.00
V3460E4003, V3461E4006	3-way	4"	Flanged	N/a	Yes	16	22	2*AF	UGLK1872	\$614.00
					No	40	-	2*GM	UGLK1872	\$614.00
V3460E5000, V3461E5009	3-way	5"	Flanged	N/a	No	14	-	GM	UGLK1802	\$496.00
						25	-	2*GM	UGLK1872	\$614.00
						Yes	5	7	AF	UGLK1802
					11		14	2*AF	UGLK1872	\$614.00
					14		-	GK	UGLK1802	\$496.00
					V3460E6008, V3461E6007	3-way	6"	Flanged	N/a	No
18	-	2*GM	UGLK1872	\$614.00						
Yes	7	10	2*AF	UGLK1872						
	11	-	GK	UGLK1802						\$496.00
	18	-	2*GK	UGLK1872						\$614.00

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RETROFIT SOLUTIONS

All close-off pressures listed are approximate and based on valve condition and application.

PDTO = Push down to open  
 PDTC = Push down to close

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V5011 (A1734, F1105, F1196, G1111)	2-way	2½"	Flanged/NPT	N/a	No	55	-	AM	UGLK1800	\$432.00
						110	-	GM	UGLK1800	\$432.00
						130	-	2*GM	UGLK1870	\$610.00
					Yes	41	55	AF	UGLK1800	\$432.00
						82	110	2*AF	UGLK1870	\$610.00
						110	-	GK	UGLK1800	\$432.00
V5011 (A1767, F1113, F1204, G1129)	2-way	3"	Flanged/NPT	N/a	No	38	-	AM	UGLK1800	\$432.00
						108	-	GM	UGLK1800	\$432.00
						115	-	2*GM	UGLK1870	\$610.00
					Yes	28	38	AF	UGLK1800	\$432.00
						57	77	2*AF	UGLK1870	\$610.00
						108	-	GK	UGLK1800	\$432.00
V5011 (A1858, B1013)	2-way	4"	Flanged	N/a	No	11	-	AM	UGLK1802	\$496.00
						29	-	GM	UGLK1802	\$496.00
						40	-	2*GM	UGLK1872	\$614.00
					Yes	8	11	AF	UGLK1802	\$496.00
						16	22	2*AF	UGLK1872	\$614.00
						29	-	GK	UGLK1802	\$496.00
V5011 (A1882, B1047)	2-way	5"	Flanged	N/a	No	14	-	GM	UGLK1802	\$496.00
						25	-	2*GM	UGLK1872	\$614.00
						Yes	5	7	AF	UGLK1802
					11		14	2*AF	UGLK1872	\$614.00
					14		-	GK	UGLK1802	\$496.00
					V5011 (A1916, B1078)	2-way	6"	Flanged	N/a	No
18	-	2*GM	UGLK1872	\$614.00						
Yes	7	10	2*AF	UGLK1872						
	11	-	GK	UGLK1802						\$496.00
	18	-	2*GK	UGLK1872						\$614.00
V5013 (B1003, C1001)	3-way	2½"	Flanged	N/a						No
					110	-	GM	UGLK1800	\$432.00	
					130	-	2*GM	UGLK1870	\$610.00	
					Yes	41	55	AF	UGLK1800	\$432.00
						82	110	2*AF	UGLK1870	\$610.00
						110	-	GK	UGLK1800	\$432.00
V5013 (B1011, C1019)	2-way	3"	Flanged	N/a	No	38	-	AM	UGLK1800	\$432.00
						108	-	GM	UGLK1800	\$432.00
						115	-	2*GM	UGLK1870	\$610.00
					Yes	28	38	AF	UGLK1800	\$432.00
						57	77	2*AF	UGLK1870	\$610.00
						108	-	GK	UGLK1800	\$432.00
V5013 (B1029, C1027)	3-way	4"	Flanged	N/a	No	11	-	AM	UGLK1802	\$496.00
						29	-	GM	UGLK1802	\$496.00
						40	-	2*GM	UGLK1872	\$614.00
					Yes	8	11	AF	UGLK1802	\$496.00
						16	22	2*AF	UGLK1872	\$614.00
						29	-	GK	UGLK1802	\$496.00
V5013 (B1037, C1035)	3-way	5"	Flanged	N/a	No	14	-	GM	UGLK1802	\$496.00
						25	-	2*GM	UGLK1872	\$614.00
						Yes	5	7	AF	UGLK1802
					11		14	2*AF	UGLK1872	\$614.00
					14		-	GK	UGLK1802	\$496.00
					V5013 (B1045, C1043)	3-way	6"	Flanged	N/a	No
18	-	2*GM	UGLK1872	\$614.00						
Yes	7	10	2*AF	UGLK1872						
	11	-	GK	UGLK1802						\$496.00
	18	-	2*GK	UGLK1872						\$614.00

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PDTO = Push down to open

PDTC = Push down to close

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V-5252-12	2-way	3"	Flanged	PDTC	No	26	-	AM	UGLK1410	\$432.00
						77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
					Yes	19	26	AF	UGLK1410	\$432.00
						39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
V-5252-13	2-way	3"	Flanged	PDTC	No	26	-	AM	UGLK1410	\$432.00
						77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
					Yes	19	26	AF	UGLK1410	\$432.00
						39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
V-5252-14	2-way	4"	Flanged	PDTC	No	15	-	AM	UGLK1410	\$432.00
						43	-	GM	UGLK1410	\$432.00
						52	-	2*GM	UGLK1476	\$614.00
					Yes	8	11	AF	UGLK1410	\$432.00
						16	22	2*AF	UGLK1476	\$614.00
						43	-	GK	UGLK1410	\$432.00
V-5252-17	2-way	5"	Flanged	PDTC	No	14	-	GM	UGLK1414	\$466.00
						25	-	2*GM	UGLK1480	\$646.00
						5	7	AF	UGLK1414	\$466.00
					Yes	11	14	2*AF	UGLK1480	\$646.00
						14	-	GK	UGLK1414	\$466.00
						25	-	2*GK	UGLK1480	\$646.00
V-5252-18	2-way	5"	Flanged	PDTC	No	14	-	GM	UGLK1414	\$466.00
						25	-	2*GM	UGLK1480	\$646.00
						5	7	AF	UGLK1414	\$466.00
					Yes	11	14	2*AF	UGLK1480	\$646.00
						14	-	GK	UGLK1414	\$466.00
						25	-	2*GK	UGLK1480	\$646.00
V-5252-19	2-way	6"	Flanged	PDTC	No	11	-	GM	UGLK1414	\$466.00
						18	-	2*GM	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00
					Yes	11	-	GK	UGLK1414	\$466.00
						18	-	2*GK	UGLK1480	\$646.00
						26	-	AM	UGLK1410	\$432.00
V-5252-35	2-way	3"	Flanged	PDTC	No	77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
						19	26	AF	UGLK1410	\$432.00
					Yes	39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
						80	-	2*GK	UGLK1476	\$614.00
V-5252-36	2-way	4"	Flanged	PDTC	No	15	-	AM	UGLK1410	\$432.00
						43	-	GM	UGLK1410	\$432.00
						52	-	2*GM	UGLK1476	\$614.00
					Yes	8	11	AF	UGLK1410	\$432.00
						16	22	2*AF	UGLK1476	\$614.00
						43	-	GK	UGLK1410	\$432.00
V-5252-38	2-way	5"	Flanged	PDTC	No	14	-	GM	UGLK1414	\$466.00
						25	-	2*GM	UGLK1480	\$646.00
						5	7	AF	UGLK1414	\$466.00
					Yes	11	14	2*AF	UGLK1480	\$646.00
						14	-	GK	UGLK1414	\$466.00
						25	-	2*GK	UGLK1480	\$646.00
V-5252-39	2-way	6"	Flanged	PDTC	No	11	-	GM	UGLK1414	\$466.00
						18	-	2*GM	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00
					Yes	11	-	GK	UGLK1414	\$466.00
						18	-	2*GK	UGLK1480	\$646.00
						26	-	AM	UGLK1410	\$432.00

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RETROFIT SOLUTIONS

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PDTO = Push down to open  
 PDTC = Push down to close

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V-5462-11	2-way	4"	Flanged	PDTO	No	15	-	AM	UGLK1410	\$432.00
						43	-	GM	UGLK1410	\$432.00
						52	-	2*GM	UGLK1476	\$614.00
					Yes	8	11	AF	UGLK1410	\$432.00
						16	22	2*AF	UGLK1476	\$614.00
						43	-	GK	UGLK1410	\$432.00
V-5462-12	2-way	4"	Flanged	PDTO	No	15	-	AM	UGLK1410	\$432.00
						43	-	GM	UGLK1410	\$432.00
						52	-	2*GM	UGLK1476	\$614.00
					Yes	8	11	AF	UGLK1410	\$432.00
						16	22	2*AF	UGLK1476	\$614.00
						43	-	GK	UGLK1410	\$432.00
V-5462-15	2-way	5"	Flanged	PDTO	No	14	-	GM	UGLK1414	\$466.00
						25	-	2*GM	UGLK1480	\$646.00
						5	7	AF	UGLK1414	\$466.00
					Yes	11	14	2*AF	UGLK1480	\$646.00
						14	-	GK	UGLK1414	\$466.00
						25	-	2*GK	UGLK1480	\$646.00
V-5462-16	2-way	5"	Flanged	PDTO	No	14	-	GM	UGLK1414	\$466.00
						25	-	2*GM	UGLK1480	\$646.00
						5	7	AF	UGLK1414	\$466.00
					Yes	11	14	2*AF	UGLK1480	\$646.00
						14	-	GK	UGLK1414	\$466.00
						25	-	2*GK	UGLK1480	\$646.00
V-5462-17	2-way	6"	Flanged	PDTO	No	11	-	GM	UGLK1414	\$466.00
						18	-	2*GM	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00
					Yes	11	-	GK	UGLK1414	\$466.00
						18	-	2*GK	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00
V-5462-18	2-way	6"	Flanged	PDTO	No	11	-	GM	UGLK1414	\$466.00
						18	-	2*GM	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00
					Yes	11	-	GK	UGLK1414	\$466.00
						18	-	2*GK	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00
V-5462-35	2-way	3"	Flanged	PDTO	No	26	-	AM	UGLK1410	\$432.00
						77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
					Yes	19	26	AF	UGLK1410	\$432.00
						39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
V-5462-37	2-way	4"	Flanged	PDTO	No	15	-	AM	UGLK1410	\$432.00
						43	-	GM	UGLK1410	\$432.00
						52	-	2*GM	UGLK1476	\$614.00
					Yes	8	11	AF	UGLK1410	\$432.00
						16	22	2*AF	UGLK1476	\$614.00
						43	-	GK	UGLK1410	\$432.00
V-5462-39	2-way	5"	Flanged	PDTO	No	14	-	GM	UGLK1414	\$466.00
						25	-	2*GM	UGLK1480	\$646.00
						5	7	AF	UGLK1414	\$466.00
					Yes	11	14	2*AF	UGLK1480	\$646.00
						14	-	GK	UGLK1414	\$466.00
						25	-	2*GK	UGLK1480	\$646.00
V-5462-40	2-way	6"	Flanged	PDTO	No	11	-	GM	UGLK1414	\$466.00
						18	-	2*GM	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00
					Yes	11	-	GK	UGLK1414	\$466.00
						18	-	2*GK	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V-5462-8	2-way	3"	Flanged	PDTO	No	26	-	AM	UGLK1410	\$432.00
						77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
					Yes	19	26	AF	UGLK1410	\$432.00
						39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
V-5462-9	2-way	3"	Flanged	PDTO	No	26	-	AM	UGLK1410	\$432.00
						77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
					Yes	19	26	AF	UGLK1410	\$432.00
						39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
V-5842-10	3-way	3"	Flanged	Mixing	No	26	-	AM	UGLK1410	\$432.00
						77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
					Yes	19	26	AF	UGLK1410	\$432.00
						39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
V-5842-13	3-way	5"	Flanged	Mixing	No	14	-	GM	UGLK1414	\$466.00
						25	-	2*GM	UGLK1480	\$646.00
						Yes	5	7	AF	UGLK1414
					11		14	2*AF	UGLK1480	\$646.00
					14		-	GK	UGLK1414	\$466.00
					V-5842-14	3-way	5"	Flanged	Mixing	No
25	-	2*GM	UGLK1480	\$646.00						
Yes	5	7	AF	UGLK1414						
	11	14	2*AF	UGLK1480						\$646.00
	14	-	GK	UGLK1414						\$466.00
V-5842-15	3-way	6"	Flanged	Mixing						No
					18	-	2*GM	UGLK1480	\$646.00	
					Yes	7	10	2*AF	UGLK1480	
						11	-	GK	UGLK1414	\$466.00
						18	-	2*GK	UGLK1480	\$646.00
					V-5842-16	3-way	6"	Flanged	Mixing	No
18	-	2*GM	UGLK1480	\$646.00						
Yes	7	10	2*AF	UGLK1480						
	11	-	GK	UGLK1414						\$466.00
	18	-	2*GK	UGLK1480						\$646.00
V-5842-32	3-way	3"	Flanged	Mixing						No
					77	-	GM	UGLK1410	\$432.00	
					80	-	2*GM	UGLK1476	\$614.00	
					Yes	19	26	AF	UGLK1410	\$432.00
						39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
V-5842-35	3-way	5"	Flanged	Mixing	No	14	-	GM	UGLK1414	\$466.00
						25	-	2*GM	UGLK1480	\$646.00
						Yes	5	7	AF	UGLK1414
					11		14	2*AF	UGLK1480	\$646.00
					14		-	GK	UGLK1414	\$466.00
					V-5842-36	3-way	6"	Flanged	Mixing	No
18	-	2*GM	UGLK1480	\$646.00						
Yes	7	10	2*AF	UGLK1480						
	11	-	GK	UGLK1414						\$466.00
	18	-	2*GK	UGLK1480						\$646.00

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V-5842-9	3-way	3"	Flanged	Mixing	No	26	-	AM	UGLK1410	\$432.00
						77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
					Yes	19	26	AF	UGLK1410	\$432.00
						39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
VB-3752-22	2-way	3"	Flanged	PDTC	No	26	-	AM	UGLK1410	\$432.00
						77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
					Yes	19	26	AF	UGLK1410	\$432.00
						39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
VB-3752-25	2-way	4"	Flanged	PDTC	No	15	-	AM	UGLK1410	\$432.00
						43	-	GM	UGLK1410	\$432.00
						52	-	2*GM	UGLK1476	\$614.00
					Yes	8	11	AF	UGLK1410	\$432.00
						16	22	2*AF	UGLK1476	\$614.00
						43	-	GK	UGLK1410	\$432.00
VB-3752-28	2-way	5"	Flanged	PDTC	No	14	-	GM	UGLK1414	\$466.00
						25	-	2*GM	UGLK1480	\$646.00
						5	7	AF	UGLK1414	\$466.00
					Yes	11	14	2*AF	UGLK1480	\$646.00
						14	-	GK	UGLK1414	\$466.00
						25	-	2*GK	UGLK1480	\$646.00
VB-3752-31	2-way	6"	Flanged	PDTC	No	11	-	GM	UGLK1414	\$466.00
						18	-	2*GM	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00
					Yes	11	-	GK	UGLK1414	\$466.00
						18	-	2*GK	UGLK1480	\$646.00
						26	-	AM	UGLK1410	\$432.00
VB-3978-14	2-way	3"	Flanged	PDTO	No	77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
						19	26	AF	UGLK1410	\$432.00
					Yes	39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
						80	-	2*GK	UGLK1476	\$614.00
VB-3978-17	2-way	4"	Flanged	PDTO	No	15	-	AM	UGLK1410	\$432.00
						43	-	GM	UGLK1410	\$432.00
						52	-	2*GM	UGLK1476	\$614.00
					Yes	8	11	AF	UGLK1410	\$432.00
						16	22	2*AF	UGLK1476	\$614.00
						43	-	GK	UGLK1410	\$432.00
VB-3978-20	2-way	5"	Flanged	PDTO	No	14	-	GM	UGLK1414	\$466.00
						25	-	2*GM	UGLK1480	\$646.00
						5	7	AF	UGLK1414	\$466.00
					Yes	11	14	2*AF	UGLK1480	\$646.00
						14	-	GK	UGLK1414	\$466.00
						25	-	2*GK	UGLK1480	\$646.00
VB-3978-23	2-way	6"	Flanged	PDTO	No	11	-	GM	UGLK1414	\$466.00
						18	-	2*GM	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00
					Yes	11	-	GK	UGLK1414	\$466.00
						18	-	2*GK	UGLK1480	\$646.00
						26	-	AM	UGLK1410	\$432.00
VB-4322-11	3-way	3"	Flanged	Mixing	No	77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
						19	26	AF	UGLK1410	\$432.00
					Yes	39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
						80	-	2*GK	UGLK1476	\$614.00

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
VB-4322-13	3-way	4"	Flanged	Mixing	No	15	-	AM	UGLK1410	\$432.00
						43	-	GM	UGLK1410	\$432.00
						52	-	2*GM	UGLK1476	\$614.00
					Yes	8	11	AF	UGLK1410	\$432.00
						16	22	2*AF	UGLK1476	\$614.00
						43	-	GK	UGLK1410	\$432.00
VB-4322-18	3-way	6"	Flanged	Mixing	No	11	-	GM	UGLK1414	\$466.00
						18	-	2*GM	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00
					Yes	11	-	GK	UGLK1414	\$466.00
						18	-	2*GK	UGLK1480	\$646.00
						25	-	2*GK	UGLK1476	\$614.00
VB-4322-19	3-way	5"	Flanged	Mixing	No	14	-	GM	UGLK1414	\$466.00
						25	-	2*GM	UGLK1480	\$646.00
						5	7	AF	UGLK1414	\$466.00
					Yes	11	14	2*AF	UGLK1480	\$646.00
						14	-	GK	UGLK1414	\$466.00
						25	-	2*GK	UGLK1480	\$646.00
VG2231 UM	2-way	3"	Flanged	PDTC	No	26	-	AM	UGLK1410	\$432.00
						77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
					Yes	19	26	AF	UGLK1410	\$432.00
						39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
VG2231 VM	2-way	4"	Flanged	PDTC	No	15	-	AM	UGLK1410	\$432.00
						43	-	GM	UGLK1410	\$432.00
						52	-	2*GM	UGLK1476	\$614.00
					Yes	8	11	AF	UGLK1410	\$432.00
						16	22	2*AF	UGLK1476	\$614.00
						43	-	GK	UGLK1410	\$432.00
VG2231 WN	2-way	5"	Flanged	PDTC	No	14	-	GM	UGLK1414	\$466.00
						25	-	2*GM	UGLK1480	\$646.00
						5	7	AF	UGLK1414	\$466.00
					Yes	11	14	2*AF	UGLK1480	\$646.00
						14	-	GK	UGLK1414	\$466.00
						25	-	2*GK	UGLK1480	\$646.00
VG2231 YN	2-way	6"	Flanged	PDTC	No	11	-	GM	UGLK1414	\$466.00
						18	-	2*GM	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00
					Yes	11	-	GK	UGLK1414	\$466.00
						18	-	2*GK	UGLK1480	\$646.00
						77	-	GK	UGLK1410	\$432.00
VG2431 UM	2-way	3"	Flanged	PDTO	No	26	-	AM	UGLK1410	\$432.00
						77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
					Yes	19	26	AF	UGLK1410	\$432.00
						39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
VG2431 VM	2-way	4"	Flanged	PDTO	No	15	-	AM	UGLK1410	\$432.00
						43	-	GM	UGLK1410	\$432.00
						52	-	2*GM	UGLK1476	\$614.00
					Yes	8	11	AF	UGLK1410	\$432.00
						16	22	2*AF	UGLK1476	\$614.00
						43	-	GK	UGLK1410	\$432.00
VG2431 WN	2-way	5"	Flanged	PDTO	No	14	-	GM	UGLK1414	\$466.00
						25	-	2*GM	UGLK1480	\$646.00
						5	7	AF	UGLK1414	\$466.00
					Yes	11	14	2*AF	UGLK1480	\$646.00
						14	-	GK	UGLK1414	\$466.00
						25	-	2*GK	UGLK1480	\$646.00

All close-off pressures listed are approximate and based on valve condition and application.

PDTO = Push down to open  
 PDTC = Push down to close

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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFB/AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
VG2431 YN	2-way	6"	Flanged	PDTO	No	11	-	GM	UGLK1414	\$466.00
						18	-	2*GM	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00
					Yes	11	-	GK	UGLK1414	\$466.00
						18	-	2*GK	UGLK1480	\$646.00
VG2831 UM	3-way	3"	Flanged	Mixing	No	26	-	AM	UGLK1410	\$432.00
						77	-	GM	UGLK1410	\$432.00
						80	-	2*GM	UGLK1476	\$614.00
					Yes	19	26	AF	UGLK1410	\$432.00
						39	52	2*AF	UGLK1476	\$614.00
						77	-	GK	UGLK1410	\$432.00
						80	-	2*GK	UGLK1476	\$614.00
						26	-	AM	UGLK1410	\$432.00
VG2831 VM	3-way	4"	Flanged	Mixing	No	15	-	AM	UGLK1410	\$432.00
						43	-	GM	UGLK1410	\$432.00
						52	-	2*GM	UGLK1476	\$614.00
					Yes	8	11	AF	UGLK1410	\$432.00
						16	22	2*AF	UGLK1476	\$614.00
						43	-	GK	UGLK1410	\$432.00
						52	-	2*GK	UGLK1476	\$614.00
						14	-	GM	UGLK1414	\$466.00
VG2831 WN	3-way	5"	Flanged	Mixing	No	25	-	2*GM	UGLK1480	\$646.00
						5	7	AF	UGLK1414	\$466.00
					Yes	11	14	2*AF	UGLK1480	\$646.00
						14	-	GK	UGLK1414	\$466.00
						25	-	2*GK	UGLK1480	\$646.00
						11	-	GM	UGLK1414	\$466.00
						18	-	2*GM	UGLK1480	\$646.00
VG2831 YN	3-way	6"	Flanged	Mixing	No	11	-	GM	UGLK1414	\$466.00
						18	-	2*GM	UGLK1480	\$646.00
						7	10	2*AF	UGLK1480	\$646.00
					Yes	11	-	GK	UGLK1414	\$466.00
						18	-	2*GK	UGLK1480	\$646.00

All close-off pressures listed are approximate and based on valve condition and application.





Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V-5210-4595	2-way	2½"	Flanged	PDTC	No	38	-	AM	UGLK1412	\$454.00
						75	-	GM	UGLK1412	\$454.00
						115	-	2*GM	UGLK1478	\$646.00
					Yes	21	28	AF	UGLK1412	\$454.00
						55	75	2*AF	UGLK1478	\$646.00
						75	-	GK	UGLK1412	\$454.00
V-5210-4596	2-way	3"	Flanged	PDTC	No	15	-	AM	UGLK1412	\$454.00
						40	-	GM	UGLK1412	\$454.00
						43	-	2*GM	UGLK1478	\$646.00
					Yes	15	20	AF	UGLK1412	\$454.00
						22	-	2*AF	UGLK1478	\$646.00
						40	-	GK	UGLK1412	\$454.00
V-5210-4597	2-way	4"	Flanged	PDTC	No	15	-	AM	UGLK1412	\$454.00
						43	-	GM	UGLK1412	\$454.00
						52	-	2*GM	UGLK1478	\$646.00
					Yes	8	11	AF	UGLK1412	\$454.00
						16	22	2*AF	UGLK1478	\$646.00
						43	-	GK	UGLK1412	\$454.00
V-5252-10	2-way	3"	Flanged	PDTC	No	38	-	AM	UGLK1404	\$432.00
						108	-	GM	UGLK1404	\$432.00
						115	-	2*GM	UGLK1472	\$646.00
					Yes	28	38	AF	UGLK1404	\$432.00
						57	77	2*AF	UGLK1472	\$646.00
						108	-	GK	UGLK1404	\$432.00
V-5252-11	2-way	3"	Flanged	PDTC	No	38	-	AM	UGLK1404	\$432.00
						108	-	GM	UGLK1404	\$432.00
						115	-	2*GM	UGLK1472	\$646.00
					Yes	28	38	AF	UGLK1404	\$432.00
						57	77	2*AF	UGLK1472	\$646.00
						108	-	GK	UGLK1404	\$432.00
V-5252-15	2-way	4"	Flanged	PDTC	No	15	-	AM	UGLK1412	\$454.00
						43	-	GM	UGLK1412	\$454.00
						52	-	2*GM	UGLK1478	\$646.00
					Yes	8	11	AF	UGLK1412	\$454.00
						16	22	2*AF	UGLK1478	\$646.00
						43	-	GK	UGLK1412	\$454.00
V-5252-16	2-way	4"	Flanged	PDTC	No	15	-	AM	UGLK1412	\$454.00
						43	-	GM	UGLK1412	\$454.00
						52	-	2*GM	UGLK1478	\$646.00
					Yes	8	11	AF	UGLK1412	\$454.00
						16	22	2*AF	UGLK1478	\$646.00
						43	-	GK	UGLK1412	\$454.00
V-5252-32	2-way	2½"	Flanged	PDTC	No	55	-	AM	UGLK1404	\$432.00
						110	-	GM	UGLK1404	\$432.00
						170	-	2*GM	UGLK1472	\$646.00
					Yes	41	55	AF	UGLK1404	\$432.00
						82	110	2*AF	UGLK1472	\$646.00
						110	-	GK	UGLK1404	\$432.00
V-5252-33	2-way	2½"	Flanged	PDTC	No	55	-	AM	UGLK1404	\$432.00
						110	-	GM	UGLK1404	\$432.00
						170	-	2*GM	UGLK1472	\$646.00
					Yes	41	55	AF	UGLK1404	\$432.00
						82	110	2*AF	UGLK1472	\$646.00
						110	-	GK	UGLK1404	\$432.00
							2*GK	UGLK1472	\$646.00	

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PDTO = Push down to open  
 PDTC = Push down to close

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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V-5252-34	2-way	3"	Flanged	PDTC	No	38	-	AM	UGLK1404	\$432.00
						108	-	GM	UGLK1404	\$432.00
						115	-	2*GM	UGLK1472	\$646.00
					Yes	28	38	AF	UGLK1404	\$432.00
						57	77	2*AF	UGLK1472	\$646.00
						108	-	GK	UGLK1404	\$432.00
V-5252-37	2-way	4"	Flanged	PDTC	No	15	-	AM	UGLK1412	\$454.00
						43	-	GM	UGLK1412	\$454.00
						52	-	2*GM	UGLK1478	\$646.00
					Yes	8	11	AF	UGLK1412	\$454.00
						16	22	2*AF	UGLK1478	\$646.00
						43	-	GK	UGLK1412	\$454.00
V-5252-4	2-way	2½"	Flanged	PDTC	No	55	-	AM	UGLK1404	\$432.00
						110	-	GM	UGLK1404	\$432.00
						170	-	2*GM	UGLK1472	\$646.00
					Yes	41	55	AF	UGLK1404	\$432.00
						82	110	2*AF	UGLK1472	\$646.00
						110	-	GK	UGLK1404	\$432.00
V-5252-5	2-way	2½"	Flanged	PDTC	No	55	-	AM	UGLK1404	\$432.00
						110	-	GM	UGLK1404	\$432.00
						170	-	2*GM	UGLK1472	\$646.00
					Yes	41	55	AF	UGLK1404	\$432.00
						82	110	2*AF	UGLK1472	\$646.00
						110	-	GK	UGLK1404	\$432.00
V-5252-6	2-way	2½"	Flanged	PDTC	No	55	-	AM	UGLK1404	\$432.00
						110	-	GM	UGLK1404	\$432.00
						170	-	2*GM	UGLK1472	\$646.00
					Yes	41	55	AF	UGLK1404	\$432.00
						82	110	2*AF	UGLK1472	\$646.00
						110	-	GK	UGLK1404	\$432.00
V-5252-7	2-way	2½"	Flanged	PDTC	No	55	-	AM	UGLK1404	\$432.00
						110	-	GM	UGLK1404	\$432.00
						170	-	2*GM	UGLK1472	\$646.00
					Yes	41	55	AF	UGLK1404	\$432.00
						82	110	2*AF	UGLK1472	\$646.00
						110	-	GK	UGLK1404	\$432.00
V-5252-8	2-way	2½"	Flanged	PDTC	No	55	-	AM	UGLK1404	\$432.00
						110	-	GM	UGLK1404	\$432.00
						170	-	2*GM	UGLK1472	\$646.00
					Yes	41	55	AF	UGLK1404	\$432.00
						82	110	2*AF	UGLK1472	\$646.00
						110	-	GK	UGLK1404	\$432.00
V-5252-9	2-way	3"	Flanged	PDTC	No	38	-	AM	UGLK1404	\$432.00
						108	-	GM	UGLK1404	\$432.00
						115	-	2*GM	UGLK1472	\$646.00
					Yes	28	38	AF	UGLK1404	\$432.00
						57	77	2*AF	UGLK1472	\$646.00
						108	-	GK	UGLK1404	\$432.00
V-5410-4595	2-way	2½"	Flanged	PDTO	No	38	-	AM	UGLK1412	\$454.00
						75	-	GM	UGLK1412	\$454.00
						115	-	2*GM	UGLK1478	\$646.00
					Yes	21	28	AF	UGLK1412	\$454.00
						55	75	2*AF	UGLK1478	\$646.00
						75	-	GK	UGLK1412	\$454.00

All close-off pressures listed are approximate and based on valve condition and application.

PDTO = Push down to open  
 PDTC = Push down to close

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**Johnson Controls**  
**VB-37..., VB-39..., V-5... Series Flanged Valves**  
**Linkage/Actuator Selection Guide**

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V-5410-4596	2-way	3"	Flanged	PDTO	No	15	-	AM	UGLK1412	\$454.00
						40	-	GM	UGLK1412	\$454.00
						43	-	2*GM	UGLK1478	\$646.00
					Yes	15	20	AF	UGLK1412	\$454.00
						22	-	2*AF	UGLK1478	\$646.00
						40	-	GK	UGLK1412	\$454.00
V-5410-4597	2-way	4"	Flanged	PDTO	No	15	-	AM	UGLK1412	\$454.00
						43	-	GM	UGLK1412	\$454.00
						52	-	2*GM	UGLK1478	\$646.00
					Yes	8	11	AF	UGLK1412	\$454.00
						16	22	2*AF	UGLK1478	\$646.00
						43	-	GK	UGLK1412	\$454.00
V-5462-10	2-way	3"	Flanged	PDTC	No	15	-	AM	UGLK1412	\$454.00
						40	-	GM	UGLK1412	\$454.00
						43	-	2*GM	UGLK1478	\$646.00
					Yes	15	20	AF	UGLK1412	\$454.00
						22	-	2*AF	UGLK1478	\$646.00
						40	-	GK	UGLK1412	\$454.00
V-5462-13	2-way	4"	Flanged	PDTO	No	15	-	AM	UGLK1412	\$454.00
						43	-	GM	UGLK1412	\$454.00
						52	-	2*GM	UGLK1478	\$646.00
					Yes	8	11	AF	UGLK1412	\$454.00
						16	22	2*AF	UGLK1478	\$646.00
						43	-	GK	UGLK1412	\$454.00
V-5462-14	2-way	4"	Flanged	PDTO	No	15	-	AM	UGLK1412	\$454.00
						43	-	GM	UGLK1412	\$454.00
						52	-	2*GM	UGLK1478	\$646.00
					Yes	8	11	AF	UGLK1412	\$454.00
						16	22	2*AF	UGLK1478	\$646.00
						43	-	GK	UGLK1412	\$454.00
V-5462-34	2-way	2½"	Flanged	PDTO	No	55	-	AM	UGLK1404	\$432.00
						110	-	GM	UGLK1404	\$432.00
						170	-	2*GM	UGLK1472	\$646.00
					Yes	41	55	AF	UGLK1404	\$432.00
						82	110	2*AF	UGLK1472	\$646.00
						110	-	GK	UGLK1404	\$432.00
V-5462-36	2-way	3"	Flanged	PDTC	No	15	-	AM	UGLK1412	\$454.00
						40	-	GM	UGLK1412	\$454.00
						43	-	2*GM	UGLK1478	\$646.00
					Yes	15	20	AF	UGLK1412	\$454.00
						22	-	2*AF	UGLK1478	\$646.00
						40	-	GK	UGLK1412	\$454.00
V-5462-38	2-way	4"	Flanged	PDTO	No	15	-	AM	UGLK1412	\$454.00
						43	-	GM	UGLK1412	\$454.00
						52	-	2*GM	UGLK1478	\$646.00
					Yes	8	11	AF	UGLK1412	\$454.00
						16	22	2*AF	UGLK1478	\$646.00
						43	-	GK	UGLK1412	\$454.00
V-5462-6	2-way	2½"	Flanged	PDTO	No	55	-	AM	UGLK1404	\$432.00
						110	-	GM	UGLK1404	\$432.00
						170	-	2*GM	UGLK1472	\$646.00
					Yes	41	55	AF	UGLK1404	\$432.00
						82	110	2*AF	UGLK1472	\$646.00
						110	-	GK	UGLK1404	\$432.00
						170	-	2*GK	UGLK1472	\$646.00

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RETROFIT SOLUTIONS

All close-off pressures listed are approximate and based on valve condition and application.

PDTO = Push down to open  
 PDTC = Push down to close

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V-5462-7	2-way	2½"	Flanged	PDTO	No	55	-	AM	UGLK1404	\$432.00
						110	-	GM	UGLK1404	\$432.00
						170	-	2*GM	UGLK1472	\$646.00
					Yes	41	55	AF	UGLK1404	\$432.00
						82	110	2*AF	UGLK1472	\$646.00
						110	-	GK	UGLK1404	\$432.00
V-5842-11	3-way	4"	Flanged	Mixing	No	15	-	AM	UGLK1412	\$454.00
						43	-	GM	UGLK1412	\$454.00
						52	-	2*GM	UGLK1478	\$646.00
					Yes	8	11	AF	UGLK1412	\$454.00
						16	22	2*AF	UGLK1478	\$646.00
						43	-	GK	UGLK1412	\$454.00
V-5842-12	3-way	4"	Flanged	Mixing	No	15	-	AM	UGLK1412	\$454.00
						43	-	GM	UGLK1412	\$454.00
						52	-	2*GM	UGLK1478	\$646.00
					Yes	8	11	AF	UGLK1412	\$454.00
						16	22	2*AF	UGLK1478	\$646.00
						43	-	GK	UGLK1412	\$454.00
V-5842-17	3-way	3"	Flanged	Mixing	No	15	-	AM	UGLK1412	\$454.00
						40	-	GM	UGLK1412	\$454.00
						43	-	2*GM	UGLK1478	\$646.00
					Yes	15	20	AF	UGLK1412	\$454.00
						22	-	2*AF	UGLK1478	\$646.00
						40	-	GK	UGLK1412	\$454.00
V-5842-18	3-way	3"	Flanged	Mixing	No	15	-	AM	UGLK1412	\$454.00
						40	-	GM	UGLK1412	\$454.00
						43	-	2*GM	UGLK1478	\$646.00
					Yes	15	20	AF	UGLK1412	\$454.00
						22	-	2*AF	UGLK1478	\$646.00
						40	-	GK	UGLK1412	\$454.00
V-5842-31	3-way	2½"	Flanged	Mixing	No	55	-	AM	UGLK1404	\$432.00
						110	-	GM	UGLK1404	\$432.00
						170	-	2*GM	UGLK1472	\$646.00
					Yes	41	55	AF	UGLK1404	\$432.00
						82	110	2*AF	UGLK1472	\$646.00
						110	-	GK	UGLK1404	\$432.00
V-5842-33	3-way	3"	Flanged	Mixing	No	15	-	AM	UGLK1412	\$454.00
						40	-	GM	UGLK1412	\$454.00
						43	-	2*GM	UGLK1478	\$646.00
					Yes	15	20	AF	UGLK1412	\$454.00
						22	-	2*AF	UGLK1478	\$646.00
						40	-	GK	UGLK1412	\$454.00
V-5842-34	3-way	4"	Flanged	Mixing	No	15	-	AM	UGLK1412	\$454.00
						43	-	GM	UGLK1412	\$454.00
						52	-	2*GM	UGLK1478	\$646.00
					Yes	8	11	AF	UGLK1412	\$454.00
						16	22	2*AF	UGLK1478	\$646.00
						43	-	GK	UGLK1412	\$454.00
V-5842-7	3-way	2½"	Flanged	Mixing	No	55	-	AM	UGLK1404	\$432.00
						110	-	GM	UGLK1404	\$432.00
						170	-	2*GM	UGLK1472	\$646.00
					Yes	41	55	AF	UGLK1404	\$432.00
						82	110	2*AF	UGLK1472	\$646.00
						110	-	GK	UGLK1404	\$432.00

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 PDTC = Push down to close

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**Johnson Controls**  
**VB-37..., VB-39..., V-5... Series Flanged Valves**  
**Linkage/Actuator Selection Guide**

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price				
V-5842-8	3-way	2½"	Flanged	Mixing	No	55	-	AM	UGLK1404	\$432.00				
						110	-	GM	UGLK1404	\$432.00				
						170	-	2*GM	UGLK1472	\$646.00				
					Yes	41	55	AF	UGLK1404	\$432.00				
						82	110	2*AF	UGLK1472	\$646.00				
						110	-	GK	UGLK1404	\$432.00				
VB-3752-19	2-way	2½"	Flanged	PDTC	No	55	-	AM	UGLK1404	\$432.00				
						110	-	GM	UGLK1404	\$432.00				
						170	-	2*GM	UGLK1472	\$646.00				
					Yes	41	55	AF	UGLK1404	\$432.00				
						82	110	2*AF	UGLK1472	\$646.00				
						110	-	GK	UGLK1404	\$432.00				
VB-3978-11	2-way	2½"	Flanged	PDTO	No	55	-	AM	UGLK1404	\$432.00				
						110	-	GM	UGLK1404	\$432.00				
						170	-	2*GM	UGLK1472	\$646.00				
					Yes	41	55	AF	UGLK1404	\$432.00				
						82	110	2*AF	UGLK1472	\$646.00				
						110	-	GK	UGLK1404	\$432.00				
VB-4322-9	3-way	2½"	Flanged	Mixing	No	55	-	AM	UGLK1404	\$432.00				
						110	-	GM	UGLK1404	\$432.00				
						170	-	2*GM	UGLK1472	\$646.00				
					Yes	41	55	AF	UGLK1404	\$432.00				
						82	110	2*AF	UGLK1472	\$646.00				
						110	-	GK	UGLK1404	\$432.00				
VG2231 TM	2-way	2½"	Flanged	PDTC	No	55	-	AM	UGLK1404	\$432.00				
						110	-	GM	UGLK1404	\$432.00				
						170	-	2*GM	UGLK1472	\$646.00				
					Yes	41	55	AF	UGLK1404	\$432.00				
						82	110	2*AF	UGLK1472	\$646.00				
						110	-	GK	UGLK1404	\$432.00				
VG2231 UN	2-way	3"	Flanged	PDTC	No	15	-	AM	UGLK1412	\$454.00				
						40	-	GM	UGLK1412	\$454.00				
						43	-	2*GM	UGLK1478	\$646.00				
					Yes	15	20	AF	UGLK1412	\$454.00				
						22	-	2*AF	UGLK1478	\$646.00				
						40	-	GK	UGLK1412	\$454.00				
VG2231 VN	2-way	4"	Flanged	PDTC	No	15	-	AM	UGLK1412	\$454.00				
						43	-	GM	UGLK1412	\$454.00				
						52	-	2*GM	UGLK1478	\$646.00				
					Yes	8	11	AF	UGLK1412	\$454.00				
						16	22	2*AF	UGLK1478	\$646.00				
						43	-	GK	UGLK1412	\$454.00				
VG2431 TM	2-way	2½"	Flanged	PDTO	No	55	-	AM	UGLK1404	\$432.00				
						110	-	GM	UGLK1404	\$432.00				
						170	-	2*GM	UGLK1472	\$646.00				
					Yes	41	55	AF	UGLK1404	\$432.00				
						82	110	2*AF	UGLK1472	\$646.00				
						110	-	GK	UGLK1404	\$432.00				
VG2431 UN	2-way	3"	Flanged	PDTO	No	15	-	AM	UGLK1412	\$454.00				
						40	-	GM	UGLK1412	\$454.00				
						43	-	2*GM	UGLK1478	\$646.00				
					Yes	15	20	AF	UGLK1412	\$454.00				
						22	-	2*AF	UGLK1478	\$646.00				
						40	-	GK	UGLK1412	\$454.00				
										43	-	2*GK	UGLK1478	\$646.00

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RETROFIT SOLUTIONS

All close-off pressures listed are approximate and based on valve condition and application.

PDTO = Push down to open  
 PDTC = Push down to close





Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price					
V-3754-(4, 1008, 1022, 1026)	2-way	¾"	NPT	PDTC	No	215	-	LM	UGLK1550	\$340.00					
						250	-	NM	UGLK1550	\$340.00					
					Yes	215	-	LF	UGLK1550	\$340.00					
V-3754-(5, 1010, 1023, 1027)	2-way	1"	NPT	PDTC	No	250	-	AM	UGLK1402	\$432.00					
						250	-	NF	UGLK1400	\$454.00					
					Yes	173	-	NF	UGLK1402	\$432.00					
V-3754-(6, 1028, 1029, 1030)	2-way	1½"	NPT	PDTC	No	153	-	AM	UGLK1402	\$432.00					
						250	-	2*GM	UGLK1478	\$646.00					
					Yes	108	-	GM	UGLK1402	\$432.00					
						113	154	NF	UGLK1402	\$432.00					
						227	250	AF	UGLK1402	\$432.00					
					V-3754-7	2-way	2"	NPT	PDTC	No	86	-	AM	UGLK1406	\$432.00
											172	-	GM	UGLK1406	\$432.00
										Yes	250	-	2*GM	UGLK1474	\$664.00
											43	-	NF	UGLK1406	\$432.00
64	86	AF	UGLK1406	\$432.00											
128	173	2*AF	UGLK1474	\$664.00											
V-3754-8	2-way	1¼"	NPT	PDTC	No	172	-	GK	UGLK1406	\$432.00					
						250	-	2*GK	UGLK1474	\$664.00					
					Yes	250	-	AM	UGLK1402	\$432.00					
V-3766	2-way	½"	FLARE	PDTC	No	250	-	LM	UGLK1552	\$368.00					
					Yes	250	-	LF	UGLK1552	\$368.00					
V-3854-5	2-way	½"	NPT	PDTC	No	250	-	LM	UGLK1554	\$340.00					
					Yes	250	-	LF	UGLK1554	\$340.00					
V-3966	2-way	½"	FLARE	PDTC	No	250	-	LM	UGLK1552	\$368.00					
					Yes	250	-	LF	UGLK1552	\$368.00					
V-3974-(4, 1004, 1010)	2-way	¾"	NPT	PDTC	No	215	-	LM	UGLK1550	\$340.00					
						250	-	NM	UGLK1550	\$340.00					
					Yes	215	-	LF	UGLK1550	\$340.00					
V-3974-(5, 1005, 1011)	2-way	1"	NPT	PDTC	No	250	-	NF	UGLK1400	\$454.00					
						250	-	AM	UGLK1402	\$432.00					
					Yes	173	-	NF	UGLK1402	\$432.00					
V-3974-(6, 1012, 1013)	2-way	1½"	NPT	PDTC	No	250	-	AF	UGLK1402	\$432.00					
						250	-	GK	UGLK1402	\$432.00					
					Yes	250	-	2*GK	UGLK1478	\$646.00					
V-3974-(6, 1012, 1013)	2-way	1½"	NPT	PDTC	No	153	-	AM	UGLK1402	\$432.00					
						250	-	2*GM	UGLK1478	\$646.00					
					Yes	77	-	GM	UGLK1402	\$432.00					
						113	154	NF	UGLK1402	\$432.00					
						227	250	AF	UGLK1402	\$432.00					
						250	-	2*AF	UGLK1478	\$646.00					
V-3974-7	2-way	2"	NPT	PDTC	No	86	-	AM	UGLK1406	\$432.00					
						172	-	GM	UGLK1406	\$432.00					
					Yes	235	-	2*GM	UGLK1474	\$664.00					
						43	-	NF	UGLK1406	\$432.00					
						64	86	AF	UGLK1406	\$432.00					
						128	173	2*AF	UGLK1474	\$664.00					
V-4324-(4, 1005, 1006, 1013)	3-way	¾"	NPT	Mixing	No	215	-	GK	UGLK1406	\$432.00					
						250	-	2*GK	UGLK1474	\$664.00					
					Yes	215	-	LM	UGLK1550	\$340.00					
V-4324-(5, 1007, 1008, 1014)	3-way	1"	NPT	Mixing	No	215	-	NM	UGLK1550	\$340.00					
						250	-	LF	UGLK1550	\$340.00					
					Yes	215	-	NF	UGLK1400	\$454.00					

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RETROFIT SOLUTIONS

All close-off pressures listed are approximate and based on valve condition and application.

PDTC = Push down to open  
 PDTC = Push down to close

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V-4324-(6,1015, 1016, 1017)	3-way	1½"	NPT	Mixing	No	153	-	AM	UGLK1402	\$432.00
						250	-	2*GM	UGLK1478	\$646.00
								GM	UGLK1402	\$432.00
					Yes	77	-	NF	UGLK1402	\$432.00
						113	154	AF	UGLK1402	\$432.00
						227	250	2*AF	UGLK1478	\$646.00
						250	-	GK	UGLK1402	\$432.00
		2*GK	UGLK1478	\$646.00						
V-4324-7	3-way	2"	NPT	Mixing	No	86	-	AM	UGLK1406	\$432.00
						172	-	GM	UGLK1406	\$432.00
						235	-	2*GM	UGLK1474	\$664.00
					Yes	43	-	NF	UGLK1406	\$432.00
						64	86	AF	UGLK1406	\$432.00
						128	173	2*AF	UGLK1474	\$664.00
						172	-	GK	UGLK1406	\$432.00
		2*GK	UGLK1474	\$664.00						
V-4324-8	3-way	1¼"	NPT	Mixing	No	250	-	AM	UGLK1402	\$432.00
					Yes	110	-	NF	UGLK1402	\$432.00
						163	221	AF	UGLK1402	\$432.00
V-4332	2-way	½"	FLARE	PDTC	No	250	-	LM	UGLK1552	\$368.00
					Yes	250	-	LF	UGLK1552	\$368.00
V-5254-(1, 2, 3, 11)	2-way	1½"	NPT	PDTC	No	153	-	AM	UGLK1404	\$432.00
						250	-	2*GM	UGLK1472	\$646.00
								GM	UGLK1404	\$432.00
					Yes	77	-	NF	UGLK1404	\$432.00
						113	154	AF	UGLK1404	\$432.00
						227	250	2*AF	UGLK1472	\$646.00
						250	-	GK	UGLK1404	\$432.00
		2*GK	UGLK1472	\$646.00						
V-5254-(4, 5, 6, 12)	2-way	2"	NPT	PDTC	No	86	-	AM	UGLK1406	\$432.00
						172	-	GM	UGLK1406	\$432.00
						235	-	2*GM	UGLK1474	\$664.00
					Yes	43	-	NF	UGLK1406	\$432.00
						64	86	AF	UGLK1406	\$432.00
						128	173	2*AF	UGLK1474	\$664.00
						172	-	GK	UGLK1406	\$432.00
		2*GK	UGLK1474	\$664.00						
V-5464-(1, 2, 11)	2-way	1½"	NPT	PDTO	No	153	-	AM	UGLK1404	\$432.00
						250	-	2*GM	UGLK1472	\$646.00
								GM	UGLK1404	\$432.00
					Yes	77	-	NF	UGLK1404	\$432.00
						113	154	AF	UGLK1404	\$432.00
						227	250	2*AF	UGLK1472	\$646.00
						250	-	GK	UGLK1404	\$432.00
		2*GK	UGLK1472	\$646.00						
V-5464-(3, 4, 12)	2-way	2"	NPT	PDTO	No	86	-	AM	UGLK1406	\$432.00
						172	-	GM	UGLK1406	\$432.00
						235	-	2*GM	UGLK1474	\$664.00
					Yes	43	-	NF	UGLK1406	\$432.00
						64	86	AF	UGLK1406	\$432.00
						128	173	2*AF	UGLK1474	\$664.00
						172	-	GK	UGLK1406	\$432.00
		2*GK	UGLK1474	\$664.00						
V-5844-(1, 2, 3, 11)	3-way	1½"	NPT	Mixing	No	153	-	AM	UGLK1404	\$432.00
						250	-	2*GM	UGLK1472	\$646.00
								GM	UGLK1404	\$432.00
					Yes	77	-	NF	UGLK1404	\$432.00
						113	154	AF	UGLK1404	\$432.00
						227	250	2*AF	UGLK1472	\$646.00
						250	-	GK	UGLK1404	\$432.00
		2*GK	UGLK1472	\$646.00						

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PDTO = Push down to open  
 PDTCC = Push down to close

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**Johnson Controls**  
**VG7800, V-4..., V-3..., V-5... Series Valves**  
**Linkage/Actuator Selection Guide**

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
V-5844-(4, 5, 6, 12)	3-way	2"	NPT	Mixing	No	86	-	AM	UGLK1406	\$432.00
						172	-	GM	UGLK1406	\$432.00
						235	-	2*GM	UGLK1474	\$664.00
					Yes	43	-	NF	UGLK1406	\$432.00
						64	86	AF	UGLK1406	\$432.00
						128	173	2*AF	UGLK1474	\$664.00
						172	-	GK	UGLK1406	\$432.00
						235	-	2*GK	UGLK1474	\$664.00
VG7XXX-(C, E, GT)	2-way	1/2"	NPT	N/a	No	250	-	LM	UGLK1416	\$454.00
					Yes	250	-	LF	UGLK1416	\$454.00
					No	250	-	LM	UGLK1416	\$454.00
	3-way	1/2"	NPT	N/a	Yes	250	-	LF	UGLK1416	\$454.00
					No	215	-	LM	UGLK1416	\$454.00
					Yes	215	-	NM	UGLK1416	\$454.00
VG7XXX-LT	2-way	3/4"	NPT	N/a	No	215	-	LM	UGLK1416	\$454.00
					Yes	215	-	NM	UGLK1416	\$454.00
					No	215	-	LF	UGLK1416	\$454.00
	3-way	3/4"	NPT	N/a	Yes	215	-	LM	UGLK1416	\$454.00
					No	215	-	NM	UGLK1416	\$454.00
					Yes	215	-	LF	UGLK1416	\$454.00
VG7XXX-NT	2-way	1"	NPT	N/a	No	120	-	LM	UGLK1418	\$432.00
					Yes	95	-	NM	UGLK1418	\$432.00
					No	120	-	LF	UGLK1418	\$432.00
	3-way	1"	NPT	N/a	Yes	95	-	NM	UGLK1418	\$432.00
					No	120	-	LM	UGLK1418	\$432.00
					Yes	120	-	NM	UGLK1418	\$432.00
VG7XXX-PT	2-way	1 1/4"	NPT	N/a	No	78	-	LM	UGLK1418	\$432.00
					Yes	61	-	NM	UGLK1418	\$432.00
					No	156	-	LF	UGLK1418	\$432.00
	3-way	1 1/4"	NPT	N/a	Yes	61	-	NM	UGLK1418	\$432.00
					No	78	-	LF	UGLK1418	\$432.00
					Yes	156	-	NM	UGLK1418	\$432.00
VG7XXX-RT	2-way	1 1/2"	NPT	N/a	No	38	-	LM	UGLK1420	\$454.00
						76	-	NM	UGLK1420	\$454.00
						153	-	AM	UGLK1422	\$432.00
					Yes	250	-	GM	UGLK1422	\$432.00
						30	-	LF	UGLK1420	\$454.00
						77	-	NF	UGLK1422	\$432.00
						113	154	AF	UGLK1422	\$432.00
	3-way	1 1/2"	NPT	N/a	No	250	-	GK	UGLK1422	\$432.00
						30	-	LM	UGLK1420	\$454.00
						76	-	NM	UGLK1420	\$454.00
					Yes	153	-	AM	UGLK1422	\$432.00
						250	-	GM	UGLK1422	\$432.00
						30	-	LF	UGLK1420	\$454.00
						77	-	NF	UGLK1422	\$432.00
VG7XXX-ST	2-way	2"	NPT	N/a	No	30	-	LM	UGLK1420	\$454.00
						76	-	NM	UGLK1420	\$454.00
						153	-	AM	UGLK1422	\$432.00
					Yes	250	-	GM	UGLK1422	\$432.00
						17	-	LF	UGLK1420	\$454.00
						43	-	NF	UGLK1422	\$432.00
						64	86	AF	UGLK1422	\$432.00
	3-way	2"	NPT	N/a	No	172	-	GK	UGLK1422	\$432.00
						17	-	LM	UGLK1420	\$454.00
						43	-	NM	UGLK1420	\$454.00
					Yes	86	-	AM	UGLK1422	\$432.00
						172	-	GM	UGLK1422	\$432.00
						17	-	LF	UGLK1420	\$454.00
						43	-	NF	UGLK1422	\$432.00
3-way	2"	NPT	N/a	No	64	86	AF	UGLK1422	\$432.00	
					172	-	GK	UGLK1422	\$432.00	
					17	-	LM	UGLK1420	\$454.00	
				Yes	43	-	NM	UGLK1420	\$454.00	
					86	-	AM	UGLK1422	\$432.00	
					172	-	GM	UGLK1422	\$432.00	
					17	-	LF	UGLK1420	\$454.00	

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RETROFIT SOLUTIONS

All close-off pressures listed are approximate and based on valve condition and application.

PDTO = Push down to open  
 PDTC = Push down to close

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
VTM-TN-(007, 019, 047)*Threaded Stem Only	2-way	½"	FLARE	N/a	No	250	-	LM	UGLK1550	\$340.00
					Yes	250	-	LF	UGLK1550	\$340.00
	3-way	½"	NPT	N/a	No	250	-	LM	UGLK1550	\$340.00
					Yes	250	-	LF	UGLK1550	\$340.00

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price		
V(B)-3754 Series, Bronze Trim	2-way	¾"	NPT	N/a	No	250	-	NV	UNV-008	\$94.00		
								NVG	UNV-008	\$94.00		
					Yes	250	-	NVF	UNV-008	\$94.00		
					No	229	-	NV	UNV-008	\$94.00		
						250	-	NVG	UNV-008	\$94.00		
					Yes	183	-	NVF	UNV-008	\$94.00		
		1"	NPT	N/a	No	147	-	NV	UNV-008	\$94.00		
						235	-	NVG	UNV-008	\$94.00		
					Yes	117	-	NVF	UNV-008	\$94.00		
					No	102	-	NV	UNV-008	\$94.00		
						160	-	NVG	UNV-008	\$94.00		
					Yes	82	-	NVF	UNV-008	\$94.00		
		1½"	NPT	N/a	No	57	-	NV	UNV-008	\$94.00		
						90	-	NVG	UNV-008	\$94.00		
					Yes	46	-	NVF	UNV-008	\$94.00		
					No	250	-	NV	UNV-008	\$94.00		
						250	-	NVG	UNV-008	\$94.00		
					Yes	250	-	NVF	UNV-008	\$94.00		
		V(B)-3974 Series, Bronze Trim	2-way	¾"	NPT	N/a	No	250	-	NV	UNV-008	\$94.00
										NVG	UNV-008	\$94.00
							Yes	250	-	NVF	UNV-008	\$94.00
							No	229	-	NV	UNV-008	\$94.00
								250	-	NVG	UNV-008	\$94.00
							Yes	183	-	NVF	UNV-008	\$94.00
1"	NPT			N/a	No	147	-	NV	UNV-008	\$94.00		
						235	-	NVG	UNV-008	\$94.00		
					Yes	117	-	NVF	UNV-008	\$94.00		
					No	102	-	NV	UNV-008	\$94.00		
						160	-	NVG	UNV-008	\$94.00		
					Yes	82	-	NVF	UNV-008	\$94.00		
1½"	NPT			N/a	No	57	-	NV	UNV-008	\$94.00		
						90	-	NVG	UNV-008	\$94.00		
					Yes	46	-	NVF	UNV-008	\$94.00		
					No	250	-	NV	UNV-008	\$94.00		
						250	-	NVG	UNV-008	\$94.00		
					Yes	250	-	NVF	UNV-008	\$94.00		
V(B)-4324 Series, Bronze Trim	3-way			¾"	NPT	N/a	No	250	-	NV	UNV-008	\$94.00
										NVG	UNV-008	\$94.00
							Yes	250	-	NVF	UNV-008	\$94.00
							No	229	-	NV	UNV-008	\$94.00
								250	-	NVG	UNV-008	\$94.00
							Yes	183	-	NVF	UNV-008	\$94.00
		1"	NPT	N/a	No	147	-	NV	UNV-008	\$94.00		
						235	-	NVG	UNV-008	\$94.00		
					Yes	117	-	NVF	UNV-008	\$94.00		
					No	102	-	NV	UNV-008	\$94.00		
						160	-	NVG	UNV-008	\$94.00		
					Yes	82	-	NVF	UNV-008	\$94.00		
		1½"	NPT	N/a	No	57	-	NV	UNV-008	\$94.00		
						90	-	NVG	UNV-008	\$94.00		
					Yes	46	-	NVF	UNV-008	\$94.00		
					No	250	-	NV	UNV-008	\$94.00		
						250	-	NVG	UNV-008	\$94.00		
					Yes	250	-	NVF	UNV-008	\$94.00		

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RETROFIT SOLUTIONS

PDTO = Push down to open  
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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price		
V(B)-4332	2-way	¾"	NPT	N/a	No	250	-	NV	UNV-008	\$94.00		
								NVG	UNV-008	\$94.00		
					Yes	250	-	NVF	UNV-008	\$94.00		
			1"	NPT	N/a	No	229	-	NV	UNV-008	\$94.00	
						250	-	NVG	UNV-008	\$94.00		
		Yes				183	-	NVF	UNV-008	\$94.00		
			1¼"	NPT	N/a	No	147	-	NV	UNV-008	\$94.00	
						235	-	NVG	UNV-008	\$94.00		
		Yes				117	-	NVF	UNV-008	\$94.00		
			1½"	NPT	N/a	No	102	-	NV	UNV-008	\$94.00	
						160	-	NVG	UNV-008	\$94.00		
		Yes				82	-	NVF	UNV-008	\$94.00		
		2"	NPT	N/a	No	57	-	NV	UNV-008	\$94.00		
					90	-	NVG	UNV-008	\$94.00			
	Yes				46	-	NVF	UNV-008	\$94.00			
	V(B)-5844 Series	2-way	¾"	NPT	N/a	No	250	-	NV	UNV-008	\$94.00	
									NVG	UNV-008	\$94.00	
						Yes	250	-	NVF	UNV-008	\$94.00	
				1"	NPT	N/a	No	229	-	NV	UNV-008	\$94.00
							250	-	NVG	UNV-008	\$94.00	
			Yes				183	-	NVF	UNV-008	\$94.00	
				1¼"	NPT	N/a	No	147	-	NV	UNV-008	\$94.00
							235	-	NVG	UNV-008	\$94.00	
			Yes				117	-	NVF	UNV-008	\$94.00	
			1½"	NPT	N/a	No	102	-	NV	UNV-008	\$94.00	
						160	-	NVG	UNV-008	\$94.00		
Yes						82	-	NVF	UNV-008	\$94.00		
		2"	NPT	N/a	No	57	-	NV	UNV-008	\$94.00		
					90	-	NVG	UNV-008	\$94.00			
Yes					46	-	NVF	UNV-008	\$94.00			
3-way		¾"	NPT	N/a	No	250	-	NV	UNV-008	\$94.00		
								NVG	UNV-008	\$94.00		
					Yes	250	-	NVF	UNV-008	\$94.00		
			1"	NPT	N/a	No	229	-	NV	UNV-008	\$94.00	
						250	-	NVG	UNV-008	\$94.00		
		Yes				183	-	NVF	UNV-008	\$94.00		
			1¼"	NPT	N/a	No	147	-	NV	UNV-008	\$94.00	
						235	-	NVG	UNV-008	\$94.00		
		Yes				117	-	NVF	UNV-008	\$94.00		
		1½"	NPT	N/a	No	102	-	NV	UNV-008	\$94.00		
					160	-	NVG	UNV-008	\$94.00			
	Yes				82	-	NVF	UNV-008	\$94.00			
	2"	NPT	N/a	No	57	-	NV	UNV-008	\$94.00			
				90	-	NVG	UNV-008	\$94.00				
Yes				46	-	NVF	UNV-008	\$94.00				

All close-off pressures listed are approximate and based on valve condition and application.

PDTO = Push down to open  
 PDTC = Push down to close

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price		
VG7000 Series	2-way	½"	NPT	N/a	No	250	-	NV	UNV-009	\$94.00		
							NVG	UNV-009	\$94.00			
					Yes	250	-	NVF	UNV-009	\$94.00		
			¾"	NPT	N/a	No	250	-	NV	UNV-009	\$94.00	
							NVG	UNV-009	\$94.00			
		Yes				250	-	NVF	UNV-009	\$94.00		
			1"	NPT	N/a	No	229	-	NV	UNV-040	\$126.00	
							NVG	UNV-040	\$126.00			
		Yes				183	-	NVF	UNV-040	\$126.00		
			1¼"	NPT	N/a	No	147	-	NV	UNV-040	\$126.00	
							NVG	UNV-040	\$126.00			
		Yes				117	-	NVF	UNV-040	\$126.00		
			1½"	NPT	N/a	No	102	-	NV	UNV-040	\$126.00	
							NVG	UNV-040	\$126.00			
		Yes				82	-	NVF	UNV-040	\$126.00		
			2"	NPT	N/a	No	57	-	NV	UNV-040	\$126.00	
							NVG	UNV-040	\$126.00			
		Yes				46	-	NVF	UNV-040	\$126.00		
			3-way	½"	NPT	N/a	No	250	-	NV	UNV-009	\$94.00
								NVG	UNV-009	\$94.00		
		Yes					250	-	NVF	UNV-009	\$94.00	
		¾"		NPT	N/a	No	250	-	NV	UNV-009	\$94.00	
							NVG	UNV-009	\$94.00			
	Yes					250	-	NVF	UNV-009	\$94.00		
		1"		NPT	N/a	No	229	-	NV	UNV-040	\$126.00	
							NVG	UNV-040	\$126.00			
	Yes					183	-	NVF	UNV-040	\$126.00		
		1¼"		NPT	N/a	No	147	-	NV	UNV-040	\$126.00	
							NVG	UNV-040	\$126.00			
	Yes					117	-	NVF	UNV-040	\$126.00		
		1½"		NPT	N/a	No	102	-	NV	UNV-040	\$126.00	
							NVG	UNV-040	\$126.00			
	Yes					82	-	NVF	UNV-040	\$126.00		
		2"		NPT	N/a	No	57	-	NV	UNV-040	\$126.00	
							NVG	UNV-040	\$126.00			
	Yes					46	-	NVF	UNV-040	\$126.00		

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RETROFIT SOLUTIONS

PDTO = Push down to open  
 PDTC = Push down to close

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price		
V6600	3-way	½"	NPT	N/a	No	250	-	NV	UNV-007	\$126.00		
					Yes	250	-	NVF	UNV-007	\$126.00		
		¾"	NPT	N/a	No	250	-	NV	UNV-007	\$126.00		
					Yes	250	-	NVF	UNV-007	\$126.00		
		1"	NPT	N/a	No	229	-	NV	UNV-007	\$126.00		
					Yes	250	-	NVG	UNV-007	\$126.00		
		1¼"	NPT	N/a	No	147	-	NV	UNV-007	\$126.00		
					Yes	117	-	NVF	UNV-007	\$126.00		
		1½"	NPT	N/a	No	102	-	NV	UNV-007	\$126.00		
					Yes	160	-	NVG	UNV-007	\$126.00		
		2"	NPT	N/a	No	82	-	NVF	UNV-007	\$126.00		
					Yes	57	-	NV	UNV-007	\$126.00		
							No	90	-	NVG	UNV-007	\$126.00
							Yes	46	-	NVF	UNV-007	\$126.00
V6700	2-way	1½"	NPT	N/a	No	160	-	NVG	UNV-007	\$126.00		
V6800	2-way	¾"	NPT	N/a	No	250	-	NV	UNV-007	\$126.00		
					Yes	250	-	NVF	UNV-007	\$126.00		
V6700	2-way	½"	NPT	N/a	No	250	-	NV	UNV-007	\$126.00		
					Yes	250	-	NVF	UNV-007	\$126.00		
		¾"	NPT	N/a	No	250	-	NV	UNV-007	\$126.00		
					Yes	250	-	NVF	UNV-007	\$126.00		
		1"	NPT	N/a	No	229	-	NV	UNV-007	\$126.00		
					Yes	250	-	NVG	UNV-007	\$126.00		
		1¼"	NPT	N/a	No	183	-	NVF	UNV-007	\$126.00		
					Yes	147	-	NV	UNV-007	\$126.00		
		1½"	NPT	N/a	No	235	-	NVG	UNV-007	\$126.00		
					Yes	117	-	NVF	UNV-007	\$126.00		
		2"	NPT	N/a	No	102	-	NV	UNV-007	\$126.00		
					Yes	82	-	NVF	UNV-007	\$126.00		
							No	57	-	NV	UNV-007	\$126.00
							Yes	90	-	NVG	UNV-007	\$126.00
					No	46	-	NVF	UNV-007	\$126.00		
					Yes	46	-	NVF	UNV-007	\$126.00		

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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price	
Belimo USA G2 series	2-way	½"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00	
					Yes	250	-	NVF	UNV-001	\$56.00	
		¾"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00	
					Yes	250	-	NVF	UNV-001	\$56.00	
		1"	NPT	N/a	No	229	-	NV	UNV-001	\$56.00	
					Yes	250	-	NVG	UNV-001	\$56.00	
						No	183	-	NVF	UNV-001	\$56.00
						Yes	183	-	NVF	UNV-001	\$56.00
		1¼"	NPT	N/a	No	147	-	NV	UNV-001	\$56.00	
					Yes	235	-	NVG	UNV-001	\$56.00	
						No	117	-	NVF	UNV-001	\$56.00
						Yes	117	-	NVF	UNV-001	\$56.00
		1½"	NPT	N/a	No	102	-	NV	UNV-001	\$56.00	
					Yes	160	-	NVG	UNV-001	\$56.00	
						No	82	-	NVF	UNV-001	\$56.00
						Yes	82	-	NVF	UNV-001	\$56.00
		2"	NPT	N/a	No	57	-	NV	UNV-001	\$56.00	
					Yes	90	-	NVG	UNV-001	\$56.00	
					No	46	-	NVF	UNV-001	\$56.00	
					Yes	46	-	NVF	UNV-001	\$56.00	
	3-way	½"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00	
					Yes	250	-	NVF	UNV-001	\$56.00	
		¾"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00	
					Yes	250	-	NVF	UNV-001	\$56.00	
		1"	NPT	N/a	No	229	-	NV	UNV-001	\$56.00	
					Yes	250	-	NVG	UNV-001	\$56.00	
						No	183	-	NVF	UNV-001	\$56.00
						Yes	183	-	NVF	UNV-001	\$56.00
		1¼"	NPT	N/a	No	147	-	NV	UNV-001	\$56.00	
					Yes	235	-	NVG	UNV-001	\$56.00	
						No	117	-	NVF	UNV-001	\$56.00
						Yes	117	-	NVF	UNV-001	\$56.00
		1½"	NPT	N/a	No	102	-	NV	UNV-001	\$56.00	
					Yes	160	-	NVG	UNV-001	\$56.00	
						No	82	-	NVF	UNV-001	\$56.00
						Yes	82	-	NVF	UNV-001	\$56.00
2"		NPT	N/a	No	57	-	NV	UNV-001	\$56.00		
				Yes	90	-	NVG	UNV-001	\$56.00		
				No	46	-	NVF	UNV-001	\$56.00		
				Yes	46	-	NVF	UNV-001	\$56.00		
Belimo USA G2...S series	2-way	½"	NPT	N/a	No	250	-	NV	UNV-035	\$126.00	
					Yes	250	-	NVF	UNV-035	\$126.00	
		¾"	NPT	N/a	No	250	-	NV	UNV-035	\$126.00	
					Yes	250	-	NVF	UNV-035	\$126.00	
		1"	NPT	N/a	No	229	-	NV	UNV-035	\$126.00	
					Yes	250	-	NVG	UNV-035	\$126.00	
						No	183	-	NVF	UNV-035	\$126.00
						Yes	183	-	NVF	UNV-035	\$126.00
		1¼"	NPT	N/a	No	147	-	NV	UNV-035	\$126.00	
					Yes	235	-	NVG	UNV-035	\$126.00	
						No	117	-	NVF	UNV-035	\$126.00
						Yes	117	-	NVF	UNV-035	\$126.00
		1½"	NPT	N/a	No	102	-	NV	UNV-035	\$126.00	
					Yes	160	-	NVG	UNV-035	\$126.00	
						No	82	-	NVF	UNV-035	\$126.00
						Yes	82	-	NVF	UNV-035	\$126.00
		2"	NPT	N/a	No	57	-	NV	UNV-035	\$126.00	
					Yes	90	-	NVG	UNV-035	\$126.00	
					No	46	-	NVF	UNV-035	\$126.00	
					Yes	46	-	NVF	UNV-035	\$126.00	
	3-way	½"	NPT	N/a	No	250	-	NV	UNV-035	\$126.00	
					Yes	250	-	NVF	UNV-035	\$126.00	
		¾"	NPT	N/a	No	250	-	NV	UNV-035	\$126.00	
					Yes	250	-	NVF	UNV-035	\$126.00	
		1"	NPT	N/a	No	229	-	NV	UNV-035	\$126.00	
					Yes	250	-	NVG	UNV-035	\$126.00	
						No	183	-	NVF	UNV-035	\$126.00
						Yes	183	-	NVF	UNV-035	\$126.00
		1¼"	NPT	N/a	No	147	-	NV	UNV-035	\$126.00	
					Yes	235	-	NVG	UNV-035	\$126.00	
						No	117	-	NVF	UNV-035	\$126.00
						Yes	117	-	NVF	UNV-035	\$126.00
		1½"	NPT	N/a	No	102	-	NV	UNV-035	\$126.00	
					Yes	160	-	NVG	UNV-035	\$126.00	
						No	82	-	NVF	UNV-035	\$126.00
						Yes	82	-	NVF	UNV-035	\$126.00
2"		NPT	N/a	No	57	-	NV	UNV-035	\$126.00		
				Yes	90	-	NVG	UNV-035	\$126.00		
				No	46	-	NVF	UNV-035	\$126.00		
				Yes	46	-	NVF	UNV-035	\$126.00		

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RETROFIT SOLUTIONS

All close-off pressures listed are approximate and based on valve condition and application.

UNV-035 can be used in steam applications up to 50 psi inlet (all pages Siebe).

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
Belimo USA G3 series	2-way	½"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00
					Yes	250	-	NVF	UNV-001	\$56.00
		¾"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00
					Yes	250	-	NVF	UNV-001	\$56.00
		1"	NPT	N/a	No	229	-	NV	UNV-001	\$56.00
						250	-	NVG	UNV-001	\$56.00
					Yes	183	-	NVF	UNV-001	\$56.00
						147	-	NV	UNV-001	\$56.00
		1¼"	NPT	N/a	No	235	-	NVG	UNV-001	\$56.00
						117	-	NVF	UNV-001	\$56.00
		1½"	NPT	N/a	No	102	-	NV	UNV-001	\$56.00
						160	-	NVG	UNV-001	\$56.00
					Yes	82	-	NVF	UNV-001	\$56.00
						57	-	NV	UNV-001	\$56.00
	2"	NPT	N/a	No	90	-	NVG	UNV-001	\$56.00	
					46	-	NVF	UNV-001	\$56.00	
				Yes	250	-	NV	UNV-001	\$56.00	
					250	-	NVF	UNV-001	\$56.00	
	3-way	½"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00
					Yes	250	-	NVF	UNV-001	\$56.00
		¾"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00
					Yes	250	-	NVF	UNV-001	\$56.00
		1"	NPT	N/a	No	229	-	NV	UNV-001	\$56.00
						250	-	NVG	UNV-001	\$56.00
					Yes	183	-	NVF	UNV-001	\$56.00
						147	-	NV	UNV-001	\$56.00
		1¼"	NPT	N/a	No	235	-	NVG	UNV-001	\$56.00
						117	-	NVF	UNV-001	\$56.00
		1½"	NPT	N/a	No	102	-	NV	UNV-001	\$56.00
						160	-	NVG	UNV-001	\$56.00
Yes					82	-	NVF	UNV-001	\$56.00	
					57	-	NV	UNV-001	\$56.00	
2"		NPT	N/a	No	90	-	NVG	UNV-001	\$56.00	
					46	-	NVF	UNV-001	\$56.00	
	Yes			250	-	NV	UNV-001	\$56.00		
				250	-	NVF	UNV-001	\$56.00		

All close-off pressures listed are approximate and based on valve condition and application.



Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
VB7000 series	2-way	½"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00
						250	-	NVF	UNV-035	\$126.00
						250	-	NVF	UNV-001	\$56.00
					Yes	250	-	NV	UNV-035	\$126.00
						250	-	NVF	UNV-001	\$56.00
						250	-	NVF	UNV-035	\$126.00
		¾"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00
						250	-	NVF	UNV-035	\$126.00
						250	-	NVF	UNV-001	\$56.00
					Yes	250	-	NV	UNV-035	\$126.00
						250	-	NVF	UNV-001	\$56.00
						250	-	NVF	UNV-035	\$126.00
		1"	NPT	N/a	No	229	-	NV	UNV-001	\$56.00
						250	-	NVG	UNV-035	\$126.00
						250	-	NVG	UNV-001	\$56.00
					Yes	183	-	NVF	UNV-035	\$126.00
						183	-	NVF	UNV-001	\$56.00
						183	-	NVF	UNV-035	\$126.00
		1¼"	NPT	N/a	No	147	-	NV	UNV-001	\$56.00
						235	-	NVG	UNV-035	\$126.00
						235	-	NVG	UNV-001	\$56.00
					Yes	117	-	NVF	UNV-035	\$126.00
						117	-	NVF	UNV-001	\$56.00
						117	-	NVF	UNV-035	\$126.00
	1½"	NPT	N/a	No	102	-	NV	UNV-001	\$56.00	
					160	-	NVG	UNV-035	\$126.00	
					160	-	NVG	UNV-001	\$56.00	
				Yes	82	-	NVF	UNV-035	\$126.00	
					82	-	NVF	UNV-001	\$56.00	
					82	-	NVF	UNV-035	\$126.00	
	2"	NPT	N/a	No	57	-	NV	UNV-001	\$56.00	
					90	-	NVG	UNV-035	\$126.00	
					90	-	NVG	UNV-001	\$56.00	
				Yes	46	-	NVF	UNV-035	\$126.00	
					46	-	NVF	UNV-001	\$56.00	
					46	-	NVF	UNV-035	\$126.00	
	3-way	½"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00
						250	-	NVF	UNV-035	\$126.00
						250	-	NVF	UNV-001	\$56.00
					Yes	250	-	NV	UNV-035	\$126.00
						250	-	NVF	UNV-001	\$56.00
						250	-	NVF	UNV-035	\$126.00
		¾"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00
						250	-	NVF	UNV-035	\$126.00
						250	-	NVF	UNV-001	\$56.00
					Yes	250	-	NV	UNV-035	\$126.00
						250	-	NVF	UNV-001	\$56.00
						250	-	NVF	UNV-035	\$126.00
1"		NPT	N/a	No	229	-	NV	UNV-001	\$56.00	
					250	-	NVG	UNV-035	\$126.00	
					250	-	NVG	UNV-001	\$56.00	
				Yes	183	-	NVF	UNV-035	\$126.00	
					183	-	NVF	UNV-001	\$56.00	
					183	-	NVF	UNV-035	\$126.00	
1¼"		NPT	N/a	No	147	-	NV	UNV-001	\$56.00	
					235	-	NVG	UNV-035	\$126.00	
					235	-	NVG	UNV-001	\$56.00	
				Yes	117	-	NVF	UNV-035	\$126.00	
					117	-	NVF	UNV-001	\$56.00	
					117	-	NVF	UNV-035	\$126.00	
1½"	NPT	N/a	No	102	-	NV	UNV-001	\$56.00		
				160	-	NVG	UNV-035	\$126.00		
				160	-	NVG	UNV-001	\$56.00		
			Yes	82	-	NVF	UNV-035	\$126.00		
				82	-	NVF	UNV-001	\$56.00		
				82	-	NVF	UNV-035	\$126.00		
2"	NPT	N/a	No	57	-	NV	UNV-001	\$56.00		
				90	-	NVG	UNV-035	\$126.00		
				90	-	NVG	UNV-001	\$56.00		
			Yes	46	-	NVF	UNV-035	\$126.00		
				46	-	NVF	UNV-001	\$56.00		
				46	-	NVF	UNV-035	\$126.00		

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RETROFIT SOLUTIONS

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price			
VB9000 series	2-way	½"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00			
									UNV-035	\$126.00			
						Yes	250	-	NVF	UNV-001	\$56.00		
									NVF	UNV-035	\$126.00		
									NV	UNV-001	\$56.00		
									NV	UNV-035	\$126.00		
		¾"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00			
									UNV-035	\$126.00			
						Yes	250	-	NVF	UNV-001	\$56.00		
									NVF	UNV-035	\$126.00		
									NV	UNV-001	\$56.00		
									NV	UNV-035	\$126.00		
		1"	NPT	N/a	No	229	-	NV	UNV-001	\$56.00			
									UNV-035	\$126.00			
							250	-	NVG	UNV-001	\$56.00		
								NVG	UNV-035	\$126.00			
	Yes				183	-	NVF	UNV-001	\$56.00				
								NVF	UNV-035	\$126.00			
	1¼"	NPT	N/a	No	147	-	NV	UNV-001	\$56.00				
								UNV-035	\$126.00				
						235	-	NVG	UNV-001	\$56.00			
								NVG	UNV-035	\$126.00			
				Yes	117	-	NVF	UNV-001	\$56.00				
								NVF	UNV-035	\$126.00			
	3-way	½"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00			
									UNV-035	\$126.00			
						Yes	250	-	NVF	UNV-001	\$56.00		
									NVF	UNV-035	\$126.00		
					¾"	NPT	N/a	No	250	-	NV	UNV-001	\$56.00
												UNV-035	\$126.00
Yes		250	-	NVF					UNV-001	\$56.00			
								NVF	UNV-035	\$126.00			
1"		NPT	N/a	No				229	-	NV	UNV-001	\$56.00	
											UNV-035	\$126.00	
						250	-	NVG	UNV-001	\$56.00			
								NVG	UNV-035	\$126.00			
				Yes	183	-	NVF	UNV-001	\$56.00				
								NVF	UNV-035	\$126.00			
1¼"		NPT	N/a	No	147	-	NV	UNV-001	\$56.00				
	UNV-035							\$126.00					
					235	-	NVG	UNV-001	\$56.00				
							NVG	UNV-035	\$126.00				
	Yes			117	-	NVF	UNV-001	\$56.00					
							NVF	UNV-035	\$126.00				

All close-off pressures listed are approximate and based on valve condition and application.



**Siebe\Invensys\Barber Colman**  
**VB7000, VB9000, VB804X and VB304X Series Valves - NPT Bodies**  
**Linkage/Actuator Selection Guide**

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
VB304X-0-1-10	3-way	1½"	NPT	Mixing	No	38	-	LM	UGLK1002	\$454.00
						76	-	NM	UGLK1002	\$454.00
						153	-	AM	UGLK1004	\$466.00
					Yes	250	-	GM	UGLK1004	\$466.00
						30	-	LF	UGLK1002	\$454.00
						113	154	AF	UGLK1004	\$466.00
250	-	GK	UGLK1004	\$466.00						
VB304X-0-1-11	3-way	2"	NPT	Mixing	No	22	-	LM	UGLK1002	\$454.00
						43	-	NM	UGLK1002	\$454.00
						86	-	AM	UGLK1004	\$466.00
						172	-	GM	UGLK1004	\$466.00
					Yes	17	-	LF	UGLK1002	\$454.00
						86	-	AF	UGLK1004	\$466.00
172	-	GK	UGLK1004	\$466.00						
VB304X-0-1-4	3-way	½"	NPT	Mixing	No	250	-	LM	UGLK1002	\$454.00
								AM	UGLK1004	\$466.00
								NM	UGLK1002	\$454.00
					Yes	250	-	AF	UGLK1004	\$466.00
								LF	UGLK1002	\$454.00
								GM	UGLK1004	\$466.00
VB304X-0-1-7	3-way	¾"	NPT	Mixing	No	150	-	LM	UGLK1002	\$454.00
						250	-	NM	UGLK1002	\$454.00
					Yes	119	-	LF	UGLK1002	\$454.00
						250	-	GM	UGLK1004	\$466.00
VB304X-0-1-8	3-way	1"	NPT	Mixing	No	85	-	LM	UGLK1002	\$454.00
						172	-	NM	UGLK1002	\$454.00
					Yes	250	-	AM	UGLK1004	\$466.00
						67	-	LF	UGLK1002	\$454.00
250	-	AF	UGLK1004	\$466.00						
VB304X-0-1-9	3-way	1¼"	NPT	Mixing	No	55	-	LM	UGLK1002	\$454.00
						110	-	NM	UGLK1002	\$454.00
						250	-	AM	UGLK1004	\$466.00
					Yes	43	-	LF	UGLK1002	\$454.00
						163	221	AF	UGLK1004	\$466.00
						250	-	GM	UGLK1004	\$466.00
VB7XXX-0-4-1	2-way	½"	NPT	N/a	No	250	-	LM	UGLK1150	\$328.00
					Yes	250	-	LF	UGLK1150	\$328.00
	3-way	½"	NPT	N/a	No	250	-	LM	UGLK1150	\$328.00
					Yes	250	-	LF	UGLK1150	\$328.00
VB7XXX-0-4-10	2-way	1½"	NPT	N/a	No	217	-	AM	UGLK1000	\$432.00
					Yes	161	217	AF	UGLK1000	\$432.00
	3-way	1½"	NPT	N/a	No	217	-	AM	UGLK1000	\$432.00
					Yes	161	217	AF	UGLK1000	\$432.00
VB7XXX-0-4-11	2-way	2"	NPT	N/a	No	122	-	AM	UGLK1000	\$432.00
					Yes	122	-	AF	UGLK1000	\$432.00
	3-way	2"	NPT	N/a	No	122	-	AM	UGLK1000	\$432.00
					Yes	122	-	AF	UGLK1000	\$432.00
VB7XXX-0-4-2	2-way	½"	NPT	N/a	No	250	-	LM	UGLK1150	\$328.00
					Yes	250	-	LF	UGLK1150	\$328.00
	3-way	½"	NPT	N/a	No	250	-	LM	UGLK1150	\$328.00
					Yes	250	-	LF	UGLK1150	\$328.00
VB7XXX-0-4-3	2-way	½"	NPT	N/a	No	250	-	LM	UGLK1150	\$328.00
					Yes	250	-	LF	UGLK1150	\$328.00
	3-way	½"	NPT	N/a	No	250	-	LM	UGLK1150	\$328.00
					Yes	250	-	LF	UGLK1150	\$328.00
VB7XXX-0-4-4	2-way	½"	NPT	N/a	No	250	-	LM	UGLK1150	\$328.00
					Yes	250	-	LF	UGLK1150	\$328.00
	3-way	½"	NPT	N/a	No	250	-	LM	UGLK1150	\$328.00
					Yes	250	-	LF	UGLK1150	\$328.00
VB7XXX-0-4-5	2-way	¾"	NPT	N/a	No	215	-	LM	UGLK1150	\$328.00
						250	-	NM	UGLK1150	\$328.00
					Yes	215	-	LF	UGLK1150	\$328.00
	3-way	¾"	NPT	N/a	No	215	-	LM	UGLK1150	\$328.00
						250	-	NM	UGLK1150	\$328.00
					Yes	215	-	LF	UGLK1150	\$328.00

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RETROFIT SOLUTIONS

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price	
VB7XXX-0-4-6	2-way	¾"	NPT	N/a	No	215	-	LM	UGLK1150	\$328.00	
						250	-	NM	UGLK1150	\$328.00	
						Yes	215	-	LF	UGLK1150	\$328.00
	3-way	¾"	NPT	N/a	No	215	-	LM	UGLK1150	\$328.00	
						250	-	NM	UGLK1150	\$328.00	
						Yes	215	-	LF	UGLK1150	\$328.00
VB7XXX-0-4-7	2-way	1"	NPT	N/a	No	120	-	LM	UGLK1150	\$328.00	
						244	-	NM	UGLK1150	\$328.00	
						250	-	AM	UGLK1000	\$432.00	
	3-way	1"	NPT	N/a	No	95	-	LF	UGLK1150	\$328.00	
						250	-	AF	UGLK1000	\$432.00	
						Yes	120	-	LM	UGLK1150	\$328.00
VB7XXX-0-4-8	2-way	1"	NPT	N/a	No	120	-	LM	UGLK1150	\$328.00	
						244	-	NM	UGLK1150	\$328.00	
						250	-	AM	UGLK1000	\$432.00	
	3-way	1"	NPT	N/a	No	95	-	LF	UGLK1150	\$328.00	
						250	-	AF	UGLK1000	\$432.00	
						Yes	120	-	LM	UGLK1150	\$328.00
VB7XXX-0-4-9	2-way	1¼"	NPT	N/a	No	78	-	LM	UGLK1150	\$328.00	
						156	-	NM	UGLK1150	\$328.00	
						250	-	AM	UGLK1000	\$432.00	
	3-way	1¼"	NPT	N/a	No	61	-	LF	UGLK1150	\$328.00	
						231	250	AF	UGLK1000	\$432.00	
						Yes	78	-	LM	UGLK1150	\$328.00
VB804X-0-1-10	3-way	1½"	NPT	Mixing	No	38	-	LM	UGLK1002	\$454.00	
						76	-	NM	UGLK1002	\$454.00	
						153	-	AM	UGLK1004	\$466.00	
	3-way	1½"	NPT	Mixing	No	250	-	GM	UGLK1004	\$466.00	
						Yes	30	-	LF	UGLK1002	\$454.00
						113	154	AF	UGLK1004	\$466.00	
VB804X-0-1-11	3-way	2"	NPT	Mixing	No	22	-	LM	UGLK1002	\$454.00	
						43	-	NM	UGLK1002	\$454.00	
						86	-	AM	UGLK1004	\$466.00	
	3-way	2"	NPT	Mixing	No	172	-	GM	UGLK1004	\$466.00	
						Yes	17	-	LF	UGLK1002	\$454.00
						86	-	AF	UGLK1004	\$466.00	
VB804X-0-1-4	3-way	½"	NPT	Mixing	No	250	-	LM	UGLK1002	\$454.00	
						AM	UGLK1004	\$466.00			
						NM	UGLK1002	\$454.00			
	3-way	½"	NPT	Mixing	No	250	-	AF	UGLK1004	\$466.00	
						LF	UGLK1002	\$454.00			
						Yes	150	-	LM	UGLK1002	\$454.00
VB804X-0-1-7	3-way	¾"	NPT	Mixing	No	250	-	NM	UGLK1002	\$454.00	
						119	-	LF	UGLK1002	\$454.00	
						Yes	85	-	LM	UGLK1002	\$454.00
	3-way	1"	NPT	Mixing	No	172	-	NM	UGLK1002	\$454.00	
						250	-	AM	UGLK1004	\$466.00	
						Yes	67	-	LF	UGLK1002	\$454.00
3-way	1"	NPT	Mixing	No	250	-	AF	UGLK1004	\$466.00		

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RETROFIT SOLUTIONS



**Siebe\Invensys\Barber Colman**  
**VB7000, VB9000, VB804X and VB304X Series Valves - NPT Bodies**  
**Linkage/Actuator Selection Guide**

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
VB804X-0-1-9	3-way	1¼"	NPT	Mixing	No	55	-	LM	UGLK1002	\$454.00
						110	-	NM	UGLK1002	\$454.00
						250	-	AM	UGLK1004	\$466.00
					Yes	43	-	LF	UGLK1002	\$454.00
						163	221	AF	UGLK1004	\$466.00
VB9XXX-0-4-1	2-way	½"	NPT	N/a	No	250	-	LM	UGLK1150	\$328.00
					Yes	250	-	LF	UGLK1150	\$328.00
	3-way	½"	NPT	N/a	No	250	-	LM	UGLK1150	\$328.00
					Yes	250	-	LF	UGLK1150	\$328.00
VB9XXX-0-4-10 (Post '94)	2-way	1½"	NPT	N/a	No	104	-	AM	UGLK1016	\$432.00
						185	-	GM	UGLK1016	\$432.00
						250	-	2*GM	UGLK1066	\$664.00
					Yes	77	104	AF	UGLK1016	\$432.00
						154	209	2*AF	UGLK1066	\$664.00
						185	-	GK	UGLK1016	\$432.00
						250	-	2*GK	UGLK1066	\$664.00
	3-way	1½"	NPT	N/a	No	104	-	AM	UGLK1016	\$432.00
						185	-	GM	UGLK1016	\$432.00
						250	-	2*GM	UGLK1066	\$664.00
					Yes	77	104	AF	UGLK1016	\$432.00
						154	209	2*AF	UGLK1066	\$664.00
						185	-	GK	UGLK1016	\$432.00
						250	-	2*GK	UGLK1066	\$664.00
VB9XXX-0-4-10 (Pre '94)	2-way	1½"	NPT	N/a	No	104	-	AM	UGLK1008	\$432.00
						185	-	GM	UGLK1008	\$432.00
						250	-	2*GM	UGLK1064	\$664.00
					Yes	77	104	AF	UGLK1008	\$432.00
						154	209	2*AF	UGLK1064	\$664.00
						185	-	GK	UGLK1008	\$432.00
						250	-	2*GK	UGLK1064	\$664.00
	3-way	1½"	NPT	N/a	No	104	-	AM	UGLK1008	\$432.00
						185	-	GM	UGLK1008	\$432.00
						250	-	2*GM	UGLK1064	\$664.00
					Yes	77	104	AF	UGLK1008	\$432.00
						154	209	2*AF	UGLK1064	\$664.00
						185	-	GK	UGLK1008	\$432.00
						250	-	2*GK	UGLK1064	\$664.00
VB9XXX-0-4-11 (Post '94)	2-way	2"	NPT	N/a	No	59	-	AM	UGLK1016	\$432.00
						117	-	GM	UGLK1016	\$432.00
						190	-	2*GM	UGLK1066	\$664.00
					Yes	59	-	AF	UGLK1016	\$432.00
						86	117	2*AF	UGLK1066	\$664.00
						117	-	GK	UGLK1016	\$432.00
						190	-	2*GK	UGLK1066	\$664.00
	3-way	2"	NPT	N/a	No	59	-	AM	UGLK1016	\$432.00
						117	-	GM	UGLK1016	\$432.00
						190	-	2*GM	UGLK1066	\$664.00
					Yes	59	-	AF	UGLK1016	\$432.00
						86	117	2*AF	UGLK1066	\$664.00
						117	-	GK	UGLK1016	\$432.00
						190	-	2*GK	UGLK1066	\$664.00
VB9XXX-0-4-11 (Pre '94)	2-way	2"	NPT	N/a	No	59	-	AM	UGLK1008	\$432.00
						117	-	GM	UGLK1008	\$432.00
						190	-	2*GM	UGLK1064	\$664.00
					Yes	59	-	AF	UGLK1008	\$432.00
						86	117	2*AF	UGLK1064	\$664.00
						117	-	GK	UGLK1008	\$432.00
						190	-	2*GK	UGLK1064	\$664.00
	3-way	2"	NPT	N/a	No	59	-	AM	UGLK1008	\$432.00
						117	-	GM	UGLK1008	\$432.00
						190	-	2*GM	UGLK1064	\$664.00
					Yes	59	-	AF	UGLK1008	\$432.00
						86	117	2*AF	UGLK1064	\$664.00
						117	-	GK	UGLK1008	\$432.00
						190	-	2*GK	UGLK1008	\$432.00

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RETROFIT SOLUTIONS

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price						
VB9XXX-0-4-12 (Post '94)	2-way	2½"	NPT	N/a	No	78	-	AM	UGLK1000	\$432.00						
						250	-	2*GM	UGLK1068	\$664.00						
						58	78	AF	UGLK1000	\$432.00						
					Yes	116	156	2*AF	UGLK1068	\$664.00						
						250	-	2*GK	UGLK1068	\$664.00						
						78	-	AM	UGLK1000	\$432.00						
	3-way	2½"	NPT	N/a	No	250	-	2*GM	UGLK1068	\$664.00						
						78	-	AM	UGLK1000	\$432.00						
						58	78	AF	UGLK1000	\$432.00						
					Yes	116	156	2*AF	UGLK1068	\$664.00						
						250	-	2*GK	UGLK1068	\$664.00						
						78	-	AM	UGLK1000	\$432.00						
VB9XXX-0-4-12 (Pre '94)	2-way	2½"	NPT	N/a	No	38	-	AM	UGLK1010	\$432.00						
						75	-	GM	UGLK1010	\$432.00						
						115	-	2*GM	UGLK1070	\$632.00						
						Yes	21	28	AF	UGLK1010	\$432.00					
							55	75	2*AF	UGLK1070	\$632.00					
							75	-	GK	UGLK1010	\$432.00					
					3-way	2½"	NPT	N/a	No	115	-	2*GK	UGLK1070	\$632.00		
										38	-	AM	UGLK1010	\$432.00		
										75	-	GM	UGLK1010	\$632.00		
									Yes	115	-	2*GM	UGLK1070	\$632.00		
										21	28	AF	UGLK1010	\$432.00		
										55	75	2*AF	UGLK1070	\$632.00		
	VB9XXX-0-4-13 (Post '94)	2-way	3"	NPT	N/a	No	54	-	AM	UGLK1000	\$432.00					
							165	-	2*GM	UGLK1068	\$664.00					
							Yes	40	54	AF	UGLK1000	\$432.00				
								80	109	2*AF	UGLK1068	\$664.00				
								165	-	2*GK	UGLK1068	\$664.00				
							3-way	3"	NPT	N/a	No	54	-	AM	UGLK1000	\$432.00
165						-						2*GM	UGLK1068	\$664.00		
40						54						AF	UGLK1000	\$432.00		
Yes						80					109	2*AF	UGLK1068	\$664.00		
						165					-	2*GK	UGLK1068	\$664.00		
						54					-	AM	UGLK1000	\$432.00		
VB9XXX-0-4-13 (Pre '94)						2-way	3"	NPT	N/a	No	26	-	AM	UGLK1010	\$432.00	
		77	-	GM	UGLK1010						\$432.00					
		Yes	19	26	AF						UGLK1010	\$432.00				
			39	52	2*AF						UGLK1070	\$632.00				
			77	-	GK						UGLK1010	\$432.00				
		3-way	3"	NPT	N/a						No	26	-	AM	UGLK1010	\$432.00
										77		-	GM	UGLK1010	\$432.00	
	19									26		AF	UGLK1010	\$432.00		
	Yes									39	52	2*AF	UGLK1070	\$632.00		
										77	-	GK	UGLK1010	\$432.00		
										26	-	AM	UGLK1010	\$432.00		
	VB9XXX-0-4-2	2-way	½"	NPT	N/a					No	250	-	LM	UGLK1150	\$328.00	
						Yes	250	-	LF		UGLK1150	\$328.00				
							250	-	LM		UGLK1150	\$328.00				
							3-way	½"	NPT	N/a	No	250	-	LF	UGLK1150	\$328.00
						Yes						250	-	LM	UGLK1150	\$328.00
												250	-	LF	UGLK1150	\$328.00
		VB9XXX-0-4-3	2-way	½"	NPT						N/a	No	250	-	LM	UGLK1150
Yes						250							-	LF	UGLK1150	\$328.00
						250							-	LM	UGLK1150	\$328.00
			3-way	½"	NPT	N/a	No	250	-	LM	UGLK1150	\$328.00				
Yes								250	-	LF	UGLK1150	\$328.00				
								250	-	LM	UGLK1150	\$328.00				
	VB9XXX-0-4-4	2-way	½"	NPT	N/a	No	250	-	LM	UGLK1150	\$328.00					
Yes							250	-	LF	UGLK1150	\$328.00					
							130	-	LM	UGLK1150	\$328.00					
		3-way	½"	NPT	N/a	No	250	-	LF	UGLK1150	\$328.00					
Yes							250	-	LM	UGLK1150	\$328.00					
							250	-	LF	UGLK1150	\$328.00					

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**Siebe\Invensys\Barber Colman**  
**VB7000, VB9000, VB804X and VB304X Series Valves - NPT Bodies**  
**Linkage/Actuator Selection Guide**

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
VB9XXX-0-4-5	2-way	¾"	NPT	N/a	No	215	-	LM	UGLK1150	\$328.00
						250	-	NM	UGLK1150	\$328.00
					Yes	215	-	LF	UGLK1150	\$328.00
	3-way	¾"	NPT	N/a	No	215	-	LM	UGLK1150	\$328.00
						250	-	NM	UGLK1150	\$328.00
					Yes	215	-	LF	UGLK1150	\$328.00
VB9XXX-0-4-6	2-way	¾"	NPT	N/a	No	215	-	LM	UGLK1150	\$328.00
						250	-	NM	UGLK1150	\$328.00
					Yes	215	-	LF	UGLK1150	\$328.00
	3-way	¾"	NPT	N/a	No	215	-	LM	UGLK1150	\$328.00
						250	-	NM	UGLK1150	\$328.00
					Yes	215	-	LF	UGLK1150	\$328.00
VB9XXX-0-4-7	2-way	1"	NPT	N/a	No	120	-	LM	UGLK1150	\$328.00
						244	-	NM	UGLK1150	\$328.00
						250	-	AM	UGLK1000	\$432.00
					Yes	95	-	LF	UGLK1150	\$328.00
						250	-	AF	UGLK1000	\$432.00
						250	-	AF	UGLK1000	\$432.00
	3-way	1"	NPT	N/a	No	120	-	LM	UGLK1150	\$328.00
						244	-	NM	UGLK1150	\$328.00
						250	-	AM	UGLK1000	\$432.00
					Yes	95	-	LF	UGLK1150	\$328.00
						250	-	AF	UGLK1000	\$432.00
						250	-	AF	UGLK1000	\$432.00
VB9XXX-0-4-8	2-way	1"	NPT	N/a	No	120	-	LM	UGLK1150	\$328.00
						244	-	NM	UGLK1150	\$328.00
						250	-	AM	UGLK1000	\$432.00
					Yes	250	-	AF	UGLK1000	\$432.00
						250	-	AF	UGLK1000	\$432.00
						250	-	AF	UGLK1000	\$432.00
	3-way	1"	NPT	N/a	No	120	-	LM	UGLK1150	\$328.00
						244	-	NM	UGLK1150	\$328.00
						250	-	AM	UGLK1000	\$432.00
					Yes	95	-	LF	UGLK1150	\$328.00
						250	-	AF	UGLK1000	\$432.00
						250	-	AF	UGLK1000	\$432.00
VB9XXX-0-4-9	2-way	1¼"	NPT	N/a	No	78	-	LM	UGLK1150	\$328.00
						156	-	NM	UGLK1150	\$328.00
						250	-	AM	UGLK1000	\$432.00
					Yes	61	-	LF	UGLK1150	\$328.00
						231	250	AF	UGLK1000	\$432.00
						231	250	AF	UGLK1000	\$432.00
	3-way	1¼"	NPT	N/a	No	78	-	LM	UGLK1150	\$328.00
						156	-	NM	UGLK1150	\$328.00
						250	-	AM	UGLK1000	\$432.00
					Yes	61	-	LF	UGLK1150	\$328.00
						231	250	AF	UGLK1000	\$432.00
						231	250	AF	UGLK1000	\$432.00

All close-off pressures listed are approximate and based on valve condition and application.

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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price				
VB304X-0-2-12	3-way	2½"	Flanged	Mixing	No	38	-	AM	UGLK1006	\$466.00				
						75	-	GM	UGLK1006	\$466.00				
						115	-	2*GM	UGLK1072	\$646.00				
					Yes	21	28	AF	UGLK1006	\$466.00				
						55	75	2*AF	UGLK1072	\$646.00				
						75	-	GK	UGLK1006	\$466.00				
VB304X-0-2-13	3-way	3"	Flanged	Mixing	No	26	-	AM	UGLK1006	\$466.00				
						77	-	GM	UGLK1006	\$466.00				
						80	-	2*GM	UGLK1072	\$646.00				
					Yes	19	26	AF	UGLK1006	\$466.00				
						39	52	2*AF	UGLK1072	\$646.00				
						77	-	GK	UGLK1006	\$466.00				
VB304X-0-2-14	3-way	4"	Flanged	Mixing	No	15	-	AM	UGLK1006	\$466.00				
						43	-	GM	UGLK1006	\$466.00				
						52	-	2*GM	UGLK1072	\$646.00				
					Yes	8	11	AF	UGLK1006	\$466.00				
						16	22	2*AF	UGLK1072	\$646.00				
						43	-	GK	UGLK1006	\$466.00				
VB304X-0-2-15	3-way	5"	Flanged	Mixing	No	5	-	AM	UGLK1014	\$466.00				
						14	-	GM	UGLK1014	\$466.00				
						25	-	2*GM	UGLK1076	\$664.00				
					Yes	5	7	AF	UGLK1014	\$466.00				
						11	14	2*AF	UGLK1076	\$664.00				
						14	-	GK	UGLK1014	\$466.00				
VB304X-0-2-16	3-way	6"	Flanged	Mixing	No	5	-	AM	UGLK1014	\$466.00				
						11	-	GM	UGLK1014	\$466.00				
						18	-	2*GM	UGLK1076	\$664.00				
					Yes	4	5	AF	UGLK1014	\$466.00				
						7	10	2*AF	UGLK1076	\$664.00				
						11	-	GK	UGLK1014	\$466.00				
VB804X-0-2-12	3-way	2½"	Flanged	Mixing	No	38	-	AM	UGLK1006	\$466.00				
						75	-	GM	UGLK1006	\$466.00				
						115	-	2*GM	UGLK1072	\$646.00				
					Yes	21	28	AF	UGLK1006	\$466.00				
						55	75	2*AF	UGLK1072	\$646.00				
						75	-	GK	UGLK1006	\$466.00				
VB804X-0-2-13	3-way	3"	Flanged	Mixing	No	26	-	AM	UGLK1006	\$466.00				
						77	-	GM	UGLK1006	\$466.00				
						80	-	2*GM	UGLK1072	\$646.00				
					Yes	19	26	AF	UGLK1006	\$466.00				
						39	52	2*AF	UGLK1072	\$646.00				
						77	-	GK	UGLK1006	\$466.00				
VB804X-0-2-14	3-way	4"	Flanged	Mixing	No	15	-	AM	UGLK1006	\$466.00				
						43	-	GM	UGLK1006	\$466.00				
						52	-	2*GM	UGLK1072	\$646.00				
					Yes	8	11	AF	UGLK1006	\$466.00				
						16	22	2*AF	UGLK1072	\$646.00				
						43	-	GK	UGLK1006	\$466.00				
VB804X-0-2-15	3-way	5"	Flanged	Mixing	No	5	-	AM	UGLK1014	\$466.00				
						14	-	GM	UGLK1014	\$466.00				
						25	-	2*GM	UGLK1076	\$664.00				
					Yes	5	7	AF	UGLK1014	\$466.00				
						11	14	2*AF	UGLK1076	\$664.00				
						14	-	GK	UGLK1014	\$466.00				
										25	-	2*GK	UGLK1076	\$664.00

All close-off pressures listed are approximate and based on valve condition and application.

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
VB804X-0-2-16	3-way	6"	Flanged	Mixing	No	5	-	AM	UGLK1014	\$466.00
						11	-	GM	UGLK1014	\$466.00
						18	-	2*GM	UGLK1076	\$664.00
					Yes	4	5	AF	UGLK1014	\$466.00
						7	10	2*AF	UGLK1076	\$664.00
						11	-	GK	UGLK1014	\$466.00
18	-	2*GK	UGLK1076	\$664.00						
VB9XXX-0-5-12	2-way	2½"	Flanged	N/a	No	38	-	AM	UGLK1010	\$432.00
						75	-	GM	UGLK1010	\$432.00
						115	-	2*GM	UGLK1070	\$632.00
					Yes	21	28	AF	UGLK1010	\$432.00
						55	75	2*AF	UGLK1070	\$632.00
						75	-	GK	UGLK1010	\$432.00
	115	-	2*GK	UGLK1070	\$632.00					
	3-way	2½"	Flanged	N/a	No	38	-	AM	UGLK1010	\$432.00
						75	-	GM	UGLK1010	\$432.00
						115	-	2*GM	UGLK1070	\$632.00
					Yes	21	28	AF	UGLK1010	\$432.00
						55	75	2*AF	UGLK1070	\$632.00
75						-	GK	UGLK1010	\$432.00	
115	-	2*GK	UGLK1070	\$632.00						
VB9XXX-0-5-13	2-way	3"	Flanged	N/a	No	26	-	AM	UGLK1010	\$432.00
						77	-	GM	UGLK1010	\$432.00
								2*GM	UGLK1070	\$632.00
					Yes	19	26	AF	UGLK1010	\$432.00
						39	52	2*AF	UGLK1070	\$632.00
						77	-	GK	UGLK1010	\$432.00
			2*GK	UGLK1070	\$632.00					
	3-way	3"	Flanged	N/a	No	26	-	AM	UGLK1010	\$432.00
						77	-	GM	UGLK1010	\$432.00
								2*GM	UGLK1070	\$632.00
					Yes	19	26	AF	UGLK1010	\$432.00
						39	52	2*AF	UGLK1070	\$632.00
77						-	GK	UGLK1010	\$432.00	
		2*GK	UGLK1070	\$632.00						
VB9XXX-0-5-14	2-way	4"	Flanged	N/a	No	11	-	AM	UGLK1012	\$454.00
						22	-	GM	UGLK1012	\$454.00
						40	-	2*GM	UGLK1074	\$614.00
					Yes	8	11	AF	UGLK1012	\$454.00
						16	22	2*AF	UGLK1074	\$614.00
						22	-	GK	UGLK1012	\$454.00
	40	-	2*GK	UGLK1074	\$614.00					
	3-way	4"	Flanged	N/a	No	11	-	AM	UGLK1012	\$454.00
						22	-	GM	UGLK1012	\$454.00
						40	-	2*GM	UGLK1074	\$614.00
					Yes	8	11	AF	UGLK1012	\$454.00
						16	22	2*AF	UGLK1074	\$614.00
22						-	GK	UGLK1012	\$454.00	
40	-	2*GK	UGLK1074	\$614.00						
VB9XXX-0-5-15	2-way	5"	Flanged	N/a	No	7	-	AM	UGLK1012	\$454.00
						14	-	GM	UGLK1012	\$454.00
						25	-	2*GM	UGLK1074	\$614.00
					Yes	5	7	AF	UGLK1012	\$454.00
						11	14	2*AF	UGLK1074	\$614.00
						14	-	GK	UGLK1012	\$454.00
	25	-	2*GK	UGLK1074	\$614.00					
	3-way	5"	Flanged	N/a	No	7	-	AM	UGLK1012	\$454.00
						14	-	GM	UGLK1012	\$454.00
						25	-	2*GM	UGLK1074	\$614.00
					Yes	5	7	AF	UGLK1012	\$454.00
						11	14	2*AF	UGLK1074	\$614.00
14						-	GK	UGLK1012	\$454.00	
25	-	2*GK	UGLK1074	\$614.00						

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RETROFIT SOLUTIONS

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
VB9XXX-0-5-16	2-way	6"	Flanged	N/a	No	7	-	AM	UGLK1012	\$454.00
						11	-	GM	UGLK1012	\$454.00
						18	-	2*GM	UGLK1074	\$614.00
					Yes	4	5	AF	UGLK1012	\$454.00
						7	10	2*AF	UGLK1074	\$614.00
						11	-	GK	UGLK1012	\$454.00
	3-way	6"	Flanged	N/a	No	5	-	AM	UGLK1012	\$454.00
						11	-	GM	UGLK1012	\$454.00
						18	-	2*GM	UGLK1074	\$614.00
					Yes	4	5	AF	UGLK1012	\$454.00
						7	10	2*AF	UGLK1074	\$614.00
						11	-	GK	UGLK1012	\$454.00
						18	-	2*GK	UGLK1074	\$614.00
						18	-	2*GK	UGLK1074	\$614.00

All close-off pressures listed are approximate and based on valve condition and application.



Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price				
591 Series	2-way	2½"	Flanged	N/a	No	55	-	AM	UGLK1204	\$432.00				
						110	-	GM	UGLK1204	\$432.00				
						170	-	2*GM	UGLK1270	\$632.00				
					Yes	41	55	AF	UGLK1204	\$432.00				
						82	110	2*AF	UGLK1270	\$632.00				
						110	-	GK	UGLK1204	\$432.00				
		No	170	-	2*GK	UGLK1270	\$632.00							
			3"	Flanged	N/a	No	38	-	AM	UGLK1204	\$432.00			
							108	-	GM	UGLK1204	\$432.00			
		115					-	2*GM	UGLK1270	\$632.00				
		Yes	28			38	AF	UGLK1204	\$432.00					
			57			77	2*AF	UGLK1270	\$632.00					
			108			-	GK	UGLK1204	\$432.00					
		No	115	-	2*GK	UGLK1270	\$632.00							
			4"	Flanged	N/a	No	11	-	AM	UGLK1206	\$466.00			
							29	-	GM	UGLK1206	\$466.00			
		40					-	2*GM	UGLK1274	\$664.00				
		Yes				8	11	AF	UGLK1206	\$466.00				
						16	22	2*AF	UGLK1274	\$664.00				
						29	-	GK	UGLK1206	\$466.00				
		No	40	-	2*GK	UGLK1274	\$664.00							
			5"	Flanged	N/a	No	14	-	GM	UGLK1206	\$466.00			
							25	-	2*GM	UGLK1274	\$664.00			
		Yes					11	14	2*AF	UGLK1274	\$664.00			
	14					-	GK	UGLK1206	\$466.00					
	25					-	2*GK	UGLK1274	\$664.00					
	No	6"				Flanged	N/a	No	18	-	2*GM	UGLK1274	\$664.00	
			Yes	7	10				2*AF	UGLK1274	\$664.00			
				18	-				2*GK	UGLK1274	\$664.00			
				3-way	2½"			Flanged	N/a	No	55	-	AM	UGLK1204
			110								-	GM	UGLK1204	\$432.00
			170								-	2*GM	UGLK1270	\$632.00
	Yes	41	55			AF	UGLK1204			\$432.00				
		82	110			2*AF	UGLK1270			\$632.00				
		110	-			GK	UGLK1204			\$432.00				
	No	170	-			2*GK	UGLK1270			\$632.00				
		3"	Flanged			N/a	No			38	-	AM	UGLK1204	\$432.00
										108	-	GM	UGLK1204	\$432.00
	115									-	2*GM	UGLK1270	\$632.00	
	Yes						28			38	AF	UGLK1204	\$432.00	
							57			77	2*AF	UGLK1270	\$632.00	
					108		-	GK	UGLK1204	\$432.00				
	No	115	-		2*GK	UGLK1270	\$632.00							
		4"	Flanged		N/a	No	11	-	AM	UGLK1206	\$466.00			
							29	-	GM	UGLK1206	\$466.00			
	40						-	2*GM	UGLK1274	\$664.00				
	Yes					8	11	AF	UGLK1206	\$466.00				
						16	22	2*AF	UGLK1274	\$664.00				
						29	-	GK	UGLK1206	\$466.00				
	No	40	-		2*GK	UGLK1274	\$664.00							
		5"	Flanged		N/a	No	14	-	GM	UGLK1206	\$466.00			
							25	-	2*GM	UGLK1274	\$664.00			
	Yes						11	14	2*AF	UGLK1274	\$664.00			
				14		-	GK	UGLK1206	\$466.00					
				25		-	2*GK	UGLK1274	\$664.00					
	No			6"		Flanged	N/a	No	18	-	2*GM	UGLK1274	\$664.00	
		Yes	7		10				2*AF	UGLK1274	\$664.00			
			18		-				2*GK	UGLK1274	\$664.00			

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RETROFIT SOLUTIONS

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price				
599 Series	2-way	2½"	Flanged	N/a	No	55	-	AM	UGLK1210	\$432.00				
						110	-	GM	UGLK1210	\$432.00				
						170	-	2*GM	UGLK1272	\$646.00				
						Yes	41	55	AF	UGLK1210	\$432.00			
							82	110	2*AF	UGLK1272	\$646.00			
							110	-	GK	UGLK1210	\$432.00			
					170		-	2*GK	UGLK1272	\$646.00				
					No		38	-	AM	UGLK1210	\$432.00			
							108	-	GM	UGLK1210	\$432.00			
						115	-	2*GM	UGLK1272	\$646.00				
						Yes	28	38	AF	UGLK1210	\$432.00			
							57	77	2*AF	UGLK1272	\$646.00			
		108	-	GK			UGLK1210	\$432.00						
		115	-	2*GK	UGLK1272		\$646.00							
		3"	Flanged	N/a	No		38	-	AM	UGLK1210	\$432.00			
							108	-	GM	UGLK1210	\$432.00			
						115	-	2*GM	UGLK1272	\$646.00				
						Yes	28	38	AF	UGLK1210	\$432.00			
							57	77	2*AF	UGLK1272	\$646.00			
							108	-	GK	UGLK1210	\$432.00			
					115		-	2*GK	UGLK1272	\$646.00				
					4"		Flanged	N/a	No	11	-	AM	UGLK1212	\$466.00
										29	-	GM	UGLK1212	\$466.00
						40				-	2*GM	UGLK1276	\$646.00	
	Yes					8				11	AF	UGLK1212	\$466.00	
						16				22	2*AF	UGLK1276	\$646.00	
		29	-	GK		UGLK1212				\$466.00				
		40	-	2*GK		UGLK1276			\$646.00					
		5"	Flanged	N/a		No			14	-	GM	UGLK1212	\$466.00	
									25	-	2*GM	UGLK1276	\$646.00	
	Yes								11	14	2*AF	UGLK1276	\$646.00	
									14	-	GK	UGLK1212	\$466.00	
									25	-	2*GK	UGLK1276	\$646.00	
					3-way		2½"	Flanged	N/a	No	55	-	AM	UGLK1210
						110					-	GM	UGLK1210	\$432.00
						170					-	2*GM	UGLK1272	\$646.00
	Yes					41					55	AF	UGLK1210	\$432.00
						82					110	2*AF	UGLK1272	\$646.00
						110					-	GK	UGLK1210	\$432.00
						170				-	2*GK	UGLK1272	\$646.00	
		3"	Flanged	N/a		No				38	-	AM	UGLK1210	\$432.00
										108	-	GM	UGLK1210	\$432.00
	115									-	2*GM	UGLK1272	\$646.00	
	Yes									28	38	AF	UGLK1210	\$432.00
										57	77	2*AF	UGLK1272	\$646.00
							108	-	GK	UGLK1210	\$432.00			
						115	-	2*GK	UGLK1272	\$646.00				
						4"	Flanged	N/a	No	11	-	AM	UGLK1212	\$466.00
29										-	GM	UGLK1212	\$466.00	
40	-									2*GM	UGLK1276	\$646.00		
Yes	8									11	AF	UGLK1212	\$466.00	
	16									22	2*AF	UGLK1276	\$646.00	
	29	-	GK	UGLK1212						\$466.00				
	40	-	2*GK	UGLK1276					\$646.00					
	5"	Flanged	N/a	No					14	-	GM	UGLK1212	\$466.00	
									25	-	2*GM	UGLK1276	\$646.00	
Yes									11	14	2*AF	UGLK1276	\$646.00	
					14				-	GK	UGLK1212	\$466.00		
					25				-	2*GK	UGLK1276	\$646.00		

\*Notch style available upon request with Custom Linkage

All close-off pressures listed are approximate and based on valve condition and application.

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**Siemens\Landis\Powers**  
**591, 599 and 656 Series Valves - NPT Bodies**  
**Linkage/Actuator Selection Guide**

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price		
591 Series	2-way	½"	NPT	N/a	No	250	-	AM	UGLK1200	\$432.00		
								NV	UNV-005	\$130.00		
						Yes	250	-	NF	UGLK1200	\$432.00	
							NVF	UNV-005	\$130.00			
					Yes	250	-	NV	UNV-005	\$130.00		
								NF	UGLK1200	\$432.00		
				NVF		UNV-005	\$130.00					
		¾"	NPT	N/a	No	250	-	NV	UNV-005	\$130.00		
								NF	UGLK1200	\$432.00		
								NVF	UNV-005	\$130.00		
					Yes	250	-	NV	UNV-005	\$130.00		
								NF	UGLK1200	\$432.00		
								NVF	UNV-005	\$130.00		
		1"	NPT	N/a	No	229	-	NV	UNV-005	\$130.00		
						250	-	AM	UGLK1200	\$432.00		
								NVG	UNV-005	\$130.00		
					Yes	183	-	NVF	UNV-005	\$130.00		
						244	-	NF	UGLK1200	\$432.00		
						250	-	AF	UGLK1200	\$432.00		
								NV	UNV-005	\$130.00		
								NVG	UNV-005	\$130.00		
								AM	UGLK1200	\$432.00		
		1¼"	NPT	N/a	No	147	-	NV	UNV-005	\$130.00		
						235	-	NVG	UNV-005	\$130.00		
	250					-	AM	UGLK1200	\$432.00			
	Yes				117	-	NVF	UNV-005	\$130.00			
					156	-	NF	UGLK1200	\$432.00			
					231	250	AF	UGLK1200	\$432.00			
	1½"	NPT	N/a	No	104	-	AM	UGLK1202	\$432.00			
					185	-	GM	UGLK1202	\$432.00			
					Yes	44	79	AF	UGLK1202	\$432.00		
						NF	UGLK1202	\$432.00				
						NF	UGLK1202	\$432.00				
						GK	UGLK1202	\$432.00				
	2"	NPT	N/a	No	59	-	AM	UGLK1202	\$432.00			
					117	-	GM	UGLK1202	\$432.00			
					Yes	29	-	NF	UGLK1202	\$432.00		
						43	59	AF	UGLK1202	\$432.00		
						117	-	GK	UGLK1202	\$432.00		
	3-way	½"	NPT	N/a	No	250	-	AM	UGLK1200	\$432.00		
								NV	UNV-005	\$130.00		
						Yes	250	-	NF	UGLK1200	\$432.00	
							NVF	UNV-005	\$130.00			
					Yes	250	-	NV	UNV-005	\$130.00		
								NF	UGLK1200	\$432.00		
						NVF	UNV-005	\$130.00				
			¾"	NPT	N/a	No	250	-	NV	UNV-005	\$130.00	
							Yes	250	-	NF	UGLK1200	\$432.00
									NVF	UNV-005	\$130.00	
						Yes	250	-	NV	UNV-005	\$130.00	
									NF	UGLK1200	\$432.00	
								NVF	UNV-005	\$130.00		
		1"	NPT	N/a	No	229	-	NV	UNV-005	\$130.00		
250						-	AM	UGLK1200	\$432.00			
							NVG	UNV-005	\$130.00			
Yes					183	-	NVF	UNV-005	\$130.00			
					244	-	NF	UGLK1200	\$432.00			
					250	-	AF	UGLK1200	\$432.00			
							NV	UNV-005	\$130.00			
							NVG	UNV-005	\$130.00			
							AM	UGLK1200	\$432.00			
1¼"		NPT	N/a	No	147	-	NV	UNV-005	\$130.00			
					235	-	NVG	UNV-005	\$130.00			
					250	-	AM	UGLK1200	\$432.00			
				Yes	117	-	NVF	UNV-005	\$130.00			
					156	-	NF	UGLK1200	\$432.00			
					231	250	AF	UGLK1200	\$432.00			
1½"		NPT	N/a	No	217	-	AM	UGLK1200	\$432.00			
					250	-	GM	UGLK1200	\$432.00			
					Yes	108	-	NF	UGLK1200	\$432.00		
						161	217	AF	UGLK1200	\$432.00		
						250	-	GK	UGLK1200	\$432.00		
2"		NPT	N/a	No	57	-	NV	UNV-005	\$130.00			
					90	-	NVG	UNV-005	\$130.00			
	122				-	AM	UGLK1200	\$432.00				
	Yes			244	-	GM	UGLK1200	\$432.00				
				46	-	NVF	UNV-005	\$130.00				
				61	-	NF	UGLK1200	\$432.00				
				90	122	AF	UGLK1200	\$432.00				
				244	-	GK	UGLK1200	\$432.00				

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RETROFIT SOLUTIONS

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
599 Flowrite	2-way	½"	NPT	N/a	No	250	-	AM	UGLK1208	\$432.00
					Yes	250	-	NF	UGLK1208	\$432.00
		¾"	NPT	N/a	Yes	250	-	NF	UGLK1208	\$432.00
					1"	NPT	N/a	No	250	-
		Yes	244	-				NF	UGLK1208	\$432.00
		1 1/4"	NPT	N/a	No	250	-	AF	UGLK1208	\$432.00
						Yes	156	-	NF	UGLK1208
		1 1/2"	NPT	N/a	No	231	250	AF	UGLK1208	\$432.00
						Yes	217	-	AM	UGLK1208
		2"	NPT	N/a	No	250	-	GM	UGLK1208	\$432.00
						Yes	108	-	NF	UGLK1208
		2"	NPT	N/a	No	161	217	AF	UGLK1208	\$432.00
						Yes	250	-	GK	UGLK1208
		2"	NPT	N/a	No	122	-	AM	UGLK1208	\$432.00
						Yes	244	-	GM	UGLK1208
		2"	NPT	N/a	No	61	-	NF	UGLK1208	\$432.00
						Yes	90	122	AF	UGLK1208
		2"	NPT	N/a	No	244	-	GK	UGLK1208	\$432.00
	Yes					244	-	GK	UGLK1208	\$432.00
	3-way	½"	NPT	N/a	No	250	-	AM	UGLK1208	\$432.00
					Yes	250	-	NF	UGLK1208	\$432.00
		¾"	NPT	N/a	Yes	250	-	NF	UGLK1208	\$432.00
					1"	NPT	N/a	No	250	-
		Yes	244	-				NF	UGLK1208	\$432.00
		1 1/4"	NPT	N/a	No	250	-	AF	UGLK1208	\$432.00
						Yes	156	-	NF	UGLK1208
		1 1/2"	NPT	N/a	No	231	250	AF	UGLK1208	\$432.00
						Yes	217	-	AM	UGLK1208
		2"	NPT	N/a	No	250	-	GM	UGLK1208	\$432.00
						Yes	108	-	NF	UGLK1208
		2"	NPT	N/a	No	161	217	AF	UGLK1208	\$432.00
						Yes	250	-	GK	UGLK1208
		2"	NPT	N/a	No	122	-	AM	UGLK1208	\$432.00
						Yes	244	-	GM	UGLK1208
		2"	NPT	N/a	No	61	-	NF	UGLK1208	\$432.00
						Yes	90	122	AF	UGLK1208
2"		NPT	N/a	No	244	-	GK	UGLK1208	\$432.00	
	Yes				244	-	GK	UGLK1208	\$432.00	
599 Powermite	2-way	½"	NPT	N/a	No	250	-	LM	UGLK1250	\$378.00
					Yes	250	-	LF	UGLK1250	\$378.00
		¾"	NPT	N/a	No	215	-	LM	UGLK1250	\$378.00
					Yes	250	-	NM	UGLK1250	\$378.00
		1"	NPT	N/a	No	215	-	LF	UGLK1250	\$378.00
					Yes	244	-	NM	UGLK1250	\$378.00
		1"	NPT	N/a	No	120	-	LM	UGLK1250	\$378.00
					Yes	95	-	LF	UGLK1250	\$378.00
		3-way	½"	NPT	N/a	No	250	-	LM	UGLK1250
	Yes					250	-	LF	UGLK1250	\$378.00
	¾"		NPT	N/a	No	215	-	LM	UGLK1250	\$378.00
					Yes	250	-	NM	UGLK1250	\$378.00
	1"		NPT	N/a	No	215	-	LF	UGLK1250	\$378.00
					Yes	244	-	NM	UGLK1250	\$378.00
	1"		NPT	N/a	No	120	-	LM	UGLK1250	\$378.00
					Yes	95	-	LF	UGLK1250	\$378.00

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
599 Series	2-way	½"	NPT	N/a	No	250	-	NV	UNV-003	\$94.00
					Yes	250	-	NVF	UNV-003	\$94.00
		¾"	NPT	N/a	No	250	-	NV	UNV-003	\$94.00
					Yes	250	-	NVF	UNV-003	\$94.00
		1"	NPT	N/a	No	229	-	NV	UNV-003	\$94.00
					Yes	250	-	NVG	UNV-003	\$94.00
					No	183	-	NVF	UNV-003	\$94.00
					Yes	147	-	NV	UNV-003	\$94.00
		1¼"	NPT	N/a	No	235	-	NVG	UNV-003	\$94.00
					Yes	117	-	NVF	UNV-003	\$94.00
		2"	NPT	N/a	No	57	-	NV	UNV-003	\$94.00
					Yes	90	-	NVG	UNV-003	\$94.00
					No	46	-	NVF	UNV-003	\$94.00
					Yes	250	-	NV	UNV-003	\$94.00
	3-way	½"	NPT	N/a	No	250	-	NV	UNV-003	\$94.00
					Yes	250	-	NVF	UNV-003	\$94.00
		¾"	NPT	N/a	No	250	-	NV	UNV-003	\$94.00
					Yes	250	-	NVF	UNV-003	\$94.00
		1"	NPT	N/a	No	229	-	NV	UNV-003	\$94.00
					Yes	250	-	NVG	UNV-003	\$94.00
					No	183	-	NVF	UGLK1350	\$340.00
					Yes	147	-	NV	UGLK1214	\$466.00
		1¼"	NPT	N/a	No	235	-	NVG	UGLK1350	\$340.00
					Yes	117	-	NVF	UGLK1214	\$466.00
		2"	NPT	N/a	No	57	-	NV	UGLK1350	\$340.00
					Yes	90	-	NVG	UGLK1350	\$340.00
					No	46	-	NVF	UGLK1350	\$340.00
					Yes	250	-	NV	UGLK1350	\$340.00
656* (verify 1/4-28 Stem Thread)	2-way	½"	NPT	N/a	No	250	-	LM	UGLK1350	\$340.00
					Yes	250	-	AM	UGLK1214	\$466.00
					No	215	-	LF	UGLK1350	\$340.00
					Yes	250	-	NF	UGLK1214	\$466.00
		¾"	NPT	N/a	No	215	-	LM	UGLK1350	\$340.00
					Yes	250	-	NM	UGLK1350	\$340.00
				No	215	-	LF	UGLK1350	\$340.00	
				Yes	250	-	NF	UGLK1214	\$466.00	
	3-way	½"	NPT	N/a	No	250	-	LM	UGLK1350	\$340.00
					Yes	250	-	AM	UGLK1214	\$466.00
					No	215	-	LF	UGLK1350	\$340.00
					Yes	250	-	NF	UGLK1214	\$466.00
		¾"	NPT	N/a	No	215	-	LM	UGLK1350	\$340.00
					Yes	250	-	NM	UGLK1350	\$340.00
			No	215	-	LF	UGLK1350	\$340.00		
			Yes	250	-	NF	UGLK1214	\$466.00		

\*Slotted stem available with custom solutions. Call Belimo technical support for more details.  
 All close-off pressures listed are approximate and based on valve condition and application.

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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price			
658 Series	2-way	½"	NPT	N/a	No	250	-	LM	UGLK1350	\$340.00			
								AM	UGLK1214	\$466.00			
								NV	UNV-004	\$94.00			
					Yes	250	-	LF	UGLK1350	\$340.00			
								NF	UGLK1214	\$466.00			
								NVF	UNV-004	\$94.00			
		¾"	NPT	N/a	No	215	-	LM	UGLK1350	\$340.00			
								NM	UGLK1350	\$340.00			
								NV	UNV-004	\$94.00			
					Yes	250	-	LF	UGLK1350	\$340.00			
								NF	UGLK1214	\$466.00			
								NVF	UNV-004	\$94.00			
		1"	NPT	N/a	No	120	-	LM	UGLK1350	\$340.00			
								NV	UNV-004	\$94.00			
								NM	UGLK1350	\$340.00			
						244	-	AM	UGLK1214	\$466.00			
								NVG	UNV-004	\$94.00			
								250	-	LF	UGLK1350	\$340.00	
					Yes	95	-	NVF		UNV-004	\$94.00		
								NF		UGLK1214	\$466.00		
								AF	UGLK1214	\$466.00			
					1¼"	NPT	N/a	No	78	-	LM	UGLK1350	\$340.00
											NV	UNV-004	\$94.00
											NM	UGLK1350	\$340.00
	Yes	235	-	NVG				UNV-004	\$94.00				
				250				-	AM	UGLK1214	\$466.00		
				61					-	LF	UGLK1350	\$340.00	
	117	-	NVF	UNV-004	\$94.00								
			NF	UGLK1214	\$466.00								
			231	250	AF	UGLK1214	\$466.00						
	3-way	½"	NPT	N/a	No	250	-	LM	UGLK1350	\$340.00			
								AM	UGLK1214	\$466.00			
								NV	UNV-004	\$94.00			
					Yes	250	-	LF	UGLK1350	\$340.00			
								NF	UGLK1214	\$466.00			
								NVF	UNV-004	\$94.00			
		¾"	NPT	N/a	No	215	-	LM	UGLK1350	\$340.00			
								NM	UGLK1350	\$340.00			
								NV	UNV-004	\$94.00			
					Yes	250	-	LF	UGLK1350	\$340.00			
								NF	UGLK1214	\$466.00			
								NVF	UNV-004	\$94.00			
		1"	NPT	N/a	No	120	-	LM	UGLK1350	\$340.00			
								NV	UNV-004	\$94.00			
								NM	UGLK1350	\$340.00			
						244	-	AM	UGLK1214	\$466.00			
								NVG	UNV-004	\$94.00			
								250	-	LF	UGLK1350	\$340.00	
Yes					95	-	NVF	UNV-004		\$94.00			
							NF	UGLK1214		\$466.00			
							AF	UGLK1214	\$466.00				
1¼"					NPT	N/a	No	78	-	LM	UGLK1350	\$340.00	
										NV	UNV-004	\$94.00	
										NM	UGLK1350	\$340.00	
	Yes	235	-	NVG			UNV-004	\$94.00					
				250			-	AM	UGLK1214	\$466.00			
				61				-	LF	UGLK1350	\$340.00		
117	-	NVF	UNV-004	\$94.00									
		NF	UGLK1214	\$466.00									
		231	250	AF	UGLK1214	\$466.00							

All close-off pressures listed are approximate and based on valve condition and application.

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
100 SGL SEAT	2-way	2½"	Flanged	N/a	No	28	-	AM	UGLK2202	\$466.00
						90	-	2*GM	UGLK2272	\$664.00
						110	-	GM	UGLK2202	\$466.00
					Yes	14	-	NF	UGLK2202	\$466.00
						21	28	AF	UGLK2202	\$466.00
						42	57	2*AF	UGLK2272	\$664.00
						90	-	2*GK	UGLK2272	\$664.00
						110	-	GK	UGLK2202	\$466.00
					No	20	-	AM	UGLK2202	\$466.00
						52	-	GM	UGLK2202	\$466.00
						60	-	2*GM	UGLK2272	\$664.00
						Yes	10	-	NF	UGLK2202
		15	20	AF			UGLK2202	\$466.00		
		29	40	2*AF			UGLK2272	\$664.00		
		No	52	-	GK	UGLK2202	\$466.00			
			60	-	2*GK	UGLK2272	\$664.00			
			Yes	11	-	AM	UGLK2202	\$466.00		
		29		-	GM	UGLK2202	\$466.00			
		40		-	2*GM	UGLK2272	\$664.00			
		8		11	AF	UGLK2202	\$466.00			
		Yes	16	22	2*AF	UGLK2272	\$664.00			
			29	-	GK	UGLK2202	\$466.00			
			40	-	2*GK	UGLK2272	\$664.00			
			No	14	-	GM	UGLK2202	\$466.00		
		25		-	2*GM	UGLK2272	\$664.00			
		Yes		5	7	AF	UGLK2202	\$466.00		
			11	14	2*AF	UGLK2272	\$664.00			
			14	-	GK	UGLK2202	\$466.00			
			25	-	2*GK	UGLK2272	\$664.00			
		No	11	-	GM	UGLK2202	\$466.00			
18	-		2*GM	UGLK2272	\$664.00					
Yes	4		5	AF	UGLK2202	\$466.00				
	7		10	2*AF	UGLK2272	\$664.00				
	11		-	GK	UGLK2202	\$466.00				
	18		-	2*GK	UGLK2272	\$664.00				

All close-off pressures listed are approximate and based on valve condition and application.

# Warren Controls

Type 20, 22, 30, 32, 1800 Bal, 100 Sgl Seat, 1800

## Linkage/Actuator Selection Guide



Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price			
1800 3W DIV	3-way	2½"	Flanged	Diverting	No	28	-	AM	UGLK2202	\$466.00			
						57	-	2*GM	UGLK2272	\$664.00			
						110	-	GM	UGLK2202	\$466.00			
						Yes	14	-	NF	UGLK2202	\$466.00		
							21	28	AF	UGLK2202	\$466.00		
							57	-	2*GK	UGLK2272	\$664.00		
					77		-	2*AF	UGLK2272	\$664.00			
					110		-	GK	UGLK2202	\$466.00			
					3"		Flanged	Diverting	No	20	-	AM	UGLK2202
						52				-	GM	UGLK2202	\$466.00
						60				-	2*GM	UGLK2272	\$664.00
						Yes			10	-	NF	UGLK2202	\$466.00
		15	20	AF					UGLK2202	\$466.00			
		29	40	2*AF					UGLK2272	\$664.00			
		4"	Flanged	Diverting	No	11	-	AM	UGLK2202	\$466.00			
						29	-	GM	UGLK2202	\$466.00			
						40	-	2*GM	UGLK2272	\$664.00			
					Yes	8	11	AF	UGLK2202	\$466.00			
						16	22	2*AF	UGLK2272	\$664.00			
						29	-	GK	UGLK2202	\$466.00			
		5"	Flanged	Diverting	No	14	-	GM	UGLK2202	\$466.00			
						25	-	2*GM	UGLK2272	\$664.00			
						5	7	AF	UGLK2202	\$466.00			
					Yes	11	14	2*AF	UGLK2272	\$664.00			
	14					-	GK	UGLK2202	\$466.00				
	25					-	2*GK	UGLK2272	\$664.00				
	6"	Flanged	Diverting	No	11	-	GM	UGLK2202	\$466.00				
					18	-	2*GM	UGLK2272	\$664.00				
					4	5	AF	UGLK2202	\$466.00				
				Yes	7	10	2*AF	UGLK2272	\$664.00				
					11	-	GK	UGLK2202	\$466.00				
					18	-	2*GK	UGLK2272	\$664.00				

All close-off pressures listed are approximate and based on valve condition and application.

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price			
1800 3W MIX	3-way	2½"	Flanged	Mixing	No	28	-	AM	UGLK2202	\$466.00			
						90	-	2*GM	UGLK2272	\$664.00			
						110	-	GM	UGLK2202	\$466.00			
					Yes	14	-	NF	UGLK2202	\$466.00			
						21	28	AF	UGLK2202	\$466.00			
						42	57	2*AF	UGLK2272	\$664.00			
						90	-	2*GK	UGLK2272	\$664.00			
						110	-	GK	UGLK2202	\$466.00			
					3"	Flanged	Mixing	No	20	-	AM	UGLK2202	\$466.00
									52	-	GM	UGLK2202	\$466.00
									60	-	2*GM	UGLK2272	\$664.00
								Yes	10	-	NF	UGLK2202	\$466.00
		15	20	AF					UGLK2202	\$466.00			
		29	40	2*AF					UGLK2272	\$664.00			
		52	-	GK					UGLK2202	\$466.00			
		60	-	2*GK					UGLK2272	\$664.00			
		4"	Flanged	Mixing				No	11	-	AM	UGLK2202	\$466.00
									29	-	GM	UGLK2202	\$466.00
									40	-	2*GM	UGLK2272	\$664.00
								Yes	8	11	AF	UGLK2202	\$466.00
					16	22	2*AF		UGLK2272	\$664.00			
					29	-	GK		UGLK2202	\$466.00			
					40	-	2*GK		UGLK2272	\$664.00			
					14	-	GM		UGLK2202	\$466.00			
		5"	Flanged	Mixing	No	25	-	2*GM	UGLK2272	\$664.00			
						Yes	5	7	AF	UGLK2202	\$466.00		
					11		14	2*AF	UGLK2272	\$664.00			
					14		-	GK	UGLK2202	\$466.00			
					25		-	2*GK	UGLK2272	\$664.00			
					6"		Flanged	Mixing	No	11	-	GM	UGLK2202
18	-									2*GM	UGLK2272	\$664.00	
Yes	4					5			AF	UGLK2202	\$466.00		
	7	10	2*AF	UGLK2272		\$664.00							
	11	-	GK	UGLK2202		\$466.00							
	18	-	2*GK	UGLK2272		\$664.00							

All close-off pressures listed are approximate and based on valve condition and application.

# Warren Controls

Type 20, 22, 30, 32, 1800 Bal, 100 Sgl Seat, 1800

## Linkage/Actuator Selection Guide



Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price			
1800 BAL	2-way	2½"	Flanged	N/a	No	28	-	AM	UGLK2202	\$466.00			
						90	-	2*GM	UGLK2272	\$664.00			
						110	-	GM	UGLK2202	\$466.00			
					Yes	14	-	NF	UGLK2202	\$466.00			
						28	-	AF	UGLK2202	\$466.00			
						42	57	2*AF	UGLK2272	\$664.00			
						90	-	2*GK	UGLK2272	\$664.00			
						110	-	GK	UGLK2202	\$466.00			
						20	-	AM	UGLK2202	\$466.00			
					3"	Flanged	N/a	No	52	-	GM	UGLK2202	\$466.00
									60	-	2*GM	UGLK2272	\$664.00
									10	-	NF	UGLK2202	\$466.00
		Yes	20	-				AF	UGLK2202	\$466.00			
			29	40				2*AF	UGLK2272	\$664.00			
			52	-				GK	UGLK2202	\$466.00			
		4"	Flanged	N/a	No	60	-	2*GK	UGLK2272	\$664.00			
						11	-	AM	UGLK2202	\$466.00			
						29	-	GM	UGLK2202	\$466.00			
					Yes	40	-	2*GM	UGLK2272	\$664.00			
						8	11	AF	UGLK2202	\$466.00			
						16	22	2*AF	UGLK2272	\$664.00			
		5"	Flanged	N/a	No	29	-	GK	UGLK2202	\$466.00			
						40	-	2*GK	UGLK2272	\$664.00			
						14	-	GM	UGLK2202	\$466.00			
					Yes	25	-	2*GM	UGLK2272	\$664.00			
						5	7	AF	UGLK2202	\$466.00			
						11	14	2*AF	UGLK2272	\$664.00			
		6"	Flanged	N/a	No	14	-	GK	UGLK2202	\$466.00			
						18	-	2*GM	UGLK2272	\$664.00			
						11	-	GM	UGLK2202	\$466.00			
					Yes	4	5	AF	UGLK2202	\$466.00			
						7	10	2*AF	UGLK2272	\$664.00			
						11	-	GK	UGLK2202	\$466.00			
		18	-	2*GK	UGLK2272	\$664.00							

All close-off pressures listed are approximate and based on valve condition and application.

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price
Type 20	2-way	2½"	Flanged	N/a	No	55	-	AM	UGLK2200	\$538.00
						69	-	NVG	UNV-051	\$130.00
						110	-	GM	UGLK2200	\$538.00
						170	-	2*GM	UGLK2270	\$632.00
					Yes	28	-	NF	UGLK2200	\$538.00
						41	55	AF	UGLK2200	\$538.00
						82	110	2*AF	UGLK2270	\$632.00
						110	-	GK	UGLK2200	\$538.00
					No	170	-	2*GK	UGLK2270	\$632.00
						38	-	AM	UGLK2200	\$538.00
						48	-	NVG	UNV-051	\$130.00
						108	-	GM	UGLK2200	\$538.00
		Yes	115	-	2*GM	UGLK2270	\$632.00			
			19	-	NF	UGLK2200	\$538.00			
			28	38	AF	UGLK2200	\$538.00			
			57	77	2*AF	UGLK2270	\$632.00			
		No	108	-	GK	UGLK2200	\$538.00			
			115	-	2*GK	UGLK2270	\$632.00			
			11	-	AM	UGLK2202	\$466.00			
			29	-	GM	UGLK2202	\$466.00			
		Yes	40	-	2*GM	UGLK2272	\$664.00			
			8	11	AF	UGLK2202	\$466.00			
			16	22	2*AF	UGLK2272	\$664.00			
			29	-	GK	UGLK2202	\$466.00			
		No	40	-	2*GK	UGLK2272	\$664.00			
			14	-	GM	UGLK2202	\$466.00			
			25	-	2*GM	UGLK2272	\$664.00			
			Yes	5	7	AF	UGLK2202	\$466.00		
		11		14	2*AF	UGLK2272	\$664.00			
		14		-	GK	UGLK2202	\$466.00			
		25		-	2*GK	UGLK2272	\$664.00			
		No	11	-	GM	UGLK2202	\$466.00			
			18	-	2*GM	UGLK2272	\$664.00			
			Yes	4	5	AF	UGLK2202	\$466.00		
				7	10	2*AF	UGLK2272	\$664.00		
		11		-	GK	UGLK2202	\$466.00			
		18		-	2*GK	UGLK2272	\$664.00			

All close-off pressures listed are approximate and based on valve condition and application.

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RETROFIT SOLUTIONS

# Warren Controls

Type 20, 22, 30, 32, 1800 Bal, 100 Sgl Seat, 1800

## Linkage/Actuator Selection Guide



Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price			
Type 22	2-way	2½"	Flanged	N/a	No	55	-	AM	UGLK2200	\$538.00			
						69	-	NVG	UNV-051	\$130.00			
						110	-	GM	UGLK2200	\$538.00			
						170	-	2*GM	UGLK2270	\$632.00			
					Yes	28	-	NF	UGLK2200	\$538.00			
						41	55	AF	UGLK2200	\$538.00			
						82	110	2*AF	UGLK2270	\$632.00			
						110	-	GK	UGLK2200	\$538.00			
					3"	Flanged	N/a	No	38	-	AM	UGLK2200	\$538.00
									48	-	NVG	UNV-051	\$130.00
									108	-	GM	UGLK2200	\$538.00
									115	-	2*GM	UGLK2270	\$632.00
		Yes	19	-				NF	UGLK2200	\$538.00			
			24	-				AF	UGLK2200	\$538.00			
			57	77				2*AF	UGLK2270	\$632.00			
			108	-				GK	UGLK2200	\$538.00			
		4"	Flanged	N/a				No	22	-	AM	UGLK2200	\$538.00
									61	-	GM	UGLK2200	\$538.00
									75	-	2*GM	UGLK2270	\$632.00
									Yes	11	-	NF	UGLK2200
					16	22	AF	UGLK2200		\$538.00			
					32	43	2*AF	UGLK2270		\$632.00			
					61	-	GK	UGLK2200		\$538.00			
					5"	Flanged	N/a	No	75	-	2*GK	UGLK2270	\$632.00
									14	-	GM	UGLK2202	\$466.00
									25	-	2*GM	UGLK2272	\$664.00
									Yes	5	7	AF	UGLK2202
								11		14	2*AF	UGLK2272	\$664.00
		14	-	GK				UGLK2202		\$466.00			
		25	-	2*GK				UGLK2272		\$664.00			
		6"	Flanged	N/a				No	11	-	GM	UGLK2202	\$466.00
									18	-	2*GM	UGLK2272	\$664.00
									Yes	4	5	AF	UGLK2202
								7		10	2*AF	UGLK2272	\$664.00
								11		-	GK	UGLK2202	\$466.00
					18	-	2*GK	UGLK2272	\$664.00				

All close-off pressures listed are approximate and based on valve condition and application.

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price				
Type 30	3-way	2½"	Flanged	N/a	No	55	-	AM	UGLK2200	\$538.00				
						100	-	NVG	UNV-051	\$130.00				
						110	-	GM	UGLK2200	\$538.00				
						170	-	2*GM	UGLK2270	\$632.00				
					Yes	28	-	NF	UGLK2200	\$538.00				
						41	55	AF	UGLK2200	\$538.00				
						82	110	2*AF	UGLK2270	\$632.00				
						110	-	GK	UGLK2200	\$538.00				
					3"	Flanged	N/a	No	170	-	2*GK	UGLK2270	\$632.00	
									38	-	AM	UGLK2200	\$538.00	
									100	-	NVG	UNV-051	\$130.00	
									108	-	GM	UGLK2200	\$538.00	
		Yes	115	-				2*GM	UGLK2270	\$632.00				
			19	-				NF	UGLK2200	\$538.00				
			28	38				AF	UGLK2200	\$538.00				
			57	77				2*AF	UGLK2270	\$632.00				
		4"	Flanged	N/a				No	108	-	GK	UGLK2200	\$538.00	
									115	-	2*GK	UGLK2270	\$632.00	
									11	-	AM	UGLK2202	\$466.00	
									29	-	GM	UGLK2202	\$466.00	
					Yes	40	-	2*GM	UGLK2272	\$664.00				
						8	11	AF	UGLK2202	\$466.00				
						16	22	2*AF	UGLK2272	\$664.00				
						29	-	GK	UGLK2202	\$466.00				
					5"	Flanged	N/a	No	40	-	2*GK	UGLK2272	\$664.00	
									14	-	GM	UGLK2202	\$466.00	
									25	-	2*GM	UGLK2272	\$664.00	
									5	7	AF	UGLK2202	\$466.00	
		Yes	11	14				2*AF	UGLK2272	\$664.00				
			14	-				GK	UGLK2202	\$466.00				
25	-		2*GK	UGLK2272				\$664.00						
6"	Flanged		N/a	No				11	-	GM	UGLK2202	\$466.00		
		18						-	2*GM	UGLK2272	\$664.00			
		4						5	AF	UGLK2202	\$466.00			
		7						10	2*AF	UGLK2272	\$664.00			
		Yes		11				-	GK	UGLK2202	\$466.00			
				18	-	2*GK	UGLK2272	\$664.00						
				Type 32	3-way	2½"	Flanged	N/a	Yes	110	-	GK	UGLK2200	\$538.00
										170	-	2*GK	UGLK2270	\$632.00
		3"				Flanged	N/a	Yes	108	-	GK	UGLK2200	\$538.00	
									115	-	2*GK	UGLK2270	\$632.00	
		4"				Flanged	N/a	Yes	29	-	GK	UGLK2202	\$466.00	
									40	-	2*GK	UGLK2272	\$664.00	
5"	Flanged	N/a	Yes			14	-	GK	UGLK2202	\$466.00				
						25	-	2*GK	UGLK2272	\$664.00				
6"	Flanged	N/a	Yes			11	-	GK	UGLK2202	\$466.00				
						18	-	2*GK	UGLK2272	\$664.00				

All close-off pressures listed are approximate and based on valve condition and application.

# Warren Controls

Type 20, 22, 30, 32, 1800 Bal, 100 Sgl Seat, 1800

## Linkage/Actuator Selection Guide



Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price			
Type 32	3-way	2½"	Flanged	N/a	No	55	-	AM	UGLK2200	\$538.00			
						100	-	NVG	UNV-051	\$130.00			
						110	-	GM	UGLK2200	\$538.00			
						170	-	2*GM	UGLK2270	\$632.00			
					Yes	28	-	NF	UGLK2200	\$538.00			
						55	-	AF	UGLK2200	\$538.00			
						82	110	2*AF	UGLK2270	\$632.00			
						115	-	2*GM	UGLK2270	\$632.00			
					3"	Flanged	N/a	No	38	-	AM	UGLK2200	\$538.00
									100	-	NVG	UNV-051	\$130.00
									108	-	GM	UGLK2200	\$538.00
									115	-	2*GM	UGLK2270	\$632.00
		Yes	19	-				NF	UGLK2200	\$538.00			
			38	-				AF	UGLK2200	\$538.00			
			57	77				2*AF	UGLK2270	\$632.00			
			77	-				2*GM	UGLK2270	\$632.00			
		4"	Flanged	N/a	No	11	-	AM	UGLK2202	\$466.00			
						29	-	GM	UGLK2202	\$466.00			
						40	-	2*GM	UGLK2272	\$664.00			
					Yes	8	11	AF	UGLK2202	\$466.00			
						16	22	2*AF	UGLK2272	\$664.00			
						22	-	2*GM	UGLK2272	\$664.00			
		5"	Flanged	N/a	No	14	-	GM	UGLK2202	\$466.00			
						25	-	2*GM	UGLK2272	\$664.00			
					Yes	5	7	AF	UGLK2202	\$466.00			
						11	14	2*AF	UGLK2272	\$664.00			
		6"	Flanged	N/a	No	11	-	GM	UGLK2202	\$466.00			
						18	-	2*GM	UGLK2272	\$664.00			
					Yes	4	5	AF	UGLK2202	\$466.00			
						7	10	2*AF	UGLK2272	\$664.00			

All close-off pressures listed are approximate and based on valve condition and application.

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Valve Body Model	Valve Configuration	Size	Body Type	Flow	Failsafe	Close-Off psi	Close-Off psi (AFX Series)	Belimo Actuator Series (Sold Separately)	Belimo Linkage	Linkage List Price		
Type 20	2-way	1/2"	NPT	N/a	No	250	-	AM	UGLK2200	\$538.00		
					Yes	250	-	NF	UGLK2200	\$538.00		
		3/4"	NPT	N/a	Yes	250	-	NF	UGLK2200	\$538.00		
					1"	NPT	N/a	No	250	-	AM	UGLK2200
		Yes	173	-				NF	UGLK2200	\$538.00		
		1 1/4"	NPT	N/a	No	250	-	AF	UGLK2200	\$538.00		
						280	-	AM	UGLK2200	\$538.00		
					Yes	110	-	NF	UGLK2200	\$538.00		
						163	221	AF	UGLK2200	\$538.00		
		1 1/2"	NPT	N/a	No	153	-	AM	UGLK2200	\$538.00		
						250	-	GM	UGLK2200	\$538.00		
					Yes	77	-	NF	UGLK2200	\$538.00		
						113	154	AF	UGLK2200	\$538.00		
		2"	NPT	N/a	No	250	-	GK	UGLK2200	\$538.00		
						86	-	AM	UGLK2200	\$538.00		
					Yes	172	-	GM	UGLK2200	\$538.00		
						43	-	NF	UGLK2200	\$538.00		
		Type 30	3-way	1/2"	NPT	N/a	No	250	-	AM	UGLK2200	\$538.00
							Yes	250	-	NF	UGLK2200	\$538.00
				3/4"	NPT	N/a	Yes	250	-	NF	UGLK2200	\$538.00
1"	NPT						N/a	No	250	-	AM	UGLK2200
				Yes	173	-		NF	UGLK2200	\$538.00		
1 1/4"	NPT			N/a	No	250	-	AF	UGLK2200	\$538.00		
						250	-	AM	UGLK2200	\$538.00		
					Yes	110	-	NF	UGLK2200	\$538.00		
						163	221	AF	UGLK2200	\$538.00		
1 1/2"	NPT			N/a	No	153	-	AM	UGLK2200	\$538.00		
						250	-	GM	UGLK2200	\$538.00		
					Yes	77	-	NF	UGLK2200	\$538.00		
						113	154	AF	UGLK2200	\$538.00		
2"	NPT			N/a	No	250	-	GK	UGLK2200	\$538.00		
						86	-	AM	UGLK2200	\$538.00		
					Yes	172	-	GM	UGLK2200	\$538.00		
						43	-	NF	UGLK2200	\$538.00		
64	86			AF	UGLK2200	\$538.00						
							172	-	GK	UGLK2200	\$538.00	

All close-off pressures listed are approximate and based on valve condition and application.

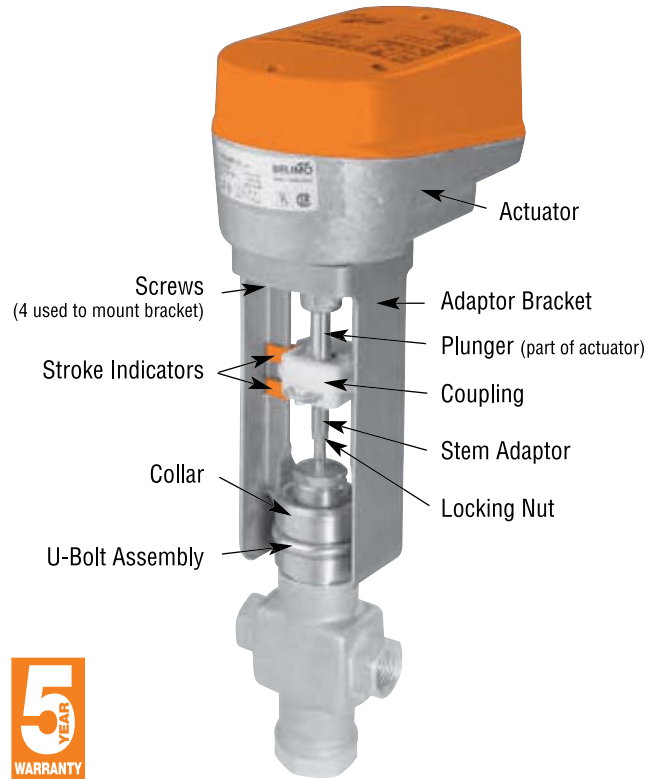
## UNV-Box-Kit

Multi-Box Starter Kit for UNV \$1,682.00

Refillable with below items.

### UNV Multi-Box Kit Components

Part #	Description	List Price
UNV-BKT-001	Siebe bracket (UNV-001)	\$34.00
UNV-BKT-002	Universal bracket (UNV-003 through UNV-035)	\$34.00
UNV-COL-004	Collar-004 and set screws	\$96.00
UNV-COL-005	Collar-005	\$96.00
UNV-COL-006	Collar-006 and set screws	\$96.00
UNV-COL-007	Collar-007	\$96.00
UNV-COL-008	Collar-008	\$96.00
UNV-COL-009	Collar-009	\$96.00
UNV-COL-035	Collar-035	\$106.00
UNV-COL-040	Collar-040	\$96.00
UNV-STEM-001-SET	Stem Adaptor-001,005	\$48.00
UNV-STEM-003	Stem Adaptor-003	\$72.00
UNV-STEM-004-SET	Stem Adaptor-004,008,009	\$68.00
UNV-STEM-006	Stem Adaptor-006	\$26.00
UNV-STEM-007	Stem Adaptor-007	\$40.00
UNV-STEM-035	Stem Adaptor-035	\$34.00
UNV-STEM-004	Stem Adaptor-004	\$26.00
UNV-NUT-001	1/4"-28 Locking Nut (UNV-001, 004, 005, 006, 008, 009, 035)	\$78.00
UNV-NUT-007	1/4"-32 Locking Nut (UNV-007)	\$22.00
UNV-BOLT	Kit of U-bolt, Nuts for U-bolt	\$16.00
UNV-SCREW	Kit of Screws	\$22.00
UNV-STROKE IND	Kit of Stroke indicators	\$16.00
UNV-CPL	Coupling	\$26.00
UNV-CPL-10	Coupling-10 pc set	\$234.00
UNV-Override	NV Manual Override	\$22.00



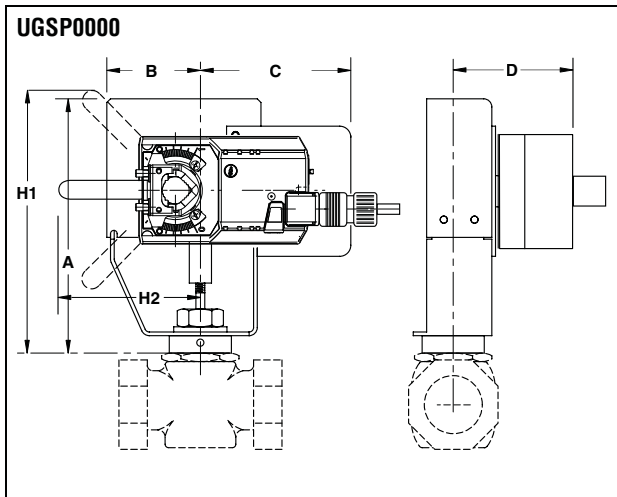
### UNV Dimensional Details

DIMENSIONAL DATA	UNV-001	UNV-003	UNV-004	UNV-005	UNV006
Length of Stem Adaptor	17/16"	2"	21/8"	17/16"	11/8"
Stem Adaptor Diameter	1/4"	5/8"	1/4"	1/4"	1/4"
Stem Adaptor-Threads Per In.	28	N/A	28	28	28
Locking Nut	1/4"-28	N/A	1/4"-28	1/4"-28	1/4"-28
Collar	Molded into Bracket	N/A	YES, 1/4"-20 set screws	YES	YES, 1/4"-20 set screws
U-Bolt	N/A	YES	YES	YES	YES
Adaptor Bracket	UNV-BKT-001	UNV-BKT-002	UNV-BKT-002	UNV-BKT-002	UNV-BKT-002

DIMENSIONAL DATA	UNV-007	UNV-008	UNV-009	UNV-035	UNV-040	UNV-051
Length of Stem Adaptor	21/8"	21/8"	21/8"	37/16"	21/8"	1-1/4"
Stem Adaptor Diameter	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Stem Adaptor-Threads Per In.	32	28	28	28	28	24
Locking Nut	1/4"-32	1/4"-28	1/4"-28	1/4"-28	1/4"-28	3/8"/24
Collar	YES	YES	YES	YES-303 SS	YES	YES
U-Bolt	YES	YES	YES	YES	YES	YES
Adaptor Bracket	UNV-BKT-002	UNV-BKT-002	UNV-BKT-002	UNV-BKT-002	UNV-BKT-002	UNV-BKT-002

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Where globe valves which cannot be matched to one of the Belimo UGLK part numbers, for quotation and order entry purposes, please use p/n UGSP0000 for valves requiring single actuation, and UGSP0002 for valves requiring dual actuation. These part numbers have no Bill of Materials (BOM) associated with them, and therefore cannot be produced and shipped. When these two part numbers are quoted, sold and orders processed, the "Globe Valve Retrofit" form must be completed and will accompany the order. Our engineering department will then determine the correct UGSP linkage number for production. Please keep in mind that UGSP0000 and UGSP0002 will **NOT** show up on final paperwork and will be replaced with the correct UGSP part number once such has been determined.

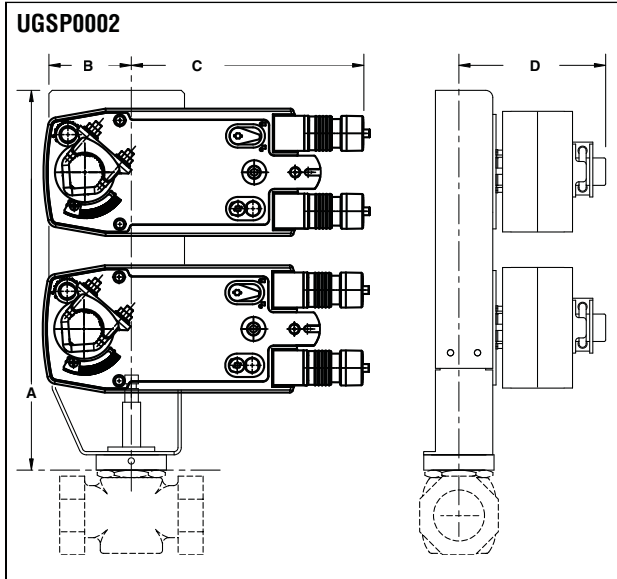


The single actuated globe retrofit linkage (shown left) depicts the MINIMUM and MAXIMUM dimensional data for use in determining the space required to mount the linkage. These dimensions do NOT include VALVE dimensions which will affect combined height requirements.

**Dims H1 & H2** are used only when override handles are utilized on the linkage system, and are not required for proper operation of the linkage system.

<b>Dim A</b>	7.5" [190] to 14" [356]	<b>Dim H1</b>	9.5" [242]
<b>Dim B</b>	3" [76]	<b>Dim H2</b>	9.5" [242]
<b>Dim C</b>	9" [229]		
<b>Dim D</b>	5" [127]		

**List Price for UGSP0000 is \$ 632.00**



The dual MINIMUM and MAXIMUM actuated globe retrofit linkage shown left depicts the MAXIMUM dimensional data for use in determining the space required to mount the linkage. These dimensions do NOT include VALVE dimensions which will affect combined height requirements.

<b>Dim A</b>	9.5" [241] to 19" [483]
<b>Dim B</b>	3" [76]
<b>Dim C</b>	9" [229]
<b>Dim D</b>	5" [127]

**List Price for UGSP0002 is \$ 842.00**

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RETROFIT SOLUTIONS

**Custom kits are designed to your unique specification and are not returnable.**

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# Instructions for completing this form

**Dimensions A, B & C** relate to the existing valve stem. **Dim A** is the stem diameter where it is NOT threaded (Style A), or grooved (Style B). **Dim B** refers to the length of the threaded region on the valve stem or top region of the grooved stem. **Dim C** is the actual thread specification for the threaded style stem (1/4-28, 5/16-24, 3/8-24, 7/16-20 & 1/2-20 are typical). Dim C for the grooved style is the measurement of the stem groove height. This information is used to design a stem adapter which will connect the valve stem to the new linkage drive rack. It is important to specify the correct thread pattern, as incorrect data will prevent the stem adapter from attaching to your valve. If you cannot determine the correct thread spec, you can send a nut from the valve stem and we will match the correct specification. In some cases where older valves are concerned, some valve stems must be trimmed in the field to allow attachment of the linkage system. In these cases, a stem adapter is designed to “bite” into the smooth surface of the valve stem itself.

**Dimensions D1, D2 & D3** are used to determine the height of the linkage assembly required to clear the valves’ full stroke. A minimum of **two** dimensions are required to manufacture the correct linkage system for your valve. These dimensions also provide the information necessary to determine valve stroke. The **maximum stroke** from Belimo globe valve retrofit systems is 1.500”.

**Dimension E** refers to the valve bonnet diameter (regardless if threads are present or not). Over time, impurities will react to the bonnet threads and corrode them to the point where they no longer meet the original thread specification. Because of this, we manufacture **slip fit** collars designed to **slide over** the bonnet threads, and locking setscrews are provided which “bite” into the original threads. All retrofit systems are designed to work with the raw valve body and do not account for previous actuation components which **must** be removed from the valve body before attaching the new linkage system.

**Dimension F** refers to the thread specification on threaded bonnets, and refers to the minor diameter on slip on bonnets (Landis type). This information helps us determine the length of the locking devices required to hold the collar onto the bonnet.

**Dimensions G & H** are used to determine working height of the bonnet region of your globe valve, while **Dim I** is used in calculating the minimum ID of the collar that will fit over the packing nut. Additionally, information about the environment and process in which this linkage system will be utilized should be provided.

All the requested information contained on this form is required to guarantee the complete, perfect fit of your retrofit system. Keep in mind that retrofit kits are designed with close-tolerance components which afford the most efficient linkage systems. Measurements rounded to the nearest 1/8 or 1/16 inch will not perform as well as a kit designed around careful measurements using proper equipment. Our designs are typically +.005” tolerance.

Required Tools - calipers, thread gauge and retrofit form

## DISCLAIMER:

*While we will do our best to provide a linkage system designed around your specifications and measurements, we cannot be held responsible for linkages which do not fit as a result of incorrect data given to Belimo. We will be happy to re-work components which do not fit properly for a nominal fee.*

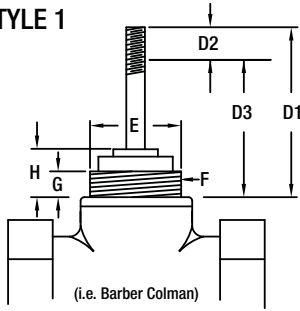
*To reduce the possibility of incorrect linkage solutions, we respectfully request that you fill out the retrofit form completely and forward that information with your order. This will serve as a double check between your valve and the actuator/linkage package designed for your application.*

*Actuation, weather shields and linkages cannot be pre-assembled at the Belimo factory prior to your receipt. The linkages are designed to be attached onto the valve body first, then optional weather shields, and finally actuation products.*

*Close-off pressures are calculated using actuator torque, valve stroke, and valve area. Other factors may affect the rated close-off pressures, including flow rates, system maintenance schedules, chemicals used in the shot feeder process, vicinity to pumps, condition of valve stem seals, and assembly of linkage material in the field.*

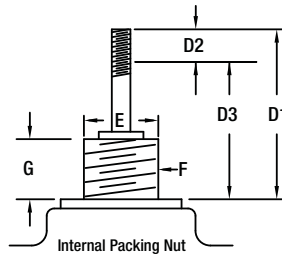
*Valves that are being considered for retrofit of actuation should be analyzed for their life expectancy before the retrofit has taken place. Valves that leak through stem seals or casings will continue to leak with the new linkage system in place, maybe even more so. Rebuilding the packing on these valves may be more costly than replacing the valves themselves. In some instances, older valve stem heights will require field modifications to the valve in order to utilize the retrofit kit. Belimo takes no responsibility for the operation of these valves after they have been modified.*

### VALVE STYLE 1

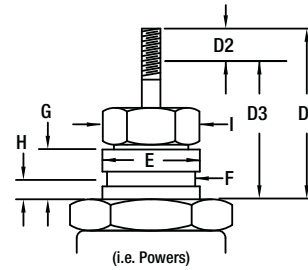


NOTE:  
Nut "F" rotates on  
valve bonnet!!

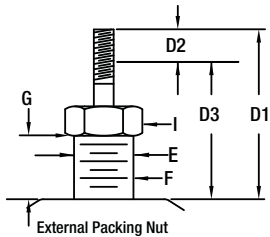
### VALVE STYLE 2



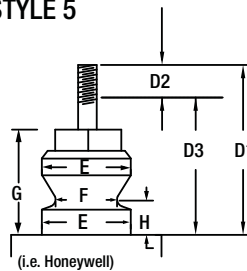
### VALVE STYLE 3



### VALVE STYLE 4



### VALVE STYLE 5

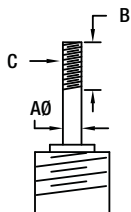


### VALVE STYLE DIMENSIONS

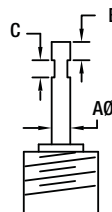
VALVE STYLE:	<input type="text"/>
DIM D1*: Stem up, length to base mount surface	<input type="text"/>
DIM D2: Stem stroke, stem up vs. stem down	<input type="text"/> max. 1.500"
DIM D3: Stem dimension, length to base mount surface	<input type="text"/>
DIM E: Bonnet major diameter	<input type="text"/>
DIM F: Thread spec or bonnet minor diameter	<input type="text"/>
DIM G: Bonnet mount height	<input type="text"/>
DIM H: Bonnet minor diameter height	<input type="text"/>
DIM I: External packaging nut, across points	<input type="text"/>

\*MAXIMUM LENGTH LINKAGE FRAME WILL  
ACCOMMODATE UP TO 6.500" D1 MEASUREMENT  
VALVE STEMS LONGER THAN THIS NEED TO BE CUT.

### STEM STYLE A



### STEM STYLE B



STEM STYLE  STEM DIAMETER  THREAD LENGTH  TO STEM GROOVE  THREADS PER INCH  STEM GROOVE HEIGHT   
A or B: DIM A: DIM B: DIM B: DIM C: DIM C:

### ACTUATOR

EXISTING ACTUATOR MODEL: \_\_\_\_\_ CONTROL TYPE:  ON/OFF  FLOATING POINT  VDC  PWM  
 FAIL SAFE:  YES  NO Range: \_\_\_\_\_ Range: \_\_\_\_\_  
 FAIL POSITION:  NO  NC  INDOOR  OUTDOOR  
 VOLTAGE \_\_\_\_\_

COMPANY: \_\_\_\_\_ VALVE MANUFACTURE: \_\_\_\_\_ 2 WAY/3 WAY: \_\_\_\_\_  
 JOB NAME: \_\_\_\_\_ VALVE SERIES: \_\_\_\_\_ VALVE SIZE: \_\_\_\_\_  
 PO#: \_\_\_\_\_ VALVE MODEL: \_\_\_\_\_ MEDIA TEMP: \_\_\_\_\_  
 PHONE: \_\_\_\_\_ VALVE TAG/LOCATION: \_\_\_\_\_ MEDIA TYPE: \_\_\_\_\_  
 EMAIL: \_\_\_\_\_ QUANTITY: \_\_\_\_\_ SYSTEM PRESSURE: \_\_\_\_\_

NOTE: THIS INFORMATION WILL BE UTILIZED IN THE FABRICATION OF A CUSTOM LINKAGE SYSTEM FOR YOUR VALVE REQUIREMENT; THEREFORE, IT IS ESSENTIAL THAT THE ABOVE DIMENSIONS BE FURNISHED WITH READINGS TAKEN TO THE NEAREST .001". ANY ERRONEOUS DIMENSIONS FURNISHED WHICH RESULT IN IMPROPER FIT OF THIS LINKAGE SYSTEM ARE NOT THE RESPONSIBILITY OF BELIMO AIRCONTROLS. ANY REWORK REQUIRED WILL RESULT IN AN EXTRA CHARGE.

**CUSTOM KITS ARE DESIGNED TO YOUR UNIQUE SPECIFICATIONS AND ARE NOT RETURNABLE.**

COMPANY CONTACT/DIMENSIONS PROVIDED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

## How to select a Butterfly Valve Retrofit Solution

Follow the four steps listed below when ordering a butterfly valve retrofit kit.

**Example:** Centerline C200 Series, 2½” valve, using a **Non-Spring Return** Belimo actuator.

- 1 Identify the **Valve Manufacturer, Valve Series** and **Valve Size**.
- 2 Determine the type of actuator you require: Belimo Spring Return, Non-Spring or SY Series Industrial. Belimo Spring and Non-Spring actuators are typically only available on smaller sizes.

Look at the solution using the Non-Spring Return Belimo Actuator. Looking at the **UFLK3500**, the **GM** Series actuator will provide a **200 psi close-off** for the **2½” valve** with **Non-Spring Return** actuation.

- 3 Use the actuator listings to make your final actuator selection. Decide between **GMX24-3-X1** and **GMX24-MFT-X1**.

**ACTUATOR NOT INCLUDED IN THE LIST PRICE OF THE LINKAGE.**

- 4 HOW TO ORDER: **Item 1 1pc UFLK3500 \$ 268.00**  
**Item 2 1pc GMX24-MFT-X1 \$ 650.00**



1 Select linkage solution based on the **Valve Number, Configuration, and Size**; select the proper **Linkage Solution** for your valve.

### EXAMPLE PAGE

**Centerline**  
C200 Round Top Series Butterfly Valves  
Linkage/Actuator Selection Guide

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price
C200 Round Top Series Butterfly Valves	2-way	2"	No	200	AM	UFLK3500	\$268.00
			Yes	200	SY1	UFLK3538	\$672.00
		2½"	No	200	AF	UFLK3500	\$268.00
			Yes	200	GM	UFLK3500	\$268.00
		3"	No	200	SY1	UFLK3538	\$672.00
			Yes	200	2*AF	UFLK3502	\$554.00
	2-way	2"	No	200	GM	UFLK3500	\$268.00
			Yes	200	SY1	UFLK3538	\$672.00
		2½"	No	200	SY2	UFLK3540	\$672.00
			Yes	200	2*AF	UFLK3502	\$554.00
		3"	No	200	GM	UFLK3500	\$268.00
			Yes	200	SY1	UFLK3538	\$672.00

**UFLK1300**  
Example: Centerline C200 Series, 2½” valve using a non-spring return Belimo actuation.  
Choose correct linkage **UFLK3500**.

- 2 Verify close-off is suitable for application. Looking at the **UFLK3500**, the **GM** Series actuator will provide **200 psi close-off** for the **2½” valve**.

MODEL	Non-Spring Return Actuators							List Price
	Control Input	Feedback	Power Supply	Running Time(s) (Default)	VA Rating	Aux. Switch		
<b>BASIC PRODUCTS</b>								
GMB24-3-X1	On/Off, Floating Point	Add-on	24 VAC/DC	150 seconds	6	Add-on	\$424.00	
GMB24-SR	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	150 seconds	6.5	Add-on	\$566.00	
<b>CUSTOMIZE IT</b>								
GMX24-3	On/Off, Floating Point	Add on	24 VAC/DC	150 seconds	7	Add-on	\$424.00‡	
GMX24-SR	2-10 VDC (4-20mA*)	2-10 VDC	24 VAC/DC	150 seconds	6.5	Add-on	\$566.00‡	
GMX24-PC	0-20 V Phasecut	2-10 VDC	24 VAC/DC	150 seconds	7	Add-on	\$676.00‡	
GMX24-MFT-X1	Various	Various	24 VAC/DC	Various	7	Add-on	\$650.00‡	
GMX24-MFT95-X1	0 to 1.35 Ω	2-10 VDC	24 VAC/DC	150 seconds	7	Add-on	\$676.00‡	
GMX120-3	On/Off, Floating Point	Add on	100-240 VAC	150 seconds	9	Add-on	\$486.00‡	

- 3 Select actuator based on needed control type. Decide between **GMB24-3-X1** and **GMX24-MFT-X1**.

- 4 Complete Ordering Example:  
Item 1: **UFLK3500**  
Item 2: **GMX24-MFT-X1**

‡ For applications that require more torque the GMB Series can be dual mounted. A maximum of 2 GMB/X... Series actuators can be mechanically connected to one damper or valve shaft. The torque is 640 in-lb. \*With the 500 Ω resistor added.

# Butterfly Valve Retrofit Actuators

## Actuator Selection Guide



### SY Series Actuators

SERIES	MODEL	TORQUE	RUN TIME(S) 90°@60Hz	POWER SUPPLY	DUTY CYCLE	CONTROL			FEEDBACK	LIST PRICE
						PROPORTIONAL	3 POINT	ON/OFF		
SY1	SY1-110	35 Nm / 310 inlb	12 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$796.00
	SY1-24	35 Nm / 310 inlb	12 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$796.00
	SY1-220	35 Nm / 310 inlb	12 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$796.00
	SY1-110P	35 Nm / 310 inlb	12 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$2,878.00
	SY1-24P	35 Nm / 310 inlb	12 seconds	24 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$2,878.00
	SY1-220P	35 Nm / 310 inlb	12 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$2,878.00
SY2	SY2-110	90 Nm / 801 inlb	15 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,008.00
	SY2-24	90 Nm / 801 inlb	15 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,008.00
	SY2-220	90 Nm / 801 inlb	15 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,038.00
	SY2-120MFT	90 Nm / 801 inlb	15 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$4,092.00
	SY2-24MFT	90 Nm / 801 inlb	15 seconds	24 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$4,092.00
	SY2-230MFT	90 Nm / 801 inlb	15 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$4,092.00
SY3	SY3-110	150 Nm / 1335 inlb	22 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$13,260.00
	SY3-24	150 Nm / 1335 inlb	22 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,288.00
	SY3-220	150 Nm / 1335 inlb	22 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,288.00
	SY3-24MFT	150 Nm / 1335 inlb	22 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$4,382.00
	SY3-120MFT	150 Nm / 1335 inlb	22 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$4,382.00
	SY3-230MFT	150 Nm / 1335 inlb	22 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$4,382.00
SY4	SY4-110	400 Nm / 3560 inlb	16 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$6,340.00
	SY4-24	400 Nm / 3560 inlb	16 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$5,436.00
	SY4-220	400 Nm / 3560 inlb	16 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,892.00
	SY4-24MFT	400 Nm / 3560 inlb	16 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$5,312.00
	SY4-120MFT	400 Nm / 3560 inlb	16 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$5,312.00
	SY4-230MFT	400 Nm / 3560 inlb	16 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$5,312.00
SY5	SY5-110	500 Nm / 4450 inlb	22 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$4,110.00
	SY5-24	500 Nm / 4450 inlb	22 seconds	24 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$2,288.00
	SY5-220	500 Nm / 4450 inlb	22 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$3,314.00
	SY5-24MFT	500 Nm / 4450 inlb	22 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$5,732.00
	SY5-120MFT	500 Nm / 4450 inlb	22 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$5,732.00
	SY5-230MFT	500 Nm / 4450 inlb	22 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$5,732.00
SY6	SY6-110	650 Nm / 5785 inlb	28 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$13,230.00
	SY6-220	650 Nm / 5785 inlb	28 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$3,950.00
	SY6-120MFT	650 Nm / 5785 inlb	28 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$6,368.00
	SY6-230MFT	650 Nm / 5785 inlb	28 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$6,368.00
SY7	SY7-110	1000 Nm / 8900 inlb	46 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$4,728.00
	SY7-220	1000 Nm / 8900 inlb	46 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$4,728.00
	SY7-120MFT	1000 Nm / 8900 inlb	46 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$7,082.00
	SY7-230MFT	1000 Nm / 8900 inlb	46 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$7,082.00
SY8	SY8-110	1500 Nm / 13350 inlb	46 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$6,340.00
	SY8-220	1500 Nm / 13350 inlb	46 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$3,314.00
	SY8-120MFT	1500 Nm / 13350 inlb	46 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$8,670.00
	SY8-230MFT	1500 Nm / 13350 inlb	46 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$8,670.00

Proportional actuators will accept 0-10 VDC, 2-10 VDC, or 4-20 mA control signals as standard.  
 All SY actuators are non-spring return, but can be used with NSV-SY back up systems for fail-safe applications.  
 These products carry a two year warranty when sold as part of an assembly or with a UFLK retrofit kit.

L30056 - 04/10 - Subject to change. © Belimo Aircontrols (USA), Inc.



### SY Series Actuators

						CONTROL				
SERIES	MODEL	TORQUE	RUN TIME(S) 90°@60Hz	POWER SUPPLY	DUTY CYCLE	PROPORTIONAL	3 POINT	ON/OFF	FEEDBACK	List Price
SY9	SY9-110	2000 Nm / 17800 inlb	58 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$7,846.00
	SY9-220	2000 Nm / 17800 inlb	58 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$7,846.00
	SY9-120MFT	2000 Nm / 17800 inlb	58 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$10,196.00
	SY9-230MFT	2000 Nm / 17800 inlb	58 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$10,196.00
SY10	SY10-110	2500 Nm / 22250 inlb	58 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$8,226.00
	SY10-220	2500 Nm / 22250 inlb	58 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$8,226.00
	SY10-120MFT	2500 Nm / 22250 inlb	58 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$10,576.00
	SY10-230MFT	2500 Nm / 22250 inlb	58 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$10,576.00
SY11	SY11-110	3000 Nm / 26700 inlb	58 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$10,902.00
	SY11-220	3000 Nm / 26700 inlb	58 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$10,902.00
	SY11-120MFT	3000 Nm / 26700 inlb	58 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$13,256.00
	SY11-230MFT	3000 Nm / 26700 inlb	58 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$13,256.00
SY12	SY12-110	3500 Nm / 31150 inlb	58 seconds	120 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$11,670.00
	SY12-220	3500 Nm / 31150 inlb	58 seconds	230 VAC ±10%, 50/60 Hz	30%		•	•	none, opt 1k	\$11,670.00
	SY12-120MFT	3500 Nm / 31150 inlb	58 seconds	120 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$13,870.00
	SY12-230MFT	3500 Nm / 31150 inlb	58 seconds	230 VAC ±10%, 50/60 Hz	75%	•			2-10 VDC/4-20 mA	\$13,838.00

Proportional actuators will accept 0-10 VDC, 2-10 VDC, or 4-20 mA control signals as standard.

All SY actuators are non-spring return, but can be used with NSV-SY back up systems for fail-safe applications.

These products carry a two year warranty when sold as part of an assembly or with a UFLK retrofit kit.

### ROTARY ACTUATORS

SERIES	MODEL	Spring Return	Electronic Fail Safe	Control Input	Feedback Position	Power Supply
AF Series*	AF24 US	•		24 VAC/DC		24 VAC/DC
	AFX24-MFT	•		Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC
AM Series*	AMB24-3-X1			24 VAC/DC		24 VAC/DC
	AMX24-MFT-X1			Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC
GM Series*	GMB24-3-X1			24 VAC/DC		24 VAC/DC
	GMX24-MFT-X1			Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC
GK Series*	GKB24-3-X1		•	24 VAC/DC		24 VAC/DC
	GKX24-MFT-X1		•	Variable with MFT (VDC, PWM, Floating Pt., On/Off)	variable VDC	24 VAC/DC

\*Please consult the Damper sections for a full list of product offerings. Standard run times should be considered in the selection.

### MULTI-FUNCTION TECHNOLOGY

P-CODE		Control Input	Running Time	Built-in Feedback	
ROTARY ACTUATOR CODES	P-10001	A01	2-10 VDC	2-10 VDC	
	P-10002	A02	0-10 VDC	0-10 VDC	
	P-10028	A28	0-10 VDC	0-10 VDC	
	P-10063	A63	0.5-4.5 VDC	0.5-4.5 VDC	
	P-10064	A64	5.5-10 VDC	5.5-10 VDC	
	P-20002	W02	0.02-5.00 seconds PWM	150 seconds	2-10 VDC
	P-20003	W03	0.10-25.5 seconds PWM	150 seconds	2-10 VDC
	P-30001	F01	Floating Pt.	150 seconds	2-10 VDC
	P-40002	J02	On/Off	150 seconds	2-10 VDC

### SY MULTI-FUNCTION TECHNOLOGY

Description	P-CODE	Control Input	Built-in Feedback	Loss of Signal	Running Time	List Price
MFT	ACE	2...10V	2...10V	stop	actuator(s) constant	no charge
MFT	ACF	0.5...10V	0.5...10V	stop	actuator(s) constant	no charge
MFT	ACG	4...20mA	4...20mA	stop	actuator(s) constant	no charge
MFT	ACH	4...20mA	2...10V	stop	actuator(s) constant	no charge
MFT	ACJ	2...10V	2...10V	open	actuator(s) constant	no charge
MFT	ACK	0.5...10V	0.5...10V	open	actuator(s) constant	no charge
MFT	ACL	4...20mA	4...20mA	open	actuator(s) constant	no charge
MFT	ACM	4...20mA	2...10V	open	actuator(s) constant	no charge
MFT	ACN	2...10V	2...10V	close	actuator(s) constant	no charge
MFT	ACP	0.5...10V	0.5...10V	close	actuator(s) constant	no charge
MFT	ACR	4...20mA	4...20mA	close	actuator(s) constant	no charge
MFT	ACS	4...20mA	2...10V	close	actuator(s) constant	no charge

All other configurations carry a \$34.00 list price.

Standard delivery may vary, please consult your customer service representative for the latest lead time(s).

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price		
141/143 Series Butterfly Valves	2-way	2"	No	150	GM	UFLK1000	\$268.00		
					SY1	UFLK1036	\$672.00		
					SY2	UFLK1038	\$672.00		
		2"	Yes	150	150	2*AF	UFLK1002	\$368.00	
						GK	UFLK1000	\$268.00	
						2*GM	UFLK1002	\$368.00	
		2½"	No	150	150	SY2	UFLK1038	\$672.00	
						2*GK	UFLK1002	\$368.00	
						2*GM	UFLK1002	\$368.00	
		3"	No	150	150	SY2	UFLK1038	\$672.00	
						2*GK	UFLK1002	\$368.00	
						2*GM	UFLK1002	\$368.00	
		3"	Yes	150	150	2*GK	UFLK1002	\$368.00	
						2*GM	UFLK1002	\$368.00	
						SY2	UFLK1038	\$672.00	
		4"	No	150	150	SY2	UFLK1040	\$616.00	
		5"	No	150	150	SY3	UFLK1042	\$616.00	
		6"	No	150	150	SY3	UFLK1042	\$616.00	
		8"	No	150	150	SY4	UFLK1044	\$616.00	
		10"	No	150	150	SY4	UFLK1046	\$672.00	
		12"	No	150	150	SY6	UFLK1048	\$672.00	
		14"	No	150	150	SY7	UFLK1050	\$672.00	
		16"	No	150	150	SY8	UFLK1052	\$672.00	
		18"	No	150	150	SY9	UFLK1054	\$864.00	
	20"	No	150	150	SY10	UFLK1056	\$864.00		
	24"	No	150	150	SY11	UFLK1058	\$864.00		
	3-way	2"	No	150	150	2*GM	UFLK4002	\$712.00	
						SY2	UFLK4036	\$1,226.00	
			Yes	150	150	150	2*GK	UFLK4002	\$712.00
							2*GM	UFLK4036	\$1,226.00
			2½"	No	150	150	2*GM	UFLK4002	\$712.00
							SY2	UFLK4036	\$1,226.00
2½"		Yes	150	150	2*GK	UFLK4002	\$712.00		
					2*GM	UFLK4002	\$712.00		
3"		No	150	150	2*GM	UFLK4002	\$712.00		
					SY2	UFLK4036	\$1,226.00		
					2*GK	UFLK4002	\$712.00		
3"		Yes	150	150	2*GK	UFLK4002	\$712.00		
					2*GM	UFLK4002	\$712.00		
					SY2	UFLK4036	\$1,226.00		
4"		No	150	150	SY3	UFLK4038	\$1,226.00		
5"		No	150	150	SY4	UFLK4040	\$1,226.00		
6"		No	150	150	SY4	UFLK4040	\$1,226.00		
8"		No	150	150	SY5	UFLK4042	\$1,226.00		
10"	No	150	150	SY6	UFLK4044	\$1,226.00			
12"	No	150	150	SY7	UFLK4046	\$1,226.00			
14"	No	150	150	SY8	UFLK4048	\$1,226.00			
16"	No	150	150	SY9	UFLK4050	\$1,952.00			
18"	No	150	150	SY11	UFLK4052	\$1,952.00			

All close-off pressures listed are approximate and based on valve condition and application.



Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
HS Series Butterfly Valves	2-way	2"	No	200	AM	UFLK3900	\$254.00	
			Yes	200	AF	UFLK3930	\$246.00	
		2½"	No	200	AM	UFLK3900	\$254.00	
			Yes	200	2*AF	UFLK3936	\$338.00	
		3"	No	200	GM	UFLK3900	\$254.00	
			Yes	200	2*AF	UFLK3936	\$338.00	
			Yes	200	GK	UFLK3900	\$254.00	
		4"	No	200	2*GM	UFLK3908	\$350.00	
			Yes	200	2*GK	UFLK3908	\$350.00	
			Yes	200	SY2	UFLK3920	\$586.00	
		5"	No	200	SY2	UFLK3922	\$586.00	
		6"	No	200	SY3	UFLK3922	\$586.00	
		8"	No	200	SY3	UFLK3968	\$586.00	
		10"	No	200	SY4	UFLK3970	\$586.00	
		12"	No	200	SY4	UFLK3928	\$586.00	
		14"	No	150	SY5	UFLK3928	\$586.00	
		16"	No	150	SY6	UFLK3976	\$586.00	
		18"	No	150	SY7	UFLK3978	\$754.00	
		20"	No	150	SY8	UFLK3980	\$754.00	
		24"	No	150	SY11	UFLK3982	\$1,226.00	
		3-way	2"	No	200	AM	UFLK6900	\$560.00
					200	SY2	UFLK6910	\$896.00
			2½"	No	200	2*GM	UFLK6902	\$754.00
					200	2*AF	UFLK6952	\$732.00
	3"		No	200	2*GM	UFLK6902	\$754.00	
				200	2*GK	UFLK6902	\$754.00	
	4"		No	200	SY2	UFLK6912	\$896.00	
	5"		No	200	SY3	UFLK6914	\$896.00	
	6"		No	200	SY3	UFLK6914	\$896.00	
	8"		No	200	SY4	UFLK6920	\$896.00	
	10"		No	200	SY4	UFLK6920	\$896.00	
	12"		No	200	SY5	UFLK6922	\$896.00	
	14"		No	150	SY6	UFLK7018	\$896.00	
	16"		No	150	SY7	UFLK7020	\$1,226.00	
	18"		No	150	SY8	UFLK7022	\$1,226.00	
	20"		No	150	SY9	UFLK7024	\$1,952.00	
24"	No		150	SY12	UFLK7026	\$1,952.00		

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price		
HSU Series Butterfly Valves	2-way	2"	No	50	AM	UFLK3900	\$254.00		
					SY1	UFLK3912	\$560.00		
					SY2	UFLK3918	\$586.00		
		2½"	Yes	50	AF	UFLK3930	\$246.00		
					No	50	AM	UFLK3900	\$254.00
							SY1	UFLK3912	\$560.00
		3"	No	50	SY2	UFLK3918	\$586.00		
					Yes	50	AF	UFLK3930	\$246.00
							AM	UFLK3900	\$254.00
		4"	No	50	SY1	UFLK3912	\$560.00		
					Yes	50	SY2	UFLK3918	\$586.00
							2*AF	UFLK3936	\$338.00
		5"	No	50	GM	UFLK3904	\$254.00		
					Yes	50	SY2	UFLK3920	\$586.00
							2*AF	UFLK3938	\$338.00
		6"	No	50	GK	UFLK3904	\$254.00		
					Yes	50	GM	UFLK3905	\$338.00
							SY2	UFLK3922	\$586.00
		8"	No	50	GK	UFLK3905	\$338.00		
					Yes	50	2*GM	UFLK3910	\$350.00
							SY2	UFLK3922	\$586.00
		10"	No	50	2*GK	UFLK3910	\$350.00		
					Yes	50	SY3	UFLK3924	\$586.00
							SY3	UFLK3926	\$586.00
	12"	No	50	SY4	UFLK3928	\$586.00			
				2"	No	50	GM	UFLK6900	\$560.00
							2½"	No	50
	3"	No	50						
				Yes	50	AF			
						GK	UFLK6900	\$560.00	
	4"	No	50	GM	UFLK6900	\$560.00			
				Yes	50	SY1	UFLK6908	\$896.00	
						SY2	UFLK6910	\$896.00	
	5"	No	50	2*AF	UFLK6952	\$732.00			
				Yes	50	GK	UFLK6900	\$560.00	
						GM	UFLK6900	\$560.00	
	6"	No	50	SY2	UFLK6910	\$896.00			
				Yes	50	2*AF	UFLK6952	\$732.00	
						GK	UFLK6900	\$560.00	
	8"	No	50	2*GM	UFLK6904	\$754.00			
				Yes	50	SY2	UFLK6912	\$896.00	
						2*GK	UFLK6904	\$754.00	
10"	No	50	2*GM	UFLK6906	\$754.00				
			Yes	50	SY2	UFLK6914	\$896.00		
					2*GK	UFLK6906	\$754.00		
12"	No	50	2*GM	UFLK6906	\$754.00				
			Yes	50	SY2	UFLK6914	\$896.00		
					2*GK	UFLK6906	\$754.00		
8"	No	50	SY3	UFLK6919	\$896.00				
			Yes	50	SY4	UFLK6920	\$896.00		
					SY4	UFLK6922	\$896.00		

All close-off pressures listed are approximate and based on valve condition and application.

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Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
30/31 Series Butterfly Valves	2-way	2"	No	175	AM	UFLK1100	\$268.00	
					SY1	UFLK1130	\$672.00	
					SY2	UFLK1132	\$616.00	
			Yes	175	2*AF	UFLK1102	\$368.00	
		2½"	No	175	GM	UFLK1100	\$268.00	
					SY1	UFLK1130	\$672.00	
					SY2	UFLK1132	\$616.00	
			Yes	175	2*AF	UFLK1102	\$368.00	
			GK	UFLK1100	\$268.00			
		3"	No	175	2*GM	UFLK1102	\$368.00	
					SY2	UFLK1132	\$616.00	
			Yes		175	2*GK	UFLK1102	\$368.00
		4"	No	175	2*GM	UFLK1108	\$368.00	
					SY2	UFLK1134	\$616.00	
			Yes		175	2*GK	UFLK1108	\$368.00
		5"	No	175	SY3	UFLK1136	\$598.00	
		6"	No	175	SY3	UFLK1136	\$598.00	
		8"	No	175	SY4	UFLK1138	\$616.00	
		10"	No	175	SY4	UFLK1140	\$616.00	
		12"	No	175	SY6	UFLK1142	\$616.00	
	14"	No	175	SY7	UFLK1144	\$792.00		
	16"	No	175	SY8	UFLK1144	\$792.00		
	18"	No	175	SY9	UFLK1146	\$864.00		
	20"	No	175	SY10	UFLK1146	\$864.00		
	3-way	2"	2"	No	200	SY1	UFLK4130	\$1,226.00
						SY2	UFLK4132	\$1,226.00
				Yes		200	2*AF	UFLK4102
		2½"	No	200	2*GM	UFLK4102	\$792.00	
					SY2	UFLK4132	\$1,226.00	
			Yes		200	2*GK	UFLK4102	\$792.00
		3"	No	200	2*GM	UFLK4102	\$792.00	
					SY2	UFLK4132	\$1,226.00	
			Yes		200	2*GK	UFLK4102	\$792.00
		4"	No	200	SY3	UFLK4134	\$984.00	
		5"	No	200	SY4	UFLK4136	\$984.00	
		6"	No	200	SY4	UFLK4136	\$984.00	
8"		No	200	SY5	UFLK4138	\$984.00		
10"		No	200	SY6	UFLK4140	\$1,226.00		
12"		No	200	SY7	UFLK4142	\$1,226.00		
14"		No	150	SY8	UFLK4144	\$1,226.00		
16"		No	150	SY9	UFLK4146	\$1,952.00		
18"		No	150	SY11	UFLK4148	\$1,952.00		
20"		No	150	SY12	UFLK4148	\$1,952.00		

All close-off pressures listed are approximate and based on valve condition and application.

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RETROFIT SOLUTIONS

**Bray**  
**40/41 Series Butterfly Valves**  
**Linkage/Actuator Selection Guide**



Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
40/41 Series Butterfly Valves	2-way	2½"	No	285	2*GM	UFLK1200	\$368.00	
			Yes		2*GK	UFLK1224	\$672.00	
		3"	No	285	2*GM	UFLK1200	\$368.00	
			Yes		2*GK	UFLK1200	\$368.00	
		4"	No	285	2*GM	UFLK1200	\$368.00	
			Yes		2*GK	UFLK1200	\$368.00	
		5"	No	285	SY3	UFLK1226	\$616.00	
		6"	No	285	SY4	UFLK1228	\$616.00	
		8"	No	285	SY4	UFLK1230	\$616.00	
		10"	No	285	SY6	UFLK1232	\$616.00	
		12"	No	285	SY7	UFLK1234	\$672.00	
		14"	No	285	SY8	UFLK1236	\$672.00	
		16"	No	285	SY9	UFLK1238	\$864.00	
		18"	No	285	SY11	UFLK1240	\$864.00	
		20"	No	285	SY12	UFLK1242	\$864.00	
		3-way	2½"	No	285	2*GM	UFLK4200	\$712.00
				Yes		2*GK	UFLK4200	\$712.00
			3"	No	285	2*GM	UFLK4200	\$712.00
	Yes			2*GK		UFLK4200	\$712.00	
	4"		No	285	SY3	UFLK4222	\$1,226.00	
	5"		No	285	SY4	UFLK4224	\$1,226.00	
	6"		No	285	SY4	UFLK4224	\$1,226.00	
	8"		No	285	SY5	UFLK4226	\$1,226.00	
	10"		No	285	SY7	UFLK4228	\$1,226.00	
	12"		No	285	SY8	UFLK4230	\$1,226.00	
	14"		No	285	SY10	UFLK4232	\$1,952.00	
	16"		No	285	SY12	UFLK4234	\$1,952.00	

All close-off pressures listed are approximate and based on valve condition and application.

RETROFIT SOLUTIONS

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Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price
C200 Round Top Series Butterfly Valves	2-way	2"	No	200	AM	UFLK3500	\$268.00
					SY1	UFLK3538	\$672.00
					SY2	UFLK3540	\$672.00
			Yes	200	AF	UFLK3500	\$268.00
		2½"	No	200	GM	UFLK3500	\$268.00
					SY1	UFLK3538	\$672.00
					SY2	UFLK3540	\$672.00
			Yes	200	2*AF	UFLK3502	\$554.00
					GK	UFLK3500	\$268.00
		3"	No	200	GM	UFLK3500	\$268.00
					SY1	UFLK3538	\$672.00
					SY2	UFLK3540	\$672.00
			Yes	200	2*AF	UFLK3502	\$554.00
					GK	UFLK3500	\$268.00
		4"	No	200	2*GM	UFLK3508	\$368.00
					SY2	UFLK3542	\$672.00
					Yes	200	2*GK
		5"	No	200	SY2	UFLK3544	\$616.00
		6"	No	200	SY3	UFLK3544	\$616.00
		8"	No	200	SY4	UFLK3546	\$598.00
		10"	No	200	SY4	UFLK3548	\$616.00
		12"	No	200	SY5	UFLK3550	\$616.00
		14"	No	150	SY5	UFLK3550	\$616.00
		16"	No	150	SY7	UFLK3552	\$770.00
	18"	No	150	SY8	UFLK3554	\$792.00	
	20"	No	150	SY8	UFLK3556	\$712.00	
	24"	No	150	SY10	UFLK3558	\$1,252.00	
	3-way	2"	200	No	AM	UFLK6500	\$672.00
					SY1	UFLK6536	\$1,226.00
					SY2	UFLK6538	\$1,226.00
			Yes	200	2*AF	UFLK6502	\$712.00
		2½"	No	200	GM	UFLK6500	\$672.00
					SY1	UFLK6536	\$1,226.00
					SY2	UFLK6538	\$1,226.00
			Yes	200	2*AF	UFLK6502	\$712.00
					GK	UFLK6500	\$672.00
		3"	No	200	2*GM	UFLK6502	\$712.00
					SY1	UFLK6536	\$1,226.00
					SY2	UFLK6538	\$1,226.00
			Yes	200	2*GK	UFLK6502	\$712.00
		4"	No	200	2*GM	UFLK6508	\$712.00
					SY2	UFLK6540	\$984.00
			Yes		200	2*GK	UFLK6508
5"		No	200	SY3	UFLK6542	\$984.00	
6"		No	200	SY4	UFLK6544	\$984.00	
8"		No	200	SY4	UFLK6546	\$984.00	
10"		No	200	SY5	UFLK6548	\$984.00	
12"		No	200	SY7	UFLK6550	\$1,288.00	
14"		No	150	SY7	UFLK6550	\$1,288.00	
16"		No	150	SY8	UFLK6552	\$1,226.00	
18"		No	150	SY9	UFLK6554	\$1,952.00	
20"	No	150	SY10	UFLK6556	\$1,952.00		

All close-off pressures listed are approximate and based on valve condition and application.

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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price		
C200 Square Top Series Butterfly Valves	2-way	2"	No	200	AM	UFLK1300	\$268.00		
					SY1	UFLK1338	\$672.00		
					SY2	UFLK1340	\$616.00		
		2 1/2"	Yes	200	No	200	AF	UFLK1300	\$268.00
							GM	UFLK1300	\$268.00
							SY1	UFLK1338	\$672.00
		3"	No	200	Yes	200	2*AF	UFLK1302	\$368.00
							GK	UFLK1300	\$268.00
							GM	UFLK1300	\$268.00
		4"	No	200	Yes	200	SY1	UFLK1338	\$672.00
							SY2	UFLK1340	\$616.00
							2*AF	UFLK1302	\$368.00
		5"	No	200	Yes	200	GK	UFLK1300	\$268.00
							GM	UFLK1300	\$268.00
							SY1	UFLK1338	\$672.00
		6"	No	200	Yes	200	SY2	UFLK1340	\$616.00
							2*AF	UFLK1302	\$368.00
							GK	UFLK1300	\$268.00
		8"	No	200	Yes	200	2*GM	UFLK1308	\$368.00
							SY2	UFLK1342	\$616.00
							2*GK	UFLK1308	\$368.00
		10"	No	200	Yes	200	SY2	UFLK1344	\$616.00
							SY3	UFLK1344	\$616.00
							SY4	UFLK1346	\$616.00
	12"	No	200	Yes	200	SY4	UFLK1348	\$616.00	
						SY5	UFLK1350	\$598.00	
						SY5	UFLK1350	\$598.00	
	14"	No	150	Yes	200	SY7	UFLK1352	\$792.00	
						SY8	UFLK1354	\$672.00	
						SY8	UFLK1356	\$792.00	
	16"	No	150	Yes	200	SY10	UFLK1358	\$864.00	
						AM	UFLK4300	\$672.00	
						SY1	UFLK4338	\$1,226.00	
	18"	No	150	Yes	200	SY2	UFLK4340	\$984.00	
						2*AF	UFLK4302	\$712.00	
						GM	UFLK4300	\$672.00	
	20"	No	150	Yes	200	SY2	UFLK4340	\$984.00	
						2*AF	UFLK4302	\$712.00	
						GK	UFLK4300	\$672.00	
	24"	No	150	Yes	200	2*GM	UFLK4302	\$712.00	
						SY2	UFLK4340	\$984.00	
						2*GK	UFLK4302	\$712.00	
3-way	2"	No	200	200	2*GM	UFLK4308	\$712.00		
					SY2	UFLK4342	\$1,226.00		
					2*GK	UFLK4308	\$712.00		
		Yes	200	200	SY3	UFLK4344	\$984.00		
					SY4	UFLK4346	\$984.00		
					SY4	UFLK4348	\$984.00		
	2 1/2"	No	200	200	SY5	UFLK4350	\$984.00		
					SY7	UFLK4352	\$1,288.00		
					SY7	UFLK4352	\$1,288.00		
		Yes	200	200	SY8	UFLK4354	\$1,226.00		
					SY9	UFLK4356	\$1,952.00		
					SY10	UFLK4358	\$1,952.00		

All close-off pressures listed are approximate and based on valve condition and application.

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Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price
C225 Square Top Series Butterfly Valves	2-way	2"	No	285	GM	UFLK1400	\$396.00
					SY1	UFLK1436	\$616.00
			SY2	UFLK1438	\$672.00		
			Yes	285	2*AF	UFLK1402	\$554.00
		GK			UFLK1400	\$396.00	
		2½"	No	285	GM	UFLK1400	\$396.00
					SY1	UFLK1436	\$616.00
			SY2	UFLK1438	\$672.00		
			Yes	285	2*AF	UFLK1402	\$554.00
		GK			UFLK1400	\$396.00	
		3"	No	285	GM	UFLK1400	\$396.00
					SY1	UFLK1436	\$616.00
			SY2	UFLK1438	\$672.00		
			Yes	285	2*AF	UFLK1402	\$554.00
		GK			UFLK1400	\$396.00	
		4"	No	285	2*GM	UFLK1408	\$368.00
					SY2	UFLK1440	\$672.00
			Yes	285	2*GK	UFLK1408	\$368.00
					SY2	UFLK1442	\$672.00
		5"	No	285	SY2	UFLK1444	\$672.00
		6"	No	285	SY4	UFLK1444	\$672.00
		8"	No	285	SY4	UFLK1446	\$616.00
		10"	No	285	SY5	UFLK1448	\$672.00
		12"	No	285	SY6	UFLK1450	\$616.00
		14"	No	285	SY7	UFLK1452	\$672.00
		16"	No	285	SY9	UFLK1454	\$864.00
		18"	No	285	SY10	UFLK1456	\$864.00
		20"	No	285	SY10	UFLK1458	\$864.00
	3-way	2"	No	285	GM	UFLK4400	\$672.00
					SY1	UFLK4436	\$1,226.00
					SY2	UFLK4438	\$1,226.00
					Yes	285	GK
		2½"	No	285	GM	UFLK4400	\$672.00
					SY2	UFLK4438	\$1,226.00
			Yes	285	GK	UFLK4400	\$672.00
					2*GM	UFLK4402	\$712.00
		Yes	285	2*GK	UFLK4402	\$712.00	
				SY3	UFLK4440	\$1,226.00	
		4"	No	285	SY3	UFLK4442	\$1,226.00
		5"	No	285	SY4	UFLK4444	\$984.00
		6"	No	285	SY5	UFLK4446	\$1,226.00
		8"	No	285	SY7	UFLK4448	\$1,226.00
10"		No	285	SY8	UFLK4450	\$1,226.00	
12"		No	285	SY8	UFLK4452	\$1,226.00	
14"		No	285	SY12	UFLK4454	\$1,952.00	
16"		No	285	SY12	UFLK4454	\$1,952.00	

All close-off pressures listed are approximate and based on valve condition and application.

# Challenger

## CH100 Series Butterfly Valves Linkage/Actuator Selection Guide

**BELIMO**



Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
CH100 Series Butterfly Valves	2-way	2"	No	200	AM	UFLK3600	\$396.00	
					SY1	UFLK3622	\$672.00	
					SY2	UFLK3624	\$672.00	
		2 1/2"	Yes	200	200	2*AF	UFLK3602	\$554.00
						GM	UFLK3600	\$396.00
						SY1	UFLK3622	\$672.00
		2 1/2"	No	200	200	SY2	UFLK3624	\$672.00
						2*AF	UFLK3602	\$554.00
						GK	UFLK3600	\$396.00
		3"	No	200	200	GM	UFLK3600	\$396.00
						SY1	UFLK3622	\$672.00
						SY2	UFLK3624	\$672.00
		3"	Yes	200	200	2*AF	UFLK3602	\$554.00
						GK	UFLK3600	\$396.00
						GM	UFLK3600	\$396.00
		4"	No	200	200	2*GM	UFLK3608	\$554.00
						SY2	UFLK3626	\$672.00
						2*GK	UFLK3608	\$554.00
	4"	Yes	200	200	2*GK	UFLK3608	\$554.00	
					SY2	UFLK3626	\$672.00	
					SY2	UFLK3626	\$672.00	
	5"	No	200	200	SY2	UFLK3626	\$672.00	
	6"	No	200	200	SY3	UFLK3628	\$672.00	
	8"	No	200	200	SY4	UFLK3630	\$672.00	
	10"	No	200	200	SY4	UFLK3632	\$672.00	
	12"	No	200	200	SY5	UFLK3634	\$672.00	
	3-way	2"	No	200	200	GM	UFLK6600	\$672.00
						SY1	UFLK6624	\$1,226.00
						SY2	UFLK6626	\$1,226.00
			Yes	200	200	2*AF	UFLK6602	\$712.00
						GK	UFLK6600	\$672.00
						GM	UFLK6600	\$672.00
		2 1/2"	No	200	200	GM	UFLK6600	\$672.00
						SY2	UFLK6626	\$1,226.00
						2*AF	UFLK6602	\$712.00
		2 1/2"	Yes	200	200	GK	UFLK6600	\$672.00
2*GM						UFLK6602	\$712.00	
SY2						UFLK6626	\$1,226.00	
3"		No	200	200	2*GM	UFLK6602	\$712.00	
					SY2	UFLK6626	\$1,226.00	
					2*GK	UFLK6602	\$712.00	
3"		Yes	200	200	SY2	UFLK6628	\$1,226.00	
					SY3	UFLK6628	\$1,226.00	
					SY4	UFLK6630	\$1,226.00	
4"	No	200	200	SY4	UFLK6630	\$1,226.00		
5"	No	200	200	SY4	UFLK6632	\$1,226.00		
6"	No	200	200	SY5	UFLK6634	\$1,226.00		
8"	No	200	200	SY5	UFLK6634	\$1,226.00		
10"	No	200	200	SY7	UFLK6636	\$1,226.00		
12"	No	200	200	SY7	UFLK6636	\$1,226.00		

All close-off pressures listed are approximate and based on valve condition and application.

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RETROFIT SOLUTIONS



Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price
PVC Model C Series Butterfly Valves	2-way	2"	No	150	GM	UFLK1500	\$396.00
					SY1	UFLK1532	\$672.00
					SY2	UFLK1534	\$672.00
			Yes	150	2*AF	UFLK1502	\$554.00
					GK	UFLK1500	\$396.00
					2*GM	UFLK1508	\$554.00
		2½"	No	150	SY2	UFLK1536	\$672.00
					2*GK	UFLK1508	\$554.00
					2*GM	UFLK1514	\$554.00
			Yes	150	SY2	UFLK1538	\$672.00
					2*GK	UFLK1514	\$554.00
					2*GM	UFLK1520	\$554.00
		3"	No	150	SY2	UFLK1540	\$672.00
					2*GK	UFLK1520	\$554.00
					SY4	UFLK1542	\$672.00
			Yes	150	SY4	UFLK1544	\$672.00
					SY4	UFLK1546	\$672.00
					2*GM	UFLK1520	\$554.00
	4"	No	150	2*GM	UFLK1520	\$554.00	
				2*GK	UFLK1520	\$554.00	
				SY4	UFLK1542	\$672.00	
		Yes	150	SY4	UFLK1544	\$672.00	
				SY4	UFLK1546	\$672.00	
				2*GM	UFLK1520	\$554.00	
	6"	No	150	SY4	UFLK1542	\$672.00	
				SY4	UFLK1544	\$672.00	
				SY4	UFLK1546	\$672.00	
		Yes	150	2*GM	UFLK1520	\$554.00	
				2*GK	UFLK1520	\$554.00	
				SY4	UFLK1542	\$672.00	
8"	No	150	SY4	UFLK1544	\$672.00		
			SY4	UFLK1546	\$672.00		
			2*GM	UFLK1520	\$554.00		
	Yes	150	2*GM	UFLK1520	\$554.00		
			2*GK	UFLK1520	\$554.00		
			SY4	UFLK1542	\$672.00		
10"	No	150	SY4	UFLK1546	\$672.00		
			2*GM	UFLK1520	\$554.00		
			2*GK	UFLK1520	\$554.00		
	Yes	150	2*GM	UFLK1520	\$554.00		
			2*GK	UFLK1520	\$554.00		
			SY4	UFLK1542	\$672.00		
3-way	2"	No	150	2*GM	UFLK4502	\$712.00	
				SY2	UFLK4532	\$1,226.00	
				2*GK	UFLK4502	\$712.00	
		Yes	150	2*GM	UFLK4508	\$712.00	
				SY2	UFLK4534	\$1,226.00	
				2*GK	UFLK4508	\$712.00	
	2½"	No	150	2*GM	UFLK4514	\$712.00	
				SY2	UFLK4536	\$1,226.00	
				2*GK	UFLK4514	\$712.00	
		Yes	150	2*GM	UFLK4514	\$712.00	
				SY2	UFLK4536	\$1,226.00	
				2*GK	UFLK4514	\$712.00	
3"	No	150	2*GM	UFLK4520	\$712.00		
			SY3	UFLK4538	\$1,226.00		
			2*GK	UFLK4520	\$712.00		
	Yes	150	2*GM	UFLK4520	\$712.00		
			2*GK	UFLK4520	\$712.00		
			SY4	UFLK4540	\$1,226.00		
4"	No	150	SY5	UFLK4542	\$1,226.00		
			SY5	UFLK4544	\$1,226.00		
			2*GM	UFLK4520	\$712.00		
	Yes	150	2*GM	UFLK4520	\$712.00		
			2*GK	UFLK4520	\$712.00		
			SY4	UFLK4540	\$1,226.00		
6"	No	150	SY5	UFLK4542	\$1,226.00		
			SY5	UFLK4544	\$1,226.00		
			2*GM	UFLK4520	\$712.00		
	Yes	150	2*GM	UFLK4520	\$712.00		
			2*GK	UFLK4520	\$712.00		
			SY4	UFLK4540	\$1,226.00		
8"	No	150	SY5	UFLK4542	\$1,226.00		
			SY5	UFLK4544	\$1,226.00		
			2*GM	UFLK4520	\$712.00		
	Yes	150	2*GM	UFLK4520	\$712.00		
			2*GK	UFLK4520	\$712.00		
			SY4	UFLK4540	\$1,226.00		
10"	No	150	SY5	UFLK4542	\$1,226.00		
			SY5	UFLK4544	\$1,226.00		
			2*GM	UFLK4520	\$712.00		
	Yes	150	2*GM	UFLK4520	\$712.00		
			2*GK	UFLK4520	\$712.00		
			SY4	UFLK4540	\$1,226.00		

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
BRS Series Butterfly Valves	2-way	2"	No	175	GM	UFLK1600	\$396.00	
					SY1	UFLK1634	\$672.00	
					SY2	UFLK1636	\$672.00	
		2"	Yes	175	175	2*AF	UFLK1602	\$554.00
						GK	UFLK1600	\$396.00
						GM	UFLK1600	\$396.00
		2½"	No	175	175	GM	UFLK1600	\$396.00
						SY1	UFLK1634	\$672.00
						SY2	UFLK1636	\$672.00
		2½"	Yes	175	175	2*AF	UFLK1602	\$554.00
						GK	UFLK1600	\$396.00
						GM	UFLK1600	\$396.00
		3"	No	175	175	2*GM	UFLK1602	\$554.00
						SY2	UFLK1636	\$672.00
						2*GK	UFLK1602	\$554.00
		3"	Yes	175	175	2*GM	UFLK1608	\$554.00
						SY2	UFLK1638	\$672.00
						2*GK	UFLK1608	\$554.00
		4"	No	175	175	SY3	UFLK1640	\$616.00
						SY4	UFLK1642	\$616.00
		4"	Yes	175	175	SY4	UFLK1644	\$616.00
						SY5	UFLK1646	\$616.00
		5"	No	175	175	SY7	UFLK1648	\$672.00
						SY7	UFLK1650	\$672.00
	6"	No	175	175	SY9	UFLK1652	\$1,288.00	
					SY10	UFLK1654	\$864.00	
	8"	No	175	175	SY10	UFLK1656	\$864.00	
					GM	UFLK4600	\$672.00	
	2"	No	175	175	SY2	UFLK4634	\$1,226.00	
					2*AF	UFLK4602	\$712.00	
					GK	UFLK4600	\$672.00	
	2"	Yes	175	175	GM	UFLK4600	\$672.00	
					SY2	UFLK4634	\$1,226.00	
					2*AF	UFLK4602	\$712.00	
	2½"	No	175	175	GK	UFLK4600	\$672.00	
					GM	UFLK4600	\$672.00	
SY2					UFLK4634	\$1,226.00		
2½"	Yes	175	175	2*AF	UFLK4602	\$712.00		
				GK	UFLK4600	\$672.00		
				2*GM	UFLK4602	\$712.00		
3"	No	175	175	SY2	UFLK4634	\$1,226.00		
				2*GK	UFLK4602	\$712.00		
				SY3	UFLK4636	\$1,226.00		
3"	Yes	175	175	SY4	UFLK4638	\$1,226.00		
				SY4	UFLK4638	\$1,226.00		
				SY5	UFLK4640	\$984.00		
4"	No	175	175	SY7	UFLK4642	\$1,226.00		
				SY8	UFLK4644	\$1,288.00		
5"	No	175	175	SY9	UFLK4646	\$1,952.00		
				SY12	UFLK4648	\$1,952.00		
6"	No	175	175					
8"	No	175	175					
10"	No	175	175					
12"	No	175	175					
14"	No	175	175					
16"	No	175	175					

All close-off pressures listed are approximate and based on valve condition and application.

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RETROFIT SOLUTIONS



Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
<b>1L/W Series Butterfly Valves</b>	2-way	2"	No	285	GM	UFLK1700	\$254.00	
					SY1	UFLK1734	\$586.00	
			SY2	UFLK1736	\$586.00			
			Yes	285	2*AF	UFLK1702	\$350.00	
		GK			UFLK1700	\$254.00		
		2½"	No	285	2*GM	UFLK1702	\$350.00	
						SY2	UFLK1736	\$586.00
		Yes	285	2*GK	UFLK1702	\$350.00		
					UFLK1708	\$350.00		
		3"	No	285	2*GM	UFLK1708	\$350.00	
						SY2	UFLK1738	\$586.00
		Yes	285	2*GK	UFLK1708	\$350.00		
					UFLK1708	\$350.00		
		4"	No	285	2*GM	UFLK1708	\$350.00	
						SY2	UFLK1738	\$586.00
		Yes	285	2*GK	UFLK1708	\$350.00		
					UFLK1708	\$350.00		
		5"	No	285	SY3	UFLK1740	\$586.00	
		6"	No	285	SY3	UFLK1740	\$586.00	
		8"	No	285	SY4	UFLK1742	\$586.00	
	10"	No	285	SY4	UFLK1744	\$586.00		
	12"	No	285	SY6	UFLK1744	\$586.00		
	14"	No	285	SY6	UFLK1746	\$586.00		
	16"	No	285	SY7	UFLK1748	\$754.00		
	18"	No	285	SY9	UFLK1750	\$1,226.00		
	20"	No	285	SY9	UFLK1752	\$1,226.00		
	3-way	2"	No	285	GM	UFLK4780	\$560.00	
					SY2	UFLK4734	\$936.00	
			Yes	285	2*AF	UFLK4702	\$754.00	
					GK	UFLK4700	\$560.00	
		2½"	No	285	2*GM	UFLK4702	\$754.00	
					SY2	UFLK4734	\$936.00	
		Yes	285	2*GK	UFLK4702	\$754.00		
					UFLK4708	\$754.00		
		3"	No	285	2*GM	UFLK4708	\$754.00	
					SY2	UFLK4736	\$936.00	
Yes		285	2*GK	UFLK4708	\$754.00			
				UFLK4708	\$754.00			
4"		No	285	SY3	UFLK4736	\$936.00		
5"		No	285	SY4	UFLK4738	\$936.00		
6"		No	285	SY4	UFLK4738	\$936.00		
8"		No	285	SY4	UFLK4740	\$936.00		
10"		No	285	SY6	UFLK4742	\$936.00		
12"		No	285	SY7	UFLK4744	\$1,226.00		
14"		No	285	SY8	UFLK4744	\$1,226.00		
16"		No	285	SY9	UFLK4746	\$1,952.00		
18"	No	285	SY11	UFLK4748	\$1,952.00			
20"	No	285	SY12	UFLK4750	\$1,952.00			
<b>3L/W Series Butterfly Valves</b>	2-way	2"	No	780	SY3	UFLK1828	\$586.00	
		2½"	No	780	SY3	UFLK1828	\$586.00	
		3"	No	780	SY3	UFLK1830	\$586.00	
		4"	No	780	SY4	UFLK1832	\$586.00	
		5"	No	780	SY4	UFLK1834	\$586.00	
		6"	No	780	SY4	UFLK1836	\$586.00	
		8"	No	780	SY7	UFLK1838	\$754.00	
		10"	No	780	SY7	UFLK1840	\$754.00	
		12"	No	780	SY9	UFLK1842	\$1,226.00	
		14"	No	780	SY9	UFLK1844	\$1,226.00	
		3-way	2"	No	780	SY3	UFLK4828	\$936.00
			2½"	No	780	SY3	UFLK4828	\$936.00
			3"	No	780	SY3	UFLK4844	\$936.00
			4"	No	780	SY4	UFLK4830	\$936.00
	5"		No	780	SY4	UFLK4832	\$936.00	
	6"		No	780	SY4	UFLK4834	\$936.00	
	8"	No	780	SY8	UFLK4836	\$1,226.00		
	10"	No	780	SY8	UFLK4838	\$1,226.00		
	12"	No	780	SY12	UFLK4840	\$1,952.00		
	14"	No	780	SY12	UFLK4842	\$1,952.00		

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RETROFIT SOLUTIONS

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Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
Figure 1000/2000 Series Butterfly Valves	2-way	2"	No	150	GM	UFLK1900	\$396.00	
					SY1	UFLK1936	\$672.00	
					SY2	UFLK1938	\$672.00	
			Yes	150	2*AF	UFLK1902	\$554.00	
			GK		UFLK1900	\$396.00		
			GM		UFLK1900	\$396.00		
		2½"	No	150		GM	UFLK1900	\$396.00
					SY1	UFLK1936	\$672.00	
					SY2	UFLK1938	\$672.00	
			Yes	150	2*AF	UFLK1902	\$554.00	
			GK		UFLK1900	\$396.00		
			GM		UFLK1900	\$396.00		
		3"	No	150		GM	UFLK1900	\$396.00
					SY1	UFLK1936	\$672.00	
					SY2	UFLK1938	\$672.00	
			Yes	150	2*AF	UFLK1902	\$554.00	
			GK		UFLK1900	\$396.00		
			GM		UFLK1900	\$396.00		
		4"	No	150		2*GM	UFLK1908	\$554.00
					SY2	UFLK1940	\$672.00	
					Yes	150	2*GK	UFLK1908
		5"	No	150	SY3	UFLK1942	\$672.00	
		6"	No	150	SY4	UFLK1956	\$672.00	
		8"	No	150	SY4	UFLK1944	\$616.00	
	10"	No	150	SY5	UFLK1946	\$672.00		
	12"	No	150	SY7	UFLK1948	\$672.00		
	14"	No	150	SY7	UFLK1948	\$672.00		
	16"	No	150	SY9	UFLK1950	\$864.00		
	18"	No	150	SY10	UFLK1952	\$864.00		
	20"	No	150	SY10	UFLK1954	\$864.00		
	3-way	2"	No	150	GM	UFLK4900	\$672.00	
					SY2	UFLK4936	\$1,226.00	
					Yes	150	2*AF	UFLK4902
			GK	UFLK4900	\$672.00			
		2½"	No	150		GM	UFLK4900	\$672.00
					SY2	UFLK4936	\$1,226.00	
Yes			150		2*AF	UFLK4902	\$712.00	
		GK	UFLK4900	\$672.00				
3"		No	150		2*GM	UFLK4902	\$712.00	
				SY2	UFLK4936	\$1,226.00		
		Yes		150	2*GK	UFLK4902	\$712.00	
4"		No	150	SY3	UFLK4938	\$1,226.00		
5"	No	150	SY4	UFLK4940	\$1,226.00			
6"	No	150	SY4	UFLK4940	\$1,226.00			
8"	No	150	SY5	UFLK4942	\$1,226.00			
10"	No	150	SY7	UFLK4944	\$1,226.00			
12"	No	150	SY8	UFLK4946	\$1,226.00			
14"	No	150	SY9	UFLK4948	\$1,952.00			
16"	No	150	SY11	UFLK4950	\$1,952.00			

All close-off pressures listed are approximate and based on valve condition and application.



Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
Figure 7700 (Double D Shaft 2003 and Newer) Series Butterfly Valves	2-way	2"	No	300	GM	UFLK3740	\$396.00	
					SY1	UFLK3744	\$598.00	
					SY2	UFLK3746	\$616.00	
			Yes	300	2*AF	UFLK3742	\$368.00	
					GK	UFLK3740	\$396.00	
		2½"	No	300	2*GM	UFLK3742	\$368.00	
						SY1	UFLK3744	\$598.00
						SY2	UFLK3746	\$616.00
			Yes	300	2*GK	UFLK3742	\$368.00	
		3"	No	300	2*GM	UFLK3742	\$368.00	
						SY2	UFLK3746	\$616.00
						2*GK	UFLK3742	\$368.00
			Yes	300	2*GM	UFLK3742	\$368.00	
		4"	No	300	2*GM	UFLK3742	\$368.00	
						SY2	UFLK3746	\$616.00
			Yes	300	2*GK	UFLK3742	\$368.00	
		5"	No	300		SY3	UFLK3748	\$672.00
		6"	No	300		SY4	UFLK3750	\$616.00
	8"	No	300		SY4	UFLK3752	\$616.00	
	10"	No	300		SY5	UFLK3754	\$616.00	
	12"	No	300		SY7	UFLK3756	\$672.00	
	3-way	2"	No		300	2*GM	UFLK6740	\$712.00
						SY2	UFLK6742	\$1,226.00
			Yes		300	2*GK	UFLK6740	\$712.00
			No	300		SY2	UFLK6742	\$1,226.00
		3"	No	300		SY2	UFLK6742	\$1,226.00
		4"	No	300		SY3	UFLK6742	\$1,226.00
		5"	No	300		SY4	UFLK6744	\$984.00
6"		No	300		SY4	UFLK6744	\$984.00	
8"		No	300		SY5	UFLK6746	\$1,226.00	
10"		No	300		SY7	UFLK6748	\$1,226.00	
12"	No	300		SY9	UFLK6750	\$1,952.00		

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
Figure 7700 (Sheared Pin Shaft Pre 2003) Series Butterfly Valves	2-way	2"	No	200	GM	UFLK3700	\$254.00	
					SY1	UFLK3726	\$672.00	
					SY2	UFLK3728	\$672.00	
		2"	Yes	200	2*AF	UFLK3702	\$350.00	
						GK	UFLK3700	\$254.00
						GM	UFLK3700	\$254.00
		2½"	No	200	2*AF	UFLK3702	\$350.00	
						GK	UFLK3700	\$254.00
						GM	UFLK3700	\$254.00
		2½"	Yes	200	2*AF	UFLK3702	\$350.00	
						GK	UFLK3700	\$254.00
						GM	UFLK3700	\$254.00
		3"	No	200	2*GM	UFLK3702	\$350.00	
						SY1	UFLK3726	\$672.00
						SY2	UFLK3728	\$672.00
		3"	Yes	200	2*GK	UFLK3702	\$350.00	
						GK	UFLK3700	\$254.00
						GM	UFLK3700	\$254.00
	4"	No	200	2*GM	UFLK3708	\$350.00		
					SY2	UFLK3730	\$616.00	
					SY3	UFLK3732	\$672.00	
	4"	Yes	200	2*GK	UFLK3708	\$350.00		
					GK	UFLK3700	\$254.00	
					GM	UFLK3700	\$254.00	
	5"	No	200	2*GM	UFLK3708	\$350.00		
	6"	No	200	2*GM	UFLK3708	\$350.00		
	8"	No	200	2*GM	UFLK3708	\$350.00		
	10"	No	200	2*GM	UFLK3708	\$350.00		
	12"	No	200	2*GM	UFLK3708	\$350.00		
	3-way	2"	No	200	GM	UFLK6700	\$560.00	
SY2					UFLK6726	\$1,226.00		
2*AF					UFLK6702	\$754.00		
2"		Yes	200	2*AF	UFLK6702	\$754.00		
					GK	UFLK6700	\$560.00	
					GM	UFLK6700	\$560.00	
2½"		No	200	2*AF	UFLK6702	\$754.00		
					GK	UFLK6700	\$560.00	
					GM	UFLK6700	\$560.00	
2½"		Yes	200	2*AF	UFLK6702	\$754.00		
					GK	UFLK6700	\$560.00	
					GM	UFLK6700	\$560.00	
3"		No	200	2*GM	UFLK6702	\$754.00		
					SY2	UFLK6726	\$1,226.00	
					SY3	UFLK6728	\$1,226.00	
3"		Yes	200	2*GK	UFLK6702	\$754.00		
					GK	UFLK6700	\$560.00	
					GM	UFLK6700	\$560.00	
4"	No	200	2*GM	UFLK6702	\$754.00			
5"	No	200	2*GM	UFLK6702	\$754.00			
6"	No	200	2*GM	UFLK6702	\$754.00			
8"	No	200	2*GM	UFLK6702	\$754.00			
10"	No	200	2*GM	UFLK6702	\$754.00			
12"	No	200	2*GM	UFLK6702	\$754.00			

All close-off pressures listed are approximate and based on valve condition and application.





Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
61/62 Series Butterfly Valves	2-way	2"	No	200	AM	UFLK2000	\$268.00	
					SY1	UFLK2022	\$672.00	
					SY2	UFLK2024	\$672.00	
			Yes	200	2*AF	UFLK2002	\$368.00	
		2½"	No	200	GM	UFLK2000	\$268.00	
					SY1	UFLK2022	\$672.00	
					SY2	UFLK2024	\$672.00	
			Yes	200	2*AF	UFLK2002	\$368.00	
					GK	UFLK2000	\$268.00	
		3"	No	200	GM	UFLK2000	\$268.00	
					SY2	UFLK2024	\$672.00	
					2*AF	UFLK2002	\$368.00	
			Yes	200	GK	UFLK2000	\$268.00	
		4"	No	200	2*GM	UFLK2008	\$368.00	
					SY2	UFLK2026	\$616.00	
					2*GK	UFLK2008	\$368.00	
			Yes	200				
		5"	No	200	SY3	UFLK2026	\$616.00	
	6"	No	200	SY4	UFLK2028	\$616.00		
	8"	No	200	SY4	UFLK2030	\$616.00		
	10"	No	200	SY6	UFLK2032	\$616.00		
	12"	No	200	SY7	UFLK2034	\$672.00		
	3-way	2"	No	200	GM	UFLK5000	\$672.00	
						SY1	UFLK5022	\$1,226.00
						SY2	UFLK5024	\$1,226.00
			Yes	200	2*AF	UFLK5002	\$712.00	
					GK	UFLK5000	\$672.00	
		2½"	No	200	GM	UFLK5000	\$672.00	
					SY2	UFLK5024	\$1,226.00	
					2*AF	UFLK5002	\$712.00	
			Yes	200	GK	UFLK5000	\$672.00	
		3"	No	200	2*GM	UFLK5002	\$712.00	
					SY2	UFLK5024	\$1,226.00	
					2*GK	UFLK5002	\$712.00	
			Yes	200				
		4"	No	200	SY3	UFLK5026	\$1,226.00	
5"		No	200	SY4	UFLK5028	\$1,226.00		
6"		No	200	SY4	UFLK5030	\$1,226.00		
8"		No	200	SY6	UFLK5032	\$1,226.00		
10"		No	200	SY7	UFLK5034	\$1,226.00		
12"	No	200	SY8	UFLK5036	\$1,288.00			

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price
815 L/W Series Butterfly Valves	2-way	2½"	No	285	2*GM	UFLK8060	\$554.00
			Yes	285	2*GK	UFLK8064	\$616.00
		3"	No	285	2*GM	UFLK8062	\$554.00
			Yes	285	2*GK	UFLK8066	\$616.00
		4"	No	285	SY2	UFLK8068	\$616.00
		5"	No	285	SY3	UFLK8078	\$616.00
		6"	No	285	SY3	UFLK8072	\$616.00
		8"	No	285	SY4	UFLK8074	\$616.00
		10"	No	285	SY4	UFLK8076	\$616.00
		12"	No	285	SY6	UFLK8078	\$616.00
		14"	No	285	SY7	UFLK8080	\$712.00
		16"	No	285	SY8	UFLK8082	\$712.00
		18"	No	285	SY9	UFLK8084	\$1,226.00
		20"	No	285	SY10	UFLK8086	\$1,226.00
	24"	No	285	SY12	UFLK8088	\$1,226.00	
	3-way	2½"	No	285	SY2	UFLK7124	\$1,226.00
		3"	No	285	SY2	UFLK7126	\$1,226.00
		4"	No	285	SY3	UFLK7128	\$1,226.00
		5"	No	285	SY4	UFLK7130	\$1,226.00
		6"	No	285	SY4	UFLK7132	\$1,226.00
		8"	No	285	SY5	UFLK7134	\$1,226.00
		10"	No	285	SY6	UFLK7136	\$1,226.00
		12"	No	285	SY7	UFLK7138	\$1,226.00
		14"	No	285	SY9	UFLK7140	\$1,952.00
16"		No	285	SY10	UFLK7142	\$1,952.00	
18"	No	285	SY11	UFLK7144	\$1,952.00		
830 L/W Series Butterfly Valves	2-way	2½"	No	740	2*GM	UFLK8124	\$554.00
			Yes	740	2*GK	UFLK8126	\$672.00
		3"	No	740	SY2	UFLK8128	\$672.00
		4"	No	740	SY3	UFLK8130	\$616.00
		5"	No	740	SY4	UFLK8132	\$672.00
		6"	No	740	SY4	UFLK8134	\$672.00
		8"	No	740	SY6	UFLK8136	\$672.00
		10"	No	740	SY8	UFLK8138	\$712.00
		12"	No	740	SY8	UFLK8140	\$712.00
		14"	No	740	SY11	UFLK8142	\$1,226.00
	16"	No	740	SY12	UFLK8144	\$1,226.00	
	3-way	2½"	No	740	SY3	UFLK7248	\$1,226.00
		3"	No	740	SY3	UFLK7250	\$1,226.00
		4"	No	740	SY4	UFLK7252	\$1,226.00
		5"	No	740	SY4	UFLK7254	\$1,226.00
		6"	No	740	SY6	UFLK7256	\$1,226.00
		8"	No	740	SY8	UFLK7258	\$1,226.00
		10"	No	740	SY9	UFLK7260	\$1,952.00
		12"	No	740	SY10	UFLK7262	\$1,952.00

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Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
22XXEXJ Series Butterfly Valves	2-way	2"	No	175	GM	UFLK8400	\$396.00	
					SY1	UFLK8436	\$672.00	
					SY2	UFLK8438	\$672.00	
			Yes	175	2*AF	UFLK8402	\$554.00	
					GK	UFLK8400	\$396.00	
					GM	UFLK8400	\$396.00	
		2½"	No	175	GM	UFLK8400	\$396.00	
					SY1	UFLK8436	\$672.00	
					SY2	UFLK8438	\$672.00	
			Yes	175	2*AF	UFLK8402	\$554.00	
					GK	UFLK8400	\$396.00	
					GM	UFLK8400	\$396.00	
		3"	No	175	2*GM	UFLK8402	\$554.00	
					SY1	UFLK8436	\$672.00	
					SY2	UFLK8438	\$672.00	
			Yes	175	2*GK	UFLK8402	\$554.00	
					GM	UFLK8400	\$396.00	
					GM	UFLK8400	\$396.00	
		4"	No	175	2*GM	UFLK8408	\$368.00	
					SY2	UFLK8440	\$672.00	
					GM	UFLK8400	\$396.00	
			Yes	175	2*GK	UFLK8408	\$368.00	
					GM	UFLK8400	\$396.00	
					GM	UFLK8400	\$396.00	
	5"	No	175	SY2	UFLK8442	\$672.00		
	6"	No	175	SY3	UFLK8444	\$672.00		
	8"	No	175	SY4	UFLK8446	\$672.00		
	10"	No	175	SY4	UFLK8448	\$672.00		
	12"	No	175	SY5	UFLK8450	\$672.00		
	14"	No	150	SY5	UFLK8450	\$672.00		
	16"	No	150	SY7	UFLK8452	\$712.00		
	18"	No	150	SY8	UFLK8454	\$712.00		
	20"	No	150	SY8	UFLK8456	\$712.00		
	24"	No	150	SY10	UFLK8458	\$1,226.00		
	3-way	2"	No	175	GM	UFLK7338	\$672.00	
					SY1	UFLK7342	\$1,226.00	
SY2					UFLK7344	\$1,226.00		
Yes					175	2*AF	UFLK7340	\$712.00
						GK	UFLK7338	\$672.00
						GM	UFLK7340	\$712.00
2½"			No	175	2*GM	UFLK7340	\$712.00	
					SY2	UFLK7344	\$1,226.00	
					GM	UFLK7340	\$712.00	
			Yes	175	2*GK	UFLK7340	\$712.00	
					GM	UFLK7340	\$712.00	
					GM	UFLK7340	\$712.00	
3"		No	175	2*GM	UFLK7340	\$712.00		
				SY2	UFLK7344	\$1,226.00		
				GM	UFLK7340	\$712.00		
		Yes	175	2*GK	UFLK7340	\$712.00		
				GM	UFLK7340	\$712.00		
				GM	UFLK7340	\$712.00		
4"		No	175	SY2	UFLK7346	\$1,226.00		
5"		No	175	SY3	UFLK7348	\$1,226.00		
6"		No	175	SY4	UFLK7350	\$1,226.00		
8"		No	175	SY4	UFLK7352	\$1,226.00		
10"		No	175	SY5	UFLK7354	\$1,226.00		
12"		No	175	SY7	UFLK7356	\$1,226.00		
14"	No	150	SY7	UFLK7358	\$1,226.00			
16"	No	150	SY8	UFLK7360	\$1,226.00			
18"	No	150	SY9	UFLK7362	\$1,952.00			
20"	No	150	SY10	UFLK7364	\$1,952.00			

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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price					
VF.. (H) Series Butterfly Valves	2-way	2"	No	175	GM	UFLK2100	\$268.00					
					SY1	UFLK2136	\$672.00					
					SY2	UFLK2138	\$672.00					
			Yes	175	2*AF	UFLK2102	\$368.00					
					GK	UFLK2100	\$268.00					
					GM	UFLK2100	\$268.00					
		2½"	No	175	175	GM	UFLK2100	\$268.00				
						SY1	UFLK2136	\$672.00				
						SY2	UFLK2138	\$672.00				
			Yes	175	175	2*AF	UFLK2102	\$368.00				
						GK	UFLK2100	\$268.00				
						GM	UFLK2100	\$268.00				
		3"	No	175	175	GM	UFLK2100	\$268.00				
						SY1	UFLK2136	\$672.00				
						SY2	UFLK2138	\$672.00				
			Yes	175	175	2*AF	UFLK2102	\$368.00				
						GK	UFLK2100	\$268.00				
						GM	UFLK2100	\$268.00				
		4"	No	175	175	2*GM	UFLK2108	\$368.00				
						SY2	UFLK2140	\$598.00				
						Yes	175	2*GK	UFLK2108	\$368.00		
		5"	No	175	175	SY3	UFLK2142	\$616.00				
		6"	No	175	175	SY4	UFLK2144	\$616.00				
		8"	No	175	175	SY4	UFLK2158	\$616.00				
	10"	No	175	175	SY5	UFLK2146	\$616.00					
	12"	No	175	175	SY7	UFLK2148	\$672.00					
	14"	No	150	150	SY7	UFLK2156	\$672.00					
	16"	No	150	150	SY9	UFLK2150	\$1,288.00					
	18"	No	150	150	SY10	UFLK2152	\$864.00					
	20"	No	150	150	SY10	UFLK2154	\$864.00					
	3-way	2"	No	175	175	GM	UFLK5100	\$672.00				
						SY1	UFLK5130	\$1,226.00				
						SY2	UFLK5132	\$984.00				
						Yes	175	175	2*AF	UFLK5102	\$792.00	
									GK	UFLK5100	\$672.00	
									2*GM	UFLK5102	\$792.00	
2½"			No	175	175	SY2	UFLK5132	\$984.00				
						2*GK	UFLK5102	\$792.00				
						Yes	175	175	2*GM	UFLK5102	\$792.00	
			Yes	175	175	SY2	UFLK5132	\$984.00				
						2*GK	UFLK5102	\$792.00				
						GM	UFLK5100	\$672.00				
3"		No	175	175	2*GM	UFLK5102	\$792.00					
					SY2	UFLK5132	\$984.00					
					Yes	175	175	2*GK	UFLK5102	\$792.00		
		4"	No	175	175	SY3	UFLK5134	\$984.00				
						5"	No	175	175	SY4	UFLK5136	\$984.00
						6"	No	175	175	SY4	UFLK5136	\$984.00
8"		No	175	175	SY5	UFLK5138	\$984.00					
10"		No	175	175	SY6	UFLK5140	\$984.00					
12"		No	175	175	SY7	UFLK5142	\$1,226.00					
14"		No	150	150	SY8	UFLK5144	\$1,226.00					
16"		No	150	150	SY9	UFLK5146	\$1,952.00					
18"		No	150	150	SY11	UFLK5148	\$1,952.00					
20"	No	150	150	SY12	UFLK5150	\$1,952.00						

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Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price		
360/362 Series Butterfly Valves, K-LOK	2-way	2½"	No	285	GM	UFLK2400	\$396.00		
					SY1	UFLK2440	\$672.00		
					SY2	UFLK2442	\$672.00		
		Yes	285	2*AF	UFLK2402	\$396.00			
				GK	UFLK2400	\$396.00			
				2*GM	UFLK2408	\$368.00			
		3"	No	285	285	2*GM	UFLK2414	\$368.00	
						SY2	UFLK2444	\$672.00	
						2*GK	UFLK2408	\$368.00	
		Yes	285	285	285	2*GM	UFLK2414	\$368.00	
						SY2	UFLK2446	\$616.00	
						2*GK	UFLK2414	\$368.00	
		5"	No	285	285	285	SY2	UFLK2446	\$616.00
							SY3	UFLK2448	\$672.00
		6"	No	285	285	285	SY3	UFLK2448	\$672.00
							SY4	UFLK2452	\$672.00
		8"	No	285	285	285	SY3	UFLK2450	\$616.00
							SY4	UFLK2452	\$672.00
	10"	No	285	285	285	SY4	UFLK2452	\$672.00	
						SY6	UFLK2456	\$598.00	
	12"	No	285	285	285	SY4	UFLK2454	\$672.00	
						SY6	UFLK2458	\$672.00	
	14"	No	285	285	285	SY6	UFLK2456	\$598.00	
						SY7	UFLK2460	\$672.00	
	16"	No	285	285	285	SY6	UFLK2458	\$672.00	
						SY9	UFLK2462	\$864.00	
	18"	No	285	285	285	SY7	UFLK2460	\$672.00	
						SY9	UFLK2462	\$864.00	
	20"	No	285	285	285	SY9	UFLK2462	\$864.00	
						SY9	UFLK2464	\$864.00	
	24"	No	285	285	285	SY9	UFLK2464	\$864.00	
						SY12	UFLK5462	\$1,952.00	
	3-way	2½"	No	285	285	GM	UFLK5400	\$672.00	
						SY2	UFLK5440	\$1,226.00	
						2*AF	UFLK5402	\$712.00	
		Yes	285	285	285	GK	UFLK5400	\$672.00	
2*GM						UFLK5408	\$712.00		
SY2						UFLK5442	\$1,226.00		
3"		No	285	285	285	2*GM	UFLK5408	\$712.00	
						SY2	UFLK5442	\$1,226.00	
						2*GK	UFLK5408	\$712.00	
Yes		285	285	285	285	2*GM	UFLK5414	\$712.00	
						SY2	UFLK5444	\$1,226.00	
						2*GK	UFLK5414	\$712.00	
5"		No	285	285	285	SY3	UFLK5444	\$1,226.00	
						SY4	UFLK5446	\$1,226.00	
6"		No	285	285	285	SY4	UFLK5446	\$1,226.00	
						SY4	UFLK5448	\$1,226.00	
8"		No	285	285	285	SY4	UFLK5448	\$1,226.00	
						SY4	UFLK5450	\$1,226.00	
10"	No	285	285	285	SY4	UFLK5450	\$1,226.00		
					SY6	UFLK5452	\$1,226.00		
12"	No	285	285	285	SY6	UFLK5452	\$1,226.00		
					SY7	UFLK5454	\$1,226.00		
14"	No	285	285	285	SY7	UFLK5454	\$1,226.00		
					SY8	UFLK5456	\$1,226.00		
16"	No	285	285	285	SY8	UFLK5456	\$1,226.00		
					SY9	UFLK5458	\$1,952.00		
18"	No	285	285	285	SY9	UFLK5458	\$1,952.00		
					SY11	UFLK5460	\$1,952.00		
20"	No	285	285	285	SY11	UFLK5460	\$1,952.00		
					SY12	UFLK5462	\$1,952.00		
24"	No	285	285	285	SY12	UFLK5462	\$1,952.00		
					SY12	UFLK5462	\$1,952.00		

All close-off pressures listed are approximate and based on valve condition and application.

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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
AR1/AR2 Series Butterfly Valves	2-way	2"	No	175	GM	UFLK2300	\$396.00	
					SY1	UFLK2334	\$672.00	
					SY2	UFLK2336	\$672.00	
			Yes	175	2*AF	UFLK2302	\$368.00	
			GK		UFLK2300	\$396.00		
			GM		UFLK2300	\$396.00		
		2½"	No	175		SY1	UFLK2334	\$672.00
					SY2	UFLK2336	\$672.00	
					2*AF	UFLK2302	\$368.00	
			Yes	175	GK	UFLK2300	\$396.00	
			GM		UFLK2300	\$396.00		
			SY1		UFLK2334	\$672.00		
		3"	No	175		SY2	UFLK2336	\$672.00
					2*AF	UFLK2302	\$368.00	
					GK	UFLK2300	\$396.00	
			Yes	175	GM	UFLK2300	\$396.00	
			SY1		UFLK2334	\$672.00		
			SY2		UFLK2336	\$672.00		
		4"	No	175		2*GM	UFLK2308	\$368.00
					SY2	UFLK2338	\$672.00	
					Yes	175	2*GK	UFLK2308
			No	175	SY3		UFLK2340	\$616.00
			No	175	SY4		UFLK2356	\$616.00
			No	175	SY4	UFLK2342	\$616.00	
		No	175	SY5	UFLK2344	\$616.00		
		No	175	SY7	UFLK2346	\$792.00		
		No	150	SY7	UFLK2348	\$792.00		
		No	150	SY9	UFLK2350	\$864.00		
		No	150	SY10	UFLK2352	\$1,288.00		
		No	150	SY11	UFLK2352	\$1,288.00		
		No	150	SY12	UFLK2354	\$864.00		
	3-way	2"	No	175	GM	UFLK5300	\$672.00	
					SY1	UFLK5332	\$1,226.00	
					SY2	UFLK5334	\$984.00	
				Yes	175	2*AF	UFLK5302	\$792.00
				GK		UFLK5300	\$672.00	
			GM	UFLK5300		\$672.00		
2½"		No	175		SY2	UFLK5334	\$984.00	
				2*AF	UFLK5302	\$792.00		
				Yes	175	GK	UFLK5300	\$672.00
		No	175	2*GM		UFLK5302	\$792.00	
		Yes		175		SY2	UFLK5334	\$984.00
		2*GK			UFLK5302	\$792.00		
		No	175		SY3	UFLK5336	\$984.00	
		No	175	SY4	UFLK5338	\$984.00		
		No	175	SY4	UFLK5338	\$984.00		
		No	175	SY5	UFLK5340	\$984.00		
		No	175	SY7	UFLK5342	\$1,288.00		
		No	175	SY8	UFLK5344	\$1,288.00		
		No	150	SY9	UFLK5346	\$1,952.00		
		No	150	SY10	UFLK5348	\$1,952.00		
		No	150	SY12	UFLK5350	\$1,952.00		

All close-off pressures listed are approximate and based on valve condition and application.

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Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price
Figure 222 Series Butterfly Valves	2-way	2"	No	200	GM	UFLK2200	\$268.00
					SY1	UFLK2224	\$672.00
					SY2	UFLK2226	\$616.00
		2"	Yes	200	2*AF	UFLK2202	\$368.00
					GK	UFLK2200	\$268.00
					GM	UFLK2200	\$268.00
		2½"	No	200	GM	UFLK2200	\$268.00
					SY1	UFLK2224	\$672.00
					SY2	UFLK2226	\$616.00
		2½"	Yes	200	2*AF	UFLK2202	\$368.00
					GK	UFLK2200	\$268.00
					GM	UFLK2200	\$268.00
		3"	No	200	GM	UFLK2200	\$268.00
					SY1	UFLK2224	\$672.00
					SY2	UFLK2226	\$616.00
		3"	Yes	200	2*AF	UFLK2202	\$368.00
					GK	UFLK2200	\$268.00
					GM	UFLK2200	\$268.00
	4"	No	200	2*GM	UFLK2208	\$368.00	
				SY2	UFLK2228	\$616.00	
				2*GK	UFLK2208	\$368.00	
	4"	Yes	200	SY3	UFLK2230	\$616.00	
				SY4	UFLK2232	\$598.00	
				SY4	UFLK2234	\$598.00	
	5"	No	200	SY4	UFLK2234	\$598.00	
	6"	No	200	SY5	UFLK2236	\$598.00	
	8"	No	200	SY7	UFLK2238	\$792.00	
	10"	No	200	GM	UFLK5200	\$588.00	
	3-way	2"	No	200	SY2	UFLK5224	\$1,226.00
					2*AF	UFLK5202	\$792.00
		2"	Yes	200	GK	UFLK5200	\$588.00
					GM	UFLK5200	\$588.00
2½"		No	200	SY2	UFLK5224	\$1,226.00	
				2*AF	UFLK5202	\$792.00	
2½"		Yes	200	GK	UFLK5200	\$588.00	
				2*GM	UFLK5202	\$792.00	
3"		No	200	SY2	UFLK5224	\$1,226.00	
				2*GK	UFLK5202	\$792.00	
3"		Yes	200	SY3	UFLK5226	\$984.00	
				SY4	UFLK5228	\$955.00	
4"		No	200	SY4	UFLK5228	\$955.00	
5"		No	200	SY5	UFLK5230	\$984.00	
6"	No	200	SY7	UFLK5232	\$1,288.00		
8"	No	200	SY8	UFLK5234	\$1,288.00		
10"	No	200					
12"	No	200					

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price
370/372 Series Butterfly Valves, K-LOK	2-way	2½"	No	600	SY3	UFLK2526	\$672.00
		3"	No	600	SY3	UFLK2528	\$616.00
		4"	No	600	SY4	UFLK2530	\$672.00
		5"	No	600	SY4	UFLK2530	\$672.00
		6"	No	600	SY4	UFLK2532	\$672.00
		8"	No	600	SY7	UFLK2534	\$792.00
		10"	No	600	SY7	UFLK2536	\$672.00
		12"	No	600	SY9	UFLK2538	\$1,288.00
	3-way	14"	No	600	SY9	UFLK2540	\$864.00
		2½"	No	600	SY4	UFLK5526	\$1,226.00
		3"	No	600	SY4	UFLK5528	\$1,226.00
		4"	No	600	SY4	UFLK5530	\$1,226.00
		5"	No	600	SY4	UFLK5530	\$1,226.00
		6"	No	600	SY4	UFLK5532	\$1,226.00
		8"	No	600	SY8	UFLK5534	\$1,226.00
		10"	No	600	SY8	UFLK5536	\$1,226.00
		12"	No	600	SY12	UFLK5538	\$1,952.00
		14"	No	600	SY12	UFLK5540	\$1,952.00

All close-off pressures listed are approximate and based on valve condition and application.





Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
200 WOG Series Butterfly Valves	2-way	2"	No	200	AM	UFLK3800	\$396.00	
					SY1	UFLK3824	\$672.00	
					SY2	UFLK3826	\$672.00	
			Yes	200	AF	UFLK3800	\$396.00	
		2½"	No	200	AM	UFLK3800	\$396.00	
					SY1	UFLK3824	\$672.00	
					SY2	UFLK3826	\$672.00	
			Yes	200	2*AF	UFLK3802	\$554.00	
		3"	No	200	GM	UFLK3800	\$396.00	
					SY1	UFLK3824	\$672.00	
					SY2	UFLK3826	\$672.00	
			Yes	200	2*AF	UFLK3802	\$554.00	
					GK	UFLK3800	\$396.00	
		4"	No	200	2*GM	UFLK3808	\$554.00	
					SY2	UFLK3828	\$672.00	
					2*GK	UFLK3808	\$554.00	
		5"	No	200	2*GM	UFLK3814	\$554.00	
					SY2	UFLK3830	\$672.00	
					2*GK	UFLK3814	\$554.00	
		6"	No	200	SY4	UFLK3832	\$616.00	
		8"	No	200	SY4	UFLK3834	\$672.00	
		10"	No	200	SY4	UFLK3836	\$672.00	
		12"	No	200	SY6	UFLK3838	\$672.00	
		3-way	2"	No	200	AM	UFLK6800	\$672.00
						SY1	UFLK6824	\$1,226.00
						SY2	UFLK6826	\$1,226.00
			Yes	200	2*AF	UFLK6802	\$712.00	
	2½"		No	200	GM	UFLK6800	\$672.00	
					SY2	UFLK6826	\$1,226.00	
					GK	UFLK6800	\$672.00	
	3"		No	200	GM	UFLK6800	\$672.00	
					SY2	UFLK6826	\$1,226.00	
					Yes	200	GK	UFLK6800
	4"		No	200	2*GM	UFLK6808	\$712.00	
					SY3	UFLK6828	\$1,226.00	
					Yes	200	2*GK	UFLK6808
5"	No		200	SY3	UFLK6830	\$1,226.00		
6"	No		200	SY4	UFLK6832	\$1,226.00		
8"	No		200	SY4	UFLK6834	\$1,226.00		
10"	No		200	SY6	UFLK6836	\$1,226.00		
12"	No		200	SY7	UFLK6838	\$1,226.00		

All close-off pressures listed are approximate and based on valve condition and application.

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
CL Series Butterfly Valves	2-way	2"	No	150	AM	UFLK2600	\$268.00	
					SY1	UFLK2624	\$616.00	
					SY2	UFLK2628	\$616.00	
			Yes	150	AF	UFLK2600	\$268.00	
		2½"	No	150	AM	UFLK2600	\$268.00	
					SY1	UFLK2624	\$616.00	
					SY2	UFLK2628	\$616.00	
			Yes	150	AF	UFLK2600	\$268.00	
		3"	No	150	GM	UFLK2600	\$268.00	
					SY1	UFLK2624	\$616.00	
					SY2	UFLK2628	\$616.00	
			Yes	150	2*AF	UFLK2602	\$368.00	
					GK	UFLK2600	\$268.00	
		4"	No	150	2*GM	UFLK2608	\$368.00	
					SY2	UFLK2630	\$616.00	
			Yes		150	2*GK	UFLK2608	\$368.00
		5"	No	150	2*GM	UFLK2608	\$368.00	
					SY2	UFLK2630	\$616.00	
	Yes		150		2*GK	UFLK2608	\$368.00	
	6"	No	150	SY3	UFLK2632	\$598.00		
	8"	No	150	SY4	UFLK2634	\$598.00		
	10"	No	150	SY4	UFLK2636	\$598.00		
	12"	No	150	SY5	UFLK2636	\$598.00		
	3-way	2"	No	150	AM	UFLK5600	\$672.00	
						SY1	UFLK5622	\$1,226.00
						SY2	UFLK5624	\$1,226.00
			Yes	150	2*AF	UFLK5602	\$712.00	
		2½"	No	150	GM	UFLK5600	\$672.00	
					SY1	UFLK5622	\$1,226.00	
					SY2	UFLK5624	\$1,226.00	
			Yes	150	2*AF	UFLK5602	\$712.00	
					GK	UFLK5600	\$672.00	
		3"	No	150	GM	UFLK5600	\$672.00	
					SY2	UFLK5624	\$1,226.00	
			Yes		150	2*AF	UFLK5602	\$712.00
					GK	UFLK5600	\$672.00	
4"		No	150	2*GM	UFLK5608	\$712.00		
				SY2	UFLK5626	\$1,226.00		
		Yes		150	2*GK	UFLK5608	\$712.00	
5"		No	150	SY3	UFLK5626	\$1,226.00		
6"		No	150	SY4	UFLK5628	\$984.00		
8"	No	150	SY4	UFLK5630	\$1,226.00			
10"	No	150	SY6	UFLK5632	\$984.00			
12"	No	150	SY7	UFLK5634	\$1,226.00			

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Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
ML Series Butterfly Valves	2-way	2"	No	150	AM	UFLK2700	\$254.00	
					SY1	UFLK2732	\$672.00	
					SY2	UFLK2734	\$616.00	
			Yes	150	AF	UFLK2700	\$254.00	
		2½"	No	150	AM	UFLK2700	\$254.00	
					SY1	UFLK2732	\$672.00	
					SY2	UFLK2734	\$616.00	
			Yes	150	AF	UFLK2700	\$254.00	
		3"	No	150	GM	UFLK2700	\$254.00	
					SY1	UFLK2732	\$672.00	
					SY2	UFLK2734	\$616.00	
			Yes		150	2*AF	UFLK2702	\$350.00
					GK	UFLK2700	\$254.00	
		4"	No	150	2*GM	UFLK2708	\$350.00	
					SY2	UFLK2736	\$672.00	
			Yes		150	2*GK	UFLK2708	\$350.00
		5"	No	150	2*GM	UFLK2708	\$350.00	
					SY2	UFLK2736	\$672.00	
			Yes		150	2*GK	UFLK2708	\$350.00
		6"	No	150	SY3	UFLK2738	\$616.00	
		8"	No	150	SY4	UFLK2740	\$616.00	
		10"	No	150	SY4	UFLK2742	\$616.00	
		12"	No	150	SY5	UFLK2742	\$616.00	
		14"	No	150	SY7	UFLK2744	\$792.00	
		16"	No	150	SY7	UFLK2744	\$792.00	
		18"	No	150	SY8	UFLK2746	\$672.00	
		20"	No	150	SY9	UFLK2748	\$864.00	
		24"	No	150	SY10	UFLK2750	\$864.00	
	3-way	2"	No	150	AM	UFLK5700	\$560.00	
						SY1	UFLK5732	\$1,226.00
						SY2	UFLK5734	\$1,226.00
			Yes	150	2*AF	UFLK5702	\$754.00	
		2½"	No	150	AM	UFLK5700	\$560.00	
					SY1	UFLK5732	\$1,226.00	
					SY2	UFLK5734	\$1,226.00	
			Yes	150	2*AF	UFLK5702	\$754.00	
		3"	No	150	GM	UFLK5700	\$560.00	
					SY2	UFLK5734	\$1,226.00	
			Yes		150	2*AF	UFLK5702	\$754.00
					GK	UFLK5700	\$560.00	
		4"	No	150	2*GM	UFLK5708	\$754.00	
					SY2	UFLK5736	\$984.00	
Yes			150		2*GK	UFLK5708	\$754.00	
5"		No	150	SY3	UFLK5736	\$984.00		
6"		No	150	SY4	UFLK5738	\$1,226.00		
8"		No	150	SY4	UFLK5740	\$1,226.00		
10"		No	150	SY6	UFLK5742	\$1,226.00		
12"		No	150	SY7	UFLK5744	\$1,226.00		
14"	No	150	SY8	UFLK5746	\$1,226.00			
16"	No	150	SY9	UFLK5748	\$1,952.00			
18"	No	150	SY10	UFLK5750	\$1,952.00			
20"	No	150	SY11	UFLK5750	\$1,952.00			

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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
65/66 Series Butterfly Valves	2-way	2"	No	150	GM	UFLK2800	\$396.00	
					SY1	UFLK2834	\$672.00	
					SY2	UFLK2836	\$672.00	
		2"	Yes	150	2*AF	UFLK2802	\$554.00	
					GK	UFLK2800	\$396.00	
					GM	UFLK2800	\$396.00	
		2½"	No	150	SY1	UFLK2834	\$672.00	
					SY2	UFLK2836	\$672.00	
					GK	UFLK2800	\$396.00	
		2½"	Yes	150	2*GM	UFLK2802	\$554.00	
					2*GK	UFLK2802	\$554.00	
					2*GM	UFLK2808	\$554.00	
		3"	No	150	SY2	UFLK2836	\$672.00	
					2*GM	UFLK2808	\$554.00	
					2*GK	UFLK2808	\$554.00	
		3"	Yes	150	SY3	UFLK2840	\$672.00	
					SY4	UFLK2842	\$616.00	
					SY4	UFLK2844	\$616.00	
	4"	No	150	SY5	UFLK2846	\$616.00		
				SY7	UFLK2848	\$792.00		
				SY7	UFLK2850	\$792.00		
	4"	Yes	150	SY12	UFLK2856	\$864.00		
				2*GM	UFLK5800	\$588.00		
				SY2	UFLK5834	\$1,226.00		
	3-way	2"	2"	No	150	2*GM	UFLK5800	\$588.00
						SY2	UFLK5834	\$1,226.00
			2"	Yes	150	2*AF	UFLK5802	\$712.00
						GM	UFLK5800	\$588.00
			2½"	No	150	SY2	UFLK5834	\$1,226.00
						GK	UFLK5800	\$588.00
2½"		Yes	150	2*GM	UFLK5802	\$712.00		
				2*GK	UFLK5802	\$712.00		
3"		3"	No	150	SY3	UFLK5836	\$1,226.00	
					SY4	UFLK5838	\$1,226.00	
		3"	Yes	150	SY5	UFLK5840	\$1,226.00	
					SY7	UFLK5842	\$1,226.00	
	4"	No	150	SY8	UFLK5844	\$1,226.00		
				SY9	UFLK5846	\$1,952.00		

All close-off pressures listed are approximate and based on valve condition and application.



**LD1/WD1 Series Butterfly Valves (14" to 24" Valves Exclusively)**  
**LD2/WD2 Series Butterfly Valves (2" to 12" Valves Exclusively)**  
**Linkage/Actuator Selection Guide**

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price
LD1/WD1 Series Butterfly Valves	2-way	14"	No	150	SY7	UFLK2960	\$792.00
		16"	No	150	SY8	UFLK2968	\$1,288.00
		18"	No	150	SY8	UFLK2962	\$792.00
		20"	No	150	SY9	UFLK2964	\$1,288.00
	3-way	14"	No	150	SY11	UFLK2966	\$864.00
		16"	No	150	SY8	UFLK5956	\$2,050.00
		18"	No	150	SY9	UFLK5958	\$1,952.00
		20"	No	150	SY10	UFLK5960	\$1,952.00
LD2/WD2, LD3 Series Butterfly Valves	2-way	2"	No	150	GM	UFLK2900	\$268.00
					SY1	UFLK2942	\$672.00
			Yes		2*AF	UFLK2902	\$368.00
					GK	UFLK2900	\$268.00
		2½"	No	150	GM	UFLK2908	\$268.00
					SY1	UFLK2944	\$672.00
			Yes		SY2	UFLK2948	\$598.00
					2*AF	UFLK2910	\$340.00
		3"	No	150	GK	UFLK2908	\$268.00
					2*GM	UFLK2910	\$340.00
			Yes		SY2	UFLK2948	\$598.00
					2*GK	UFLK2910	\$340.00
		4"	No	150	2*GM	UFLK2916	\$368.00
					SY2	UFLK2950	\$598.00
			Yes		2*GK	UFLK2916	\$368.00
					SY3	UFLK2952	\$598.00
	5"	No	150	SY3	UFLK2952	\$598.00	
				SY4	UFLK2954	\$598.00	
		No		SY4	UFLK2956	\$568.00	
				SY7	UFLK2958	\$792.00	
	3-way	2"	No	150	GM	UFLK5900	\$588.00
					SY2	UFLK5942	\$1,226.00
			Yes		2*AF	UFLK5902	\$712.00
					GK	UFLK5900	\$588.00
		2½"	No	150	2*GM	UFLK5910	\$792.00
					SY2	UFLK5944	\$1,226.00
			Yes		2*GK	UFLK5910	\$792.00
					2*GM	UFLK5910	\$792.00
3"		No	150	SY2	UFLK5944	\$1,226.00	
				2*GK	UFLK5910	\$792.00	
		Yes		SY3	UFLK5946	\$984.00	
				SY4	UFLK5948	\$984.00	
4"	No	150	SY4	UFLK5948	\$984.00		
			SY6	UFLK5950	\$984.00		
	No		SY6	UFLK5952	\$984.00		
			SY8	UFLK5954	\$1,288.00		

All close-off pressures listed are approximate and based on valve condition and application.

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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
27 Series Butterfly Valves	2-way	2"	No	150	GM	UFLK3100	\$396.00	
					SY1	UFLK3122	\$672.00	
					SY2	UFLK3124	\$672.00	
			Yes	150	2*AF	UFLK3102	\$554.00	
			GK		UFLK3100	\$396.00		
			2*GM		UFLK3102	\$554.00		
		2½"	No	150	2*GM	UFLK3102	\$554.00	
					SY2	UFLK3124	\$672.00	
			Yes	150	2*GK	UFLK3102	\$554.00	
			No		150	2*GM	UFLK3102	\$554.00
		3"	No	150		2*GM	UFLK3102	\$554.00
					SY2	UFLK3124	\$672.00	
			Yes	150	2*GK	UFLK3102	\$554.00	
			No		150	2*GM	UFLK3108	\$368.00
		4"	No	150		SY2	UFLK3126	\$616.00
					Yes	150	2*GK	UFLK3108
		5"	No	150	SY3		UFLK3128	\$672.00
		6"	No	150	SY3	UFLK3130	\$616.00	
	8"	No	150	SY4	UFLK3132	\$598.00		
	10"	No	150	SY4	UFLK3132	\$598.00		
	12"	No	150	SY6	UFLK3132	\$598.00		
	3-way	2"	No	150	GM	UFLK6100	\$672.00	
						SY2	UFLK6122	\$1,226.00
						2*AF	UFLK6102	\$712.00
			Yes	150	GK	UFLK6100	\$672.00	
			No		150	2*GM	UFLK6102	\$712.00
			Yes			150	SY2	UFLK6122
			No	150			2*GK	UFLK6102
		2½"	No		150		2*GM	UFLK6102
						SY2	UFLK6122	\$1,226.00
		Yes	150	2*GK	UFLK6102	\$712.00		
3"		No		150	2*GM	UFLK6102	\$712.00	
			Yes		150	SY2	UFLK6122	\$1,226.00
	No	150	2*GK	UFLK6102		\$712.00		
4"	No		150	SY3	UFLK6124	\$1,226.00		
5"	No	150	SY4	UFLK6126	\$1,226.00			
6"	No	150	SY4	UFLK6128	\$1,226.00			
8"	No	150	SY4	UFLK6130	\$984.00			
10"	No	150	SY6	UFLK6132	\$1,226.00			
12"	No	150	SY7	UFLK6134	\$1,288.00			

All close-off pressures listed are approximate and based on valve condition and application.

\*Verify valve has a square or Double D shaft.



Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
42/44 Series Butterfly Valves	2-way	2"	No	150	AM	UFLK3200	\$396.00	
					SY1	UFLK3246	\$672.00	
					SY2	UFLK3248	\$672.00	
			Yes	150	2*AF	UFLK3202	\$554.00	
		2½"	No	150	GM	UFLK3200	\$396.00	
					SY1	UFLK3246	\$672.00	
					SY2	UFLK3248	\$672.00	
			Yes	150	2*AF	UFLK3202	\$554.00	
					GK	UFLK3200	\$396.00	
					GM	UFLK3208	\$268.00	
		3"	No	150	SY2	UFLK3250	\$672.00	
			Yes	150	2*AF	UFLK3210	\$554.00	
					GK	UFLK3208	\$268.00	
		4"	No	150	2*GM	UFLK3216	\$554.00	
			Yes	150	SY2	UFLK3252	\$672.00	
				2*GK	UFLK3216	\$554.00		
		5"	No	150	SY3	UFLK3254	\$672.00	
		6"	No	150	SY4	UFLK3256	\$672.00	
		8"	No	150	SY4	UFLK3258	\$672.00	
		10"	No	150	SY6	UFLK3260	\$672.00	
		12"	No	150	SY7	UFLK3262	\$672.00	
	14"	No	150	SY7	UFLK3264	\$792.00		
	16"	No	150	SY8	UFLK3266	\$712.00		
	18"	No	150	SY9	UFLK3268	\$864.00		
	20"	No	150	SY10	UFLK3270	\$1,226.00		
	3-way	2"	No		150	GM	UFLK6200	\$672.00
						SY1	UFLK6246	\$1,226.00
						SY2	UFLK6248	\$1,226.00
			Yes	150	2*AF	UFLK6202	\$712.00	
					GK	UFLK6200	\$672.00	
			2½"	No	150	GM	UFLK6200	\$672.00
					SY2	UFLK6248	\$1,226.00	
		Yes		150	2*AF	UFLK6202	\$712.00	
					GK	UFLK6200	\$672.00	
		3"		No	150	2*GM	UFLK6210	\$712.00
						SY2	UFLK6250	\$1,226.00
			Yes	150	2*GK	UFLK6210	\$712.00	
		4"	No	150	SY3	UFLK6252	\$1,226.00	
		5"	No	150	SY4	UFLK6254	\$1,226.00	
		6"	No	150	SY4	UFLK6256	\$1,226.00	
		8"	No	150	SY6	UFLK6258	\$1,226.00	
		10"	No	150	SY7	UFLK6260	\$1,226.00	
12"		No	150	SY9	UFLK6262	\$1,952.00		
14"		No	150	SY9	UFLK6264	\$1,952.00		
16"		No	150	SY10	UFLK6266	\$1,952.00		
18"		No	150	SY12	UFLK6268	\$1,952.00		

All close-off pressures listed are approximate and based on valve condition and application.

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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
Masterseal (New Style) Series Butterfly Valves	2-way	2"	No	232	AM	UFLK8172	\$268.00	
					SY1	UFLK8178	\$544.00	
					SY2	UFLK8180	\$598.00	
			Yes		232	2*AF	UFLK8174	\$368.00
		2½"	No	232		GM	UFLK8172	\$268.00
					SY1	UFLK8178	\$544.00	
					SY2	UFLK8180	\$598.00	
			Yes		232	2*AF	UFLK8174	\$368.00
						GK	UFLK8172	\$268.00
		3"	No	232		2*GM	UFLK8174	\$368.00
					SY2	UFLK8180	\$598.00	
					Yes	232	2*GK	UFLK8174
		4"	No	232		2*GM	UFLK8176	\$358.00
					SY2	UFLK8182	\$598.00	
					Yes	232	2*GK	UFLK8176
		5"	No	232		SY2	UFLK8184	\$568.00
		6"	No	232		SY3	UFLK8184	\$568.00
		8"	No	232		SY4	UFLK8188	\$598.00
	10"	No	232		SY4	UFLK8190	\$598.00	
	12"	No	232		SY5	UFLK8190	\$598.00	
	3-way	2"	No	232		GM	UFLK7400	\$672.00
						SY1	UFLK7404	\$1,226.00
						SY2	UFLK7406	\$1,226.00
			Yes		232	2*AF	UFLK7402	\$712.00
						GK	UFLK7400	\$672.00
		2½"	No	232		2*GM	UFLK7402	\$712.00
					SY2	UFLK7406	\$1,226.00	
					Yes	232	2*GK	UFLK7402
3"		No	232		2*GM	UFLK7402	\$712.00	
				SY2	UFLK7406	\$1,226.00		
				Yes	232	2*GK	UFLK7402	\$712.00
4"		No	232		SY2	UFLK7408	\$1,226.00	
5"		No	232		SY3	UFLK7410	\$984.00	
6"		No	232		SY4	UFLK7412	\$984.00	
8"		No	232		SY4	UFLK7414	\$1,226.00	
10"		No	232		SY6	UFLK7416	\$1,226.00	
12"		No	232		SY7	UFLK7418	\$1,226.00	

All close-off pressures listed are approximate and based on valve condition and application.





Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
Vic300 (Old Style) Series Butterfly Valves	2-way	2"	No	300	AM	UFLK3300	\$396.00	
					SY1	UFLK3338	\$672.00	
					SY2	UFLK3342	\$672.00	
			Yes	300	AF	UFLK3300	\$396.00	
		2½"	No	300	AM	UFLK3308	\$268.00	
					SY1	UFLK3340	\$616.00	
					SY2	UFLK3344	\$672.00	
			Yes	300	AF	UFLK3308	\$268.00	
		3"	No	300	GM	UFLK3308	\$268.00	
					SY1	UFLK3340	\$616.00	
					SY2	UFLK3344	\$672.00	
			Yes	300	2*AF	UFLK3310	\$368.00	
					GK	UFLK3308	\$268.00	
		4"	No	300	2*GM	UFLK3316	\$368.00	
					SY2	UFLK3346	\$616.00	
					2*GK	UFLK3316	\$368.00	
			Yes	300				
		5"	No	300	SY2	UFLK3348	\$616.00	
	6"	No	300	SY3	UFLK3350	\$616.00		
	8"	No	300	SY4	UFLK3352	\$616.00		
	10"	No	300	SY4	UFLK3354	\$598.00		
	12"	No	300	SY4	UFLK3356	\$598.00		
	3-way	2"	No	300	GM	UFLK6300	\$672.00	
						SY1	UFLK6336	\$1,226.00
						SY2	UFLK6340	\$1,226.00
			Yes	300	AF	UFLK6300	\$672.00	
					GK	UFLK6300	\$672.00	
		2½"	No	300	GM	UFLK6308	\$672.00	
					SY1	UFLK6338	\$1,226.00	
					SY2	UFLK6342	\$1,226.00	
			Yes	300	2*AF	UFLK6310	\$712.00	
					GK	UFLK6308	\$672.00	
		3"	No	300	SY2	UFLK6342	\$1,226.00	
		4"	No	300	SY3	UFLK6344	\$1,226.00	
		5"	No	300	SY3	UFLK6346	\$1,226.00	
		6"	No	300	SY4	UFLK6348	\$984.00	
8"		No	300	SY4	UFLK6350	\$984.00		
10"		No	300	SY5	UFLK6352	\$1,226.00		
12"		No	300	SY6	UFLK6354	\$1,226.00		

All close-off pressures listed are approximate and based on valve condition and application.

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RETROFIT SOLUTIONS

Valve Body Model	Valve Configuration	Size	Failsafe	Close-Off psi	Belimo Actuator Series (Sold Separately)	Belimo Linkage	List Price	
DBF Series Butterfly Valves	2-way	2"	No	150	AM	UFLK3400	\$396.00	
					SY1	UFLK3426	\$672.00	
					SY2	UFLK3428	\$672.00	
		2½"	Yes	150	150	2*AF	UFLK3402	\$554.00
						AM	UFLK3400	\$396.00
						SY1	UFLK3426	\$672.00
		3"	No	150	150	SY2	UFLK3428	\$672.00
						2*AF	UFLK3402	\$554.00
						GM	UFLK3400	\$396.00
		3"	Yes	150	150	SY1	UFLK3426	\$672.00
						SY2	UFLK3428	\$672.00
						2*AF	UFLK3402	\$554.00
		4"	No	150	150	GK	UFLK3400	\$396.00
						2*GM	UFLK3408	\$368.00
						SY2	UFLK3430	\$616.00
		4"	Yes	150	150	2*GK	UFLK3408	\$368.00
						SY2	UFLK3432	\$616.00
						SY3	UFLK3432	\$616.00
	5"	No	150	150	SY4	UFLK3434	\$616.00	
	6"	No	150	150	SY4	UFLK3436	\$616.00	
	8"	No	150	150	SY4	UFLK3436	\$616.00	
	10"	No	150	150	SY6	UFLK3438	\$598.00	
	14"	No	150	150	SY6	UFLK3438	\$598.00	
	3-way	2"	No	150	150	GM	UFLK6400	\$672.00
						SY1	UFLK6426	\$1,226.00
						SY2	UFLK6428	\$1,226.00
			Yes	150	150	2*AF	UFLK6402	\$712.00
						GK	UFLK6400	\$672.00
						GM	UFLK6400	\$672.00
		2½"	No	150	150	SY1	UFLK6426	\$1,226.00
						SY2	UFLK6428	\$1,226.00
						2*AF	UFLK6402	\$712.00
2½"		Yes	150	150	GK	UFLK6400	\$672.00	
					GM	UFLK6400	\$672.00	
					SY1	UFLK6426	\$1,226.00	
3"		No	150	150	SY2	UFLK6428	\$1,226.00	
					2*AF	UFLK6402	\$712.00	
	GK				UFLK6400	\$672.00		
3"	Yes	150	150	GM	UFLK6400	\$672.00		
				2*GM	UFLK6400	\$672.00		
				SY2	UFLK6430	\$1,226.00		
4"	No	150	150	2*GK	UFLK6400	\$672.00		
				SY3	UFLK6432	\$1,226.00		
				SY4	UFLK6434	\$1,226.00		
5"	No	150	150	SY4	UFLK6436	\$1,226.00		
6"	No	150	150	SY4	UFLK6436	\$1,226.00		
8"	No	150	150	SY4	UFLK6436	\$1,226.00		
10"	No	150	150	SY6	UFLK6438	\$1,226.00		
12"	No	150	150	SY7	UFLK6440	\$1,226.00		
14"	No	150	150	SY8	UFLK6442	\$1,226.00		

All close-off pressures listed are approximate and based on valve condition and application.

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RETROFIT SOLUTIONS

# Instructions for completing this form

Please keep in mind that all dimensions should be taken with ALL original actuation and hardware components removed from the valve body.

**MOUNT STYLE 1:** Dimensions A & B (**Dim A and Dim B**) relate to the TOP mounting holes on the butterfly valve body. These holes are usually arranged on the body in either an “X” pattern (**MOUNT STYLE 1**), or a cross pattern (**MOUNT STYLE 2**). This information is entered on the UFSP Series Butterfly Valve Retrofit Form in the **MOUNT STYLE** section. The length of the valve stem sticking out of the top of the valve body is recorded under **Dim C**. The TOP mounting holes are usually drilled through the top flange, but sometimes are threaded. Enter this information on the form next to the mount style information previously recorded.

**STEM SHAFT STYLE:** Examine the valve being retrofitted to establish which shaft style matches the diagrams above. Use caution when recording these dimensions. **Dim D** refers to the valve stem diameter and should be measured at several points up and down as well as around the stem itself. **Dim E** refers to the length of the drive surface available, whether it be a key, flatted surface, or the distance a drive hole is from the top of the stem. There are two types of keys (Keyway-Shaft Style 4 and Woodruff Key-Shaft Style 5). Please select the key size as noted in the column “For Shaft Style 4 & 5”. **Dim F** refers to the width of the drive surface. This is the most critical dimension for correct linkage operation. Please measure accordingly.

In addition, we require information about the environment and process in which this linkage system will be utilized.

The form must be completed in its entirety to guarantee the complete, perfect fit of your retrofit system. Keep in mind that retrofit kits are designed with close-tolerance components which afford the most efficient linkage systems. Measurements rounded to the nearest  $\frac{1}{8}$  or  $\frac{1}{16}$  inch will not perform as well (sometimes not at all) as a kit designed around careful measurements using proper equipment. Our designs are typically  $\pm.005$ ” tolerance.

Required Tools - calipers and retrofit form.

## DISCLAIMER

*While we will do our best to provide a linkage system designed around your specifications and measurements, we cannot be held responsible for linkages which do not fit as a result of incorrect data supplied to Belimo. We will be happy to re-work components which do not fit properly for a nominal fee.*

*Actuation, weather shields and linkages cannot be pre-assembled at the Belimo factory. The linkages are designed to be attached onto the valve body first, then optional weather shields, and finally actuation products in the field.*

*Close-off pressures are calculated using actuator torque, valve stroke, and valve area. Other factors may affect the rated Close-off pressures, including flow rates, system maintenance schedules, chemicals used in the shot feeder process, vicinity to pumps, condition of valve stem seals, and assembly of linkage material in the field.*

*Valves that are being considered for retrofit of actuation should be analyzed for their life expectancy before the retrofit has taken place. Valves that leak through stem seals or casings will continue to leak with the new linkage system in place, maybe even more so. Rebuilding the packing on these valves may be more costly than replacing the valves themselves. In some cases, modifications may be necessary for proper operation of the linkage system. Belimo assumes NO responsibility for these modifications and are at the discretion of the user as to whether the modifications can be made.*

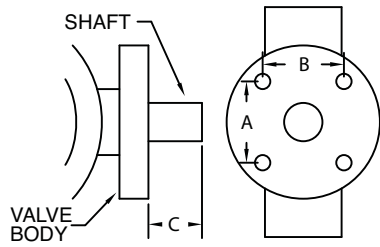
*NOTE: Although it is possible that the valve being retrofitted has a Close-off pressure rating considerably higher than the actual system pressure, actuation products have been selected to meet the full rating of the valve body. This will assure operation of the valve when considering long term exposure to pumping systems. Belimo does not manufacture or document retrofit packages utilizing actuation products designed around anything less than the full rating of the valve body.*

# Custom Butterfly Valve Retrofit Solutions

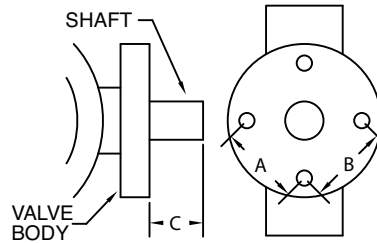
UFSP Series Butterfly Valve Retrofit Form



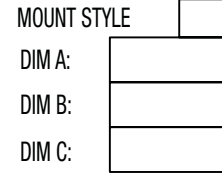
## MOUNT STYLE 1



## MOUNT STYLE 2

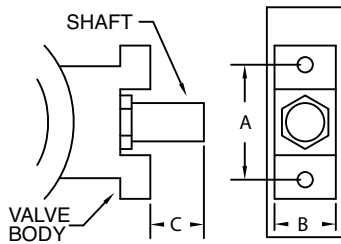


## MOUNT STYLE DIMENSIONS



DIM. A & B MEASURED FROM CENTER OF HOLE

## MOUNT STYLE 3



## MOUNT STYLE 4

SKETCH YOUR MOUNT STYLE USING MOUNT STYLE EXAMPLES.

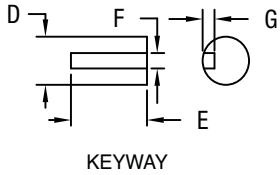
MOUNTING HOLES:

DIA Ø:

THREAD

SPEC.

## SHAFT STYLE 4

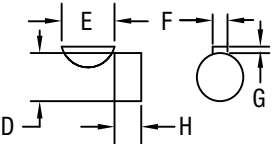


KEY SIZE

- .125"
- .1875"
- .250"
- .3125"
- .375"
- .4375"
- .500"

KEYWAY

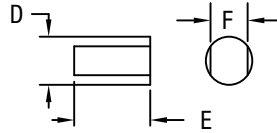
## SHAFT STYLE 5



WOODRUFF KEY

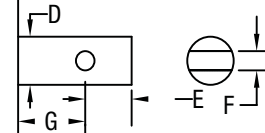
CHECK ONE

## SHAFT STYLE 6



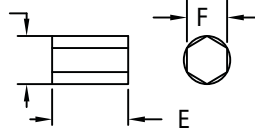
DOUBLE D

## SHAFT STYLE 8



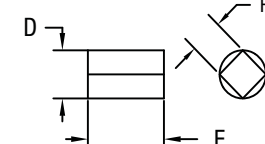
PINNED

## SHAFT STYLE 7



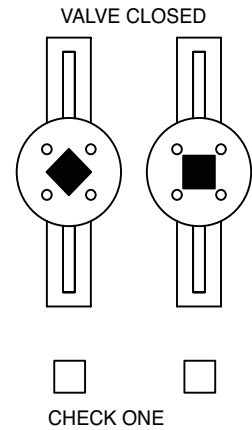
HEX

## SHAFT STYLE 9



SQUARE

## SHAFT STYLE 9



SHAFT STYLE

DIM D:

DIM E:

DIM F:

DIM G:

DIM H:

## ACTUATOR

EXISTING ACTUATOR MODEL: \_\_\_\_\_ CONTROL TYPE:  ON/OFF  FLOATING POINT  VDC  PWM

FAIL SAFE:  YES  NO Range: \_\_\_\_\_ Range: \_\_\_\_\_

FAIL POSITION:  NO  NC

VOLTAGE \_\_\_\_\_  INDOOR  OUTDOOR

COMPANY: \_\_\_\_\_ VALVE MANUFACTURE: \_\_\_\_\_ 2 WAY/3 WAY: \_\_\_\_\_

JOB NAME: \_\_\_\_\_ VALVE SERIES: \_\_\_\_\_ VALVE SIZE: \_\_\_\_\_

PO#: \_\_\_\_\_ VALVE MODEL: \_\_\_\_\_ MEDIA TEMP: \_\_\_\_\_

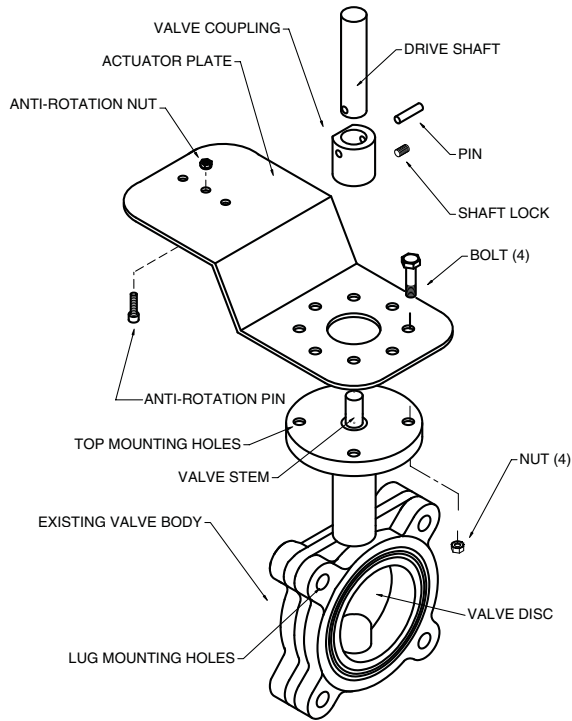
PHONE: \_\_\_\_\_ VALVE TAG/LOCATION: \_\_\_\_\_ MEDIA TYPE: \_\_\_\_\_

EMAIL: \_\_\_\_\_ QUANTITY: \_\_\_\_\_ SYSTEM PRESSURE: \_\_\_\_\_

NOTE: THIS INFORMATION WILL BE UTILIZED IN THE FABRICATION OF A CUSTOM LINKAGE SYSTEM FOR YOUR VALVE REQUIREMENT; THEREFORE, IT IS ESSENTIAL THAT THE ABOVE DIMENSIONS BE FURNISHED WITH READINGS TAKEN TO THE NEAREST .001". ANY ERRONEOUS DIMENSIONS FURNISHED WHICH RESULT IN IMPROPER FIT OF THIS LINKAGE

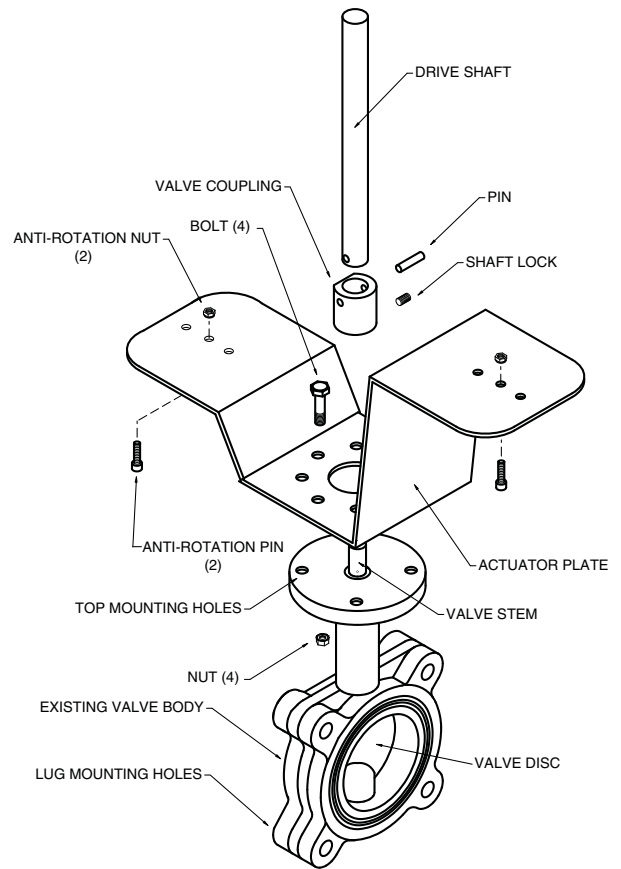


**2-way Single Actuator**  
Generic – Must complete BFV Retrofit Form



**UFSP0000 List \$ 696.00**

**2-way Dual Actuator**  
Generic – Must complete BFV Retrofit Form



**UFSP0008 List \$ 946.00**

**Custom kits are designed to your unique specification and are not returnable.**

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RETROFIT SOLUTIONS

# Custom Butterfly Valve Retrofit Solutions

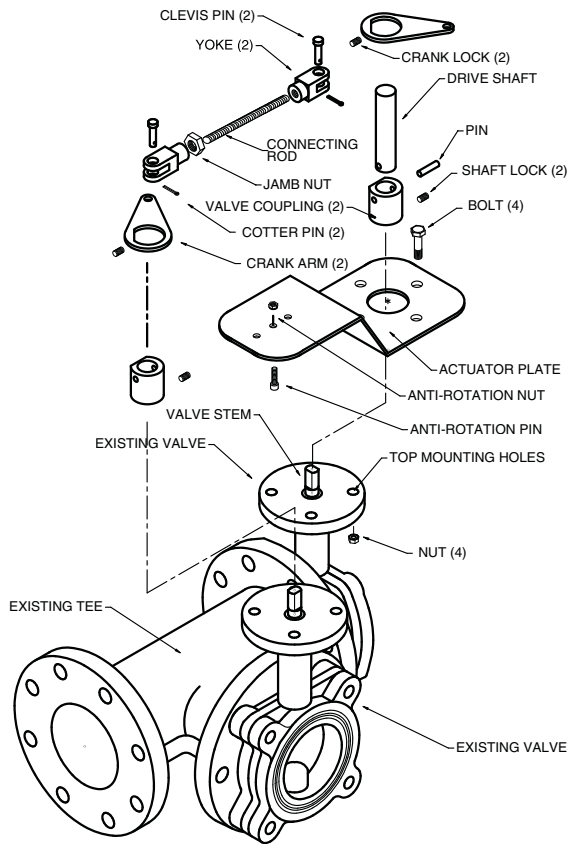
UFSP Series Butterfly Valve Retrofit Form

**BELIMO**

**2**  
YEAR  
WARRANTY

## 3-way Single Actuator

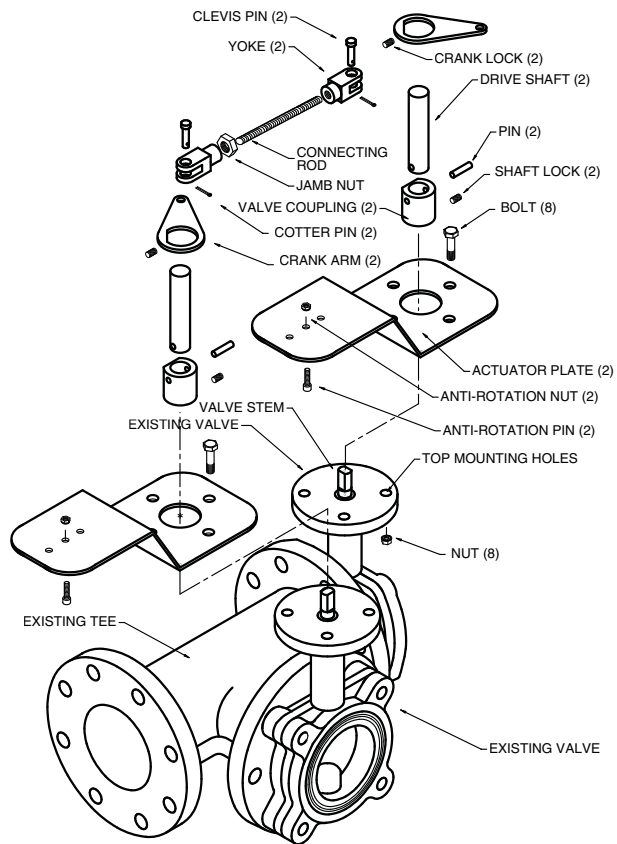
Generic – Must complete BFV Retrofit Form



UFSP0002 List \$ 946.00

## 3-way Dual Actuator

Generic – Must complete BFV Retrofit Form



UFSP0010 List \$ 1,030.00

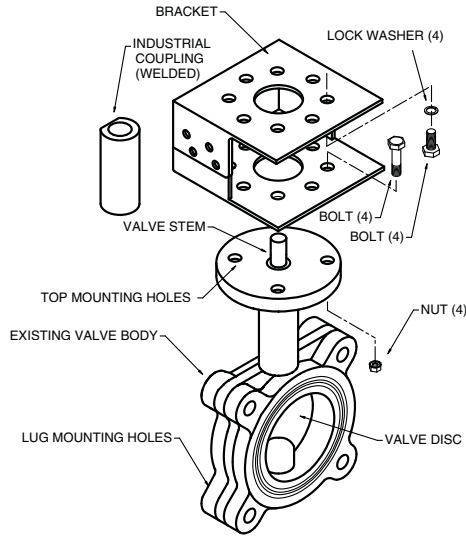
NOTE: 3-way bracket configuration shown is only one of many possible arrangements.

Custom kits are designed to your unique specification and are not returnable.

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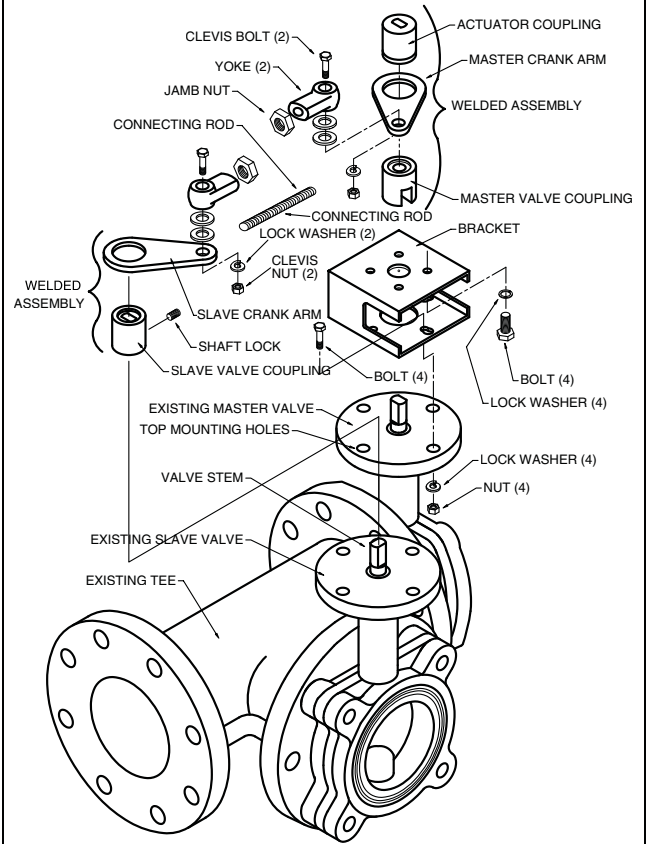


**Industrial Electric 2-way**  
**Generic – Must complete BFV Retrofit Form**



**UFSP0020 List \$ 864.00 SY1 - SY8**  
**UFSP0022 List \$ 1,450.00 SY9 - SY12**

**Industrial Electric 3-way**  
**Generic – Must complete BFV Retrofit Form**



**UFSP0024 List \$ 1,338.00 SY1 - SY8**  
**UFSP0026 List \$ 2,174.00 SY9 - SY12**

**NOTE: 3-way bracket configuration shown is only one of many possible arrangements.**

**Custom kits are designed to your unique specification and are not returnable.**

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RETROFIT SOLUTIONS

# Instructions for completing this form

Ball valves with-out a mounting flange are typically not designed for installing actuation, therefore the valve design may not support modulation outside of manual usage. Belimo does not recommend retrofitting these types of ball valves.

**All dimensions should be taken with ALL original actuation and hardware components removed from the valve body.**

An example using **Mounting Style 3**: Dimensions A & B (**Dim A and Dim B**) relate to the TOP mounting holes on the ball valve body. These holes are usually arranged on the body in a “X” pattern (**MOUNT STYLE 3**). This information is entered on the UBSP Series Ball Valve Retrofit Form in the **MOUNT STYLE** section. The length of the valve stem sticking out of the top of the valve body is recorded under **Dim D and E**. The TOP mounting holes are usually drilled through the top flange, but sometimes are threaded. Enter this information on the form next to the mount style information previously recorded.

**MOUNT STYLE 3**: Dimensions A & B (**Dim A and Dim B**) relate to the TOP mounting holes on the ball valve body. These holes are usually arranged on the body in a “X” pattern (**MOUNT STYLE 3**). This information is entered on the UBSP Series Ball Valve Retrofit Form in the **MOUNT STYLE** section. The length of the valve stem sticking out of the top of the valve body is recorded under **Dim D and E**. The TOP mounting holes are usually drilled through the top flange, but sometimes are threaded. Enter this information on the form next to the mount style information previously recorded.

**STEM STYLE**: Examine the valve being retrofitted to establish which stem style matches the diagrams above. Use caution when recording these dimensions. **Dim H** refers to the valve stem diameter and should be measured at several points up and down as well as around the stem itself. **Dim E** refers to the length of the drive surface available, whether it is a key or flatted surface. **Dim F** refers to the width of the drive surface or the distance across the flats. This is the most critical dimension for correct linkage operation. Please measure accordingly. Lastly please specify the desired actuator orientation in reference to the valve body using the ports as reference, i.e. over the “A” port ect. We have also includes an ISO-5211 standard dimension chart for reference. If the valve is labeled please specify its “F” number so that we may confirm the dimensions per the ISO spec.

In addition, we require information about the environment and process in which this linkage system will be utilized. As well as the frequency of use the current actuator runs. This will help to ensure the longevity of the new linkage and actuator. Having the prior actuator spec and model will help.

The form must be completed in its entirety to guarantee the complete, perfect fit of your retrofit system. Keep in mind that retrofit kits are designed with close-tolerance components which afford the most efficient linkage systems. Measurements rounded to the nearest 1/8 or 1/16 inch will not perform as well (sometimes not at all) as a kit designed around careful measurements using proper equipment. Our designs are typically +.005” tolerance.

Required Tools - calipers and retrofit form.

## DISCLAIMER

*While we will do our best to provide a linkage system designed around your specifications and measurements, we cannot be held responsible for linkages which do not fit as a result of incorrect data supplied to Belimo. We will be happy to re-work components which do not fit properly for a nominal fee.*

*Actuation, weather shields and linkages cannot be pre-assembled at the Belimo factory. The linkages are designed to be attached onto the valve body first, then optional weather shields, and finally actuation products in the field.*

*Close-off pressures are calculated using actuator torque, valve stroke, and valve area. Other factors may affect the rated Close-off pressures, including flow rates, system maintenance schedules, chemicals used in the shot feeder process, vicinity to pumps, condition of valve stem seals, and assembly of linkage material in the field.*

*Valves that are being considered for retrofit of actuation should be analyzed for their life expectancy before the retrofit has taken place. Valves that leak through stem seals or casings will continue to leak with the new linkage system in place, maybe even more so. Rebuilding the packing on these valves may be more costly than replacing the valves themselves. In some cases, modifications may be necessary for proper operation of the linkage system. Belimo assumes NO responsibility for these modifications and are at the discretion of the user as to whether the modifications can be made.*

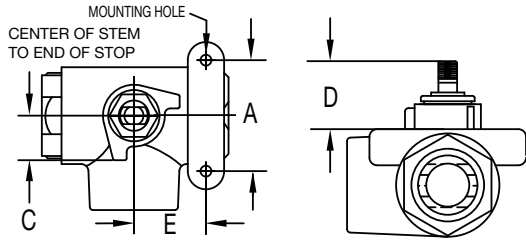
*NOTE: Although it is possible that the valve being retrofitted has a Close-off pressure rating considerably higher than the actual system pressure, actuation products have been selected to meet the full rating of the valve body. This will assure operation of the valve when considering long term exposure to pumping systems. Belimo does not manufacture or document retrofit packages utilizing actuation products designed around anything less than the full rating of the valve body.*

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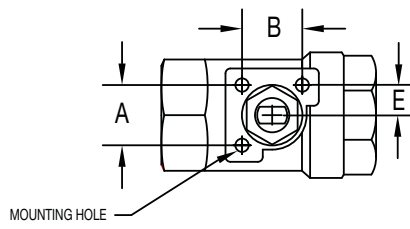
RETROFIT SOLUTIONS



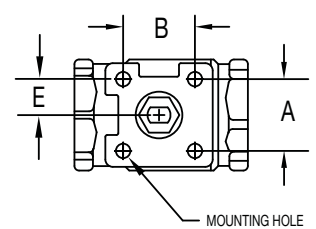
### MOUNT STYLE 1



### MOUNT STYLE 2



### MOUNT STYLE 3



### MOUNT STYLE 4

SKETCH YOUR MOUNT STYLE USING EXAMPLES ABOVE

### MOUNT STYLE DIMENSIONS

MOUNT STYLE

MOUNTING HOLES:  DRILLED  TAPPED

DIA Ø:

THREAD SPEC.

DIM A:

DIM B:

DIM C:

DIM D:

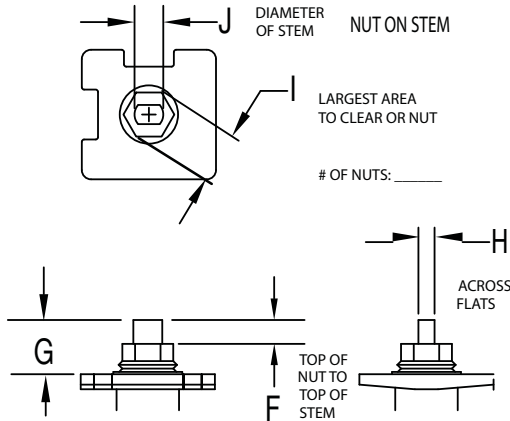
DIM E:

DIM. A & B MEASURED FROM CENTER OF HOLE

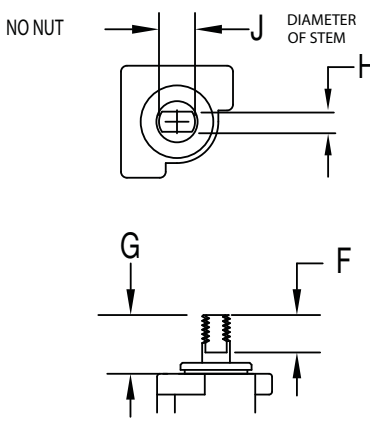
### ISO STANDARD

ISO	BOLT SQUARE	BOLT SIZE Ø	CHECK ONE
F03	1.002	M5	<input type="checkbox"/>
F04	1.169	M5	<input type="checkbox"/>
F05	1.392	M6	<input type="checkbox"/>
F07	1.949	M8	<input type="checkbox"/>
F10	2.840	M10	<input type="checkbox"/>
F12	3.480	M12	<input type="checkbox"/>
F14	3.879	M16	<input type="checkbox"/>
F16	4.593	M20	<input type="checkbox"/>
F25	7.071	M16	<input type="checkbox"/>

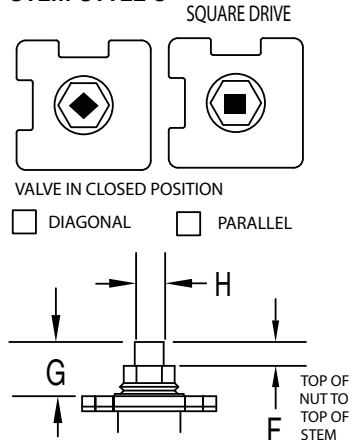
### STEM STYLE 1



### STEM STYLE 2



### STEM STYLE 3



### STEM STYLE

DIM F:  DIM G:  DIM H:  DIM I:  DIM J:

### ACTUATOR

EXISTING ACTUATOR MODEL: \_\_\_\_\_ CONTROL TYPE:  ON/OFF  FLOATING POINT  VDC  PWM

FAIL SAFE:  YES  NO Range: \_\_\_\_\_ Range: \_\_\_\_\_

FAIL POSITION:  NO  NC  INDOOR  OUTDOOR

FREQUENCY OF OPERATION (specify how often): DAILY \_\_\_\_\_ WEEKLY \_\_\_\_\_ MONTHLY \_\_\_\_\_ VOLTAGE: \_\_\_\_\_

ACTUATOR ORIENTATION:



COMPANY: \_\_\_\_\_

JOB NAME: \_\_\_\_\_

PO#: \_\_\_\_\_

PHONE: \_\_\_\_\_

EMAIL: \_\_\_\_\_

VALVE MANUFACTURE: \_\_\_\_\_

VALVE SERIES: \_\_\_\_\_

VALVE MODEL: \_\_\_\_\_

VALVE TAG/LOCATION: \_\_\_\_\_

QUANTITY: \_\_\_\_\_

2 WAY/3 WAY: \_\_\_\_\_

VALVE SIZE: \_\_\_\_\_

MEDIA TEMP: \_\_\_\_\_

MEDIA TYPE: \_\_\_\_\_

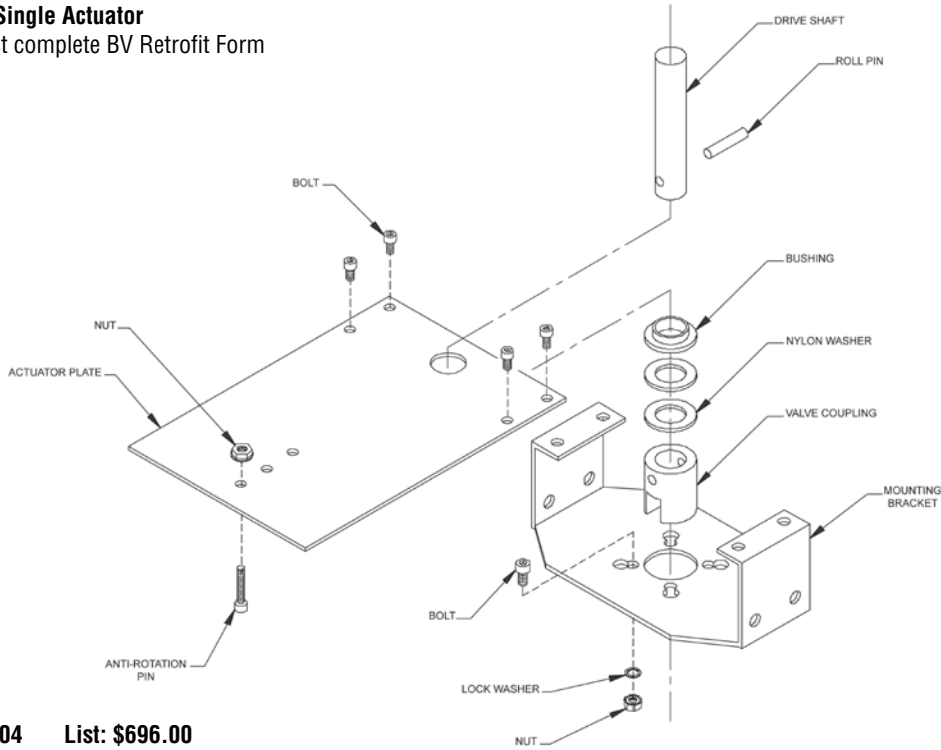
SYSTEM PRESSURE: \_\_\_\_\_

NOTE: THIS INFORMATION WILL BE UTILIZED IN THE FABRICATION OF A CUSTOM LINKAGE SYSTEM FOR YOUR VALVE REQUIREMENT; THEREFORE, IT IS ESSENTIAL THAT THE ABOVE DIMENSIONS BE FURNISHED WITH READINGS TAKEN TO THE NEAREST .001". ANY ERRONEOUS DIMENSIONS FURNISHED WHICH RESULT IN IMPROPER FIT OF THIS LINKAGE SYSTEM ARE NOT THE RESPONSIBILITY OF BELIMO AIRCONTROLS. ANY REWORK REQUIRED WILL RESULT IN AN EXTRA CHARGE.

**CUSTOM KITS ARE DESIGNED TO YOUR UNIQUE SPECIFICATIONS AND ARE NOT RETURNABLE.**

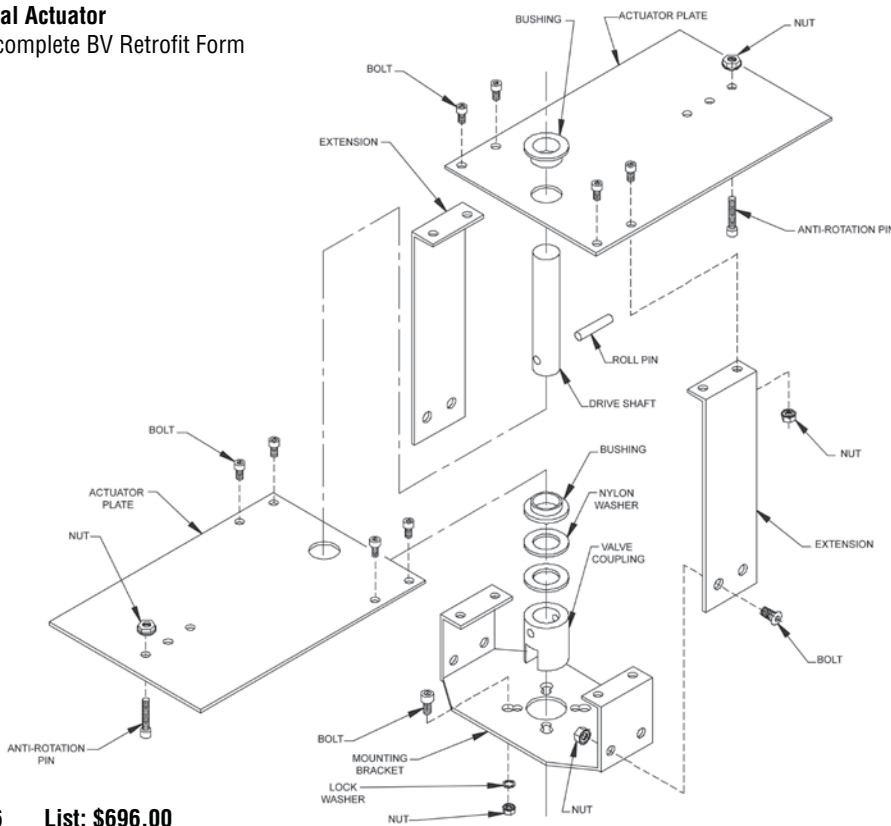
COMPANY CONTACT/DIMENSIONS PROVIDED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

**2-way/3-Way Single Actuator**  
**Generic – Must complete BV Retrofit Form**



**UBSP0004 List: \$696.00**

**2-way/3-Way Dual Actuator**  
**Generic – Must complete BV Retrofit Form**

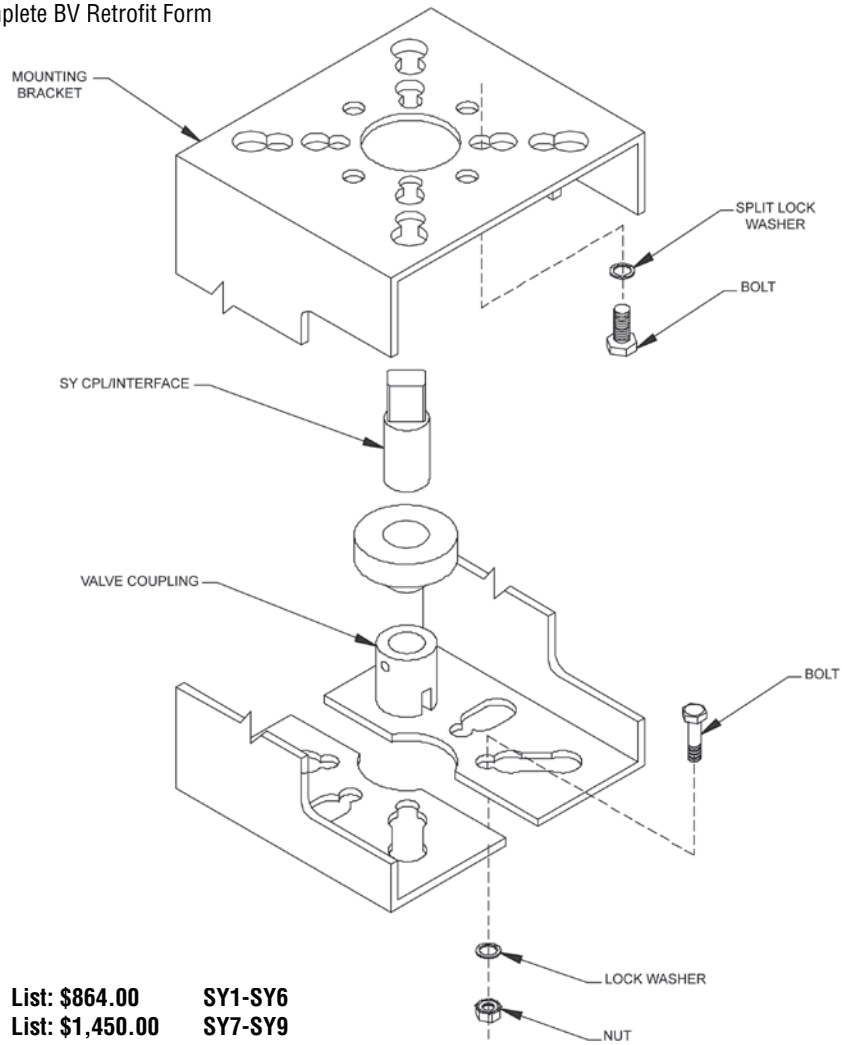


**UBSP0006 List: \$696.00**

**Custom kits are designed to your unique specification and are not returnable.**



**Industrial Electric 2-way/3-way  
Generic – Must complete BV Retrofit Form**



<b>UBSP008</b>	<b>List: \$864.00</b>	<b>SY1-SY6</b>
<b>UBSP0012</b>	<b>List: \$1,450.00</b>	<b>SY7-SY9</b>

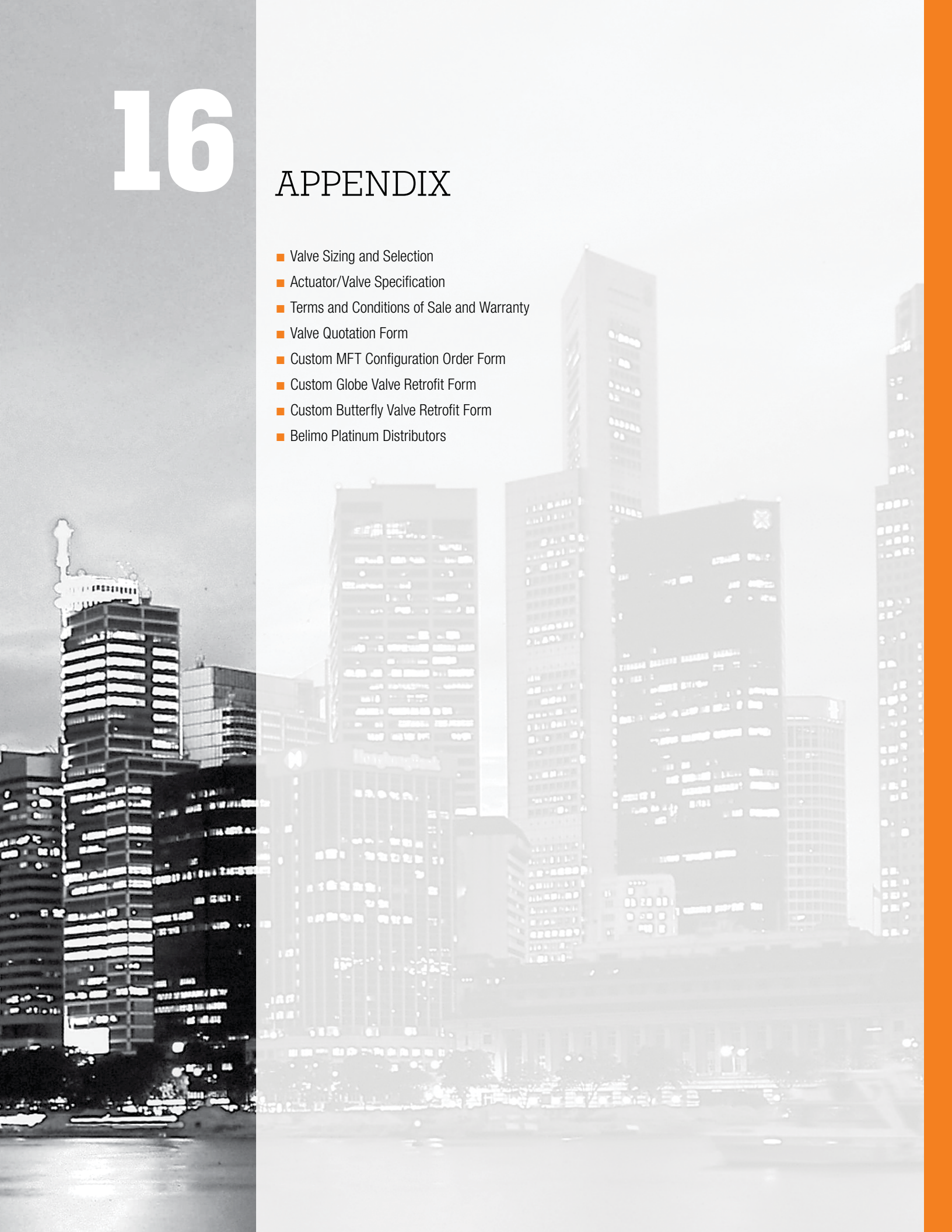
**Custom kits are designed to your unique specification and are not returnable.**

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# 16

## APPENDIX

- Valve Sizing and Selection
- Actuator/Valve Specification
- Terms and Conditions of Sale and Warranty
- Valve Quotation Form
- Custom MFT Configuration Order Form
- Custom Globe Valve Retrofit Form
- Custom Butterfly Valve Retrofit Form
- Belimo Platinum Distributors





# History of Belimo

- 
- 1975** Walter Burkhalter, Anton Heinrich Hütte, Ludwig and Walter Linsi, Werner Roner and Karl Stocker found BELIMO Automation AG in Gossau/ZH.  
**The actuator motor that is a world first is immediately received with acclaim.**
- 
- 1977** It becomes Belimo international, with the sales company in Germany.  
**The first fire and smoke damper actuators with mechanical spring return.**
- 
- 1979** The head office moves from Gossau/ZH to Wetzikon/ZH.
- 
- 1984/85** The representative offices in the UK, Finland, Norway, Austria, Denmark, France, Sweden and the Netherlands are turned into independent sales companies (franchises)  
**Introduction of the VAV air volume flow control system.**
- 
- 1986** Assembly of the millionth actuator.
- 
- 1989** Belimo Aircontrols USA is established.
- 
- 1990** The Spanish affiliate is founded.
- 
- 1993/94** The sales companies in Austria, Germany, the UK and France are turned into affiliates.  
**5 million actuators have been manufactured.**
- 
- 1995** Belimo is floated on the stock exchange and founds an affiliate in Canada.
- 
- 1997** Belimo Hong Kong is founded and Lineg AG is acquired as a new affiliate.  
**Delivery of the 10 millionth actuator.**
- 
- 1998** Reorganization of the corporate structure to produce BELIMO Holding AG; production is started in Danbury/CT, USA.  
**Valve actuators for the new application area of water are developed and sold.**
- 
- 1999** **Belimo delivers the first ball valve with a novel type of characterizing disc.**
- 
- 2000** The affiliate in Singapore opens its doors.  
**A new item on offer: Intelligently actuated globe valves.**
- 
- 2001** Affiliates are set up in Poland and Australia.  
**The Belimo innovation: Actuators with multifunction technology.**
- 
- 2002** Move to the new "Longus" company building and thus all the locations in the Zurich area are brought together by moving to Hinwil.  
**Visualization of VAV via PC-Tool.**
- 
- 2003** **Invention of the pressure-independent PICCV regulating valve.**
- 
- 2005** The product generation with modularized actuators is introduced.
- 
- 2006** An affiliate is founded in India and a sales company in Dubai (UAE). The Norwegian franchise also becomes an affiliate of the Holding company and in Switzerland Lineg AG merges with BELIMO Automation AG Assembly of the 30 millionth actuator.
- 
- 2007** **CM compact actuator:** a milestone in small damper actuation.  
**High Temperature Characterized Control Valve:** environmentally friendly and suitable for use as a potable water control valve, a first ever for the Belimo product line.
- 
- 2008** **Quick running actuators** are designed with the power, flexibility and efficiency that today's HVAC applications demand.  
**NEMA 4X Housing** marks Belimo's first development of rugged actuators for damper and valve applications.  
**Pipe Packages** is a systematic way of piping HVAC terminal units that reduces the time, space and cost required to make the connection from the distribution piping in the building and the coil.
- 
- 2009** **SelectPro** is the accurate sizing and selection tool designed with the power, flexibility and efficiency that today's HVAC applications.  
**NFB, NFX new generation actuators** features a compact size, low power consumption, increased torque to 90 in-lbs (50% more compare to original NF series), and faster running times.  
**HD, HDU series butterfly valves** a new ductile iron cast body providing a stronger construction ensuring better performance and reliability.
-

## PRESSURE DEPENDENT, ON/OFF ACTUATOR

### APPLICABLE PRODUCTS

CCV, HTCCV, ZONE, GLOBE, BALL

### REQUIRED INFORMATION

FOR SIZING:

- flow in GPM
- ΔP (if none given, utilize 1 psi or line size valve)

FOR SELECTION:

- 2-way or 3-way valve
- pipe size
- media temperature
- spring return or non-spring return
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

### EQUATIONS USED

$$C_v = \frac{Q \cdot \sqrt{G}}{\sqrt{\Delta P}} \quad \Delta P = \left( \frac{Q \cdot \sqrt{G}}{C_v} \right)^2$$

- C<sub>v</sub> = required C<sub>v</sub>
- Q = flow in Gallons per Minute
- G = Specific gravity of fluid (estimated as 1 for water systems)
- ΔP = differential pressure over valve (deltaP) – stated in psi

### PROCEDURE

- 1) calculate C<sub>v</sub>
- 2) choose valve type (CCV, Zone, etc)
- 3) choose valve model number that has closest C<sub>v</sub> rating (normally round down unless maximum ΔP for project is exceeded)
  - a. refer to section 6 for CCV (F<sub>p</sub> correction required)
  - b. refer to section 9 for HTCCV
  - c. refer to section 7 for Zone valves
  - d. refer to section 11 for Globe valves
  - e. refer to section 10 for Ball valves (F<sub>p</sub> correction required)
- NOTE: if valve selection requires piping correction factor (F<sub>p</sub>), calculate C<sub>v</sub> based on chart provided in section that shows appropriate C<sub>v</sub> for pipe size selected.
  - in general, do not select a valve less than ½ of the line size
- 4) now calculate actual ΔP based upon C<sub>v</sub> of valve selected
- 5) if calculated ΔP is within project specified limits, proceed with actuator selection
- 6) if #5 is no, need to select a valve with a higher/lower C<sub>v</sub>
- 7) select actuator based upon selection parameters above
- 8) based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

### EXAMPLE OF CV CALCULATION

i.e GPM is 50  
i.e ΔP = 1 psi

C<sub>v</sub> = 50 GPM/sq rt of 1 psi  
C<sub>v</sub> = 50 GPM/1 = 50

$$C_v = \frac{50}{\sqrt{1}} = 50$$

## PRESSURE DEPENDENT, PROPORTIONAL ACTUATOR

### APPLICABLE PRODUCTS

CCV, HTCCV, ZONE, GLOBE, BALL

### REQUIRED INFORMATION

FOR SIZING:

- flow in GPM
- ΔP (if none given, utilize 3-5 psi or match coil pressure drop)

FOR SELECTION:

- 2-way or 3-way valve
- pipe size
- media temperature
- spring return or non-spring return
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

### EQUATIONS USED

$$C_v = \frac{Q \cdot \sqrt{G}}{\sqrt{\Delta P}} \quad \Delta P = \left( \frac{Q \cdot \sqrt{G}}{C_v} \right)^2$$

- C<sub>v</sub> = required C<sub>v</sub>
- Q = flow in Gallons per Minute
- G = Specific gravity of fluid (estimated as 1 for water systems)
- ΔP = differential pressure over valve (deltaP) – stated in psi

### PROCEDURE

- 1) calculate C<sub>v</sub>
- 2) choose valve type (CCV, Zone, etc)
- 3) choose valve model number that has closest C<sub>v</sub> rating (normally round down unless maximum ΔP for project is exceeded)
  - a. refer to section 6 for CCV (F<sub>p</sub> correction required)
  - b. refer to section 9 for HTCCV
  - c. refer to section 7 for Zone valves
  - d. refer to section 11 for Globe valves
  - e. refer to section 10 for Ball valves (F<sub>p</sub> correction required)
- NOTE: if valve selection requires piping correction factor (F<sub>p</sub>), calculate C<sub>v</sub> based on chart provided in section that shows appropriate C<sub>v</sub> for pipe size selected.
  - in general, do not select a valve less than ½ of the line size
- 4) now calculate actual ΔP based upon C<sub>v</sub> of valve selected
- 5) if calculated ΔP is within project specified limits, proceed with actuator selection
- 6) if #5 is no, need to select a valve with a higher/lower C<sub>v</sub>
- 7) select actuator based upon selection parameters above
- 8) based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

### EXAMPLE OF CV CALCULATION

i.e. Pressure drop through the coil is 3 psi, then the pressure drop across the valve should be approximately 3 psi. Let us use 4 psi for example.

i.e. GPM is 50  
i.e. ΔP = 4 psi

C<sub>v</sub> = 50 GPM/sq rt of 4 psi  
C<sub>v</sub> = 50 GPM/2 = 25

$$C_v = \frac{50}{\sqrt{4}} = 25$$

## PRESSURE INDEPENDENT, ON/OFF, FLOATING ACTUATOR

### APPLICABLE PRODUCTS

PICCV

### REQUIRED INFORMATION

FOR SIZING:  
flow in GPM

FOR SELECTION:  
2-way valves only  
pipe size  
media temperature  
spring return or non-spring return  
required close-off pressure (COP)  
voltage requirement  
ambient temperature  
required accessories

### EQUATIONS USED

No equations are required. Choose the PICCV that has the closest GPM to the requirement and round up to next available flow.

### PROCEDURE

- 1) Obtain required GPM
- 2) choose valve model number that has closest GPM rating (round up)
  - refer to section 5 for PICCV
- 3) verify that valve size is not larger than pipe size and in general, do not select a valve less than  $\frac{1}{2}$  of the line size
- 4) select actuator based upon selection parameters above
- 5) based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

### EXAMPLE OF CV CALCULATION

87 GPM is needed – choose 90 GPM valve PICCV-50-090

## PRESSURE INDEPENDENT, PROPORTIONAL ACTUATOR

### APPLICABLE PRODUCTS

PICCV

### REQUIRED INFORMATION

FOR SIZING:  
flow in GPM

FOR SELECTION:  
2-way valves only  
pipe size  
media temperature  
spring return or non-spring return  
required close-off pressure (COP)  
voltage requirement  
ambient temperature  
required accessories

### EQUATIONS USED

No equations are required. Choose the PICCV that has the closest GPM to the requirement and round up to next available flow.

### PROCEDURE

- 1) Obtain required GPM
- 2) choose valve model number that has closest GPM rating (round up)
  - refer to section 5 for PICCV
- 3) verify that valve size is not larger than pipe size and in general, do not select a valve less than  $\frac{1}{2}$  of the line size
- 4) select actuator based upon selection parameters above
- 5) based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

### EXAMPLE OF CV CALCULATION

87 GPM is needed – choose 90 GPM valve PICCV-50-090

### LOW PRESSURE STEAM (15 PSI AND UNDER), ON/OFF ACTUATOR

#### APPLICABLE PRODUCTS

HTCCV, GLOBE, BALL

#### REQUIRED INFORMATION

FOR SIZING:

- flow in lb/hr
- ΔP (if none given, 10% psi or line size valve)
- Is it a 1/3 – 2/3 application?

FOR SELECTION:

- 2-way valve only
- pipe size
- media temperature
- spring return or non-spring return actuation
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

#### EQUATIONS USED

$$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}}$$

- $C_v$  = Valve coefficient of flow
- $Q$  = #/hr steam
- $h$  = Pressure drop across open valve
  - use 10% inlet pressure for on/off applications
- $P_o$  = Outlet pressure in psia =  $P_1 - h$
- $P_1$  = Absolute inlet pressure = gauge pressure (psig) + 14.7

#### PROCEDURE

- 1) calculate  $C_v$  using 10% inlet gauge pressure as  $h$  (differential pressure)
  - 2) If this is a 1/3 – 2/3 application, you will select 2 valves. The first valve will be rated for 1/3 of the total flow (1/3 of required  $C_v$  rating) and the second valve will be rated for 2/3 of the total flow (2/3 of required  $C_v$  rating).
  - 3) choose valve type (Ball, Globe, HTCCV, etc)
  - 4) choose valve model number that has closest  $C_v$  rating (normally round down unless maximum ΔP for project is exceeded)
    - a. refer to section 9 for HTCCV
    - b. refer to section 11 for Globe valves
    - c. refer to section 10 for Ball valves (Fp correction required)
- NOTE: if valve selection requires piping correction factor (Fp), calculate  $C_v$  based on chart provided in section that shows appropriate  $C_v$  for pipe size selected.
- in general, do not select a valve less than ½ of the line size
- 5) now calculate actual ΔP based upon  $C_v$  of valve selected
  - 6) if calculated ΔP is within project specified limits, proceed with actuator selection
  - 7) if #6 is no, need to select a valve with a higher/lower  $C_v$
  - 8) select actuator based upon selection parameters above
  - 9) based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

#### EXAMPLE OF $C_v$ CALCULATION

- |                                  |                                  |
|----------------------------------|----------------------------------|
| $Q$ = FLOW RATE                  | $Q$ = 1000 #/hr                  |
| Inlet psi = 15 psi               |                                  |
| $h$ = 10% (inlet psi)            | $h$ = 0.10 (15) = 1.5            |
| $P_o$ = (inlet psi + 14.7) – $h$ | $P_o$ = (15 + 14.7) – 1.5 = 28.2 |
| $C_v$ = 1000/(3*sqrt[1.5*28.2])  |                                  |
| $C_v$ = 1000/(3*6.50)            |                                  |
| $C_v$ = 1000/19.51               |                                  |
| Required $C_v$ = 51.25           |                                  |

$$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}} = 51.25$$



### LOW PRESSURE STEAM, (15 PSI AND UNDER) PROPORTIONAL ACTUATOR

#### APPLICABLE PRODUCTS

HTCCV, GLOBE, BALL

#### REQUIRED INFORMATION

##### FOR SIZING:

- flow in lb/hr
- ΔP (if none given, 80% psi of inlet pressure)
- Is it a 1/3 – 2/3 application?

##### FOR SELECTION:

- 2-way valve only
- pipe size
- media temperature
- spring return or non-spring return actuation
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

#### EQUATIONS USED

$$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}}$$

$C_v$  = Valve coefficient of flow

Q = #/hr steam

h = Pressure drop across open valve – use 80% of inlet pressure for proportional applications if inlet is under 15 psi

$P_o$  = Outlet pressure in psia =  $P_1 - h$

$P_1$  = Absolute inlet pressure = gauge pressure (psig) + 14.7

#### PROCEDURE

- 1) calculate  $C_v$  using 80% inlet gauge pressure as h (differential pressure)
- 2) If this is a 1/3 – 2/3 application, you will select 2 valves. The first valve will be rated for 1/3 of the total flow (1/3 of required  $C_v$  rating) and the second valve will be rated for 2/3 of the total flow (2/3 of required  $C_v$  rating).
- 3) choose valve type (Ball, Globe, HTCCV, etc)
- 4) choose valve model number that has closest  $C_v$  rating (normally round down unless maximum ΔP for project is exceeded)
  - a. refer to section 9 for HTCCV
  - b. refer to section 10 for Globe valves
  - c. refer to section 11 for Ball valves

NOTE: if valve selection requires piping correction factor ( $F_p$ ), calculate  $C_v$  based on chart provided in section that shows appropriate  $C_v$  for pipe size selected.

- in general, do not select a valve less than ½ of the line size
- 5) now calculate actual ΔP based upon  $C_v$  of valve selected
  - 6) if calculated ΔP is within project specified limits, proceed with actuator selection
  - 7) if #6 is no, need to select a valve with a higher/lower  $C_v$
  - 8) select actuator based upon selection parameters above
  - 9) based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

#### EXAMPLE OF $C_v$ CALCULATION

Q = FLOW RATE

Q = 1000 #/hr

Inlet psi = 15 psi

h = 80% (inlet psi)

h = 0.80 (15) = 12

$P_o$  = (inlet psi + 14.7) – h

$P_o$  = (15 + 14.7) – 12 = 17.7

$C_v = 1000 / (3 \cdot \sqrt{12 \cdot 17.7})$

$C_v = 1000 / (3 \cdot 14.6)$

$C_v = 1000 / 43.7$

Required  $C_v = 22.9$

$$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}} = 22.9$$

**MEDIUM/HIGH PRESSURE STEAM, (ABOVE 15 PSI), ON/OFF ACTUATOR**

**APPLICABLE PRODUCTS**

**GLOBE, BALL**

**REQUIRED INFORMATION**

FOR SIZING:

- flow in lb/hr
- ΔP (if none given, 10% psi or line size valve)
- Is it a 1/3 – 2/3 application?

FOR SELECTION:

- 2-way valve only
- pipe size
- media temperature
- spring return or non-spring return actuation
- required close-off pressure (COP)
- voltage requirement
- ambient temperature
- required accessories

**EQUATIONS USED**

$$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_0}}$$

- C<sub>v</sub> = Valve coefficient of flow
- Q = #/hr steam
- h = Pressure drop across open valve
  - use 10% inlet pressure for on/off applications
- P<sub>0</sub> = Outlet pressure in psia = P1-h
- P1 = Absolute inlet pressure = gauge pressure (psig) + 14.7

**PROCEDURE**

- 1) calculate C<sub>v</sub> using 10% inlet pressure as h (differential pressure)
  - 2) If this is a 1/3 – 2/3 application, you will select 2 valves. The first valve will be rated for 1/3 of the total flow (1/3 of required C<sub>v</sub> rating) and the second valve will be rated for 2/3 of the total flow (2/3 of required C<sub>v</sub> rating).
  - 3) choose valve type (Ball, Globe, HTCCV, etc)
  - 4) choose valve model number that has closest C<sub>v</sub> rating (normally round down unless maximum ΔP for project is exceeded)
    - a. refer to section 11 for Globe valves
    - b. refer to section 10 for Ball valves
- NOTE: if valve selection requires piping correction factor (F<sub>p</sub>), calculate C<sub>v</sub> based on chart provided in section that shows appropriate C<sub>v</sub> for pipe size selected.
- in general, do not select a valve less than ½ of the line size
- 5) now calculate actual ΔP based upon C<sub>v</sub> of valve selected
  - 6) if calculated ΔP is within project specified limits, proceed with actuator selection
  - 7) if #6 is no, need to select a valve with a higher/lower C<sub>v</sub>
  - 8) select actuator based upon selection parameters above
  - 9) based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

**EXAMPLE OF C<sub>v</sub> CALCULATION**

- Q = FLOW RATE                      Q = 1000 #/hr
  - Inlet psi = 40 psi
  - h = 10% (inlet psi)                h = 0.10 (40) = 4
  - P<sub>0</sub> = (inlet psi + 14.7) – h        P<sub>0</sub> = (40 + 14.7) – 4 = 50.7
- 
- C<sub>v</sub> = 1000/(3\*sqrt[4\*50.7])
  - C<sub>v</sub> = 1000/(3\*14.3)
  - C<sub>v</sub> = 1000/42.7
- $$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_0}} = 23.42$$
- Required C<sub>v</sub> = 23.42

### MEDIUM/HIGH PRESSURE STEAM, (ABOVE 15 PSI), PROPORTIONAL ACTUATOR

#### APPLICABLE PRODUCTS

GLOBE, BALL

#### REQUIRED INFORMATION

FOR SIZING:

flow in lb/hr

$\Delta P$  (if none given, 42% psi of absolute inlet pressure)

Is it a 1/3 – 2/3 application?

FOR SELECTION:

2-way valve only

pipe size

media temperature

spring return or non-spring return actuation

required close-off pressure (COP)

voltage requirement

ambient temperature

required accessories

#### EQUATIONS USED

$$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}}$$

$C_v$  = Valve coefficient of flow

$Q$  = #/hr steam

$h$  = Pressure drop across open valve – use 42% of absolute inlet pressure for proportional applications

$$h = 0.42(P_i + 14.7)$$

$P_o$  = Outlet pressure in psia =  $P_1 - h$

$P_1$  = Absolute inlet pressure = gauge pressure (psig) + 14.7

#### PROCEDURE

- 1) calculate  $C_v$  using 42% absolute inlet pressure as  $h$  (differential pressure)
  - 2) If this is a 1/3 – 2/3 application, you will select 2 valves. The first valve will be rated for 1/3 of the total flow (1/3 of required  $C_v$  rating) and the second valve will be rated for 2/3 of the total flow (2/3 of required  $C_v$  rating).
  - 3) choose valve type (Ball, Globe, HTCCV, etc)
  - 4) choose valve model number that has closest  $C_v$  rating (normally round down unless maximum  $\Delta P$  for project is exceeded)
    - a. refer to section 11 for Globe valves
    - b. refer to section 10 for Ball valves
- NOTE: if valve selection requires piping correction factor ( $F_p$ ), calculate  $C_v$  based on chart provided in section that shows appropriate  $C_v$  for pipe size selected.
- in general, do not select a valve less than 1/2 of the line size
- 5) now calculate actual  $\Delta P$  based upon  $C_v$  of valve selected
  - 6) if calculated  $\Delta P$  is within project specified limits, proceed with actuator selection
  - 7) if #6 is no, need to select a valve with a higher/lower  $C_v$
  - 8) select actuator based upon selection parameters above
  - 9) based upon actuator/valve selection, verify close-off pressure (COP) meets project requirements

#### EXAMPLE OF $C_v$ CALCULATION

$Q$  = FLOW RATE

$Q$  = 1000 #/hr

$P_i$  = inlet psi

$P_i$  = 40 psi

$h$  = pressure drop across open valve – use 42% of absolute inlet pressure for proportional applications

$$h = 0.42(40 + 14.7) = 22.97$$

$P_o$  = (outlet pressure in psia + 14.7) –  $h$

$$P_o = (40 + 14.7) - 22.97 = 31.73$$

$$C_v = 1000 / (3 \cdot \sqrt{22.97 \cdot 31.73})$$

$$C_v = 1000 / (3 \cdot \sqrt{26.99})$$

$$C_v = 1000 / 80.97$$

Required  $C_v$  = 12.35

$$C_v = \frac{Q}{3 \cdot \sqrt{h \cdot P_o}} = 12.35$$

### PRESSURE DEPENDENT, ON/OFF, ACTUATOR

#### APPLICABLE PRODUCTS

Butterfly Valve HS/HSU Series  
Butterfly Valve High Performance -SHP Series

#### REQUIRED INFORMATION

FOR SIZING:

flow in GPM  
pipe size

FOR SELECTION:

2-way or 3-way valve  
pipe size  
media temperature  
spring return or non-spring return  
required close-off pressure (COP)  
voltage requirement  
ambient temperature  
required accessories

#### EQUATIONS USED

No equations are used. Use Velocity Chart below.

#### PROCEDURE

- 1) To select the proper valve, find required GPM on the chart.
- 2) Choose valve that does not exceed 12 ft/sec for the HS/HSU series or 32 ft/sec for the SHP Series.
- 3) Verify valve selection is not too large or small for the pipe size.
- 4) Verify Close-off Pressure (COP) is sufficient for the application.

#### NOTES

- 1) Most butterfly valves are line size and piping geometry is not considered. If valve size must be reduced, a recommendation is to select a valve only one size less than the pipe. Do not exceed valve type fluid velocity limits.
- 2) For a two-position Butterfly valve, the  $C_v$  is determined at 90° open.
- 3) Determine the close-off rating and choose either a Full Rated (HS) or Undercut (HSU) version. Full rated valves have a close-off rating equivalent to the valve body rating (most are 200 psi), with the exception of 150 psi close-off for the 14" Butterfly valves and above. The Undercut versions have a close-off rating of 50 psi. See Butterfly selection models for the ratings.
- 4) Determine the type of actuation for your application involved.
- 5) Consult Belimo Customer Service for Butterfly applications involving steam, high velocity requirements, etc.

#### EXAMPLE

Application requires a 2-way, 400 GPM Butterfly valve, a valve of 4" minimum would be selected. The 4" valve at 12 ft/second would be able to withstand a capacity of 470 GPM, without damage to the liner.

#### FOR HSU/HSU SERIES

Flow in Std Weight Pipe (Fluid Velocity in GPM). Use with Resilient Seat BF Valves.

SIZE	2 FPS	4 FPS	6 FPS	8 FPS	10 FPS	12 FPS	14 FPS ✕	16 FPS ✕
2"	19	39	59	78	98	117	137	157
2½"	30	61	92	122	153	184	214	245
3"	44	88	132	176	220	264	308	353
4"	78	157	235	313	392	470	548	627
5"	122	245	367	490	612	734	857	979
6"	176	352	529	705	881	1058	1234	1410
8"	313	627	940	1253	1567	1880	2193	2507
10"	490	979	1469	1958	2448	2738	3427	3917
12"	705	1410	2115	2820	3525	4230	4935	5640
14"	959	1919	2879	3838	4798	5758	6717	7677
16"	1253	2507	3760	5013	6267	7520	8774	10027
18"	1586	3173	4759	6345	7931	9518	11104	12690
20"	1958	3917	5875	7834	9792	11750	13709	15668
24"	2820	5640	8460	11280	14100	16921	19741	22561
30"	4406	8813	13220	17625	22032	26438	30845	35251

It is not recommended to exceed 12 feet per second through resilient seat butterfly valves. Velocities greater than 12 fps may damage the valve liner and disc.

#### FOR SHP SERIES

Flow in Std Weight Pipe (Fluid Velocity in GPM). Use with SHP Series BF Valves.

SIZE	4 FPS	8 FPS	12 FPS	16 FPS	20 FPS	24 FPS	28 FPS	32 FPS	36 FPS ✕
2"	39	78	118	157	196	235	274	313	353
2½"	61	122	184	245	306	367	428	490	551
3"	88	176	264	353	441	529	617	705	793
4"	157	313	470	627	783	940	1097	1253	1410
5"	245	490	734	979	1224	1469	1714	1958	2203
6"	352	705	1058	1410	1763	2115	2468	2820	3173
8"	627	1253	1880	2507	3133	3760	4387	5013	5640
10"	979	1958	2938	3917	4896	5875	6854	7834	8813
12"	1410	2820	4230	5640	7050	8460	9870	11280	12690
14"	1919	3838	5738	7677	9596	11515	13435	15354	17273
16"	2507	5013	7520	10027	12534	15040	17547	20054	22561
18"	3173	6345	9518	12690	15863	19036	22208	25381	28553
20"	3917	7834	11750	15667	19584	23501	27418	31334	35251
24"	5640	11280	16921	22561	28201	33841	39481	45121	50762
30"	8813	17625	26438	35251	44064	52877	61689	70502	79315

It is not recommended to exceed 32 feet per second through high performance butterfly valves. Velocities greater than 32 fps may damage the valve.

# Valve Sizing – Water Applications

Using Velocity Method



## PRESSURE DEPENDENT, PROPORTIONAL ACTUATOR

### APPLICABLE PRODUCTS

Butterfly Valve HS/HSU Series  
Butterfly Valve High Performance–SHP Series

### REQUIRED INFORMATION

**FOR SIZING:**  
flow in GPM  
pipe size

**FOR SELECTION:**  
2-way or 3-way valve  
pipe size  
media temperature  
spring return or non-spring return  
required close-off pressure (COP)  
voltage requirement  
ambient temperature  
required accessories

### EQUATIONS USED

No equations are used. Use Velocity Chart below.

### PROCEDURE

- 1) To select the proper valve, find required GPM on the chart.
- 2) Choose valve that does not exceed 12 ft/sec for the HS/HSU series or 32 ft/sec for the SHP Series.
- 3) Verify valve selection is not too large or small for the pipe size.
- 4) Verify Close-off Pressure (COP) is sufficient for the application.

### NOTES

- 1) Most butterfly valves are line size and piping geometry is not considered. If valve size must be reduced, a recommendation is to select a valve only one size less than the pipe. Do not exceed valve type fluid velocity limits.
- 2) For a modulating Butterfly valve, the  $C_v$  rating is determined at 60° open.
- 3) Determine the close-off rating and choose either a Full Rated (HS) or Undercut (HSU) version. Full rated valves have a close-off rating equivalent to the valve body rating (most are 200 psi), with the exception of 150 psi close-off for the 14” Butterfly valves and above. The Undercut versions have a close-off rating of 50 psi. See Butterfly selection models for the ratings.
- 4) Determine the type of actuation for your application involved.
- 5) Consult Belimo Customer Service for Butterfly applications involving steam, high velocity requirements, etc.

### EXAMPLE

Application requires a 2-way, 400 GPM Butterfly valve, a valve of 4” minimum would be selected. The 4” valve at 12 ft/second would be able to withstand a capacity of 470 GPM, without damage to the liner.

### FOR HSU/HSU SERIES

Flow in Std Weight Pipe (Fluid Velocity in GPM). Use with Resilient Seat BF Valves.

SIZE	2 FPS	4 FPS	6 FPS	8 FPS	10 FPS	12 FPS	14 FPS X	16 FPS X
2"	19	39	59	78	98	117	137	157
2½"	30	61	92	122	153	184	214	245
3"	44	88	132	176	220	264	308	353
4"	78	157	235	313	392	470	548	627
5"	122	245	367	490	612	734	857	979
6"	176	352	529	705	881	1058	1234	1410
8"	313	627	940	1253	1567	1880	2193	2507
10"	490	979	1469	1958	2448	2738	3427	3917
12"	705	1410	2115	2820	3525	4230	4935	5640
14"	959	1919	2879	3838	4798	5758	6717	7677
16"	1253	2507	3760	5013	6267	7520	8774	10027
18"	1586	3173	4759	6345	7931	9518	11104	12690
20"	1958	3917	5875	7834	9792	11750	13709	15668
24"	2820	5640	8460	11280	14100	16921	19741	22561
30"	4406	8813	13220	17625	22032	26438	30845	35251

It is not recommended to exceed 12 feet per second through resilient seat butterfly valves. Velocities greater than 12 fps may damage the valve liner and disc.

### FOR SHP SERIES

Flow in Std Weight Pipe (Fluid Velocity in GPM). Use with SHP Series BF Valves.

SIZE	4 FPS	8 FPS	12 FPS	16 FPS	20 FPS	24 FPS	28 FPS	32 FPS	36 FPS X
2"	39	78	118	157	196	235	274	313	353
2½"	61	122	184	245	306	367	428	490	551
3"	88	176	264	353	441	529	617	705	793
4"	157	313	470	627	783	940	1097	1253	1410
5"	245	490	734	979	1224	1469	1714	1958	2203
6"	352	705	1058	1410	1763	2115	2468	2820	3173
8"	627	1253	1880	2507	3133	3760	4387	5013	5640
10"	979	1958	2938	3917	4896	5875	6854	7834	8813
12"	1410	2820	4230	5640	7050	8460	9870	11280	12690
14"	1919	3838	5738	7677	9596	11515	13435	15354	17273
16"	2507	5013	7520	10027	12534	15040	17547	20054	22561
18"	3173	6345	9518	12690	15863	19036	22208	25381	28553
20"	3917	7834	11750	15667	19584	23501	27418	31334	35251
24"	5640	11280	16921	22561	28201	33841	39481	45121	50761
30"	8813	17625	26438	35251	44064	52877	61689	70502	79315

It is not recommended to exceed 32 feet per second through high performance butterfly valves. Velocities greater than 32 fps may damage the valve.

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MODELS OF VALVES/APPLICATIONS							
FLOW MEDIUM	PICCV	CCV	HTCCV	BALL	GLOBE	BUTTERFLY	ZONE VALVES
Chilled / Hot Water / Glycol	PICCV-XX-XXX 2-way only	B2(B), B3(B), B6	B2...HT	B2VS, B2VSS B3VS, B6VS	G2, G3(D), G6, G7(D), G6C Series	F6, F7... HS (U) SHP	Z2
3-Way Mixing		B3(B)		B3VS	G3, G7	F7HS (U), SHP	
3-Way Diverting		B3(B)		B3VS	G3D, G7D	F7HS (U), SHP	Z3
Low Pressure Steam (up to 15 inlet psi)			B2...HT	B2VS	G2, G6, G6C	F6 ...SHP	
Medium Pressure Steam (15-50 inlet psi)				B2VS (up to 35 psi only) B2VSS	G2/UGLK up to (35 inlet psi only) G2S/UNV-035, G6, G6C (35 psi only), G6S, G6CS	F6 ...SHP	
High Pressure Steam (50-100 inlet psi)					G2S + UGLK-SS-Kit, G6S, G6CS		
ANSI 250/300					G2, G2S, G3, G3D, G6(S)-250, G7(D)-250	F6, F7... -300SHP	

**Control Valve Seat Leakage Classifications (In accordance with ANSI B16.104)**

Leakage Class Designation	Maximum Leakage Allowable	Test Medium	Test Pressure	Testing Procedures Required for Establishing Rating
I	XXX	XXX	XXX	No test required provided user and supplier so agree
II	0.5% of rated capacity	Air or water at 50 to 125°F (10 to 52°C)	45-60 psig or max. operating differential whichever is lower.	Pressure applied to valve inlet with outlet open to atmosphere or connected to a low head loss measuring device full normal closing thrust provided by actuator
III	0.1% of rated capacity	As above	As above	As above
IV	0.01% of rated capacity	As above	As above	As above
V	0.0005 ml per minute of water per inch of port diameter per psi differential.	Water at 50 to 125°F (10 to 52°C)	Max service pressure drop across valve plug, not to exceed ANSI body rating (100 psi pressure drop minimum).	Pressure applied to valve inlet after filling entire body cavity and connected piping with water and stroking valve plug closed. Use net specified max actuator thrust, but no more, even if available during test. Allow time for leakage flow to stabilize.
VI	Not to exceed in following table based on port diameter.	Air or nitrogen at 50 to 125°F (10 to 52°C)	50 psig or max rated amounts across valve plug shown whichever is lower.	Actuator should be adjusted to operating differential pressure conditions specified with full normal closing thrust applied to valve plug seat. Allow time for leakage flow to stabilize and use suitable measuring device.

**Control Valve Seat Leakage Classifications (In accordance with ANSI B 16.104)**

NOMINAL PORT DIAMETER		LEAK RATE	LEAK RATE
Inches	Millimeters	ml per Minute	Bubbles / minute
1	26	0.15	1
1½	36	0.3	2
2	51	0.45	3
2½	64	0.6	4
3	76	0.9	6
4	102	1.7	11
6	152	4	27
8	203	6.75	45

## Water Quality Recommended Parameters

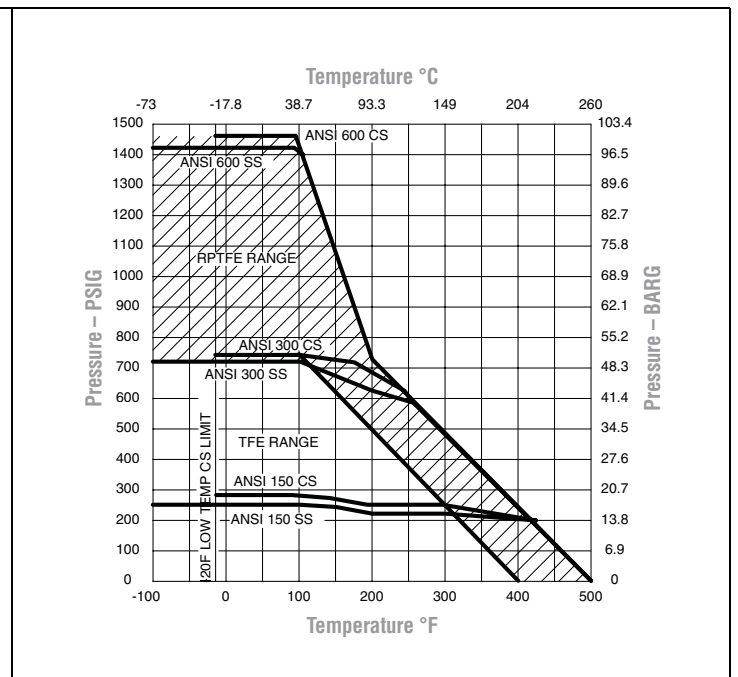
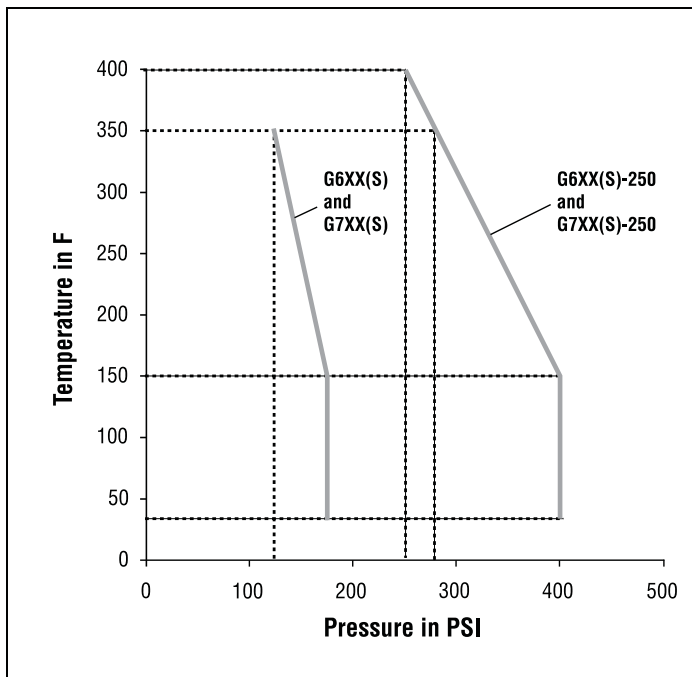
Chilled Water, Closed Loops, and Hot Water Systems up to 212°F (100°C)				
	8.0	<	<b>pH</b>	< 10.3
			<b>Conductivity</b>	< 3000 MMHS
			<b>Iron</b>	< 0.5 ppm
			<b>Copper</b>	< 0.5 ppm
Chilled Systems	➔ 100 ppm	<	<b>Molybdenum</b> (Mild Steel Corrosion Inhibitor)	< 150 ppm
Hot Systems	➔ 200 ppm	<	<b>Molybdenum</b> (Mild Steel Corrosion Inhibitor)	< 250 ppm
	400 ppm	<	<b>Nitrite</b> (Mild Steel Corrosion Inhibitor)	< 1000 ppm
			<b>Azole</b> (Yellow Metal Inhibitor)	> 5 ppm free and available
			<b>Total Aerobic Bacteria</b>	< 1000 cells/ml
			<b>Anaerobic Bacteria</b>	< 50 cells/ml
			<b>Ammonia</b>	< 2 ppm
			<b>Turbidity</b> (in systems not containing a dye)	< 20 FTU's
			<b>Particles</b> (0.5 micron particles/ml with no particles above 20 microns)	< 200,000
			<b>Polymer</b>	< 10 ppm

Use water with low levels of chloride and sulfate, less than 25 ppm. Water hardness should be less than 50 ppm of hard water ions (Ca<sup>+</sup>, Mg<sup>+</sup>). When water hardness is at unacceptable levels, a water softener expert should be consulted.

### Maximum Temperature and Pressure Ratings for Flanged Globe Valve Bodies

### Pressure/Temperature Chart for ANSI Class Butterfly Valves

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## Section 230900 – INSTRUMENTATION AND CONTROL FOR HVAC

### PART 1 – GENERAL

The following addition should be made to 1.2.B.

#### 1.2 SUMMARY

B. Related Sections include the following:

3. Division 23 Section “Hydronic Piping” for requirements for piping packages for control valves.

The following replaces the noted specification sections, except as noted.

#### 2.15 ACTUATORS

A. Electronic Damper Actuators:

1. Manufactured, brand labeled or distributed by BELIMO.
2. Size for torque required for damper seal at load conditions.
3. Coupling: V-bolt dual nut clamp with a V-shaped, toothed cradle.
4. Mounting: Actuators shall be capable of being mechanically and electrically paralleled to increase torque if required.
5. Overload Protection: Electronic overload or digital rotation-sensing circuitry without the use of end switches to prevent any damage to the actuator during a stall condition.
6. Fail-Safe Operation: Mechanical, spring-return mechanism.  
**[Electronic fail safe shall incorporate a visual indication of the fail safe status on the face of the actuator. The power fail position shall be field adjustable between 0 to 100% in 10° increments. The electronic fail safe shall have a 2 sec [0-10 sec] <Insert Timing between 0-10 sec> operational delay.]**
7. Power Requirements (Spring Return): 24 [120] [230] V ac, maximum 10 VA at 24-V ac or 8 W at 24-V dc.
8. Proportional Actuators shall be fully programmable. Control input, position feedback and running time shall be factory or field programmable by use of external computer software Diagnostic feedback shall provide indications of hunting or oscillation, mechanical overload and mechanical travel. Programming shall be through an EEPROM without the use of actuator mounted switches.
9. Temperature Rating: -22 to +122°F -30 to +50°C [-58 to +122°F -50 to +50°C]
10. Housing: Minimum requirement NEMA type 2 (4/4X) / IP54 (IP67) mounted in any orientation.
11. Agency Listing: ISO 9001, cULus, and CSA C22.2 No. 24-93.
12. The manufacturer shall warrant all components for a period of 5 years from the date of production, with the first two years unconditional.

B. Electronic Valve Actuators:

1. Manufactured, brand labeled or distributed by BELIMO.
2. Size for torque required for valve close off at 150 percent of total system (head) pressure for two-way valves; and 100 percent of pressure differential across the valve or 100 percent of total system (pump) head differential pressure for three-way valves.
3. Coupling: Directly couple end mount to stem, shaft, or ISO-style direct-coupled mounting pad.
4. Mounting: Actuators shall be capable of being mechanically and electrically paralleled to increase torque if required.
5. Overload Protection: Electronic overload or digital rotation-sensing circuitry without the use of end switches to deactivate the actuator at the end of rotation.
6. Fail-Safe Operation: Mechanical, spring-return mechanism.  
**[Electronic fail safe shall incorporate a visual indication of the fail safe status on the face of the actuator. The power fail position shall be field adjustable between 0 to 100% in 10° increments. The electronic fail safe shall have a 2 sec [0-10 sec] <Insert Timing between 0-10 sec> operational delay.]**
7. Power Requirements: Maximum 10 VA at 24-V ac or 8 W at 24-V dc.
8. Maximum 1 VA at 24-V ac or 1 W at 24-V dc.

9. Temperature Rating: -22 to +122°F -30 to +50°C [-58 to +122°F -50 to +50°C].
  10. Housing: Minimum requirement NEMA type 2 / IP54 mounted in any orientation.
  11. Agency Listing: ISO 9001, cULus, and CSA C22.2 No. 24-93.
  12. The manufacturer shall warrant all components for a period of 5 years from the date of production, with the first two years unconditional.
- C. Terminal Unit Actuators:
1. Manufactured, brand labeled or distributed by BELIMO.
  2. Close-Off (Differential) Pressure Rating: 200 psi.
  3. Coupling: V-bolt dual nut clamp with a V-shaped, toothed cradle or an ISO-style direct-coupled mounting pad.
  4. Power Requirements: 24V-ac/dc.
  5. Temperature Rating: -22 to +122°F -30 to +50°C.
  6. Housing Rating: Minimum UL94-5V(B) flammability.
  7. Agency Listing: CE, UL 60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No. 24-93, CE according to 89/336/EEC.
  8. The manufacturer shall warrant all components for a period of 5 years from the date of production, with the first two years unconditional.

D. Industrial Actuators (ONLY TO BE USED WITH 2.16.I Butterfly Valves – Resilient Seat and 2.16.J Butterfly Valves – High Performance.)

1. Manufactured, brand labeled or distributed by BELIMO.
2. The combination of valve and actuator shall meet the close-off requirements as specified in Section 2.16.H – Butterfly Valves.
3. Coupling: ISO 5211 mounting standards.
4. Overload Protection: A self resetting thermal switch embedded in the motor.
5. Manual Override: Actuator shall be equipped with a hand wheel or shaft for manual override to permit operation of the actuator in the event of an electrical power failure
6. Power Requirements: 24VAC [120VAC] [230VAC] 1 pH.
7. Auxiliary Switches: 2 SPDT rated 3A at 250 VAC.
8. Temperature Rating: -22 to +150°F -30 to +65°C.
9. Housing: Minimum requirement NEMA type 4X/ IP67 with an industrial quality coating. Actuator shall have an internal heater to prevent condensation within the housing. A visual indication beacon shall indicate position status of the device.
10. Agency Listing: ISO, CE, CSA
11. The manufacturer shall warrant for 2 years from the date of production.

#### 2.16 CONTROL VALVES

A. Manufacturer:

1. Manufactured, brand labeled or distributed by BELIMO.

B. Control Valves: Factory fabricated of type, body material, and pressure class based on maximum pressure and temperature rating of piping system, unless otherwise indicated.

C. The manufacturer shall warrant all components for a period of 5 years from the date of production, with the first two years unconditional (except as noted).

D. Pressure Independent Control Valves

1. NPS 2 and Smaller: Forged brass body rated at no less than 400 PSI, chrome plated brass ball and stem, female NPT union ends, dual EPDM lubricated O-rings and TEFZEL characterizing disc.
2. NPS 2-1/2 through 6: GG25 cast iron body according to ANSI Class 125, standard class B, stainless steel ball and blowout proof stem, flange to match ANSI 125 with a dual EPDM O-ring packing design, PTFE seats, and a stainless steel flow characterizing disc.
3. Accuracy: The control valves shall accurately control the flow from 0 to 100% full rated flow with an operating pressure differential range of 5 to 50 PSID across the valve.
4. Flow Characteristics: Equal percentage characteristics.
5. Close-Off Pressure Rating: NPS 2 and Smaller, 200psi. NPS 2-1/2 and up, 100psi.
6. All actuators shall be electronically programmed by use of external computer software for the adjustment of flow. Programming using

actuator mounted switches or multi-turn actuators are not acceptable. **[Actuators for 3-wire floating (tri-state) on ½” – 1” pressure independent control valves shall fail in place and have a mechanical device inserted between the valve and the actuator for the adjustment of flow.]** **[Actuators for two-position ½'-1” pressure independent control valves shall fail in place and have a mechanical device inserted between the valve and the actuator for the adjustment of flow.]** **[Actuators shall be provided with an auxiliary switch to prove valve position.]**

7. The manufacturer shall provide a published commissioning procedure that follows the guidelines of the National Environmental Balancing Bureau (NEBB) and the Testing Adjusting Balancing Bureau (TABB)
8. The pressure independent control valve shall be provided and delivered from a single manufacturer as a complete assembly. The actuator shall be integrally mounted to the valve at the factory with a single screw on a direct coupled DIN mounting-base.
9. The control valve shall require no maintenance and shall not include replaceable cartridges.
10. The manufacturer shall warrant all components for a period of 5 years from the date of production, with the first two years unconditional.
11. The use of pressure independent valves piped in parallel to achieve the rated coil flow shall be permitted. Actuators shall be electronically programmed to permit sequencing the flow with a single control output point. The use of external devices to permit sequencing is not acceptable.
12. NPS 2” and smaller pressure independent control valves for individual coil control shall be provided as part of a pipe package supplied by the valve manufacturer. The supply side of the coil shall contain an integrated isolation ball valve/manual air vent [strainer/shut-off valve/drain] with a P/T port. The return side shall contain a union fitting with a P/T port, pressure independent control valve, an integrated isolation ball valve/manual air vent with a P/T port. Shut-off valves as an integrated part of the pressure independent control valve are prohibited. **[A [12”] [24”] flexible hose set shall be provided for each coil supply and return connection for all pipe packages.]**

**SPECIFYING PRESSURE INDEPENDENT CONTROL VALVES REQUIRE THE FOLLOWING ADDITIONS TO SECTIONS 232113 AND 230593.**

To be inserted into Section 232113 – HYDRONIC PIPING

**2.6 CONTROL VALVES**

- K. Calibrated Balancing Valves and Automatic Flow-Control Valves shall not be required on devices where pressure independent control valves are installed.

To be inserted into Section 230593 – TESTING, ADJUSTING, AND BALANCING FOR HVAC

**3.11 PROCEDURE FOR HYDRONIC SYSTEMS**

- H. Systems installed with pressure independent control valves shall not require hydronic system balancing. **[Flow shall be verified and adjusted for the pressure independent valve assembly (valve and actuator combination) for field conditions using the pressure independent control valve manufacturer’s documented procedure following the guidelines of the National Environmental Balancing Bureau (NEBB) and the Testing Adjusting Balancing Bureau (TABB) for [10%] [20%] [25%] <Insert Percentage> of the total installed product. Exact locations of tested product to be coordinated with the design engineer.]**

**E. Characterized Control Valves:**

1. NPS 2 and Smaller: Nickel-plated forged brass body rated at no less than 400 psi, stainless steel ball and blowout proof stem, female NPT end fittings, with a dual EPDM O-ring packing design, fiberglass reinforced Teflon seats, and a TEFZEL flow characterizing disc. **[NPS ¾” and Smaller for Terminal Units: Nickel plated forged brass body rated at no less than 600 psi,**

**chrome plated brass ball and blowout proof stem, female NPT end fittings, with a dual EPDM O-Ring packing design, fiberglass reinforced Teflon seats, and a TEFZEL flow characterizing disc.]**

2. NPS 2-1/2 and 3: GG25 cast iron body according to ANSI Class 125, standard class B, stainless steel ball and blowout proof stem, flange to match ANSI 125 with a dual EPDM O-ring packing design, PTFE seats, and a stainless steel flow characterizing disc.
3. Sizing:
  - a. Two-Position: Line size or size using a pressure differential of 1psi.
  - b. Two-Way Modulating: **[3 psig]** 5 psig or twice the load pressure drop, whichever is more.
  - c. Three-Way Modulating: Twice the load pressure drop, but not more than **[3 psig]** 5 psig.
4. Close-Off Pressure Rating: 100 PSI. [NPS ¾” and Smaller for Terminal Units: 200 PSI.]
5. The actuator shall be the same manufacturer as the valve, integrally mounted to the valve at the factory with a single screw on a four-way DIN mounting-base.
6. NPS 2” and smaller characterized control valves for individual coil control shall be provided as part of a pipe package supplied by the valve manufacturer. The supply side of the coil shall contain a strainer/shut-off ball valve/drain **[an integrated isolation ball valve/manual air vent]** with a P/T port. The return side of the coil shall contain a union fitting with a P/T port, characterized control valve, an integrated manual balancing valve/union/isolation ball valve/manual air vent with P/T port. Shut-off valves as an integrated part of the characterized control valve are prohibited. **[For 3-way installations, supply an integrated 100% port isolation valve/manual air vent with a P/T port for field installation in the bypass of the circuit.]** **[A [12”] [24”] flexible hose set shall be provided for each coil supply and return connection for all pipe packages.]**
- F. Steam system characterized control valves shall have the following characteristics:
  1. NPS 1 and Smaller: Nickel-plated forged brass body rated at no less than 600 psi, stainless steel ball and blowout proof stem, female NPT end fittings, with a dual EPDM O-ring packing design, fiberglass reinforced PTFE Teflon seats, and a PTFE Teflon flow characterizing disc.
  2. Sizing: 15PSIG or less inlet steam pressure.
    - a. Two-Position: Line size or sized using 10% of inlet gauge pressure.
    - b. Modulating: Pressure drop shall be 80% of inlet gauge pressure.
  3. Close-Off Pressure Rating: 200 PSI.
  4. The actuator shall be the same manufacturer as the valve, integrally mounted to the valve at the factory with a single screw on a four-way DIN mounting-base.
  5. Flow Characteristics: Equal percentage characteristics.
- G. Hydronic system globe valves shall have the following characteristics:
  1. NPS 2 and Smaller: ANSI Class 250 bronze body, stainless steel stem, brass plug, bronze seat, and a TFE packing.
  2. NPS 2-1/2 and Larger: ANSI Class 125 **[250]** cast iron body, stainless steel stem, bronze plug, bronze seat, and a TFE V-ring packing.
  3. Sizing:
    - a. Two-Position: Line size or size using a pressure differential of 1 psi.
    - b. Two-Way Modulating: **[3 psig]** 5 psig or twice the load pressure drop, whichever is more.
    - c. Three-Way Modulating: Twice the load pressure drop, but not more than **[3 psig]** 5 psig.
  4. Flow Characteristics: Two-way valves shall have equal percentage characteristics; three-way valves shall have linear characteristics.
  5. Close-Off Pressure Rating: Combination of actuator and trim shall provide minimum close-off pressure rating of 150 percent of total system head pressure for two-way valves and 150 percent of the design pressure differential across the three-way valves.

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- 6. Two- and three-way globe valves shall be used only if characterized control valves do not fit the sizing criteria or application.
- H. Steam system globe valves shall have the following characteristics:
- 1. NPS 2 and Smaller: ANSI Class 250 bronze body; stainless steel seat, stem and plug; and a TFE packing.
  - 2. NPS 2-1/2 and Larger: ANSI Class 125 [250] cast iron body; stainless steel seat, stem and plug; and a TFE V-ring packing.
  - 3. Sizing:
    - a. Two-Position: Line size or sized using 10% of inlet gauge pressure.
    - b. Modulating: 15 PSIG or less inlet steam pressure, the pressure drop shall be 80% of inlet gauge pressure. Higher than 15 PSIG inlet steam pressure the pressure drop shall be 42% of the inlet absolute pressure.
  - 4. Flow Characteristics: Linear or equal percentage characteristics.
  - 5. Close-Off Pressure Rating: Combination of actuator and trim shall provide minimum close-off pressure rating of 150 percent of operating (inlet) pressure.
- I. Butterfly Valves – Resilient Seat:
- 1. NPS 2 to 12: Valve body shall be full lugged cast iron 200 psig body with a 304 stainless steel disc, EPDM seat, extended neck and shall meet ANSI Class 125/150 flange standards. Disc-to-stem connection shall utilize an internal spline. The shaft shall be supported at four locations by RPTFE bushings.
  - 2. NPS 14 and Larger: Valve body shall be full lugged cast iron 150 psig body with a 304 stainless steel disc, EPDM seat, extended neck and shall meet ANSI Class 125/150 flange standards. Disc-to-stem connection shall utilize a dual-pin method to prevent the disc from settling onto the liner. The shaft shall be supported at four locations by RPTFE bushings.
  - 3. Sizing:
    - a. Two-Position: Line size or size using a pressure differential of 1 psi.
    - b. Modulating: [3 psig] 5 psig or twice the load pressure drop, whichever is more. Size for the design flow with the disc in a 60-degree-open-position with the design velocity less than 12 feet per second.
  - 4. Close-Off Pressure Rating: NPS 2-12" 200 psi bubble tight shut-off. NPS 14 and larger, 150 psi bubble tight shut-off.
- J. Butterfly Valves – High Performance:
- 1. Valve body shall be full lugged carbon steel ANSI Class 150 [300] body with a 316 stainless steel disc without a nylon coating, RTFE seat, and be ANSI Class 150/300 flange standards. Blowout-proof shaft shall be 17-4ph stainless steel and shall be supported at four locations by glass-backed TFE bushings. Valve packing shall be Chevron TFE and shall include fully adjustable packing flange and separable packing gland. Valve body shall have long stem design to allow for 2" insulation (minimum). Valve face-to-face dimensions shall comply with API 609 and MSS-SP-68. Valve assembly shall be completely assembled and tested, ready for installation.
  - 2. Sizing:
    - a. Two-Position: Line size or size using a pressure differential of 1 psi.
    - b. Modulating: [3 psig] 5 psig or twice the load pressure drop, whichever is more. Size for the design flow with the disc in a 60-degree-open-position with the design velocity less than 32 feet per second.
  - 3. Flow Characteristics: Modified equal percentage, unidirectional.
  - 4. Close-Off Pressure Rating: 150 [285] psi bubble tight shut-off.
  - 5. Media Temperature Range: ANSI Class 150 [300] limitations.
  - 6. Max Differential Pressure: 285 psi @ 100 deg F for ANSI 150 (725 psi @ 100 deg F for ANSI 300).
- K. Zone Valves (On/Off Two-Position Applications):
- 1. NPS 1 and Smaller: Forged brass body rated at no less than 300 psi, stainless steel stem, female, NPT union or sweat with a stainless steel stem and EPDM seals.
  - 2. Sizing:
    - a. Two-Position: Line size or size using a pressure differential of 1 psi.

- 3. Close-Off Pressure Rating: Combination of actuator and trim shall provide minimum close-off pressure rating of 150 percent of total system head pressure for two-way valves and 125 percent of the design pressure differential across the three-way valves.
- 4. The actuator shall be the same manufacturer as the valve, integrally mounted to the valve at the factory.
- 5. The manufacturer shall warrant all components for a period of 2 years from the date of production.
- 6. All zone valves for individual coil control shall be provided as part of a pipe package supplied by the valve manufacturer. The supply side of the coil shall contain a strainer/shut-off ball valve/drain [an integrated 100% port isolation valve/manual air vent] with a P/T port. The return side of the coil shall contain a union fitting with a P/T port, zone valve, an integrated manual balancing valve/union/isolation ball valve/manual air vent with P/T port. Shut-off valves as an integrated part of the zone valve are prohibited. [A [12"] [24"] flexible hose set shall be provided for each coil supply and return connection for all pipe packages.]

**To be inserted into Section 233300 – AIR DUCT ACCESSORIES**

**2.8 SMOKE DAMPERS**

**Replace with the following:**

- I. Damper Motors:
  - 1. Manufactured, brand labeled or distributed by BELIMO.
  - 2. Size for torque required for damper seal at load conditions with one actuator per damper section. Mechanically paralleled or 'piggybacked' actuators are not permitted.
  - 3. Coupling: V-bolt dual nut clamp with a V-shaped toothed cradle. Aluminum clamps or set screws are not acceptable.
  - 4. Overload Protection: Microprocessor or an electronic based motor controller providing burnout protection if stalled before full rotation is reached. The actuator shall be electronically cut off at full open to eliminate noise generation with the holding noise level to be inaudible.
  - 5. Power Requirements: 0.23A (running) and 0.09A (holding) at 24V-ac or 27 VA (running) and 10 VA (holding) at 120V-ac.
  - 6. Actuator timing shall be 15 sec [75 sec] [local codes].
  - 7. Temperature Rating: Actuator shall have a UL555S listing by the damper manufacturer for 350°F [250°F].
  - 8. **[Proportional Smoke Damper Actuators shall meet all requirements specified above and shall modulate 0-100% open in response to a 2-10vdc or 4-20mA control signal. A 2-10vdc feedback output shall provide a 2-10vdc signal for position indication.**
    - a. **Power Requirements (Proportional): Maximum (running) 12 VA at 24-V ac or 8 W at 24-V dc. Maximum (holding) 5VA at 24-V ac or 3 W at 24-V dc.**
    - b. **A manual override winder and locking mechanism shall be provided for override operation of the actuator on a loss of power.]**
  - 9. **[Balancing Smoke Damper Actuators shall meet all requirements specified above and shall include an integral adjustable maximum opening potentiometer for airflow adjustment.**
    - a. **Power Requirements (Balancing): Maximum (running) 9.5 VA at 24-V ac or 6 W at 24-V dc. Maximum (holding) 5VA at 24-V ac or 3 W at 24-V dc.**
    - b. **A manual override winder and locking mechanism shall be provided for override operation of the actuator on a loss of power to the actuator.]**

The following replaces item 2.8.K.1

- 1. Auxiliary switches for [signaling] [fan control] [or] [position indication].

**2.9 COMBINATION FIRE AND SMOKE DAMPERS**

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O. Damper Motors:

1. Manufactured, brand labeled or distributed by BELIMO.
2. Size for torque required for damper seal at load conditions.
3. Coupling: V-bolt dual nut clamp with a V-shaped toothed cradle. Aluminum clamps or set screws are not acceptable.
4. Overload Protection: Microprocessor or an electronic based motor controller providing burnout protection if stalled before full rotation is reached. The actuator shall be electronically cut off at full open to eliminate noise generation with the holding noise level to be inaudible.
5. Power Requirements: 0.23A (running) and 0.09A (holding) at 24V-ac or 27 VA (running) and 10 VA (holding) at 120V-ac.
6. Actuator timing shall be 15 sec [75 sec] [local codes].
7. Temperature Rating: Actuator shall have a UL555S and UL555S listing by the damper manufacturer for 350°F [250°F].
8. **[Proportional Combination Fire and Smoke Damper Actuators shall meet all requirements specified above and shall modulate 0-100% open in response to a 2-10vdc or 4-20mA control signal. A 2-10vdc feedback output shall provide a 2-10vdc signal for position indication.**
  - a. **Power Requirements (Proportional): Maximum (running) 12 VA at 24-V ac or 8 W at 24-V dc. Maximum (holding) 5VA at 24-V ac or 3 W at 24-V dc.**
  - b. **A manual override winder and locking mechanism shall be provided for override operation of the actuator on a loss of power.]**
9. **[Balancing Combination Fire and Smoke Damper Actuators shall meet all requirements specified above and shall include an integral adjustable maximum opening potentiometer for airflow adjustment.**
  - a. **Power Requirements (Balancing): Maximum (running) 9.5 VA at 24-V ac or 6 W at 24-V dc. Maximum (holding) 5VA at 24-V ac or 3 W at 24-V dc.**
  - b. **A manual override winder and locking mechanism shall be provided for override operation of the actuator on a loss of power to the actuator.]**

The following replaces item 2.9.Q.1

1. Auxiliary switches for [signaling] [fan control] [or] [position indication].
2. Housing: Steel housing, aluminum is unacceptable.
3. Agency Listing: ISO 9001, UL873, or UL60730.
4. The manufacturer shall warrant all components for a period of 5 years from the date of production, with the first two years unconditional.

**NOTE TO SPECIFIER**

Any (or all) of the following manufacturers are listed per UL555S with Belimo actuators: Air Balance, Arlan, E.H. Price, Greenheck, Leader, Lloyd Industries, Nailor, Pottorff, Prefco, Ruskin and Safe-Air.

## Terms and Conditions

### General

1.1. The following Terms and Conditions of Sale (“Terms”) apply to the sale of products described in this Product Guide (“Products”). As used herein, “Seller” or “Belimo” refers to Belimo Aircontrols (USA) Inc. or Belimo Aircontrols (CAN) Inc., as applicable, and “Client” refers to the individual or business entity that purchases the Products from Seller. These Terms shall apply unless the parties mutually agree to different terms and memorialize such agreement in a writing signed by both Client and Seller.

### II. Price

2.1. The Seller’s price for Products (the “Price”) is net, F.O.B. Point of Origin, and is calculated in US currency for sales made by Belimo Aircontrols (USA), Inc. and calculated in Canadian currency for sales made by Belimo Aircontrols (CAN) Inc.

2.2. The Price, unless otherwise agreed upon, does not include freight and packaging (wooden crates, pallets, etc), the costs of which will be charged to Client at cost for each shipment and shall be payable with payment of the Price.

2.3. Orders for Products with a net value of less than US\$300 (CAN\$450) will be subject to a US\$20 (CAN\$35) handling fee (the “Handling Fee”). The Handling Fee will not be charged for orders of Products with a net value equal to or greater than US\$300 (CAN\$450) or for Products ordered through Seller’s internet ordering system at: [www.belimo.com](http://www.belimo.com).

2.4. Seller reserves the right to make partial deliveries of orders of Products, each of which deliveries may be invoiced separately by Seller.

2.5. The Price does not include charges for wiring diagrams, installation, and commissioning, which will be charged to Client separately and will be payable on demand.

### III. Payment

3.1. Invoices are payable in US currency for sales made by Belimo Aircontrols (USA), Inc. and in Canadian currency for sales made by Belimo Aircontrols (CAN) Inc. and are due no later than 30 days from the date of invoice, without any deductions.

3.2. If Client fails to pay the entire invoice balance within 60 days from the date of the invoice, Client will be subject to an interest charge of 2% per month (or the maximum rate permitted by law, whichever is less) on the outstanding unpaid balance due to Seller.

3.3. Clients who maintain outstanding balances for 45 days or more after the date of invoice may be subject to restricted shipments of Products or may be required to pay for all future deliveries of Products on a cash-on-delivery basis.

### IV. Title and Risk

4.1. Title to all Products shall remain with Seller and shall not pass to Client until Seller has received full payment for the Products.

### V. Damage or Loss in Transit

5.1. Seller assumes no liability for damage or loss of shipment of Products, which risk shall at all times remain with the carrier. All shipments must be unpacked and examined by Client immediately upon receipt. Any external evidence of loss or damage must be noted on the freight bill accompanying the shipment of Products or carrier’s receipt and signed by the carrier’s agent at the time of delivery. Failure to do so will result in the carrier’s refusal to honor any claim relating to damage of Products. Client must also notify Seller of such damage by providing Seller with a copy of the freight bill or damage report so that Seller can file a claim for loss or damage in transit with the carrier. If the damage does not become apparent until the shipment is unpacked, Client must make a request for inspection by the carrier’s agent and file with the carrier within 15 days after receipt of product and notify Seller of the same. Seller is not liable for consequential damage to Client’s property or a third-party’s property resulting from the installation of damaged

## Products.

### VI. Delivery

6.1. Seller undertakes to make every attempt to adhere to its stated delivery parameters and to make a timely delivery of the Products but does not guarantee any delivery specifications. Each contract entered into for the purchase of Products is not cancelable nor is Seller liable for any direct or indirect losses that may arise, for any reason whatsoever, due to Seller’s failure to meet any stated or assumed delivery schedules.

### VII. Return of Goods

7.1. Products received by Client cannot be returned unless: (i) Client alerts Seller that it intends to return such Products, (ii) Seller agrees to accept the return of such Products, (iii) Client obtains a Return Material Authorization (“RMA”) number from Seller for the return of such Products, and (iv) Client follows all return instructions provided by the Seller. The RMA number must be clearly written on the outside of all packaging for any returned Products. Only Products returned to the proper location as instructed by Seller and identified with an RMA number will be considered for credit.

7.2. Only Products that are returned in original packaging may be accepted for return. All returned Products must be shipped to Seller at Client’s cost. Such returned Products must be received in as-new condition, adequate for resale as new Products to qualify for credit. Client will be responsible for payment of a restocking charge for all returned Products in an amount no less than 20% of the invoice value of the Products (“Restocking Charges”). Product received damaged or showing evidence of having been installed will be refused or assessed a higher restocking charge. Custom kits designed to a Client’s unique specifications are not returnable. If Client requests product to be returned to them, the Client will be responsible for return shipping charges. See specific product literature for exclusions or exceptions.

7.3. Returns that result from Seller errors will be credited in full and will not be subject to Restocking Charges.

### VIII. Warranty

#### VIII.A 5-year Warranty

8.1. Products that are listed in this Product Guide as carrying a 5-year warranty to a location in the United States or Canada shall carry a 5-year warranty. The 5-year warranty is unconditional for the first two years from the date of production of the Products. After the first two years from the date of Production, the warranty shall be conditional and the warranty coverage shall not apply to damage to Products caused by ordinary wear and tear, negligence or improper use by Client, or other causes beyond the control of the Seller. Product specific terms of warranty with regard to warranty period or conditions of warranty may apply to certain specified Products as stated in the documentation for those Products.

#### VIII.B 2-year Conditional warranty

8.2. Products that are listed in this Product Guide as carrying a 2-year to a location in the United States or Canada shall carry a 2-year warranty. The 2-year warranty is conditional and the warranty coverage shall not apply to damage to Products caused by ordinary wear and tear, negligence or improper use by Client, or other causes beyond the control of the Seller. Product specific terms of warranty with regard to warranty period or conditions of warranty may apply to certain specified Products as stated in the documentation for those Products.

#### VIII.C General Warranty Terms

8.3. Seller’s warranty may be null and void in the event of any: (a) modification or unauthorized repairs of Products by Client, (b) unauthorized incorporation or integration of Products into or with Client’s equipment, (c) use of Products in an unauthorized manner, or (d) damage to Products not caused by Seller.

8.4. Client must promptly notify Seller of Products' alleged defect and provide Seller with other evidence and documentation reasonably requested by Seller. Before removing Products from service, Client should contact a Seller-authorized support technician by calling Belimo customer service. The contact information for Belimo customer service is listed on the back page of Belimo's Product Guide and Price List ("PGPL") or may be found at [www.belimo.com](http://www.belimo.com). Belimo customer service will work with field technicians to troubleshoot problems. Many problems can be resolved over the phone.

8.5. If a problem cannot be resolved over the phone, an RMA number will be issued by Seller for return of the Products. Prior to returning any Products under a warranty, Client must obtain an RMA number from Seller, along with shipping instructions for the return. The RMA number must be clearly written on the outside of the box containing the returned Products. Only Products returned to the proper location and identified with an RMA number will be accepted by the Seller.

8.6. All returned Products should be packaged appropriately to prevent further damage. Seller reserves the right to refuse any returned material if improperly packaged or labeled (without an RMA number). Products returned without proper RMA documentation will void Seller's warranty.

8.7. Products found to be defective for which a warranty is applicable will either be replaced or repaired at the Seller's discretion. Seller is not responsible for charges that Client may incur as a result of the removal or replacement of Products.

8.8. Repaired or replacement Products are shipped from Seller via ground shipment. Other shipping methods are available at the sole expense of the Client.

8.9. Repaired, replaced or exchanged Products will carry a warranty for a period of time equal to the greater of: (i) the remainder of the original 5-year warranty or 2-year warranty that was applicable to the repaired, replaced or exchanged Products, or (ii) six months, effective from the date the repaired, exchanged or replaced Products are shipped by Seller (the "Replacement Warranty Period").

8.10. Advanced replacement Products for Products covered under warranty may be obtained from Seller after the Belimo customer service troubleshooting process has been completed. For industrial products (such as butterfly valves), a purchase order is required. The purchase order will be credited upon the receipt and verification by Seller of the returned defective Products. For non-industrial products, an invoice will be issued and shall be due and payable if the returned Products are not received by Seller within 60 days from the date of that the replacement Products are shipped. Additional charges may apply if the nature of the problem has been misrepresented by Client.

8.11. Both the conditional and unconditional warranties cover the Products only, and do NOT cover labor associated with the troubleshooting, removal or replacement of such Products.

8.12. New Products ordered in an attempt to circumvent the warranty process may NOT be reimbursed if, upon receipt of returned Products, it is determined that the defect in the returned Products is actually field related, or the Products have been returned for cosmetic reasons only.

8.13. Advanced replacement Products for butterfly valve actuators may not be new, but have been verified by the Seller for electrical and mechanical operation. Such Products carry the full warranty for the entire Replacement Warranty Period.

**IX. No Warranty for Non-HVAC Application**

9.1. All Seller warranties shall extend only to HVAC use of the Products. If Products are used in non-HVAC application (e.g., aircraft, industrial processes, etc.), Seller's warranties shall not cover such Products. Client will be solely responsible for any damage to or malfunction of Products or for any damage resulting from such use of Products.

**X. Liability Disclaimer**

10.1. These Terms constitute the entire understanding and agreement between Seller and Client regarding the warranties that cover Products and supersedes all previous understandings, agreements, communications and representations. Seller shall not be responsible for and Client does not have any right to make any claim for, damage that occurs to any property other than Products. Seller shall in no way be responsible for any costs incurred by Client in the determination of the causes of damage to any of Client's property, for expert opinions, or for any punitive or special, incidental or consequential damages of any kind whatsoever.

10.2. Seller shall not be liable for any damage resulting from or contributed by Client or third parties acting within the scope of responsibility of Client or such third party when:

1. Products are used for non-HVAC applications, such as in aircrafts, industrial processes, etc.;
2. Client uses the Products without complying with applicable law or institutional regulations or Belimo data and installation sheets or Client uses the Products without following good industry practice;
3. Products are used by personnel who have not received suitable instruction; or
4. Products are modified or repaired without the written approval of Seller.

When requested to do so, Client shall immediately release Seller in full from any possible third party claims resulting in connection with the circumstances listed above. This also applies to claims in connection with product liability.

10.3. If Client becomes aware that any third party has made or appears likely to make any claim regarding Products (including, without limitation, regarding Product defects or rights infringed by Products), then Client shall immediately inform Seller and afford to Seller all assistance that Seller may require to enforce its rights and defend such claim.

**XI. Proper Law and Jurisdiction**

11.1. All sales of Products under these Terms and the warranties described herein shall be governed by the laws of the State of Connecticut, and the parties agree to submit to the exclusive jurisdiction of the Federal and state courts located in the State of Connecticut with respect to any dispute arising from the subject matter hereof. The parties hereby waive all rights to a jury trial in connection with any claims relating to the subject matter hereof.

**Belimo Aircontrols (USA), Inc.**

1675 East Prater Way  
 Suite 101  
 Sparks, NV 89434  
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43 Old Ridgebury Road  
 Danbury, CT 06810  
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**TOLL FREE**  
**Phone** (800) 543-9038  
**Fax** (800) 228-8283  
**(800) ACTUATE**

CONTACT NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

PHONE \_\_\_\_\_

FAX \_\_\_\_\_

PROJECT NAME \_\_\_\_\_

		NOTES
<b>Actuator Specifications</b>	Switches	
	Spring Return	
	Modulating	
	Tri-State Floating Pt.	
	On-Off	
	120 VAC	
	24 VAC	
	Zone	
	Butterfly	
	Globe	
<b>Project Specifications</b>	CCV	
	PICCV	
	Three-way	
	Two-way	
	System Close-Off Pressure (psi)	
	Pipe Size (in.)	
	Desired Cv	
	Desired Pressure Drop (psi)	
	Flow (gpm)	
	System	
Quantity		

### #1 Select an Actuator

(use one sheet for each unique actuator/configuration)

	Quantity		Quantity
<input type="checkbox"/> AFX24-MFT	_____	<input type="checkbox"/> NMX24-MFT95	_____
<input type="checkbox"/> AFX24-MFT-S	_____	<input type="checkbox"/> NMQX24-MFT	_____
<input type="checkbox"/> AFX24-MFT95	_____	<input type="checkbox"/> LMX24-MFT	_____
<input type="checkbox"/> NFX24-MFT	_____	<input type="checkbox"/> LMX24-MFTX1	_____
<input type="checkbox"/> NFX24-MFT-S	_____	<input type="checkbox"/> LMX24-MFT95	_____
<input type="checkbox"/> LF24-MFT US	_____	<input type="checkbox"/> LMQX24-MFT	_____
<input type="checkbox"/> LF24-MFT-S US	_____	<input type="checkbox"/> AHKX24-MFT	_____
<input type="checkbox"/> TF24-MFT US	_____	<input type="checkbox"/> AHX24-MFT	_____
<input type="checkbox"/> GKX24-MFT	_____	<input type="checkbox"/> LHX24-MFT	_____
<input type="checkbox"/> GMX24-MFT	_____	<input type="checkbox"/> LRX24-MFT	_____
<input type="checkbox"/> GMX24-MFTX1	_____	<input type="checkbox"/> LUX24-MFT	_____
<input type="checkbox"/> GMX24-MFT95	_____	<input type="checkbox"/> NV24-MFT US	_____
<input type="checkbox"/> AMX24-MFT	_____	<input type="checkbox"/> NVF24-MFT US	_____
<input type="checkbox"/> AMX24-MFTX1	_____	<input type="checkbox"/> NVF24-MFT-E US	_____
<input type="checkbox"/> AMX24-MFT95	_____	<input type="checkbox"/> NVFD24-MFT US	_____
<input type="checkbox"/> AMQX24-MFT	_____	<input type="checkbox"/> NVFD24-MFT-E US	_____
<input type="checkbox"/> NMX24-MFT	_____	<input type="checkbox"/> LUX24-MFT	_____
<input type="checkbox"/> NMX24-MFTX1	_____		_____

(-S=Auxiliary Switch)

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

### #2 Create a Custom Configuration

#### 1 Angle of rotation setting

- Deactivated** (Default) The following settings 2 - 5 refer to the full angle of rotation of 95°.
- Activated** The following settings 2 - 5 are automatically adapted to the effective mechanical angle of rotation.
- Manual** triggering by pressing the push button twice.
- Automatic** triggering each time the unit is powered up or by pressing the push button twice.

#### 2 Control Types

VDC	PWM	Floating Point	On/Off
<input type="checkbox"/> 2 - 10	<input type="checkbox"/> 0.2 to 5.0 seconds	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 0 - 10	<input type="checkbox"/> 0.1 to 25.5 seconds		
<input type="checkbox"/> Variable	<input type="checkbox"/> 0.59 to 2.93 seconds		
Start <input type="checkbox"/> <input type="checkbox"/> · <input type="checkbox"/>	<input type="checkbox"/> Variable		
Stop <input type="checkbox"/> <input type="checkbox"/> · <input type="checkbox"/>	Start <input type="checkbox"/> <input type="checkbox"/> · <input type="checkbox"/>		
	Stop <input type="checkbox"/> <input type="checkbox"/> · <input type="checkbox"/>		

#### 3 Feedback Signals U<sub>s</sub>

- Position Feedback U** DC 2...10 V (Default)
- Position Feedback U** DC 0...10 V
- Position Feedback U** Start DC  ·  V (0...8 V) The finish must be at least 2 V above the start!  
 Finish DC  ·  V (2...10 V)

#### 4 Running Time

- 150 seconds (Default)
- Running time  seconds (25...300 seconds) (in 5 second increments)
- Note: The sound power level [dB(A)] increases when the running time is below 150 seconds.
- |                              |                  |                              |                  |
|------------------------------|------------------|------------------------------|------------------|
| <input type="checkbox"/> LM  | 35...150 seconds | <input type="checkbox"/> LHQ | 3.5...15 seconds |
| <input type="checkbox"/> LMQ | 2.5...10 seconds | <input type="checkbox"/> AH  | 75...150 seconds |
| <input type="checkbox"/> NM  | 45...170 seconds | <input type="checkbox"/> AHQ | 7...30 seconds   |
| <input type="checkbox"/> NMQ | 4...15 seconds   | <input type="checkbox"/> AHK | 95...150 seconds |
| <input type="checkbox"/> AM  | 90...300 seconds | <input type="checkbox"/> TF  | 75...300 seconds |
| <input type="checkbox"/> AMQ | 7...15 seconds   | <input type="checkbox"/> LF  | 75...300 seconds |
| <input type="checkbox"/> GM  | 75...300 seconds | <input type="checkbox"/> NFX | 40...220 seconds |
| <input type="checkbox"/> GK  | 95...150 seconds | <input type="checkbox"/> AFX | 70...220 seconds |
| <input type="checkbox"/> LH  | 75...150 seconds |                              |                  |

#### 5 Override control and electronic angle of rotation limiting

- Min. (min. position) =  % (0...100%) <↯ (beginning of working range) default 0
- ZS (intermediate position) =  % (0...100%) (0% = Min.; 100% = Max.) default 50
- Max. (max. position) =  % (0...100%) <↯ (end of working range) default 100



## Instructions for Completing this Form

Ball valves with-out a mounting flange are typically not designed for installing actuation, therefore the valve design may not support modulation outside of manual usage. Belimo does not recommend retrofitting these types of ball valves.

**All dimensions should be taken with ALL original actuation and hardware components removed from the valve body.**

An example using **Mounting Style 3**: Dimensions A & B (**Dim A and Dim B**) relate to the TOP mounting holes on the ball valve body. These holes are usually arranged on the body in a “X” pattern (**MOUNT STYLE 3**). This information is entered on the UBSP Series Ball Valve Retrofit Form in the **MOUNT STYLE** section. The length of the valve stem sticking out of the top of the valve body is recorded under **Dim D and E**. The TOP mounting holes are usually drilled through the top flange, but sometimes are threaded. Enter this information on the form next to the mount style information previously recorded.

**MOUNT STYLE 3**: Dimensions A & B (**Dim A and Dim B**) relate to the TOP mounting holes on the ball valve body. These holes are usually arranged on the body in a “X” pattern (**MOUNT STYLE 3**). This information is entered on the UBSP Series Ball Valve Retrofit Form in the **MOUNT STYLE** section. The length of the valve stem sticking out of the top of the valve body is recorded under **Dim D and E**. The TOP mounting holes are usually drilled through the top flange, but sometimes are threaded. Enter this information on the form next to the mount style information previously recorded.

**STEM STYLE**: Examine the valve being retrofitted to establish which stem style matches the diagrams above. Use caution when recording these dimensions. **Dim H** refers to the valve stem diameter and should be measured at several points up and down as well as around the stem itself. **Dim E** refers to the length of the drive surface available, whether it is a key or flatted surface. **Dim F** refers to the width of the drive surface or the distance across the flats. This is the most critical dimension for correct linkage operation. Please measure accordingly. Lastly please specify the desired actuator orientation in reference to the valve body using the ports as reference, i.e. over the “A” port ect. We have also includes an ISO-5211 standard dimension chart for reference. If the valve is labeled please specify its “F” number so that we may confirm the dimensions per the ISO spec.

In addition, we require information about the environment and process in which this linkage system will be utilized. As well as the frequency of use the current actuator runs. This will help to ensure the longevity of the new linkage and actuator. Having the prior actuator spec and model will help.

The form must be completed in its entirety to guarantee the complete, perfect fit of your retrofit system. Keep in mind that retrofit kits are designed with close-tolerance components which afford the most efficient linkage systems. Measurements rounded to the nearest 1/8 or 1/16 inch will not perform as well (sometimes not at all) as a kit designed around careful measurements using proper equipment. Our designs are typically +.005” tolerance.

Required Tools - calipers and retrofit form.

### Disclaimer

*While we will do our best to provide a linkage system designed around your specifications and measurements, we cannot be held responsible for linkages which do not fit as a result of incorrect data supplied to Belimo. We will be happy to re-work components which do not fit properly for a nominal fee.*

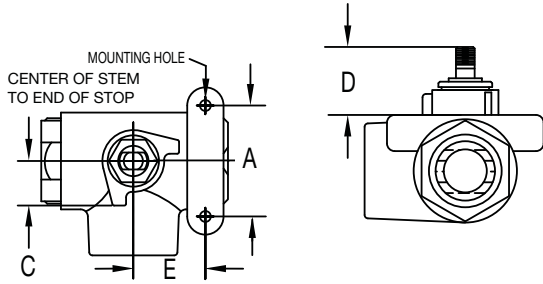
*Actuation, weather shields and linkages cannot be pre-assembled at the Belimo factory. The linkages are designed to be attached onto the valve body first, then optional weather shields, and finally actuation products in the field.*

*Close-off pressures are calculated using actuator torque, valve stroke, and valve area. Other factors may affect the rated Close-off pressures, including flow rates, system maintenance schedules, chemicals used in the shot feeder process, vicinity to pumps, condition of valve stem seals, and assembly of linkage material in the field.*

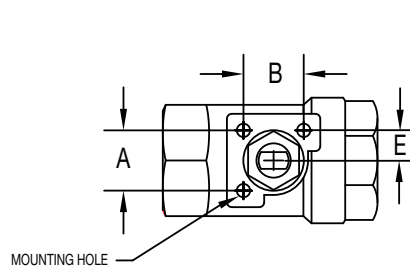
*Valves that are being considered for retrofit of actuation should be analyzed for their life expectancy before the retrofit has taken place. Valves that leak through stem seals or casings will continue to leak with the new linkage system in place, maybe even more so. Rebuilding the packing on these valves may be more costly than replacing the valves themselves. In some cases, modifications may be necessary for proper operation of the linkage system. Belimo assumes NO responsibility for these modifications and are at the discretion of the user as to whether the modifications can be made.*

*NOTE: Although it is possible that the valve being retrofitted has a Close-off pressure rating considerably higher than the actual system pressure, actuation products have been selected to meet the full rating of the valve body. This will assure operation of the valve when considering long term exposure to pumping systems. Belimo does not manufacture or document retrofit packages utilizing actuation products designed around anything less than the full rating of the valve body.*

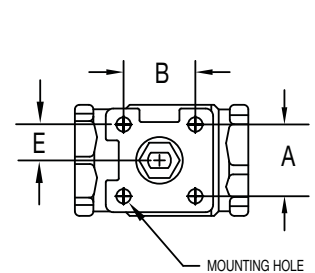
### MOUNT STYLE 1



### MOUNT STYLE 2



### MOUNT STYLE 3



### MOUNT STYLE 4

SKETCH YOUR MOUNT STYLE USING EXAMPLES ABOVE

### MOUNT STYLE DIMENSIONS

MOUNT STYLE

DIM A:

DIM B:

DIM C:

DIM D:

DIM E:

MOUNTING HOLES:  DRILLED  TAPPED

DIA Ø:

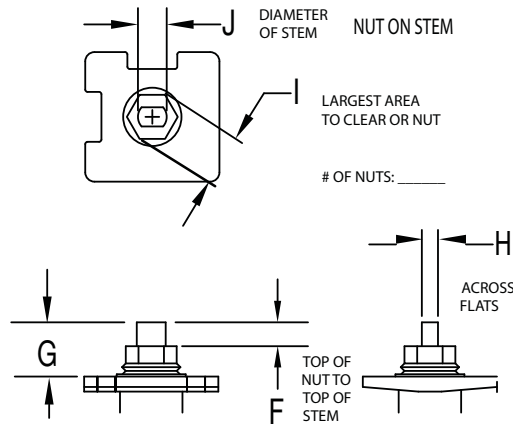
THREAD SPEC:

DIM. A & B MEASURED FROM CENTER OF HOLE

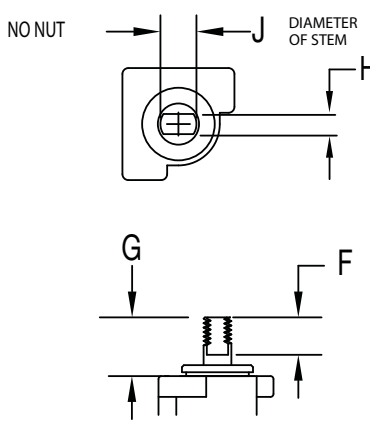
### ISO STANDARD

ISO	BOLT SQUARE	BOLT SIZE Ø	CHECK ONE
F03	1.002	M5	<input type="checkbox"/>
F04	1.169	M5	<input type="checkbox"/>
F05	1.392	M6	<input type="checkbox"/>
F07	1.949	M8	<input type="checkbox"/>
F10	2.840	M10	<input type="checkbox"/>
F12	3.480	M12	<input type="checkbox"/>
F14	3.879	M16	<input type="checkbox"/>
F16	4.593	M20	<input type="checkbox"/>
F25	7.071	M16	<input type="checkbox"/>

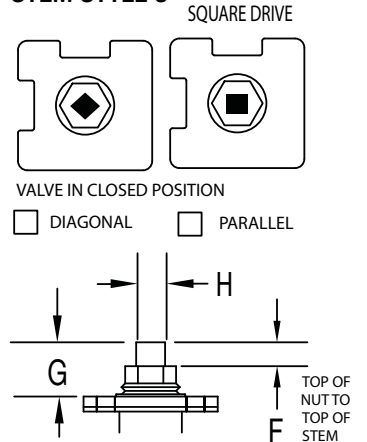
### STEM STYLE 1



### STEM STYLE 2



### STEM STYLE 3



STEM STYLE

DIM F:

DIM G:

DIM H:

DIM I:

DIM J:

### ACTUATOR

EXISTING ACTUATOR MODEL: \_\_\_\_\_ CONTROL TYPE:  ON/OFF  FLOATING POINT  VDC  PWM

FAIL SAFE:  YES  NO Range: \_\_\_\_\_ Range: \_\_\_\_\_

FAIL POSITION:  NO  NC  INDOOR  OUTDOOR

FREQUENCY OF OPERATION (specify how often): DAILY \_\_\_\_\_ WEEKLY \_\_\_\_\_ MONTHLY \_\_\_\_\_ VOLTAGE: \_\_\_\_\_

ACTUATOR ORIENTATION:



COMPANY: \_\_\_\_\_

JOB NAME: \_\_\_\_\_

PO#: \_\_\_\_\_

PHONE: \_\_\_\_\_

EMAIL: \_\_\_\_\_

VALVE MANUFACTURE: \_\_\_\_\_

VALVE SERIES: \_\_\_\_\_

VALVE MODEL: \_\_\_\_\_

VALVE TAG/LOCATION: \_\_\_\_\_

QUANTITY: \_\_\_\_\_

2 WAY/3 WAY: \_\_\_\_\_

VALVE SIZE: \_\_\_\_\_

MEDIA TEMP: \_\_\_\_\_

MEDIA TYPE: \_\_\_\_\_

SYSTEM PRESSURE: \_\_\_\_\_

NOTE: THIS INFORMATION WILL BE UTILIZED IN THE FABRICATION OF A CUSTOM LINKAGE SYSTEM FOR YOUR VALVE REQUIREMENT; THEREFORE, IT IS ESSENTIAL THAT THE ABOVE DIMENSIONS BE FURNISHED WITH READINGS TAKEN TO THE NEAREST .001". ANY ERRONEOUS DIMENSIONS FURNISHED WHICH RESULT IN IMPROPER FIT OF THIS LINKAGE SYSTEM ARE NOT THE RESPONSIBILITY OF BELIMO AIRCONTROLS. ANY REWORK REQUIRED WILL RESULT IN AN EXTRA CHARGE.

**CUSTOM KITS ARE DESIGNED TO YOUR UNIQUE SPECIFICATIONS AND ARE NOT RETURNABLE.**

COMPANY CONTACT/DIMENSIONS PROVIDED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

# Instructions for completing this form

**Dimensions A, B & C** relate to the existing valve stem. **Dim A** is the stem diameter where it is NOT threaded (Style A), or grooved (Style B). **Dim B** refers to the length of the threaded region on the valve stem or top region of the grooved stem. **Dim C** is the actual thread specification for the threaded style stem (1/4-28, 5/16-24, 3/8-24, 7/16-20 & 1/2-20 are typical). Dim C for the grooved style is the measurement of the stem groove height. This information is used to design a stem adapter which will connect the valve stem to the new linkage drive rack. It is important to specify the correct thread pattern, as incorrect data will prevent the stem adapter from attaching to your valve. If you cannot determine the correct thread spec, you can send a nut from the valve stem and we will match the correct specification. In some cases where older valves are concerned, some valve stems must be trimmed in the field to allow attachment of the linkage system. In these cases, a stem adapter is designed to “bite” into the smooth surface of the valve stem itself.

**Dimensions D1, D2 & D3** are used to determine the height of the linkage assembly required to clear the valves’ full stroke. A minimum of **two** dimensions are required to manufacture the correct linkage system for your valve. These dimensions also provide the information necessary to determine valve stroke. The **maximum stroke** from Belimo globe valve retrofit systems is 1.500”.

**Dimension E** refers to the valve bonnet diameter (regardless if threads are present or not). Over time, impurities will react to the bonnet threads and corrode them to the point where they no longer meet the original thread specification. Because of this, we manufacture **slip fit** collars designed to **slide over** the bonnet threads, and locking setscrews are provided which “bite” into the original threads. All retrofit systems are designed to work with the raw valve body and do not account for previous actuation components which **must** be removed from the valve body before attaching the new linkage system.

**Dimension F** refers to the thread specification on threaded bonnets, and refers to the minor diameter on slip on bonnets (Landis type). This information helps us determine the length of the locking devices required to hold the collar onto the bonnet.

**Dimensions G & H** are used to determine working height of the bonnet region of your globe valve, while **Dim I** is used in calculating the minimum ID of the collar that will fit over the packing nut. Additionally, information about the environment and process in which this linkage system will be utilized should be provided.

All the requested information contained on this form is required to guarantee the complete, perfect fit of your retrofit system. Keep in mind that retrofit kits are designed with close-tolerance components which afford the most efficient linkage systems. Measurements rounded to the nearest 1/8 or 1/16 inch will not perform as well as a kit designed around careful measurements using proper equipment. Our designs are typically +.005” tolerance.

Required Tools - calipers, thread gauge and retrofit form

**DISCLAIMER:**

*While we will do our best to provide a linkage system designed around your specifications and measurements, we cannot be held responsible for linkages which do not fit as a result of incorrect data given to Belimo. We will be happy to re-work components which do not fit properly for a nominal fee.*

*To reduce the possibility of incorrect linkage solutions, we respectfully request that you fill out the retrofit form completely and forward that information with your order. This will serve as a double check between your valve and the actuator/linkage package designed for your application.*

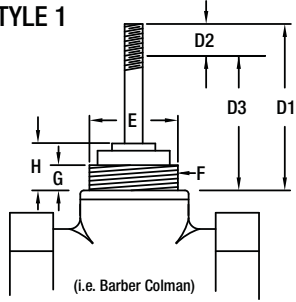
*Actuation, weather shields and linkages cannot be pre-assembled at the Belimo factory prior to your receipt. The linkages are designed to be attached onto the valve body first, then optional weather shields, and finally actuation products.*

*Close-off pressures are calculated using actuator torque, valve stroke, and valve area. Other factors may affect the rated close-off pressures, including flow rates, system maintenance schedules, chemicals used in the shot feeder process, vicinity to pumps, condition of valve stem seals, and assembly of linkage material in the field.*

*Valves that are being considered for retrofit of actuation should be analyzed for their life expectancy before the retrofit has taken place. Valves that leak through stem seals or casings will continue to leak with the new linkage system in place, maybe even more so. Rebuilding the packing on these valves may be more costly than replacing the valves themselves. In some instances, older valve stem heights will require field modifications to the valve in order to utilize the retrofit kit. Belimo takes no responsibility for the operation of these valves after they have been modified.*

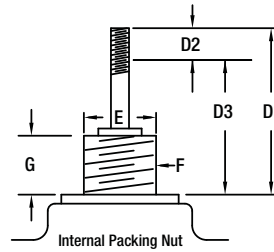
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**VALVE STYLE 1**

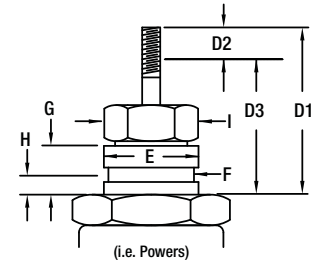


NOTE:  
Nut "F" rotates on valve bonnet!!

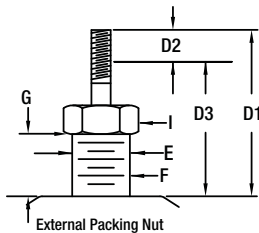
**VALVE STYLE 2**



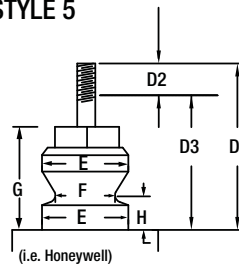
**VALVE STYLE 3**



**VALVE STYLE 4**



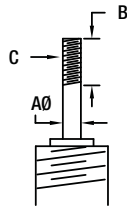
**VALVE STYLE 5**



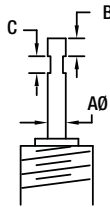
**VALVE STYLE DIMENSIONS**

VALVE STYLE:	<input type="text"/>
DIM D1*:	<input type="text"/>
Stem up, length to base mount surface	
DIM D2:	<input type="text"/>
Stem stroke, stem up vs. stem down	max. 1.500"
DIM D3:	<input type="text"/>
Stem dimension, length to base mount surface	
DIM E:	<input type="text"/>
Bonnet major diameter	
DIM F:	<input type="text"/>
Thread spec or bonnet minor diameter	
DIM G:	<input type="text"/>
Bonnet mount height	
DIM H:	<input type="text"/>
Bonnet minor diameter height	
DIM I:	<input type="text"/>
External packaging nut, across points	

**STEM STYLE A**



**STEM STYLE B**



STEM STYLE	<input type="text"/>	STEM DIAMETER	<input type="text"/>	THREAD LENGTH	<input type="text"/>	TO STEM GROOVE	<input type="text"/>	THREADS PER INCH	<input type="text"/>	STEM GROOVE HEIGHT	<input type="text"/>
A or B:		DIM A:		DIM B:		DIM B:		DIM C:		DIM C:	

**ACTUATOR**

EXISTING ACTUATOR MODEL: \_\_\_\_\_ CONTROL TYPE:  ON/OFF  FLOATING POINT  VDC  PWM  
 FAIL SAFE:  YES  NO Range: \_\_\_\_\_ Range: \_\_\_\_\_  
 FAIL POSITION:  NO  NC  INDOOR  OUTDOOR  
 VOLTAGE \_\_\_\_\_

COMPANY: _____	VALVE MANUFACTURE: _____	2 WAY/3 WAY: _____
JOB NAME: _____	VALVE SERIES: _____	VALVE SIZE: _____
PO#: _____	VALVE MODEL: _____	MEDIA TEMP: _____
PHONE: _____	VALVE TAG/LOCATION: _____	MEDIA TYPE: _____
EMAIL: _____	QUANTITY: _____	SYSTEM PRESSURE: _____

NOTE: THIS INFORMATION WILL BE UTILIZED IN THE FABRICATION OF A CUSTOM LINKAGE SYSTEM FOR YOUR VALVE REQUIREMENT; THEREFORE, IT IS ESSENTIAL THAT THE ABOVE DIMENSIONS BE FURNISHED WITH READINGS TAKEN TO THE NEAREST .001". ANY ERRONEOUS DIMENSIONS FURNISHED WHICH RESULT IN IMPROPER FIT OF THIS LINKAGE SYSTEM ARE NOT THE RESPONSIBILITY OF BELIMO AIRCONTROLS. ANY REWORK REQUIRED WILL RESULT IN AN EXTRA CHARGE.

**CUSTOM KITS ARE DESIGNED TO YOUR UNIQUE SPECIFICATIONS AND ARE NOT RETURNABLE.**

COMPANY CONTACT/DIMENSIONS PROVIDED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

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# Instructions for completing this form

Please keep in mind that all dimensions should be taken with ALL original actuation and hardware components removed from the valve body.

**MOUNT STYLE:** Dimensions A & B (**Dim A and Dim B**) relate to the TOP mounting holes on the butterfly valve body. These holes are usually arranged on the body in either an “X” pattern (**MOUNT STYLE 1**), or a cross pattern (**MOUNT STYLE 2**). This information is entered on the UFSP Series Butterfly Valve Retrofit Form in the **MOUNT STYLE** section. The length of the valve stem sticking out of the top of the valve body is recorded under **Dim C**. The TOP mounting holes are usually drilled through the top flange, but sometimes are threaded. Enter this information on the form next to the mount style information previously recorded.

**SHAFT STYLE:** Examine the valve being retrofitted to establish which shaft style matches the diagrams. Use caution when recording these dimensions. **Dim D** refers to the valve stem diameter and should be measured at several points up and down as well as around the stem itself. **Dim E** refers to the length of the drive surface available, whether it be a key, flatted surface, or the distance a drive hole is from the top of the stem. There are two types of keys (Keyway-Shaft Style 4 and Woodruff Key-Shaft Style 5). Please select the key size as noted in the column “For Shaft Style 4 & 5”. **Dim F** refers to the width of the drive surface. This is the most critical dimension for correct linkage operation. Please measure accordingly.

In addition, we require information about the environment and process in which this linkage system will be utilized.

The form must be completed in its entirety to guarantee the complete, perfect fit of your retrofit system. Keep in mind that retrofit kits are designed with close-tolerance components which afford the most efficient linkage systems. Measurements rounded to the nearest  $\frac{1}{8}$  or  $\frac{1}{16}$  inch will not perform as well (sometimes not at all) as a kit designed around careful measurements using proper equipment. Our designs are typically  $\pm .005$ ” tolerance.

Required Tools - calipers and retrofit form.

## DISCLAIMER

*While we will do our best to provide a linkage system designed around your specifications and measurements, we cannot be held responsible for linkages which do not fit as a result of incorrect data supplied to Belimo. We will be happy to re-work components which do not fit properly for a nominal fee.*

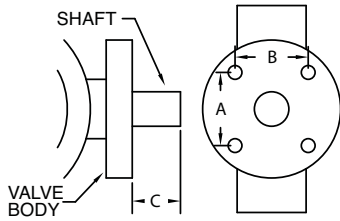
*Actuation, weather shields and linkages cannot be pre-assembled at the Belimo factory. The linkages are designed to be attached onto the valve body first, then optional weather shields, and finally actuation products in the field.*

*Close-off pressures are calculated using actuator torque, valve stroke, and valve area. Other factors may affect the rated Close-off pressures, including flow rates, system maintenance schedules, chemicals used in the shot feeder process, vicinity to pumps, condition of valve stem seals, and assembly of linkage material in the field.*

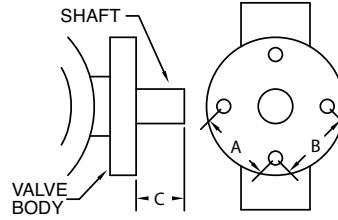
*Valves that are being considered for retrofit of actuation should be analyzed for their life expectancy before the retrofit has taken place. Valves that leak through stem seals or casings will continue to leak with the new linkage system in place, maybe even more so. Rebuilding the packing on these valves may be more costly than replacing the valves themselves. In some cases, modifications may be necessary for proper operation of the linkage system. Belimo assumes NO responsibility for these modifications and are at the discretion of the user as to whether the modifications can be made.*

*NOTE: Although it is possible that the valve being retrofitted has a Close-off pressure rating considerably higher than the actual system pressure, actuation products have been selected to meet the full rating of the valve body. This will assure operation of the valve when considering long term exposure to pumping systems. Belimo does not manufacture or document retrofit packages utilizing actuation products designed around anything less than the full rating of the valve body.*

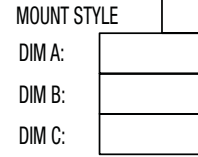
**MOUNT STYLE 1**



**MOUNT STYLE 2**

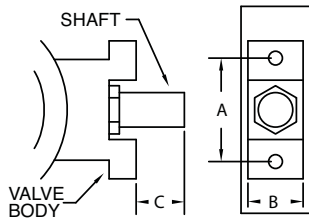


**MOUNT STYLE DIMENSIONS**



DIM. A & B MEASURED FROM CENTER OF HOLE

**MOUNT STYLE 3**



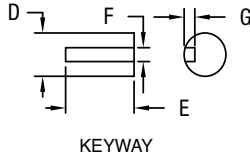
**MOUNT STYLE 4**

SKETCH YOUR MOUNT STYLE USING MOUNT STYLE EXAMPLES.

MOUNTING HOLES:

DRILLED  
 DIA Ø:   
 TAPPED  
 SPEC.

**SHAFT STYLE 4**

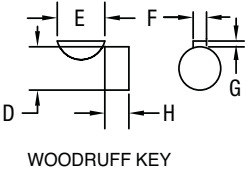


KEY SIZE

- .125"
- .1875"
- .250"
- .3125"
- .375"
- .4375"
- .500"

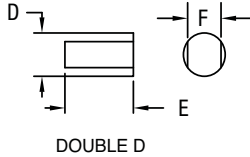
CHECK ONE

**SHAFT STYLE 5**



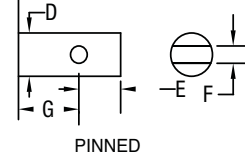
WOODRUFF KEY

**SHAFT STYLE 6**



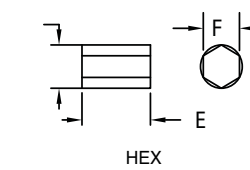
DOUBLE D

**SHAFT STYLE 8**



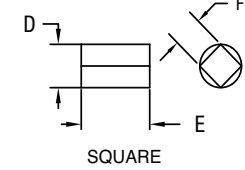
PINNED

**SHAFT STYLE 7**



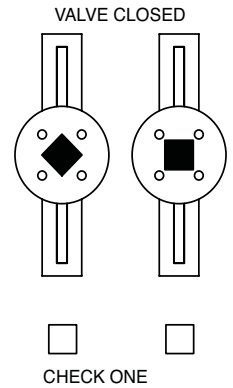
HEX

**SHAFT STYLE 9**



SQUARE

**SHAFT STYLE 9**



SHAFT STYLE

DIM D:

DIM E:

DIM F:

DIM G:

DIM H:

**ACTUATOR**

EXISTING ACTUATOR MODEL: \_\_\_\_\_ CONTROL TYPE:  ON/OFF  FLOATING POINT  VDC  PWM  
 FAIL SAFE:  YES  NO Range: \_\_\_\_\_ Range: \_\_\_\_\_  
 FAIL POSITION:  NO  NC  INDOOR  OUTDOOR  
 VOLTAGE \_\_\_\_\_

COMPANY: \_\_\_\_\_  
 JOB NAME: \_\_\_\_\_  
 PO#: \_\_\_\_\_  
 PHONE: \_\_\_\_\_  
 EMAIL: \_\_\_\_\_

VALVE MANUFACTURE: \_\_\_\_\_  
 VALVE SERIES: \_\_\_\_\_  
 VALVE MODEL: \_\_\_\_\_  
 VALVE TAG/LOCATION: \_\_\_\_\_  
 QUANTITY: \_\_\_\_\_

2 WAY/3 WAY: \_\_\_\_\_  
 VALVE SIZE: \_\_\_\_\_  
 MEDIA TEMP: \_\_\_\_\_  
 MEDIA TYPE: \_\_\_\_\_  
 SYSTEM PRESSURE: \_\_\_\_\_

NOTE: THIS INFORMATION WILL BE UTILIZED IN THE FABRICATION OF A CUSTOM LINKAGE SYSTEM FOR YOUR VALVE REQUIREMENT; THEREFORE, IT IS ESSENTIAL THAT THE ABOVE DIMENSIONS BE FURNISHED WITH READINGS TAKEN TO THE NEAREST .001". ANY ERRONEOUS DIMENSIONS FURNISHED WHICH RESULT IN IMPROPER FIT OF THIS LINKAGE SYSTEM ARE NOT THE RESPONSIBILITY OF BELIMO AIRCONTROLS. ANY REWORK REQUIRED WILL RESULT IN AN EXTRA CHARGE.

**CUSTOM KITS ARE DESIGNED TO YOUR UNIQUE SPECIFICATIONS AND ARE NOT RETURNABLE.**

COMPANY CONTACT/DIMENSIONS PROVIDED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

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**USA****ACR Supply Company Inc.**

2719 Hillsborough Road  
Durham, NC 27705  
Phone: 919-286-2228

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**Aireco Supply**

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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  
Houston, TX branch 713-464-7002

**Applied Automation**

A Wilson Mohr Company  
3186 South Washington Street, #230  
Salt Lake City, UT 84115  
Phone: 801-486-6454

**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

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**Climatic Control Div/ICD**

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Milwaukee, WI 53208  
Phone: 800-242-1656

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Madison Heights, MI 48071-1633  
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1053 E. 5th Avenue  
Columbus, OH 43201  
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**Controlco**

5600 Imhoff Drive, Suite G  
Concord, CA 94520  
Phone: 925-602-7728

**With branches in CA, NV**

**Control Products**

9101 Jameel, Suite 130  
Houston, TX 77447  
Concord, CA 94520  
Phone: 713-690-6300

**Edward C. Smyers & Co.**

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Pittsburgh, PA 15222-1505  
Phone: 412-471-3222

**Engineered Control Systems**

4805 N.W. 79th Avenue  
Suite 11  
Miami, FL 33166  
Phone: 305-418-8901

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**G & O Thermal Supply**

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Chicago, IL 60630  
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**Industrial Controls Distributors LLC**

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Wanamassa, NJ 07712  
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**Interstate HVAC Controls**

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Brighton, MA 02135  
Phone: 617-782-9000

**Jackson Controls**

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

**M & M Controls**

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Minneapolis, MN 55426-4267  
Phone: 952-920-0131

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**RSD/Refrigeration Supply Distribution**

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Lake Forest, CA 92630  
Phone: 949-380-7878

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**Saint Louis Boiler Supply, Co.**

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St. Louis, MO 63144  
Phone: 314-962-9242

**South Side Control Supply, Co.**

488 N. Milwaukee Avenue  
Chicago, IL 60610-3923  
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**With branches in IL, IN**

**Stromquist and Company**

4620 Atlanta Road  
Smyrna, GA 30080  
Phone: 404-794-3440

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**Temperature Control Systems**

10315 Brockwood Road  
Dallas, TX 75238  
Phone: 214-343-1444

**With branches in OK, TX**

**Tower Equipment Co., Inc.**

1320 West Broad Street  
Stratford, CT 06615  
Phone: 800-346-4647

**Twincos Supply Corporation**

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Huntington Station, NY 11746-2143  
Phone: 800-794-3188

**With branches in NY**

**Wilson-Mohr, Inc.**

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Sugarland, TX 77478  
Phone: 281-295-8850

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Belimo worldwide: [www.belimo.com](http://www.belimo.com)

**BELIMO Americas**

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Tel. 800-543-9038, Fax 800-228-8283, [marketing@us.belimo.com](mailto:marketing@us.belimo.com)

1049 Fortunato Loop, Sparks, NV 89436  
Tel. 800-987-9042, Fax 800-987-8875, [marketing@us.belimo.com](mailto:marketing@us.belimo.com)

**Canada Locations**, 14/16 – 5716 Coopers Avenue, Mississauga, Ontario L4Z 2E8  
Tel. 866-805-7089, Fax 905-712-3124, [marketing@us.belimo.com](mailto:marketing@us.belimo.com)

**Latin America Customer Service**, Tel. 203-791-8396, Fax 203-791-9139, [marketing@us.belimo.com](mailto:marketing@us.belimo.com)

