

An aerial photograph of a multi-story commercial building with a white facade and red accents. The building has "Bray CONTROLS" written on its side. In the foreground, there is a large, circular flower bed with a red and white logo in the center. An American flag is flying on a pole in front of the building. The sky is blue with scattered white clouds.

**Bray** COMMERCIAL

# Product Catalog & US Pricing

02/17/2026

## TABLE OF CONTENTS

### ***BROCHURES***

Product Profile .....12 Pages - 3

### ***PRICING***

US Pricing 2026 ..... 80 Pages - 14

### ***PRODUCTS***

EBV Series - DC Actuators ..... 20 Pages - 83

BV Series Threaded Industrial Control Ball Valves .....10 Pages - 103

BVM Series (ANSI 150) Flanged Industrial Control Ball Valves ..... 8 Pages - 113

BVMS Series Flanged Industrial Control Segmented Ball Valves ..... 6 Pages - 121

Simple Set™ Pressure Independent Control Valves ..... 12 Pages - 127

Simple Set Max® Pressure Independent Control Valves.....10 Pages - 139

Flanged DG Series Flanged Globe Valves ..... 8 Pages - 149

CG/DG Series Threaded Globe Valves .....8 Pages - 157

3L Series Resilient Seated Butterfly Valves .....22 Pages - 165

NY/AB Series Resilient Seated Butterfly Valves .....22 Pages - 187

MK Series High Performance Butterfly Valves.....20 Pages - 209

GA(S) Series Linear Valve Actuators..... 8 Pages - 229

PA Series PA(M) Series Pressure Independent Control Valve Actuators..... 10 Pages - 237

Retrofit Kits - Butterfly & Globe Valves..... 10 Pages - 247

Series 70 Actuators..... 10 Pages - 257

AU Series Industrial Electric Actuators..... 6 Pages - 267

VAL Series Globe Valve Actuators..... 2 Pages - 273

Large and Small Weather Shields ..... 4 Pages - 275

Series 92/93 & 98 Pneumatic Actuators..... 10 Pages - 279

Damper Actuators Non-Spring Return & Spring Return ..... 32 Pages - 289

# **Bray** COMMERCIAL

## PRODUCT PROFILE



[BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM)



## INTRODUCTION

At Bray International, Inc., our business is helping our customers with their flow control requirements. Our product line of butterfly valves, actuators and accessories offers the best compatibility, economy and quality performance in the flow control industry.

Through years of field application experience, research and development Bray has designed products that meet the stringent requirements of today's flow control industry. We have earned a reputation for excellence by creating products of superior value and quality, providing personalized customer service and emphasizing on-time deliveries. Our success has always been the direct result of our fully integrated range of valve, actuator and control products. Rugged and reliable, our products are engineered to provide years of trouble free service.

Bray manufacturing facilities are certified to ISO 9001 quality standards, assuring product quality, precision manufacturing and internal process integrity.

Bray is committed to customer support. Our extensively trained staff is knowledgeable of all Bray products and their applications and can provide personal attention to every customer. To serve you locally Bray maintains a factory certified sales and service network, for all Bray products, throughout the world.

## COMMITMENT TO QUALITY

Bray International recognizes that our customers make us successful and they have a choice of many manufacturers when selecting valves, actuators and accessories for their applications. Since many manufacturers have access to the same materials of construction for these products, Bray believes that a customer's purchase decision is heavily influenced by the following key factors:

- > Trust in the manufacturer
- > Confidence in the quality assurance and integrity of the manufacturer
- > Proven industry experience
- > Features and benefits of the product
- > Cost of ownership
- > Customer service
- > Delivery

*"Bray is focused on and committed to meeting the expectations and needs of our customers while continually improving the effectiveness of our quality management."*

---

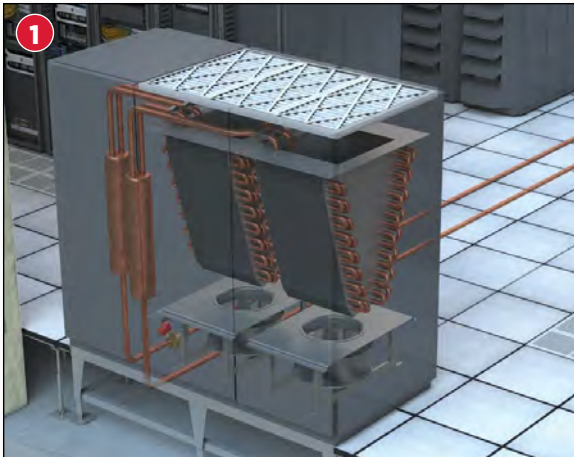
# **Bray** COMMERCIAL

Bray Commercial provides automated butterfly valves, ball valves and pressure independent valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings such as:

- > Hospitals
- > Schools and Universities
- > Data Centers
- > Government and Municipal Buildings
- > Commercial Offices
- > Airports
- > Hotels
- > Sports/Entertainment and Convention Centers

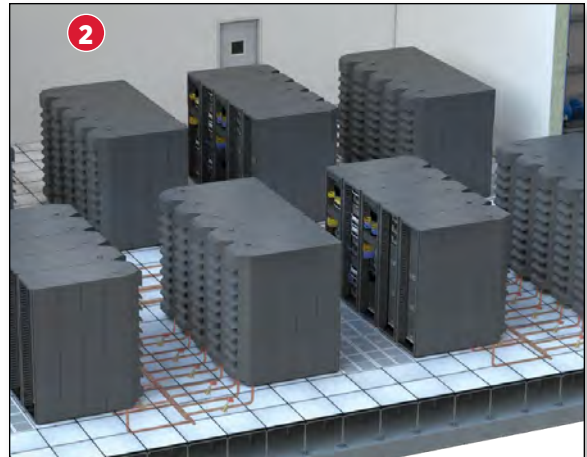
In addition to producing valves of unsurpassed quality, our core competency is servicing our BAS partners, OEM's and contractors to ensure you receive the most effective and economical valve solution package. Bray's extensively trained staff is knowledgeable in all aspects of Bray's products and their applications. To provide personal attention to every customer, each region maintains a factory certified sales and service network for all Bray products.

### Computer Room Air Handling Units



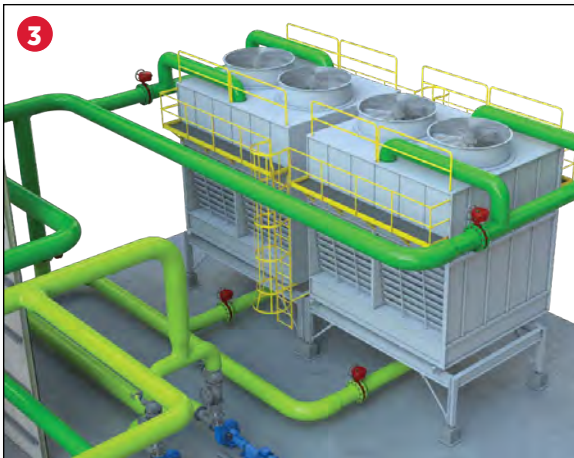
- > Simple Set Pressure Independent Control Valves
- > EBV Ball Valves

### On-Rack Server Cooling



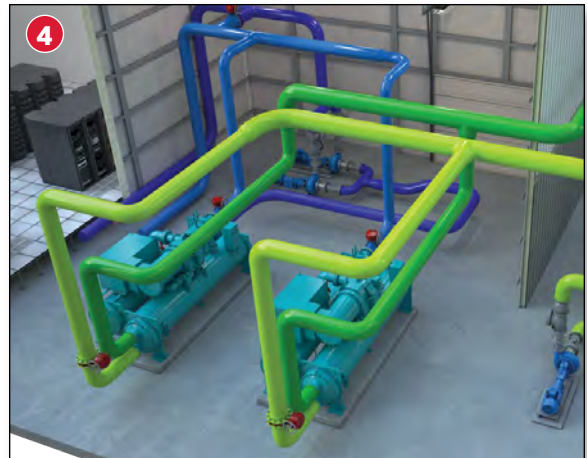
- > Simple Set Pressure Independent Control Valves
- > EBV Ball Valves

### Cooling Towers



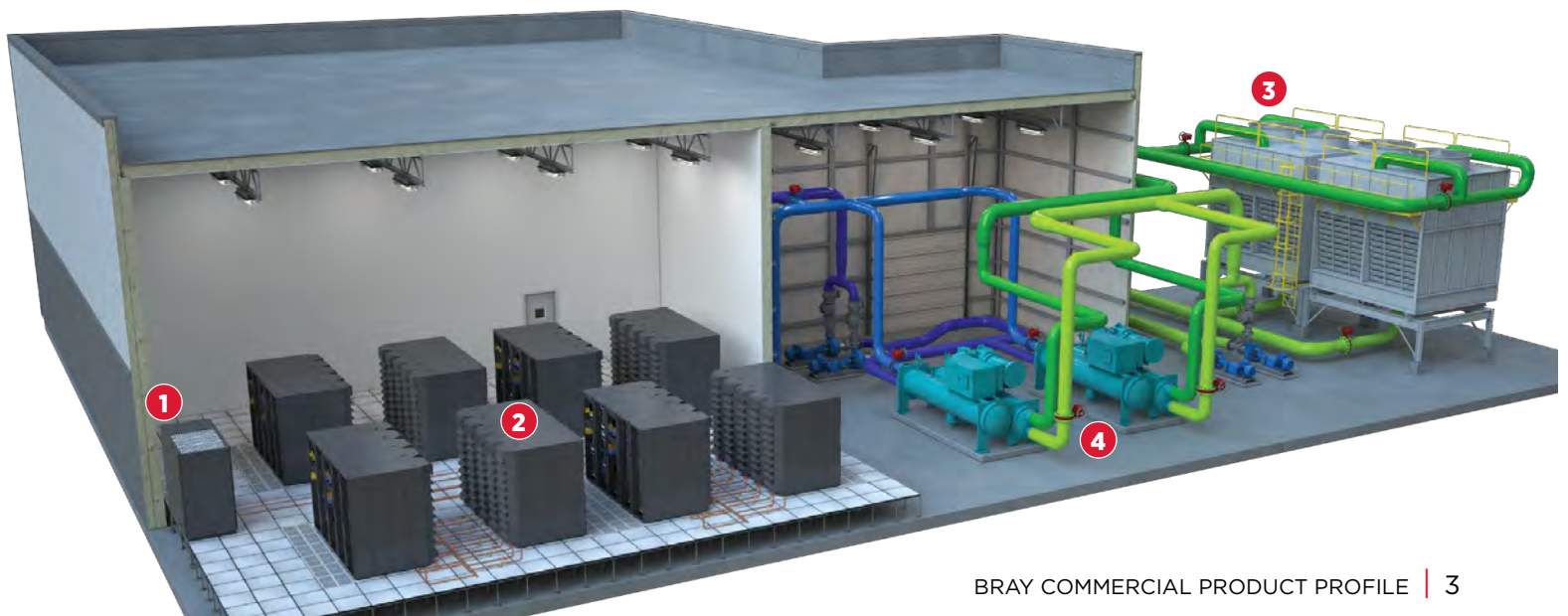
- > 3L Series Butterfly Valves
- > MKL Series Butterfly Valves

### Chillers



Isolation, Thermostatic Expansion Valves, Hot Gas Bypass, Free Cooling Control

- > 3L Series Butterfly Valves
- > MK Series Butterfly Valves



## RESILIENT SEATED

### 3L SERIES BUTTERFLY VALVES

Bray's 3L Series resilient seated butterfly valves have emerged as the design standard in the commercial building market worldwide. Our new 3L series is optimized for low torque and added reliability. Both are available with a wide range of electric and pneumatic actuators and accessories to satisfy any application.

- > Low Torque
- > High Cycle Life
- > ANSI and DIN
- > High and Low Close-off Ratings



### 3L SERIES BUTTERFLY VALVES

|                                   |  |
|-----------------------------------|--|
| <b>Size Range</b>                 | 2" - 24" (50mm - 600mm)  |
| <b>Configurations</b>             | 2-Way and 3-Way  |
| <b>End Connections</b>            | Lug for ANSI 125 and ANSI 150 Flanges  |
| <b>Fluid Temperature Range</b>    | -20 to 250°F (-28 to 121°C)  |
| <b>Maximum Close-off Pressure</b> | 175 psi (12 bar)   |
| <b>Flow Characteristic</b>        | Modified Equal Percentage  |
| <b>Body Material</b>              | A536 Gr. 65-45-12 Ductile Iron   |
| <b>Disc Materials</b>             | 3LNE Series - Ductile Iron, Nylon 11 Coated<br>3LSE Series - 316 Stainless Steel                                   |
| <b>Available Actuators</b>        | On/Off, Floating, Modulating,<br>Spring & Non-Spring Return<br>Commercial and Industrial Electric<br>and Pneumatic |
| <b>Applications</b>               | HVAC- Chillers, Cooling Towers, Boilers,<br>Heat Exchangers  |

## HIGH PERFORMANCE

### MK SERIES BUTTERFLY VALVES

Ideal for high pressure, high temperature and high cycle mission critical HVAC applications. The Bray MK Series innovative double offset design results in higher close-off and lower torque. Bidirectional, Class VI shut off, in both low pressure and maximum ANSI Class ratings.

- > Superior Cycle Life
- > Ideal for high pressure steam and hot water
- > ANSI and DIN



### MK SERIES BUTTERFLY VALVES

|                                   |  |
|-----------------------------------|--|
| <b>Size Range</b>                 | 2 ½" - 20" (65mm - 500mm)  |
| <b>Configurations</b>             | 2-Way and 3-Way  |
| <b>End Connections</b>            | Lug, 2-Way for ANSI 150 and ANSI 300 Flanges;<br>3-Way for ANSI 150 flanges only                                     |
| <b>Fluid Temperature Range</b>    | -40 to 500°F (-40 to 250°C)  |
| <b>Maximum Close-off Pressure</b> | ANSI 150: 285 psi (20 bar)<br>ANSI 300: 740 psi (50 bar)   |
| <b>Flow Characteristic</b>        | Modified Equal Percentage  |
| <b>Body Material</b>              | Carbon Steel   |
| <b>Disc Material</b>              | 316 Stainless Steel  |
| <b>Available Actuators</b>        | On/Off, Floating, Modulating,<br>Spring and Non-Spring Return<br>Commercial and Industrial<br>Electric and Pneumatic |
| <b>Applications</b>               | HVAC - Chillers, Boilers, Heat Exchangers,<br>High cycle requirement closed loop systems                             |

## PRESSURE INDEPENDENT CONTROL VALVES

### SIMPLE SET™ AND SIMPLE SET MAX® SERIES

The purpose of a Pressure Independent Control (PIC) valve is to maintain a set flow to the coil regardless of pressure changes in the system. Bray's complete line of PIC valves combine a control valve and dynamic balancing valve in a single cost effective housing. These valves eliminate overflow at less than design conditions to provide accurate control at all levels of demand. The use of PIC valves

eliminates the need for balancing valves and significantly reduces installation costs. Pumping, heating and cooling costs are also reduced minimizing overall operating costs. The valve will always use full stroke of the control element offering maximum controllability. Pressure/Temperature measurement ports are standard.

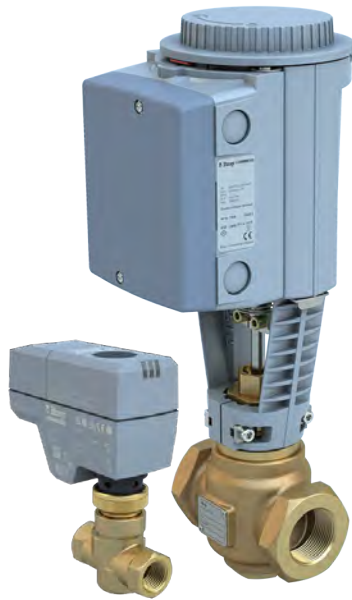
| SIMPLE SET™                                |   |
|--|---|
| <b>Size Range</b>                          | 1/2" - 2" (15mm - 50mm)   |
| <b>End Connections</b>                     | NPT Threaded  |
| <b>Fluid Temperature Range</b>             | 32 to 248°F (0 to 120°C)  |
| <b>Maximum Close-off Pressure</b>          | 58 psi (400 kPa)  |
| <b>Recommended Operating Pressure Drop</b> | 2.3 to 58 psid (36 to 400 kPa)  |
| <b>Flow Rates</b>                          | 0.33 to 65 GPM ( 329 to 14,740 L/H)   |
| <b>Body Materials</b>                      | DZR Forged Brass  |
| <b>Available Actuators</b>                 | Floating and Modulating with and without Failsafe                                 |
| <b>Applications</b>                        | HVAC - Fan Coils<br>VAV - Reheat Coils<br>Chilled Beams<br>and Air Handling Units |



| SIMPLE SET MAX®                            |   |
|--|---|
| <b>Size Range</b>                          | 2½" - 12" (65mm - 300mm)                          |
| <b>End Connections</b>                     | ANSI 125/150 or DIN                               |
| <b>Fluid Temperature Range</b>             | 32 to 248°F (0 to 120°C)                          |
| <b>Maximum Close-off Pressure</b>          | 116 psi (800 kPa)                                 |
| <b>Recommended Operating Pressure Drop</b> | 2.18 to 116 psid (15 to 800 kPa)                  |
| <b>Flow Rates</b>                          | 19.3 to 2,641 GPM<br>(4.4 to 600 M3/h)            |
| <b>Body Material</b>                       | Cast/Ductile Iron                                 |
| <b>Available Actuators</b>                 | Floating and Modulating with and without Failsafe |
| <b>Applications</b>                        | HVAC - Air handling units,<br>heat exchangers     |



## THREADED GLOBE VALVES



### CG/DG SERIES

Bray Commercial's CG/DG Series threaded globe valves provide stable and accurate control of both water and steam heat exchangers on a wide range of HVAC applications. These brass bodied valves are available in both brass and Stainless-Steel trim in 2-Way and 3-Way configurations for cost effective solutions to your applications.

## CG/DG SERIES GLOBE VALVES

|                                |   |
|--------------------------------|---|
| <b>Size Range</b>              | 1/2" - 2" (15mm - 50mm)   |
| <b>Configurations</b>          | 2-Way and 3-Way   |
| <b>End Connections</b>         | Female NPT  |
| <b>Fluid Temperature Range</b> | Up to 250°F Water; 337°F Steam  |
| <b>Flow Characteristics</b>    | 2-Way Valves - Modified Equal Percentage for DG Series<br>3-Way Valves - Linear   |
| <b>Body Materials</b>          | Brass - 1/2" & 3/4"<br>Bronze - 1" to 2"  |
| <b>Trim Materials</b>          | Water - Brass<br>Steam - Stainless Steel  |
| <b>Available Actuators</b>     | On/Off, Floating, Modulating, Spring and Non-Spring Return                        |
| <b>Applications</b>            | HVAC - Water/Steam<br>Air Handling Units<br>Heat Exchanger Control Terminal Units |

## FLANGED GLOBE VALVES



### DG SERIES

The DG Series globe valves provide stable and accurate control of both water and steam in HVAC applications. These valves feature a cartridge style packing, which is easily replaceable while the valve is in line. Constant plug guiding and precision-machined metal to metal seating assures ANSI Class IV shut off (.01%) which provides low leakage and energy conservation.

## DG SERIES GLOBE VALVES

|                                |  |
|--------------------------------|--|
| <b>Size Range</b>              | 2-1/2" - 6" (65mm - 150mm)   |
| <b>Configurations</b>          | 2-Way and 3-Way  |
| <b>End Connections</b>         | ANSI 125 Flanged   |
| <b>Fluid Temperature Range</b> | -20 to 250°F (-29 to 121°C)<br>@175 psi (1,206 kPa)                                  |
| <b>Flow Characteristics</b>    | 2-Way with standard trim - Equal Percentage<br>3-Way and 2-Way with SS Trim - Linear |
| <b>Body Materials</b>          | Cast Iron  |
| <b>Trim Materials</b>          | Bronze, Stainless Steel Optional   |
| <b>Available Actuators</b>     | On/Off, Floating, Modulating, Spring and Non-Spring Return                           |
| <b>Applications</b>            | HVAC - Water/Steam<br>Air Handling Units<br>Heat Exchanger Control Terminal Units    |

## CHARACTERIZED BALL VALVES

### EBV SERIES

The Bray Commercial EBV Series characterized control ball valves are industry leading solutions for energy efficient, economical and effective control of a wide range of equipment in HVAC applications. The Amodel® flow characterizing disk maintains equal percentage flow characteristics for optimum temperature control. A less expensive, longer lasting and better performing alternative to globe valves.

- > Low Torque
- > Direct Mount Actuators
- > Multiple Cv ratings in each size
- > High Rangeability



### EBV SERIES BALL VALVES

|  |   |   |
|--|---|---|
| <b>Size Range</b>                                  | 1/2" - 2" (15mm - 50mm)   |   |
| <b>Configurations</b>                              | 2-Way and 3-Way   |   |
| <b>End Connections</b>                             | NPT, BSP, Sweat, and Press  |   |
| <b>Fluid Temperature Range</b>                     | <b>Water</b>  | -20° to 203°F (-29° to 95°C)                                      |
|  | <b>Water</b>  | -20° to 284°F (-29° to 140°C) with High Temperature Mounting      |
|  | <b>Steam</b>  | 15 psig (103 kPa) at 250°F (121°C) with High Temperature Mounting |
| <b>Maximum Close-off Pressure</b>                  | Class VI @ 200 psi (13.8 bar)                                     |   |
| <b>Maximum Recommended Operating Pressure Drop</b> | 50 psi Maximum Differential<br>30 psi for Quiet Service           |   |
| <b>Body Materials</b>                              | Forged Brass  |   |
| <b>Trim Materials</b>                              | 300 Series Stainless Steel  |   |
| <b>Available Actuators</b>                         | On/Off, Floating, Modulating, Spring and Non-Spring Return, etc.  |   |
| <b>Applications</b>                                | HVAC- Air Handling Units<br>Heat Exchanger Control Terminal Units |   |

## INDUSTRIAL THREADED BALL VALVES

### BV SERIES

The BV Series Threaded Industrial Ball Valve product line is ideally suited to high temperature and high pressure water or steam as well as a wide range of heavy commercial HVAC control applications. These valves provide exceptional characterized control, high rangeability, flow capacity and pressure drop; all with bidirectional bubble tight shut off.

These valves are available with characterized V-Balls and full port versions that provide multiple Cv values in each size.



## BV SERIES THREADED BALL VALVES

|                                 |                          |   |
|---------------------------------|--------------------------|---|
| <b>Size Range</b>               |                          | 1/2" - 4" (15mm - 100mm)  |
| <b>Configurations</b>           |                          | 2-Way   |
| <b>End Connections</b>          |                          | Threaded NPT  |
| <b>Fluid Temperature Limits</b> | <b>Water</b>             | -20 to 500°F at 300 psi<br>(-28 to 260°C at 2,068 kPa)  |
|                                 | <b>Steam</b>             | 100 psi (689 kPa)   |
| <b>Close-off Pressure</b>       | <b>Water</b>             | 300 psi (2,068 kPa)   |
|                                 | <b>Steam</b>             | 100 psi (689 kPa)   |
| <b>Flow Characteristic</b>      | <b>V15 Port</b>          | Linear  |
|                                 | <b>V30 Port</b>          | Modified Equal Percentage   |
|                                 | <b>V60 &amp; 90 Port</b> | Equal Percentage  |
| <b>Body Materials</b>           |                          | Carbon or Stainless Steel   |
| <b>Ball and Stem Material</b>   |                          | 316 Stainless Steel   |
| <b>Available Actuators</b>      |                          | On/Off, Floating, Modulating, Spring & Non-Spring Return Commercial and Industrial Electric and Pneumatic |
| <b>Applications</b>             |                          | HVAC- High Rise Towers, Boilers and Heat Exchangers   |

## INDUSTRIAL FLANGED SEGMENTED BALL VALVES

### BVMS SERIES

The BVMS Series Industrial Ball valves are flanged, segmented valves designed for control and on/off applications where high temperature and high pressure water or steam are used. The valves feature a characterized ball segment for high rangeability with a splined stem connection for precise control, as well as a low friction shaft and thrust bearings for longer life and smaller actuators.

These valves provide ample flow capacity, equal percentage flow characteristics and Class VI leakage. Valve bodies are one-piece carbon steel with cast stainless steel balls and ANSI 150 flanges.



## BVMS SERIES FLANGED BALL VALVES

|                                 |              |   |
|---------------------------------|--------------|---|
| <b>Size Range</b>               |              | 2" - 12" (50mm - 300mm)   |
| <b>Configurations</b>           |              | 2-Way   |
| <b>End Connections</b>          |              | ANSI Class 150  |
| <b>Fluid Temperature Limits</b> | <b>Water</b> | -20 to 380°F at 200 psi<br>(-28 to 193°C at 1,378 kPa)              |
|                                 | <b>Steam</b> | 100 psi (689 kPa)   |
| <b>Close-off Pressure</b>       | <b>Water</b> | 285 psi (1,965 kPa)   |
|                                 | <b>Steam</b> | 100 psi (689 kPa)   |
| <b>Flow Characteristic</b>      |              | Equal Percentage  |
| <b>Body Materials</b>           |              | Carbon or Stainless Steel   |
| <b>Ball and Stem Material</b>   |              | 316 Stainless Steel   |
| <b>Available Actuators</b>      |              | On/Off and Modulating NEMA 4 Industrial Electric                    |
| <b>Applications</b>             |              | HVAC- Computer Room Air Handling Units, Boilers and Heat Exchangers |

## ELECTRIC ACTUATORS

### SERIES 70

Bray's Series 70 electric actuator's compact design offers by far the easiest access to terminal block wiring, end switch adjustments and servo calibrations in the industry. Bray's Series 70 electric actuator has many advantages over other actuators including:

- > Voltages: 120, 220, 24VAC 50/60 Hz, 1-phase, 24VDC
- > Output torque 800 lb-in (90 N-m) to 18,000 lb-in (2,034 N-m)
- > UL, CSA and CE certification on most units
- > Low profile, light weight
- > High visibility position indicator
- > Manual declutchable override handwheel
- > On-off or modulating control
- > Terminal strip for cable terminations
- > Hand or screw driver adjustment of travel limit cams
- > ISO 5211 for direct mounting
- > Optional hazardous location model available
- > Optional Battery Back-up module available



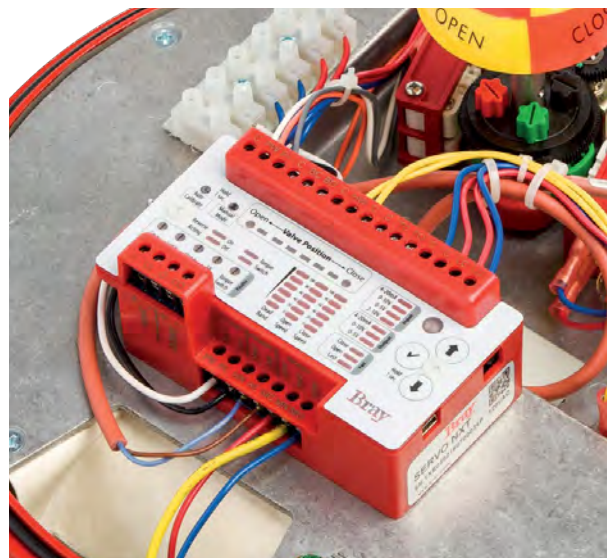
### SERIES 70 ELECTRIC ACTUATORS

|                       |  |
|-----------------------|--|
| <b>Torque</b>         | 800 to 18,000 lb-ins (90 to 2,034 N-m) |
| <b>Voltage</b>        | VAC: 24, 120, 240, 24VDC               |
| <b>Operating Mode</b> | On/Off, Modulating                     |
| <b>Enclosure</b>      | NEMA 4                                 |

### SERVO NXT

|   |  |
|---|--|
| <b>Actuator Voltage</b>                     | 120, 220, 24 VAC 50/60 Hz, 1 phase 24 VDC  |
| <b>Input Signal</b>                         | Configurable 4-20 mA, 0-10, 2-10, 0-5 VDC  |
| <b>Feedback Signal</b>                      | Configurable 4-20 mA, 0-10, 0-5 VDC  |
| <b>Independent Isolation</b>                | Control signal input and output Control signals and power  |
| <b>Display</b>                              | Menu driven auto dimming LED   |
| <b>Menu Navigation</b>                      | Up/Down arrows with select (✓) buttons   |
| <b>Configuration</b>                        | Menu selectable to non-volatile memory   |
| <b>Calibration</b>                          | Auto calibration sequence for travel limits  |
| <b>Deadband</b>                             | Configurable 1% - 6%   |
| <b>Reverse Acting</b>                       | Configurable for inverted input signal   |
| <b>Speed Control</b>                        | Independently adjustable for open and closed   |
| <b>Fail Position (loss of input signal)</b> | Configurable close, open, last   |
| <b>Manual Mode</b>                          | Built-in signal generator  |
| <b>Fault Indications</b>                    | Loss of command signal<br>Limit switch<br>Handwheel engaged<br>Feedback pot<br>Torque switch<br>Jammed valve / motor stalled |
| <b>Health Monitor</b>                       | Heartbeat - Backlit blinking Bray logo   |

"Configurable" means the customer, or the factory, can modify the Servo NXT.



The Servo NXT offers precise modulating service for accurate position control.

- > One touch automatic calibration
- > User-friendly interface
- > Advanced control of proportional band and deadband
- > Automatic pulsing mode for precise positioning
- > Self diagnostics
- > Action on loss of command signal
- > Go to position commands

Servo is available for modulating service, continuous duty S70 actuators only.

## COMMERCIAL ACTUATORS

Bray's wide variety of commercial electric actuator choices increases flexibility when choosing peripheral products for Building Automation Systems. We offer many different torque outputs and optional features to ensure you have the best actuator for the application. Jumper or DIP switch selectable features allow versatility in the field. In addition, our actuators are manufactured to ISO 9001 and Six Sigma Standards making them the highest quality on the market today.



### COMMERCIAL ELECTRIC ACTUATORS

|                       |                                |
|-----------------------|--------------------------------|
| <b>Torque</b>         | 27 to 310 lb-ins (3 to 35 N-m) |
| <b>Voltage</b>        | VAC: 24, 120, 240, 24VDC       |
| <b>Operating Mode</b> | On/Off, Floating & Modulating  |

## GA(S) SERIES

### PIC AND GLOBE VALVE ACTUATORS

The GA(S) Series is a direct mount line of linear motor actuators to be used primarily on PIC & globe valves. The patented drive-valve coupling allows the drive to be connected to the valve automatically as soon as the power is applied to the actuator. An external crank handle enables the desired position to be set manually as well. Microprocessor technology enables the actuator to identify the functions required and to adapt itself automatically to the control valve properties.



These actuators operate on 24V AC or DC, and all input signals- 0-10V or 4-20mA modulating output, or on/off (2-point) or floating (3-point) control, direct or reverse acting. The actuator automatically detects the control signal applied via a 2 LED display.

### LINEAR ELECTRIC ACTUATORS

|                       |                                      |
|-----------------------|--------------------------------------|
| <b>Torque</b>         | 450 & 562 lb-ins (2,000 & 2,500 N-m) |
| <b>Voltage</b>        | 24 VAC/DC                            |
| <b>Operating Mode</b> | On/Off, Floating & Modulating        |

## PA(M) SERIES

### PRESSURE INDEPENDENT CONTROL VALVE ACTUATORS

The PA(M) series is a line of linear motor actuators to be used primarily on Bray PIC valves utilized in building automation systems. These actuators are available with a multitude of options for on/off/floating or modulating with or without electronic fail safe. These actuators automatically calibrate to the stroke of the valve as soon as power is applied and are field selectable direct or reverse acting. These actuators operate on 24V AC or DC, and all input signals- 0-10V or 4-20mA modulating output, or on/off (2-point) or floating (3-point) control.



### PA(M) SERIES ELECTRIC ACTUATORS

|                       |                                |
|-----------------------|--------------------------------|
| <b>Torque</b>         | 27 to 310 lb-ins (3 to 35 N-m) |
| <b>Voltage</b>        | VAC: 24, 120, 240, 24VDC       |
| <b>Operating Mode</b> | On/Off, Floating & Modulating  |

## PNEUMATIC ACTUATORS

### SERIES 92/93

Bray Series 92/93 actuators are rack and pinion, opposed-piston actuators available in two versions: double acting and spring return. The Series 92/93 is completely enclosed and self-contained. The many features minimize maintenance and provide safe, simple disassembly and assembly.



### SERIES 92/93 PNEUMATIC ACTUATORS

|                          |                                 |
|--------------------------|---------------------------------|
| <b>Torque</b>            | Up to 44,130 lb-in (4,986 N-m)  |
| <b>Pressure Rating</b>   | Max Pressure: 140 psig (10 bar) |
| <b>Temperature Range</b> | -20°F to 200°F (-29°C to 95°C)  |

# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU

### **CORPORATE HEADQUARTERS**

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
Tel: +1.281.894.5454



### **DIVISION HEADQUARTERS**

**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)



All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

**Bray Commercial - Pricing 2026**

**Bray** COMMERCIAL

[www.braycommercialdivision.com](http://www.braycommercialdivision.com)

# *Pricing 2026*



**Bray**  
COMMERCIAL

13788 West Road, Suite 200A  
Houston, Texas 77041

[BCDSales@Bray.com](mailto:BCDSales@Bray.com)

Phone: 1-888-412-2729

[www.braycommercialdivision.com](http://www.braycommercialdivision.com)

**EBV Series Automated Characterized Ball Valves**

|  |   |
|--|---|
| 2-Way Standard Trim with Non-Spring Return On/Off & Floating Commercial Electric Actuators . . . 4 | 4 |
| 2-Way Standard Trim with Non-Spring Return Modulating Commercial Electric Actuators . . . . . 5    | 5 |
| 2-Way Standard Trim with Spring Return On/Off Commercial Electric Actuators . . . . . 6            | 6 |
| 2-Way Standard Trim with Spring Return Modulating Commercial Electric Actuators . . . . . 7        | 7 |

**EBV Series Automated Characterized Ball Valves**

|  |    |
|--|----|
| 3-Way Standard Trim with Non-Spring Return On/Off & Floating Commercial Electric Actuators . . 8 | 8  |
| 3-Way Standard Trim with Non-Spring Return Modulating Commercial Electric Actuators . . . . . 9  | 9  |
| 3-Way Standard Trim with Spring Return On/Off Commercial Electric Actuators . . . . . 10         | 10 |
| 3-Way Standard Trim with Spring Return Modulating Commercial Electric Actuators . . . . . 11     | 11 |

**BV Threaded Industrial Ball Valves**

|  |    |
|--|----|
| 2-Way with NSR & SR, On/Off, Floating & Modulating Commercial Electric Actuators . . . . . 12      | 12 |
| 2-Way Stainless Steel w/ NSR & SR, On/Off, Floating & Modulating Commercial Electric Actuators. 13 | 13 |
| 2-Way with NSR, On/Off Series 70 Industrial Electric Actuators . . . . . 14                        | 14 |
| 2-Way with NSR, Modulating Series 70 Industrial Electric Actuators. . . . . 15                     | 15 |
| 2-Way Stainless Steel with NSR, On/Off Series 70 Industrial Electric Actuators. . . . . 16         | 16 |
| 2-Way Stainless Steel with NSR, Modulating Series 70 Industrial Electric Actuators . . . . . 17    | 17 |

**BVMS Flanged Industrial Ball Valves**

|  |    |
|--|----|
| 2-Way with On/Off & Modulating Series 70 Industrial Electric Actuators. . . . . 18 | 18 |
|--|----|

**Simple Set PIC Valves**

|   |    |
|---|----|
| 2-Way Threaded with On/Off and Modulating Electric Actuators . . . . . 19 | 19 |
| Simple Set Series PIC Valves - Accessories . . . . . 20                   | 20 |

**Simple Set Max PIC Valves**

|  |    |
|--|----|
| 2-Way Flanged, ANSI 125 with Spring Return & Non-Spring Return Actuators & Accessories. . . . 21 | 21 |
| 2-Way Flanged, ANSI 250 with Spring Return & Non-Spring Return Actuators & Accessories . . . 22  | 22 |

**CG/DG Threaded Globe Valves**

|   |    |
|---|----|
| 2-Way, Standard Trim with Floating & Modulating Commercial Actuators . . . . . 23                 | 23 |
| 2-Way, Standard Trim High Close-Off with Floating & Modulating Commercial Actuators . . . . . 24  | 24 |
| 2-Way, Stainless Steel Trim with Floating & Modulating Commercial Actuators . . . . . 25          | 25 |
| 2-Way, Stainless Steel Trim High Close-Off with Floating & Modulating Commercial Actuators . . 26 | 26 |
| 3-Way, Standard Trim with Floating & Modulating Commercial Actuators . . . . . 27                 | 27 |
| 3-Way, Standard Trim High Close-Off with Floating & Modulating Commercial Actuators . . . . . 28  | 28 |

**DG Flanged Globe Valves**

|  |    |
|--|----|
| 2-Way, Standard Trim, with On/Off, Floating or Modulating Industrial Electric Actuators . . . . . 29         | 29 |
| 3-Way, Stainless Steel Trim, with On/Off, Floating or Modulating Industrial Electric Actuators. . . 30       | 30 |
| 2-Way, Stainless Steel Trim, with On/Off, Floating or Modulating Industrial Electric Actuators. . . 31       | 31 |
| 2-Way, Stainless Steel Trim, High Close-Off with Floating or Modulating Industrial Electric Actuators . . 32 | 32 |

**3L Series Resilient Seated Butterfly Valves**

|   |    |
|---|----|
| 2-Way with NSR/SR DC-Series Commercial Electric Actuators | 33 |
| 3-Way with NSR/SR DC-Series Commercial Electric Actuators | 34 |
| 2-Way with NSR/SR D-Series Commercial Electric Actuators  | 35 |
| 3-Way with NSR/SR D-Series Commercial Electric Actuators  | 36 |
| 2-Way with Industrial Electric On/Off Actuators           | 37 |
| 2-Way with Industrial Electric Modulating Actuators       | 38 |
| 3-Way with Industrial Electric On/Off Actuators           | 39 |
| 3-Way with Industrial Electric Modulating Actuators       | 40 |
| 2-Way Series 92 Double Acting Pneumatic Actuators         | 41 |
| 3-Way Series 92 Double Acting Pneumatic Actuators         | 42 |
| 2-Way Series 93 & 98 Spring Return Pneumatic Actuators    | 43 |
| 3-Way Series 93 Spring Return Pneumatic Actuators         | 44 |

**MK Series High Performance Butterfly Valves**

|  |    |
|--|----|
| 2 & 3-Way with NSR/SR D & DC-Series Commercial Electric Actuators (ANSI 150) | 45 |
| 2-Way with Industrial Electric Actuators (ANSI 150)                          | 46 |
| 2-Way with Industrial Electric Actuators (ANSI 300)                          | 47 |
| 3-Way with Industrial Electric Actuators (ANSI 150)                          | 48 |
| 2-Way with Double Acting Pneumatic Actuators (ANSI 150 & 300)                | 49 |
| 2-Way with Pneumatic Spring Return Actuators (ANSI 150 & 300)                | 50 |
| 3-Way with Double Acting & Spring Return Pneumatic Actuators (ANSI 150)      | 51 |

**American Iron and Steel Compliance**

|                                   |    |
|-----------------------------------|----|
| 2-Way Butterfly Valves (ANSI 150) | 52 |
|-----------------------------------|----|

**Actuators - Commercial and Pneumatic**

|  |    |
|--|----|
| Non-Spring Return Commercial Electric Actuators          | 53 |
| Spring Return Commercial Electric Actuators              | 54 |
| Spring Return & Non-Spring Return Electric ST2 Actuators | 55 |

**Pneumatic Actuators & Accessories**

|                                     |    |
|-------------------------------------|----|
| Pneumatic Actuators & Adders        | 56 |
| Accessories for Pneumatic Actuators | 57 |

**Actuators - Industrial Electric & Accessories**

|   |    |
|---|----|
| Series 70 Industrial Electric Actuators and Accessories           | 58 |
| Series 70/AU Series Industrial Electric Actuators and Accessories | 59 |

**Actuators - Linear PIC & Globe Valve**

|  |    |
|--|----|
| GA(S), VAL & PA(M) Series Electric Actuators & Accessories | 60 |
|--|----|

**Retrofit Kits**

|  |    |
|--|----|
| Butterfly & Globe Valve Retrofit Kits w/ Comm. & Industrial Electric Actuators | 61 |
|--|----|

**Weather Shields/Covers**

|                        |    |
|------------------------|----|
| Weather Shields/Covers | 62 |
|------------------------|----|

**3-Way Valve Configurations**

|                                      |    |
|--------------------------------------|----|
| 3-Way Butterfly Valve Configurations | 63 |
|--------------------------------------|----|

**Sales Policy**

|                              |       |
|------------------------------|-------|
| Terms and Conditions of Sale | 64-68 |
|------------------------------|-------|



| 2-Way, On/Off & Floating - Non-Spring Return Actuators - (200 psi - Close Off) |            |    |                  |             |                 |                             |                 |          |
|--|------------|----|------------------|-------------|-----------------|-----------------------------|-----------------|----------|
| Actuator Model Details   |            |    |                  |             |                 |                             |                 |          |
| Floating with Time Out/Overload Protection                                     |            |    |                  |             | ■               |                             |                 |          |
| Auxiliary Switches   |            |    |                  |             |                 | ■                           |                 |          |
| Cable - Standard(S)/Plenum(P)  |            |    | P                | P           | P               |                             |                 |          |
| Manual Override  |            |    | Push Button      | Push Button | Push Button     |                             |                 |          |
| Model Number   | Valve Size |    | Flow Coefficient |             | 24 VAC Floating | 24 VAC/DC On/Off & Floating | 24 VAC Floating | HT Adder |
|  | In.        | mm | Cv               | Kv          | DC24-44-TP      | DC24-44-TPTO                | DC24-44-TAP     |          |
| EBV-05-2-003   | 0.5        | 15 | 0.3              | 0.3         | 246             | 299                         | 412             | 103      |
| EBV-05-2-005   |            |    | 0.5              | 0.4         |                 |                             |                 |          |
| EBV-05-2-009   |            |    | 0.9              | 0.8         |                 |                             |                 |          |
| EBV-05-2-01  |            |    | 1.4              | 1.2         |                 |                             |                 |          |
| EBV-05-2-02  |            |    | 2                | 1.7         |                 |                             |                 |          |
| EBV-05-2-03  |            |    | 3                | 2.6         |                 |                             |                 |          |
| EBV-05-2-05  |            |    | 4.9              | 4.2         |                 |                             |                 |          |
| EBV-05-2-08  |            |    | 8                | 6.9         |                 |                             |                 |          |
| EBV-05-2-13  |            |    | 12.5             | 10.8        |                 |                             |                 |          |
| EBV-05-2-17*   |            |    | 17.2             | 14.9        |                 |                             |                 |          |
| EBV-75-2-05  | .75        | 20 | 4.9              | 4.2         | 297             | 350                         | 463             | 103      |
| EBV-75-2-08  |            |    | 7.8              | 6.7         |                 |                             |                 |          |
| EBV-75-2-12  |            |    | 12.3             | 10.6        |                 |                             |                 |          |
| EBV-75-2-15*   |            |    | 15.3             | 13.2        |                 |                             |                 |          |
| EBV-1-2-08   | 1          | 25 | 7.8              | 6.7         | 424             | 477                         | 590             | 103      |
| EBV-1-2-12   |            |    | 12.1             | 10.5        |                 |                             |                 |          |
| EBV-1-2-20   |            |    | 19.5             | 16.9        |                 |                             |                 |          |
| EBV-1-2-30*  |            |    | 29.9             | 25.9        |                 |                             |                 |          |
| EBV-125-2-12   | 1.25       | 32 | 11.7             | 10.1        | 475             | 528                         | 641             | 103      |
| EBV-125-2-20   |            |    | 19.8             | 17.1        |                 |                             |                 |          |
| EBV-125-2-30   |            |    | 30.4             | 26.3        |                 |                             |                 |          |
| EBV-125-2-45*  |            |    | 44.8             | 38.8        |                 |                             |                 |          |
| EBV-150-2-20   | 1.5        | 40 | 19.6             | 17.0        | 567             | 620                         | 733             | 103      |
| EBV-150-2-30   |            |    | 30.4             | 26.3        |                 |                             |                 |          |
| EBV-150-2-48*  |            |    | 48.3             | 41.8        |                 |                             |                 |          |
| EBV-2-2-29   | 2          | 50 | 29.2             | 25.3        | 771             | 824                         | 937             | 103      |
| EBV-2-2-49   |            |    | 48.8             | 42.2        |                 |                             |                 |          |
| EBV-2-2-75   |            |    | 75.2             | 65.0        |                 |                             |                 |          |
| EBV-2-2-96*  |            |    | 95.5             | 82.6        |                 |                             |                 |          |

**Options/Adders**

\* Reduced port valve - No characterizing disc  
 Add HT after the valve CV if a HT (High Temperature Kit) is needed.  
 For Weathershield -WS please inquire with Inside Sales.



| 2-Way, Modulating - Non-Spring Return Actuators - (200 psi - Close Off) |            |    |                  |      |   |   |          |
|---|------------|----|------------------|------|---|---|----------|
| Actuator Model Details  |            |    |                  |      |   |   |          |
| Modulating with Time Out/Overload Protection                            |            |    | ■                |      | ■   |   |          |
| Auxiliary Switches  |            |    |                  |      | ■   |   |          |
| Cable - Standard(S)/Plenum(P)   |            |    | P                |      | P   |   |          |
| Manual Override   |            |    | Push Button      |      | Push Button                                 |   |          |
| Model Number  | Valve Size |    | Flow Coefficient |      | 24 VAC/DC Modulating 0/2-10V in 0/2-10V out | 24 VAC/DC Modulating 0/2-10V in 0/2-10V out | HT Adder |
|   | In.        | mm | Cv               | Kv   | DCM24-44-P                                  | DCM24-44-AP                                 |          |
| EBV-05-2-003  | 0.5        | 15 | 0.3              | 0.3  | 346   | 498   | 103      |
| EBV-05-2-005  |            |    | 0.5              | 0.4  |   |   |          |
| EBV-05-2-009  |            |    | 0.9              | 0.8  |   |   |          |
| EBV-05-2-01   |            |    | 1.4              | 1.2  |   |   |          |
| EBV-05-2-02   |            |    | 2                | 1.7  |   |   |          |
| EBV-05-2-03   |            |    | 3                | 2.6  |   |   |          |
| EBV-05-2-05   |            |    | 4.9              | 4.2  |   |   |          |
| EBV-05-2-08   |            |    | 8                | 6.9  |   |   |          |
| EBV-05-2-13   |            |    | 12.5             | 10.8 |   |   |          |
| EBV-05-2-17*  |            |    | 17.2             | 14.9 |   |   |          |
| EBV-75-2-05   | .75        | 20 | 4.9              | 4.2  | 397   | 549   | 103      |
| EBV-75-2-08   |            |    | 7.8              | 6.7  |   |   |          |
| EBV-75-2-12   |            |    | 12.3             | 10.6 |   |   |          |
| EBV-75-2-15*  |            |    | 15.3             | 13.2 |   |   |          |
| EBV-1-2-08  | 1          | 25 | 7.8              | 6.7  | 524   | 676   | 103      |
| EBV-1-2-12  |            |    | 12.1             | 10.5 |   |   |          |
| EBV-1-2-20  |            |    | 19.5             | 16.9 |   |   |          |
| EBV-1-2-30*   |            |    | 29.9             | 25.9 |   |   |          |
| EBV-125-2-12  | 1.25       | 32 | 11.7             | 10.1 | 575   | 727   | 103      |
| EBV-125-2-20  |            |    | 19.8             | 17.1 |   |   |          |
| EBV-125-2-30  |            |    | 30.4             | 26.3 |   |   |          |
| EBV-125-2-45*   |            |    | 44.8             | 38.8 |   |   |          |
| EBV-150-2-20  | 1.5        | 40 | 19.6             | 17.0 | 667   | 819   | 103      |
| EBV-150-2-30  |            |    | 30.4             | 26.3 |   |   |          |
| EBV-150-2-48*   |            |    | 48.3             | 41.8 |   |   |          |
| EBV-2-2-29  | 2          | 50 | 29.2             | 25.3 | 871   | 1023  | 103      |
| EBV-2-2-49  |            |    | 48.8             | 42.2 |   |   |          |
| EBV-2-2-75  |            |    | 75.2             | 65.0 |   |   |          |
| EBV-2-2-96*   |            |    | 95.5             | 82.6 |   |   |          |

**Options/Adders**

\* Reduced port valve - No characterizing disc  
 Add HT after the valve CV if a HT (High Temperature Kit) is needed.  
 For Weathershield -WS please inquire with Inside Sales.



| 2-Way, On/Off - Spring Return Actuators - (200 psi - Close Off) |            |    |                  |      |                     |                     |                     |                     |                |                |          |
|---|------------|----|------------------|------|---------------------|---------------------|---------------------|---------------------|----------------|----------------|----------|
| Actuator Model Details  |            |    |                  |      |                     |                     |                     |                     |                |                |          |
| Auxiliary Switches  |            |    |                  | ■    |                     | ■                   |                     | ■                   |                |                |          |
| Conduit Size - Flex(F)/NPT(N)                                   |            |    | 1/2 N            |      | 1/2 N               | 1/2 N               | 1/2 N               | 1/2 N               | 1/2 N          |                |          |
| Cable - Standard(S)/Plenum(P)                                   |            |    | P                | P    | P                   | P                   | S                   | S                   |                |                |          |
| Manual Override   |            |    | N/A              | N/A  | Hex Wrench Included | Hex Wrench Included | Hex Wrench Included | Hex Wrench Included |                |                |          |
| Model Number  | Valve Size |    | Flow Coefficient |      | 24 VAC/DC On/Off    | 24 VAC/DC On/Off    | 24 VAC/DC On/Off    | 24 VAC/DC On/Off    | 120 VAC On/Off | 120 VAC On/Off | HT Adder |
|   | In.        | mm | Cv               | Kv   | DCS24-20-P          | DCS24-20-AP         | DCS24-62-P          | DCS24-62-AP         | DCS120-62      | DCS120-62-A    |          |
| EBV-05-2-003  | 0.5        | 15 | 0.3              | 0.3  | 425                 | 556                 | -                   | -                   | 468            | 593            | 103      |
| EBV-05-2-005  |            |    | 0.5              | 0.4  |                     |                     |                     |                     |                |                |          |
| EBV-05-2-009  |            |    | 0.9              | 0.8  |                     |                     |                     |                     |                |                |          |
| EBV-05-2-01   |            |    | 1.4              | 1.2  |                     |                     |                     |                     |                |                |          |
| EBV-05-2-02   |            |    | 2                | 1.7  |                     |                     |                     |                     |                |                |          |
| EBV-05-2-03   |            |    | 3                | 2.6  |                     |                     |                     |                     |                |                |          |
| EBV-05-2-05   |            |    | 4.9              | 4.2  |                     |                     |                     |                     |                |                |          |
| EBV-05-2-08   |            |    | 8                | 6.9  |                     |                     |                     |                     |                |                |          |
| EBV-05-2-13   |            |    | 12.5             | 10.8 |                     |                     |                     |                     |                |                |          |
| EBV-05-2-17*  |            |    | 17.2             | 14.9 |                     |                     |                     |                     |                |                |          |
| EBV-75-2-05   | .75        | 20 | 4.9              | 4.2  | 476                 | 607                 | -                   | -                   | 519            | 644            | 103      |
| EBV-75-2-08   |            |    | 7.8              | 6.7  |                     |                     |                     |                     |                |                |          |
| EBV-75-2-12   |            |    | 12.3             | 10.6 |                     |                     |                     |                     |                |                |          |
| EBV-75-2-15*  |            |    | 15.3             | 13.2 |                     |                     |                     |                     |                |                |          |
| EBV-1-2-08  | 1          | 25 | 7.8              | 6.7  | 603                 | 734                 | -                   | -                   | 646            | 771            | 103      |
| EBV-1-2-12  |            |    | 12.1             | 10.5 |                     |                     |                     |                     |                |                |          |
| EBV-1-2-20  |            |    | 19.5             | 16.9 |                     |                     |                     |                     |                |                |          |
| EBV-1-2-30*   |            |    | 29.9             | 25.9 |                     |                     |                     |                     |                |                |          |
| EBV-125-2-12  | 1.25       | 32 | 11.7             | 10.1 | -                   | -                   | 654                 | 826                 | 697            | 822            | 103      |
| EBV-125-2-20  |            |    | 19.8             | 17.1 |                     |                     |                     |                     |                |                |          |
| EBV-125-2-30  |            |    | 30.4             | 26.3 |                     |                     |                     |                     |                |                |          |
| EBV-125-2-45*   |            |    | 44.8             | 38.8 |                     |                     |                     |                     |                |                |          |
| EBV-150-2-20  | 1.5        | 40 | 19.6             | 17.0 | -                   | -                   | 746                 | 918                 | 789            | 914            | 103      |
| EBV-150-2-30  |            |    | 30.4             | 26.3 |                     |                     |                     |                     |                |                |          |
| EBV-150-2-48*   |            |    | 48.3             | 41.8 |                     |                     |                     |                     |                |                |          |
| EBV-2-2-29  | 2          | 50 | 29.2             | 25.3 | -                   | -                   | 950                 | 1122                | 993            | 1118           | 103      |
| EBV-2-2-49  |            |    | 48.8             | 42.2 |                     |                     |                     |                     |                |                |          |
| EBV-2-2-75  |            |    | 75.2             | 65.0 |                     |                     |                     |                     |                |                |          |
| EBV-2-2-96*   |            |    | 95.5             | 82.6 |                     |                     |                     |                     |                |                |          |

**Options/Adders**

\* Reduced port valve - No characterizing disc  
 Add HT after the valve CV if a HT (High Temperature Kit) is needed. For Weathershield -WS please inquire with Inside Sales.  
 For normally Closed, add a "C" to the end of the valve part number, i.e EBV-05-2-003C, otherwise normally open. Spring return models only



## EBV - 2-Way Standard Trim with Spring Return Commercial Electric Actuators

| 2-Way, Modulating - Spring Return Actuators - (200 psi - Close Off) |            |       |                     |                     |                                  |                                  |                                  |          |
|---|------------|-------|---------------------|---------------------|----------------------------------|----------------------------------|----------------------------------|----------|
| Actuator Model Details  |            |       |                     |                     |                                  |                                  |                                  |          |
| Auxiliary Switches  |            |       |                     |                     |                                  |                                  |                                  |          |
| Conduit Size - Flex(F)/NPT(N)                                       |            | 1/2 N | 1/2 N               | 1/2 N               |                                  |                                  |                                  |          |
| Cable - Standard(S)/Plenum(P)                                       |            | P     | P                   | S                   |                                  |                                  |                                  |          |
| Manual Override   |            | N/A   | Hex Wrench Included | Hex Wrench Included |                                  |                                  |                                  |          |
| Model Number  | Valve Size |       | Flow Coefficient    |                     | 24 VAC/DC Modulating 2-10 in/out | 24 VAC/DC Modulating 0-10 in/out | 24 VAC/DC Modulating 0-10 in/out | HT Adder |
|   | In.        | mm    | Cv                  | Kv                  | DCMS24-20-P                      | DCMS24-62-P                      | DCMS24-62-A                      |          |
| EBV-05-2-003  | 0.5        | 15    | 0.3                 | 0.3                 | 574                              | -                                | 697                              | 103      |
| EBV-05-2-005  |            |       | 0.5                 | 0.4                 |                                  |                                  |                                  |          |
| EBV-05-2-009  |            |       | 0.9                 | 0.8                 |                                  |                                  |                                  |          |
| EBV-05-2-01   |            |       | 1.4                 | 1.2                 |                                  |                                  |                                  |          |
| EBV-05-2-02   |            |       | 2                   | 1.7                 |                                  |                                  |                                  |          |
| EBV-05-2-03   |            |       | 3                   | 2.6                 |                                  |                                  |                                  |          |
| EBV-05-2-05   |            |       | 4.9                 | 4.2                 |                                  |                                  |                                  |          |
| EBV-05-2-08   |            |       | 8                   | 6.9                 |                                  |                                  |                                  |          |
| EBV-05-2-13   |            |       | 12.5                | 10.8                |                                  |                                  |                                  |          |
| EBV-05-2-17*  |            |       | 17.2                | 14.9                |                                  |                                  |                                  |          |
| EBV-75-2-05   | .75        | 20    | 4.9                 | 4.2                 | 625                              | -                                | 748                              | 103      |
| EBV-75-2-08   |            |       | 7.8                 | 6.7                 |                                  |                                  |                                  |          |
| EBV-75-2-12   |            |       | 12.3                | 10.6                |                                  |                                  |                                  |          |
| EBV-75-2-15*  |            |       | 15.3                | 13.2                |                                  |                                  |                                  |          |
| EBV-1-2-08  | 1          | 25    | 7.8                 | 6.7                 | 752                              | -                                | 875                              | 103      |
| EBV-1-2-12  |            |       | 12.1                | 10.5                |                                  |                                  |                                  |          |
| EBV-1-2-20  |            |       | 19.5                | 16.9                |                                  |                                  |                                  |          |
| EBV-1-2-30*   |            |       | 29.9                | 25.9                |                                  |                                  |                                  |          |
| EBV-125-2-12  | 1.25       | 32    | 11.7                | 10.1                | -                                | 802                              | 926                              | 103      |
| EBV-125-2-20  |            |       | 19.8                | 17.1                |                                  |                                  |                                  |          |
| EBV-125-2-30  |            |       | 30.4                | 26.3                |                                  |                                  |                                  |          |
| EBV-125-2-45*   |            |       | 44.8                | 38.8                |                                  |                                  |                                  |          |
| EBV-150-2-20  | 1.5        | 40    | 19.6                | 17.0                | -                                | 894                              | 1018                             | 103      |
| EBV-150-2-30  |            |       | 30.4                | 26.3                |                                  |                                  |                                  |          |
| EBV-150-2-48*   |            |       | 48.3                | 41.8                |                                  |                                  |                                  |          |
| EBV-2-2-29  | 2          | 50    | 29.2                | 25.3                | -                                | 1098                             | 1222                             | 103      |
| EBV-2-2-49  |            |       | 48.8                | 42.2                |                                  |                                  |                                  |          |
| EBV-2-2-75  |            |       | 75.2                | 65.0                |                                  |                                  |                                  |          |
| EBV-2-2-96*   |            |       | 95.5                | 82.6                |                                  |                                  |                                  |          |

**Options/Adders**

\* Reduced port valve - No characterizing disc  
 Add HT after the valve CV if a HT (High Temperature Kit) is needed.  
 For Weathershield -WS please inquire with Inside Sales.  
 For normally Closed, add a "C" to the end of the valve part number, i e EBV-05-2-003C,  
 otherwise normally open. Spring return models only



## EBV - 3-Way Standard Trim with Non-Spring Return Commercial Electric Actuators

| 3-Way, On/Off & Floating - Non-Spring Return Actuators - (200 psi - Close Off) |            |    |                  |      |                 |                             |                 |          |
|--|------------|----|------------------|------|-----------------|-----------------------------|-----------------|----------|
| Actuator Model Details   |            |    |                  |      |                 |                             |                 |          |
| Floating with Time Out/Overload Protection                                     |            |    |                  |      |                 | ■                           |                 |          |
| Auxiliary Switches   |            |    |                  |      |                 | ■                           |                 |          |
| Cable - Standard(S)/Plenum(P)  |            |    | P                |      |                 | P                           |                 |          |
| Manual Override  |            |    | Push Button      |      |                 | Push Button                 |                 |          |
| Model Number   | Valve Size |    | Flow Coefficient |      | 24 VAC Floating | 24 VAC/DC On/Off & Floating | 24 VAC Floating | HT Adder |
|  | In.        | mm | Cv               | Kv   | DC24-44-TP      | DC24-44-TPTO                | DC24-44-TAP     |          |
| EBV-05-3-003   | 0.5        | 15 | 0.3              | 0.3  | 366             | 419                         | 532             | 103      |
| EBV-05-3-005   |            |    | 0.5              | 0.4  |                 |                             |                 |          |
| EBV-05-3-009   |            |    | 0.9              | 0.8  |                 |                             |                 |          |
| EBV-05-3-01  |            |    | 1.4              | 1.2  |                 |                             |                 |          |
| EBV-05-3-02  |            |    | 2                | 1.7  |                 |                             |                 |          |
| EBV-05-3-03  |            |    | 3                | 2.6  |                 |                             |                 |          |
| EBV-05-3-05  |            |    | 4.9              | 4.2  |                 |                             |                 |          |
| EBV-05-3-08  |            |    | 8                | 6.9  |                 |                             |                 |          |
| EBV-05-3-13  |            |    | 12.5             | 10.8 |                 |                             |                 |          |
| EBV-05-3-17*   |            |    | 17.2             | 14.9 |                 |                             |                 |          |
| EBV-75-3-05  | .75        | 20 | 4.9              | 4.2  | 400             | 453                         | 566             | 103      |
| EBV-75-3-08  |            |    | 7.8              | 6.7  |                 |                             |                 |          |
| EBV-75-3-12  |            |    | 12.3             | 10.6 |                 |                             |                 |          |
| EBV-75-3-15*   |            |    | 15.3             | 13.2 |                 |                             |                 |          |
| EBV-1-3-08   | 1          | 25 | 7.8              | 6.7  | 572             | 625                         | 738             | 103      |
| EBV-1-3-12   |            |    | 12.1             | 10.5 |                 |                             |                 |          |
| EBV-1-3-20   |            |    | 19.5             | 16.9 |                 |                             |                 |          |
| EBV-1-3-30*  |            |    | 29.9             | 25.9 |                 |                             |                 |          |
| EBV-125-3-12   | 1.25       | 32 | 11.7             | 10.1 | 600             | 653                         | 766             | 103      |
| EBV-125-3-20   |            |    | 19.8             | 17.1 |                 |                             |                 |          |
| EBV-125-3-30   |            |    | 30.4             | 26.3 |                 |                             |                 |          |
| EBV-125-3-45*  |            |    | 44.8             | 38.8 |                 |                             |                 |          |
| EBV-150-3-20   | 1.5        | 40 | 19.6             | 17.0 | 714             | 767                         | 880             | 103      |
| EBV-150-3-30   |            |    | 30.4             | 26.3 |                 |                             |                 |          |
| EBV-150-3-48*  |            |    | 48.3             | 41.8 |                 |                             |                 |          |
| EBV-2-3-29   | 2          | 50 | 29.2             | 25.3 | 1004            | 1057                        | 1170            | 103      |
| EBV-2-3-49   |            |    | 48.8             | 42.2 |                 |                             |                 |          |
| EBV-2-3-75   |            |    | 75.2             | 65.0 |                 |                             |                 |          |
| EBV-2-3-96*  |            |    | 95.5             | 82.6 |                 |                             |                 |          |

**Options/Adders**

Reduced port valve - No characterizing disc  
 Add HT after the valve CV if a HT (High Temperature Kit) is needed.  
 For Weathershield -WS please inquire with Inside Sales.  
 Bypass port CV equal approximately 50% of control port CV



## EBV - 3-Way Standard Trim with Non-Spring Return Commercial Electric Actuators

| 3-Way, Modulating - Non-Spring Return Actuators - (200 psi - Close Off) |            |    |                  |             |   |   |          |
|---|------------|----|------------------|-------------|---|---|----------|
| Actuator Model Details  |            |    |                  |             |   |   |          |
| Modulating with Time Out/Overload Protection                            |            |    | ■                | ■           |   |   |          |
| Auxiliary Switches  |            |    |                  | ■           |   |   |          |
| Cable - Standard(S)/Plenum(P)   |            |    | P                | P           |   |   |          |
| Manual Override   |            |    | Push Button      | Push Button |   |   |          |
| Model Number  | Valve Size |    | Flow Coefficient |             | 24 VAC/DC Modulating<br>0/2-10V in<br>0/2-10V out | 24 VAC/DC Modulating<br>0/2-10V in<br>0/2-10V out | HT Adder |
|   | In.        | mm | Cv               | Kv          | DCM24-44-P  | DCM24-44-AP                                       |          |
| EBV-05-3-003  | 0.5        | 15 | 0.3              | 0.3         | 466   | 618   | 103      |
| EBV-05-3-005  |            |    | 0.5              | 0.4         |   |   |          |
| EBV-05-3-009  |            |    | 0.9              | 0.8         |   |   |          |
| EBV-05-3-01   |            |    | 1.4              | 1.2         |   |   |          |
| EBV-05-3-02   |            |    | 2                | 1.7         |   |   |          |
| EBV-05-3-03   |            |    | 3                | 2.6         |   |   |          |
| EBV-05-3-05   |            |    | 4.9              | 4.2         |   |   |          |
| EBV-05-3-08   |            |    | 8                | 6.9         |   |   |          |
| EBV-05-3-13   |            |    | 12.5             | 10.8        |   |   |          |
| EBV-05-3-17*  |            |    | 17.2             | 14.9        |   |   |          |
| EBV-75-3-05   | .75        | 20 | 4.9              | 4.2         | 500   | 652   | 103      |
| EBV-75-3-08   |            |    | 7.8              | 6.7         |   |   |          |
| EBV-75-3-12   |            |    | 12.3             | 10.6        |   |   |          |
| EBV-75-3-15*  |            |    | 15.3             | 13.2        |   |   |          |
| EBV-1-3-08  | 1          | 25 | 7.8              | 6.7         | 672   | 824   | 103      |
| EBV-1-3-12  |            |    | 12.1             | 10.5        |   |   |          |
| EBV-1-3-20  |            |    | 19.5             | 16.9        |   |   |          |
| EBV-1-3-30*   |            |    | 29.9             | 25.9        |   |   |          |
| EBV-125-3-12  | 1.25       | 32 | 11.7             | 10.1        | 700   | 852   | 103      |
| EBV-125-3-20  |            |    | 19.8             | 17.1        |   |   |          |
| EBV-125-3-30  |            |    | 30.4             | 26.3        |   |   |          |
| EBV-125-3-45*   |            |    | 44.8             | 38.8        |   |   |          |
| EBV-150-3-20  | 1.5        | 40 | 19.6             | 17.0        | 814   | 966   | 103      |
| EBV-150-3-30  |            |    | 30.4             | 26.3        |   |   |          |
| EBV-150-3-48*   |            |    | 48.3             | 41.8        |   |   |          |
| EBV-2-3-29  | 2          | 50 | 29.2             | 25.3        | 1104  | 1256  | 103      |
| EBV-2-3-49  |            |    | 48.8             | 42.2        |   |   |          |
| EBV-2-3-75  |            |    | 75.2             | 65.0        |   |   |          |
| EBV-2-3-96*   |            |    | 95.5             | 82.6        |   |   |          |

**Options/Adders**

\* Reduced port valve - No characterizing disc  
 Add HT after the valve CV if a HT (High Temperature Kit) is needed.  
 For Weathershield -WS please inquire with Inside Sales.  
 Bypass port CV equal approximately 50% of control port CV



## EBV - 3-Way Standard Trim with Spring Return Commercial Electric Actuators

PRICING - EBV Ball Valves - Spring Return - 3-Way

| 3-Way, On/Off - Spring Return Actuators - (200 psi - Close Off) |            |    |                  |      |                     |                     |                     |                     |                |                |          |
|---|------------|----|------------------|------|---------------------|---------------------|---------------------|---------------------|----------------|----------------|----------|
| Actuator Model Details  |            |    |                  |      |                     |                     |                     |                     |                |                |          |
| Auxiliary Switches  |            |    |                  | ■    |                     | ■                   |                     | ■                   |                |                |          |
| Conduit Size - Flex(F)/NPT(N)                                   |            |    | 1/2 N            |      | 1/2 N               | 1/2 N               | 1/2 N               | 1/2 N               | 1/2 N          |                |          |
| Cable - Standard(S)/Plenum(P)                                   |            |    | P                | P    | P                   | P                   | S                   | S                   |                |                |          |
| Manual Override   |            |    | N/A              | N/A  | Hex Wrench Included | Hex Wrench Included | Hex Wrench Included | Hex Wrench Included |                |                |          |
| Model Number  | Valve Size |    | Flow Coefficient |      | 24 VAC/DC On/Off    | 24 VAC/DC On/Off    | 24 VAC/DC On/Off    | 24 VAC/DC On/Off    | 120 VAC On/Off | 120 VAC On/Off | HT Adder |
|   | In.        | mm | Cv               | Kv   | DCS24-20-P          | DCS24-20-AP         | DCS24-62-P          | DCS24-62-AP         | DCS120-62      | DCS120-62-A    |          |
| EBV-05-3-003  | 0.5        | 15 | 0.3              | 0.3  | 545                 | 676                 | -                   | -                   | 588            | 713            | 103      |
| EBV-05-3-005  |            |    | 0.5              | 0.4  |                     |                     |                     |                     |                |                |          |
| EBV-05-3-009  |            |    | 0.9              | 0.8  |                     |                     |                     |                     |                |                |          |
| EBV-05-3-01   |            |    | 1.4              | 1.2  |                     |                     |                     |                     |                |                |          |
| EBV-05-3-02   |            |    | 2                | 1.7  |                     |                     |                     |                     |                |                |          |
| EBV-05-3-03   |            |    | 3                | 2.6  |                     |                     |                     |                     |                |                |          |
| EBV-05-3-05   |            |    | 4.9              | 4.2  |                     |                     |                     |                     |                |                |          |
| EBV-05-3-08   |            |    | 8                | 6.9  |                     |                     |                     |                     |                |                |          |
| EBV-05-3-13   |            |    | 12.5             | 10.8 |                     |                     |                     |                     |                |                |          |
| EBV-05-3-17*  |            |    | 17.2             | 14.9 |                     |                     |                     |                     |                |                |          |
| EBV-75-3-05   | .75        | 20 | 4.9              | 4.2  | 579                 | 710                 | -                   | -                   | 622            | 747            | 103      |
| EBV-75-3-08   |            |    | 7.8              | 6.7  |                     |                     |                     |                     |                |                |          |
| EBV-75-3-12   |            |    | 12.3             | 10.6 |                     |                     |                     |                     |                |                |          |
| EBV-75-3-15*  |            |    | 15.3             | 13.2 |                     |                     |                     |                     |                |                |          |
| EBV-1-3-08  | 1          | 25 | 7.8              | 6.7  | 751                 | 882                 | -                   | -                   | 794            | 919            | 103      |
| EBV-1-3-12  |            |    | 12.1             | 10.5 |                     |                     |                     |                     |                |                |          |
| EBV-1-3-20  |            |    | 19.5             | 16.9 |                     |                     |                     |                     |                |                |          |
| EBV-1-3-30*   |            |    | 29.9             | 25.9 |                     |                     |                     |                     |                |                |          |
| EBV-125-3-12  | 1.25       | 32 | 11.7             | 10.1 | -                   | -                   | 779                 | 951                 | 822            | 947            | 103      |
| EBV-125-3-20  |            |    | 19.8             | 17.1 |                     |                     |                     |                     |                |                |          |
| EBV-125-3-30  |            |    | 30.4             | 26.3 |                     |                     |                     |                     |                |                |          |
| EBV-125-3-45*   |            |    | 44.8             | 38.8 |                     |                     |                     |                     |                |                |          |
| EBV-150-3-20  | 1.5        | 40 | 19.6             | 17.0 | -                   | -                   | 893                 | 1065                | 936            | 1061           | 103      |
| EBV-150-3-30  |            |    | 30.4             | 26.3 |                     |                     |                     |                     |                |                |          |
| EBV-150-3-48*   |            |    | 48.3             | 41.8 |                     |                     |                     |                     |                |                |          |
| EBV-2-3-29  | 2          | 50 | 29.2             | 25.3 | -                   | -                   | 1183                | 1355                | 1226           | 1351           | 103      |
| EBV-2-3-49  |            |    | 48.8             | 42.2 |                     |                     |                     |                     |                |                |          |
| EBV-2-3-75  |            |    | 75.2             | 65.0 |                     |                     |                     |                     |                |                |          |
| EBV-2-3-96*   |            |    | 95.5             | 82.6 |                     |                     |                     |                     |                |                |          |

**Options/Adders**

\* Reduced port valve - No characterizing disc  
 Add HT after the valve CV is a HT (High Temperature Kit) if needed.  
 For Weathershield -WS please inquire with Inside Sales.  
 Bypass port CV equal approximately 50% of control port CV  
 For normally Closed, add a "C" to the end of the valve part number, i e EBV-05-3-003C, otherwise normally open Spring return models only.



## EBV - 3-Way Standard Trim with Spring Return Commercial Electric Actuators

| 3-Way, Modulating - Spring Return Actuators - (200 psi - Close Off) |            |    |                  |       |                                  |                                  |                                  |          |
|---|------------|----|------------------|-------|----------------------------------|----------------------------------|----------------------------------|----------|
| Actuator Model Details  |            |    |                  |       |                                  |                                  |                                  |          |
| Auxiliary Switches  |            |    |                  |       |                                  | ■                                |                                  |          |
| Conduit Size - Flex(F)/NPT(N)                                       |            |    |                  | 1/2 N |                                  | 1/2 N                            |                                  |          |
| Cable - Standard(S)/Plenum(P)                                       |            |    |                  | P     |                                  | S                                |                                  |          |
| Manual Override   |            |    |                  | N/A   |                                  | Hex Wrench Included              |                                  |          |
| Model Number  | Valve Size |    | Flow Coefficient |       | 24 VAC/DC Modulating 2-10 in/out | 24 VAC/DC Modulating 0-10 in/out | 24 VAC/DC Modulating 0-10 in/out | HT Adder |
|   | In.        | mm | Cv               | Kv    | DCMS24-20-P                      | DCMS24-62-P                      | DCMS24-62-A                      |          |
| EBV-05-3-003  | 0.5        | 15 | 0.3              | 0.3   | 694                              | -                                | 817                              | 103      |
| EBV-05-3-005  |            |    | 0.5              | 0.4   |                                  |                                  |                                  |          |
| EBV-05-3-009  |            |    | 0.9              | 0.8   |                                  |                                  |                                  |          |
| EBV-05-3-01   |            |    | 1.4              | 1.2   |                                  |                                  |                                  |          |
| EBV-05-3-02   |            |    | 2                | 1.7   |                                  |                                  |                                  |          |
| EBV-05-3-03   |            |    | 3                | 2.6   |                                  |                                  |                                  |          |
| EBV-05-3-05   |            |    | 4.9              | 4.2   |                                  |                                  |                                  |          |
| EBV-05-3-08   |            |    | 8                | 6.9   |                                  |                                  |                                  |          |
| EBV-05-3-13   |            |    | 12.5             | 10.8  |                                  |                                  |                                  |          |
| EBV-05-3-17*  |            |    | 17.2             | 14.9  |                                  |                                  |                                  |          |
| EBV-75-3-05   | .75        | 20 | 4.9              | 4.2   | 728                              | -                                | 851                              | 103      |
| EBV-75-3-08   |            |    | 7.8              | 6.7   |                                  |                                  |                                  |          |
| EBV-75-3-12   |            |    | 12.3             | 10.6  |                                  |                                  |                                  |          |
| EBV-75-3-15*  |            |    | 15.3             | 13.2  |                                  |                                  |                                  |          |
| EBV-1-3-08  | 1          | 25 | 7.8              | 6.7   | 900                              | -                                | 1023                             | 103      |
| EBV-1-3-12  |            |    | 12.1             | 10.5  |                                  |                                  |                                  |          |
| EBV-1-3-20  |            |    | 19.5             | 16.9  |                                  |                                  |                                  |          |
| EBV-1-3-30*   |            |    | 29.9             | 25.9  |                                  |                                  |                                  |          |
| EBV-125-3-12  | 1.25       | 32 | 11.7             | 10.1  | -                                | 927                              | 1051                             | 103      |
| EBV-125-3-20  |            |    | 19.8             | 17.1  |                                  |                                  |                                  |          |
| EBV-125-3-30  |            |    | 30.4             | 26.3  |                                  |                                  |                                  |          |
| EBV-125-3-45*   |            |    | 44.8             | 38.8  |                                  |                                  |                                  |          |
| EBV-150-3-20  | 1.5        | 40 | 19.6             | 17.0  | -                                | 1041                             | 1165                             | 103      |
| EBV-150-3-30  |            |    | 30.4             | 26.3  |                                  |                                  |                                  |          |
| EBV-150-3-48*   |            |    | 48.3             | 41.8  |                                  |                                  |                                  |          |
| EBV-2-3-29  | 2          | 50 | 29.2             | 25.3  | -                                | 1331                             | 1455                             | 103      |
| EBV-2-3-49  |            |    | 48.8             | 42.2  |                                  |                                  |                                  |          |
| EBV-2-3-75  |            |    | 75.2             | 65.0  |                                  |                                  |                                  |          |
| EBV-2-3-96*   |            |    | 95.5             | 82.6  |                                  |                                  |                                  |          |

### Options/Adders

\* Reduced port valve - No characterizing disc  
 Add HT after the valve CV if a HT (High Temperature Kit) is needed.  
 For Weathershield -WS please inquire with Inside Sales.  
 Bypass port CV equal approximately 50% of control port CV  
 For normally Closed, add a "C" to the end of the valve part number, i e EBV-05-3-003C,  
 otherwise normally open Spring return models only.



## BV - 2-Way with NSR & SR Commercial Electric Actuators

| 2-Way, Non-Spring Return (100 psi Steam and 300 psi Water) |            |                               |           |                  |       |                             |           |           |           |            |                      |            |           |           |            |
|--|------------|-------------------------------|-----------|------------------|-------|-----------------------------|-----------|-----------|-----------|------------|----------------------|------------|-----------|-----------|------------|
| Actuator Model Details                                     |            |                               |           |                  |       |                             |           |           |           |            |                      |            |           |           |            |
|  |            | Time Out                      |           | ■                | ■     | ■                           | ■         | ■         | ■         | ■          | ■                    | ■          | ■         | ■         |            |
|  |            | Auxiliary Switches Available  |           | ■                | ■     | ■                           | ■         | ■         | ■         | ■          | ■                    | ■          | ■         | ■         |            |
|  |            | Conduit Size - Flex(F)/NPT(N) |           | 1/2 N            | 1/2 N | 1/2 N                       | 1/2 N     | 1/2 N     | 1/2 N     | 1/2 N      | 1/2 N                | 1/2 N      | 1/2 N     | 1/2 N     |            |
|  |            | Enclosed Terminal Block       |           | ■                | ■     | ■                           | ■         | ■         | ■         | ■          | ■                    | ■          | ■         | ■         |            |
| Model Number   | Valve Size |                               | V-Cut     | Flow Coefficient |       | 24 VAC/DC On/Off & Floating |           |           |           |            | 24 VAC/DC Modulating |            |           |           |            |
|  | In.        | mm                            |           | 100%             | 60%   | D24-70                      | D24-140   | D24-210   | D24-280   | D24-280-D  | DM24-70              | DM24-140   | DM24-210  | DM24-280  | DM24-280-D |
| BV05-CS3-04  | 0.5        | 15                            | 15°       | 4.1              | 1.6   | 1177                        | -         | -         | -         | -          | 1623                 | -          | -         | -         |            |
| BV05-CS3-05  |            |                               | 30°       | 5.5              | 1.8   |                             |           |           |           |            |                      |            |           |           |            |
| BV05-CS3-09  |            |                               | 60°       | 12.7             | 2.9   |                             |           |           |           |            |                      |            |           |           |            |
| BV05-CS3-12  |            |                               | 90°       | 14.7             | 3.2   |                             |           |           |           |            |                      |            |           |           |            |
| BV05-CS3-32  |            |                               | Full Port | 32.0             | 12.6  |                             |           |           |           |            |                      |            |           |           | 728        |
| BV75-CS3-05  | .75        | 20                            | 15°       | 5.5              | 2.1   | -                           | 1606      | -         | -         | -          | -                    | 2096       | -         | -         |            |
| BV75-CS3-06  |            |                               | 30°       | 7.3              | 2.4   |                             |           |           |           |            |                      |            |           |           |            |
| BV75-CS3-12  |            |                               | 60°       | 16.2             | 3.8   |                             |           |           |           |            |                      |            |           |           |            |
| BV75-CS3-15  |            |                               | 90°       | 19.3             | 4.2   |                             |           |           |           |            |                      |            |           |           |            |
| BV75-CS3-54  |            |                               | Full Port | 54.0             | 21.7  |                             |           |           |           |            |                      |            |           |           | 973        |
| BV1-CS3-09   | 1          | 25                            | 15°       | 9.8              | 3.7   | -                           | -         | 1823      | -         | -          | -                    | -          | 2272      | -         |            |
| BV1-CS3-13   |            |                               | 30°       | 15.4             | 5.3   |                             |           |           |           |            |                      |            |           |           |            |
| BV1-CS3-23   |            |                               | 60°       | 32.8             | 8.0   |                             |           |           |           |            |                      |            |           |           |            |
| BV1-CS3-31   |            |                               | 90°       | 43.8             | 12.2  |                             |           |           |           |            |                      |            |           |           |            |
| BV1-CS3-105  |            |                               | Full Port | 105.0            | 45.7  |                             |           |           |           |            |                      |            |           |           | 1077       |
| BV125-CS3-11   | 1.25       | 32                            | 15°       | 12.8             | 4.0   | -                           | -         | -         | 2479      | -          | -                    | -          | -         | 2753      |            |
| BV125-CS3-15   |            |                               | 30°       | 17.3             | 6.0   |                             |           |           |           |            |                      |            |           |           |            |
| BV125-CS3-33   |            |                               | 60°       | 43.4             | 10.8  |                             |           |           |           |            |                      |            |           |           |            |
| BV125-CS3-52   |            |                               | 90°       | 65.0             | 17.2  |                             |           |           |           |            |                      |            |           |           |            |
| BV125-CS3-200  |            |                               | Full Port | 200.0            | 91.0  |                             |           |           |           |            |                      |            |           |           | 1313       |
| BV150-CS3-15   | 1.5        | 40                            | 15°       | 17.6             | 5.5   | -                           | -         | -         | -         | 3493       | -                    | -          | -         | 4476      |            |
| BV150-CS3-20   |            |                               | 30°       | 23.8             | 8.3   |                             |           |           |           |            |                      |            |           |           |            |
| BV150-CS3-46   |            |                               | 60°       | 59.0             | 14.8  |                             |           |           |           |            |                      |            |           |           |            |
| BV150-CS3-71   |            |                               | 90°       | 90.0             | 22.6  |                             |           |           |           |            |                      |            |           |           |            |
| BV150-CS3-275  |            |                               | Full Port | 275.0            | 120.0 |                             |           |           |           |            |                      |            |           |           | 2083       |
| <b>Adder -A</b>  |            |                               |           |                  |       | <b>67</b>                   | <b>85</b> | <b>78</b> | <b>82</b> | <b>100</b> | <b>89</b>            | <b>101</b> | <b>92</b> | <b>89</b> | <b>115</b> |

| 2-Way, Spring Return (100 psi Steam and 300 psi Water) |            |                               |           |                  |       |                  |           |            |           |                      |             |           |           |       |
|--|------------|-------------------------------|-----------|------------------|-------|------------------|-----------|------------|-----------|----------------------|-------------|-----------|-----------|-------|
| Actuator Model Details                                 |            |                               |           |                  |       |                  |           |            |           |                      |             |           |           |       |
|  |            | Auxiliary Switches Available  |           | ■                | ■     | ■                | ■         | ■          | ■         | ■                    | ■           | ■         | ■         | ■     |
|  |            | Conduit Size - Flex(F)/NPT(N) |           | 3/8 F            | 3/8 F | 3/8 F            | 3/8 F     | 3/8 F      | 3/8 F     | 3/8 F                | 3/8 F       | 3/8 F     | 3/8 F     | 3/8 F |
|  |            | Cable - Standard(S)/Plenum(P) |           | S                | S     | S                | S         | S          | S         | S                    | S           | S         | S         | S     |
| Model Number   | Valve Size |                               | V-Cut     | Flow Coefficient |       | 24 VAC/DC On/Off |           |            |           | 24 VAC/DC Modulating |             |           |           |       |
|  | In.        | mm                            |           | 100%             | 60%   | DS24-70          | DS24-180  | DS24-180-D | DMS24-70  | DMS24-180            | DMS24-180-D |           |           |       |
| BV05-CS3-04  | 0.5        | 15                            | 15°       | 4.1              | 1.6   | 1291             | -         | -          | 1811      | -                    | -           | -         | -         | -     |
| BV05-CS3-05  |            |                               | 30°       | 5.5              | 1.8   |                  |           |            |           |                      |             |           |           |       |
| BV05-CS3-09  |            |                               | 60°       | 12.7             | 2.9   |                  |           |            |           |                      |             |           |           |       |
| BV05-CS3-12  |            |                               | 90°       | 14.7             | 3.2   |                  |           |            |           |                      |             |           |           |       |
| BV05-CS3-32  |            |                               | Full Port | 32.0             | 12.6  |                  |           |            |           |                      |             |           |           |       |
| BV75-CS3-05  | .75        | 20                            | 15°       | 5.5              | 2.1   | -                | 1859      | -          | -         | 2412                 | -           | -         | -         | -     |
| BV75-CS3-06  |            |                               | 30°       | 7.3              | 2.4   |                  |           |            |           |                      |             |           |           |       |
| BV75-CS3-12  |            |                               | 60°       | 16.2             | 3.8   |                  |           |            |           |                      |             |           |           |       |
| BV75-CS3-15  |            |                               | 90°       | 19.3             | 4.2   |                  |           |            |           |                      |             |           |           |       |
| BV75-CS3-54  |            |                               | Full Port | 54.0             | 21.7  |                  |           |            |           |                      |             |           |           |       |
| BV1-CS3-09   | 1          | 25                            | 15°       | 9.8              | 3.7   | -                | 1965      | -          | -         | 2524                 | -           | -         | -         | -     |
| BV1-CS3-13   |            |                               | 30°       | 15.4             | 5.3   |                  |           |            |           |                      |             |           |           |       |
| BV1-CS3-23   |            |                               | 60°       | 32.8             | 8.0   |                  |           |            |           |                      |             |           |           |       |
| BV1-CS3-31   |            |                               | 90°       | 43.8             | 12.2  |                  |           |            |           |                      |             |           |           |       |
| BV1-CS3-105  |            |                               | Full Port | 105.0            | 45.7  |                  |           |            |           |                      |             |           |           |       |
| BV125-CS3-11   | 1.25       | 32                            | 15°       | 12.8             | 4.0   | -                | -         | 2902       | -         | -                    | -           | -         | 3481      | -     |
| BV125-CS3-15   |            |                               | 30°       | 17.3             | 6.0   |                  |           |            |           |                      |             |           |           |       |
| BV125-CS3-33   |            |                               | 60°       | 43.4             | 10.8  |                  |           |            |           |                      |             |           |           |       |
| BV125-CS3-52   |            |                               | 90°       | 65.0             | 17.2  |                  |           |            |           |                      |             |           |           |       |
| BV125-CS3-200  |            |                               | Full Port | 200.0            | 91.0  |                  |           |            |           |                      |             |           |           |       |
| <b>Adder -A</b>  |            |                               |           |                  |       | <b>69</b>        | <b>85</b> | <b>82</b>  | <b>92</b> | <b>92</b>            | <b>92</b>   | <b>92</b> | <b>90</b> |       |

**Options/Adders**  
 For optional auxiliary switches, add -A to the end of the actuator part number.  
 For normally Closed, add a "C" to the end of the valve part number, i.e. BV05-CS3-04C, otherwise normally open. Spring return models only.  
 V-port ball valves have a 20 to 90° max angle of controllability.  
 -D indicates tandem mounted actuators are required.



## BV (SS) - 2-Way with NSR & SR Commercial Electric Actuators

| 2-Way, Non-Spring Return (100 psi Steam and 300 psi Water) |            |                               |           |                  |       |                             |         |         |         |           |                      |          |          |          |            |
|--|------------|-------------------------------|-----------|------------------|-------|-----------------------------|---------|---------|---------|-----------|----------------------|----------|----------|----------|------------|
| Actuator Model Details                                     |            |                               |           |                  |       |                             |         |         |         |           |                      |          |          |          |            |
|  |            | Time Out                      |           | ■                | ■     | ■                           | ■       | ■       | ■       | ■         | ■                    | ■        |          |          |            |
|  |            | Auxiliary Switches Available  |           | ■                | ■     | ■                           | ■       | ■       | ■       | ■         | ■                    | ■        |          |          |            |
|  |            | Conduit Size - Flex(F)/NPT(N) |           | 1/2 N            | 1/2 N | 1/2 N                       | 1/2 N   | 1/2 N   | 1/2 N   | 1/2 N     | 1/2 N                | 1/2 N    |          |          |            |
|  |            | Enclosed Terminal Block       |           | ■                | ■     | ■                           | ■       | ■       | ■       | ■         | ■                    | ■        |          |          |            |
| Model Number   | Valve Size |                               | V-Cut     | Flow Coefficient |       | 24 VAC/DC On/Off & Floating |         |         |         |           | 24 VAC/DC Modulating |          |          |          |            |
|  | In.        | mm                            |           | 100%             | 60%   | D24-70                      | D24-140 | D24-210 | D24-280 | D24-280-D | DM24-70              | DM24-140 | DM24-210 | DM24-280 | DM24-280-D |
| BV05-SS3-04  | 0.5        | 15                            | 15°       | 4.1              | 1.6   | 1228                        | -       | -       | -       | -         | 1691                 | -        | -        | -        | -          |
| BV05-SS3-05  |            |                               | 30°       | 5.5              | 1.8   |                             |         |         |         |           |                      |          |          |          |            |
| BV05-SS3-09  |            |                               | 60°       | 12.7             | 2.9   |                             |         |         |         |           |                      |          |          |          |            |
| BV05-SS3-12  |            |                               | 90°       | 14.7             | 3.2   |                             |         |         |         |           |                      |          |          |          |            |
| BV05-SS3-32  |            |                               | Full Port | 32.0             | 12.6  |                             |         |         |         |           |                      |          |          |          |            |
| BV75-SS3-05  | .75        | 20                            | 15°       | 5.5              | 2.1   | -                           | 1684    | -       | -       | -         | -                    | 2189     | -        | -        | -          |
| BV75-SS3-06  |            |                               | 30°       | 7.3              | 2.4   |                             |         |         |         |           |                      |          |          |          |            |
| BV75-SS3-12  |            |                               | 60°       | 16.2             | 3.8   |                             |         |         |         |           |                      |          |          |          |            |
| BV75-SS3-15  |            |                               | 90°       | 19.3             | 4.2   |                             |         |         |         |           |                      |          |          |          |            |
| BV75-SS3-54  |            |                               | Full Port | 54.0             | 21.7  |                             |         |         |         |           |                      |          |          |          |            |
| BV1-SS3-09   | 1          | 25                            | 15°       | 9.8              | 3.7   | -                           | -       | 1912    | -       | -         | -                    | -        | 2378     | -        | -          |
| BV1-SS3-13   |            |                               | 30°       | 15.4             | 5.3   |                             |         |         |         |           |                      |          |          |          |            |
| BV1-SS3-23   |            |                               | 60°       | 32.8             | 8.0   |                             |         |         |         |           |                      |          |          |          |            |
| BV1-SS3-31   |            |                               | 90°       | 43.8             | 12.2  |                             |         |         |         |           |                      |          |          |          |            |
| BV1-SS3-105  |            |                               | Full Port | 105.0            | 45.7  |                             |         |         |         |           |                      |          |          |          |            |
| BV125-SS3-11   | 1.25       | 32                            | 15°       | 12.8             | 4.0   | -                           | -       | -       | 2587    | -         | -                    | -        | -        | 2871     | -          |
| BV125-SS3-15   |            |                               | 30°       | 17.3             | 6.0   |                             |         |         |         |           |                      |          |          |          |            |
| BV125-SS3-33   |            |                               | 60°       | 43.4             | 10.8  |                             |         |         |         |           |                      |          |          |          |            |
| BV125-SS3-52   |            |                               | 90°       | 65.0             | 17.2  |                             |         |         |         |           |                      |          |          |          |            |
| BV125-SS3-200  |            |                               | Full Port | 200.0            | 91.0  |                             |         |         |         |           |                      |          |          |          |            |
| BV150-SS3-15   | 1.5        | 40                            | 15°       | 17.6             | 5.5   | -                           | -       | -       | -       | 3645      | -                    | -        | -        | -        | 4651       |
| BV150-SS3-20   |            |                               | 30°       | 23.8             | 8.3   |                             |         |         |         |           |                      |          |          |          |            |
| BV150-SS3-46   |            |                               | 60°       | 59.0             | 14.8  |                             |         |         |         |           |                      |          |          |          |            |
| BV150-SS3-71   |            |                               | 90°       | 90.0             | 22.6  |                             |         |         |         |           |                      |          |          |          |            |
| BV150-SS3-275  |            |                               | Full Port | 275.0            | 120.0 |                             |         |         |         |           |                      |          |          |          |            |
| Adder -A   |            |                               |           |                  |       | 68                          | 84      | 78      | 83      | 101       | 89                   | 102      | 92       | 90       | 115        |

| 2-Way, Spring Return (100 psi Steam and 300 psi Water) |            |                               |           |                  |       |                  |          |            |          |                      |             |       |
|--|------------|-------------------------------|-----------|------------------|-------|------------------|----------|------------|----------|----------------------|-------------|-------|
| Actuator Model Details                                 |            |                               |           |                  |       |                  |          |            |          |                      |             |       |
|  |            | Auxiliary Switches Available  |           | ■                | ■     | ■                | ■        | ■          | ■        | ■                    | ■           | ■     |
|  |            | Conduit Size - Flex(F)/NPT(N) |           | 3/8 F            | 3/8 F | 3/8 F            | 3/8 F    | 3/8 F      | 3/8 F    | 3/8 F                | 3/8 F       | 3/8 F |
|  |            | Cable - Standard(S)/Plenum(P) |           | S                | S     | S                | S        | S          | S        | S                    | S           | S     |
| Model Number   | Valve Size |                               | V-Cut     | Flow Coefficient |       | 24 VAC/DC On/Off |          |            |          | 24 VAC/DC Modulating |             |       |
|  | In.        | mm                            |           | 100%             | 60%   | DS24-70          | DS24-180 | DS24-180-D | DMS24-70 | DMS24-180            | DMS24-180-D |       |
| BV05-SS3-04  | 0.5        | 15                            | 15°       | 4.1              | 1.6   | 1342             | -        | -          | -        | 1879                 | -           | -     |
| BV05-SS3-05  |            |                               | 30°       | 5.5              | 1.8   |                  |          |            |          |                      |             |       |
| BV05-SS3-09  |            |                               | 60°       | 12.7             | 2.9   |                  |          |            |          |                      |             |       |
| BV05-SS3-12  |            |                               | 90°       | 14.7             | 3.2   |                  |          |            |          |                      |             |       |
| BV05-SS3-32  |            |                               | Full Port | 32.0             | 12.6  |                  |          |            |          |                      |             |       |
| BV75-SS3-05  | .75        | 20                            | 15°       | 5.5              | 2.1   | -                | 1936     | -          | -        | -                    | 2504        | -     |
| BV75-SS3-06  |            |                               | 30°       | 7.3              | 2.4   |                  |          |            |          |                      |             |       |
| BV75-SS3-12  |            |                               | 60°       | 16.2             | 3.8   |                  |          |            |          |                      |             |       |
| BV75-SS3-15  |            |                               | 90°       | 19.3             | 4.2   |                  |          |            |          |                      |             |       |
| BV75-SS3-54  |            |                               | Full Port | 54.0             | 21.7  |                  |          |            |          |                      |             |       |
| BV1-SS3-09   | 1          | 25                            | 15°       | 9.8              | 3.7   | -                | 2054     | -          | -        | -                    | 2630        | -     |
| BV1-SS3-13   |            |                               | 30°       | 15.4             | 5.3   |                  |          |            |          |                      |             |       |
| BV1-SS3-23   |            |                               | 60°       | 32.8             | 8.0   |                  |          |            |          |                      |             |       |
| BV1-SS3-31   |            |                               | 90°       | 43.8             | 12.2  |                  |          |            |          |                      |             |       |
| BV1-SS3-105  |            |                               | Full Port | 105.0            | 45.7  |                  |          |            |          |                      |             |       |
| BV125-SS3-11   | 1.25       | 32                            | 15°       | 12.8             | 4.0   | -                | -        | 3011       | -        | -                    | -           | 3599  |
| BV125-SS3-15   |            |                               | 30°       | 17.3             | 6.0   |                  |          |            |          |                      |             |       |
| BV125-SS3-33   |            |                               | 60°       | 43.4             | 10.8  |                  |          |            |          |                      |             |       |
| BV125-SS3-52   |            |                               | 90°       | 65.0             | 17.2  |                  |          |            |          |                      |             |       |
| BV125-SS3-200  |            |                               | Full Port | 200.0            | 91.0  |                  |          |            |          |                      |             |       |
| Adder -A   |            |                               |           |                  |       | 70               | 86       | 82         | 92       | 92                   | 90          |       |

**Options/Adders**  
 For optional auxiliary switches, add -A to the end of the actuator part number.  
 For normally Closed, add a "C" to the end of the valve part number, i.e. BV05-SS3-04C, otherwise normally open. Spring return models only.  
 V-port ball valves have a 20 to 90% max angle of controllability.  
 -D Indicates tandem mounted actuators are required.



## BV - 2-Way with On/Off Series 70 Industrial Electric Actuators

| 2-Way, Non-Spring Return (100 psi Steam and 300 psi Water) |            |     |           |                  |        |                                     |          |          |                                    |             |             |                                |
|--|------------|-----|-----------|------------------|--------|-------------------------------------|----------|----------|------------------------------------|-------------|-------------|--------------------------------|
| Actuator Model Details                                     |            |     |           |                  |        |                                     |          |          |                                    |             |             |                                |
| Model Number   | Valve Size |     | V-Cut     | Flow Coefficient |        | Series 70 Actuators On/Off, 120 VAC |          |          | Series 70 Actuators On/Off, 24 VAC |             |             | Adder for BBU (24V units only) |
|  | In.        | mm  |           | 100%             | 60%    | 70-0081H                            | 70-0121H | 70-E301H | 70-24-0081H                        | 70-24-0201H | 70-24-0501H |                                |
| BV05-CS3-04  | 0.5        | 15  | 15°       | 4.1              | 1.6    | 4665                                | -        | -        | 4534                               | -           | -           | 2706                           |
| BV05-CS3-05  |            |     | 30°       | 5.5              | 1.8    |                                     |          |          |                                    |             |             |                                |
| BV05-CS3-09  |            |     | 60°       | 12.7             | 2.9    |                                     |          |          |                                    |             |             |                                |
| BV05-CS3-12  |            |     | 90°       | 14.7             | 3.2    |                                     |          |          |                                    |             |             |                                |
| BV05-CS3-32  |            |     | Full Port | 32.0             | 12.6   |                                     |          |          |                                    |             |             |                                |
| BV75-CS3-05  | .75        | 20  | 15°       | 5.5              | 2.1    | 4811                                | -        | -        | 4680                               | -           | -           | 2706                           |
| BV75-CS3-06  |            |     | 30°       | 7.3              | 2.4    |                                     |          |          |                                    |             |             |                                |
| BV75-CS3-12  |            |     | 60°       | 16.2             | 3.8    |                                     |          |          |                                    |             |             |                                |
| BV75-CS3-15  |            |     | 90°       | 19.3             | 4.2    |                                     |          |          |                                    |             |             |                                |
| BV75-CS3-54  |            |     | Full Port | 54.0             | 21.7   |                                     |          |          |                                    |             |             |                                |
| BV1-CS3-09   | 1          | 25  | 15°       | 9.8              | 3.7    | 5226                                | -        | -        | 5095                               | -           | -           | 2706                           |
| BV1-CS3-13   |            |     | 30°       | 15.4             | 5.3    |                                     |          |          |                                    |             |             |                                |
| BV1-CS3-23   |            |     | 60°       | 32.8             | 8.0    |                                     |          |          |                                    |             |             |                                |
| BV1-CS3-31   |            |     | 90°       | 43.8             | 12.2   |                                     |          |          |                                    |             |             |                                |
| BV1-CS3-105  |            |     | Full Port | 105.0            | 45.7   |                                     |          |          |                                    |             |             |                                |
| BV125-CS3-11   | 1.25       | 32  | 15°       | 12.8             | 4.0    | 5895                                | -        | -        | 5764                               | -           | -           | 2706                           |
| BV125-CS3-15   |            |     | 30°       | 17.3             | 6.0    |                                     |          |          |                                    |             |             |                                |
| BV125-CS3-33   |            |     | 60°       | 43.4             | 10.8   |                                     |          |          |                                    |             |             |                                |
| BV125-CS3-52   |            |     | 90°       | 65.0             | 17.2   |                                     |          |          |                                    |             |             |                                |
| BV125-CS3-200  |            |     | Full Port | 200.0            | 91.0   |                                     |          |          |                                    |             |             |                                |
| BV150-CS3-15   | 1.5        | 40  | 15°       | 17.6             | 5.5    | 6000                                | -        | -        | 5869                               | -           | -           | 2706                           |
| BV150-CS3-20   |            |     | 30°       | 23.8             | 8.3    |                                     |          |          |                                    |             |             |                                |
| BV150-CS3-46   |            |     | 60°       | 59.0             | 14.8   |                                     |          |          |                                    |             |             |                                |
| BV150-CS3-71   |            |     | 90°       | 90.0             | 22.6   |                                     |          |          |                                    |             |             |                                |
| BV150-CS3-275  |            |     | Full Port | 275.0            | 120.0  |                                     |          |          |                                    |             |             |                                |
| BV2-CS3-29   | 2          | 50  | 15°       | 34.6             | 10.6   | 7127                                | -        | -        | 6996                               | -           | -           | 2706                           |
| BV2-CS3-48   |            |     | 30°       | 55.0             | 17.8   |                                     |          |          |                                    |             |             |                                |
| BV2-CS3-104  |            |     | 60°       | 135.0            | 33.9   |                                     |          |          |                                    |             |             |                                |
| BV2-CS3-130  |            |     | 90°       | 167.0            | 42.3   |                                     |          |          |                                    |             |             |                                |
| BV2-CS3-500  |            |     | Full Port | 500.0            | 232.0  |                                     |          |          |                                    |             |             |                                |
| BV250-CS3-27   | 2.5        | 65  | 15°       | 31.3             | 11.7   | 11389                               | -        | -        | 11258                              | -           | -           | 2706                           |
| BV250-CS3-56   |            |     | 30°       | 76.0             | 20.0   |                                     |          |          |                                    |             |             |                                |
| BV250-CS3-114  |            |     | 60°       | 162.0            | 37.9   |                                     |          |          |                                    |             |             |                                |
| BV250-CS3-177  |            |     | 90°       | 239.0            | 53.0   |                                     |          |          |                                    |             |             |                                |
| BV250-CS3-780  |            |     | Full Port | 780.0            | 363.0  |                                     |          |          |                                    |             |             |                                |
| BV3-CS3-32   | 3          | 80  | 15°       | 38.3             | 13.4   | -                                   | 13095    | -        | -                                  | 13395       | -           | 2788                           |
| BV3-CS3-70   |            |     | 30°       | 85.0             | 26.7   |                                     |          |          |                                    |             |             |                                |
| BV3-CS3-150  |            |     | 60°       | 193.0            | 46.3   |                                     |          |          |                                    |             |             |                                |
| BV3-CS3-237  |            |     | 90°       | 359.0            | 69.0   |                                     |          |          |                                    |             |             |                                |
| BV3-CS3-1150   |            |     | Full Port | 1150.0           | 531.0  |                                     |          |          |                                    |             |             |                                |
| BV4-CS3-76   | 4          | 100 | 15°       | 96.0             | 27.9   | -                                   | -        | 16126    | -                                  | -           | 17676       | 2790                           |
| BV4-CS3-159  |            |     | 30°       | 196.0            | 58.0   |                                     |          |          |                                    |             |             |                                |
| BV4-CS3-330  |            |     | 60°       | 437.0            | 106.0  |                                     |          |          |                                    |             |             |                                |
| BV4-CS3-547  |            |     | 90°       | 830.0            | 157.0  |                                     |          |          |                                    |             |             |                                |
| BV4-CS3-2100   |            |     | Full Port | 2100.0           | 1035.0 |                                     |          |          |                                    |             |             |                                |

**Options/Adders**  
 For Battery Back-Up Failsafe Unit (BBU) option on 24VAC actuators add "-BBU".  
 For Battery Back-Up Failsafe units:  
 N = Normally Open  
 C = Normally Closed - Factory default  
 For normally Closed, add a "C" to the end of the valve part number, i.e. BV05-CS3-04C, otherwise normally open. BBU models only.  
 V-port ball valves have a 20 to 90% max angle of controllability



## BV - 2-Way with Modulating Series 70 Industrial Electric Actuators

| 2-Way, Non-Spring Return (100 PSI Steam and 300 PSI Water) |            |     |           |                  |        |   |            |            |  |               |                                |               |
|--|------------|-----|-----------|------------------|--------|---|------------|------------|--|---------------|--------------------------------|---------------|
| Actuator Model Details                                     |            |     |           |                  |        |   |            |            |  |               | Adder for BBU (24V units only) |               |
| Model Number   | Valve Size |     | V-Cut     | Flow Coefficient |        | Series 70 Actuators Modulating, 120 VAC |            |            | Series 70 Actuators Modulating, 24 VAC |               |                                |               |
|  | In.        | mm  |           | 100%             | 60%    | 70-0081SVH                              | 70-0121SVH | 70-E301SVH | 70-24-0081SVH                          | 70-24-0201SVH |                                | 70-24-0501SVH |
| BV05-CS3-04  | 0.5        | 15  | 15°       | 4.1              | 1.6    | 6130                                    | -          | -          | 6070                                   | -             | -                              | 2921          |
| BV05-CS3-05  |            |     | 30°       | 5.5              | 1.8    |   |            |            |  |               |                                |               |
| BV05-CS3-09  |            |     | 60°       | 12.7             | 2.9    |   |            |            |  |               |                                |               |
| BV05-CS3-12  |            |     | 90°       | 14.7             | 3.2    |   |            |            |  |               |                                |               |
| BV05-CS3-32  |            |     | Full Port | 32.0             | 12.6   |   |            |            |  |               |                                |               |
| BV75-CS3-05  | .75        | 20  | 15°       | 5.5              | 2.1    | 6276                                    | -          | -          | 6216                                   | -             | -                              | 2921          |
| BV75-CS3-06  |            |     | 30°       | 7.3              | 2.4    |   |            |            |  |               |                                |               |
| BV75-CS3-12  |            |     | 60°       | 16.2             | 3.8    |   |            |            |  |               |                                |               |
| BV75-CS3-15  |            |     | 90°       | 19.3             | 4.2    |   |            |            |  |               |                                |               |
| BV75-CS3-54  |            |     | Full Port | 54.0             | 21.7   |   |            |            |  |               |                                |               |
| BV1-CS3-09   | 1          | 25  | 15°       | 9.8              | 3.7    | 6691                                    | -          | -          | 6631                                   | -             | -                              | 2921          |
| BV1-CS3-13   |            |     | 30°       | 15.4             | 5.3    |   |            |            |  |               |                                |               |
| BV1-CS3-23   |            |     | 60°       | 32.8             | 8.0    |   |            |            |  |               |                                |               |
| BV1-CS3-31   |            |     | 90°       | 43.8             | 12.2   |   |            |            |  |               |                                |               |
| BV1-CS3-105  |            |     | Full Port | 105.0            | 45.7   |   |            |            |  |               |                                |               |
| BV125-CS3-11   | 1.25       | 32  | 15°       | 12.8             | 4.0    | 7360                                    | -          | -          | 7300                                   | -             | -                              | 2921          |
| BV125-CS3-15   |            |     | 30°       | 17.3             | 6.0    |   |            |            |  |               |                                |               |
| BV125-CS3-33   |            |     | 60°       | 43.4             | 10.8   |   |            |            |  |               |                                |               |
| BV125-CS3-52   |            |     | 90°       | 65.0             | 17.2   |   |            |            |  |               |                                |               |
| BV125-CS3-200  |            |     | Full Port | 200.0            | 91.0   |   |            |            |  |               |                                |               |
| BV150-CS3-15   | 1.5        | 40  | 15°       | 17.6             | 5.5    | 7465                                    | -          | -          | 7405                                   | -             | -                              | 2921          |
| BV150-CS3-20   |            |     | 30°       | 23.8             | 8.3    |   |            |            |  |               |                                |               |
| BV150-CS3-46   |            |     | 60°       | 59.0             | 14.8   |   |            |            |  |               |                                |               |
| BV150-CS3-71   |            |     | 90°       | 90.0             | 22.6   |   |            |            |  |               |                                |               |
| BV150-CS3-275  |            |     | Full Port | 275.0            | 120.0  |   |            |            |  |               |                                |               |
| BV2-CS3-29   | 2          | 50  | 15°       | 34.6             | 10.6   | 8592                                    | -          | -          | 8532                                   | -             | -                              | 2921          |
| BV2-CS3-48   |            |     | 30°       | 55.0             | 17.8   |   |            |            |  |               |                                |               |
| BV2-CS3-104  |            |     | 60°       | 135.0            | 33.9   |   |            |            |  |               |                                |               |
| BV2-CS3-130  |            |     | 90°       | 167.0            | 42.3   |   |            |            |  |               |                                |               |
| BV2-CS3-500  |            |     | Full Port | 500.0            | 232.0  |   |            |            |  |               |                                |               |
| BV250-CS3-27   | 2.5        | 65  | 15°       | 31.3             | 11.7   | 12854                                   | -          | -          | 12794                                  | -             | -                              | 2921          |
| BV250-CS3-56   |            |     | 30°       | 76.0             | 20.0   |   |            |            |  |               |                                |               |
| BV250-CS3-114  |            |     | 60°       | 162.0            | 37.9   |   |            |            |  |               |                                |               |
| BV250-CS3-177  |            |     | 90°       | 239.0            | 53.0   |   |            |            |  |               |                                |               |
| BV250-CS3-780  |            |     | Full Port | 780.0            | 363.0  |   |            |            |  |               |                                |               |
| BV3-CS3-32   | 3          | 80  | 15°       | 38.3             | 13.4   | -                                       | 14590      | -          | -                                      | 14977         | -                              | 2789          |
| BV3-CS3-70   |            |     | 30°       | 85.0             | 26.7   |   |            |            |  |               |                                |               |
| BV3-CS3-150  |            |     | 60°       | 193.0            | 46.3   |   |            |            |  |               |                                |               |
| BV3-CS3-237  |            |     | 90°       | 359.0            | 69.0   |   |            |            |  |               |                                |               |
| BV3-CS3-1150   |            |     | Full Port | 1150.0           | 531.0  |   |            |            |  |               |                                |               |
| BV4-CS3-76   | 4          | 100 | 15°       | 96.0             | 27.9   | -                                       | -          | 17789      | -                                      | -             | 19261                          | 2789          |
| BV4-CS3-159  |            |     | 30°       | 196.0            | 58.0   |   |            |            |  |               |                                |               |
| BV4-CS3-330  |            |     | 60°       | 437.0            | 106.0  |   |            |            |  |               |                                |               |
| BV4-CS3-547  |            |     | 90°       | 830.0            | 157.0  |   |            |            |  |               |                                |               |
| BV4-CS3-2100   |            |     | Full Port | 2100.0           | 1035.0 |   |            |            |  |               |                                |               |

**Options/Adders**  
 Upon Loss of Signal on Servo units:  
 N = Normally Open (Reverse Acting)  
 C = Normally Closed - Factory default  
 For Battery Back-Up Failsafe Unit (BBU) option on 24VAC actuators add "-BBU".  
 For Battery Back-UP Failsafe units:  
 N = Normally Open  
 C = Normally Closed - Factory default  
 For normally Closed, add a "C" to the end of the valve part number, i.e. BV05-CS3-04C, otherwise normally open. BBU models only.  
 V-port ball valves have a 20 to 90% max angle of controllability



## BV (SS) - 2-Way with On/Off Series 70 Industrial Electric Actuators

### 2-Way, Non-Spring Return (100 psi Steam and 300 psi Water)

| Actuator Model Details |            |     |           |                  |        |                                     |          |          |                                    |             |             |                                |
|------------------------|------------|-----|-----------|------------------|--------|-------------------------------------|----------|----------|------------------------------------|-------------|-------------|--------------------------------|
| Model Number           | Valve Size |     | V-Cut     | Flow Coefficient |        | Series 70 Actuators On/Off, 120 VAC |          |          | Series 70 Actuators On/Off, 24 VAC |             |             | Adder for BBU (24V units only) |
|                        | In.        | mm  |           | 100%             | 60%    | 70-0081H                            | 70-0121H | 70-E301H | 70-24-0081H                        | 70-24-0201H | 70-24-0501H |                                |
| BV05-SS3-04            | 0.5        | 15  | 15°       | 4.1              | 1.6    | 4757                                | -        | -        | 4626                               | -           | -           | 2706                           |
| BV05-SS3-05            |            |     | 30°       | 5.5              | 1.8    |                                     |          |          |                                    |             |             |                                |
| BV05-SS3-09            |            |     | 60°       | 12.7             | 2.9    |                                     |          |          |                                    |             |             |                                |
| BV05-SS3-12            |            |     | 90°       | 14.7             | 3.2    |                                     |          |          |                                    |             |             |                                |
| BV05-SS3-32            |            |     | Full Port | 32.0             | 12.6   |                                     |          |          | 3955                               | 3824        | 2706        |                                |
| BV75-SS3-05            | .75        | 20  | 15°       | 5.5              | 2.1    | 4922                                | -        | -        | 4791                               | -           | -           | 2706                           |
| BV75-SS3-06            |            |     | 30°       | 7.3              | 2.4    |                                     |          |          |                                    |             |             |                                |
| BV75-SS3-12            |            |     | 60°       | 16.2             | 3.8    |                                     |          |          |                                    |             |             |                                |
| BV75-SS3-15            |            |     | 90°       | 19.3             | 4.2    |                                     |          |          |                                    |             |             |                                |
| BV75-SS3-54            |            |     | Full Port | 54.0             | 21.7   |                                     |          |          | 4019                               | 3888        | 2706        |                                |
| BV1-SS3-09             | 1          | 25  | 15°       | 9.8              | 3.7    | 5365                                | -        | -        | 5234                               | -           | -           | 2706                           |
| BV1-SS3-13             |            |     | 30°       | 15.4             | 5.3    |                                     |          |          |                                    |             |             |                                |
| BV1-SS3-23             |            |     | 60°       | 32.8             | 8.0    |                                     |          |          |                                    |             |             |                                |
| BV1-SS3-31             |            |     | 90°       | 43.8             | 12.2   |                                     |          |          |                                    |             |             |                                |
| BV1-SS3-105            |            |     | Full Port | 105.0            | 45.7   |                                     |          |          | 4199                               | 4068        | 2706        |                                |
| BV125-SS3-11           | 1.25       | 32  | 15°       | 12.8             | 4.0    | 6055                                | -        | -        | 5924                               | -           | -           | 2706                           |
| BV125-SS3-15           |            |     | 30°       | 17.3             | 6.0    |                                     |          |          |                                    |             |             |                                |
| BV125-SS3-33           |            |     | 60°       | 43.4             | 10.8   |                                     |          |          |                                    |             |             |                                |
| BV125-SS3-52           |            |     | 90°       | 65.0             | 17.2   |                                     |          |          |                                    |             |             |                                |
| BV125-SS3-200          |            |     | Full Port | 200.0            | 91.0   |                                     |          |          | 4339                               | 4208        | 2706        |                                |
| BV150-SS3-15           | 1.5        | 40  | 15°       | 17.6             | 5.5    | 6184                                | -        | -        | 6053                               | -           | -           | 2706                           |
| BV150-SS3-20           |            |     | 30°       | 23.8             | 8.3    |                                     |          |          |                                    |             |             |                                |
| BV150-SS3-46           |            |     | 60°       | 59.0             | 14.8   |                                     |          |          |                                    |             |             |                                |
| BV150-SS3-71           |            |     | 90°       | 90.0             | 22.6   |                                     |          |          |                                    |             |             |                                |
| BV150-SS3-275          |            |     | Full Port | 275.0            | 120.0  |                                     |          |          | 4486                               | 4355        | 2706        |                                |
| BV2-SS3-29             | 2          | 50  | 15°       | 34.6             | 10.6   | 7329                                | -        | -        | 7198                               | -           | -           | 2706                           |
| BV2-SS3-48             |            |     | 30°       | 55.0             | 17.8   |                                     |          |          |                                    |             |             |                                |
| BV2-SS3-104            |            |     | 60°       | 135.0            | 33.9   |                                     |          |          |                                    |             |             |                                |
| BV2-SS3-130            |            |     | 90°       | 167.0            | 42.3   |                                     |          |          |                                    |             |             |                                |
| BV2-SS3-500            |            |     | Full Port | 500.0            | 232.0  |                                     |          |          | 5509                               | 5378        | 2706        |                                |
| BV250-SS3-27           | 2.5        | 65  | 15°       | 31.3             | 11.7   | 11609                               | -        | -        | 11478                              | -           | -           | 2706                           |
| BV250-SS3-56           |            |     | 30°       | 76.0             | 20.0   |                                     |          |          |                                    |             |             |                                |
| BV250-SS3-114          |            |     | 60°       | 162.0            | 37.9   |                                     |          |          |                                    |             |             |                                |
| BV250-SS3-177          |            |     | 90°       | 239.0            | 53.0   |                                     |          |          |                                    |             |             |                                |
| BV250-SS3-780          |            |     | Full Port | 780.0            | 363.0  |                                     |          |          | 7924                               | 7793        | 2706        |                                |
| BV3-SS3-32             | 3          | 80  | 15°       | 38.3             | 13.4   | -                                   | 13372    | -        | -                                  | 13672       | -           | 2788                           |
| BV3-SS3-70             |            |     | 30°       | 85.0             | 26.7   |                                     |          |          |                                    |             |             |                                |
| BV3-SS3-150            |            |     | 60°       | 193.0            | 46.3   |                                     |          |          |                                    |             |             |                                |
| BV3-SS3-237            |            |     | 90°       | 359.0            | 69.0   |                                     |          |          |                                    |             |             |                                |
| BV3-SS3-1150           |            |     | Full Port | 1150.0           | 531.0  |                                     | 9730     | 10030    | 2788                               |             |             |                                |
| BV4-SS3-76             | 4          | 100 | 15°       | 96.0             | 27.9   | -                                   | -        | 16541    | -                                  | -           | 18091       | 2790                           |
| BV4-SS3-159            |            |     | 30°       | 196.0            | 58.0   |                                     |          |          |                                    |             |             |                                |
| BV4-SS3-330            |            |     | 60°       | 437.0            | 106.0  |                                     |          |          |                                    |             |             |                                |
| BV4-SS3-547            |            |     | 90°       | 830.0            | 157.0  |                                     |          |          |                                    |             |             |                                |
| BV4-SS3-2100           |            |     | Full Port | 2100.0           | 1035.0 |                                     |          | 12171    | 13721                              | 2790        |             |                                |

**Options/Adders**

For Battery Back-Up Failsafe Unit (BBU) option on 24VAC actuators add "-BBU".  
 For Battery Back-Up Failsafe units:  
 N = Normally Open  
 C = Normally Closed - Factory default  
 For normally Closed, add a "C" to the end of the valve part number, i.e. BV05-SS3-04C, otherwise normally open. BBU models only.  
 V-port ball valves have a 20 to 90° max angle of controllability



## BV (SS) - 2-Way with Modulating Series 70 Industrial Electric Actuators

| 2-Way, Non-Spring Return (100 psi Steam and 300 psi Water) |            |     |           |                  |        |   |            |            |  |               |               |                                |
|--|------------|-----|-----------|------------------|--------|---|------------|------------|--|---------------|---------------|--------------------------------|
| Actuator Model Details                                     |            |     |           |                  |        |   |            |            |  |               |               |                                |
| Model Number   | Valve Size |     | V-Cut     | Flow Coefficient |        | Series 70 Actuators Modulating, 120 VAC |            |            | Series 70 Actuators Modulating, 24 VAC |               |               | Adder for BBU (24V units only) |
|  | In.        | mm  |           | 100%             | 60%    | 70-0081SVH                              | 70-0121SVH | 70-E301SVH | 70-24-0081SVH                          | 70-24-0201SVH | 70-24-0501SVH |                                |
| BV05-SS3-04  | 0.5        | 15  | 15°       | 4.1              | 1.6    | 6222                                    | -          | -          | 6162                                   | -             | -             | 2921                           |
| BV05-SS3-05  |            |     | 30°       | 5.5              | 1.8    |   |            |            |  |               |               |                                |
| BV05-SS3-09  |            |     | 60°       | 12.7             | 2.9    |   |            |            |  |               |               |                                |
| BV05-SS3-12  |            |     | 90°       | 14.7             | 3.2    |   |            |            |  |               |               |                                |
| BV05-SS3-32  |            |     | Full Port | 32.0             | 12.6   |   |            |            |  |               |               |                                |
| BV75-SS3-05  | .75        | 20  | 15°       | 5.5              | 2.1    | 6387                                    | -          | -          | 6327                                   | -             | -             | 2921                           |
| BV75-SS3-06  |            |     | 30°       | 7.3              | 2.4    |   |            |            |  |               |               |                                |
| BV75-SS3-12  |            |     | 60°       | 16.2             | 3.8    |   |            |            |  |               |               |                                |
| BV75-SS3-15  |            |     | 90°       | 19.3             | 4.2    |   |            |            |  |               |               |                                |
| BV75-SS3-54  |            |     | Full Port | 54.0             | 21.7   |   |            |            |  |               |               |                                |
| BV1-SS3-09   | 1          | 25  | 15°       | 9.8              | 3.7    | 6830                                    | -          | -          | 6770                                   | -             | -             | 2921                           |
| BV1-SS3-13   |            |     | 30°       | 15.4             | 5.3    |   |            |            |  |               |               |                                |
| BV1-SS3-23   |            |     | 60°       | 32.8             | 8.0    |   |            |            |  |               |               |                                |
| BV1-SS3-31   |            |     | 90°       | 43.8             | 12.2   |   |            |            |  |               |               |                                |
| BV1-SS3-105  |            |     | Full Port | 105.0            | 45.7   |   |            |            |  |               |               |                                |
| BV125-SS3-11   | 1.25       | 32  | 15°       | 12.8             | 4.0    | 7520                                    | -          | -          | 7460                                   | -             | -             | 2921                           |
| BV125-SS3-15   |            |     | 30°       | 17.3             | 6.0    |   |            |            |  |               |               |                                |
| BV125-SS3-33   |            |     | 60°       | 43.4             | 10.8   |   |            |            |  |               |               |                                |
| BV125-SS3-52   |            |     | 90°       | 65.0             | 17.2   |   |            |            |  |               |               |                                |
| BV125-SS3-200  |            |     | Full Port | 200.0            | 91.0   |   |            |            |  |               |               |                                |
| BV150-SS3-15   | 1.5        | 40  | 15°       | 17.6             | 5.5    | 7649                                    | -          | -          | 7589                                   | -             | -             | 2921                           |
| BV150-SS3-20   |            |     | 30°       | 23.8             | 8.3    |   |            |            |  |               |               |                                |
| BV150-SS3-46   |            |     | 60°       | 59.0             | 14.8   |   |            |            |  |               |               |                                |
| BV150-SS3-71   |            |     | 90°       | 90.0             | 22.6   |   |            |            |  |               |               |                                |
| BV150-SS3-275  |            |     | Full Port | 275.0            | 120.0  |   |            |            |  |               |               |                                |
| BV2-SS3-29   | 2          | 50  | 15°       | 34.6             | 10.6   | 8794                                    | -          | -          | 8734                                   | -             | -             | 2921                           |
| BV2-SS3-48   |            |     | 30°       | 55.0             | 17.8   |   |            |            |  |               |               |                                |
| BV2-SS3-104  |            |     | 60°       | 135.0            | 33.9   |   |            |            |  |               |               |                                |
| BV2-SS3-130  |            |     | 90°       | 167.0            | 42.3   |   |            |            |  |               |               |                                |
| BV2-SS3-500  |            |     | Full Port | 500.0            | 232.0  |   |            |            |  |               |               |                                |
| BV250-SS3-27   | 2.5        | 65  | 15°       | 31.3             | 11.7   | 13074                                   | -          | -          | 13014                                  | -             | -             | 2921                           |
| BV250-SS3-56   |            |     | 30°       | 76.0             | 20.0   |   |            |            |  |               |               |                                |
| BV250-SS3-114  |            |     | 60°       | 162.0            | 37.9   |   |            |            |  |               |               |                                |
| BV250-SS3-177  |            |     | 90°       | 239.0            | 53.0   |   |            |            |  |               |               |                                |
| BV250-SS3-780  |            |     | Full Port | 780.0            | 363.0  |   |            |            |  |               |               |                                |
| BV3-SS3-32   | 3          | 80  | 15°       | 38.3             | 13.4   | -                                       | 14867      | -          | -                                      | 15254         | -             | 2789                           |
| BV3-SS3-70   |            |     | 30°       | 85.0             | 26.7   |   |            |            |  |               |               |                                |
| BV3-SS3-150  |            |     | 60°       | 193.0            | 46.3   |   |            |            |  |               |               |                                |
| BV3-SS3-237  |            |     | 90°       | 359.0            | 69.0   |   |            |            |  |               |               |                                |
| BV3-SS3-1150   |            |     | Full Port | 1150.0           | 531.0  |   |            |            |  |               |               |                                |
| BV4-SS3-76   | 4          | 100 | 15°       | 96.0             | 27.9   | -                                       | -          | 18204      | -                                      | -             | 19676         | 2789                           |
| BV4-SS3-159  |            |     | 30°       | 196.0            | 58.0   |   |            |            |  |               |               |                                |
| BV4-SS3-330  |            |     | 60°       | 437.0            | 106.0  |   |            |            |  |               |               |                                |
| BV4-SS3-547  |            |     | 90°       | 830.0            | 157.0  |   |            |            |  |               |               |                                |
| BV4-SS3-2100   |            |     | Full Port | 2100.0           | 1035.0 |   |            |            |  |               |               |                                |

**Options/Adders**

Upon Loss of Signal on Servo units:

N = Normally Open - (Reverse Acting)

C = Normally Closed (Factory default)

For Battery Back-Up Failsafe Unit (BBU) option on 24VAC actuators add "-BBU".

For Battery Back-UP Failsafe units:

N = Normally Open

C = Normally Closed - Factory default

For normally Closed, add a "C" to the end of the valve part number, i.e. BV05-SS3-04C, otherwise normally open. BBU models only.

V-port ball valves have a 20 to 90% max angle of controllability



## BVMS - 2-Way with On/Off & Modulating Series 70 Industrial Electric Actuators

| 2-Way, 24 VAC & 120 VAC, On/Off Actuators - (285 psi WATER/100 psi STEAM Close-Off) |            |     |      |     |                          |       |                         |       |                   |                                |
|---|------------|-----|------|-----|--------------------------|-------|-------------------------|-------|-------------------|--------------------------------|
| Model Number  | Valve Size |     | Cv   |     | Series 70 120 VAC On/Off |       | Series 70 24 VAC On/Off |       | Adder for SS Body | Adder for BBU (24V units only) |
|   | In.        | mm  | 90°  | 60° | Model                    | Price | Model                   | Price |                   |                                |
| BVMS2-C150-0095   | 2          | 50  | 95   | 20  | 70-0081H                 | 7667  | 70-24-0081H             | 7536  | 573               | 2706                           |
| BVMS3-C150-0287   | 3          | 80  | 287  | 64  | 70-0081H                 | 10836 | 70-24-0081H             | 10705 | 848               | 2706                           |
| BVMS4-C150-0436   | 4          | 100 | 436  | 98  | 70-0121H                 | 12585 | 70-24-0201H             | 12885 | 1198              | 2788                           |
| BVMS6-C150-0760   | 6          | 150 | 760  | 191 | 70-0201H                 | 20637 | 70-24-0201H             | 20388 | 3086              | 2788                           |
| BVMS8-C150-1350   | 8          | 200 | 1350 | 369 | 70-E301H                 | 24066 | 70-24-0501H             | 25616 | 4957              | 2790                           |
| BVMS10-C150-2380  | 10         | 250 | 2380 | 571 | 70-0501H                 | 36689 | 70-24-0501H             | 36690 | 6007              | 2790                           |
| BVMS12-C150-3410  | 12         | 300 | 3410 | 780 | 70-1300H                 | 52069 | -                       | -     | 9768              | -                              |

| 2-Way, 24 VAC & 120 VAC, Modulating Actuators - (285 psi WATER/100 psi STEAM Close-Off) |            |     |      |     |                              |       |                             |       |                   |                                |
|---|------------|-----|------|-----|------------------------------|-------|-----------------------------|-------|-------------------|--------------------------------|
| Model Number  | Valve Size |     | Cv   |     | Series 70 120 VAC Modulating |       | Series 70 24 VAC Modulating |       | Adder for SS Body | Adder for BBU (24V units only) |
|   | In.        | mm  | 90°  | 60° | Model                        | Price | Model                       | Price |                   |                                |
| BVMS2-C150-0095   | 2          | 50  | 95   | 20  | 70-0081SVH                   | 9132  | 70-24-0081SVH               | 9072  | 573               | 2921                           |
| BVMS3-C150-0287   | 3          | 80  | 287  | 64  | 70-0081SVH                   | 12301 | 70-24-0081SVH               | 12241 | 848               | 2921                           |
| BVMS4-C150-0436   | 4          | 100 | 436  | 98  | 70-0121SVH                   | 14080 | 70-24-0201SVH               | 14467 | 1198              | 2789                           |
| BVMS6-C150-0760   | 6          | 150 | 760  | 191 | 70-0201SVH                   | 22133 | 70-24-0201SVH               | 21970 | 3086              | 2789                           |
| BVMS8-C150-1350   | 8          | 200 | 1350 | 369 | 70-E301SVH                   | 25729 | 70-24-0501SVH               | 27201 | 4957              | 2789                           |
| BVMS10-C150-2380  | 10         | 250 | 2380 | 571 | 70-0501SVH                   | 38125 | 70-24-0501SVH               | 38275 | 6007              | 2789                           |
| BVMS12-C150-3410  | 12         | 300 | 3410 | 780 | 70-1300SVH                   | 53580 | -                           | -     | 9768              | -                              |

**Options/Adders**  
 Upon Loss of Signal on Servo units:  
 N = Normally Open (Reverse Acting)  
 C = Normally Closed - Factory default  
 For Battery Back-Up Failsafe Unit (BBU) option on 24VAC actuators add "-BBU".  
 For Battery Back-UP Failsafe units:  
 N = Normally Open  
 C = Normally Closed - Factory default  
 \*\*For normally Closed, add a "C" to the end of the valve part number, i.e. BVMS2-C150-0095C, otherwise normally open. BBU models only.  
 \*\*Add "S150" in place of C150 for stainless steel body option.



## SS - 2-Way Threaded with On/Off and Modulating Electric Actuators

| Simple Set - Floating & On/Off - Non-Fail safe Actuators |            |    |                                    |       |           |
|--|------------|----|------------------------------------|-------|-----------|
| Model Number   | Valve Size |    | Description                        | Price | -WS Adder |
|  | In.        | mm |                                    |       |           |
| SS-050-N-L-x/PA24-27                                     | 0.5        | 15 | 1/2" NPT Threads 3.1 Max. GPM      | 608   | 506       |
| SS-050-N-S-x/PA24-27                                     | 0.5        | 15 | 1/2" NPT Threads 6.9 Max. GPM      | 608   |           |
| SS-075-N-L-x/PA24-27                                     | .75        | 20 | 3/4" NPT Thread 3.3 Max. GPM       | 682   |           |
| SS-075-N-S-x/PA24-27                                     | .75        | 20 | 3/4" NPT Thread 8.0 Max. GPM       | 682   |           |
| SS-1-N-S-x/PA24-27                                       | 1          | 25 | 1" NPT Thread 8.1 Max. GPM         | 1074  |           |
| SS-125-N-S-x/PA24-27                                     | 1.25       | 32 | 1-1/4" NPT Thread 13.2 Max. GPM    | 1376  |           |
| SS-150-N-S-x/PAM24-100                                   | 1.5        | 40 | 1-1/2" NPT Thread 33.4 Max. GPM    | 2567  | 511       |
| SS-2-N-S-x/PAM24-100                                     | 2          | 50 | 2" NPT Thread 64.7 Max. GPM        | 2727  |           |
| SS-2-N-H-x/PAM24-112                                     | 2          | 50 | 2" Ductile NPT Thread 110 Max. GPM | 5980  |           |

| Simple Set - Floating & On/Off - Fail safe Actuators |            |    |                                    |       |           |          |
|--|------------|----|------------------------------------|-------|-----------|----------|
| Model Number   | Valve Size |    | Description                        | Price | -WS Adder | -A Adder |
|  | In.        | mm |                                    |       |           |          |
| SS-050-N-L-x/PA24-27-FS                              | 0.5        | 15 | 1/2" NPT Threads 3.1 Max. GPM      | 861   | 506       | -        |
| SS-050-N-S-x/PA24-27-FS                              | 0.5        | 15 | 1/2" NPT Threads 6.9 Max. GPM      | 861   |           |          |
| SS-075-N-L-x/PA24-27-FS                              | .75        | 20 | 3/4" NPT Thread 3.3 Max. GPM       | 935   |           |          |
| SS-075-N-S-x/PA24-27-FS                              | .75        | 20 | 3/4" NPT Thread 8.0 Max. GPM       | 935   |           |          |
| SS-1-N-S-x/PA24-27-FS                                | 1          | 25 | 1" NPT Thread 8.1 Max. GPM         | 1327  |           |          |
| SS-125-N-S-x/PA24-27-FS                              | 1.25       | 32 | 1-1/4" NPT Thread 13.2 Max. GPM    | 1629  |           |          |
| SS-150-N-S-x/PAM24-100-FS                            | 1.5        | 40 | 1-1/2" NPT Thread 33.4 Max. GPM    | 2812  | 511       | -        |
| SS-2-N-S-x/PAM24-100-FS                              | 2          | 50 | 2" NPT Thread 64.7 Max. GPM        | 2972  |           |          |
| SS-2-N-H-x/GASRE24-450                               | 2          | 50 | 2" Ductile NPT Thread 110 Max. GPM | 7204  |           |          |

| Simple Set - Modulating - Non-Fail safe Actuators |            |    |                                    |       |           |
|---|------------|----|------------------------------------|-------|-----------|
| Model Number                                      | Valve Size |    | Description                        | Price | -WS Adder |
|   | In.        | mm |                                    |       |           |
| SS-050-N-L-x/PAM24-27                             | 0.5        | 15 | 1/2" NPT Threads 3.1 Max. GPM      | 670   | 506       |
| SS-050-N-S-x/PAM24-27                             | 0.5        | 15 | 1/2" NPT Threads 6.9 Max. GPM      | 670   |           |
| SS-075-N-L-x/PAM24-27                             | .75        | 20 | 3/4" NPT Thread 3.3 Max. GPM       | 744   |           |
| SS-075-N-S-x/PAM24-27                             | .75        | 20 | 3/4" NPT Thread 8.0 Max. GPM       | 744   |           |
| SS-1-N-S-x/PAM24-27                               | 1          | 25 | 1" NPT Thread 8.1 Max. GPM         | 1136  |           |
| SS-125-N-S-x/PAM24-27                             | 1.25       | 32 | 1-1/4" NPT Thread 13.2 Max. GPM    | 1438  |           |
| SS-150-N-S-x/PAM24-100                            | 1.5        | 40 | 1-1/2" NPT Thread 33.4 Max. GPM    | 2567  | 511       |
| SS-2-N-S-x/PAM24-100                              | 2          | 50 | 2" NPT Thread 64.7 Max. GPM        | 2727  |           |
| SS-2-N-H-x/PAM24-112                              | 2          | 50 | 2" Ductile NPT Thread 110 Max. GPM | 5980  |           |

| Simple Set - Modulating - Fail safe Actuators |            |    |                                    |       |           |          |
|---|------------|----|------------------------------------|-------|-----------|----------|
| Model Number                                  | Valve Size |    | Description                        | Price | -WS Adder | -A Adder |
|   | In.        | mm |                                    |       |           |          |
| SS-050-N-L-x/PAM24-27-FS                      | 0.5        | 15 | 1/2" NPT Threads 3.1 Max. GPM      | 892   | 506       | -        |
| SS-050-N-S-x/PAM24-27-FS                      | 0.5        | 15 | 1/2" NPT Threads 6.9 Max. GPM      | 892   |           |          |
| SS-075-N-L-x/PAM24-27-FS                      | .75        | 20 | 3/4" NPT Thread 3.3 Max. GPM       | 966   |           |          |
| SS-075-N-S-x/PAM24-27-FS                      | .75        | 20 | 3/4" NPT Thread 8.0 Max. GPM       | 966   |           |          |
| SS-1-N-S-x/PAM24-27-FS                        | 1          | 25 | 1" NPT Thread 8.1 Max. GPM         | 1358  |           |          |
| SS-125-N-S-x/PAM24-27-FS                      | 1.25       | 32 | 1-1/4" NPT Thread 13.2 Max. GPM    | 1660  |           |          |
| SS-150-N-S-x/PAM24-100-FS                     | 1.5        | 40 | 1-1/2" NPT Thread 33.4 Max. GPM    | 2812  | 511       | -        |
| SS-2-N-S-x/PAM24-100-FS                       | 2          | 50 | 2" NPT Thread 64.7 Max. GPM        | 2972  |           |          |
| SS-2-N-H-x/GASRE24-450                        | 2          | 50 | 2" Ductile NPT Thread 110 Max. GPM | 7204  |           |          |

**Options/Adders**  
"x" Indicates requested GPM flow.  
For normally Closed, add a "C" to the end of the valve part number, i.e. SS-050-N-L-xC, otherwise normally open. Fail safe models only.  
For optional auxiliary switches on the GA actuator, add -A to the end of the actuator part number.  
Add a -WS at the end of the part # if a weather cover is needed.



## SS - Simple Set Series PIC Valves - Accessories

| Strainer/Drain Valve |            |    |       |
|----------------------|------------|----|-------|
| Model Number         | Valve Size |    | Price |
|                      | In.        | mm |       |
| SD-05                | 0.5        | 15 | 414   |
| SD-75                | .75        | 20 | 468   |
| SD-1                 | 1          | 25 | 517   |
| SD-125               | 1.25       | 32 | 989   |
| SD-150               | 1.5        | 40 | 1068  |
| SD-2                 | 2          | 50 | 1481  |

| Hose Kits - Stainless Steel Braided |          |    |        |                        |
|-------------------------------------|----------|----|--------|------------------------|
| Model Number                        | Diameter |    | Length | Price Includes 2 Hoses |
|                                     | In.      | mm |        |                        |
| Hose-05-12                          | 0.5      | 15 | 12     | 217                    |
| Hose-05-18                          |          |    | 18     | 240                    |
| Hose-05-24                          |          |    | 24     | 262                    |
| Hose-05-36                          |          |    | 36     | 308                    |
| Hose-75-12                          | .75      | 20 | 12     | 298                    |
| Hose-75-18                          |          |    | 18     | 330                    |
| Hose-75-24                          |          |    | 24     | 363                    |
| Hose-75-36                          |          |    | 36     | 426                    |
| Hose-1-12                           | 1        | 25 | 12     | 605                    |
| Hose-1-18                           |          |    | 18     | 656                    |
| Hose-1-24                           |          |    | 24     | 710                    |
| Hose-1-36                           |          |    | 36     | 814                    |
| Hose-125-24                         | 1.25     | 32 | 24     | 1082                   |
| Hose-125-36                         |          |    | 36     | 1231                   |
| Hose-150-24                         | 1.5      | 40 | 24     | 2379                   |
| Hose-150-36                         |          |    | 36     | 2627                   |
| Hose-2-24                           | 2        | 50 | 24     | 2725                   |
| Hose-2-36                           |          |    | 36     | 2949                   |

| Replacement Cartridges |                        |       |
|------------------------|------------------------|-------|
| Model Number           | Size - in.             | Price |
| CART-SS-050-L          | 0.5 & .75 Low Flow     | 248   |
| CART-SS-050-S          | 0.5 to 1 Standard Flow | 248   |
| CART-SS-125-S          | 1.25                   | 389   |
| CART-SS-150-S          | 1.5                    | 744   |
| CART-SS-200-S          | 2                      | 1254  |



## SSM - 2-Way Flanged, ANSI 125 with Spring Return & Non-Spring Return Actuators & Accessories

| Simple Set Max - Flanged, ANSI 125, On/Off, Floating, Modulating - Non-Spring Return Actuators |            |     |                                |       |          |           |
|--|------------|-----|--------------------------------|-------|----------|-----------|
| Model Number   | Valve Size |     | Description                    | Price | -A Adder | -WS Adder |
|  | In.        | mm  |                                |       |          |           |
| SSM-250-A-L-x/PAM24-112  | 2.5        | 65  | ANSI 125 Flanged 110 Max. GPM  | 7696  | -        | 511       |
| SSM-250-A-H-x/PAM24-112  | 2.5        | 65  | ANSI 125 Flanged 154 Max. GPM  | 8283  |          |           |
| SSM-3-A-L-x/PAM24-112  | 3          | 80  | ANSI 125 Flanged 150 Max. GPM  | 7956  |          |           |
| SSM-3-A-H-x/PAM24-112  | 3          | 80  | ANSI 125 Flanged 189 Max. GPM  | 8482  |          |           |
| SSM-250-A-L-x/GA24-562   | 2.5        | 65  | ANSI 125 Flanged 110 Max. GPM  | 8748  | 310      | 627       |
| SSM-250-A-H-x/GA24-562   | 2.5        | 65  | ANSI 125 Flanged 154 Max. GPM  | 9335  |          |           |
| SSM-3-A-L-x/GA24-562   | 3          | 80  | ANSI 125 Flanged 150 Max. GPM  | 9008  |          |           |
| SSM-3-A-H-x/GA24-562   | 3          | 80  | ANSI 125 Flanged 189 Max. GPM  | 9534  |          |           |
| SSM-4-A-L-x/GA24-562   | 4          | 100 | ANSI 125 Flanged 299 Max. GPM  | 11466 |          |           |
| SSM-4-A-H-x/GA24-562   | 4          | 100 | ANSI 125 Flanged 396 Max. GPM  | 12156 |          |           |
| SSM-5-A-L-x/GA24-562   | 5          | 125 | ANSI 125 Flanged 484 Max. GPM  | 15493 |          |           |
| SSM-5-A-H-x/GA24-562   | 5          | 125 | ANSI 125 Flanged 594 Max. GPM  | 16651 |          |           |
| SSM-6-A-L-x/GA24-562   | 6          | 150 | ANSI 125 Flanged 652 Max. GPM  | 20053 |          |           |
| SSM-6-A-H-x/GA24-562   | 6          | 150 | ANSI 125 Flanged 859 Max. GPM  | 21765 |          |           |
| SSM-8-A-L-x/GA24-562   | 8          | 200 | ANSI 125 Flanged 925 Max. GPM  | 30949 |          |           |
| SSM-8-A-H-x/GA24-562   | 8          | 200 | ANSI 125 Flanged 1233 Max. GPM | 33006 |          |           |
| SSM-10-A-L-x/GA24-562  | 10         | 250 | ANSI 125 Flanged 2091 Max. GPM | 55576 |          |           |
| SSM-10-A-H-x/GA24-562  | 10         | 250 | ANSI 125 Flanged 2642 Max. GPM | 59217 |          |           |
| SSM-12-A-L-x/GA24-562  | 12         | 300 | ANSI 125 Flanged 2091 Max. GPM | 65234 |          |           |
| SSM-12-A-H-x/GA24-562  | 12         | 300 | ANSI 125 Flanged 2642 Max. GPM | 69522 |          |           |

| Simple Set Max - Flanged, ANSI 125, On/Off, Floating, Modulating - Spring Return Actuators |            |     |                                |       |          |           |
|--|------------|-----|--------------------------------|-------|----------|-----------|
| Model Number   | Valve Size |     | Description                    | Price | -A Adder | -WS Adder |
|  | In.        | mm  |                                |       |          |           |
| SSM-250-A-L-x/GASRE24-450  | 2.5        | 65  | ANSI 125 Flanged 110 Max. GPM  | 9283  | 310      | 627       |
| SSM-250-A-H-x/GASRE24-450  | 2.5        | 65  | ANSI 125 Flanged 154 Max. GPM  | 9870  |          |           |
| SSM-3-A-L-x/GASRE24-450  | 3          | 80  | ANSI 125 Flanged 150 Max. GPM  | 9543  |          |           |
| SSM-3-A-H-x/GASRE24-450  | 3          | 80  | ANSI 125 Flanged 189 Max. GPM  | 10069 |          |           |
| SSM-4-A-L-x/GASRE24-450  | 4          | 100 | ANSI 125 Flanged 299 Max. GPM  | 12001 |          |           |
| SSM-4-A-H-x/GASRE24-450  | 4          | 100 | ANSI 125 Flanged 396 Max. GPM  | 12691 |          |           |
| SSM-5-A-L-x/GASRE24-450  | 5          | 125 | ANSI 125 Flanged 484 Max. GPM  | 16028 |          |           |
| SSM-5-A-H-x/GASRE24-450  | 5          | 125 | ANSI 125 Flanged 594 Max. GPM  | 17186 |          |           |
| SSM-6-A-L-x/GASRE24-450  | 6          | 150 | ANSI 125 Flanged 652 Max. GPM  | 20588 |          |           |
| SSM-6-A-H-x/GASRE24-450  | 6          | 150 | ANSI 125 Flanged 859 Max. GPM  | 22300 |          |           |
| SSM-8-A-L-x/GASRE24-450  | 8          | 200 | ANSI 125 Flanged 925 Max. GPM  | 31484 |          |           |
| SSM-8-A-H-x/GASRE24-450  | 8          | 200 | ANSI 125 Flanged 1233 Max. GPM | 33541 |          |           |

**Options/Adders**  
 "x" Indicates requested GPM flow.  
 For normally Closed, add a "C" to the end of the valve part number and utilize the GASEX24-450 actuator, i.e. SSM-250-A-L-xC/GASEX24-450, otherwise normally open. Fail safe models only.  
 For optional auxiliary switches on the GA actuator, add -A to the end of the actuator part number.  
 Add a -WS at the end of the part# if a weather cover is needed.

| Strainer/Drain Valve |            |     |       |
|----------------------|------------|-----|-------|
| Model Number         | Valve Size |     | Price |
|                      | In.        | mm  |       |
| SD-250               | 2.5        | 65  | 1601  |
| SD-3                 | 3          | 80  | 1735  |
| SD-4                 | 4          | 100 | 1989  |
| SD-5                 | 5          | 125 | 3762  |
| SD-6                 | 6          | 150 | 4967  |



**SSM - 2-Way Flanged, ANSI 250 with Spring Return & Non-Spring Return Actuators & Accessories**

| Simple Set Max - Flanged, ANSI 250, On/Off, Floating, Modulating - Non-Spring Return Actuators |            |     |                                |       |          |           |
|--|------------|-----|--------------------------------|-------|----------|-----------|
| Model Number   | Valve Size |     | Description                    | Price | -A Adder | -WS Adder |
|  | In.        | mm  |                                |       |          |           |
| SSM-250-A250-L-x/PAM24-112   | 2.5        | 65  | ANSI 250 Flanged 110 Max. GPM  | 8097  | -        | 511       |
| SSM-250-A250-H-x/PAM24-112   | 2.5        | 65  | ANSI 250 Flanged 154 Max. GPM  | 8698  |          |           |
| SSM-3-A250-L-x/PAM24-112   | 3          | 80  | ANSI 250 Flanged 150 Max. GPM  | 8297  |          |           |
| SSM-3-A250-H-x/PAM24-112   | 3          | 80  | ANSI 250 Flanged 189 Max. GPM  | 8824  |          |           |
| SSM-250-A250-L-x/GA24-562  | 2.5        | 65  | ANSI 250 Flanged 110 Max. GPM  | 9149  | 310      | 627       |
| SSM-250-A250-H-x/GA24-562  | 2.5        | 65  | ANSI 250 Flanged 154 Max. GPM  | 9750  |          |           |
| SSM-3-A250-L-x/GA24-562  | 3          | 80  | ANSI 250 Flanged 150 Max. GPM  | 9349  |          |           |
| SSM-3-A250-H-x/GA24-562  | 3          | 80  | ANSI 250 Flanged 189 Max. GPM  | 9876  |          |           |
| SSM-4-A250-L-x/GA24-562  | 4          | 100 | ANSI 250 Flanged 299 Max. GPM  | 12821 |          |           |
| SSM-4-A250-H-x/GA24-562  | 4          | 100 | ANSI 250 Flanged 396 Max. GPM  | 13513 |          |           |
| SSM-5-A250-L-x/GA24-562  | 5          | 125 | ANSI 250 Flanged 484 Max. GPM  | 18500 |          |           |
| SSM-5-A250-H-x/GA24-562  | 5          | 125 | ANSI 250 Flanged 594 Max. GPM  | 19658 |          |           |
| SSM-6-A250-L-x/GA24-562  | 6          | 150 | ANSI 250 Flanged 652 Max. GPM  | 24900 |          |           |
| SSM-6-A250-H-x/GA24-562  | 6          | 150 | ANSI 250 Flanged 859 Max. GPM  | 26610 |          |           |
| SSM-8-A250-L-x/GA24-562  | 8          | 200 | ANSI 250 Flanged 925 Max. GPM  | 33385 |          |           |
| SSM-8-A250-H-x/GA24-562  | 8          | 200 | ANSI 250 Flanged 1233 Max. GPM | 35427 |          |           |
| SSM-10-A250-L-x/GA24-562   | 10         | 250 | ANSI 250 Flanged 2091 Max. GPM | 60057 |          |           |
| SSM-10-A250-H-x/GA24-562   | 10         | 250 | ANSI 250 Flanged 2642 Max. GPM | 63713 |          |           |
| SSM-12-A250-L-x/GA24-562   | 12         | 300 | ANSI 250 Flanged 2091 Max. GPM | 70518 |          |           |
| SSM-12-A250-H-x/GA24-562   | 12         | 300 | ANSI 250 Flanged 2642 Max. GPM | 74807 |          |           |

| Simple Set Max - Flanged, ANSI 250, On/Off, Floating, Modulating - Spring Return Actuators |            |     |                                |       |          |           |
|--|------------|-----|--------------------------------|-------|----------|-----------|
| Model Number   | Valve Size |     | Description                    | Price | -A Adder | -WS Adder |
|  | In.        | mm  |                                |       |          |           |
| SSM-250-A250-L-x/GASRE24-450   | 2.5        | 65  | ANSI 250 Flanged 110 Max. GPM  | 9684  | 310      | 627       |
| SSM-250-A250-H-x/GASRE24-450   | 2.5        | 65  | ANSI 250 Flanged 154 Max. GPM  | 10285 |          |           |
| SSM-3-A250-L-x/GASRE24-450   | 3          | 80  | ANSI 250 Flanged 150 Max. GPM  | 9884  |          |           |
| SSM-3-A250-H-x/GASRE24-450   | 3          | 80  | ANSI 250 Flanged 189 Max. GPM  | 10411 |          |           |
| SSM-4-A250-L-x/GASRE24-450   | 4          | 100 | ANSI 250 Flanged 299 Max. GPM  | 13356 |          |           |
| SSM-4-A250-H-x/GASRE24-450   | 4          | 100 | ANSI 250 Flanged 396 Max. GPM  | 14048 |          |           |
| SSM-5-A250-L-x/GASRE24-450   | 5          | 125 | ANSI 250 Flanged 484 Max. GPM  | 19035 |          |           |
| SSM-5-A250-H-x/GASRE24-450   | 5          | 125 | ANSI 250 Flanged 594 Max. GPM  | 20193 |          |           |
| SSM-6-A250-L-x/GASRE24-450   | 6          | 150 | ANSI 250 Flanged 652 Max. GPM  | 25435 |          |           |
| SSM-6-A250-H-x/GASRE24-450   | 6          | 150 | ANSI 250 Flanged 859 Max. GPM  | 27145 |          |           |
| SSM-8-A250-L-x/GASRE24-450   | 8          | 200 | ANSI 250 Flanged 925 Max. GPM  | 33920 |          |           |
| SSM-8-A250-H-x/GASRE24-450   | 8          | 200 | ANSI 250 Flanged 1233 Max. GPM | 35962 |          |           |

**Options/Adders**  
"x" Indicates requested GPM flow.  
For normally Closed, add a "C" to the end of the valve part number and utilize the GASEX24-450 actuator, i.e. SSM-250-A-L-xC/GASEX24-450, otherwise normally open. Fail safe models only.  
For optional auxiliary switches on the GA actuator, add -A to the end of the actuator part number.  
Add a -WS at the end of the part# if a weather cover is needed.

| Strainer/Drain Valve |            |     |       |
|----------------------|------------|-----|-------|
| Model Number         | Valve Size |     | Price |
|                      | In.        | mm  |       |
| SD-250               | 2.5        | 65  | 1601  |
| SD-3                 | 3          | 80  | 1735  |
| SD-4                 | 4          | 100 | 1989  |
| SD-5                 | 5          | 125 | 3762  |
| SD-6                 | 6          | 150 | 4967  |



## CG/DG Threaded Globe Valves - 2-Way Standard Trim with Electric Actuators

| 2-Way Valves, Non Fail Safe or Non Spring Return Actuators |            |    |                  |       |                 |                      |                 |                   |
|--|------------|----|------------------|-------|-----------------|----------------------|-----------------|-------------------|
| Actuator Model Details                                     |            |    |                  |       |                 |                      |                 |                   |
| Auxiliary Switches Available                               |            |    |                  |       |                 | ■                    | ■               |                   |
| Conduit Size - Flex (F)/NPT (N)                            |            |    |                  | 1/2 N | 1/2 N           | 1/2 N                | 1/2 N           |                   |
| Direct Mount   |            |    |                  | ■     | ■               | ■                    | ■               |                   |
| Model Number   | Valve Size |    | Flow Coefficient |       | 24 VAC Floating | 24 VAC/DC Modulating | 24 VAC Floating | 24 VAC Modulating |
|  | In.        | mm | Cv               | Kv    | GA24-67         | GAM24-67             | GA24-225        | GAM24-225         |
| CG05-2-004   | 0.5        | 15 | 0.4              | 0.3   | 974             | 1103                 | -               | -                 |
| CG05-2-006   | 0.5        | 15 | 0.63             | 0.5   | 974             | 1103                 | -               | -                 |
| CG05-2-01  | 0.5        | 15 | 1                | 0.9   | 974             | 1103                 | -               | -                 |
| CG05-2-02  | 0.5        | 15 | 1.6              | 1.4   | 974             | 1103                 | -               | -                 |
| CG05-2-03  | 0.5        | 15 | 2.5              | 2.2   | 974             | 1103                 | -               | -                 |
| CG05-2-04  | 0.5        | 15 | 4                | 3.5   | 974             | 1103                 | -               | -                 |
| CG75-2-07  | .75        | 20 | 6.3              | 5.4   | 1010            | 1139                 | -               | -                 |
| CG1-2-10   | 1.0        | 25 | 10               | 8.7   | 1099            | 1228                 | -               | -                 |
| DG125-2-16   | 1.25       | 32 | 16               | 13.8  | -               | -                    | 1337            | 1450              |
| DG150-2-25   | 1.50       | 40 | 25               | 21.6  | -               | -                    | 1466            | 1579              |
| DG2-2-40   | 2.0        | 50 | 40               | 34.6  | -               | -                    | 1759            | 1872              |
| Adder -A   |            |    |                  |       | -               | -                    | 737             | 369               |
| Adder -H   |            |    |                  |       | -               | -                    | 981             | 981               |

| 2-Way Valves, Fail Safe or Spring Return Actuators |            |    |                  |       |                 |                      |                 |                   |
|--|------------|----|------------------|-------|-----------------|----------------------|-----------------|-------------------|
| Actuator Model Details                             |            |    |                  |       |                 |                      |                 |                   |
| Auxiliary Switches Available                       |            |    |                  |       |                 | ■                    | ■               |                   |
| Conduit Size - Flex (F)/NPT (N)                    |            |    |                  | 1/2 N | 1/2 N           | 1/2 N                | 1/2 N           |                   |
| Direct Mount                                       |            |    |                  | ■     | ■               | ■                    | ■               |                   |
| Model Number                                       | Valve Size |    | Flow Coefficient |       | 24 VAC Floating | 24 VAC/DC Modulating | 24 VAC Floating | 24 VAC Modulating |
|  | In.        | mm | Cv               | Kv    | GA24-67-FS      | GAM24-67-FS          | GAS24-225       | GAMS24-225        |
| CG05-2-004   | 0.5        | 15 | 0.4              | 0.3   | 1179            | 1278                 | -               | -                 |
| CG05-2-006   | 0.5        | 15 | 0.63             | 0.5   | 1179            | 1278                 | -               | -                 |
| CG05-2-01  | 0.5        | 15 | 1                | 0.9   | 1179            | 1278                 | -               | -                 |
| CG05-2-02  | 0.5        | 15 | 1.6              | 1.4   | 1179            | 1278                 | -               | -                 |
| CG05-2-03  | 0.5        | 15 | 2.5              | 2.2   | 1179            | 1278                 | -               | -                 |
| CG05-2-04  | 0.5        | 15 | 4                | 3.5   | 1179            | 1278                 | -               | -                 |
| CG75-2-07  | .75        | 20 | 6.3              | 5.4   | 1215            | 1314                 | -               | -                 |
| CG1-2-10   | 1.0        | 25 | 10               | 8.7   | 1304            | 1403                 | -               | -                 |
| DG125-2-16   | 1.25       | 32 | 16               | 13.8  | -               | -                    | 1694            | 1802              |
| DG150-2-25   | 1.50       | 40 | 25               | 21.6  | -               | -                    | 1823            | 1931              |
| DG2-2-40   | 2.0        | 50 | 40               | 34.6  | -               | -                    | 2116            | 2224              |
| Adder -A   |            |    |                  |       | -               | -                    | 737             | 369               |
| Adder -H   |            |    |                  |       | -               | -                    | 981             | 981               |

### Options/Adders

For Optional auxiliary switches add -A or -H for stem heater to the end of the actuator part number.

\*For normally closed, add a "C" to the end of the valve part number, i.e. DG2-2-40C, otherwise normally open. Spring return models only.



## DG Threaded High Close-Off Globe Valves - 2-Way Standard Trim with Electric Actuators

PRICING - DG Threaded High Close-Off Globe Valves - Standard Trim - 2-Way

| 2-Way Valves, Non Spring Return Actuators |            |    |                  |       |                 |                 |   |
|---|------------|----|------------------|-------|-----------------|-----------------|---|
| Actuator Model Details                    |            |    |                  |       |                 |                 |   |
| Auxiliary Switches Available              |            |    |                  | ■     | ■               | ■               |   |
| Conduit Size - Flex (F)/NPT (N)           |            |    |                  | 1/2 N | 1/2 N           | 1/2 N           |   |
| Direct Mount                              |            |    |                  | ■     | ■               | ■               |   |
| Model Number                              | Valve Size |    | Flow Coefficient |       | 24 VAC Floating | 24 VAC Floating | 24 VAC Modulating                         |
|   | In.        | mm | Cv               | Kv    | GA24-225        | GA24-640-7      | GAM24-225                                 |
| DG05-2-01                                 | 0.5        | 15 | 1                | 0.9   | 1246            | -               | 1357                                      |
| DG05-2-02                                 | 0.5        | 15 | 1.6              | 1.4   | 1246            | -               | 1357                                      |
| DG05-2-03                                 | 0.5        | 15 | 2.5              | 2.2   | 1246            | -               | 1357                                      |
| DG05-2-04                                 | 0.5        | 15 | 4                | 3.5   | 1246            | -               | 1357                                      |
| DG75-2-07                                 | .75        | 20 | 6.3              | 5.4   | 1290            | -               | 1402                                      |
| DG1-2-10                                  | 1.0        | 25 | 10               | 8.7   | 1413            | -               | 1524                                      |
| DG125-2-16                                | 1.25       | 32 | 16               | 13.8  | -               | 4609            | Use standard Closeoff or High Closeoff SR |
| DG150-2-25                                | 1.50       | 40 | 25               | 21.6  | -               | 4739            | Use standard Closeoff or High Closeoff SR |
| DG2-2-40                                  | 2.0        | 50 | 40               | 34.6  | -               | 5031            | Use standard Closeoff or High Closeoff SR |
| Adder -A                                  |            |    |                  |       | 737             | 737             | 369                                       |
| Adder -H                                  |            |    |                  |       | 981             | 981             | 981                                       |

| 2-Way Valves, Spring Return Actuators |            |    |                  |       |                 |                 |                   |                   |
|---------------------------------------|------------|----|------------------|-------|-----------------|-----------------|-------------------|-------------------|
| Actuator Model Details                |            |    |                  |       |                 |                 |                   |                   |
| Auxiliary Switches Available          |            |    |                  | ■     | ■               | ■               | ■                 |                   |
| Conduit Size - Flex (F)/NPT (N)       |            |    |                  | 1/2 N | 1/2 N           | 1/2 N           | 1/2 N             |                   |
| Direct Mount                          |            |    |                  | ■     | ■               | ■               | ■                 |                   |
| Model Number                          | Valve Size |    | Flow Coefficient |       | 24 VAC Floating | 24 VAC Floating | 24 VAC Modulating | 24 VAC Modulating |
|                                       | In.        | mm | Cv               | Kv    | GAS24-225       | GAS24-640-7     | GAMS24-225        | VAL-SRS07P        |
| DG05-2-01                             | 0.5        | 15 | 1                | 0.9   | 1602            | -               | 1709              | -                 |
| DG05-2-02                             | 0.5        | 15 | 1.6              | 1.4   | 1602            | -               | 1709              | -                 |
| DG05-2-03                             | 0.5        | 15 | 2.5              | 2.2   | 1602            | -               | 1709              | -                 |
| DG05-2-04                             | 0.5        | 15 | 4                | 3.5   | 1602            | -               | 1709              | -                 |
| DG75-2-07                             | .75        | 20 | 6.3              | 5.4   | 1648            | -               | 1754              | -                 |
| DG1-2-10                              | 1.0        | 25 | 10               | 8.7   | 1770            | -               | 1876              | -                 |
| DG125-2-16                            | 1.25       | 32 | 16               | 13.8  | -               | 5396            | -                 | 3832              |
| DG150-2-25                            | 1.50       | 40 | 25               | 21.6  | -               | 5525            | -                 | 3960              |
| DG2-2-40                              | 2.0        | 50 | 40               | 34.6  | -               | 5818            | -                 | 4253              |
| Adder -A                              |            |    |                  |       | 737             | 737             | 369               | 369               |
| Adder -H                              |            |    |                  |       | 981             | 981             | 981               | 981               |

**Options/Adders**

For Optional auxiliary switches add -A or -H for stem heater to the end of the actuator part number.  
 \*For normally closed, add a "C" to the end of the valve part number, i.e. DG2-2-40C, otherwise normally open. Spring return models only.  
 VAL Series actuators fails Retracted



## CG/DG Threaded Globe Valves - 2-Way Stainless Steel Trim with Electric Actuators

| 2-Way Valves, Non Fail Safe or Non Spring Return Actuators |            |    |                  |      |                 |                      |                 |                   |
|--|------------|----|------------------|------|-----------------|----------------------|-----------------|-------------------|
| Actuator Model Details                                     |            |    |                  |      |                 |                      |                 |                   |
| Auxiliary Switches Available                               |            |    |                  |      |                 |                      |                 |                   |
| Conduit Size - Flex (F)/NPT (N)                            |            |    |                  |      |                 |                      |                 |                   |
| Direct Mount   |            |    |                  |      |                 |                      |                 |                   |
| Model Number   | Valve Size |    | Flow Coefficient |      | 24 VAC Floating | 24 VAC/DC Modulating | 24 VAC Floating | 24 VAC Modulating |
|  | In.        | mm | Cv               | Kv   | GA24-67         | GAM24-67             | GA24-225        | GAM24-225         |
| CG05-2-004SS   | 0.5        | 15 | 0.4              | 0.3  | 1348            | 1477                 | -               | -                 |
| CG05-2-006SS   | 0.5        | 15 | 0.63             | 0.5  | 1348            | 1477                 | -               | -                 |
| CG05-2-01SS  | 0.5        | 15 | 1                | 0.9  | 1348            | 1477                 | -               | -                 |
| CG05-2-02SS  | 0.5        | 15 | 1.6              | 1.4  | 1348            | 1477                 | -               | -                 |
| CG05-2-03SS  | 0.5        | 15 | 2.5              | 2.2  | 1348            | 1477                 | -               | -                 |
| CG05-2-04SS  | 0.5        | 15 | 4                | 3.5  | 1348            | 1477                 | -               | -                 |
| CG75-2-07SS  | .75        | 20 | 6.3              | 5.4  | 1493            | 1622                 | -               | -                 |
| CG1-2-10SS   | 1.0        | 25 | 10               | 8.7  | 1710            | 1839                 | -               | -                 |
| DG125-2-16SS   | 1.25       | 32 | 16               | 13.8 | -               | -                    | 2295            | 2408              |
| DG150-2-25SS   | 1.50       | 40 | 25               | 21.6 | -               | -                    | 2723            | 2836              |
| DG2-2-40SS   | 2.0        | 50 | 40               | 34.6 | -               | -                    | 3059            | 3172              |
| Adder -A   |            |    |                  |      | -               | -                    | 737             | 369               |
| Adder -H   |            |    |                  |      | -               | -                    | 981             | 981               |

| 2-Way Valves, Fail Safe or Spring Return Actuators |            |    |                  |      |                 |                      |                 |                   |
|--|------------|----|------------------|------|-----------------|----------------------|-----------------|-------------------|
| Actuator Model Details                             |            |    |                  |      |                 |                      |                 |                   |
| Auxiliary Switches Available                       |            |    |                  |      |                 |                      |                 |                   |
| Conduit Size - Flex (F)/NPT (N)                    |            |    |                  |      |                 |                      |                 |                   |
| Direct Mount                                       |            |    |                  |      |                 |                      |                 |                   |
| Model Number                                       | Valve Size |    | Flow Coefficient |      | 24 VAC Floating | 24 VAC/DC Modulating | 24 VAC Floating | 24 VAC Modulating |
|  | In.        | mm | Cv               | Kv   | GA24-67-FS      | GAM24-67-FS          | GAS24-225       | GAMS24-225        |
| CG05-2-004SS                                       | 0.5        | 15 | 0.4              | 0.3  | 1553            | 1652                 | -               | -                 |
| CG05-2-006SS                                       | 0.5        | 15 | 0.63             | 0.5  | 1553            | 1652                 | -               | -                 |
| CG05-2-01SS  | 0.5        | 15 | 1                | 0.9  | 1553            | 1652                 | -               | -                 |
| CG05-2-02SS  | 0.5        | 15 | 1.6              | 1.4  | 1553            | 1652                 | -               | -                 |
| CG05-2-03SS  | 0.5        | 15 | 2.5              | 2.2  | 1553            | 1652                 | -               | -                 |
| CG05-2-04SS  | 0.5        | 15 | 4                | 3.5  | 1553            | 1652                 | -               | -                 |
| CG75-2-07SS  | .75        | 20 | 6.3              | 5.4  | 1698            | 1797                 | -               | -                 |
| CG1-2-10SS   | 1.0        | 25 | 10               | 8.7  | 1915            | 2014                 | -               | -                 |
| DG125-2-16SS                                       | 1.25       | 32 | 16               | 13.8 | -               | -                    | 2652            | 2760              |
| DG150-2-25SS                                       | 1.50       | 40 | 25               | 21.6 | -               | -                    | 3080            | 3188              |
| DG2-2-40SS   | 2.0        | 50 | 40               | 34.6 | -               | -                    | 3416            | 3524              |
| Adder -A   |            |    |                  |      | -               | -                    | 737             | 369               |
| Adder -H   |            |    |                  |      | -               | -                    | 981             | 981               |

### Options/Adders

For Optional auxiliary switches add -A or -H for stem heater to the end of the actuator part number.

\*For normally closed, add a "C" to the end of the valve part number, i.e. DG2-2-40SSC, otherwise normally open. Spring return models only.



## DG Threaded High Close-Off Globe Valves - 2-Way Stainless Steel Trim with Electric Actuators

PRICING - DG Threaded High Close-Off Globe Valves - Stainless Steel Trim - 2-Way

| 2-Way Valves, Non Spring Return Actuators |            |    |                  |       |                 |                 |   |
|---|------------|----|------------------|-------|-----------------|-----------------|---|
| Actuator Model Details                    |            |    |                  |       |                 |                 |   |
| Auxiliary Switches Available              |            |    |                  | ■     | ■               | ■               |   |
| Conduit Size - Flex (F)/NPT (N)           |            |    |                  | 1/2 N |                 | 1/2 N           |   |
| Direct Mount                              |            |    |                  | ■     | ■               | ■               |   |
| Model Number                              | Valve Size |    | Flow Coefficient |       | 24 VAC Floating | 24 VAC Floating | 24 VAC Modulating                         |
|   | In.        | mm | Cv               | Kv    | GA24-225        | GA24-640-7      | GAM24-225                                 |
| DG05-2-01SS                               | 0.5        | 15 | 1                | 0.9   | 1754            | -               | 1865                                      |
| DG05-2-02SS                               | 0.5        | 15 | 1.6              | 1.4   | 1754            | -               | 1865                                      |
| DG05-2-03SS                               | 0.5        | 15 | 2.5              | 2.2   | 1754            | -               | 1865                                      |
| DG05-2-04SS                               | 0.5        | 15 | 4                | 3.5   | 1754            | -               | 1865                                      |
| DG75-2-07SS                               | .75        | 20 | 6.3              | 5.4   | 1824            | -               | 1936                                      |
| DG1-2-10SS                                | 1.0        | 25 | 10               | 8.7   | 1886            | -               | 1997                                      |
| DG125-2-16SS                              | 1.25       | 32 | 16               | 13.8  | -               | 5567            | Use standard Closeoff or High Closeoff SR |
| DG150-2-25SS                              | 1.50       | 40 | 25               | 21.6  | -               | 5995            | Use standard Closeoff or High Closeoff SR |
| DG2-2-40SS                                | 2.0        | 50 | 40               | 34.6  | -               | 6332            | Use standard Closeoff or High Closeoff SR |
| Adder -A                                  |            |    |                  |       | 737             | 737             | 369                                       |
| Adder -H                                  |            |    |                  |       | 981             | 981             | 981                                       |

| 2-Way Valves, Spring Return Actuators |            |    |                  |       |                 |                 |                   |                   |
|---------------------------------------|------------|----|------------------|-------|-----------------|-----------------|-------------------|-------------------|
| Actuator Model Details                |            |    |                  |       |                 |                 |                   |                   |
| Auxiliary Switches Available          |            |    |                  | ■     | ■               | ■               | ■                 |                   |
| Conduit Size - Flex (F)/NPT (N)       |            |    |                  | 1/2 N |                 | 1/2 N           |                   | 1/2 N             |
| Direct Mount                          |            |    |                  | ■     | ■               | ■               | ■                 |                   |
| Model Number                          | Valve Size |    | Flow Coefficient |       | 24 VAC Floating | 24 VAC Floating | 24 VAC Modulating | 24 VAC Modulating |
|                                       | In.        | mm | Cv               | Kv    | GAS24-225       | GAS24-640-7     | GAMS24-225        | VAL-SRS07P        |
| DG05-2-01SS                           | 0.5        | 15 | 1                | 0.9   | 2110            | -               | 2217              | -                 |
| DG05-2-02SS                           | 0.5        | 15 | 1.6              | 1.4   | 2110            | -               | 2217              | -                 |
| DG05-2-03SS                           | 0.5        | 15 | 2.5              | 2.2   | 2110            | -               | 2217              | -                 |
| DG05-2-04SS                           | 0.5        | 15 | 4                | 3.5   | 2110            | -               | 2217              | -                 |
| DG75-2-07SS                           | .75        | 20 | 6.3              | 5.4   | 2182            | -               | 2288              | -                 |
| DG1-2-10SS                            | 1.0        | 25 | 10               | 8.7   | 2243            | -               | 2350              | -                 |
| DG125-2-16SS                          | 1.25       | 32 | 16               | 13.8  | -               | 6354            | -                 | 4790              |
| DG150-2-25SS                          | 1.50       | 40 | 25               | 21.6  | -               | 6782            | -                 | 5217              |
| DG2-2-40SS                            | 2.0        | 50 | 40               | 34.6  | -               | 7118            | -                 | 5553              |
| Adder -A                              |            |    |                  |       | 737             | 737             | 369               | 369               |
| Adder -H                              |            |    |                  |       | 981             | 981             | 981               | 981               |

**Options/Adders**  
 For Optional auxiliary switches add -A or -H for stem heater to the end of the actuator part number.  
 \*For normally closed, add a "C" to the end of the valve part number, i.e. DG2-2-40SSC, otherwise normally open. Spring return models only.  
 VAL Series actuators fails Retracted



## CG/DG Threaded Globe Valves - 3-Way Standard Trim with Electric Actuators

| 3-Way Valves, Non Fail Safe or Non Spring Return Actuators |            |    |                  |       |                 |                      |                 |                   |
|--|------------|----|------------------|-------|-----------------|----------------------|-----------------|-------------------|
| Actuator Model Details                                     |            |    |                  |       |                 |                      |                 |                   |
| Auxiliary Switches Available                               |            |    |                  |       | ■               | ■                    |                 |                   |
| Conduit Size - Flex (F)/NPT (N)                            |            |    | 1/2 N            | 1/2 N | 1/2 N           | 1/2 N                |                 |                   |
| Direct Mount   |            |    | ■                | ■     | ■               | ■                    |                 |                   |
| Model Number   | Valve Size |    | Flow Coefficient |       | 24 VAC Floating | 24 VAC/DC Modulating | 24 VAC Floating | 24 VAC Modulating |
|  | In.        | mm | Cv               | Kv    | GA24-67         | GAM24-67             | GA24-225        | GAM24-225         |
| CG05-3-004   | 0.5        | 15 | 0.4              | 0.3   | 1058            | 1187                 | -               | -                 |
| CG05-3-006   | 0.5        | 15 | 0.63             | 0.5   | 1058            | 1187                 | -               | -                 |
| CG05-3-01  | 0.5        | 15 | 1                | 0.9   | 1058            | 1187                 | -               | -                 |
| CG05-3-02  | 0.5        | 15 | 1.6              | 1.4   | 1058            | 1187                 | -               | -                 |
| CG05-3-03  | 0.5        | 15 | 2.5              | 2.2   | 1058            | 1187                 | -               | -                 |
| CG05-3-04  | 0.5        | 15 | 4                | 3.5   | 1058            | 1187                 | -               | -                 |
| CG75-3-07  | .75        | 20 | 6.3              | 5.4   | 1082            | 1211                 | -               | -                 |
| CG1-3-10   | 1.0        | 25 | 10               | 8.7   | 1171            | 1300                 | -               | -                 |
| DG125-3-16   | 1.25       | 32 | 16               | 13.8  | -               | -                    | 1436            | 1549              |
| DG150-3-25   | 1.50       | 40 | 25               | 21.6  | -               | -                    | 1957            | 2070              |
| DG2-3-40   | 2.0        | 50 | 40               | 34.6  | -               | -                    | 2174            | 2287              |
| Adder -A   |            |    |                  |       | -               | -                    | 737             | 369               |
| Adder -H   |            |    |                  |       | -               | -                    | 981             | 981               |

| 3-Way Valves, Fail Safe or Spring Return Actuators |            |    |                  |       |                 |                      |                 |                   |
|--|------------|----|------------------|-------|-----------------|----------------------|-----------------|-------------------|
| Actuator Model Details                             |            |    |                  |       |                 |                      |                 |                   |
| Auxiliary Switches Available                       |            |    |                  |       | ■               | ■                    |                 |                   |
| Conduit Size - Flex (F)/NPT (N)                    |            |    | 1/2 N            | 1/2 N | 1/2 N           | 1/2 N                |                 |                   |
| Direct Mount                                       |            |    | ■                | ■     | ■               | ■                    |                 |                   |
| Model Number                                       | Valve Size |    | Flow Coefficient |       | 24 VAC Floating | 24 VAC/DC Modulating | 24 VAC Floating | 24 VAC Modulating |
|  | In.        | mm | Cv               | Kv    | GA24-67-FS      | GAM24-67-FS          | GAS24-225       | GAMS24-225        |
| CG05-3-004   | 0.5        | 15 | 0.4              | 0.3   | 1263            | 1362                 | -               | -                 |
| CG05-3-006   | 0.5        | 15 | 0.63             | 0.5   | 1263            | 1362                 | -               | -                 |
| CG05-3-01  | 0.5        | 15 | 1                | 0.9   | 1263            | 1362                 | -               | -                 |
| CG05-3-02  | 0.5        | 15 | 1.6              | 1.4   | 1263            | 1362                 | -               | -                 |
| CG05-3-03  | 0.5        | 15 | 2.5              | 2.2   | 1263            | 1362                 | -               | -                 |
| CG05-3-04  | 0.5        | 15 | 4                | 3.5   | 1263            | 1362                 | -               | -                 |
| CG75-3-07  | .75        | 20 | 6.3              | 5.4   | 1287            | 1386                 | -               | -                 |
| CG1-3-10   | 1.0        | 25 | 10               | 8.7   | 1376            | 1475                 | -               | -                 |
| DG125-3-16   | 1.25       | 32 | 16               | 13.8  | -               | -                    | 1793            | 1901              |
| DG150-3-25   | 1.50       | 40 | 25               | 21.6  | -               | -                    | 2314            | 2422              |
| DG2-3-40   | 2.0        | 50 | 40               | 34.6  | -               | -                    | 2531            | 2639              |
| Adder -A   |            |    |                  |       | -               | -                    | 737             | 369               |
| Adder -H   |            |    |                  |       | -               | -                    | 981             | 981               |

### Options/Adders

For Optional auxiliary switches add -A or -H for stem heater to the end of the actuator part number. Only available for GA 225's.  
 \*For normally closed, add a "C" to the end of the valve part number, i.e. DG2-3-40C, otherwise normally open. Spring Return models only.



## DG Threaded High Close-Off Globe Valves - 3-Way Standard Trim with Electric Actuators

PRICING - DG Threaded High Close-Off Globe Valves - Standard Trim - 3-Way

| 3-Way Valves, Non Spring Return Actuators |            |    |                  |      |                 |                 |   |
|---|------------|----|------------------|------|-----------------|-----------------|---|
| Actuator Model Details                    |            |    |                  |      |                 |                 |   |
| Auxiliary Switches Available              |            |    | ■                | ■    | ■               | ■               |   |
| Conduit Size - Flex (F)/NPT (N)           |            |    | 1/2 N            |      | 1/2 N           |                 | 1/2 N                                     |
| Direct Mount                              |            |    | ■                | ■    | ■               |                 |   |
| Model Number                              | Valve Size |    | Flow Coefficient |      | 24 VAC Floating | 24 VAC Floating | 24 VAC Modulating                         |
|   | In.        | mm | Cv               | Kv   | GA24-225        | GA24-640-7      | GAM24-225                                 |
| DG05-3-01                                 | 0.5        | 15 | 1                | 0.9  | 1450            | -               | 1562                                      |
| DG05-3-02                                 | 0.5        | 15 | 1.6              | 1.4  | 1450            | -               | 1562                                      |
| DG05-3-03                                 | 0.5        | 15 | 2.5              | 2.2  | 1450            | -               | 1562                                      |
| DG05-3-04                                 | 0.5        | 15 | 4                | 3.5  | 1450            | -               | 1562                                      |
| DG75-3-07                                 | .75        | 20 | 6.3              | 5.4  | 1481            | -               | 1592                                      |
| DG1-3-10                                  | 1.0        | 25 | 10               | 8.7  | 1620            | -               | 1732                                      |
| DG125-3-16                                | 1.25       | 32 | 16               | 13.8 | -               | 4708            | Use standard Closeoff or High Closeoff SR |
| DG150-3-25                                | 1.50       | 40 | 25               | 21.6 | -               | 5230            | Use standard Closeoff or High Closeoff SR |
| DG2-3-40                                  | 2.0        | 50 | 40               | 34.6 | -               | 5446            | Use standard Closeoff or High Closeoff SR |
| Adder -A                                  |            |    |                  |      | 737             | 737             | 369                                       |
| Adder -H                                  |            |    |                  |      | 981             | 981             | 981                                       |

| 3-Way Valves, Spring Return Actuators |            |    |                  |      |                 |                 |                   |                   |
|---------------------------------------|------------|----|------------------|------|-----------------|-----------------|-------------------|-------------------|
| Actuator Model Details                |            |    |                  |      |                 |                 |                   |                   |
| Auxiliary Switches Available          |            |    | ■                | ■    | ■               | ■               |                   |                   |
| Conduit Size - Flex (F)/NPT (N)       |            |    | 1/2 N            |      | 1/2 N           |                 | 1/2 N             |                   |
| Direct Mount                          |            |    | ■                | ■    | ■               |                 | ■                 |                   |
| Model Number                          | Valve Size |    | Flow Coefficient |      | 24 VAC Floating | 24 VAC Floating | 24 VAC Modulating | 24 VAC Modulating |
|                                       | In.        | mm | Cv               | Kv   | GAS24-225       | GAS24-640-7     | GAMS24-225        | VAL-SRS07P        |
| DG05-3-01                             | 0.5        | 15 | 1                | 0.9  | 1807            | -               | 1915              | -                 |
| DG05-3-02                             | 0.5        | 15 | 1.6              | 1.4  | 1807            | -               | 1915              | -                 |
| DG05-3-03                             | 0.5        | 15 | 2.5              | 2.2  | 1807            | -               | 1915              | -                 |
| DG05-3-04                             | 0.5        | 15 | 4                | 3.5  | 1807            | -               | 1915              | -                 |
| DG75-3-07                             | .75        | 20 | 6.3              | 5.4  | 1837            | -               | 1944              | -                 |
| DG1-3-10                              | 1.0        | 25 | 10               | 8.7  | 1978            | -               | 2084              | -                 |
| DG125-3-16                            | 1.25       | 32 | 16               | 13.8 | -               | 5495            | -                 | 3930              |
| DG150-3-25                            | 1.50       | 40 | 25               | 21.6 | -               | 6017            | -                 | 4452              |
| DG2-3-40                              | 2.0        | 50 | 40               | 34.6 | -               | 6233            | -                 | 4668              |
| Adder -A                              |            |    |                  |      | 737             | 737             | 369               | 369               |
| Adder -H                              |            |    |                  |      | 981             | 981             | 981               | 981               |

**Options/Adders**

For Optional auxiliary switches add -A or -H for stem heater to the end of the actuator part number.  
 \*For normally closed, add a "C" to the end of the valve part number, i.e. DG2-3-40C, otherwise normally open. Spring Return models only.  
 VAL Series actuators fails Retracted



| 2-Way, On/Off, Floating or Modulating Actuators |            |     |                  |     |                          |          |           |     |
|---|------------|-----|------------------|-----|--------------------------|----------|-----------|-----|
| Model Number                                    | Valve Size |     | Flow Coefficient |     | 24 VAC Non-Spring Return | -A Adder | -WS Adder |     |
|   | In.        | mm  | Cv               | Kv  | Model                    | Price    |           |     |
| DG250-2-63                                      | 2.5        | 65  | 63               | 54  | GA24-562                 | 3241     | 310       | 627 |
| DG3-2-100                                       | 3          | 80  | 100              | 85  |                          | 3628     |           |     |
| DG4-2-160                                       | 4          | 100 | 160              | 137 |                          | 4813     |           |     |
| DG5-2-250                                       | 5          | 125 | 250              | 214 |                          | 6420     |           |     |
| DG6-2-400                                       | 6          | 150 | 400              | 340 |                          | 7402     |           |     |

| 2-Way, On/Off, Floating or Modulating Actuators |            |     |                  |     |                                      |          |           |     |
|---|------------|-----|------------------|-----|--------------------------------------|----------|-----------|-----|
| Model Number                                    | Valve Size |     | Flow Coefficient |     | 24 VAC - Normally Open Spring Return | -A Adder | -WS Adder |     |
|   | In.        | mm  | Cv               | Kv  | Model                                | Price    |           |     |
| DG250-2-63                                      | 2.5        | 65  | 63               | 54  | GASRE24-450<br>Normally Retracted    | 3776     | 310       | 627 |
| DG3-2-100                                       | 3          | 80  | 100              | 85  |                                      | 4163     |           |     |
| DG4-2-160                                       | 4          | 100 | 160              | 137 |                                      | 5348     |           |     |
| DG5-2-250                                       | 5          | 125 | 250              | 214 |                                      | 6955     |           |     |
| DG6-2-400                                       | 6          | 150 | 400              | 340 |                                      | 7937     |           |     |

| 2-Way, On/Off, Floating or Modulating Actuators |            |     |                  |     |  |          |           |     |
|---|------------|-----|------------------|-----|--|----------|-----------|-----|
| Model Number                                    | Valve Size |     | Flow Coefficient |     | 24 VAC - Normally Closed Spring Return | -A Adder | -WS Adder |     |
|   | In.        | mm  | Cv               | Kv  | Model                                  | Price    |           |     |
| DG250-2-63C                                     | 2.5        | 65  | 63               | 54  | GASEX24-450<br>Normally Extended       | 3776     | 310       | 627 |
| DG3-2-100C                                      | 3          | 80  | 100              | 85  |  | 4163     |           |     |
| DG4-2-160C                                      | 4          | 100 | 160              | 137 |  | 5348     |           |     |
| DG5-2-250C                                      | 5          | 125 | 250              | 214 |  | 6955     |           |     |
| DG6-2-400C                                      | 6          | 150 | 400              | 340 |  | 7937     |           |     |

**Options/Adders**  
For optional auxiliary switches on the GA actuator, add -A to the end of the actuator part number. Add a -WS at the end of the part # if a weather cover is needed for GA Series actuators only.

| 2-Way, High Close-Off, Modulating Actuators |            |     |                  |     |                                      |       |  |
|---|------------|-----|------------------|-----|--------------------------------------|-------|--|
| Model Number                                | Valve Size |     | Flow Coefficient |     | 24 VAC - Normally Open Spring Return |       |  |
|   | In.        | mm  | Cv               | Kv  | Model                                | Price |  |
| DG250-2-63                                  | 2.5        | 65  | 63               | 54  | VAL-SRS07P                           | 4569  |  |
| DG3-2-100                                   | 3          | 80  | 100              | 85  |                                      | 4956  |  |
| DG4-2-160                                   | 4          | 100 | 160              | 137 | VAL-SRS15P                           | 6783  |  |
| DG5-2-250                                   | 5          | 125 | 250              | 214 |                                      | 8390  |  |
| DG6-2-400                                   | 6          | 150 | 400              | 340 |                                      | 9372  |  |

Valve is shipped ports NO to C Open (see Technical Brochure Page DG3)

**Options/Adders**  
\*VAL Series actuators fails Retracted



## DG Flanged Globe Valves - 3-Way Standard Trim with Industrial Electric Actuators

| 3-Way, On/Off, Floating or Modulating Actuators |            |     |                  |     |                          |          |           |     |
|---|------------|-----|------------------|-----|--------------------------|----------|-----------|-----|
| Model Number                                    | Valve Size |     | Flow Coefficient |     | 24 VAC Non-Spring Return | -A Adder | -WS Adder |     |
|   | In.        | mm  | Cv               | Kv  | Model                    | Price    |           |     |
| DG250-3-63                                      | 2.5        | 65  | 63               | 54  | GA24-562                 | 3601     | 310       | 627 |
| DG3-3-100                                       | 3          | 80  | 100              | 85  |                          | 4359     |           |     |
| DG4-3-160                                       | 4          | 100 | 160              | 137 |                          | 7907     |           |     |
| DG5-3-250                                       | 5          | 125 | 250              | 214 |                          | 10917    |           |     |
| DG6-3-400                                       | 6          | 150 | 400              | 340 |                          | 13093    |           |     |

Valve is shipped ports NO to C Open (see Technical Brochure Page DG3)

| 3-Way, On/Off, Floating or Modulating Actuators |            |     |                  |     |                                      |          |           |     |
|---|------------|-----|------------------|-----|--------------------------------------|----------|-----------|-----|
| Model Number                                    | Valve Size |     | Flow Coefficient |     | 24 VAC - Normally Open Spring Return | -A Adder | -WS Adder |     |
|   | In.        | mm  | Cv               | Kv  | Model                                | Price    |           |     |
| DG250-3-63                                      | 2.5        | 65  | 63               | 54  | GASRE24-450<br>Normally Retracted    | 4136     | 310       | 627 |
| DG3-3-100                                       | 3          | 80  | 100              | 85  |                                      | 4894     |           |     |
| DG4-3-160                                       | 4          | 100 | 160              | 137 |                                      | 8442     |           |     |
| DG5-3-250                                       | 5          | 125 | 250              | 214 |                                      | 11452    |           |     |
| DG6-3-400                                       | 6          | 150 | 400              | 340 |                                      | 13628    |           |     |

Valve is shipped ports NO to C Open (see Technical Brochure Page DG3)

| 3-Way, On/Off, Floating or Modulating Actuators |            |     |                  |     |  |          |           |     |
|---|------------|-----|------------------|-----|--|----------|-----------|-----|
| Model Number                                    | Valve Size |     | Flow Coefficient |     | 24 VAC - Normally Closed Spring Return | -A Adder | -WS Adder |     |
|   | In.        | mm  | Cv               | Kv  | Model                                  | Price    |           |     |
| DG250-3-63C                                     | 2.5        | 65  | 63               | 54  | GASEX24-450<br>Normally Extended       | 4136     | 310       | 627 |
| DG3-3-100C                                      | 3          | 80  | 100              | 85  |  | 4894     |           |     |
| DG4-3-160C                                      | 4          | 100 | 160              | 137 |  | 8442     |           |     |
| DG5-3-250C                                      | 5          | 125 | 250              | 214 |  | 11452    |           |     |
| DG6-3-400C                                      | 6          | 150 | 400              | 340 |  | 13628    |           |     |

Valve is shipped ports NC to C Open (see Technical Brochure Page DG3)

**Options/Adders**  
 For optional auxiliary switches on the GA actuator, add -A to the end of the actuator part number.  
 Add a -WS at the end of the part # if a weather cover is needed for GA Series actuators only.  
 \*For normally closed, add a "C" to the end of the valve part number, i.e. DG250-3-63C, otherwise normally open. Spring return models only.

| 3-Way, High Close-Off, Modulating Actuators |            |     |                  |     |                                      |       |  |
|---|------------|-----|------------------|-----|--------------------------------------|-------|--|
| Model Number                                | Valve Size |     | Flow Coefficient |     | 24 VAC - Normally Open Spring Return |       |  |
|   | In.        | mm  | Cv               | Kv  | Model                                | Price |  |
| DG250-3-63                                  | 2.5        | 65  | 63               | 54  | VAL-SRS07P                           | 4929  |  |
| DG3-3-100                                   | 3          | 80  | 100              | 85  |                                      | 5687  |  |
| DG4-3-160                                   | 4          | 100 | 160              | 137 |                                      | 9877  |  |
| DG5-3-250                                   | 5          | 125 | 250              | 214 | VAL-SRS15P                           | 12887 |  |
| DG6-3-400                                   | 6          | 150 | 400              | 340 |                                      | 15063 |  |

Valve is shipped ports NO to C Open (see Technical Brochure Page DG3)

**Options/Adders**  
 \*VAL Series actuators fails Retracted



### 2-Way, On/Off, Floating or Modulating Actuators

| Model Number | Valve Size |     | Flow Coefficient |     | 24 VAC Non-Spring Return | -A Adder | -WS Adder | -HT Adder |     |      |
|--------------|------------|-----|------------------|-----|--------------------------|----------|-----------|-----------|-----|------|
|              | In.        | mm  | Cv               | Kv  | Model                    | Price    |           |           |     |      |
| DG250-2-63SS | 2.5        | 65  | 63               | 54  | GA24-562                 | 5215     | 310       | 627       | 192 |      |
| DG3-2-100SS  | 3          | 80  | 100              | 85  |                          |          |           |           |     | 5544 |
| DG4-2-160SS  | 4          | 100 | 160              | 137 |                          |          |           |           |     | 6731 |
| DG5-2-250SS  | 5          | 125 | 250              | 214 |                          |          |           |           |     | 8413 |
| DG6-2-400SS  | 6          | 150 | 400              | 340 |                          |          |           |           |     | 9675 |

### 2-Way, On/Off, Floating or Modulating Actuators

| Model Number | Valve Size |     | Flow Coefficient |     | 24 VAC - Normally Open Spring Return | -A Adder | -WS Adder | -HT Adder |     |       |
|--------------|------------|-----|------------------|-----|--------------------------------------|----------|-----------|-----------|-----|-------|
|              | In.        | mm  | Cv               | Kv  | Model                                | Price    |           |           |     |       |
| DG250-2-63SS | 2.5        | 65  | 63               | 54  | GASRE24-450<br>Normally Retracted    | 5750     | 310       | 627       | 192 |       |
| DG3-2-100SS  | 3          | 80  | 100              | 85  |                                      |          |           |           |     | 6079  |
| DG4-2-160SS  | 4          | 100 | 160              | 137 |                                      |          |           |           |     | 7266  |
| DG5-2-250SS  | 5          | 125 | 250              | 214 |                                      |          |           |           |     | 8948  |
| DG6-2-400SS  | 6          | 150 | 400              | 340 |                                      |          |           |           |     | 10210 |

### 2-Way, On/Off, Floating or Modulating Actuators

| Model Number  | Valve Size |     | Flow Coefficient |     | 24 VAC - Normally Closed Spring Return | -A Adder | -WS Adder | -HT Adder |     |       |
|---------------|------------|-----|------------------|-----|--|----------|-----------|-----------|-----|-------|
|               | In.        | mm  | Cv               | Kv  | Model                                  | Price    |           |           |     |       |
| DG250-2-63SSC | 2.5        | 65  | 63               | 54  | GASEX24-450<br>Normally Extended       | 5750     | 310       | 627       | 192 |       |
| DG3-2-100SSC  | 3          | 80  | 100              | 85  |  |          |           |           |     | 6079  |
| DG4-2-160SSC  | 4          | 100 | 160              | 137 |  |          |           |           |     | 7266  |
| DG5-2-250SSC  | 5          | 125 | 250              | 214 |  |          |           |           |     | 8948  |
| DG6-2-400SSC  | 6          | 150 | 400              | 340 |  |          |           |           |     | 10210 |

C=Normally Closed

#### Options/Adders

For optional auxiliary switches on the GA actuator, add -A to the end of the actuator part number.  
For optional high temperature kit (media temperatures 266°F to 464°F) on the GA actuator, add -HT to the end of the actuator part number.  
Add a -WS at the end of the part # if a weather cover is needed for GA Series actuators only.

### 2-Way, High Close-Off, Modulating Actuators

| Model Number | Valve Size |     | Flow Coefficient |     | 24 VAC - Normally Open Spring Return |       |
|--------------|------------|-----|------------------|-----|--------------------------------------|-------|
|              | In.        | mm  | Cv               | Kv  | Model                                | Price |
| DG250-2-63SS | 2.5        | 65  | 63               | 54  | VAL-SRS07P                           | 6543  |
| DG3-2-100SS  | 3          | 80  | 100              | 85  |                                      | 6872  |
| DG4-2-160SS  | 4          | 100 | 160              | 137 | VAL-SRS15P                           | 8701  |
| DG5-2-250SS  | 5          | 125 | 250              | 214 |                                      | 10383 |
| DG6-2-400SS  | 6          | 150 | 400              | 340 |                                      | 11645 |

#### Options/Adders

Valve is shipped ports NO to C Open (see Technical Brochure Page DG3)  
\*VAL Series actuators fails Retracted



## DG Flanged High Close-Off Globe Valves - 2-Way Stainless Steel Trim with Industrial Electric Actuators

PRICING - Flanged High Close-Off Globe Valves - Stainless Steel Trim - 2-Way

| 2-Way Valves, Non Spring Return Actuators |            |     |                  |       |                 |                 |   |
|---|------------|-----|------------------|-------|-----------------|-----------------|---|
| Actuator Model Details                    |            |     |                  |       |                 |                 |   |
| Auxiliary Switches Available              |            |     | ■                | ■     | ■               | ■               |   |
| Conduit Size - Flex (F)/NPT (N)           |            |     | 1/2 N            | 1/2 N | 1/2 N           |                 |   |
| Direct Mount                              |            |     | ■                | ■     | ■               |                 |   |
| Model Number                              | Valve Size |     | Flow Coefficient |       | 24 VAC Floating | 24 VAC Floating | 24 VAC Modulating                         |
|   | In.        | mm  | Cv               | Kv    | GA24-225        | GA24-640-15     | GAM24-225                                 |
| DG250H-2-63                               | 2.5        | 65  | 63               | 54.5  | 6710            | -               | 6821                                      |
| DG3H-2-100                                | 3          | 80  | 100              | 86.5  | 7422            | -               | 7535                                      |
| DG4H-2-160                                | 4          | 100 | 160              | 138.4 | -               | 13754           | Use standard Closeoff or High Closeoff SR |
| DG5H-2-250                                | 5          | 125 | 250              | 216.3 | -               | 15716           | Use standard Closeoff or High Closeoff SR |
| DG6H-2-400                                | 6          | 150 | 400              | 346.0 | -               | 18322           | Use standard Closeoff or High Closeoff SR |
| Adder -A                                  |            |     |                  |       | 737             | 737             | 369                                       |
| Adder -H                                  |            |     |                  |       | 981             | 981             | 981                                       |

| 2-Way Valves, Spring Return Actuators |            |     |                  |       |                 |                 |                   |                   |
|---------------------------------------|------------|-----|------------------|-------|-----------------|-----------------|-------------------|-------------------|
| Actuator Model Details                |            |     |                  |       |                 |                 |                   |                   |
| Auxiliary Switches Available          |            |     | ■                | ■     | ■               | ■               |                   |                   |
| Conduit Size - Flex (F)/NPT (N)       |            |     | 1/2 N            | 1/2 N | 1/2 N           | 1/2 N           |                   |                   |
| Direct Mount                          |            |     | ■                | ■     | ■               | ■               |                   |                   |
| Model Number                          | Valve Size |     | Flow Coefficient |       | 24 VAC Floating | 24 VAC Floating | 24 VAC Modulating | 24 VAC Modulating |
|                                       | In.        | mm  | Cv               | Kv    | GAS24-225       | GAS24-640-15    | GAMS24-225        | VAL-SRS15P        |
| DG250H-2-63                           | 2.5        | 65  | 63               | 54.5  | 7066            | -               | 7174              | -                 |
| DG3H-2-100                            | 3          | 80  | 100              | 86.5  | 7779            | -               | 7887              | -                 |
| DG4H-2-160                            | 4          | 100 | 160              | 138.4 | -               | 15155           | -                 | 12578             |
| DG5H-2-250                            | 5          | 125 | 250              | 216.3 | -               | 17115           | -                 | 14538             |
| DG6H-2-400                            | 6          | 150 | 400              | 346.0 | -               | 19723           | -                 | 17146             |
| Adder -A                              |            |     |                  |       | 737             | 737             | 369               | 369               |
| Adder -H                              |            |     |                  |       | 981             | 981             | 981               | 981               |

**Options/Adders**  
 For Optional auxiliary switches add -A or -H for stem heater to the end of the actuator part number.  
 For normally closed, add a "C" to the end of the valve part number, i.e. DG250H-2-63C, otherwise normally open. Spring return models only.  
 VAL Series actuators fails Retracted



## 3L Series Butterfly Valves 2-Way with NSR/SR DC-Series Commercial Electric Actuators

Nylon Coated Disc

| 2-Way, On/Off & Floating - Nylon Coated Disc |      |     |               |      |     | Non-Spring Return  |              | Spring Return |             |            |              |
|--|------|-----|---------------|------|-----|--------------------|--------------|---------------|-------------|------------|--------------|
| Actuator Model Details                       |      |     |               |      |     | DC24-310-T         | DC24-310-T-D | DCS24-140     | DCS24-140-D | DCS120-140 | DCS120-140-D |
| Model Number                                 | Size |     | Close-Off psi | Cv   |     | On/Off or Floating |              | On/Off        |             |            |              |
|  | In.  | mm  |               | 90°  | 60° | 24 VAC/DC          |              | 24 VAC/DC     |             | 120 VAC    |              |
| 3LNE-02S2C                                   | 2    | 50  | 175           | 87   | 66  | 1084               | -            | 1172          | -           | 1205       | -            |
| 3LNE-25S2C                                   | 2.5  | 65  | 175           | 185  | 98  | 1119               | -            | 1207          | -           | 1240       | -            |
| 3LNE-03S2C                                   | 3    | 80  | 175           | 360  | 171 | 1135               | -            | -             | 1678        | -          | 1728         |
| 3LNE-04L2C                                   | 4    | 100 | 50            | 740  | 310 | 1236               | -            | 1324          | -           | 1357       | -            |
| 3LNE-04S2C                                   | 4    | 100 | 175           | 740  | 310 | 1236               | -            | -             | 1990        | -          | 2050         |
| 3LNE-05L2C                                   | 5    | 125 | 50            | 1218 | 470 | 1515               | -            | -             | 2238        | -          | 2288         |
| 3LNE-05S2C                                   | 5    | 125 | 175           | 1218 | 470 | -                  | 2107         | -             | -           | -          | -            |
| 3LNE-06L2C                                   | 6    | 150 | 50            | 1900 | 757 | -                  | 2325         | -             | -           | -          | -            |
| Adder -A                                     |      |     |               |      |     | 117                | 118          | 125           | 125         | 125        | 124          |
| Adder -WS                                    |      |     |               |      |     | 399                | 541          | Contact Bray  |             |            |              |

| 2-Way, Modulating - Nylon Coated Disc |      |     |               |      |     | Non-Spring Return |             | Spring Return |              |
|---------------------------------------|------|-----|---------------|------|-----|-------------------|-------------|---------------|--------------|
| Actuator Model Details                |      |     |               |      |     | DCM24-310         | DCM24-310-D | DCMS24-140    | DCMS24-140-D |
| Model Number                          | Size |     | Close-Off psi | Cv   |     | Modulating        |             |               |              |
|                                       | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |             | 24 VAC/DC     |              |
| 3LNE-02S2C                            | 2    | 50  | 175           | 87   | 66  | 1155              | -           | 1325          | -            |
| 3LNE-25S2C                            | 2.5  | 65  | 175           | 185  | 98  | 1190              | -           | 1360          | -            |
| 3LNE-03S2C                            | 3    | 80  | 175           | 360  | 171 | 1206              | -           | -             | 1906         |
| 3LNE-04L2C                            | 4    | 100 | 50            | 740  | 310 | 1307              | -           | 1477          | -            |
| 3LNE-04S2C                            | 4    | 100 | 175           | 740  | 310 | 1307              | -           | -             | 2263         |
| 3LNE-05L2C                            | 5    | 125 | 50            | 1218 | 470 | 1574              | -           | -             | 2466         |
| 3LNE-05S2C                            | 5    | 125 | 175           | 1218 | 470 | -                 | 2212        | -             | -            |
| 3LNE-06L2C                            | 6    | 150 | 50            | 1900 | 757 | -                 | 2430        | -             | -            |
| Adder -A                              |      |     |               |      |     | 118               | 118         | 124           | 126          |
| Adder -WS                             |      |     |               |      |     | 399               | 541         | Contact Bray  |              |

Stainless Steel Disc

| 2-Way, On/Off & Floating - Stainless Steel Disc |      |     |               |      |     | Non-Spring Return  |              | Spring Return |             |            |              |
|---|------|-----|---------------|------|-----|--------------------|--------------|---------------|-------------|------------|--------------|
| Actuator Model Details                          |      |     |               |      |     | DC24-310-T         | DC24-310-T-D | DCS24-140     | DCS24-140-D | DCS120-140 | DCS120-140-D |
| Model Number                                    | Size |     | Close-Off psi | Cv   |     | On/Off or Floating |              | On/Off        |             |            |              |
|   | In.  | mm  |               | 90°  | 60° | 24 VAC/DC          |              | 24 VAC/DC     |             | 120 VAC    |              |
| 3LSE-02S2C                                      | 2    | 50  | 175           | 87   | 66  | 1091               | -            | 1179          | -           | 1212       | -            |
| 3LSE-25S2C                                      | 2.5  | 65  | 175           | 185  | 98  | 1126               | -            | 1214          | -           | 1247       | -            |
| 3LSE-03S2C                                      | 3    | 80  | 175           | 360  | 171 | 1141               | -            | -             | 1624        | -          | 1671         |
| 3LSE-04L2C                                      | 4    | 100 | 50            | 740  | 310 | 1259               | -            | -             | 1681        | -          | 1731         |
| 3LSE-04S2C                                      | 4    | 100 | 175           | 740  | 310 | 1259               | -            | -             | 1681        | -          | 1731         |
| 3LSE-05L2C                                      | 5    | 125 | 50            | 1218 | 470 | 1877               | -            | -             | 2312        | -          | 2362         |
| 3LSE-05S2C                                      | 5    | 125 | 175           | 1218 | 470 | -                  | 2181         | -             | -           | -          | -            |
| 3LSE-06L2C                                      | 6    | 150 | 50            | 1900 | 757 | -                  | 2397         | -             | -           | -          | -            |
| Adder -A  |      |     |               |      |     | 117                | 118          | 125           | 167         | 125        | 168          |
| Adder -WS                                       |      |     |               |      |     | 399                | 541          | Contact Bray  |             |            |              |

| 2-Way, Modulating - Stainless Steel Disc |      |     |               |      |     | Non-Spring Return |             | Spring Return |              |
|--|------|-----|---------------|------|-----|-------------------|-------------|---------------|--------------|
| Actuator Model Details                   |      |     |               |      |     | DCM24-310         | DCM24-310-D | DCMS24-140    | DCMS24-140-D |
| Model Number                             | Size |     | Close-Off psi | Cv   |     | Modulating        |             |               |              |
|  | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |             | 24 VAC/DC     |              |
| 3LSE-02S2C                               | 2    | 50  | 175           | 87   | 66  | 1162              | -           | 1332          | -            |
| 3LSE-25S2C                               | 2.5  | 65  | 175           | 185  | 98  | 1197              | -           | 1367          | -            |
| 3LSE-03S2C                               | 3    | 80  | 175           | 360  | 171 | 1212              | -           | -             | 1842         |
| 3LSE-04L2C                               | 4    | 100 | 50            | 740  | 310 | 1330              | -           | -             | 1909         |
| 3LSE-04S2C                               | 4    | 100 | 175           | 740  | 310 | 1330              | -           | -             | 1909         |
| 3LSE-05L2C                               | 5    | 125 | 50            | 1218 | 470 | 1948              | -           | -             | 2540         |
| 3LSE-05S2C                               | 5    | 125 | 175           | 1218 | 470 | -                 | 2286        | -             | -            |
| 3LSE-06L2C                               | 6    | 150 | 50            | 1900 | 757 | -                 | 2502        | -             | -            |
| Adder -A                                 |      |     |               |      |     | 118               | 118         | 124           | 176          |
| Adder -WS                                |      |     |               |      |     | 399               | 541         | Contact Bray  |              |

**Options/Adders**  
 For optional auxiliary switches, add -A to the end of the actuator part number.  
 Add a -WS at the end of the part # if a weather cover is needed.  
 For Spring Return Units:  
 N = Normally Open  
 C = Normally Closed - Factory default  
 -D = Dual mounted actuators



## 3L Series Butterfly Valves 3-Way with NSR/SR DC-Series Commercial Electric Actuators

Nylon Coated Disc

| 3-Way, On/Off or Floating - Nylon Coated Disc |      |     |               |      |     | Non-Spring Return  |              | Spring Return |             |            |              |
|---|------|-----|---------------|------|-----|--------------------|--------------|---------------|-------------|------------|--------------|
| Actuator Model Details                        |      |     |               |      |     | DC24-310-T         | DC24-310-T-D | DCS24-140     | DCS24-140-D | DCS120-140 | DCS120-140-D |
|   |      |     |               |      |     | On/Off or Floating |              | On/Off        |             |            |              |
| Valve Model Details                           | Size |     | Close-Off psi | Cv   |     | 24 VAC/DC          |              | 24 VAC/DC     |             | 120 VAC    |              |
|   | In.  | mm  |               | 90°  | 60° |                    |              |               |             |            |              |
| 3LNE-02S3X                                    | 2    | 50  | 175           | 87   | 66  | 2250               | -            | 2338          | -           | 2371       | -            |
| 3LNE-25S3X                                    | 2.5  | 65  | 175           | 185  | 98  | 2506               | -            | -             | 2904        | -          | 2954         |
| 3LNE-03S3X                                    | 3    | 80  | 175           | 360  | 171 | 2651               | -            | -             | 3049        | -          | 3099         |
| 3LNE-04L3X                                    | 4    | 100 | 50            | 740  | 310 | 3745               | -            | -             | 4143        | -          | 4193         |
| 3LNE-04S3X                                    | 4    | 100 | 175           | 740  | 310 | -                  | 4012         | -             | -           | -          | -            |
| 3LNE-05L3X                                    | 5    | 125 | 50            | 1218 | 470 | 4406               | -            | -             | 5085        | -          | 5135         |
| 3LNE-06L3X                                    | 6    | 150 | 50            | 1900 | 757 | -                  | 5248         | -             | -           | -          | -            |
| Adder -A                                      |      |     |               |      |     | 117                | 118          | 125           | 125         | 125        | 124          |
| Adder -WS                                     |      |     |               |      |     | 399                | 509          | Contact Bray  |             |            |              |

Stainless Steel Disc

| 3-Way, Modulating - Nylon Coated Disc |      |     |               |      |     | Non-Spring Return |             | Spring Return |              |
|---------------------------------------|------|-----|---------------|------|-----|-------------------|-------------|---------------|--------------|
| Actuator Model Details                |      |     |               |      |     | DCM24-310         | DCM24-310-D | DCMS24-140    | DCMS24-140-D |
|                                       |      |     |               |      |     | Modulating        |             |               |              |
| Valve Model Details                   | Size |     | Close-Off psi | Cv   |     | 24 VAC/DC         |             | 24 VAC/DC     |              |
|                                       | In.  | mm  |               | 90°  | 60° |                   |             |               |              |
| 3LNE-02S3X                            | 2    | 50  | 175           | 87   | 66  | 2321              | -           | 2491          | -            |
| 3LNE-25S3X                            | 2.5  | 65  | 175           | 185  | 98  | 2577              | -           | -             | 3132         |
| 3LNE-03S3X                            | 3    | 80  | 175           | 360  | 171 | 2722              | -           | -             | 3277         |
| 3LNE-04L3X                            | 4    | 100 | 50            | 740  | 310 | 3816              | -           | -             | 4371         |
| 3LNE-04S3X                            | 4    | 100 | 175           | 740  | 310 | -                 | 4117        | -             | -            |
| 3LNE-05L3X                            | 5    | 125 | 50            | 1218 | 470 | 4473              | -           | -             | 5313         |
| 3LNE-06L3X                            | 6    | 150 | 50            | 1900 | 757 | -                 | 5347        | -             | -            |
| Adder -A                              |      |     |               |      |     | 118               | 118         | 124           | 126          |
| Adder -WS                             |      |     |               |      |     | 399               | 508         | Contact Bray  |              |

| 3-Way, On/Off or Floating - Stainless Steel Disc |      |     |               |      |     | Non-Spring Return  |              | Spring Return |             |            |              |
|--|------|-----|---------------|------|-----|--------------------|--------------|---------------|-------------|------------|--------------|
| Actuator Model Details                           |      |     |               |      |     | DC24-310-T         | DC24-310-T-D | DCS24-140     | DCS24-140-D | DCS120-140 | DCS120-140-D |
|  |      |     |               |      |     | On/Off or Floating |              | On/Off        |             |            |              |
| Valve Model Details                              | Size |     | Close-Off psi | Cv   |     | 24 VAC/DC          |              | 24 VAC/DC     |             | 120 VAC    |              |
|  | In.  | mm  |               | 90°  | 60° |                    |              |               |             |            |              |
| 3LSE-02S3X                                       | 2    | 50  | 175           | 87   | 66  | 2364               | -            | 2352          | -           | 2385       | -            |
| 3LSE-25S3X                                       | 2.5  | 65  | 175           | 185  | 98  | 2520               | -            | -             | 2918        | -          | 2968         |
| 3LSE-03S3X                                       | 3    | 80  | 175           | 360  | 171 | 2663               | -            | -             | 3061        | -          | 3111         |
| 3LSE-04L3X                                       | 4    | 100 | 50            | 740  | 310 | 3791               | -            | -             | 4189        | -          | 4239         |
| 3LSE-04S3X                                       | 4    | 100 | 175           | 740  | 310 | -                  | 4058         | -             | -           | -          | -            |
| 3LSE-05L3X                                       | 5    | 125 | 50            | 1218 | 470 | -                  | 5102         | -             | 5233        | -          | 5283         |
| 3LSE-06L3X                                       | 6    | 150 | 50            | 1900 | 757 | -                  | 5727         | -             | -           | -          | -            |
| Adder -A   |      |     |               |      |     | 117                | 118          | 125           | 125         | 125        | 124          |
| Adder -WS  |      |     |               |      |     | 399                | 541          | Contact Bray  |             |            |              |

| 3-Way, Modulating - Stainless Steel Disc |      |     |               |      |     | Non-Spring Return |             | Spring Return |              |
|--|------|-----|---------------|------|-----|-------------------|-------------|---------------|--------------|
| Actuator Model Details                   |      |     |               |      |     | DCM24-310-        | DCM24-310-D | DCMS24-140    | DCMS24-140-D |
|  |      |     |               |      |     | Modulating        |             |               |              |
| Valve Model Details                      | Size |     | Close-Off psi | Cv   |     | 24 VAC/DC         |             | 24 VAC/DC     |              |
|  | In.  | mm  |               | 90°  | 60° |                   |             |               |              |
| 3LSE-02S3X                               | 2    | 50  | 175           | 87   | 66  | 2335              | -           | 2505          | -            |
| 3LSE-25S3X                               | 2.5  | 65  | 175           | 185  | 98  | 2591              | -           | -             | 3146         |
| 3LSE-03S3X                               | 3    | 80  | 175           | 360  | 171 | 2734              | -           | -             | 3289         |
| 3LSE-04L3X                               | 4    | 100 | 50            | 740  | 310 | 3862              | -           | -             | 4417         |
| 3LSE-04S3X                               | 4    | 100 | 175           | 740  | 310 | -                 | 4163        | -             | -            |
| 3LSE-05L3X                               | 5    | 125 | 50            | 1218 | 470 | -                 | 5207        | -             | 5461         |
| 3LSE-06L3X                               | 6    | 150 | 50            | 1900 | 757 | -                 | 5832        | -             | -            |
| Adder -A                                 |      |     |               |      |     | 118               | 118         | 124           | 126          |
| Adder -WS                                |      |     |               |      |     | 399               | 541         | Contact Bray  |              |

**Options/Adders**  
 For optional auxiliary switches, add -A to the end of the actuator part number.  
 Add a -WS at the end of the part # if a weather cover is needed.  
 X = 3-Way Assemblies (Refer to Configuration Chart, Page 63)  
 -D = Dual mounted actuators



## 3L Series Butterfly Valves 2-Way with NSR/SR D-Series Commercial Electric Actuators

Nylon Coated Disc

| 2-Way, On/Off or Floating - Nylon Coated Disc |      |     |               |      |     | Non-Spring Return |         |           | Spring Return |            |
|---|------|-----|---------------|------|-----|-------------------|---------|-----------|---------------|------------|
| Actuator Model Details                        |      |     |               |      |     | D24-140           | D24-210 | D24-210-D | DS24-180      | DS24-180-D |
| Valve Model Details                           | Size |     | Close-Off psi | Cv   |     | On/Off & Floating |         |           | On/Off        |            |
|   | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |         |           | 24 VAC/DC     |            |
| 3LNE-02S2C                                    | 2    | 50  | 175           | 87   | 66  | 902               | -       | -         | 1263          | -          |
| 3LNE-25S2C                                    | 2.5  | 65  | 175           | 185  | 98  | 937               | -       | -         | 1298          | -          |
| 3LNE-03S2C                                    | 3    | 80  | 175           | 360  | 171 | -                 | 1093    | -         | 1314          | -          |
| 3LNE-04L2C                                    | 4    | 100 | 50            | 740  | 310 | -                 | 1192    | -         | 1563          | -          |
| 3LNE-04S2C                                    | 4    | 100 | 175           | 740  | 310 | -                 | -       | 1575      | -             | 2092       |
| 3LNE-05L2C                                    | 5    | 125 | 50            | 1218 | 470 | -                 | -       | 1761      | -             | 2548       |
| 3LNE-05S2C                                    | 5    | 125 | 175           | 1218 | 470 | -                 | -       | 2158      | -             | -          |
| 3LNE-06L2C                                    | 6    | 150 | 50            | 1900 | 757 | -                 | -       | 2376      | -             | 2628       |
| Adder -A                                      |      |     |               |      |     | 121               | 121     | 121       | 122           | 120        |
| Adder -WS                                     |      |     |               |      |     | 375               | 375     | 471       | 377           | 471        |

| 2-Way, Modulating - Nylon Coated Disc |      |     |               |      |     | Non-Spring Return |          |            | Spring Return |             |
|---------------------------------------|------|-----|---------------|------|-----|-------------------|----------|------------|---------------|-------------|
| Actuator Model Details                |      |     |               |      |     | DM24-140          | DM24-210 | DM24-210-D | DMS24-180     | DMS24-180-D |
| Valve Model Details                   | Size |     | Close-Off psi | Cv   |     | Modulating        |          |            |               |             |
|                                       | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |          | 24 VAC/DC  |               |             |
| 3LNE-02S2C                            | 2    | 50  | 175           | 87   | 66  | 1103              | -        | -          | 1514          | -           |
| 3LNE-25S2C                            | 2.5  | 65  | 175           | 185  | 98  | 1138              | -        | -          | 1549          | -           |
| 3LNE-03S2C                            | 3    | 80  | 175           | 360  | 171 | -                 | 1234     | -          | 1565          | -           |
| 3LNE-04L2C                            | 4    | 100 | 50            | 740  | 310 | -                 | 1333     | -          | 2721          | -           |
| 3LNE-04S2C                            | 4    | 100 | 175           | 740  | 310 | -                 | -        | 2015       | -             | 2528        |
| 3LNE-05L2C                            | 5    | 125 | 50            | 1218 | 470 | -                 | 1902     | -          | -             | 2984        |
| 3LNE-05S2C                            | 5    | 125 | 175           | 1218 | 470 | -                 | -        | 2598       | -             | -           |
| 3LNE-06L2C                            | 6    | 150 | 50            | 1900 | 757 | -                 | -        | 2816       | -             | 3042        |
| Adder -A                              |      |     |               |      |     | 121               | 121      | 122        | 121           | 121         |
| Adder -WS                             |      |     |               |      |     | 375               | 375      | 471        | 377           | 471         |

Stainless Steel Disc

| 2-Way, On/Off or Floating - Stainless Steel Disc |      |     |               |      |     | Non-Spring Return |         |           | Spring Return |            |
|--|------|-----|---------------|------|-----|-------------------|---------|-----------|---------------|------------|
| Actuator Model Details                           |      |     |               |      |     | D24-140           | D24-210 | D24-210-D | DS24-180      | DS24-180-D |
| Valve Model Details                              | Size |     | Close-Off psi | Cv   |     | On/Off & Floating |         |           | On/Off        |            |
|  | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |         |           | 24 VAC/DC     |            |
| 3LSE-02S2C                                       | 2    | 50  | 175           | 87   | 66  | 909               | -       | -         | 1270          | -          |
| 3LSE-25S2C                                       | 2.5  | 65  | 175           | 185  | 98  | -                 | 1084    | -         | 1305          | -          |
| 3LSE-03S2C                                       | 3    | 80  | 175           | 360  | 171 | -                 | 1099    | -         | 1320          | -          |
| 3LSE-04L2C                                       | 4    | 100 | 50            | 740  | 310 | -                 | 1215    | -         | 1586          | -          |
| 3LSE-04S2C                                       | 4    | 100 | 175           | 740  | 310 | -                 | -       | 1598      | -             | 2115       |
| 3LSE-05L2C                                       | 5    | 125 | 50            | 1218 | 470 | -                 | 1835    | -         | -             | 2622       |
| 3LSE-05S2C                                       | 5    | 125 | 175           | 1218 | 470 | -                 | -       | 2232      | -             | -          |
| 3LSE-06L2C                                       | 6    | 150 | 50            | 1900 | 757 | -                 | -       | 2448      | -             | -          |
| Adder -A   |      |     |               |      |     | 121               | 121     | 121       | 122           | 120        |
| Adder -WS  |      |     |               |      |     | 375               | 375     | 471       | 377           | 471        |

| 2-Way, Modulating - Stainless Steel Disc |      |     |               |      |     | Non-Spring Return |          |            | Spring Return |             |
|--|------|-----|---------------|------|-----|-------------------|----------|------------|---------------|-------------|
| Actuator Model Details                   |      |     |               |      |     | DM24-140          | DM24-210 | DM24-210-D | DMS24-180     | DMS24-180-D |
| Valve Model Details                      | Size |     | Close-Off psi | Cv   |     | Modulating        |          |            |               |             |
|  | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |          | 24 VAC/DC  |               |             |
| 3LSE-02S2C                               | 2    | 50  | 175           | 87   | 66  | 1110              | -        | -          | 1521          | -           |
| 3LSE-25S2C                               | 2.5  | 65  | 175           | 185  | 98  | -                 | 1225     | -          | 1556          | -           |
| 3LSE-03S2C                               | 3    | 80  | 175           | 360  | 171 | -                 | 1240     | -          | 1571          | -           |
| 3LSE-04L2C                               | 4    | 100 | 50            | 740  | 310 | -                 | 1356     | -          | 2756          | -           |
| 3LSE-04S2C                               | 4    | 100 | 175           | 740  | 310 | -                 | -        | 2038       | -             | 2551        |
| 3LSE-05L2C                               | 5    | 125 | 50            | 1218 | 470 | -                 | 1976     | -          | -             | 3058        |
| 3LSE-05S2C                               | 5    | 125 | 175           | 1218 | 470 | -                 | -        | 2672       | -             | -           |
| 3LSE-06L2C                               | 6    | 150 | 50            | 1900 | 757 | -                 | -        | 2888       | -             | -           |
| Adder -A                                 |      |     |               |      |     | 121               | 121      | 122        | 121           | 121         |
| Adder -WS                                |      |     |               |      |     | 375               | 375      | 471        | 377           | 471         |

**Options/Adders**  
 For optional auxiliary switches, add -A to the end of the actuator part number.  
 Add a -WS at the end of the part # if a weather cover is needed.  
 For Spring Return Units:  
 N = Normally Open  
 C = Normally Closed - Factory default  
 -D = Dual mounted actuators



## 3L Series Butterfly Valves 3-Way with NSR/SR Series with D-Series Commercial Electric Actuators

Nylon Coated Disc

| 3-Way, On/Off or Floating - Nylon Coated Disc |      |     |               |      |     | Non-Spring Return |         |           | Spring Return |            |
|---|------|-----|---------------|------|-----|-------------------|---------|-----------|---------------|------------|
| Actuator Model Details                        |      |     |               |      |     | D24-140           | D24-210 | D24-210-D | DS24-180      | DS24-180-D |
| Valve Model Details                           | Size |     | Close-Off psi | Cv   |     | On/Off & Floating |         |           | On/Off        |            |
|   | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |         |           | 24 VAC/DC     |            |
| 3LNE-02S3X                                    | 2    | 50  | 175           | 87   | 66  | 2058              | -       | -         | 2419          | -          |
| 3LNE-25S3X                                    | 2.5  | 65  | 175           | 185  | 98  | -                 | 2454    | -         | 2675          | -          |
| 3LNE-03S3X                                    | 3    | 80  | 175           | 360  | 171 | -                 | 2599    | -         | -             | 3349       |
| 3LNE-04L3X                                    | 4    | 100 | 50            | 740  | 310 | -                 | 3693    | -         | -             | 4443       |
| 3LNE-04S3X                                    | 4    | 100 | 175           | 740  | 310 | -                 | -       | 4053      | -             | 4443       |
| 3LNE-05L3X                                    | 5    | 125 | 50            | 1218 | 470 | -                 | -       | 4695      | -             | 5385       |
| 3LNE-06L3X                                    | 6    | 150 | 50            | 1900 | 757 | -                 | -       | 5287      | -             | -          |
| Adder -A                                      |      |     |               |      |     | 121               | 121     | 121       | 122           | 120        |
| Adder -WS                                     |      |     |               |      |     | 375               | 375     | 471       | 377           | 471        |

Stainless Steel Disc

| 3-Way, Modulating - Nylon Coated Disc |      |     |               |      |     | Non-Spring Return |          |            | Spring Return |             |
|---------------------------------------|------|-----|---------------|------|-----|-------------------|----------|------------|---------------|-------------|
| Actuator Model Details                |      |     |               |      |     | DM24-140          | DM24-210 | DM24-210-D | DMS24-180     | DMS24-180-D |
| Valve Model Details                   | Size |     | Close-Off psi | Cv   |     | Modulating        |          |            |               |             |
|                                       | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |          |            | 24 VAC/DC     |             |
| 3LNE-02S3X                            | 2    | 50  | 175           | 87   | 66  | 2259              | -        | -          | 2670          | -           |
| 3LNE-25S3X                            | 2.5  | 65  | 175           | 185  | 98  | -                 | 2595     | -          | 2926          | -           |
| 3LNE-03S3X                            | 3    | 80  | 175           | 360  | 171 | -                 | 2599     | -          | -             | 3785        |
| 3LNE-04L3X                            | 4    | 100 | 50            | 740  | 310 | -                 | 3834     | -          | -             | 4879        |
| 3LNE-04S3X                            | 4    | 100 | 175           | 740  | 310 | -                 | -        | 4493       | -             | 4879        |
| 3LNE-05L3X                            | 5    | 125 | 50            | 1218 | 470 | -                 | -        | 5109       | -             | 5821        |
| 3LNE-06L3X                            | 6    | 150 | 50            | 1900 | 757 | -                 | -        | 5700       | -             | -           |
| Adder -A                              |      |     |               |      |     | 121               | 121      | 122        | 121           | 121         |
| Adder -WS                             |      |     |               |      |     | 375               | 375      | 471        | 377           | 471         |

| 3-Way, On/Off or Floating - Stainless Steel Disc |      |     |               |      |     | Non-Spring Return |           | Spring Return |            |
|--|------|-----|---------------|------|-----|-------------------|-----------|---------------|------------|
| Actuator Model Details                           |      |     |               |      |     | D24-210           | D24-210-D | DS24-180      | DS24-180-D |
| Valve Model Details                              | Size |     | Close-Off psi | Cv   |     | On/Off & Floating |           | On/Off        |            |
|  | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |           | 24 VAC/DC     |            |
| 3LSE-02S3X                                       | 2    | 50  | 175           | 87   | 66  | 2212              | -         | 2433          | -          |
| 3LSE-25S3X                                       | 2.5  | 65  | 175           | 185  | 98  | 2468              | -         | 2689          | -          |
| 3LSE-03S3X                                       | 3    | 80  | 175           | 360  | 171 | -                 | 2971      | -             | 3361       |
| 3LSE-04L3X                                       | 4    | 100 | 50            | 740  | 310 | 3739              | -         | -             | 4489       |
| 3LSE-04S3X                                       | 4    | 100 | 175           | 740  | 310 | -                 | 4099      | -             | -          |
| 3LSE-05L3X                                       | 5    | 125 | 50            | 1218 | 470 | -                 | 5143      | -             | 5533       |
| Adder -A   |      |     |               |      |     | 121               | 121       | 122           | 120        |
| Adder -WS  |      |     |               |      |     | 375               | 471       | 377           | 471        |

| 3-Way, Modulating - Stainless Steel Disc |      |     |               |      |     | Non-Spring Return |            | Spring Return |             |  |
|--|------|-----|---------------|------|-----|-------------------|------------|---------------|-------------|--|
| Actuator Model Details                   |      |     |               |      |     | DM24-210          | DM24-210-D | DMS24-180     | DMS24-180-D |  |
| Valve Model Details                      | Size |     | Close-Off psi | Cv   |     | Modulating        |            |               |             |  |
|  | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |            |               | 24 VAC/DC   |  |
| 3LSE-02S3X                               | 2    | 50  | 175           | 87   | 66  | 2353              | -          | 2684          | -           |  |
| 3LSE-25S3X                               | 2.5  | 65  | 175           | 185  | 98  | 2609              | -          | 2940          | -           |  |
| 3LSE-03S3X                               | 3    | 80  | 175           | 360  | 171 | -                 | 2971       | -             | 3797        |  |
| 3LSE-04L3X                               | 4    | 100 | 50            | 740  | 310 | 3880              | -          | -             | 4925        |  |
| 3LSE-04S3X                               | 4    | 100 | 175           | 740  | 310 | -                 | 4539       | -             | -           |  |
| 3LSE-05L3X                               | 5    | 125 | 50            | 1218 | 470 | -                 | 5583       | -             | 5969        |  |
| Adder -A                                 |      |     |               |      |     | 121               | 122        | 121           | 121         |  |
| Adder -WS                                |      |     |               |      |     | 375               | 471        | 377           | 471         |  |

**Options/Adders**  
 For optional auxiliary switches, add -A to the end of the actuator part number.  
 X = 3-Way Assemblies (Refer to Configuration Chart, Page 63)  
 Add a -WS at the end of the part # if a weather cover is needed.  
 -D = Dual mounted actuators



## 3L Series Butterfly Valves 2-Way with Industrial Electric On/Off Actuators

Nylon Coated Disc

| 2-Way, 24 VAC and 120 VAC, On/Off - Nylon Coated Disc |      |     |               |       |                       |          |           |             |       |                             |
|---|------|-----|---------------|-------|-----------------------|----------|-----------|-------------|-------|-----------------------------|
| Actuator Model Details                                |      |     |               |       | Series 70 & AU Series |          | Series 70 |             |       |                             |
| Valve Model Details                                   | Size |     | Close-Off psi | Cv    |                       | On/Off   | Price     | On/Off      | Price | -BBU Adder (24V Units Only) |
|   | In.  | mm  |               | 90°   | 60°                   | 120 VAC  |           | 24 VAC      |       |                             |
| 3LNE-02S2C  | 2    | 50  | 175           | 87    | 66                    | 70-0081H | 1969      | 70-24-0081H | 2060  | 1954                        |
| 3LNE-25S2C  | 2.5  | 65  | 175           | 185   | 98                    | 70-0081H | 1993      | 70-24-0081H | 2357  | 2208                        |
| 3LNE-03S2C  | 3    | 80  | 175           | 360   | 171                   | 70-0081H | 2033      | 70-24-0081H | 2416  | 2252                        |
| 3LNE-04L2C  | 4    | 100 | 50            | 740   | 310                   | 70-0081H | 2666      | 70-24-0081H | 2667  | 2284                        |
| 3LNE-04S2C  | 4    | 100 | 175           | 740   | 310                   | 70-0081H | 2666      | 70-24-0081H | 2667  | 2284                        |
| 3LNE-05L2C  | 5    | 125 | 50            | 1218  | 470                   | 70-0081H | 2900      | 70-24-0081H | 2900  | 2170                        |
| 3LNE-05S2C  | 5    | 125 | 175           | 1218  | 470                   | 70-0081H | 2900      | 70-24-0081H | 2900  | 2170                        |
| 3LNE-06L2C  | 6    | 150 | 50            | 1900  | 757                   | 70-0081H | 3489      | 70-24-0081H | 3489  | 2462                        |
| 3LNE-06S2C  | 6    | 150 | 175           | 1900  | 757                   | 70-0081H | 3489      | 70-24-0081H | 3489  | 2462                        |
| 3LNE-08L2C  | 8    | 200 | 50            | 3765  | 1247                  | 70-0121H | 5289      | 70-24-0201H | 5163  | 2453                        |
| 3LNE-08S2C  | 8    | 200 | 175           | 3765  | 1247                  | 70-0121H | 5289      | 70-24-0201H | 5163  | 2453                        |
| 3LNE-10L2C  | 10   | 250 | 50            | 6661  | 2005                  | 70-0121H | 5696      | 70-24-0201H | 5996  | 2788                        |
| 3LNE-10S2C  | 10   | 250 | 175           | 6661  | 2005                  | 70-0201H | 6245      | 70-24-0201H | 5996  | 2788                        |
| 3LNE-12L2C  | 12   | 300 | 50            | 10066 | 2868                  | 70-0201H | 7057      | 70-24-0201H | 6808  | 2788                        |
| 3LNE-12S2C  | 12   | 300 | 175           | 10066 | 2868                  | 70-E301H | 8374      | 70-24-0501H | 9976  | 2790                        |
| 3LNE-14L2C  | 14   | 350 | 50            | 11598 | 3328                  | 70-0501H | 10272     | 70-24-0501H | 10273 | 2790                        |
| 3LNE-14S2C  | 14   | 350 | 150           | 11598 | 3328                  | 70-0501H | 10272     | 70-24-0501H | 10273 | 2790                        |
| 3LNE-16L2C  | 16   | 400 | 50            | 15395 | 4440                  | 70-0501H | 13154     | 70-24-0501H | 13155 | 2790                        |
| 3LNE-16S2C  | 16   | 400 | 150           | 15395 | 4440                  | 70-0651H | 13540     | -           | -     | -                           |
| 3LNE-18L2C  | 18   | 450 | 50            | 20120 | 5509                  | 70-0651H | 17162     | -           | -     | -                           |
| 3LNE-18S2C  | 18   | 450 | 150           | 20120 | 5509                  | 70-1300H | 18472     | -           | -     | -                           |
| 3LNE-20L2C  | 20   | 500 | 50            | 25329 | 7056                  | 70-1300H | 20976     | -           | -     | -                           |
| 3LNE-20S2C  | 20   | 500 | 150           | 25329 | 7056                  | 70-1800H | 21998     | -           | -     | -                           |
| 3LNE-24L2C  | 24   | 600 | 50            | 39396 | 10267                 | 70-1800H | 28357     | -           | -     | -                           |
| 3LNE-24S2C  | 24   | 600 | 150           | 39396 | 10267                 | AU-4068* | 48783     | -           | -     | -                           |
| NYF2-C301   | 30   | 750 | 75            | 52443 | 18090                 | AU-4068* | 56013     | -           | -     | -                           |
| NYF2-C300   | 30   | 750 | 150           | 52443 | 18090                 | AU-7080* | 62389     | -           | -     | -                           |

Stainless Steel Disc

| 2-Way, 24 VAC and 120 VAC, On/Off - Stainless Steel Disc |      |     |               |       |                       |          |           |             |       |                             |
|--|------|-----|---------------|-------|-----------------------|----------|-----------|-------------|-------|-----------------------------|
| Actuator Model Details                                   |      |     |               |       | Series 70 & AU Series |          | Series 70 |             |       |                             |
| Valve Model Details                                      | Size |     | Close-Off psi | Cv    |                       | On/Off   | Price     | On/Off      | Price | -BBU Adder (24V Units Only) |
|  | In.  | mm  |               | 90°   | 60°                   | 120 VAC  |           | 24 VAC      |       |                             |
| 3LSE-02S2C   | 2    | 50  | 175           | 87    | 66                    | 70-0081H | 1974      | 70-24-0081H | 2065  | 1954                        |
| 3LSE-25S2C   | 2.5  | 65  | 175           | 185   | 98                    | 70-0081H | 1997      | 70-24-0081H | 2362  | 2208                        |
| 3LSE-03S2C   | 3    | 80  | 175           | 360   | 171                   | 70-0081H | 2037      | 70-24-0081H | 2421  | 2252                        |
| 3LSE-04L2C   | 4    | 100 | 50            | 740   | 310                   | 70-0081H | 2684      | 70-24-0081H | 2686  | 2284                        |
| 3LSE-04S2C   | 4    | 100 | 175           | 740   | 310                   | 70-0081H | 2684      | 70-24-0081H | 2686  | 2284                        |
| 3LSE-05L2C   | 5    | 125 | 50            | 1218  | 470                   | 70-0081H | 2957      | 70-24-0081H | 2959  | 2171                        |
| 3LSE-05S2C   | 5    | 125 | 175           | 1218  | 470                   | 70-0081H | 2957      | 70-24-0081H | 2959  | 2171                        |
| 3LSE-06L2C   | 6    | 150 | 50            | 1900  | 757                   | 70-0081H | 3553      | 70-24-0081H | 3554  | 2463                        |
| 3LSE-06S2C   | 6    | 150 | 175           | 1900  | 757                   | 70-0081H | 3553      | 70-24-0081H | 3554  | 2463                        |
| 3LSE-08L2C   | 8    | 200 | 50            | 3765  | 1247                  | 70-0121H | 5133      | 70-24-0201H | 5406  | 2537                        |
| 3LSE-08S2C   | 8    | 200 | 175           | 3765  | 1247                  | 70-0201H | 5633      | 70-24-0201H | 5406  | 2537                        |
| 3LSE-10L2C   | 10   | 250 | 50            | 6661  | 2005                  | 70-0121H | 5807      | 70-24-0201H | 6107  | 2788                        |
| 3LSE-10S2C   | 10   | 250 | 175           | 6661  | 2005                  | 70-0201H | 6356      | 70-24-0201H | 6107  | 2788                        |
| 3LSE-12L2C   | 12   | 300 | 50            | 10066 | 2868                  | 70-0201H | 7797      | 70-24-0201H | 7548  | 2788                        |
| 3LSE-12S2C   | 12   | 300 | 175           | 10066 | 2868                  | 70-E301H | 9114      | 70-24-0501H | 10716 | 2790                        |
| 3LSE-14S2C   | 14   | 350 | 150           | 11598 | 3328                  | 70-0501H | 11602     | 70-24-0501H | 11603 | 2790                        |
| 3LSE-16S2C   | 16   | 400 | 150           | 15395 | 4440                  | 70-1300H | 16550     | -           | -     | -                           |
| 3LSE-18S2C   | 18   | 450 | 150           | 20120 | 5509                  | 70-1300H | 21432     | -           | -     | -                           |
| 3LSE-20S2C   | 20   | 500 | 150           | 25329 | 7056                  | 70-1800H | 26140     | -           | -     | -                           |
| 3LSE-24S2C   | 24   | 600 | 150           | 39396 | 10267                 | AU-4068* | 51740     | -           | -     | -                           |

**Options/Adders**

\*Heaters standard in AU-Series  
For Battery Back-Up Failsafe Option (BBU) on 24 VAC actuators, add "-BBU".

For Battery Back-Up Failsafe units:  
N = Normally Open  
C = Normally Closed - Factory default



## 3L Series Butterfly Valves 2-Way with Industrial Electric Modulating Actuators

Nylon Coated Disc

| 2-Way, 24 VAC and 120 VAC, Modulating - Nylon Coated Disc |                        |     |               |                       |       |            |       |               |       |                             |
|---|------------------------|-----|---------------|-----------------------|-------|------------|-------|---------------|-------|-----------------------------|
| Valve Model Details                                       | Actuator Model Details |     |               | Series 70 & AU Series |       |            |       | Series 70     |       | -BBU Adder (24V Units Only) |
|   | Size                   |     | Close-Off psi | Cv                    |       | Modulating | Price | Modulating    | Price |                             |
|   | In.                    | mm  |               | 90°                   | 60°   | 120 VAC    |       | 24 VAC        |       |                             |
| 3LNE-02S2C  | 2                      | 50  | 175           | 87                    | 66    | 70-0081SVH | 2340  | 70-24-0081SVH | 2511  | 1670                        |
| 3LNE-25S2C  | 2.5                    | 65  | 175           | 185                   | 98    | 70-0081SVH | 2637  | 70-24-0081SVH | 2792  | 1843                        |
| 3LNE-03S2C  | 3                      | 80  | 175           | 360                   | 171   | 70-0081SVH | 2673  | 70-24-0081SVH | 2859  | 1881                        |
| 3LNE-04L2C  | 4                      | 100 | 50            | 740                   | 310   | 70-0081SVH | 2877  | 70-24-0081SVH | 2893  | 1799                        |
| 3LNE-04S2C  | 4                      | 100 | 175           | 740                   | 310   | 70-0081SVH | 2877  | 70-24-0081SVH | 2893  | 1799                        |
| 3LNE-05L2C  | 5                      | 125 | 50            | 1218                  | 470   | 70-0081SVH | 3002  | 70-24-0081SVH | 3035  | 1720                        |
| 3LNE-05S2C  | 5                      | 125 | 175           | 1218                  | 470   | 70-0081SVH | 3002  | 70-24-0081SVH | 3035  | 1720                        |
| 3LNE-06L2C  | 6                      | 150 | 50            | 1900                  | 757   | 70-0081SVH | 4854  | 70-24-0081SVH | 4897  | 2664                        |
| 3LNE-06S2C  | 6                      | 150 | 175           | 1900                  | 757   | 70-0081SVH | 4854  | 70-24-0081SVH | 4897  | 2664                        |
| 3LNE-08L2C  | 8                      | 200 | 50            | 3765                  | 1247  | 70-0121SVH | 6709  | 70-24-0201SVH | 6704  | 2510                        |
| 3LNE-08S2C  | 8                      | 200 | 175           | 3765                  | 1247  | 70-0121SVH | 6709  | 70-24-0201SVH | 6704  | 2510                        |
| 3LNE-10L2C  | 10                     | 250 | 50            | 6661                  | 2005  | 70-0121SVH | 7191  | 70-24-0201SVH | 7578  | 2789                        |
| 3LNE-10S2C  | 10                     | 250 | 175           | 6661                  | 2005  | 70-0201SVH | 7741  | 70-24-0201SVH | 7578  | 2789                        |
| 3LNE-12L2C  | 12                     | 300 | 50            | 10066                 | 2868  | 70-0201SVH | 8553  | 70-24-0201SVH | 8390  | 2789                        |
| 3LNE-12S2C  | 12                     | 300 | 175           | 10066                 | 2868  | 70-E301SVH | 10037 | 70-24-0501SVH | 11561 | 2789                        |
| 3LNE-14L2C  | 14                     | 350 | 50            | 11598                 | 3328  | 70-0501SVH | 11708 | 70-24-0501SVH | 11858 | 2789                        |
| 3LNE-14S2C  | 14                     | 350 | 150           | 11598                 | 3328  | 70-0501SVH | 11708 | 70-24-0501SVH | 11858 | 2789                        |
| 3LNE-16L2C  | 16                     | 400 | 50            | 15395                 | 4440  | 70-0501SVH | 14590 | 70-24-0501SVH | 14740 | 2789                        |
| 3LNE-16S2C  | 16                     | 400 | 150           | 15395                 | 4440  | 70-0651SVH | 14973 | -             | -     | -                           |
| 3LNE-18L2C  | 18                     | 450 | 50            | 20120                 | 5509  | 70-0651SVH | 18595 | -             | -     | -                           |
| 3LNE-18S2C  | 18                     | 450 | 150           | 20120                 | 5509  | 70-1300SVH | 19983 | -             | -     | -                           |
| 3LNE-20L2C  | 20                     | 500 | 50            | 25329                 | 7056  | 70-1300SVH | 22487 | -             | -     | -                           |
| 3LNE-20S2C  | 20                     | 500 | 150           | 25329                 | 7056  | 70-1800SVH | 23249 | -             | -     | -                           |
| 3LNE-24L2C  | 24                     | 600 | 50            | 39396                 | 10267 | 70-1800SVH | 29608 | -             | -     | -                           |
| 3LNE-24S2C  | 24                     | 600 | 150           | 39396                 | 10267 | AU-4068SV* | 50605 | -             | -     | -                           |
| NYF2-C301   | 30                     | 750 | 75            | 52443                 | 18090 | AU-4068SV* | 57835 | -             | -     | -                           |
| NYF2-C300   | 30                     | 750 | 150           | 52443                 | 18090 | AU-7080SV* | 64209 | -             | -     | -                           |

Stainless Steel Disc

| 2-Way, 24 VAC and 120 VAC, Modulating - Stainless Steel Disc |                        |     |               |                       |       |            |       |               |       |                             |
|--|------------------------|-----|---------------|-----------------------|-------|------------|-------|---------------|-------|-----------------------------|
| Valve Model Details  | Actuator Model Details |     |               | Series 70 & AU Series |       |            |       | Series 70     |       | -BBU Adder (24V Units Only) |
|  | Size                   |     | Close-Off psi | Cv                    |       | Modulating | Price | Modulating    | Price |                             |
|  | In.                    | mm  |               | 90°                   | 60°   | 120 VAC    |       | 24 VAC        |       |                             |
| 3LSE-02S2C   | 2                      | 50  | 175           | 87                    | 66    | 70-0081SVH | 2344  | 70-24-0081SVH | 2515  | 1670                        |
| 3LSE-25S2C   | 2.5                    | 65  | 175           | 185                   | 98    | 70-0081SVH | 2641  | 70-24-0081SVH | 2796  | 1843                        |
| 3LSE-03S2C   | 3                      | 80  | 175           | 360                   | 171   | 70-0081SVH | 2677  | 70-24-0081SVH | 2863  | 1881                        |
| 3LSE-04L2C   | 4                      | 100 | 50            | 740                   | 310   | 70-0081SVH | 2891  | 70-24-0081SVH | 2907  | 1799                        |
| 3LSE-04S2C   | 4                      | 100 | 175           | 740                   | 310   | 70-0081SVH | 2891  | 70-24-0081SVH | 2907  | 1799                        |
| 3LSE-05L2C   | 5                      | 125 | 50            | 1218                  | 470   | 70-0081SVH | 3045  | 70-24-0081SVH | 3078  | 1721                        |
| 3LSE-05S2C   | 5                      | 125 | 175           | 1218                  | 470   | 70-0081SVH | 3045  | 70-24-0081SVH | 3078  | 1721                        |
| 3LSE-06L2C   | 6                      | 150 | 50            | 1900                  | 757   | 70-0081SVH | 4919  | 70-24-0081SVH | 4963  | 2664                        |
| 3LSE-06S2C   | 6                      | 150 | 175           | 1900                  | 757   | 70-0081SVH | 4919  | 70-24-0081SVH | 4963  | 2664                        |
| 3LSE-08L2C   | 8                      | 200 | 50            | 3765                  | 1247  | 70-0121SVH | 6494  | 70-24-0201SVH | 6846  | 2538                        |
| 3LSE-08S2C   | 8                      | 200 | 175           | 3765                  | 1247  | 70-0201SVH | 6994  | 70-24-0201SVH | 6846  | 2538                        |
| 3LSE-10L2C   | 10                     | 250 | 50            | 6661                  | 2005  | 70-0121SVH | 7302  | 70-24-0201SVH | 7689  | 2789                        |
| 3LSE-10S2C   | 10                     | 250 | 175           | 6661                  | 2005  | 70-0201SVH | 7852  | 70-24-0201SVH | 7689  | 2789                        |
| 3LSE-12L2C   | 12                     | 300 | 50            | 10066                 | 2868  | 70-0201SVH | 9293  | 70-24-0201SVH | 9130  | 2789                        |
| 3LSE-12S2C   | 12                     | 300 | 175           | 10066                 | 2868  | 70-E301SVH | 10777 | 70-24-0501SVH | 12301 | 2789                        |
| 3LSE-14S2C   | 14                     | 350 | 150           | 11598                 | 3328  | 70-0501SVH | 13038 | 70-24-0501SVH | 13188 | 2789                        |
| 3LSE-16S2C   | 16                     | 400 | 150           | 15395                 | 4440  | 70-1300SVH | 18061 | -             | -     | -                           |
| 3LSE-18S2C   | 18                     | 450 | 150           | 20120                 | 5509  | 70-1300SVH | 22943 | -             | -     | -                           |
| 3LSE-20S2C   | 20                     | 500 | 150           | 25329                 | 7056  | 70-1800SVH | 27391 | -             | -     | -                           |
| 3LSE-24S2C   | 24                     | 600 | 150           | 39396                 | 10267 | AU-4068SV* | 53562 | -             | -     | -                           |

**Options/Adders**  
 \*Heaters standard in AU-Series  
 Upon Loss of Signal on Servo units:  
 N = Normally Open (reverse acting) C = Normally Closed - Factory default  
 For Battery Back-Up Failsafe Option (BBU) on 24 VAC actuators, add "-BBU" For Battery Back-UP Failsafe units:  
 N = Normally Open  
 C = Normally Closed - Factory default



## 3L Series Butterfly Valves 3-Way with Industrial Electric On/Off Actuators

Nylon Coated Disc

| 3-Way, 24 VAC and 120 VAC, On/Off - Nylon Coated Disc |      |     |               |       |                       |          |           |             |                             |       |
|---|------|-----|---------------|-------|-----------------------|----------|-----------|-------------|-----------------------------|-------|
| Actuator Model Details                                |      |     |               |       | Series 70 & AU Series |          | Series 70 |             | -BBU Adder (24V Units Only) |       |
| Valve Model Details                                   | Size |     | Close-Off psi | Cv    |                       | On/Off   | Price     | On/Off      |                             | Price |
|   | In.  | mm  |               | 90°   | 60°                   | 120 VAC  |           | 24 VAC      |                             |       |
| 3LNE-02S3x  | 2    | 50  | 175           | 87    | 66                    | 70-0081H | 2928      | 70-24-0081H | 2844                        | 1732  |
| 3LNE-25S3x  | 2.5  | 65  | 175           | 185   | 98                    | 70-0081H | 3140      | 70-24-0081H | 3055                        | 1759  |
| 3LNE-03S3x  | 3    | 80  | 175           | 360   | 171                   | 70-0081H | 4976      | 70-24-0081H | 4845                        | 2706  |
| 3LNE-04L3x  | 4    | 100 | 50            | 740   | 310                   | 70-0081H | 6070      | 70-24-0081H | 5939                        | 2706  |
| 3LNE-04S3x  | 4    | 100 | 175           | 740   | 310                   | 70-0081H | 6070      | 70-24-0081H | 5939                        | 2706  |
| 3LNE-05L3x  | 5    | 125 | 50            | 1218  | 470                   | 70-0081H | 7012      | 70-24-0081H | 6881                        | 2706  |
| 3LNE-05S3x  | 5    | 125 | 175           | 1218  | 470                   | 70-0081H | 7012      | 70-24-0081H | 6881                        | 2706  |
| 3LNE-06L3x  | 6    | 150 | 50            | 1900  | 757                   | 70-0081H | 7641      | 70-24-0081H | 7510                        | 2706  |
| 3LNE-06S3x  | 6    | 150 | 175           | 1900  | 757                   | 70-0081H | 7641      | 70-24-0081H | 7510                        | 2706  |
| 3LNE-08L3x  | 8    | 200 | 50            | 3765  | 1247                  | 70-0121H | 8886      | 70-24-0201H | 9171                        | 2649  |
| 3LNE-08S3x  | 8    | 200 | 175           | 3765  | 1247                  | 70-0201H | 9408      | 70-24-0201H | 9171                        | 2649  |
| 3LNE-10L3x  | 10   | 250 | 50            | 6661  | 2005                  | 70-0201H | 10325     | 70-24-0201H | 10076                       | 2788  |
| 3LNE-10S3x  | 10   | 250 | 175           | 6661  | 2005                  | 70-E301H | 11642     | 70-24-0501H | 13192                       | 2790  |
| 3LNE-12L3x  | 12   | 300 | 50            | 10066 | 2868                  | 70-0201H | 12545     | 70-24-0201H | 12296                       | 2788  |
| 3LNE-12S3x  | 12   | 300 | 175           | 10066 | 2868                  | 70-0501H | 15411     | 70-24-0501H | 15412                       | 2790  |
| 3LNE-14L3x  | 14   | 350 | 50            | 11598 | 3328                  | 70-0501H | 25999     | 70-24-0501H | 26000                       | 2790  |
| 3LNE-14S3x  | 14   | 350 | 150           | 11598 | 3328                  | 70-0651H | 26385     | -           | -                           | -     |
| 3LNE-16L3x  | 16   | 400 | 50            | 15395 | 4440                  | 70-0651H | 32896     | -           | -                           | -     |
| 3LNE-16S3x  | 16   | 400 | 150           | 15395 | 4440                  | 70-1300H | 34195     | -           | -                           | -     |
| 3LNE-18L3x  | 18   | 450 | 50            | 20120 | 5509                  | 70-1300H | 45167     | -           | -                           | -     |
| 3LNE-18S3x  | 18   | 450 | 150           | 20120 | 5509                  | 70-1800H | 46189     | -           | -                           | -     |
| 3LNE-20L3x  | 20   | 500 | 50            | 25329 | 7056                  | 70-1800H | 53457     | -           | -                           | -     |
| 3LNE-20S3x  | 20   | 500 | 150           | 25329 | 7056                  | AU-4068* | 70341     | -           | -                           | -     |

Stainless Steel Disc

| 3-Way, 24 VAC and 120 VAC, On/Off - Stainless Steel Disc |      |     |               |       |                       |          |           |             |                             |       |
|--|------|-----|---------------|-------|-----------------------|----------|-----------|-------------|-----------------------------|-------|
| Actuator Model Details                                   |      |     |               |       | Series 70 & AU Series |          | Series 70 |             | -BBU Adder (24V Units Only) |       |
| Valve Model Details                                      | Size |     | Close-Off psi | Cv    |                       | On/Off   | Price     | On/Off      |                             | Price |
|  | In.  | mm  |               | 90°   | 60°                   | 120 VAC  |           | 24 VAC      |                             |       |
| 3LSE-02S3x   | 2    | 50  | 175           | 87    | 66                    | 70-0081H | 2937      | 70-24-0081H | 2853                        | 1732  |
| 3LSE-25S3x   | 2.5  | 65  | 175           | 185   | 98                    | 70-0081H | 3149      | 70-24-0081H | 3064                        | 1759  |
| 3LSE-03S3x   | 3    | 80  | 175           | 360   | 171                   | 70-0081H | 4988      | 70-24-0081H | 4857                        | 2706  |
| 3LSE-04L3x   | 4    | 100 | 50            | 740   | 310                   | 70-0081H | 6116      | 70-24-0081H | 5985                        | 2706  |
| 3LSE-04S3x   | 4    | 100 | 175           | 740   | 310                   | 70-0081H | 6116      | 70-24-0081H | 5985                        | 2706  |
| 3LSE-05L3x   | 5    | 125 | 50            | 1218  | 470                   | 70-0081H | 7160      | 70-24-0081H | 7029                        | 2706  |
| 3LSE-05S3x   | 5    | 125 | 175           | 1218  | 470                   | 70-0081H | 7160      | 70-24-0081H | 7029                        | 2706  |
| 3LSE-06L3x   | 6    | 150 | 50            | 1900  | 757                   | 70-0081H | 7785      | 70-24-0081H | 7654                        | 2706  |
| 3LSE-06S3x   | 6    | 150 | 175           | 1900  | 757                   | 70-0081H | 7785      | 70-24-0081H | 7654                        | 2706  |
| 3LSE-08L3x   | 8    | 200 | 50            | 3765  | 1247                  | 70-0121H | 9027      | 70-24-0201H | 9312                        | 2649  |
| 3LSE-08S3x   | 8    | 200 | 175           | 3765  | 1247                  | 70-0201H | 9548      | 70-24-0201H | 9312                        | 2649  |
| 3LSE-10L3x   | 10   | 250 | 50            | 6661  | 2005                  | 70-0201H | 10547     | 70-24-0201H | 10298                       | 2788  |
| 3LSE-10S3x   | 10   | 250 | 175           | 6661  | 2005                  | 70-E301H | 11864     | 70-24-0501H | 13414                       | 2790  |
| 3LSE-12L3x   | 12   | 300 | 50            | 10066 | 2868                  | 70-E301H | 15342     | 70-24-0501H | 16892                       | 2790  |
| 3LSE-12S3x   | 12   | 300 | 175           | 10066 | 2868                  | 70-0501H | 16891     | 70-24-0501H | 16892                       | 2790  |
| 3LSE-14S3x   | 14   | 350 | 150           | 11598 | 3328                  | 70-0651H | 29045     | -           | -                           | -     |
| 3LSE-16S3x   | 16   | 400 | 150           | 15395 | 4440                  | 70-1300H | 37595     | -           | -                           | -     |
| 3LSE-18S3x   | 18   | 450 | 150           | 20120 | 5509                  | 70-1800H | 52109     | -           | -                           | -     |
| 3LSE-20S3x   | 20   | 500 | 150           | 25329 | 7056                  | AU-4068* | 78625     | -           | -                           | -     |

**Options/Adders**

\*Heaters standard in AU-Series

X = 3-Way Assemblies (Refer to Configuration Chart, Page 63)

For Battery Back-Up Failsafe Option (BBU) on 24 VAC actuators, add "-BBU"



## 3L Series Butterfly Valves 3-Way with Industrial Electric Modulating Actuators

Nylon Coated Disc

| 3-Way, 24 VAC and 120 VAC, Modulating - Nylon Coated Disc |                        |     |               |                       |      |            |       |               |       |                             |
|---|------------------------|-----|---------------|-----------------------|------|------------|-------|---------------|-------|-----------------------------|
| Valve Model Details                                       | Actuator Model Details |     |               | Series 70 & AU Series |      |            |       | Series 70     |       | -BBU Adder (24V Units Only) |
|   | Size                   |     | Close-Off psi | Cv                    |      | Modulating | Price | Modulating    | Price |                             |
|   | In.                    | mm  |               | 90°                   | 60°  | 120 VAC    |       | 24 VAC        |       |                             |
| 3LNE-02S3x  | 2                      | 50  | 175           | 87                    | 66   | 70-0081SVH | 3866  | 70-24-0081SVH | 3827  | 1870                        |
| 3LNE-25S3x  | 2.5                    | 65  | 175           | 185                   | 98   | 70-0081SVH | 4092  | 70-24-0081SVH | 4053  | 1899                        |
| 3LNE-03S3x  | 3                      | 80  | 175           | 360                   | 171  | 70-0081SVH | 6441  | 70-24-0081SVH | 6381  | 2921                        |
| 3LNE-04L3x  | 4                      | 100 | 50            | 740                   | 310  | 70-0081SVH | 7535  | 70-24-0081SVH | 7475  | 2921                        |
| 3LNE-04S3x  | 4                      | 100 | 175           | 740                   | 310  | 70-0081SVH | 7535  | 70-24-0081SVH | 7475  | 2921                        |
| 3LNE-05L3x  | 5                      | 125 | 50            | 1218                  | 470  | 70-0081SVH | 8477  | 70-24-0081SVH | 8417  | 2921                        |
| 3LNE-05S3x  | 5                      | 125 | 175           | 1218                  | 470  | 70-0081SVH | 8477  | 70-24-0081SVH | 8417  | 2921                        |
| 3LNE-06L3x  | 6                      | 150 | 50            | 1900                  | 757  | 70-0081SVH | 9106  | 70-24-0081SVH | 9046  | 2921                        |
| 3LNE-06S3x  | 6                      | 150 | 175           | 1900                  | 757  | 70-0081SVH | 9106  | 70-24-0081SVH | 9046  | 2921                        |
| 3LNE-08L3x  | 8                      | 200 | 50            | 3765                  | 1247 | 70-0121SVH | 10307 | 70-24-0201SVH | 10674 | 2650                        |
| 3LNE-08S3x  | 8                      | 200 | 175           | 3765                  | 1247 | 70-0201SVH | 10829 | 70-24-0201SVH | 10674 | 2650                        |
| 3LNE-10L3x  | 10                     | 250 | 50            | 6661                  | 2005 | 70-0201SVH | 11821 | 70-24-0201SVH | 11658 | 2789                        |
| 3LNE-10S3x  | 10                     | 250 | 175           | 6661                  | 2005 | 70-E301SVH | 13305 | 70-24-0501SVH | 14777 | 2789                        |
| 3LNE-12L3x  | 12                     | 300 | 50            | 10066                 | 2868 | 70-0201SVH | 14041 | 70-24-0201SVH | 13878 | 2789                        |
| 3LNE-12S3x  | 12                     | 300 | 175           | 10066                 | 2868 | 70-0501SVH | 16847 | 70-24-0501SVH | 16997 | 2789                        |
| 3LNE-14L3x  | 14                     | 350 | 50            | 11598                 | 3328 | 70-0501SVH | 27435 | 70-24-0501SVH | 27585 | 2789                        |
| 3LNE-14S3x  | 14                     | 350 | 150           | 11598                 | 3328 | 70-0651SVH | 27818 | -             | -     | -                           |
| 3LNE-16L3x  | 16                     | 400 | 50            | 15395                 | 4440 | 70-0651SVH | 34329 | -             | -     | -                           |
| 3LNE-16S3x  | 16                     | 400 | 150           | 15395                 | 4440 | 70-1300SVH | 35706 | -             | -     | -                           |
| 3LNE-18L3x  | 18                     | 450 | 50            | 20120                 | 5509 | 70-1300SVH | 46678 | -             | -     | -                           |
| 3LNE-18S3x  | 18                     | 450 | 150           | 20120                 | 5509 | 70-1800SVH | 47440 | -             | -     | -                           |
| 3LNE-20L3x  | 20                     | 500 | 50            | 25329                 | 7056 | 70-1800SVH | 54708 | -             | -     | -                           |
| 3LNE-20S3x  | 20                     | 500 | 150           | 25329                 | 7056 | AU-4068SV* | 72163 | -             | -     | -                           |

Stainless Steel Disc

| 3-Way, 24 VAC and 120 VAC, Modulating - Stainless Steel Disc |                        |     |               |       |      |            |       |               |       |                             |
|--|------------------------|-----|---------------|-------|------|------------|-------|---------------|-------|-----------------------------|
| Valve Model Details  | Actuator Model Details |     |               |       |      |            |       |               |       | -BBU Adder (24V Units Only) |
|  | Size                   |     | Close-Off psi | Cv    |      | Modulating | Price | Modulating    | Price |                             |
|  | In.                    | mm  |               | 90°   | 60°  | 120 VAC    |       | 24 VAC        |       |                             |
| 3LSE-02S3x   | 2                      | 50  | 175           | 87    | 66   | 70-0081SVH | 3875  | 70-24-0081SVH | 3836  | 1870                        |
| 3LSE-25S3x   | 2.5                    | 65  | 175           | 185   | 98   | 70-0081SVH | 4102  | 70-24-0081SVH | 4063  | 1898                        |
| 3LSE-03S3x   | 3                      | 80  | 175           | 360   | 171  | 70-0081SVH | 6453  | 70-24-0081SVH | 6393  | 2921                        |
| 3LSE-04L3x   | 4                      | 100 | 50            | 740   | 310  | 70-0081SVH | 7581  | 70-24-0081SVH | 7521  | 2921                        |
| 3LSE-04S3x   | 4                      | 100 | 175           | 740   | 310  | 70-0081SVH | 7581  | 70-24-0081SVH | 7521  | 2921                        |
| 3LSE-05L3x   | 5                      | 125 | 50            | 1218  | 470  | 70-0081SVH | 8625  | 70-24-0081SVH | 8565  | 2921                        |
| 3LSE-05S3x   | 5                      | 125 | 175           | 1218  | 470  | 70-0081SVH | 8625  | 70-24-0081SVH | 8565  | 2921                        |
| 3LSE-06L3x   | 6                      | 150 | 50            | 1900  | 757  | 70-0081SVH | 9250  | 70-24-0081SVH | 9190  | 2921                        |
| 3LSE-06S3x   | 6                      | 150 | 175           | 1900  | 757  | 70-0081SVH | 9250  | 70-24-0081SVH | 9190  | 2921                        |
| 3LSE-08L3x   | 8                      | 200 | 50            | 3765  | 1247 | 70-0121SVH | 10447 | 70-24-0201SVH | 10815 | 2649                        |
| 3LSE-08S3x   | 8                      | 200 | 175           | 3765  | 1247 | 70-0201SVH | 10970 | 70-24-0201SVH | 10815 | 2649                        |
| 3LSE-10L3x   | 10                     | 250 | 50            | 6661  | 2005 | 70-0201SVH | 12043 | 70-24-0201SVH | 11880 | 2789                        |
| 3LSE-10S3x   | 10                     | 250 | 175           | 6661  | 2005 | 70-E301SVH | 13527 | 70-24-0501SVH | 14999 | 2789                        |
| 3LSE-12L3x   | 12                     | 300 | 50            | 10066 | 2868 | 70-E301SVH | 17005 | 70-24-0501SVH | 18477 | 2789                        |
| 3LSE-12S3x   | 12                     | 300 | 175           | 10066 | 2868 | 70-0501SVH | 18327 | 70-24-0501SVH | 18477 | 2789                        |
| 3LSE-14S3x   | 14                     | 350 | 150           | 11598 | 3328 | 70-0651SVH | 30478 | -             | -     | -                           |
| 3LSE-16S3x   | 16                     | 400 | 150           | 15395 | 4440 | 70-1300SVH | 39106 | -             | -     | -                           |
| 3LSE-18S3x   | 18                     | 450 | 150           | 20120 | 5509 | 70-1800SVH | 53360 | -             | -     | -                           |
| 3LSE-20S3x   | 20                     | 500 | 150           | 25329 | 7056 | AU-4068SV* | 80447 | -             | -     | -                           |

**Options/Adders**

\*Heaters standard in AU-Series

X = 3-Way Assemblies (Refer to Configuration Chart, Page 63)

For Battery Back-Up Failsafe Option (BBU) on 24 VAC actuators, add "-BBU"



## 3L Series Butterfly Valves 2-Way with Series 92 Double Acting Pneumatic Actuators

Nylon Coated Disc

| 2-Way, Double Acting Pneumatic - Nylon Coated Disc |      |     |               |       |       |        |        |        |        |        |        |        |                            |
|--|------|-----|---------------|-------|-------|--------|--------|--------|--------|--------|--------|--------|----------------------------|
| Actuator Model Details                             |      |     |               |       |       | 92-063 | 92-083 | 92-119 | 92-128 | 92-160 | 92-210 | 92-255 | Adder for Manual Override* |
| Valve Model Details                                | Size |     | Close-Off psi | Cv    |       |        |        |        |        |        |        |        |                            |
|  | In.  | mm  |               | 90°   | 60°   |        |        |        |        |        |        |        |                            |
| 3LNE-02S2C   | 2    | 50  | 175           | 87    | 66    | 1185   | -      | -      | -      | -      | -      | -      | 988                        |
| 3LNE-25S2C   | 2.5  | 65  | 175           | 185   | 98    | 1185   | -      | -      | -      | -      | -      | -      | 988                        |
| 3LNE-03S2C   | 3    | 80  | 175           | 360   | 171   | 1260   | -      | -      | -      | -      | -      | -      | 988                        |
| 3LNE-04L2C   | 4    | 100 | 50            | 740   | 310   | -      | 1551   | -      | -      | -      | -      | -      | 988                        |
| 3LNE-04S2C   | 4    | 100 | 175           | 740   | 310   | -      | 1551   | -      | -      | -      | -      | -      | 988                        |
| 3LNE-05L2C   | 5    | 125 | 50            | 1218  | 470   | -      | 1733   | -      | -      | -      | -      | -      | 988                        |
| 3LNE-05S2C   | 5    | 125 | 175           | 1218  | 470   | -      | 1733   | -      | -      | -      | -      | -      | 988                        |
| 3LNE-06L2C   | 6    | 150 | 50            | 1900  | 757   | -      | 1965   | -      | -      | -      | -      | -      | 988                        |
| 3LNE-06S2C   | 6    | 150 | 175           | 1900  | 757   | -      | 1965   | -      | -      | -      | -      | -      | 1460                       |
| 3LNE-08L2C   | 8    | 200 | 50            | 3765  | 1247  | -      | -      | 2963   | -      | -      | -      | -      | 1460                       |
| 3LNE-08S2C   | 8    | 200 | 175           | 3765  | 1247  | -      | -      | 2963   | -      | -      | -      | -      | 1460                       |
| 3LNE-10L2C   | 10   | 250 | 50            | 6661  | 2005  | -      | -      | 3562   | -      | -      | -      | -      | 1460                       |
| 3LNE-10S2C   | 10   | 250 | 175           | 6661  | 2005  | -      | -      | 3562   | -      | -      | -      | -      | 1460                       |
| 3LNE-12L2C   | 12   | 300 | 50            | 10066 | 2868  | -      | -      | 3960   | -      | -      | -      | -      | 1460                       |
| 3LNE-12S2C   | 12   | 300 | 175           | 10066 | 2868  | -      | -      | -      | 5139   | -      | -      | -      | 1460                       |
| 3LNE-14L2C   | 14   | 350 | 50            | 11598 | 3328  | -      | -      | -      | 6150   | -      | -      | -      | 1460                       |
| 3LNE-14S2C   | 14   | 350 | 150           | 11598 | 3328  | -      | -      | -      | -      | 7340   | -      | -      | 2018                       |
| 3LNE-16L2C   | 16   | 400 | 50            | 15395 | 4440  | -      | -      | -      | -      | 9125   | -      | -      | 2018                       |
| 3LNE-16S2C   | 16   | 400 | 150           | 15395 | 4440  | -      | -      | -      | -      | -      | 10612  | -      | 2018                       |
| 3LNE-18L2C   | 18   | 450 | 50            | 20120 | 5509  | -      | -      | -      | -      | -      | 12732  | -      | 2357                       |
| 3LNE-18S2C   | 18   | 450 | 150           | 20120 | 5509  | -      | -      | -      | -      | -      | 12732  | -      | 2357                       |
| 3LNE-20L2C   | 20   | 500 | 50            | 25329 | 7056  | -      | -      | -      | -      | -      | 15317  | -      | 2678                       |
| 3LNE-20S2C   | 20   | 500 | 150           | 25329 | 7056  | -      | -      | -      | -      | -      | -      | 24788  | 2678                       |
| 3LNE-24L2C   | 24   | 600 | 50            | 39396 | 10267 | -      | -      | -      | -      | -      | -      | 28604  | 12098                      |
| NYF2-C301  | 30   | 750 | 75            | 52443 | 18090 | -      | -      | -      | -      | -      | -      | 32369  | 12098                      |

| 2-Way, Spring Return Pneumatic - Nylon Coated Disc |      |     |               |       |       |  |       |
|--|------|-----|---------------|-------|-------|--|-------|
| Actuator Model Details                             |      |     |               |       |       | Series 98 Pneumatic Scotch Yoke (Fail Close) |       |
| Valve Model Details                                | Size |     | Close-Off psi | Cv    |       | Part Number                                  | Price |
|  | In.  | mm  |               | 90°   | 60°   |  |       |
| 3LNE-24S2C   | 24   | 600 | 150           | 39396 | 10267 | 45E2-12-DA                                   | 32301 |
| NYF2-C300  | 30   | 750 | 150           | 52443 | 18090 | 14E3-12-DA-C                                 | 48551 |

Stainless Steel Disc

| 2-Way, Double Acting Pneumatic - Stainless Steel Disc |      |     |               |       |      |        |        |        |        |        |        |        |                            |
|---|------|-----|---------------|-------|------|--------|--------|--------|--------|--------|--------|--------|----------------------------|
| Actuator Model Details                                |      |     |               |       |      | 92-063 | 92-083 | 92-119 | 92-128 | 92-160 | 92-210 | 92-255 | Adder for Manual Override* |
| Valve Model Details                                   | Size |     | Close-Off psi | Cv    |      |        |        |        |        |        |        |        |                            |
|   | In.  | mm  |               | 90°   | 60°  |        |        |        |        |        |        |        |                            |
| 3LSE-02S2C  | 2    | 50  | 175           | 87    | 66   | 1171   | -      | -      | -      | -      | -      | -      | 988                        |
| 3LSE-25S2C  | 2.5  | 65  | 175           | 185   | 98   | 1214   | -      | -      | -      | -      | -      | -      | 988                        |
| 3LSE-03S2C  | 3    | 80  | 175           | 360   | 171  | 1290   | -      | -      | -      | -      | -      | -      | 988                        |
| 3LSE-04L2C  | 4    | 100 | 50            | 740   | 310  | -      | 1618   | -      | -      | -      | -      | -      | 988                        |
| 3LSE-04S2C  | 4    | 100 | 175           | 740   | 310  | -      | 1618   | -      | -      | -      | -      | -      | 988                        |
| 3LSE-05L2C  | 5    | 125 | 50            | 1218  | 470  | -      | 1813   | -      | -      | -      | -      | -      | 988                        |
| 3LSE-05S2C  | 5    | 125 | 175           | 1218  | 470  | -      | 1813   | -      | -      | -      | -      | -      | 988                        |
| 3LSE-06L2C  | 6    | 150 | 50            | 1900  | 757  | -      | 2090   | -      | -      | -      | -      | -      | 988                        |
| 3LSE-06S2C  | 6    | 150 | 175           | 1900  | 757  | -      | 2090   | -      | -      | -      | -      | -      | 1460                       |
| 3LSE-08L2C  | 8    | 200 | 50            | 3765  | 1247 | -      | -      | 3217   | -      | -      | -      | -      | 1460                       |
| 3LSE-08S2C  | 8    | 200 | 175           | 3765  | 1247 | -      | -      | 3217   | -      | -      | -      | -      | 1460                       |
| 3LSE-10L2C  | 10   | 250 | 50            | 6661  | 2005 | -      | -      | 4059   | -      | -      | -      | -      | 1460                       |
| 3LSE-10S2C  | 10   | 250 | 175           | 6661  | 2005 | -      | -      | 4059   | -      | -      | -      | -      | 1460                       |
| 3LSE-12L2C  | 12   | 300 | 50            | 10066 | 2868 | -      | -      | 5026   | -      | -      | -      | -      | 1460                       |
| 3LSE-12S2C  | 12   | 300 | 175           | 10066 | 2868 | -      | -      | -      | 6131   | -      | -      | -      | 1460                       |
| 3LSE-14S2C  | 14   | 350 | 150           | 11598 | 3328 | -      | -      | -      | -      | 8688   | -      | -      | 2018                       |
| 3LSE-16S2C  | 16   | 400 | 150           | 15395 | 4440 | -      | -      | -      | -      | -      | 12717  | -      | 2018                       |
| 3LSE-18S2C  | 18   | 450 | 150           | 20120 | 5509 | -      | -      | -      | -      | -      | 15958  | -      | 2357                       |
| 3LSE-20S2C  | 20   | 500 | 150           | 25329 | 7056 | -      | -      | -      | -      | -      | -      | 28682  | 2678                       |

**Options/Adders**

\* For Manual Override, add "-5" to the end of the part number.  
For additional options and adders, see Pages 56 & 57.



## 3L Series Butterfly Valves 3-Way with Series 92 Double Acting Pneumatic Actuators

| 3-Way, Double Acting Pneumatic - Nylon Coated Disc |      |     |               |       |      |        |        |        |        |        |                            |
|--|------|-----|---------------|-------|------|--------|--------|--------|--------|--------|----------------------------|
| Actuator Model Details                             |      |     |               |       |      | 92-083 | 92-119 | 92-160 | 92-210 | 92-255 | Adder for Manual Override* |
| Valve Model Details                                | Size |     | Close-Off psi | Cv    |      |        |        |        |        |        |                            |
|  | In.  | mm  |               | 90°   | 60°  |        |        |        |        |        |                            |
| 3LNE-02S3X   | 2    | 50  | 175           | 87    | 66   | 3173   | -      | -      | -      | -      | 988                        |
| 3LNE-25S3X   | 2.5  | 65  | 175           | 185   | 98   | 3297   | -      | -      | -      | -      | 988                        |
| 3LNE-03S3X   | 3    | 80  | 175           | 360   | 171  | 3424   | -      | -      | -      | -      | 988                        |
| 3LNE-04L3X   | 4    | 100 | 50            | 740   | 310  | 4084   | -      | -      | -      | -      | 988                        |
| 3LNE-04S3X   | 4    | 100 | 175           | 740   | 310  | 4084   | -      | -      | -      | -      | 988                        |
| 3LNE-05L3X   | 5    | 125 | 50            | 1218  | 470  | 5264   | -      | -      | -      | -      | 988                        |
| 3LNE-05S3X   | 5    | 125 | 175           | 1218  | 470  | 5412   | -      | -      | -      | -      | 988                        |
| 3LNE-06L3X   | 6    | 150 | 50            | 1900  | 757  | 5705   | -      | -      | -      | -      | 988                        |
| 3LNE-06S3X   | 6    | 150 | 175           | 1900  | 757  | 5705   | -      | -      | -      | -      | 1460                       |
| 3LNE-08L3X   | 8    | 200 | 50            | 3765  | 1247 | -      | 8158   | -      | -      | -      | 1460                       |
| 3LNE-08S3X   | 8    | 200 | 175           | 3765  | 1247 | -      | 8158   | -      | -      | -      | 1460                       |
| 3LNE-10L3X   | 10   | 250 | 50            | 6661  | 2005 | -      | 9748   | -      | -      | -      | 1460                       |
| 3LNE-10S3X   | 10   | 250 | 175           | 6661  | 2005 | -      | 9748   | -      | -      | -      | 1460                       |
| 3LNE-12L3X   | 12   | 300 | 50            | 10066 | 2868 | -      | 13172  | -      | -      | -      | 1460                       |
| 3LNE-12S3X   | 12   | 300 | 175           | 10066 | 2868 | -      | -      | 17866  | -      | -      | 1460                       |
| 3LNE-14L3X   | 14   | 350 | 50            | 11598 | 3328 | -      | -      | 25521  | -      | -      | 1460                       |
| 3LNE-14S3X   | 14   | 350 | 150           | 11598 | 3328 | -      | -      | -      | 28715  | -      | 2018                       |
| 3LNE-16L3X   | 16   | 400 | 50            | 15395 | 4440 | -      | -      | -      | 35881  | -      | 2018                       |
| 3LNE-16S3X   | 16   | 400 | 150           | 15395 | 4440 | -      | -      | -      | -      | 45619  | 2677                       |
| 3LNE-18L3X   | 18   | 450 | 50            | 20120 | 5509 | -      | -      | -      | 40411  | -      | 2357                       |
| 3LNE-18S3X   | 18   | 450 | 150           | 20120 | 5509 | -      | -      | -      | -      | 50433  | 2677                       |
| 3LNE-20L3X   | 20   | 500 | 50            | 25329 | 7056 | -      | -      | -      | 48079  | -      | 2678                       |
| 3LNE-20S3X   | 20   | 500 | 150           | 25329 | 7056 | -      | -      | -      | -      | 58852  | 2678                       |

Nylon Coated Disc

| 3-Way, Double Acting Pneumatic - Stainless Steel Disc |      |     |               |       |      |        |        |        |        |        |        |                            |
|---|------|-----|---------------|-------|------|--------|--------|--------|--------|--------|--------|----------------------------|
| Actuator Model Details                                |      |     |               |       |      | 92-083 | 92-119 | 92-128 | 92-160 | 92-210 | 92-255 | Adder for Manual Override* |
| Valve Model Details                                   | Size |     | Close-Off psi | Cv    |      |        |        |        |        |        |        |                            |
|   | In.  | mm  |               | 90°   | 60°  |        |        |        |        |        |        |                            |
| 3LSE-02S3X  | 2    | 50  | 175           | 87    | 66   | 3219   | -      | -      | -      | -      | -      | 988                        |
| 3LSE-25S3X  | 2.5  | 65  | 175           | 185   | 98   | 3352   | -      | -      | -      | -      | -      | 988                        |
| 3LSE-03S3X  | 3    | 80  | 175           | 360   | 171  | 3485   | -      | -      | -      | -      | -      | 988                        |
| 3LSE-04L3X  | 4    | 100 | 50            | 740   | 310  | 4220   | -      | -      | -      | -      | -      | 988                        |
| 3LSE-04S3X  | 4    | 100 | 175           | 740   | 310  | 4342   | -      | -      | -      | -      | -      | 988                        |
| 3LSE-05L3X  | 5    | 125 | 50            | 1218  | 470  | 5317   | -      | -      | -      | -      | -      | 988                        |
| 3LSE-05S3X  | 5    | 125 | 175           | 1218  | 470  | 5572   | -      | -      | -      | -      | -      | 988                        |
| 3LSE-06L3X  | 6    | 150 | 50            | 1900  | 757  | 5955   | -      | -      | -      | -      | -      | 988                        |
| 3LSE-06S3X  | 6    | 150 | 175           | 1900  | 757  | 5955   | -      | -      | -      | -      | -      | 1460                       |
| 3LSE-08L3X  | 8    | 200 | 50            | 3765  | 1247 | -      | 8668   | -      | -      | -      | -      | 1460                       |
| 3LSE-08S3X  | 8    | 200 | 175           | 3765  | 1247 | -      | 8668   | -      | -      | -      | -      | 1460                       |
| 3LSE-10L3X  | 10   | 250 | 50            | 6661  | 2005 | -      | 10742  | -      | -      | -      | -      | 1460                       |
| 3LSE-10S3X  | 10   | 250 | 175           | 6661  | 2005 | -      | -      | 10752  | -      | -      | -      | 1460                       |
| 3LSE-12L3X  | 12   | 300 | 50            | 10066 | 2868 | -      | 15156  | -      | -      | -      | -      | 1460                       |
| 3LSE-12S3X  | 12   | 300 | 175           | 10066 | 2868 | -      | -      | -      | 19850  | -      | -      | 1460                       |
| 3LSE-14S3X  | 14   | 350 | 150           | 11598 | 3328 | -      | -      | -      | -      | 31413  | -      | 2018                       |
| 3LSE-16S3X  | 16   | 400 | 150           | 15395 | 4440 | -      | -      | -      | -      | -      | 49828  | 2677                       |
| 3LSE-18S3X  | 18   | 450 | 150           | 20120 | 5509 | -      | -      | -      | -      | -      | 57644  | 2677                       |
| 3LSE-20S3X  | 20   | 500 | 150           | 25329 | 7056 | -      | -      | -      | -      | -      | 66639  | 2678                       |

Stainless Steel Disc

**Options/Adders**  
 X = 3-Way Assemblies (Refer to Configuration Chart, Page 63)  
 \* For Manual Override, add "-5" to the end of the part number.  
 For additional options and adders, see Pages 56 & 57.



## 3L Series Butterfly Valves 2-Way with Series 93 & 98 Spring Return Pneumatic Actuators

Nylon Coated Disc

| 2-Way, Spring Return Pneumatic - Nylon Coated Disc |                        |     |               |       |      |                               |       |                           |       |                            |
|--|------------------------|-----|---------------|-------|------|-------------------------------|-------|---------------------------|-------|----------------------------|
| Valve Model Details                                | Actuator Model Details |     |               |       |      | Normally Closed (Fail Closed) | Price | Normally Open (Fail Open) | Price | Adder for Manual Override* |
|  | Size                   |     | Close-Off psi | Cv    |      |                               |       |                           |       |                            |
|  | In.                    | mm  |               | 90°   | 60°  |                               |       |                           |       |                            |
| 3LNE-02S2C   | 2                      | 50  | 175           | 87    | 66   | 93-0833                       | 1710  | 93-0832                   | 1651  | 988                        |
| 3LNE-25S2C   | 2.5                    | 65  | 175           | 185   | 98   | 93-0833                       | 1807  | 93-0832                   | 1758  | 988                        |
| 3LNE-03S2C   | 3                      | 80  | 175           | 360   | 171  | 93-0834                       | 1895  | 93-0833                   | 1844  | 988                        |
| 3LNE-04L2C   | 4                      | 100 | 50            | 740   | 310  | 93-0833                       | 2023  | 93-0833                   | 1984  | 988                        |
| 3LNE-04S2C   | 4                      | 100 | 175           | 740   | 310  | 93-0836                       | 2204  | 93-0834                   | 1995  | 988                        |
| 3LNE-05L2C   | 5                      | 125 | 50            | 1218  | 470  | 93-0835                       | 2366  | 93-0834                   | 2157  | 988                        |
| 3LNE-05S2C   | 5                      | 125 | 175           | 1218  | 470  | 93-0935                       | 2521  | 93-0934                   | 2509  | 1085                       |
| 3LNE-06L2C   | 6                      | 150 | 50            | 1900  | 757  | 93-0935                       | 2700  | 93-0934                   | 2689  | 1085                       |
| 3LNE-06S2C   | 6                      | 150 | 175           | 1900  | 757  | 93-1194                       | 3168  | 93-1193                   | 3071  | 1460                       |
| 3LNE-08L2C   | 8                      | 200 | 50            | 3765  | 1247 | 93-1194                       | 3772  | 93-1193                   | 3686  | 1460                       |
| 3LNE-08S2C   | 8                      | 200 | 175           | 3765  | 1247 | 93-1603                       | 5099  | 93-1284                   | 3720  | 1460                       |
| 3LNE-10L2C   | 10                     | 250 | 50            | 6661  | 2005 | 93-1603                       | 5432  | 93-1283                   | 5146  | 1460                       |
| 3LNE-10S2C   | 10                     | 250 | 175           | 6661  | 2005 | 93-1605                       | 7187  | 93-1603                   | 7102  | 1460                       |
| 3LNE-12L2C   | 12                     | 300 | 50            | 10066 | 2868 | 93-1604                       | 7394  | 93-1603                   | 7221  | 1460                       |
| 3LNE-12S2C   | 12                     | 300 | 175           | 10066 | 2868 | 93-2103                       | 10281 | 93-2102                   | 10135 | 2302                       |
| 3LNE-14L2C   | 14                     | 350 | 50            | 11598 | 3328 | 93-2103                       | 11453 | 93-2102                   | 11350 | 2302                       |
| 3LNE-14S2C   | 14                     | 350 | 150           | 11598 | 3328 | 93-2106                       | 11930 | 93-2104                   | 11908 | 2302                       |
| 3LNE-16L2C   | 16                     | 400 | 50            | 15395 | 4440 | 93-2105                       | 13374 | 93-2103                   | 13151 | 2302                       |
| 3LNE-16S2C   | 16                     | 400 | 150           | 15395 | 4440 | 93-2554                       | 23371 | 93-2553                   | 22453 | 12099                      |
| 3LNE-18L2C   | 18                     | 450 | 50            | 20120 | 5509 | 93-2105                       | 16929 | 93-2103                   | 16687 | 2302                       |
| 3LNE-18S2C   | 18                     | 450 | 150           | 20120 | 5509 | 93-2555                       | 26792 | 93-2553                   | 24825 | 12099                      |
| 3LNE-20L2C   | 20                     | 500 | 50            | 25329 | 7056 | 93-2553                       | 27831 | 93-2552                   | 26918 | 12099                      |
| 3LNE-20S2C   | 20                     | 500 | 150           | 25329 | 7056 | 93-2556                       | 30668 | 93-2554                   | 29774 | 12099                      |

Stainless Steel Disc

| 2-Way, Spring Return Pneumatic - Nylon Coated Disc |                        |     |               |       |       |  |       |  |  |  |
|--|------------------------|-----|---------------|-------|-------|--|-------|--|--|--|
| Valve Model Details                                | Actuator Model Details |     |               |       |       | Series 98 Pneumatic Scotch Yoke (Fail Close) |       |  |  |  |
|  | Size                   |     | Close-Off psi | Cv    |       | Part Number                                  | Price |  |  |  |
|  | In.                    | mm  |               | 90°   | 60°   |  |       |  |  |  |
| 3LNE-24L2C   | 24                     | 600 | 50            | 39396 | 10267 | 45E2-12-SR3                                  | 47110 |  |  |  |
| 3LNE-24S2C   | 24                     | 600 | 150           | 39396 | 10267 | 73E2-14-SR4-C                                | 51801 |  |  |  |
| NYF2-C301  | 30                     | 750 | 75            | 52443 | 18090 | 73E2-14-SR3-C                                | 57613 |  |  |  |
| NYF2-C300  | 30                     | 750 | 150           | 52443 | 18090 | 14E3-14-SR3-C                                | 61121 |  |  |  |

| 2-Way, Spring Return Pneumatic - Stainless Steel Disc |                        |     |               |       |      |                               |       |                           |       |                            |
|---|------------------------|-----|---------------|-------|------|-------------------------------|-------|---------------------------|-------|----------------------------|
| Valve Model Details                                   | Actuator Model Details |     |               |       |      | Normally Closed (Fail Closed) | Price | Normally Open (Fail Open) | Price | Adder for Manual Override* |
|   | Size                   |     | Close-Off psi | Cv    |      |                               |       |                           |       |                            |
|   | In.                    | mm  |               | 90°   | 60°  |                               |       |                           |       |                            |
| 3LSE-02S2C  | 2                      | 50  | 175           | 87    | 66   | 93-0833                       | 1734  | 93-0832                   | 1673  | 988                        |
| 3LSE-25S2C  | 2.5                    | 65  | 175           | 185   | 98   | 93-0833                       | 1835  | 93-0833                   | 1785  | 988                        |
| 3LSE-03S2C  | 3                      | 80  | 175           | 360   | 171  | 93-0834                       | 1925  | 93-0833                   | 1876  | 988                        |
| 3LSE-04L2C  | 4                      | 100 | 50            | 740   | 310  | 93-0834                       | 2090  | 93-0833                   | 2051  | 988                        |
| 3LSE-04S2C  | 4                      | 100 | 175           | 740   | 310  | 93-0935                       | 2271  | 93-0933                   | 2061  | 988                        |
| 3LSE-05L2C  | 5                      | 125 | 50            | 1218  | 470  | 93-0835                       | 2445  | 93-0834                   | 2237  | 988                        |
| 3LSE-05S2C  | 5                      | 125 | 175           | 1218  | 470  | 93-1193                       | 2600  | 93-1194                   | 2589  | 1085                       |
| 3LSE-06L2C  | 6                      | 150 | 50            | 1900  | 757  | 93-0935                       | 2824  | 93-0934                   | 2814  | 1085                       |
| 3LSE-06S2C  | 6                      | 150 | 175           | 1900  | 757  | 93-1194                       | 3294  | 93-1193                   | 3196  | 1460                       |
| 3LSE-08L2C  | 8                      | 200 | 50            | 3765  | 1247 | 93-1195                       | 4026  | 93-1193                   | 3940  | 1460                       |
| 3LSE-08S2C  | 8                      | 200 | 175           | 3765  | 1247 | 93-1603                       | 5353  | 93-1283                   | 3974  | 1460                       |
| 3LSE-10L2C  | 10                     | 250 | 50            | 6661  | 2005 | 93-1603                       | 5929  | 93-1283                   | 5643  | 1460                       |
| 3LSE-10S2C  | 10                     | 250 | 175           | 6661  | 2005 | 93-1605                       | 7684  | 93-1603                   | 7599  | 1460                       |
| 3LSE-12L2C  | 12                     | 300 | 50            | 10066 | 2868 | 93-1605                       | 8384  | 93-1603                   | 8212  | 1460                       |
| 3LSE-12S2C  | 12                     | 300 | 175           | 10066 | 2868 | 93-2104                       | 11273 | 93-2103                   | 11127 | 2302                       |
| 3LSE-14S2C  | 14                     | 350 | 150           | 11598 | 3328 | 93-2553                       | 13278 | 93-2552                   | 13255 | 2677                       |
| 3LSE-16S2C  | 16                     | 400 | 150           | 15395 | 4440 | 93-2554                       | 25475 | 93-2554                   | 24558 | 12099                      |
| 3LSE-18S2C  | 18                     | 450 | 150           | 20120 | 5509 | 93-2553                       | 30016 | 93-2553                   | 28051 | 12099                      |

| 2-Way, Spring Return Pneumatic - Stainless Steel Disc |                        |     |               |       |       |  |       |  |  |  |
|---|------------------------|-----|---------------|-------|-------|--|-------|--|--|--|
| Valve Model Details                                   | Actuator Model Details |     |               |       |       | Series 98 Pneumatic Scotch Yoke (Fail Close) |       |  |  |  |
|   | Size                   |     | Close-Off PSI | Cv    |       | Part Number                                  | Price |  |  |  |
|   | In.                    | mm  |               | 90°   | 60°   |  |       |  |  |  |
| 3LSE-20S2C  | 20                     | 500 | 150           | 25329 | 7056  | 45E2-12-SR3                                  | 40309 |  |  |  |
| 3LSE-24S2C  | 24                     | 600 | 150           | 39396 | 10267 | 45E2-12-SR3                                  | 53289 |  |  |  |
| NYF2-C301   | 30                     | 750 | 75            | 52443 | 18090 | 45E2-12-SR3                                  | 60587 |  |  |  |
| NYF2-C300   | 30                     | 750 | 150           | 52443 | 18090 | 14E3-14-SR3-C                                | 64096 |  |  |  |

**Options/Adders**

\* For Manual Override, add "-5" to the end of the part number.  
For additional options and adders, see Pages 56 & 57.

For Spring Return Units:

- N = Normally Open
- C = Normally Closed - Factory default



## 3L Series Butterfly Valves 3-Way with Series 93 Spring Return Pneumatic Actuators

| 3-Way, Spring Return Pneumatic - Nylon Coated Disc |      |     |               |       |      |         |         |         |         |         |         |
|--|------|-----|---------------|-------|------|---------|---------|---------|---------|---------|---------|
| Actuator Model Details                             |      |     |               |       |      | 93-0834 | 93-0935 | 93-1194 | 93-1605 | 93-2105 | 93-2554 |
| Valve Model Details                                | Size |     | Close-Off psi | Cv    |      |         |         |         |         |         |         |
|  | In.  | mm  |               | 90°   | 60°  |         |         |         |         |         |         |
| 3LNE-02S3X   | 2    | 50  | 175           | 87    | 66   | 4281    | -       | -       | -       | -       | -       |
| 3LNE-25S3X   | 2.5  | 65  | 175           | 185   | 98   | 4087    | -       | -       | -       | -       | -       |
| 3LNE-03S3X   | 3    | 80  | 175           | 360   | 171  | 4242    | -       | -       | -       | -       | -       |
| 3LNE-04L3X   | 4    | 100 | 50            | 740   | 310  | 4859    | -       | -       | -       | -       | -       |
| 3LNE-04S3X   | 4    | 100 | 175           | 740   | 310  | -       | 5157    | -       | -       | -       | -       |
| 3LNE-05L3X   | 5    | 125 | 50            | 1218  | 470  | -       | 5451    | -       | -       | -       | -       |
| 3LNE-05S3X   | 5    | 125 | 175           | 1218  | 470  | -       | -       | 6446    | -       | -       | -       |
| 3LNE-06L3X   | 6    | 150 | 50            | 1900  | 757  | -       | 6248    | -       | -       | -       | -       |
| 3LNE-06S3X   | 6    | 150 | 175           | 1900  | 757  | -       | -       | 6538    | -       | -       | -       |
| 3LNE-08L3X   | 8    | 200 | 50            | 3765  | 1247 | -       | -       | 8954    | -       | -       | -       |
| 3LNE-08S3X   | 8    | 200 | 175           | 3765  | 1247 | -       | -       | -       | 13801   | -       | -       |
| 3LNE-10L3X   | 10   | 250 | 50            | 6661  | 2005 | -       | -       | -       | 14961   | -       | -       |
| 3LNE-10S3X   | 10   | 250 | 175           | 6661  | 2005 | -       | -       | -       | 14961   | -       | -       |
| 3LNE-12L3X   | 12   | 300 | 50            | 10066 | 2868 | -       | -       | -       | 18501   | -       | -       |
| 3LNE-12S3X   | 12   | 300 | 175           | 10066 | 2868 | -       | -       | -       | -       | 29680   | -       |
| 3LNE-14L3X   | 14   | 350 | 50            | 11598 | 3328 | -       | -       | -       | -       | 36611   | -       |
| 3LNE-14S3X   | 14   | 350 | 150           | 11598 | 3328 | -       | -       | -       | -       | -       | 44493   |
| 3LNE-16L3X   | 16   | 400 | 50            | 15395 | 4440 | -       | -       | -       | -       | -       | 49227   |
| 3LNE-18L3X   | 18   | 450 | 50            | 20120 | 5509 | -       | -       | -       | -       | -       | 54349   |
| 3LNE-20L3X   | 20   | 500 | 50            | 25329 | 7056 | -       | -       | -       | -       | -       | 57751   |

Nylon Coated Disc

| 3-Way, Spring Return Pneumatic - Stainless Steel Disc |      |     |               |       |      |         |         |         |         |         |         |
|---|------|-----|---------------|-------|------|---------|---------|---------|---------|---------|---------|
| Actuator Model Details                                |      |     |               |       |      | 93-0835 | 93-0935 | 93-1195 | 93-1605 | 93-2105 | 93-2554 |
| Valve Model Details                                   | Size |     | Close-Off psi | Cv    |      |         |         |         |         |         |         |
|   | In.  | mm  |               | 90°   | 60°  |         |         |         |         |         |         |
| 3LSE-02S3X  | 2    | 50  | 175           | 87    | 66   | 4328    | -       | -       | -       | -       | -       |
| 3LSE-25S3X  | 2.5  | 65  | 175           | 185   | 98   | 4345    | -       | -       | -       | -       | -       |
| 3LSE-03S3X  | 3    | 80  | 175           | 360   | 171  | 4513    | -       | -       | -       | -       | -       |
| 3LSE-04L3X  | 4    | 100 | 50            | 740   | 310  | 5235    | -       | -       | -       | -       | -       |
| 3LSE-04S3X  | 4    | 100 | 175           | 740   | 310  | -       | 5548    | -       | -       | -       | -       |
| 3LSE-05L3X  | 5    | 125 | 50            | 1218  | 470  | 4693    | -       | -       | -       | -       | -       |
| 3LSE-05S3X  | 5    | 125 | 175           | 1218  | 470  | -       | -       | 6924    | -       | -       | -       |
| 3LSE-06L3X  | 6    | 150 | 50            | 1900  | 757  | -       | 6806    | -       | -       | -       | -       |
| 3LSE-06S3X  | 6    | 150 | 175           | 1900  | 757  | -       | -       | 7111    | -       | -       | -       |
| 3LSE-08L3X  | 8    | 200 | 50            | 3765  | 1247 | -       | -       | 9904    | -       | -       | -       |
| 3LSE-08S3X  | 8    | 200 | 175           | 3765  | 1247 | -       | -       | -       | 14310   | -       | -       |
| 3LSE-10L3X  | 10   | 250 | 50            | 6661  | 2005 | -       | -       | -       | 15955   | -       | -       |
| 3LSE-10S3X  | 10   | 250 | 175           | 6661  | 2005 | -       | -       | -       | 15955   | -       | -       |
| 3LSE-12L3X  | 12   | 300 | 50            | 10066 | 2868 | -       | -       | -       | 20485   | -       | -       |
| 3LSE-12S3X  | 12   | 300 | 175           | 10066 | 2868 | -       | -       | -       | -       | 31663   | -       |
| 3LSE-14S3X  | 14   | 350 | 150           | 11598 | 3328 | -       | -       | -       | -       | -       | 47189   |
| 3LSE-16S3X  | 16   | 400 | 150           | 15395 | 4440 | -       | -       | -       | -       | -       | 53436   |
| 3LSE-18S3X  | 18   | 450 | 150           | 20120 | 5509 | -       | -       | -       | -       | -       | 60800   |
| 3LSE-20S3X  | 20   | 500 | 150           | 25329 | 7056 | -       | -       | -       | -       | -       | 65537   |

Stainless Steel Disc

**Options/Adders**  
 X = 3-Way Assemblies (Refer to Configuration Chart, Page 63)  
 \* For Manual Override, add "-5" to the end of the part number.  
 For additional options and adders, see Pages 56 & 57.



2-Way

| 2-Way, On/Off or Floating - ANSI 150 |      |     |               |     |                   |                    |               |            |      |
|--------------------------------------|------|-----|---------------|-----|-------------------|--------------------|---------------|------------|------|
| Actuator Model Details               |      |     |               |     | Non-Spring Return |                    | Spring Return |            |      |
|                                      |      |     |               |     | DC24-310-T        | DC24-310-T-D       | DS24-180      | DS24-180-D |      |
| Model Number                         | Size |     | Close-Off psi | Cv  |                   | On/Off or Floating |               | On/Off     |      |
|                                      | In.  | mm  |               | 90° | 60°               | 24 VAC/DC          |               | 24 VAC/DC  |      |
| MKL2-C025                            | 2.5  | 65  | 285           | 160 | 78                | 3285               | -             | 3612       | -    |
| MKL2-C030                            | 3    | 80  |               | 185 | 123               | 3361               | -             | -          | 4217 |
| MKL2-C040                            | 4    | 100 |               | 375 | 250               | -                  | 4098          | -          | 4663 |
| Adder -A                             |      |     |               |     |                   | 117                | 118           | 122        | 120  |
| Adder -WS                            |      |     |               |     |                   | 399                | 541           | 377        | 471  |

| 2-Way, Modulating - ANSI 150 |      |     |               |     |                   |             |               |             |      |
|------------------------------|------|-----|---------------|-----|-------------------|-------------|---------------|-------------|------|
| Actuator Model Details       |      |     |               |     | Non-Spring Return |             | Spring Return |             |      |
|                              |      |     |               |     | DCM24-310         | DCM24-310-D | DMS24-180     | DMS24-180-D |      |
| Model Number                 | Size |     | Close-Off psi | Cv  |                   | Modulating  |               |             |      |
|                              | In.  | mm  |               | 90° | 60°               | 24 VAC/DC   |               | 24 VAC/DC   |      |
| MKL2-C025                    | 2.5  | 65  | 285           | 160 | 78                | 3356        | -             | 3863        | -    |
| MKL2-C030                    | 3    | 80  |               | 185 | 123               | 3432        | -             | -           | 4653 |
| MKL2-C040                    | 4    | 100 |               | 375 | 250               | -           | 4203          | -           | 5099 |
| Adder -A                     |      |     |               |     |                   | 118         | 118           | 121         | 121  |
| Adder -WS                    |      |     |               |     |                   | 399         | 541           | 377         | 471  |

3-Way

| 3-Way, On/Off or Floating - ANSI 150 |      |     |               |     |                   |                    |               |           |  |
|--------------------------------------|------|-----|---------------|-----|-------------------|--------------------|---------------|-----------|--|
| Actuator Model Details               |      |     |               |     | Non-Spring Return |                    | Spring Return |           |  |
|                                      |      |     |               |     | DC24-310-T        | DC24-310-T-D       | DS24-180-D    |           |  |
| Model Number                         | Size |     | Close-Off psi | Cv  |                   | On/Off or Floating |               | On/Off    |  |
|                                      | In.  | mm  |               | 90° | 60°               | 24 VAC/DC          |               | 24 VAC/DC |  |
| MKL3-x025                            | 2.5  | 65  | 285           | 160 | 78                | 7134               | -             | 7832      |  |
| MKL3-x030                            | 3    | 80  |               | 185 | 123               | -                  | 7666          | 8097      |  |
| MKL3-x040                            | 4    | 100 |               | 375 | 250               | -                  | 9154          | -         |  |
| Adder -A                             |      |     |               |     |                   | 117                | 118           | 120       |  |
| Adder -WS                            |      |     |               |     |                   | 399                | 541           | 471       |  |

| 3-Way, Modulating - ANSI 150 |      |     |               |     |                   |             |               |           |  |
|------------------------------|------|-----|---------------|-----|-------------------|-------------|---------------|-----------|--|
| Actuator Model Details       |      |     |               |     | Non-Spring Return |             | Spring Return |           |  |
|                              |      |     |               |     | DCM24-310         | DCM24-310-D | DMS24-180-D   |           |  |
| Model Number                 | Size |     | Close-Off psi | Cv  |                   | Modulating  |               |           |  |
|                              | In.  | mm  |               | 90° | 60°               | 24 VAC/DC   |               | 24 VAC/DC |  |
| MKL3-x025                    | 2.5  | 65  | 285           | 160 | 78                | 7205        | -             | 8268      |  |
| MKL3-x030                    | 3    | 80  |               | 185 | 123               | -           | 7771          | 8533      |  |
| MKL3-x040                    | 4    | 100 |               | 375 | 250               | -           | 9259          | -         |  |
| Adder -A                     |      |     |               |     |                   | 118         | 118           | 121       |  |
| Adder -WS                    |      |     |               |     |                   | 399         | 541           | 471       |  |

**Options/Adders**  
 For optional auxiliary switches, add -A to the end of the actuator part number.  
 X = 3-Way Assemblies (Refer to Configuration Chart, Page 63)  
 Add a -WS at the end of the part # if a weather cover is needed.

For Spring Return Units:  
 N = Normally Open  
 C = Normally Closed - Factory default  
 -D = Dual mounted actuators



## MK Series Butterfly Valves 2-Way with Industrial Electric Actuators (ANSI 150)

On/Off

| 2-Way, 120 VAC, On/Off - ANSI 150 |      |     |       |      |                                  |                |       |  |                |          |
|-----------------------------------|------|-----|-------|------|----------------------------------|----------------|-------|--|----------------|----------|
| Actuator Model Details            |      |     |       |      | Series 70 Seat Retainer UPSTREAM |                |       | Series 70 & AU Series Seat Retainer DOWNSTREAM |                |          |
| Valve Model Details               | Size |     | Cv    |      | Close-Off psi                    | On/Off 120 VAC | Price | Close-Off psi                                  | On/Off 120 VAC | Price    |
|                                   | In.  | mm  | 90°   | 60°  |                                  |                |       |  |                |          |
| MKL2-C025                         | 2.5  | 65  | 160   | 78   | 285                              | 70-0081H       | 5340  | 285  | 70-0081H       | 5340     |
| MKL2-C030                         | 3    | 80  | 185   | 123  |                                  | 70-0081H       | 5416  |  | 70-0081H       | 5416     |
| MKL2-C040                         | 4    | 100 | 375   | 250  |                                  | 70-0081H       | 5862  |  | 70-0081H       | 5862     |
| MKL2-C050                         | 5    | 125 | 790   | 360  |                                  | 70-0121H       | 7497  |  | 70-0121H       | 7497     |
| MKL2-C060                         | 6    | 150 | 1350  | 510  |                                  | 70-0121H       | 7571  |  | 70-0121H       | 7571     |
| MKL2-C080                         | 8    | 200 | 2800  | 1060 |                                  | 70-0201H       | 9612  |  | 70-E301H       | 10929    |
| MKL2-C100                         | 10   | 250 | 4300  | 1630 |                                  | 70-E301H       | 11972 |  | 70-0501H       | 13573    |
| MKL2-C120                         | 12   | 300 | 6650  | 2530 |                                  | 70-0501H       | 14618 |  | 70-0651H       | 15004    |
| MKL2-C140                         | 14   | 350 | 7650  | 2900 |                                  | 70-0651H       | 19181 |  | 70-1300H       | 20549    |
| MKL2-C160                         | 16   | 400 | 9800  | 3700 |                                  | 70-1300H       | 31977 |  | 70-1800H       | 32999    |
| MKL2-C180                         | 18   | 450 | 10500 | 5100 |                                  | 70-1800H       | 37771 |  | 250            | AU-2130* |
| MKL2-C200                         | 20   | 500 | 13500 | 6500 | 200                              | 70-1800H       | 48809 | 200  | AU-2130*       | 62736    |

| 2-Way, 24 VAC, On/Off - ANSI 150 |      |     |      |      |                                  |               |       |  |               |       |                             |
|----------------------------------|------|-----|------|------|----------------------------------|---------------|-------|--|---------------|-------|-----------------------------|
| Actuator Model Details           |      |     |      |      | Series 70 Seat Retainer UPSTREAM |               |       | Series 70 & AU Series Seat Retainer DOWNSTREAM |               |       |                             |
| Valve Model Details              | Size |     | Cv   |      | Close-Off psi                    | On/Off 24 VAC | Price | Close-Off psi                                  | On/Off 24 VAC | Price | -BBU Adder (24V Units Only) |
|                                  | In.  | mm  | 90°  | 60°  |                                  |               |       |  |               |       |                             |
| MKL2-C025                        | 2.5  | 65  | 160  | 78   | 285                              | 70-24-0081H   | 5209  | 285  | 70-24-0081H   | 5209  | 2706                        |
| MKL2-C030                        | 3    | 80  | 185  | 123  |                                  | 70-24-0081H   | 5285  |  | 70-24-0081H   | 5285  | 2706                        |
| MKL2-C040                        | 4    | 100 | 375  | 250  |                                  | 70-24-0081H   | 5731  |  | 70-24-0081H   | 5731  | 2706                        |
| MKL2-C050                        | 5    | 125 | 790  | 360  |                                  | 70-24-0201H   | 7797  |  | 70-24-0201H   | 7797  | 2788                        |
| MKL2-C060                        | 6    | 150 | 1350 | 510  |                                  | 70-24-0201H   | 7871  |  | 70-24-0201H   | 7871  | 2788                        |
| MKL2-C080                        | 8    | 200 | 2800 | 1060 |                                  | 70-24-0201H   | 9363  |  | 70-24-0501H   | 12531 | 2788                        |
| MKL2-C100                        | 10   | 250 | 4300 | 1630 |                                  | 70-24-0501H   | 13574 |  | 70-24-0501H   | 13574 | 2790                        |
| MKL2-C120                        | 12   | 300 | 6650 | 2530 |                                  | 70-24-0501H   | 14619 |  | -             | -     | 2790                        |

Modulating

| 2-Way, 120 VAC, Modulating - ANSI 150 |      |     |       |      |                                  |                    |       |  |                    |            |
|---------------------------------------|------|-----|-------|------|----------------------------------|--------------------|-------|--|--------------------|------------|
| Actuator Model Details                |      |     |       |      | Series 70 Seat Retainer UPSTREAM |                    |       | Series 70 & AU Series Seat Retainer DOWNSTREAM |                    |            |
| Valve Model Details                   | Size |     | Cv    |      | Close-Off psi                    | Modulating 120 VAC | Price | Close-Off psi                                  | Modulating 120 VAC | Price      |
|                                       | In.  | mm  | 90°   | 60°  |                                  |                    |       |  |                    |            |
| MKL2-C025                             | 2.5  | 65  | 160   | 78   | 285                              | 70-0081SVH         | 6805  | 285  | 70-0081SVH         | 6805       |
| MKL2-C030                             | 3    | 80  | 185   | 123  |                                  | 70-0081SVH         | 6881  |  | 70-0081SVH         | 6881       |
| MKL2-C040                             | 4    | 100 | 375   | 250  |                                  | 70-0081SVH         | 7327  |  | 70-0081SVH         | 7327       |
| MKL2-C050                             | 5    | 125 | 790   | 360  |                                  | 70-0121SVH         | 8992  |  | 70-0121SVH         | 8992       |
| MKL2-C060                             | 6    | 150 | 1350  | 510  |                                  | 70-0121SVH         | 9066  |  | 70-0121SVH         | 9066       |
| MKL2-C080                             | 8    | 200 | 2800  | 1060 |                                  | 70-0201SVH         | 11108 |  | 70-E301SVH         | 12592      |
| MKL2-C100                             | 10   | 250 | 4300  | 1630 |                                  | 70-E301SVH         | 13635 |  | 70-0501SVH         | 15009      |
| MKL2-C120                             | 12   | 300 | 6650  | 2530 |                                  | 70-0501SVH         | 16054 |  | 70-0651SVH         | 16437      |
| MKL2-C140                             | 14   | 350 | 7650  | 2900 |                                  | 70-0651SVH         | 20614 |  | 70-1300SVH         | 22060      |
| MKL2-C160                             | 16   | 400 | 9800  | 3700 |                                  | 70-1300SVH         | 33488 |  | 70-1800SVH         | 34250      |
| MKL2-C180                             | 18   | 450 | 10500 | 5100 |                                  | 70-1800SVH         | 39022 |  | 250                | AU-2130SV* |
| MKL2-C200                             | 20   | 500 | 13500 | 6500 | 200                              | 70-1800SVH         | 50060 | 200  | AU-2130SV*         | 64558      |

| 2-Way, 24 VAC, Modulating - ANSI 150 |      |     |      |      |                                  |                   |       |  |                   |       |                             |
|--------------------------------------|------|-----|------|------|----------------------------------|-------------------|-------|--|-------------------|-------|-----------------------------|
| Actuator Model Details               |      |     |      |      | Series 70 Seat Retainer UPSTREAM |                   |       | Series 70 & AU Series Seat Retainer DOWNSTREAM |                   |       |                             |
| Valve Model Details                  | Size |     | Cv   |      | Close-Off psi                    | Modulating 24 VAC | Price | Close-Off psi                                  | Modulating 24 VAC | Price | -BBU Adder (24V Units Only) |
|                                      | In.  | mm  | 90°  | 60°  |                                  |                   |       |  |                   |       |                             |
| MKL2-C025                            | 2.5  | 65  | 160  | 78   | 285                              | 70-24-0081SVH     | 6745  | 285  | 70-24-0081SVH     | 6745  | 2921                        |
| MKL2-C030                            | 3    | 80  | 185  | 123  |                                  | 70-24-0081SVH     | 6821  |  | 70-24-0081SVH     | 6821  | 2921                        |
| MKL2-C040                            | 4    | 100 | 375  | 250  |                                  | 70-24-0081SVH     | 7267  |  | 70-24-0081SVH     | 7267  | 2921                        |
| MKL2-C050                            | 5    | 125 | 790  | 360  |                                  | 70-24-0201SVH     | 9379  |  | 70-24-0201SVH     | 9379  | 2789                        |
| MKL2-C060                            | 6    | 150 | 1350 | 510  |                                  | 70-24-0201SVH     | 9453  |  | 70-24-0201SVH     | 9453  | 2789                        |
| MKL2-C080                            | 8    | 200 | 2800 | 1060 |                                  | 70-24-0201SVH     | 10945 |  | 70-24-0501SVH     | 14116 | 2789                        |
| MKL2-C100                            | 10   | 250 | 4300 | 1630 |                                  | 70-24-0501SVH     | 15159 |  | 70-24-0501SVH     | 15159 | 2789                        |
| MKL2-C120                            | 12   | 300 | 6650 | 2530 |                                  | 70-24-0501SVH     | 16204 |  | -                 | -     | 2789                        |

**Options/Adders**  
 \*Heaters standard in AU-Series  
 Upon Loss of Signal on Servo units:  
 N = Normally Open (Reverse Acting)  
 C = Normally Closed - Factory default

For Battery Back-Up Failsafe Option (BBU) option on 24 VAC actuators, add "-BBU".  
 For Battery Back-Up Failsafe units:  
 N = Normally Open  
 C = Normally Closed - Factory default  
 Note: The actuator sizes shown here are based on maximum valve pressure rating. Use "Seat Retainer Upstream" for Unidirectional Closeoff; Use Downstream for Bi-Directional Closeoff.  
 For applications at lower pressure requirements, consult factory for smaller actuator choices.



## MK Series Butterfly Valves 2-Way with Industrial Electric Actuators (ANSI 300)

On/Off

| Actuator Model Details |      |     |       |      | Series 70 Seat Retainer UPSTREAM |          |       | Series 70 & AU Series Seat Retainer DOWNSTREAM |          |       |
|------------------------|------|-----|-------|------|----------------------------------|----------|-------|--|----------|-------|
| Valve Model Details    | Size |     | Cv    |      | Close-Off psi                    | On/Off   | Price | Close-Off psi                                  | On/Off   | Price |
|                        | In.  | mm  | 90°   | 60°  |                                  | 120 VAC  |       |  | 120 VAC  |       |
| MKL2-C253              | 2.5  | 65  | 160   | 78   | 740                              | 70-0081H | 5416  | 550  | 70-0081H | 5416  |
| MKL2-C033              | 3    | 80  | 185   | 123  | 740                              | 70-0081H | 6012  | 550  | 70-0081H | 6012  |
| MKL2-C043              | 4    | 100 | 375   | 250  | 550                              | 70-0081H | 7429  | 350  | 70-0081H | 7429  |
| MKL2-C053              | 5    | 125 | 790   | 360  | 350                              | 70-0121H | 9063  | 550  | 70-0201H | 9612  |
| MKL2-C063              | 6    | 150 | 1000  | 530  | 550                              | 70-0201H | 9761  | 350  | 70-0201H | 9761  |
| MKL2-C083              | 8    | 200 | 2000  | 950  | 350                              | 70-E301H | 11226 | 550  | 70-0501H | 12827 |
| MKL2-C103              | 10   | 250 | 2650  | 1200 | 350                              | 70-0501H | 20137 | 350  | 70-0651H | 20523 |
| MKL2-C123              | 12   | 300 | 4000  | 1690 | 740                              | 70-1300H | 24576 | 550  | 70-1300H | 24576 |
| MKL2-C143              | 14   | 350 | 4100  | 1770 | 350                              | 70-1300H | 32712 | 350  | 70-1800H | 33734 |
| MKL2-C163              | 16   | 400 | 7800  | 2970 | 350                              | 70-1800H | 46862 | 740  | AU-4068* | 67288 |
| MKL2-C183              | 18   | 450 | 9500  | 4530 | 740                              | AU-4068* | 68818 | 550  | AU-4068* | 68818 |
| MKL2-C203              | 20   | 500 | 11000 | 5400 | 550                              | AU-4068* | 76657 | 350  | AU-4068* | 76657 |

| Actuator Model Details |      |     |      |      | Series 70 Seat Retainer UPSTREAM |             |       | Series 70 & AU Series Seat Retainer DOWNSTREAM |             |       | -BBU Adder (24V Units Only) |
|------------------------|------|-----|------|------|----------------------------------|-------------|-------|--|-------------|-------|-----------------------------|
| Valve Model Details    | Size |     | Cv   |      | Close-Off psi                    | On/Off      | Price | Close-Off psi                                  | On/Off      | Price |                             |
|                        | In.  | mm  | 90°  | 60°  |                                  | 24 VAC      |       |  | 24 VAC      |       |                             |
| MKL2-C253              | 2.5  | 65  | 160  | 78   | 740                              | 70-24-0081H | 5285  | 550  | 70-24-0081H | 5285  | 2706                        |
| MKL2-C033              | 3    | 80  | 185  | 123  | 740                              | 70-24-0081H | 5881  | 550  | 70-24-0081H | 5881  | 2706                        |
| MKL2-C043              | 4    | 100 | 375  | 250  | 550                              | 70-24-0081H | 7298  | 350  | 70-24-0081H | 7298  | 2706                        |
| MKL2-C053              | 5    | 125 | 790  | 360  | 350                              | 70-24-0201H | 9363  | 550  | 70-24-0201H | 9363  | 2788                        |
| MKL2-C063              | 6    | 150 | 1000 | 530  | 550                              | 70-24-0201H | 9512  | 350  | 70-24-0201H | 9512  | 2788                        |
| MKL2-C083              | 8    | 200 | 2000 | 950  | 350                              | 70-24-0501H | 12828 | 550  | 70-24-0501H | 12828 | 2790                        |
| MKL2-C103              | 10   | 250 | 2650 | 1200 | 350                              | 70-24-0501H | 20138 | -  | -           | -     | 2790                        |

Modulating

| Actuator Model Details |      |     |       |      | Series 70 & AU Series Seat Retainer UPSTREAM |            |       | Series 70 & AU Series Seat Retainer DOWNSTREAM |            |       |
|------------------------|------|-----|-------|------|--|------------|-------|--|------------|-------|
| Valve Model Details    | Size |     | Cv    |      | Close-Off psi                                | Modulating | Price | Close-Off psi                                  | Modulating | Price |
|                        | In.  | mm  | 90°   | 60°  |  | 120 VAC    |       |  | 120 VAC    |       |
| MKL2-C253              | 2.5  | 65  | 160   | 78   | 740  | 70-0081SVH | 6881  | 550  | 70-0081SVH | 6881  |
| MKL2-C033              | 3    | 80  | 185   | 123  | 740  | 70-0081SVH | 7477  | 550  | 70-0081SVH | 7477  |
| MKL2-C043              | 4    | 100 | 375   | 250  | 550  | 70-0081SVH | 8894  | 350  | 70-0081SVH | 8894  |
| MKL2-C053              | 5    | 125 | 790   | 360  | 350  | 70-0121SVH | 10558 | 550  | 70-0201SVH | 11108 |
| MKL2-C063              | 6    | 150 | 1000  | 530  | 550  | 70-0201SVH | 11257 | 350  | 70-0201SVH | 11257 |
| MKL2-C083              | 8    | 200 | 2000  | 950  | 350  | 70-E301SVH | 12889 | 550  | 70-0501SVH | 14263 |
| MKL2-C103              | 10   | 250 | 2650  | 1200 | 350  | 70-0501SVH | 21573 | 350  | 70-0651SVH | 21956 |
| MKL2-C123              | 12   | 300 | 4000  | 1690 | 740  | 70-1300SVH | 26087 | 550  | 70-1300SVH | 26087 |
| MKL2-C143              | 14   | 350 | 4100  | 1770 | 350  | 70-1300SVH | 34223 | 350  | 70-1800SVH | 34985 |
| MKL2-C163              | 16   | 400 | 7800  | 2970 | 350  | 70-1800SVH | 48113 | 740  | AU-4068SV* | 69110 |
| MKL2-C183              | 18   | 450 | 9500  | 4530 | 740  | AU-4068SV* | 70640 | 550  | AU-4068SV* | 70640 |
| MKL2-C203              | 20   | 500 | 11000 | 5400 | 550  | AU-4068SV* | 78479 | 350  | AU-4068SV* | 78479 |

| Actuator Model Details |      |     |      |      | Series 70 Seat Retainer UPSTREAM |               |       | Series 70 & AU Series Seat Retainer DOWNSTREAM |               |       | -BBU Adder (24V Units Only) |
|------------------------|------|-----|------|------|----------------------------------|---------------|-------|--|---------------|-------|-----------------------------|
| Valve Model Details    | Size |     | Cv   |      | Close-Off psi                    | Modulating    | Price | Close-Off psi                                  | Modulating    | Price |                             |
|                        | In.  | mm  | 90°  | 60°  |                                  | 24 VAC        |       |  | 24 VAC        |       |                             |
| MKL2-C253              | 2.5  | 65  | 160  | 78   | 740                              | 70-24-0081SVH | 6821  | 550  | 70-24-0081SVH | 6821  | 2921                        |
| MKL2-C033              | 3    | 80  | 185  | 123  | 740                              | 70-24-0081SVH | 7417  | 550  | 70-24-0081SVH | 7417  | 2921                        |
| MKL2-C043              | 4    | 100 | 375  | 250  | 550                              | 70-24-0081SVH | 8834  | 350  | 70-24-0081SVH | 8834  | 2921                        |
| MKL2-C053              | 5    | 125 | 790  | 360  | 350                              | 70-24-0201SVH | 10945 | 550  | 70-24-0201SVH | 10945 | 2789                        |
| MKL2-C063              | 6    | 150 | 1000 | 530  | 550                              | 70-24-0201SVH | 11094 | 350  | 70-24-0201SVH | 11094 | 2789                        |
| MKL2-C083              | 8    | 200 | 2000 | 950  | 350                              | 70-24-0501SVH | 14413 | 550  | 70-24-0501SVH | 14413 | 2789                        |
| MKL2-C103              | 10   | 250 | 2650 | 1200 | 350                              | 70-24-0501SVH | 21723 | -  | -             | -     | 2789                        |

**Options/Adders**

\*Heaters standard in AU-Series  
 Upon Loss of Signal on Servo units:  
 N = Normally Open (Reverse Acting)  
 C = Normally Closed - Factory default

For Battery Back-Up Failsafe Option (BBU) option on 24 VAC actuators, add "-BBU".

For Battery Back-Up Failsafe units:

N = Normally Open  
 C = Normally Closed - Factory default

Note: The actuator sizes shown here are based on maximum valve pressure rating. Use "Seat Retainer Upstream for Unidirectional Closeoff; Use Downstream for Bi-Directional Closeoff.

For applications at lower pressure requirements, consult factory for smaller actuator choices.

PRICING - High Performance Butterfly Valves - 2-Way



## MK Series Butterfly Valves 3-Way with Industrial Electric Actuators (ANSI 150)

PRICING - High Performance Butterfly Valves - 3-Way

| 3-Way, 24 VAC & 120 VAC, On/Off - ANSI 150 |      |     |               |                   |      |                  |       |                   |       |                             |        |         |
|--|------|-----|---------------|-------------------|------|------------------|-------|-------------------|-------|-----------------------------|--------|---------|
| Actuator Model Details                     |      |     |               | Series 70 120 VAC |      | Series 70 24 VAC |       | AU-Series 120 VAC |       | -BBU Adder (24V Units Only) |        |         |
| Valve Model Details                        | Size |     | Close-Off psi | Cv                |      | Model #          | Price | Model #           | Price |                             |        | Model # |
|  | In.  | mm  |               | 90°               | 60°  |                  |       |                   |       |                             |        |         |
| MKL3-X025                                  | 2.5  | 65  | 250           | 160               | 78   | 70-0081H         | 9459  | 70-24-0081H       | 9328  | -                           | -      | 2706    |
| MKL3-X030                                  | 3    | 80  |               | 185               | 123  | 70-0081H         | 9724  | 70-24-0081H       | 9593  | -                           | -      | 2706    |
| MKL3-X040                                  | 4    | 100 |               | 375               | 250  | 70-0121H         | 12778 | 70-24-0201H       | 13078 | -                           | -      | 2788    |
| MKL3-X050                                  | 5    | 125 |               | 790               | 360  | 70-0121H         | 12960 | 70-24-0201H       | 13260 | -                           | -      | 2788    |
| MKL3-X060                                  | 6    | 150 |               | 1350              | 510  | 70-0121H         | 13301 | 70-24-0201H       | 13601 | -                           | -      | 2788    |
| MKL3-X080                                  | 8    | 200 |               | 2800              | 1060 | 70-0201H         | 16909 | 70-24-0201H       | 16660 | -                           | -      | 2788    |
| MKL3-X100                                  | 10   | 250 |               | 4300              | 1630 | 70-0501H         | 22011 | 70-24-0501H       | 22012 | -                           | -      | 2790    |
| MKL3-X120                                  | 12   | 300 |               | 6650              | 2530 | 70-0651H         | 25083 | -                 | -     | -                           | -      | -       |
| MKL3-X140                                  | 14   | 350 |               | 7650              | 2900 | 70-1300H         | 44730 | -                 | -     | -                           | -      | -       |
| MKL3-X160                                  | 16   | 400 |               | 9800              | 3700 | -                | -     | -                 | -     | AU-2130*                    | 84426  | -       |
| MKL3-X180                                  | 18   | 450 |               | 10500             | 5100 | -                | -     | -                 | -     | AU-4068*                    | 100431 | -       |
| MKL3-X200                                  | 20   | 500 |               | 13500             | 6500 | -                | -     | -                 | -     | AU-4068*                    | 124449 | -       |

| 3-Way, 24 VAC & 120 VAC, Modulating - ANSI 150 |      |     |               |                   |      |                  |       |                   |       |                             |        |         |
|--|------|-----|---------------|-------------------|------|------------------|-------|-------------------|-------|-----------------------------|--------|---------|
| Actuator Model Details                         |      |     |               | Series 70 120 VAC |      | Series 70 24 VAC |       | AU-Series 120 VAC |       | -BBU Adder (24V Units Only) |        |         |
| Valve Model Details                            | Size |     | Close-Off psi | Cv                |      | Model #          | Price | Model #           | Price |                             |        | Model # |
|  | In.  | mm  |               | 90°               | 60°  |                  |       |                   |       |                             |        |         |
| MKL3-X025                                      | 2.5  | 65  | 250           | 160               | 78   | 70-0081SVH       | 10924 | 70-24-0081SVH     | 10864 | -                           | -      | 2921    |
| MKL3-X030                                      | 3    | 80  |               | 185               | 123  | 70-0081SVH       | 11189 | 70-24-0081SVH     | 11129 | -                           | -      | 2921    |
| MKL3-X040                                      | 4    | 100 |               | 375               | 250  | 70-0121SVH       | 14273 | 70-24-0201SVH     | 14660 | -                           | -      | 2789    |
| MKL3-X050                                      | 5    | 125 |               | 790               | 360  | 70-0121SVH       | 14455 | 70-24-0201SVH     | 14842 | -                           | -      | 2789    |
| MKL3-X060                                      | 6    | 150 |               | 1350              | 510  | 70-0121SVH       | 14796 | 70-24-0201SVH     | 15183 | -                           | -      | 2789    |
| MKL3-X080                                      | 8    | 200 |               | 2800              | 1060 | 70-0201SVH       | 18405 | 70-24-0201SVH     | 18242 | -                           | -      | 2789    |
| MKL3-X100                                      | 10   | 250 |               | 4300              | 1630 | 70-0501SVH       | 23447 | 70-24-0501SVH     | 23597 | -                           | -      | 2789    |
| MKL3-X120                                      | 12   | 300 |               | 6650              | 2530 | 70-0651SVH       | 26516 | -                 | -     | -                           | -      | -       |
| MKL3-X140                                      | 14   | 350 |               | 7650              | 2900 | 70-1300SVH       | 46241 | -                 | -     | -                           | -      | -       |
| MKL3-X160                                      | 16   | 400 |               | 9800              | 3700 | -                | -     | -                 | -     | AU-2130SV*                  | 84426  | -       |
| MKL3-X180                                      | 18   | 450 |               | 10500             | 5100 | -                | -     | -                 | -     | AU-4068SV*                  | 100431 | -       |
| MKL3-X200                                      | 20   | 500 |               | 13500             | 6500 | -                | -     | -                 | -     | AU-4068SV*                  | 124449 | -       |

Options/Adders  
 X = 3-Way Assemblies (Refer to Configuration Chart, Page 63)  
 \*Heaters standard in AU-Series  
 For Battery Back-Up Failsafe Option (BBU) on 24 VAC actuators, add "-BBU" to the end of the part number.



## MK Series Butterfly Valves 2-Way with Double Acting Pneumatic Actuators (ANSI 150 & 300)

| 2-Way, Double Acting Pneumatic - ANSI 150 |      |     |               |       |                                  |         |                                    |         |                            |       |
|---|------|-----|---------------|-------|----------------------------------|---------|------------------------------------|---------|----------------------------|-------|
| Actuator Model Details                    |      |     |               |       | Series 92 Seat Retainer UPSTREAM |         | Series 92 Seat Retainer DOWNSTREAM |         | Adder for Manual Override* |       |
| Valve Model Details                       | Size |     | Close-Off psi | Cv    |                                  | Model # | Price                              | Model # |                            | Price |
|   | In.  | mm  |               | 90°   | 60°                              |         |                                    |         |                            |       |
| MKL2-C025                                 | 2.5  | 65  | 285           | 160   | 78                               | S92-83  | 2806                               | S92-83  | 2806                       | 987   |
| MKL2-C030                                 | 3    | 80  |               | 185   | 123                              | S92-83  | 2940                               | S92-83  | 2940                       | 987   |
| MKL2-C040                                 | 4    | 100 |               | 375   | 250                              | S92-83  | 3241                               | S92-83  | 3241                       | 987   |
| MKL2-C050                                 | 5    | 125 |               | 790   | 360                              | S92-93  | 4425                               | S92-119 | 4848                       | 987   |
| MKL2-C060                                 | 6    | 150 |               | 1350  | 510                              | S92-93  | 4531                               | S92-119 | 4958                       | 1459  |
| MKL2-C080                                 | 8    | 200 |               | 2800  | 1060                             | S92-119 | 6734                               | S92-119 | 6734                       | 1459  |
| MKL2-C100                                 | 10   | 250 |               | 4300  | 1630                             | S92-128 | 11772                              | S92-160 | 12674                      | 1459  |
| MKL2-C120                                 | 12   | 300 |               | 6650  | 2530                             | S92-160 | 14857                              | S92-210 | 18817                      | 1459  |
| MKL2-C140                                 | 14   | 350 |               | 7650  | 2900                             | S92-210 | 23711                              | S92-210 | 23711                      | 2019  |
| MKL2-C160                                 | 16   | 400 |               | 9800  | 3700                             | S92-210 | 29950                              | S92-255 | 38413                      | 2678  |
| MKL2-C180                                 | 18   | 450 |               | 10500 | 5100                             | S92-255 | 46121                              | S92-255 | 46121                      | 2678  |
| MKL2-C200                                 | 20   | 500 |               | 13500 | 6500                             | S92-255 | 56126                              | S92-255 | 56126                      | 2678  |

| 2-Way, Double Acting Pneumatic - ANSI 300 |      |     |               |      |                                  |         |                                    |                 |                            |       |
|---|------|-----|---------------|------|----------------------------------|---------|------------------------------------|-----------------|----------------------------|-------|
| Actuator Model Details                    |      |     |               |      | Series 92 Seat Retainer UPSTREAM |         | Series 92 Seat Retainer DOWNSTREAM |                 | Adder for Manual Override* |       |
| Valve Model Details                       | Size |     | Close-Off psi | Cv   |                                  | Model # | Price                              | Model #         |                            | Price |
|   | In.  | mm  |               | 90°  | 60°                              |         |                                    |                 |                            |       |
| MKL2-C253                                 | 2.5  | 65  | 740           | 160  | 78                               | S92-83  | 2848                               | S92-83          | 2848                       | 987   |
| MKL2-C033                                 | 3    | 80  |               | 185  | 123                              | S92-83  | 3952                               | S92-93          | 4069                       | 987   |
| MKL2-C043                                 | 4    | 100 |               | 375  | 250                              | S92-83  | 4767                               | S92-93          | 4884                       | 987   |
| MKL2-C053                                 | 5    | 125 |               | 790  | 360                              | S92-119 | 6336                               | S92-128         | 6607                       | 987   |
| MKL2-C063                                 | 6    | 150 |               | 1000 | 530                              | S92-119 | 9178                               | S92-160         | 10308                      | 1459  |
| MKL2-C083                                 | 8    | 200 |               | 2000 | 950                              | S92-160 | 13217                              | S92-160         | 13217                      | 1459  |
| MKL2-C103                                 | 10   | 250 |               | 2650 | 1200                             | S92-210 | 21593                              | S92-210         | 21593                      | 1459  |
| MKL2-C123                                 | 12   | 300 |               | 4000 | 1690                             | S92-210 | 22527                              | S92-255         | 31675                      | 2678  |
| MKL2-C143                                 | 14   | 350 |               | 4100 | 1770                             | S92-255 | 40112                              | S92-255         | 40112                      | 2678  |
| MKL2-C163                                 | 16   | 400 |               | 7800 | 2970                             | S92-255 | 47682                              | Consult Factory |                            | 2679  |

**Options/Adders**  
 \* For Manual Override, add "-5" to the end of the part number.  
 \* Manual overrides sized for seat retainer upstream. For seat retainer downstream, consult factory.  
 For additional options and adders, see Pages 56 & 57.

**Note**  
 The actuator sizes shown here are based on maximum valve pressure rating.  
 Use "Seat Retainer Upstream for Unidirectional Close off; Use Downstream for Bi-Directional Close Off  
 For applications at lower pressure requirements, consult factory for smaller actuator choices.



## MK Series Butterfly Valves 2-Way with Spring Return Actuators (ANSI 150 & 300)

| 2-Way, Spring Return - ANSI 150 |           |     |                  |      |                                     |                         |       |                           |                                       |                         |       |                           |                                  |        |
|---------------------------------|-----------|-----|------------------|------|-------------------------------------|-------------------------|-------|---------------------------|---------------------------------------|-------------------------|-------|---------------------------|----------------------------------|--------|
| Actuator Model Details          |           |     |                  |      | Series 93<br>Seat Retainer UPSTREAM |                         |       |                           | Series 93<br>Seat Retainer DOWNSTREAM |                         |       |                           | Adder for<br>Manual<br>Override* |        |
| Valve Model<br>Details          | Size      |     | Close-Off<br>psi | Cv   |                                     | Normally Open<br>(N.O.) |       | Normally Closed<br>(N.C.) |                                       | Normally Open<br>(N.O.) |       | Normally Closed<br>(N.C.) |                                  |        |
|                                 | In.       | mm  |                  | 90°  | 60°                                 | Model #                 | Price | Model #                   | Price                                 | Model #                 | Price | Model #                   |                                  | Price  |
|                                 | MKL2-C025 | 2.5 |                  | 65   | 285                                 | 160                     | 78    | 93-833                    | 2954                                  | 93-834                  | 2997  | 93-834                    | 2997                             | 93-835 |
| MKL2-C030                       | 3         | 80  | 185              | 123  |                                     | 93-833                  | 3087  | 93-834                    | 3130                                  | 93-834                  | 3130  | 93-836                    | 3241                             | 987    |
| MKL2-C040                       | 4         | 100 | 375              | 250  |                                     | 93-834                  | 3471  | 93-836                    | 3557                                  | 93-934                  | 3610  | 93-936                    | 3657                             | 987    |
| MKL2-C050                       | 5         | 125 | 790              | 360  |                                     | 93-1193                 | 5116  | 93-1194                   | 5195                                  | 93-1283                 | 5327  | 93-1196                   | 5367                             | 987    |
| MKL2-C060                       | 6         | 150 | 1350             | 510  |                                     | 93-1193                 | 5233  | 93-1195                   | 5391                                  | 93-1283                 | 5444  | 93-1285                   | 5744                             | 1459   |
| MKL2-C080                       | 8         | 200 | 2800             | 1060 |                                     | 93-1602                 | 8109  | 93-1604                   | 8335                                  | 93-1603                 | 8222  | 93-1605                   | 8449                             | 1459   |
| MKL2-C100                       | 10        | 250 | 4300             | 1630 |                                     | 93-2102                 | 17495 | 93-2103                   | 17722                                 | 93-2103                 | 17722 | 93-2105                   | 18286                            | 1459   |
| MKL2-C120                       | 12        | 300 | 6650             | 2530 |                                     | 93-2103                 | 20140 | 93-2105                   | 20592                                 | 93-2552                 | 31073 | 93-2553                   | 31627                            | 2678   |
| MKL2-C140                       | 14        | 350 | 7650             | 2900 |                                     | 93-2552                 | 37205 | 93-2553                   | 37760                                 | 93-2553                 | 37761 | 93-2555                   | 40692                            | 2678   |
| MKL2-C160                       | 16        | 400 | 9800             | 3700 |                                     | 93-2553                 | 45401 | 93-2555                   | 46508                                 | Contact Bray            |       |                           |                                  | 2679   |

| 2-Way, Spring Return - ANSI 300 |           |     |                  |      |                                     |                         |       |                           |                                       |                         |       |                           |                                  |         |
|---------------------------------|-----------|-----|------------------|------|-------------------------------------|-------------------------|-------|---------------------------|---------------------------------------|-------------------------|-------|---------------------------|----------------------------------|---------|
| Actuator Model Details          |           |     |                  |      | Series 93<br>Seat Retainer UPSTREAM |                         |       |                           | Series 93<br>Seat Retainer DOWNSTREAM |                         |       |                           | Adder for<br>Manual<br>Override* |         |
| Valve Model<br>Details          | Size      |     | Close-Off<br>psi | Cv   |                                     | Normally Open<br>(N.O.) |       | Normally Closed<br>(N.C.) |                                       | Normally Open<br>(N.O.) |       | Normally Closed<br>(N.C.) |                                  |         |
|                                 | In.       | mm  |                  | 90°  | 60°                                 | Model #                 | Price | Model #                   | Price                                 | Model #                 | Price | Model #                   |                                  | Price   |
|                                 | MKL2-C253 | 2.5 |                  | 65   | 740                                 | 160                     | 78    | 93-934                    | 3191                                  | 93-1193                 | 3640  | 93-1193                   | 3639                             | 93-1194 |
| MKL2-C033                       | 3         | 80  | 185              | 123  |                                     | 93-934                  | 4291  | 93-1193                   | 4740                                  | 93-1193                 | 4740  | 93-1194                   | 4793                             | 987     |
| MKL2-C043                       | 4         | 100 | 375              | 250  |                                     | 93-1193                 | 5535  | 93-1194                   | 5610                                  | 93-1283                 | 5735  | 93-1196                   | 5712                             | 987     |
| MKL2-C053                       | 5         | 125 | 790              | 360  |                                     | 93-1603                 | 7745  | 93-1604                   | 7852                                  | 93-1604                 | 7853  | 93-1606                   | 8066                             | 987     |
| MKL2-C063                       | 6         | 150 | 1000             | 530  |                                     | 93-1603                 | 14328 | 93-1605                   | 14542                                 | 93-2102                 | 14948 | 93-2104                   | 15379                            | 1459    |
| MKL2-C083                       | 8         | 200 | 2000             | 950  |                                     | 93-2103                 | 18075 | 93-2104                   | 18291                                 | 93-2104                 | 18291 | 93-2106                   | 18830                            | 1459    |
| MKL2-C103                       | 10        | 250 | 2650             | 1200 |                                     | 93-2552                 | 33196 | 93-2553                   | 33725                                 | 93-2553                 | 33725 | 93-2555                   | 36521                            | 2678    |
| MKL2-C123                       | 12        | 300 | 4000             | 1690 |                                     | 93-2553                 | 53398 | 93-2555                   | 54453                                 | Contact Bray            |       |                           |                                  | 2679    |

**Options/Adders**

\* For Manual Override, add "-5" to the end of the part number.  
 \* Manual overrides sized for seat retainer upstream. For seat retainer downstream, consult factory.  
 For additional options and adders, see Pages 56 & 57.  
 For Spring Return Units:  
 N = Normally Open  
 C = Normally Closed - Factory default

**Note**

The actuator sizes shown here are based on maximum valve pressure rating.  
 Use "Seat Retainer Upstream for Unidirectional Close off; Use Downstream for Bi-Directional Close off  
 For applications at lower pressure requirements, consult factory for smaller actuator choices.



## MK Series Butterfly Valves 3-Way with Double Acting & Spring Return Pneumatic Actuators (ANSI 150)

| 3-Way, Double Acting Pneumatic - ANSI 150 |      |     |               |       |                         |         |                            |       |
|---|------|-----|---------------|-------|-------------------------|---------|----------------------------|-------|
| Actuator Model Details                    |      |     |               |       | Series 92 Double Acting |         | Adder for Manual Override* |       |
| Valve Model Details                       | Size |     | Close-Off psi | Cv    |                         | Model # |                            | Price |
|   | In.  | mm  |               | 90°   | 60°                     |         |                            |       |
| MKL3-x025                                 | 2.5  | 65  | 250           | 160   | 78                      | S92-083 | 5988                       | 987   |
| MKL3-x030                                 | 3    | 80  |               | 185   | 123                     | S92-083 | 6323                       | 987   |
| MKL3-x040                                 | 4    | 100 |               | 375   | 250                     | S92-083 | 7319                       | 987   |
| MKL3-x050                                 | 5    | 125 |               | 790   | 360                     | S92-119 | 10407                      | 987   |
| MKL3-x060                                 | 6    | 150 |               | 1350  | 510                     | S92-119 | 10620                      | 1459  |
| MKL3-x080                                 | 8    | 200 |               | 2800  | 1060                    | S92-128 | 15500                      | 1459  |
| MKL3-x100                                 | 10   | 250 |               | 4300  | 1630                    | S92-160 | 27835                      | 1459  |
| MKL3-x120                                 | 12   | 300 |               | 6650  | 2530                    | S92-210 | 37650                      | 1459  |
| MKL3-x140                                 | 14   | 350 |               | 7650  | 2900                    | S92-210 | 57298                      | 2019  |
| MKL3-x160                                 | 16   | 400 |               | 9800  | 3700                    | S92-255 | 69986                      | 2678  |
| MKL3-x180                                 | 18   | 450 |               | 10500 | 5100                    | S92-255 | 82821                      | 2678  |
| MKL3-x200                                 | 20   | 500 |               | 13500 | 6500                    | S92-255 | 104585                     | 2678  |

| 3-Way, Spring Return Pneumatic - ANSI 150 |      |     |               |       |                         |                 |                            |       |
|---|------|-----|---------------|-------|-------------------------|-----------------|----------------------------|-------|
| Actuator Model Details                    |      |     |               |       | Series 93 Spring Return |                 | Adder for Manual Override* |       |
| Valve Model Details                       | Size |     | Close-Off psi | Cv    |                         | Model #         |                            | Price |
|   | In.  | mm  |               | 90°   | 60°                     |                 |                            |       |
| MKL3-x025                                 | 2.5  | 65  | 250           | 160   | 78                      | S93-934         | 6321                       | 987   |
| MKL3-x030                                 | 3    | 80  |               | 185   | 123                     | S93-934         | 6656                       | 987   |
| MKL3-x040                                 | 4    | 100 |               | 375   | 250                     | S93-1193        | 8123                       | 987   |
| MKL3-x050                                 | 5    | 125 |               | 790   | 360                     | S93-1284        | 11101                      | 987   |
| MKL3-x060                                 | 6    | 150 |               | 1350  | 510                     | S93-1603        | 12121                      | 1459  |
| MKL3-x080                                 | 8    | 200 |               | 2800  | 1060                    | S93-2103        | 21673                      | 1459  |
| MKL3-x100                                 | 10   | 250 |               | 4300  | 1630                    | S93-2552        | 40091                      | 2678  |
| MKL3-x120                                 | 12   | 300 |               | 6650  | 2530                    | S93-2553        | 46105                      | 2678  |
| MKL3-x140                                 | 14   | 350 |               | 7650  | 2900                    | S93-2553        | 62555                      | 2678  |
| MKL3-x160                                 | 16   | 400 |               | 9800  | 3700                    | Consult Factory |                            |       |
| MKL3-x180                                 | 18   | 450 |               | 10500 | 5100                    | Consult Factory |                            |       |
| MKL3-x200                                 | 20   | 500 |               | 13500 | 6500                    | Consult Factory |                            |       |

**Options/Adders**

X = 3-Way Assemblies (Refer to Configuration Chart, Page 63)

\* For Manual Override, add "-5" to the end of the part number.

\* Manual overrides sized for seat retainer upstream. For seat retainer downstream, consult factory.

For additional options and adders, see Pages 56 & 57.

**2-Way, NYL Series - ANSI 150**

| Actuator Model Details            |      |     |                  |       |      | AIS Compliant<br>BUSA Part # | Body | Disc | Stem | Seat | List Price<br>Adder |
|-----------------------------------|------|-----|------------------|-------|------|------------------------------|------|------|------|------|---------------------|
| Standard<br>Bray Valve<br>Model # | Size |     | Close-Off<br>psi | Cv    |      |                              |      |      |      |      |                     |
|                                   | In.  | mm  |                  | 90°   | 60°  |                              |      |      |      |      |                     |
| NYL2-C081                         | 8    | 200 | 285              | 3316  | 1081 | 310800-11011308/A153         | DI   | NDI  | 316  | EPDM | 3576                |
| NYL2-C080                         | 8    | 200 |                  | 3316  | 1081 | 310800-11010308/A153         |      |      |      |      | 3576                |
| NYL2-C101                         | 10   | 250 |                  | 5430  | 1710 | 311000-11011308/A153         |      |      |      |      | 4449                |
| NYL2-C100                         | 10   | 250 |                  | 5430  | 1710 | 311000-11010308/A153         |      |      |      |      | 4449                |
| NYL2-C121                         | 12   | 300 |                  | 8077  | 2563 | 311200-11011308/A153         |      |      |      |      | 6665                |
| NYL2-C120                         | 12   | 300 |                  | 8077  | 2563 | 311200-11010308/A153         |      |      |      |      | 6665                |
| NYL2-C141                         | 14   | 350 |                  | 10538 | 3384 | 311400-11011308/A153         |      |      |      |      | 10598               |
| NYL2-C140                         | 14   | 350 |                  | 10538 | 3384 | 311400-11010308/A153         |      |      |      |      | 10598               |
| NYL2-C161                         | 16   | 400 |                  | 13966 | 4483 | 311600-11011308/A153         |      |      |      |      | 13813               |
| NYL2-C160                         | 16   | 400 |                  | 13966 | 4483 | 311600-11010308/A153         |      |      |      |      | 13813               |
| NYL2-C181                         | 18   | 450 |                  | 17214 | 5736 | 311800-11011308/A153         |      |      |      |      | 14966               |
| NYL2-C180                         | 18   | 450 |                  | 17214 | 5736 | 311800-11010308/A153         |      |      |      |      | 14966               |
| NYL2-C201                         | 20   | 500 |                  | 22339 | 7144 | 312000-11011308/A153         |      |      |      |      | 18963               |
| NYL2-C200                         | 20   | 500 |                  | 22339 | 7144 | 312000-11010308/A153         |      |      |      |      | 18963               |

**2-Way, MKL Series - ANSI 150**

| Actuator Model Details            |      |     |                  |       |      | AIS Compliant<br>BUSA Part # | Body | Disc | Stem   | Seat | List Price<br>Adder |
|-----------------------------------|------|-----|------------------|-------|------|------------------------------|------|------|--------|------|---------------------|
| Standard<br>Bray Valve<br>Model # | Size |     | Close-Off<br>psi | Cv    |      |                              |      |      |        |      |                     |
|                                   | In.  | mm  |                  | 90°   | 60°  |                              |      |      |        |      |                     |
| MKL2-C025                         | 2.5  | 65  | 285              | 160   | 78   | 410250-11001466/A150         | CS   | 316  | 17-4PH | RTFE | 4152                |
| MKL2-C030                         | 3    | 80  |                  | 185   | 123  | 410300-11001466/A150         |      |      |        |      | 4463                |
| MKL2-C040                         | 4    | 100 |                  | 375   | 250  | 410400-11001466/A150         |      |      |        |      | 5276                |
| MKL2-C060                         | 6    | 150 |                  | 1350  | 510  | 410600-11001466/A150         |      |      |        |      | 7166                |
| MKL2-C080                         | 8    | 200 |                  | 2800  | 1060 | 410800-11001466/A150         |      |      |        |      | 9588                |
| MKL2-C100                         | 10   | 250 |                  | 4300  | 1630 | 411000-11001466/A150         |      |      |        |      | 14286               |
| MKL2-C120                         | 12   | 300 |                  | 6650  | 2530 | 411200-11001466/A150         |      |      |        |      | 18783               |
| MKL2-C140                         | 14   | 350 |                  | 7650  | 2900 | 411400-11001466/A150         |      |      |        |      | 34389               |
| MKL2-C160                         | 16   | 400 |                  | 9800  | 3700 | 411600-11001466/A150         |      |      |        |      | 49541               |
| MKL2-C180                         | 18   | 450 |                  | 10500 | 5100 | 411800-11001466/A150         |      |      |        |      | 64706               |
| MKL2-C200                         | 20   | 500 |                  | 13500 | 6500 | 412000-11001466/A150         |      |      |        |      | 85345               |

**Note**  
 Aluminum Bronze Disc Valves Exempt. Total cost of Iron and Steel is less than 50% of total.  
 Note this act applies to valves only. Actuators are Exempt.



## Electric Damper Actuators - Non-Spring Return

| Electric Damper Actuators - Non Spring-Return |           |        |                |          |            |          |                    |                        |                         |                         |                               |            |     |
|---|-----------|--------|----------------|----------|------------|----------|--------------------|------------------------|-------------------------|-------------------------|-------------------------------|------------|-----|
| Model Number                                  | Voltage   | Torque | On/Off         | Floating | Modulating | Time Out | Auxiliary Switches | Exposed Terminal Block | Enclosed Terminal Block | Conduit NPT(N) FLEX (F) | Cable Plenum (P) Standard (S) | List Price |     |
| D24-35-T-TS                                   | 24 VAC    | 35     | X <sup>1</sup> | X        |            |          |                    | X                      |                         |                         | -                             | 163        |     |
| D24-35-TP                                     |           |        | X <sup>1</sup> | X        |            |          |                    |                        |                         |                         | P                             | 179        |     |
| DM24-35-TS                                    |           |        |                |          | X          |          |                    |                        | X                       |                         |                               | -          | 292 |
| DM24-35                                       |           |        |                | X        |            |          |                    |                        |                         |                         | P                             | 289        |     |
| DC24-44-TP                                    | 24 VAC    | 44     |                | X        |            |          |                    |                        |                         |                         | P                             | 159        |     |
| DC24-44-TPTO                                  | 24 VAC/DC |        | X              | X        |            | X        |                    |                        |                         |                         | P                             | 212        |     |
| DC24-44-TAP                                   | 24 VAC    |        |                | X        |            |          | X                  |                        |                         |                         | P                             | 325        |     |
| DCM24-44-P                                    | 24 VAC/DC |        |                |          | X          | X        |                    |                        |                         |                         | P                             | 259        |     |
| DCM24-44-AP                                   |           |        |                | X        | X          | X        |                    |                        |                         | P                       | 411                           |            |     |
| D24-70  | 24 VAC/DC | 70     | X              | X        |            | X        |                    |                        | X                       | 1/2 N                   | -                             | 295        |     |
| D24-70-A                                      |           |        | X              | X        |            | X        | X                  |                        | X                       | 1/2 N                   | -                             | 416        |     |
| DM24-70                                       |           |        |                | X        |            |          |                    |                        | X                       | 1/2 N                   | -                             | 387        |     |
| DM24-70-A                                     |           |        |                | X        |            | X        |                    | X                      | X                       | 1/2 N                   | -                             | 508        |     |
| DC24-88-TP                                    | 24 VAC    | 88     |                | X        |            |          |                    |                        |                         | 1/2 N                   | P                             | 363        |     |
| DC24-88-TAP                                   | 24 VAC/DC |        | X              | X        |            | X        | X                  |                        |                         |                         | P                             | 485        |     |
| DCM24-88-P                                    |           |        |                |          | X          | X        |                    |                        |                         | 1/2 N                   | P                             | 380        |     |
| DCM24-88-AP                                   |           |        | X              | X        | X          |          |                    |                        |                         | P                       | 499                           |            |     |
| D24-140                                       | 24 VAC/DC | 140    | X              | X        |            | X        |                    |                        | X                       | 1/2 N                   | -                             | 342        |     |
| D24-140-A                                     |           |        | X              | X        |            | X        | X                  |                        | X                       | 1/2 N                   | -                             | 463        |     |
| DM24-140                                      |           |        |                | X        |            |          |                    |                        | X                       | 1/2 N                   | -                             | 543        |     |
| DM24-140-A                                    |           |        |                | X        |            | X        |                    | X                      | X                       | 1/2 N                   | -                             | 664        |     |
| D24-210                                       | 24 VAC/DC | 210    | X              | X        |            | X        |                    |                        | X                       | 1/2 N                   | -                             | 482        |     |
| D24-210-A                                     |           |        | X              | X        |            | X        | X                  |                        | X                       | 1/2 N                   | -                             | 603        |     |
| DM24-210                                      |           |        |                | X        |            |          |                    |                        | X                       | 1/2 N                   | -                             | 623        |     |
| DM24-210-A                                    |           |        |                | X        |            | X        |                    | X                      | X                       | 1/2 N                   | -                             | 744        |     |
| D24-280                                       | 24 VAC/DC | 280    | X              | X        |            | X        |                    |                        | X                       | 1/2 N                   | -                             | 609        |     |
| D24-280-A                                     |           |        | X              | X        |            | X        | X                  |                        | X                       | 1/2 N                   | -                             | 730        |     |
| DM24-280                                      |           |        |                | X        |            |          |                    |                        | X                       | 1/2 N                   | -                             | 684        |     |
| DM24-280-A                                    |           |        |                | X        |            | X        |                    | X                      | X                       | 1/2 N                   | -                             | 805        |     |
| DC24-310-T                                    | 24 VAC/DC | 310    | X              | X        |            | X        |                    |                        |                         | 3/8 F                   | S                             | 534        |     |
| DC24-310-TA                                   |           |        | X              | X        |            | X        | X                  |                        |                         | 3/8 F                   | S                             | 651        |     |
| DCM24-310                                     |           |        |                | X        | X          |          | X                  |                        |                         | 3/8 F                   | S                             | 605        |     |
| DCM24-310-A                                   |           |        |                | X        | X          | X        |                    | X                      |                         | 3/8 F                   | S                             | 723        |     |

**Options**

<sup>1</sup> Relay Required for On/Off Control



## Electric Damper Actuators - Spring Return

| Electric Damper Actuators - Spring-Return |             |        |        |          |            |                    |                         |                               |            |      |
|---|-------------|--------|--------|----------|------------|--------------------|-------------------------|-------------------------------|------------|------|
| Model Number                              | Voltage     | Torque | On/Off | Floating | Modulating | Auxiliary Switches | Conduit NPT(N) FLEX (F) | Cable Plenum (P) Standard (S) | List Price |      |
| DCS24-20-P                                | 24 VAC/DC   | 20     | X      |          |            |                    | 1/2 N                   | P                             | 352        |      |
| DCS24-20-AP                               |             |        | X      |          |            | X                  |                         | P                             | 483        |      |
| DCMS24-20-P                               |             |        |        |          |            | X                  |                         | 1/2 N                         | P          | 501  |
| DS24-27                                   | 24 VAC/DC   | 27     | X      |          |            |                    | 1/2 N                   | S                             | 320        |      |
| DS24-27-A                                 |             |        | X      |          |            | X                  | 1/2 N                   | S                             | 445        |      |
| DMS24-27                                  |             |        |        |          |            | X                  |                         | 1/2 N                         | P          | 506  |
| DMS24-27-A                                |             |        |        |          |            | X                  | X                       | 1/2 N                         | S          | 626  |
| DSU20-27                                  | 120/240 VAC |        | X      |          |            |                    | 1/2 N                   | S                             | 409        |      |
| DSU20-27-A                                |             |        | X      |          |            | X                  | 1/2 N                   | S                             | 535        |      |
| DCS24-62-P                                | 24 VAC/DC   | 62     | X      |          |            |                    | 1/2 N                   | P                             | 349        |      |
| DCS24-62-AP                               |             |        | X      |          |            | X                  | 1/2 N                   | P                             | 521        |      |
| DCMS24-62-P                               |             |        |        |          |            | X                  |                         | 1/2 N                         | P          | 497  |
| DCMS24-62-A                               |             |        |        |          |            | X                  | X                       | 1/2 N                         | S          | 621  |
| DCS120-62                                 | 120 VAC     |        | X      |          |            |                    | 1/2 N                   | S                             | 392        |      |
| DCS120-62-A                               |             |        | X      |          |            | X                  | 1/2 N                   | S                             | 517        |      |
| DS24-70                                   | 24 VAC/DC   | 70     | X      |          |            |                    | 3/8 F <sup>1</sup>      | S                             | 499        |      |
| DS24-70-A                                 |             |        | X      |          |            | X                  | 3/8 F <sup>1</sup>      | S                             | 623        |      |
| DMS24-70                                  |             |        |        |          |            | X                  |                         | 3/8 F <sup>1</sup>            | S          | 641  |
| DMS24-70-A                                |             |        |        |          |            | X                  | X                       | 3/8 F <sup>1</sup>            | S          | 765  |
| DS120-70                                  | 120 VAC     |        | X      |          |            |                    | 3/8 F <sup>1</sup>      | S                             | 518        |      |
| DS120-70-A                                |             |        | X      |          |            | X                  | 3/8 F <sup>1</sup>      | S                             | 642        |      |
| DCS24-140                                 | 24 VAC/DC   | 160    | X      |          |            |                    | 3/8 F                   | S                             | 622        |      |
| DCS24-140-A                               |             |        | X      |          |            | X                  | 3/8 F                   | S                             | 747        |      |
| DCMS24-140                                |             |        |        |          |            | X                  |                         | 3/8 F                         | S          | 775  |
| DCMS24-140-A                              |             |        |        |          |            | X                  | X                       | 3/8 F                         | S          | 899  |
| DCS120-140                                | 120 VAC     |        | X      |          |            |                    | 3/8 F                   | S                             | 655        |      |
| DCS120-140-A                              |             |        | X      |          |            | X                  | 3/8 F                   | S                             | 780        |      |
| DS24-180                                  | 24 VAC/DC   | 180    | X      |          |            |                    | 3/8 F <sup>1</sup>      | S                             | 703        |      |
| DS24-180-A                                |             |        | X      |          |            | X                  | 3/8 F <sup>1</sup>      | S                             | 825        |      |
| DMS24-180                                 |             |        |        |          |            | X                  |                         | 3/8 F <sup>1</sup>            | S          | 954  |
| DMS24-180-A                               |             |        |        |          |            | X                  | X                       | 3/8 F <sup>1</sup>            | S          | 1075 |
| DS120-180                                 | 120 VAC     |        | X      |          |            |                    | 3/8 F <sup>1</sup>      | S                             | 800        |      |
| DS120-180-A                               |             |        | X      |          |            | X                  | 3/8 F <sup>1</sup>      | S                             | 921        |      |

**Options**

<sup>1</sup> To convert to a 1/2" NPT conduit connection fittings with part numbers M9104-100E and 985-008 will be required



## Electric ST2 Actuators - Spring Return & Non-Spring Return

| Electric ST2 Actuators - Non Spring-Return |           |        |                |          |            |          |                    |                         |                               |            |
|--|-----------|--------|----------------|----------|------------|----------|--------------------|-------------------------|-------------------------------|------------|
| Model Number                               | Voltage   | Torque | On/Off         | Floating | Modulating | Time Out | Auxiliary Switches | Conduit NPT(N) FLEX (F) | Cable Plenum (P) Standard (S) | List Price |
| VA24-35-P                                  | 24 VAC    | 35     | X <sup>2</sup> | X        |            |          |                    | 3/8 F <sup>1</sup>      | P                             | 182        |
| VA24-35-PTO                                |           |        | X              | X        |            |          | X                  | 3/8 F <sup>1</sup>      | P                             | 236        |
| VAM24-35-P                                 |           |        |                |          |            | X        |                    |                         | 3/8 F <sup>1</sup>            | P          |
| VAM24-90-P                                 | 24 VAC/DC | 88     | X              | X        | X          | X        |                    | 1/2 N <sup>3</sup>      | P                             | 306        |
| VAM24-90-P-A                               |           |        | X              | X        | X          | X        | X                  | 1/2 N <sup>3</sup>      | P                             | 431        |

| Electric ST2 Actuators - Spring-Return |             |        |        |          |            |                    |                                      |                    |     |
|--|-------------|--------|--------|----------|------------|--------------------|--------------------------------------|--------------------|-----|
| Model Number                           | Voltage     | Torque | On/Off | Floating | Modulating | Auxiliary Switches | Conduit NPT(N) FLEX (F) <sup>1</sup> | List Price         |     |
| VAS24-27                               | 24 VAC/DC   | 27     | X      |          |            |                    | 1/2 N                                | 364                |     |
| VAS24-27-A                             |             |        | X      |          |            | X                  | 1/2 N                                | 494                |     |
| VAMS24-27                              |             |        |        |          |            | X                  |                                      | 1/2 N              | 512 |
| VAMS24-27-A                            |             |        |        |          |            | X                  | X                                    | 1/2 N              | 636 |
| VASU20-27                              | 120/240 VAC | 27     | X      |          |            |                    | 1/2 N                                | 407                |     |
| VASU20-27-A                            |             |        | X      |          |            | X                  | 1/2 N                                | 531                |     |
| VAS24-70                               | 24 VAC/DC   | 70     | X      |          |            |                    | 3/8 F <sup>1</sup>                   | 469                |     |
| VAS24-70-A                             |             |        | X      |          |            | X                  | 3/8 F <sup>1</sup>                   | 593                |     |
| VAMS24-70                              |             |        |        |          |            | X                  |                                      | 3/8 F <sup>1</sup> | 636 |
| VAMS24-70-A                            |             |        |        |          |            | X                  | X                                    | 3/8 F <sup>1</sup> | 760 |
| VAS120-70                              | 120 VAC     | 70     | X      |          |            |                    | 3/8 F <sup>1</sup>                   | 506                |     |
| VAS120-70-A                            |             |        | X      |          |            | X                  | 3/8 F <sup>1</sup>                   | 630                |     |

**Options**

<sup>1</sup> To convert to a 1/2" NPT conduit connection fittings with part numbers M9104-100E and 985-008 will be required

<sup>2</sup> Relay Required for On/Off Control

<sup>3</sup> 1/2" N Conduit Connection fittings optional with part number M9300-100E



## Pneumatic Actuators & Adders

| Series 92/93 High Pressure Pneumatic Actuators |  |       |
|--|--|-------|
| Model Number                                   | Description                                      | Price |
| 92-063   | Double Acting-Pneumatic rack and pinion actuator | 745   |
| 92-083   |  | 973   |
| 92-093   |  | 1218  |
| 92-119   |  | 1744  |
| 92-128   |  | 2077  |
| 92-160   |  | 3481  |
| 92-210   |  | 5772  |
| 92-255   |  | 13389 |
| 93-634   | Spring Return-Pneumatic rack and pinion actuator | 1317  |
| 93-834   |  | 1821  |
| 93-934   |  | 2213  |
| 93-1194  |  | 2798  |
| 93-1284  |  | 3302  |
| 93-1604  |  | 4801  |
| 93-2104  |  | 7374  |
| 93-2554  |  | 17888 |

PRICING - Pneumatic Actuators

### Assembly Adders



| 5A Status Monitor<br>(SPDT Auxiliary Switch) |            |       |
|--|------------|-------|
| Model No.                                    | P/N Suffix | Price |
| 5A   | SW         | 658   |



| VP200 Pneumatic Positioner<br>(Gauges - 2 ea. 0-160 PSI & 1ea. 0-30 PSI ) |            |       |
|---|------------|-------|
| Model No.   | P/N Suffix | Price |
| V200P   | P          | 2418  |



| Solenoid Air Valve |         |            |       |
|--------------------|---------|------------|-------|
| Model No.          | Voltage | P/N Suffix | Price |
| S63 Single Coil    | 24 VAC  | S4         | 408   |
| S63 Single Coil    | 120 VAC | S          |       |



| S 6A Electro-Pneumatic Positioner<br>(Shown with optional gauges) |            |       |
|---|------------|-------|
| Model No.   | P/N Suffix | Price |
| S 6A  | EP         | 4167  |



| Speed Controls |       |
|----------------|-------|
| P/N Suffix     | Price |
| C              | 141   |

**Note**  
To order these accessories factory mounted, add the P/N suffix to the end of the actuator part number, and add the list price shown.

EXAMPLE: MKL2-C030/93-834-EPFSG  
(6A with feedback, switch and gauges)



| High Pressure Pneumatic Actuator Accessories |                          |  |       |
|--|--------------------------|--|-------|
| Model Number                                 | Adder to Valve Assembly  | Description  | Price |
| 63125A-214105P4                              | add -S4                  | S63 Single coil solenoid, 24 VAC for electric On/Off control of S92/93 actuators                 | 408   |
| 63125A-214115P4                              | add -S                   | S63 Single coil solenoid, 110 VAC for electric On/Off control of S92/93 actuators                | 408   |
| 63125A-214145P4                              | add -S4D                 | S63 Single coil solenoid, 24 VDC for electric On/Off control of S92/93 actuators                 | 408   |
| Contact Bray                                 | add -DS4(24) or -DS(120) | S63 Double coil solenoid, 24 or 110 VAC for electric On/Off control of S92/93 actuators          | -     |
| 5A0000-126A2536                              | replacement              | 5A Status Monitor (Mounting Kit Not Included)  | 528   |
| 5B0000-22600534                              |                          | 5A Mounting Kit- Non-Adjustable For S98 & S92/93 Actuators - Sizes 063 - 128                     | 53    |
| 5B0000-22601534                              |                          | 5A Mounting Kit- Adjustable For S98 & S92, 93 Actuators - Sizes 063 - 255                        | 96    |
| 6A6DR5-0200NN005KA0                          | replacement              | S6A Double-Acting Electro-pneumatic positioner 4-20 mA   | 4127  |
| 6A6DR5-0100NN005KA0                          | replacement              | S6A Single-Acting Electro-pneumatic positioner, 4-20 mA,   | 4127  |
| 6A6DR4-0046K                                 | add -S                   | S6A Optional mechanical switch   | 1406  |
| 6A6DR4-0046J                                 | add -F                   | S6A Optional position feedback module  | 1460  |
| 6A0250-22701536                              | add -G                   | S6A Single-Acting Optional gauge block assembly  | 221   |
| 6A0250-22702536                              | add -G                   | S6A Double-Acting Optional gauge block assembly  | 247   |
| 6A0630-24610536                              |                          | S6A Mounting kit, S92/93 sizes 63-128  | 274   |
| 6A1600-24610536                              |                          | S6A Mounting kit, S92/93 sizes 160-255   | 342   |
| 551000-74603533                              | add -FR                  | S55 Bray Filter Regulator S92/93 Actuators   | 355   |
| V200P  | replacement              | Pneumatic Positioner 3-15 PSI S92/93 Actuators- Includes Gauges- 2 ea. 0-160 psi & 1ea. 0-30 psi | 2410  |
| V200-MTG-1                                   |                          | V200P Mounting kit, S92/93 sizes 63-127  | 211   |
| V200-MTG-2                                   |                          | V200P Mounting kit, S92/93 sizes 160-255   | 274   |
| V200M  | add -S                   | V200P Optional Mechanical Switch Kit   | 812   |
| V200MA                                       | add -F                   | V200P Optional 4-20mA Position Feedback Module   | 1418  |
| V200B  | add -B                   | V200P Beacon Indicator   | 175   |
| V200G30                                      | replacement              | V200P Guage 0-30 psi   | 41    |
| V200G160                                     | replacement              | V200P Guage 0-160 psi  | 41    |



**Series 70 Industrial Electric Actuators and Accessories**

| <b>Series 70 Industrial Electric Actuator, 120 VAC - On/Off</b> |   |       |
|---|---|-------|
| Model Number  | Description   | Price |
| 70-0081H  | 120 VAC, Two position, 800 lb-in., NEMA 4, Heater   | 2859  |
| 70-0121H  | 120 VAC, Two position, 1200 lb-in., NEMA 4, Heater  | 4425  |
| 70-0201H  | 120 VAC, Two position, 2000 lb-in., NEMA 4, Heater  | 4974  |
| 70-E301H  | 120 VAC, Two position, 3000 lb-in., NEMA 4, Heater  | 6291  |
| 70-0501H  | 120 VAC, Two position, 5000 lb-in., NEMA 4, Heater  | 7840  |
| 70-0651H  | 120 VAC, Two position, 6500 lb-in., NEMA 4, Heater  | 8226  |
| 70-1300H  | 120 VAC, Two position, 13000 lb-in., NEMA 4, Heater | 9525  |
| 70-1800H  | 120 VAC, Two position, 18000 lb-in., NEMA 4, Heater | 10547 |

| <b>Series 70 Industrial Electric Actuator, 120 VAC - Modulating</b> |   |       |
|---|---|-------|
| Model Number  | Description                                       | Price |
| 70-0081SVH  | 120 VAC, Modulating, 800 lb-in., NEMA 4, Heater   | 4324  |
| 70-0121SVH  | 120 VAC, Modulating, 1200 lb-in., NEMA 4, Heater  | 5920  |
| 70-0201SVH  | 120 VAC, Modulating, 2000 lb-in., NEMA 4, Heater  | 6470  |
| 70-E301SVH  | 120 VAC, Modulating, 3000 lb-in., NEMA 4, Heater  | 7954  |
| 70-0501SVH  | 120 VAC, Modulating, 5000 lb-in., NEMA 4, Heater  | 9276  |
| 70-0651SVH  | 120 VAC, Modulating, 6500 lb-in., NEMA 4, Heater  | 9659  |
| 70-1300SVH  | 120 VAC, Modulating, 13000 lb-in., NEMA 4, Heater | 11036 |
| 70-1800SVH  | 120 VAC, Modulating, 18000 lb-in., NEMA 4, Heater | 11798 |

| <b>Series 70 Industrial Electric Actuator, 24 VAC &amp; 24 VAC/DC - On/Off</b> |  |       |
|--|--|-------|
| Model Number   | Description  | Price |
| 70-24-0081H  | 24 VAC/DC, Two position, 800 lb-in., NEMA 4, Heater  | 2728  |
| 70-24-0201H  | 24 VAC/DC, Two position, 2000 lb-in., NEMA 4, Heater | 4725  |
| 70-24-0501H  | 24 VAC, Two position, 5000 lb-in., NEMA 4, Heater    | 7841  |

| <b>Series 70 Industrial Electric Actuator, 24 VAC/DC - Modulating</b> |  |       |
|---|--|-------|
| Model Number  | Description  | Price |
| 70-24-0081SVH   | 24 VAC/DC, Modulating, 800 lb-in., NEMA 4, Heater  | 4264  |
| 70-24-0201SVH   | 24 VAC/DC, Modulating, 2000 lb-in., NEMA 4, Heater | 6307  |
| 70-24-0501SVH   | 24 VAC/DC, Modulating, 5000 lb-in., NEMA 4, Heater | 9426  |

| <b>Series 70 Industrial Electric Actuator, 24 VAC/30 VDC - On/Off with Battery Backup Unit</b> |   |       |
|--|---|-------|
| Model Number   | Description   | Price |
| 70-24-0081H-BBU  | 24 VAC/30 VDC, Two position, 800 lb-in., NEMA 4, Heater, & Battery Back Unit  | 5434  |
| 70-24-0201H-BBU  | 24 VAC/30 VDC, Two position, 2000 lb-in., NEMA 4, Heater, & Battery Back Unit | 7513  |
| 70-24-0501H-BBU  | 24 VAC/30 VDC, Two position, 5000 lb-in., NEMA 4, Heater, & Battery Back Unit | 10631 |

| <b>Series 70 Industrial Electric Actuator, 24 VAC/30 VDC - Modulating with Battery Backup Unit</b> |   |       |
|--|---|-------|
| Model Number   | Description   | Price |
| 70-24-0081SVH-BBU  | 24 VAC/30 VDC, Modulating, 800 lb-in., NEMA 4, Heater, & Battery Back Unit  | 7185  |
| 70-24-0201SVH-BBU  | 24 VAC/30 VDC, Modulating, 2000 lb-in., NEMA 4, Heater, & Battery Back Unit | 9096  |
| 70-24-0501SVH-BBU  | 24 VAC/30 VDC, Modulating, 5000 lb-in., NEMA 4, Heater, & Battery Back Unit | 12215 |



### Battery Backup Unit Retrofit - Unmounted Price does NOT include Servo. For Servo's rated Rev. J or later

| Model Number | Description   | Price |
|--------------|---|-------|
| BBU-24-MOD   | 24 VAC, Two Position or Modulating, 800 - 5000 lb-in., NEMA 4 | 2789  |

### Series 70 Battery Backup Unit Replacement Battery

| Model Number | Description  | Price |
|--------------|--|-------|
| BBU-24-BAT   | 24 VAC, SLA (Sealed Lead Acid) Power Sonic PS1212 or Equal. Set of Two | 372   |

### Series 70 Industrial Electric Actuator, 24 VAC & 24 VAC/DC - On/Off Kits

| Model Number   | Description  | Price |
|--|--|-------|
| 700006-22950536  | 120 VAC Heater, helps prevent condensation build up - *recommended for outdoor use   | 77    |
| 700006-22951536  | 24 VAC Heater, helps prevent condensation build up - *recommended for outdoor use  | 77    |
| 70A012-22920536  | 120 VAC Servo NXT Kit S70 actuators 70-0081 to 70-0651   | 1990  |
| *For Servo Pro kits for 70-0061 units manufactured prior to 7/2017, contact Bray |  |       |
| 70A180-22920536  | 120 VAC Servo NXT Kit for 70-1300 & 70-1800 S70 actuators  | 1990  |
| 700000-77664536  | 120/230 VAC Servo NXT, UL Board Only   | 1888  |
| 70A012-22922536  | 24 VAC Servo NXT Kit S70 actuators 70-24-0081 (new round dome models only), 70-24-0201 & 70-24-0501                                      | 1890  |
| 700000-77641536  | 24 VAC Servo NXT Board Only  | 1790  |
| 700000-22952536  | 24 VAC On/Off CONTROLLER KIT 800 to 2K in/lb Units   | 947   |
| 700000-77629536  | 24 VAC On/Off CONTROLLER Board Only- 800 to 2K in/lb Units   | 895   |
| S70-5P-KIT   | S70 Turk 5 PIN Cordset   | 585   |
| 700000-12410536  | Control Station for manual local electrical operation of S70 actuators W/SERVO 110V (Non-Keyed) ** For all others please contact factory | 1632  |



### AU Series Industrial Electric Actuators

| Model Number | Description                               | Price |
|--------------|---|-------|
| AU-2130      | 120 VAC, On/Off, 21300 lb-in., NEMA 4     | 23680 |
| AU-4068      | 120 VAC, On/Off, 40680 lb-in., NEMA 4     | 26413 |
| AU-7080      | 120 VAC, On/Off, 70800 lb-in., NEMA 4     | 32789 |
| AU-2130SV    | 120 VAC, Modulating, 21300 lb-in., NEMA 4 | 25502 |
| AU-4068SV    | 120 VAC, Modulating, 40680 lb-in., NEMA 4 | 28235 |
| AU-7080SV    | 120 VAC, Modulating, 70800 lb-in., NEMA 4 | 34609 |

**Note**  
AU actuators do NOT include bushing. For retrofit application contact Bray for required bushing.



## Linear PIC and Globe Valve Electric Actuators & Accessories - GA(S), VAL & PA(M) Series

| GA Series - Non-Fail Safe or Non-Spring Return Electric Actuators |           |            |                |                 |               |                 |               |               |       |          |          |     |
|---|-----------|------------|----------------|-----------------|---------------|-----------------|---------------|---------------|-------|----------|----------|-----|
| Model Number  | Voltage   | Force lbs. | Control Signal | Stall Detection | Aux. Switches | Conduit Adapter | NEMA 2 (IP54) | NEMA 1 (IP20) | Price | -A Adder | -H Adder |     |
| GA24-67   | 24 VAC    | 67         | Floating       | X               | -             | X               | X             | -             | 555   | -        | -        |     |
| GAM24-67  | 24 VAC/DC | 67         | Modulating     |                 | -             |                 | X             | X             | -     | 684      | -        | -   |
| GA24-225  | 24 VAC    | 225        | Floating       |                 | X             |                 | -             | X             | X     | 744      | 737      | 981 |
| GAM24-225   | 24 VAC    | 225        | Modulating     |                 | X             |                 | -             | X             | X     | 857      | 369      | 981 |

| GA(S) Series - Fail Safe or Spring Return Electric Actuators |           |            |                |                 |               |                 |               |               |       |          |          |     |
|--|-----------|------------|----------------|-----------------|---------------|-----------------|---------------|---------------|-------|----------|----------|-----|
| Model Number   | Voltage   | Force lbs. | Control Signal | Stall Detection | Aux. Switches | Conduit Adapter | NEMA 2 (IP54) | NEMA 1 (IP20) | Price | -A Adder | -H Adder |     |
| GA24-67-FS   | 24 VAC    | 67         | Floating       | X               | -             | X               | X             | -             | 760   | -        | -        |     |
| GAM24-67-FS  | 24 VAC/DC | 67         | Modulating     |                 | -             |                 | X             | X             | -     | 859      | -        | -   |
| GAS24-225  | 24 VAC    | 225        | Floating       |                 | X             |                 | -             | X             | X     | 1101     | 737      | 981 |
| GAMS24-225   | 24 VAC    | 225        | Modulating     |                 | X             |                 | -             | X             | X     | 1209     | 369      | 981 |

**Options/Adders**  
 For optional auxiliary switches on the GA225 actuators, add -A to the end of the actuator part number, and add appropriate adder to the list price.  
 For optional Stem Heater on the GA225 actuator, add -H to the end of the actuator part number, and add appropriate adder to the list price.

| GA(S) Series Linear Electric Actuators |                   |           |            |                               |          |               |                         |               |       |          |           |
|--|-------------------|-----------|------------|-------------------------------|----------|---------------|-------------------------|---------------|-------|----------|-----------|
| Model Number                           |                   | Voltage   | Force lbs. | Control Signal                | Time Out | Aux. Switches | Enclosed Terminal Block | NEMA 4 (IP66) | Price | -A Adder | -HT Adder |
| GA24-562                               | Non-Spring Return | 24 VAC/DC | 562        | On/Off, Floating & Modulating | X        | X             | X                       | X             | 1718  | 310      | 192       |
| GASRE24-450                            | Spring Return     |           | 450        |                               |          |               |                         |               | 2253  |          |           |
| GASEX24-450                            | Spring Return     |           | 450        |                               |          |               |                         |               | 2253  |          |           |

**Options/Adders**  
 For optional auxiliary switches on the GA actuator, add -A to the end of the actuator part number.  
 For optional high temperature kit (media temperatures 266°F to 464°F) on the GA actuator, add -HT to the end of the actuator part number.

| GA(S) Series Mounting Kits for PIC Valves |                     |                   |       |
|---|---------------------|-------------------|-------|
| Model Number                              | Applicable Actuator | Applicable Valves | Price |
| SS-MTG-150/PA100                          | PAM24-110           | SSM 1.5" & 2"     | 468   |
| SSM-MTG-1/GA                              | GA & GAS            | SSM 2.5" & 3"     | 363   |
| SSM-MTG-2/GA                              | GA & GAS            | GA-SSM 4" to 12"  | 363   |
|   |                     | GAS-SSM 4" to 8"  |       |

| VAL Series Spring Return Linear Electric Actuators |               |         |            |                |                        |                         |                |       |
|--|---------------|---------|------------|----------------|------------------------|-------------------------|----------------|-------|
| Model Number                                       |               | Voltage | Force lbs. | Control Signal | Applicable Valves      | Enclosed Terminal Block | NEMA 1* (IP66) | Price |
| VAL-SRS07P   | Spring Return | 24 VAC  | 1000       | Modulating     | 2.5" - 3" Globe Valves | X                       | X              | 3238  |
| VAL-SRS15P   |               |         |            |                | 4" - 6" Globe Valves   |                         |                | 3994  |



| PA(M) Series Non-Fail Safe Actuators |           |            |                               |              |       |  |
|--------------------------------------|-----------|------------|-------------------------------|--------------|-------|--|
| Model Number                         | Voltage   | Force lbs. | Control Signal                | Cable Wiring | Price |  |
| PA24-27                              | 24 VAC/DC | 27         | On/Off & Floating             | X            | 268   |  |
| PAM24-27                             |           | 27         | Modulating                    |              | 330   |  |
| PAM24-100                            |           | 100        | On/Off, Floating & Modulating |              | 657   |  |
| PAM24-112                            |           | 112        | On/Off, Floating & Modulating |              | 1029  |  |



| PA(M) Series Fail Safe Actuators |           |            |                               |              |       |  |
|----------------------------------|-----------|------------|-------------------------------|--------------|-------|--|
| Model Number                     | Voltage   | Force lbs. | Control Signal                | Cable Wiring | Price |  |
| PA24-27-FS                       | 24 VAC/DC | 27         | On/Off & Floating             | X            | 521   |  |
| PAM24-27-FS                      |           | 27         | Modulating                    |              | 552   |  |
| PAM24-100-FS                     |           | 100        | On/Off, Floating & Modulating |              | 902   |  |



## Butterfly & Globe Valve Retrofit Kits with Commercial & Industrial Electric Actuators

| 2-Way Butterfly Valve Retrofit Kits |       |
|-------------------------------------|-------|
| Size                                | Price |
| 2" thru 6"                          | 853   |
| 8" thru 12"                         | 1123  |
| 14" thru 16"                        | 2331  |

| 3-Way Butterfly Valve Retrofit Kits |       |
|-------------------------------------|-------|
| Size                                | Price |
| 2" thru 6"                          | 3417  |
| 8" thru 12"                         | 4425  |
| 14" thru 16"                        | 5834  |

**Notes:**  
 Butterfly retrofit kits include couples/brackets/adapters as required.  
 3-way kits also include the master/slave linkage components.  
 The actuator cost is not included in the above kit prices.  
 Consult factory for actuator sizing for the make/model/size of the valve to be retrofitted. They will provide correct kit part No.  
 Consult factory for lead time.



| Retrofits for Globe Valves                          |         |                |            |   |     |   |   |
|---|---------|----------------|------------|---|-----|---|---|
| Existing Valve Manufacturer                         |         | Retrofit Kit # | Valve Size |   |     |   |   |
|   |         |                | 2.5        | 3 | 4   | 5 | 6 |
| Bray DG Series/Siemens/<br>Landis/Staefa 599 Series |         | GRK-BRA-1      | 276        |   | -   | - | - |
|   |         | GRK-BRA-2      | -          | - | 350 |   |   |
| Honeywell   | V5011   | GRK-HON-1      | 488        |   |     |   |   |
|   | V5013   | GRK-HON-2      |            |   |     |   |   |
| Johnson Controls                                    | VG2000  | GRK-JCI        | 536        |   |     |   |   |
|   | VG7000  | GRK-JCI-1      | 515        |   |     |   |   |
| Schneider   | VB-8000 | GRK-SCH-2      | 515        |   |     |   |   |
|   | VB-9313 |                |            |   |     |   |   |

**Notes:**  
 The actuator cost is not included in the above kit prices.

### GA(S) Series Industrial Electric Actuators

| Model Number |                   | Voltage       | Force lbs. | Control Signal             | Control Signal | Time Out | Aux. Switches | Enclosed Terminal Block | NEMA 4 (IP66) | Price | -A Adder | -HT Adder |
|--------------|-------------------|---------------|------------|----------------------------|----------------|----------|---------------|-------------------------|---------------|-------|----------|-----------|
| GA24-562     | Non-Spring Return | 24 VAC/<br>DC | 562        | On/Off Floating Modulating | X              | X        | X             | X                       | X             | 1718  | 310      | 192       |
| GASRE24-450  | Spring Return     |               | 450        |                            |                |          |               |                         |               | 2253  |          |           |
| GASEX24-450  |                   |               |            |                            |                |          |               |                         |               |       |          |           |

**Options/Adders**  
 For optional auxiliary switches on the GA actuator, add -A to the end of the actuator part number.  
 For optional high temperature kit (media temperatures 266°F to 464°F) on the GA actuator, add -HT to the end of the actuator part number.



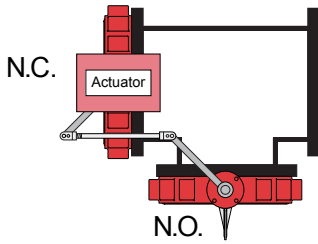
## Weather Shields & Weather Covers

| <b>Large Weather Shields for D-Series on Ball Valves and Butterfly Valves</b> |  |              |
|---|--|--------------|
| <b>Model Number</b>   | <b>Description - Actuators Covered</b>             | <b>Price</b> |
| WS-B-S180   | DS-180   | 377          |
| WS-B-S180-T   | Tandem DS-180                                      | 471          |
| WS-B-280  | D-140, D-210, and D-280                            | 375          |
| BF-BKT-L3   | Required for Assembly                              | 45           |
| WS-B-280-T  | Tandem D-140, D-210, and D-280                     | 471          |
| BF-BKT-L1   | Required for Assembly                              | 45           |
| WS-B-310  | DC-310   | 399          |
| WS-B-310-T  | Tandem DC-310                                      | 541          |
| M9000-342   | ST2 Direct Mount (VA Series) Actuators- NEMA 4, 4X | 1067         |

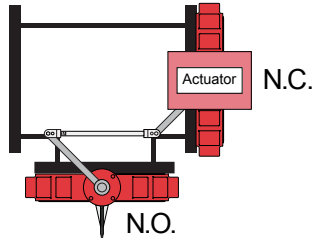
| <b>Weather Covers for PIC and Globe Valve Actuators</b> |  |              |
|---|--|--------------|
| <b>Model Number</b>                                     | <b>Description - Actuators Covered</b> | <b>Price</b> |
| WS-PA27   | PA27                                   | 506          |
| WS-PA100  | PA100/PA112                            | 511          |
| WS-GA450/562  | GA450/562                              | 627          |

### Spring Return and Non-Spring Return

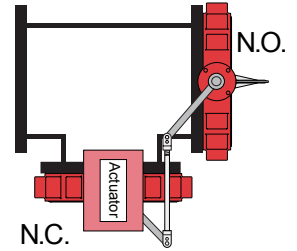
**Configuration 1**



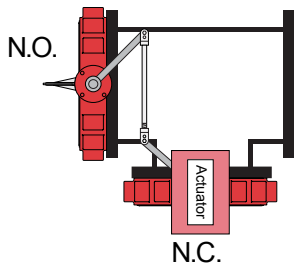
**Configuration 2**



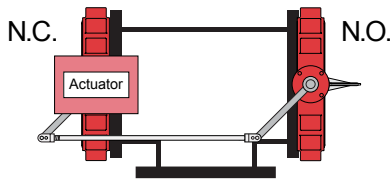
**Configuration 3**



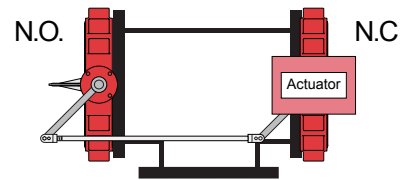
**Configuration 4**



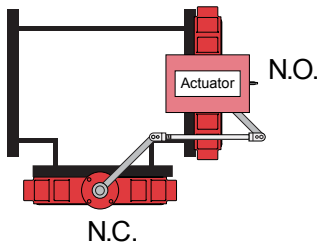
**Configuration 5**



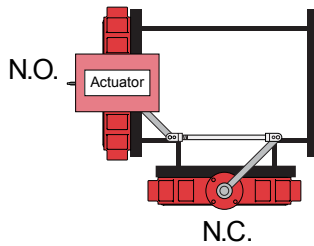
**Configuration 6**



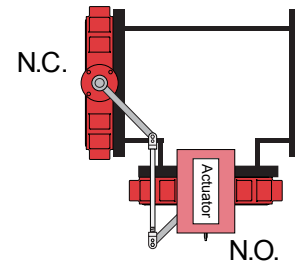
**Configuration 7**



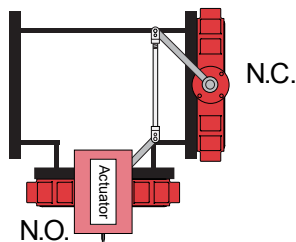
**Configuration 8**



**Configuration 9**



**Configuration 10**  
(PN placeholder is O)



**Note:** All 3-Way butterfly valve assembly orders should have configuration specified. Pricing remains the same, however Bray must know the specifications in order to manufacture the appropriate linkage kit.

**Note:** Configurations 7, 8, 9, & 10 with power fail-safe actuators will be configured as Forward Acting & Fail Open. Actuators without power fail-safe capabilities will be set to Reverse Acting, when configurable.

**Note:** Unless otherwise requested valve will be shipped as illustrated by Configuration 3.

## Terms and Conditions of Sale

### 1. APPLICABILITY.

These terms and conditions of sale (these "Terms") are the only terms which govern the sale of the products ("Products") by Bray International, Inc. and its subsidiaries, branches and divisions (as applicable, "Bray" or "Seller") to a purchaser of Products ("Buyer") from Bray. Notwithstanding anything herein to the contrary, if a written contract signed by Bray and a Buyer covers the sale of Products covered hereby, the terms and conditions of such contract shall prevail to the extent they are inconsistent with these Terms. References to (i) "Bray factory" are to the applicable Bray national or regional headquarters of Seller in the country where the order is received and (ii) "dollars" or "\$" are to United States dollars unless specified otherwise.

### 2. ENTIRE AGREEMENT.

These Terms and the quotation (the "Quotation") which they accompany (collectively, the "Agreement") comprise the entire agreement between Bray and Buyer relating to the Products that are the subject of such Quotation, and supersede all prior or contemporaneous understandings, agreements, negotiations, representations and warranties and communications, both written and oral. These Terms prevail over any of Buyer's general terms and conditions of purchase regardless of whether or when Buyer submitted its purchase order or such terms. Buyer's acceptance of the Quotation is expressly limited to these Terms, and Bray objects to, and is not bound by, any terms or conditions that differ from, add to, or modify these Terms. Fulfillment of Buyer's order does not constitute acceptance of any of Buyer's terms and conditions and does not serve to modify or amend these Terms. Notwithstanding anything to the contrary in these Terms or any Agreement, Bray shall not be obligated to make, or otherwise fulfill the terms of, any sale of Products to Buyer in an order amount less than Two Hundred and Fifty Dollars (\$250).

### 3. QUOTATIONS.

Unless stated otherwise in writing by Seller, all Quotations made by Seller are for immediate acceptance. Seller reserves the right to withdraw and/or revise any Quotation at any time prior to final acceptance by Buyer.

### 4. PRICE.

Buyer shall purchase the Products from Seller at the prices (the "Prices") set forth in Seller's published price list in force as of the date Buyer's order is received by Bray. All Prices (and any applicable discounts) for Products are subject to change without notice. Any order that is delayed for delivery at Buyer's request or is otherwise scheduled to be made in excess of one hundred twenty (120) days from the order date will be invoiced at published list prices and discounts effective at the time of shipment unless otherwise specifically agreed at the time of Seller's order acceptance. Any extra expenses incurred by Seller, such as engineering, tagging, taxes, service calls, export crating or other expenses, will be added to the invoice after notification to Buyer of the extra costs.

5. TAXES. Prices are exclusive of all sales, use and excise taxes, and any other similar taxes, duties, fees and charges of any kind imposed by any governmental authority (including those arising from changes in laws or regulations affecting foreign exchange) on any amounts payable by Buyer. Buyer shall be responsible for all such charges, costs and taxes, and if payable or paid by Seller, then added to the Price.

### 6. PAYMENT TERMS.

A. All invoices for domestic (U.S.) Buyers will be due net thirty (30) days from date of invoice unless otherwise stated by Seller. All invoices for international (non-U.S.) Buyers will require confirmed, irrevocable letters of credit due upon delivery to freight forwarder at its United States port for shipment, unless otherwise agreed by Seller. Seller reserves the right (including if it determines subsequently that Buyer's financial condition becomes unsatisfactory to Seller) to (i) require payment on "cash in advance" basis, (ii) require a confirmed, irrevocable letter of credit or other acceptable security (including preservation of any lien rights) before shipment, or (iii) cancel shipment at any time prior to delivery of the Products (without further obligation or liability on Seller's part). In such cases, an order will be considered valid only upon receipt of any such advance payment or provision of security. Credit terms are provided solely at the discretion of Seller and may be denied for any reason by Seller.

B. Buyer shall pay interest on all late payments at the lesser of: (i) the rate of two percent (2%) per month and (ii) the highest rate permissible under applicable law. Buyer shall reimburse Seller for all costs incurred in collecting any late payments, including, without limitation, attorney fees and court costs. In addition to all other remedies available under these Terms or at law (which are not waived by Seller's exercise of any rights hereunder), Seller shall be entitled to suspend the delivery of any Products if Buyer fails to pay any amounts when due hereunder.

C. Buyer shall not withhold or delay payment of any amounts due and payable by reason of any set-off of any claim, counterclaim, abatement, delay of customer payment or dispute with Seller, whether relating to Seller's breach, bankruptcy or otherwise.

### 7. CREDIT.

Shipments and deliveries of Products to Buyer shall remain at all times subject to the approval of Seller's credit department. Seller, in addition to any other rights and remedies, may, at its option, decline to make shipments or deliveries hereunder except upon receipt of payment or satisfactory security or otherwise upon terms and conditions satisfactory to Seller. Should Seller elect to extend credit to Buyer, Seller may limit or deny further extensions of credit in Seller's sole discretion. Any extension of open payment terms by Seller is dependent on Buyer's ongoing ability to support its working capital requirements for its business.

### 8. DELIVERY.

A. The Products will be delivered within a reasonable time after the receipt of Buyer's order. Delivery dates are approximate and are dependent upon prompt receipt of all necessary Buyer-furnished information and materials (if applicable). Penalty fees/liquidated damages that may be associated with any late delivery will not apply unless mutually agreed in writing at the time of order acknowledgement.

B. Unless otherwise agreed in writing by the parties, Seller shall make the Products available at the Bray factory (the "Delivery Point"). The title to and risk of loss for Products passes to Buyer upon signing of the bill of lading by the transportation company (which signifies the delivery of the Products to the transportation company for shipment to Buyer). Buyer shall be responsible for all loading costs and provide equipment and labor reasonably suited for receipt of the Products at the Delivery Point.

C. All Prices are quoted ExWorks (EXW) Bray factory or such other place that Seller shall designate on the Quotation. Seller does not insure shipments beyond the Delivery Point and,

## Sales Policy

therefore, all claims of lost or damaged Products in transit must be filed directly with the transportation company by Buyer. Seller shall select the method of shipment and the carrier for the Products. Seller may ship via the Buyer's choice if routing is satisfactory and rates equal to or less than Seller's normal choice. In the case of higher than normal special shipping requirements, Seller will ship the Products at Buyer's expense (including a handling fee or collect basis) and Buyer will not receive any credit for freight charges that under normal circumstances would be incurred by Seller. There may be only one destination per order. D. Bray's standard document package will be provided—please see associated Quotation for details on what is included in document package for associated Product(s); document package will be delivered via electronic delivery (additional charges may apply if hard copy is required).

E. If for any reason Buyer fails to accept delivery of Products on the date fixed pursuant to Seller's notice to Buyer that the Products are being made available for delivery at the Delivery Point: (i) risk of loss to the Products shall pass to Buyer, (ii) the Products shall be deemed to have been delivered and accepted by Buyer and (iii) Seller, at its option, may store the Products until Buyer picks them up, whereupon Buyer shall be liable for all related costs and expenses (including, without limitation, storage and insurance). Any failure of Buyer to provide appropriate instructions, documents, licenses or authorizations in connection with delivery of Products shall be deemed to be a failure of Buyer to accept delivery of Products at such time as such Products are otherwise available for delivery. Any orders held by Seller more than t h i r t y (30) days may be treated as a cancelled and the Products deemed returned.

### 9. INSPECTION AND REJECTION OF NONCONFORMING PRODUCTS.

A. Buyer shall inspect the Products within ten (10) days of receipt ("Inspection Period"). Buyer will be deemed to have accepted the Products unless it notifies Seller in writing of any Nonconforming Products during the Inspection Period and furnishes such written evidence or other documentation as reasonably required by Seller. "Nonconforming Products" means that the Products shipped are different than those identified in Buyer's purchase order.

B. If Buyer timely notifies Seller of any Nonconforming Products during the Inspection Period, Seller shall, in its sole discretion, (i) replace such Nonconforming Products with conforming Products, or (ii) credit or refund the Price for such Nonconforming Products, together with any reasonable shipping and handling expenses incurred by Buyer in connection therewith. Buyer shall ship, at its expense and risk of loss, the Nonconforming Products to the Bray factory or such other place that Seller shall designate on the Quotation. Upon Seller's confirmation of the nonconforming nature of the Nonconforming Products, Seller shall credit the Buyer's expense for such shipment against the Buyer's payment obligations to Seller. If Seller exercises its option to replace such Nonconforming Products, Seller shall, after receiving Buyer's shipment of returned Nonconforming Products, ship to Buyer the replaced Products and the terms of Section 8(B) shall apply for such replaced Products, except that Seller shall be responsible for the costs and expenses for such shipment.

C. Buyer acknowledges and agrees that the remedies set forth in Section 9(B) (exercised in accordance with these Terms) are Buyer's exclusive remedies for the delivery of Nonconforming Products.

### 10. CHANGE ORDER / CANCELLATIONS.

Orders received and accepted by Seller may not be changed or cancelled except on terms satisfactory to Seller and which prevent Seller from incurring any loss. Seller will not accept changes or cancellations of Products, whether standard, non-standard or special, without full reimbursement of all related expenses in-

curred to date. Buyer must request all cancellations and change orders in writing, and must be signed by an authorized representative of Seller to be effective. Any changes or cancellations of Projects will be subject to appropriate changes in discounts, freight costs and other charges to Buyer.

### 11. LIMITED WARRANTY.

A. Seller warrants to Buyer that, for a period of thirtysix (36) months from the date of Bray's shipment (the "Warranty Period") from its manufacturing facility, Products manufactured by Seller will be free from defects in materials and workmanship when used for the purposes for which they were designed and manufactured. Seller does not warrant the Products against chemical or stress corrosion or against any other failure (including normal wear and tear due to operation or the environment) other than from defects in materials or workmanship.

B. THE EXPRESS WARRANTY SET FORTH IN SECTION 11(A) IS EXCLUSIVE AND IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS INTENDED OR GIVEN.

C. Products manufactured by a third party ("Third Party Product") may constitute, contain, be contained in, incorporated into, attached to or packaged together with, the Products. Third Party Products are not covered by the warranty in Section 11(A). For the avoidance of doubt, SELLER MAKES NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO ANY THIRD PARTY PRODUCT.

D. The Seller shall not be liable for a breach of the warranty set forth in Section 11(A) unless: (i) Buyer gives written notice to Seller of the defect during the Warranty Period and, in any event, within fourteen (14) days of the time when Buyer discovers or ought to have discovered the defect; (ii) Seller is given a reasonable opportunity after receiving the notice to examine such Products and Buyer (if requested to do so by Seller) returns such Products to Bray's factory or such other place that Seller shall designate on the Quotation for the examination to take place there; (iii) Products are stored, maintained and shipped in accordance with Seller's applicable guidelines therefor (available to Buyer in product information available at [https://www.bray.com/resources/documents/manual\\_guides?\\_page=1](https://www.bray.com/resources/documents/manual_guides?_page=1), please contact [productspec@bray.com](mailto:productspec@bray.com) with any questions concerning the guidelines) and (iv) Seller reasonably verifies Buyer's claim that the Products are defective. Buyer shall return (freight prepaid) the defective Product to Bray at Bray's factory or such other place that Seller shall designate on the Quotation no later than ninety (90) days of Buyer's initial written notice to Seller of the defect. Upon Seller's confirmation of Products in breach of the warranty provided under Section 11(A), Seller shall credit the Buyer's expense for shipment against the Buyer's payment obligations to Seller and, if Seller exercises its option to replace such defective Products, Seller shall ship to Buyer the replaced Products and the terms of Section 8(B) shall apply for such replaced Products, except that Seller shall be responsible for the costs and expenses for such shipment. Seller shall not be obligated for any on-site costs, including removal and reinstallation of any warranted Products. Upon request, Buyer shall provide Seller reasonable and clear access to the warranted Products.

E. The Seller shall not be liable for a breach of the warranty set forth in Section 11(A) if: (i) Buyer makes any further use of such Products after giving such notice; (ii) the defect arises because Buyer failed to follow Seller's oral or written instructions as to the storage, installation, commissioning, use or maintenance of the Products; or (iii) Buyer alters or repairs such Products without the prior written consent of Seller.

F. Subject to Section 11(D) and Section 11(E) above, with respect to any such Products during the Warranty Period, Seller shall, in its sole discretion, either: (i) repair or replace such Products (or the defective part) or (ii) credit or refund the price of such

## Sales Policy

Products at the pro rata contract rate provided that, if Seller so requests, Buyer shall, at Seller's expense, return such Products to Seller. THE REMEDIES SET FORTH IN THIS SECTION 11(F) SHALL BE THE BUYER'S SOLE AND EXCLUSIVE REMEDY AND SELLER'S SOLE AND ENTIRE LIABILITY FOR ANY BREACH OF THE LIMITED WARRANTY SET FORTH IN SECTION 11(A).

### 12. LIMITATION OF LIABILITY.

A. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY OR PUNITIVE DAMAGES, LOST PROFITS OR REVENUES OR DIMINUTION IN VALUE, ARISING OUT OF OR RELATING TO ANY BREACH OF THESE TERMS, WHETHER OR NOT THE POSSIBILITY OF SUCH DAMAGES HAS BEEN DISCLOSED IN ADVANCE BY BUYER OR COULD HAVE BEEN REASONABLY FORESEEN BY BUYER, REGARDLESS OF THE LEGAL OR EQUIVOCAL THEORY (CONTRACT, TORT OR OTHERWISE) UPON WHICH THE CLAIM IS BASED, AND NOTWITHSTANDING THE FAILURE OF ANY AGREED OR OTHER REMEDY OF ITS ESSENTIAL PURPOSE. No action, regardless of form, may be brought by Buyer more than one (1) year after the cause of action has accrued. B. IN NO EVENT SHALL SELLER'S AGGREGATE LIABILITY ARISING OUT OF OR RELATED TO ANY PRODUCT, WHETHER ARISING OUT OF OR RELATED TO BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE) OR OTHERWISE, EXCEED THE TOTAL OF THE AMOUNTS PAID TO SELLER FOR SUCH PRODUCT.

### 13. AUTHORIZED RETURNS.

All sales of Products to Buyer are made on a one-way basis and no Products may be returned without prior written approval from Seller. Generally, in addition to the requirement for prior written approval, Bray will accept returns from a Buyer only if the return request is timely made following shipment of the applicable Product(s) to Buyer and the Product(s) are in good, reusable condition and remain standard Bray products (i.e., not custom-made, obsolete or buyout products). In regard to any returns, Seller generally issues credit (from which Seller may deduct shipping, restocking and reconditioning expenses).

### 14. INTELLECTUAL PROPERTY RIGHTS.

All copyrights, patents, trademarks, trade secrets, know-how and other intellectual property or proprietary rights pursuant to the laws of any jurisdiction worldwide ("IP Rights") associated with or relating to the Products shall belong solely and exclusively to Seller. Seller will retain all IP Rights used to create, embodied in, used in and otherwise relating to the Products and any of their component parts, and Buyer shall not acquire any ownership interest in any of Seller's IP Rights. Buyer shall use Seller's IP Rights only in accordance with these Terms and any instructions of Seller. No license, either express or implied, is granted in any IP Rights of Seller. If Buyer acquires any IP Rights in or relating to any Product by operation of law or otherwise, such rights are deemed and are hereby irrevocably assigned to Seller without further action. Buyer shall, at Seller's expense, execute such documents and do such things as are necessary to enable Seller to protect its IP Rights.

### 15. DESIGN CHANGES.

Seller reserves the right to change, discontinue or alter the design and construction of Products without prior notice and without further obligation.

### 16. COMPLIANCE WITH LAW.

Buyer shall comply with all applicable laws, regulations and ordinances, and shall maintain in effect all the licenses, permissions, authorizations, consents and permits that it needs to carry out

its obligations under the Agreement. Upon Seller request, Buyer agrees to provide Seller with information about the end use (including location of) of any products purchased. In furtherance of the foregoing (and without limitation thereto), please note the following in regards to compliance: A. Trade Compliance. Buyer must comply with all laws governing export/import control and regulation, including, without limitation, laws governing re-exporting. If Buyer is obtaining Product(s) for resale, such compliance requires that Buyer know of the end-use, end user, ultimate destination or other facts relating to such sale of Product(s), and be alerted to "red flags" in the circumstances related to such sale. Buyer is obligated to comply with Bray's trade compliance program in regards to any sale and purchase of Product(s). Buyer should contact Bray to confirm compliance with the requirements of this program. B. Anti-Corruption Laws. Buyer must comply with all anti-corruption and bribery laws and regulations, including, without limitation the United Kingdom's Bribery Act of 2010 and the United States' Foreign Corrupt Practices Act. Buyer must not pay, offer or promise to pay, directly or indirectly, anything of value for purposes of influencing an official decision or seeking influence in regards to any such decision from a person or organization affiliated with any government body, organization or business entity owned in part or in whole by a government body. Buyer must contact Bray in regards to any transaction in respect of Product(s) provided under this Agreement that could implicate such laws. Bray may immediately terminate, without any liability, any sale, agreement or association with any person violating such laws.

### 17. TERMINATION.

In addition to any remedies that may be provided under the Agreement, Seller may terminate the Agreement with immediate effect upon written notice to Buyer, if Buyer: (i) fails to pay any amount when due; (ii) has not otherwise performed or complied with any of the terms of the Agreement, in whole or in part; or (iii) becomes insolvent, files a petition for bankruptcy or commences or has commenced against it proceedings relating to bankruptcy, receivership, reorganization or assignment for the benefit of creditors.

### 18. WAIVER.

No waiver by Seller of any of the provisions of these Terms or the Agreement is effective unless explicitly set forth in writing and signed by Seller. No failure to exercise, or delay in exercising, any rights, remedy, power or privilege arising from the Agreement operates or may be construed as a waiver thereof. No single or partial exercise of any right, remedy, power or privilege hereunder precludes any other or further exercise thereof or the exercise of any other right, remedy, power or privilege.

### 19. CONFIDENTIAL INFORMATION.

All Confidential Information (as defined below) of Seller disclosed by Seller to Buyer, whether disclosed orally or disclosed or accessed in written, electronic or other form or media, and whether or not marked, designated or otherwise identified as "confidential," in connection with these Terms or the Agreement is confidential, solely for the use of performing this Agreement and may not be disclosed or copied unless authorized in advance by Seller in writing. Upon Seller's request, Buyer shall promptly return all Confidential Information received from Seller. Seller shall be entitled to injunctive relief for any violation of this Section. For purposes of this Agreement, "Confidential Information" means all non-public, confidential or proprietary information of Seller including, but not limited to, business affairs, business plans, trade secrets, intellectual property, specifications, samples, patterns, designs, client information, customer information, supplier information, technical data, developments, properties, systems, procedures, ser-

## Sales Policy

vices, processes, methods, drawings, know-how, equipment, development plans, documents, manuals, strategies, training materials, costs, pricing, discounts or rebates, inventions, discoveries or any other confidential matters acquired in respect of the Seller or the Products.

### 20. FORCE MAJEURE.

Neither Seller nor Buyer shall be in breach of contract nor liable to the other party for any delay or damages if prevented from performance of these Terms and the Agreement (other than the payment of money) by any condition of force majeure which is beyond the control and not caused by the negligence of the party so affected ("Force Majeure"). Force Majeure includes, but shall not be limited to, earthquakes, floods, hurricanes, named tropical storms, lightning strikes, ice storms, blizzards, icebergs, pack ice, air and sea disasters, explosions and fire, epidemics, acts of God, acts of public enemy, war, terrorism, national emergency, invasion, insurrection, riot, strike, lockout, blockade or other industrial disputes, any laws, rules, regulations, orders, directives or requirements of or interference by any government or government agency (including any thereof or any affecting foreign exchange or otherwise making the terms of sale materially impractical on the basis of the economics relating to the agreed sale price or of illegality), inability or delay in obtaining supplies of adequate or suitable materials, power outage or other circumstances not within the control of the party and which, by the exercise of reasonable diligence, the party is unable to prevent or remedy, whether similar or dissimilar, foreseen or unforeseen. Seller shall have such additional time as may be reasonably necessary to perform its obligations upon the occurrence of any Force Majeure event.

### 21. ASSIGNMENT.

Buyer shall not assign any of its rights or delegate any of its obligations under this Agreement without the prior written consent of Seller. Any purported assignment or delegation in violation of this Section is null and void. No assignment or delegation relieves Buyer of any of its obligations under this Agreement.

### 22. AMENDMENT AND MODIFICATION.

These Terms may only be amended or modified in a writing which specifically states that it amends these Terms and is signed by an authorized representative of each of Seller and Buyer.

### 23. RELATIONSHIP OF THE PARTIES.

The relationship between the parties is that of independent contractors. Nothing contained in these Terms or the Agreement shall be construed as creating any agency, partnership, joint venture or other form of joint enterprise, employment or fiduciary relationship between Seller and Buyer, and neither party shall have authority to contract for or bind the other party in any manner whatsoever.

### 24. NO THIRD-PARTY BENEFICIARIES.

These Terms and the Agreement are for the sole benefit of the Seller and Buyer and their respective successors and permitted assigns, and nothing herein, express or implied, is intended to or shall confer upon any other person or entity any legal or equitable right, benefit or remedy of any nature whatsoever under or by reason of these Terms.

25. GOVERNING LAW / JURISDICTION / JURY WAIVER. THESE TERMS, THE AGREEMENT AND THE RELATIONS BETWEEN THE PARTIES SHALL BE GOVERNED BY THE PROCEDURAL AND SUBSTANTIVE LAWS OF THE STATE OF TEXAS, EXCLUSIVE OF CONFLICT OF LAWS PRINCIPLES WHICH WOULD DIRECT THE APPLICATION OF THE SUBSTANTIVE OR PROCEDURAL LAW OF ANOTHER JURISDICTION. IN THE EVENT

TEXAS LAW IS RULED

OR ORDERED TO NOT APPLY TO ANY DISPUTE BETWEEN THE PARTIES, THEN FOR PURPOSES OF THAT DISPUTE THESE TERMS, THE AGREEMENT AND THE RELATIONS BETWEEN THE PARTIES SHALL BE GOVERNED BY THE LAWS OF THE JURISDICTION IN WHICH BRAY'S FACTORY APPLICABLE TO THE SALE IS LOCATED, EXCLUSIVE OF CONFLICT OF LAWS PRINCIPLES WHICH WOULD DIRECT THE APPLICATION OF THE SUBSTANTIVE OR PROCEDURAL LAW OF ANOTHER JURISDICTION. IF BRAY'S FACTORY APPLICABLE TO THE SALE IS

LOCATED IN ANY STATE, TERRITORY, OR DISTRICT OF THE UNITED STATES OF AMERICA, EACH PARTY: (A) IRREVOCABLY SUBMITS TO THE JURISDICTION AND VENUE OF THE COURTS LOCATED IN HARRIS COUNTY, TEXAS FOR THE RESOLUTION OF ANY AND ALL DISPUTES ARISING FROM OR RELATING TO THESE TERMS, THE AGREEMENT AND THE RELATIONS BETWEEN THE PARTIES; AND (B) KNOWINGLY AND VOLUNTARILY WAIVES ALL RIGHTS TO A JURY TRIAL IN ANY LEGAL PROCEEDING RELATING TO THESE TERMS, THE AGREEMENT AND THE RELATIONS BETWEEN THE PARTIES. IF BRAY'S FACTORY APPLICABLE TO THE SALE IS NOT LOCATED IN ANY STATE, TERRITORY, OR DISTRICT OF THE UNITED STATES OF AMERICA, EACH PARTY AGREES ALL DISPUTES ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR THE ORDER(S) SHALL BE FINALLY SETTLED, SUBJECT TO THE DEFENSES ALLOWED BY APPLICABLE LAW, UNDER THE RULES OF

ARBITRATION OF THE INTERNATIONAL CHAMBER OF COMMERCE BY A SINGLE ARBITRATOR APPOINTED IN ACCORDANCE WITH THE SAID RULES. THE ARBITRATION SHALL BE CONDUCTED IN ENGLISH WITHIN THE LIMITS OF THE CITY OF HOUSTON, TEXAS. THE ARBITRATOR MUST MEET EACH OF THE FOLLOWING QUALIFICATIONS IN ORDER TO BE APPOINTED: (1) BE A GRADUATE OF A LAW SCHOOL LOCATED IN THE UNITED STATES; (2) HAVE MORE THAN TWENTY YEARS OF EXPERIENCE IN LITIGATING AND/OR ARBITRATING COMPLEX COMMERCIAL DISPUTES; (3) BE LICENSED TO PRACTICE LAW IN THE STATE OF TEXAS; AND (4) BE IMPARTIAL. THE ARBITRATOR WILL HAVE THE AUTHORITY TO APPORTION LIABILITY BETWEEN THE PARTIES, BUT WILL NOT HAVE THE AUTHORITY TO AWARD ANY DAMAGES OR REMEDIES NOT AVAILABLE UNDER, OR IN EXCESS OF, THE EXPRESS TERMS OF THESE TERMS OR THE AGREEMENT. THE ARBITRATION AWARD WILL BE PRESENTED TO THE PARTIES IN WRITING, AND UPON THE REQUEST OF EITHER PARTY, WILL INCLUDE FINDINGS OF FACT AND CONCLUSIONS OF LAW. THE AWARD MAY BE CONFIRMED AND ENFORCED IN ANY COURT OF COMPETENT JURISDICTION. BUYER AND SUPPLIER HEREBY CONSENT AND SUBMIT TO THE AFOREMENTIONED ARBITRATION AND THE JURISDICTION OF ANY LOCAL, STATE OR FEDERAL COURT LOCATED WITHIN HOUSTON, TEXAS, AS JURISDICTION FOR REVIEW OR CHALLENGE OF THE ARBITRATION RESULTS AND WAIVE ANY RIGHT SUCH PARTY MAY HAVE TO TRANSFER THE VENUE TO ANY OTHER JURISDICTION. THE PARTIES EXPRESSLY RESERVE ALL RIGHTS TO PURSUE INJUNCTIVE RELIEF IN ANY COURT LOCATED IN HOUSTON, TEXAS. THE PARTIES ACKNOWLEDGE AND AGREE THAT THIS AGREEMENT INCLUDES ACTIVITIES IN INTERSTATE COMMERCE (AND, ACCORDINGLY, THE FEDERAL ARBITRATION ACT OF THE UNITED STATES SHALL CONTROL AND APPLY TO ALL ARBITRATIONS CONDUCTED HEREUNDER, NOTWITHSTANDING ANY STATE LAW PROVISIONS TO THE CONTRARY).

### 26. NOTICES.

All notices, request, consents, claims, demands, waivers and other communications hereunder (each, a "Notice") shall be in writing and addressed to the parties at the addresses set forth

on the face of the Quotation or to such other address that may be designated by the receiving party in writing. All Notices shall be delivered by personal delivery, nationally recognized overnight courier (with all fees pre-paid), facsimile (with confirmation of transmission), email or certified or registered mail (in each case, return receipt requested, postage prepaid). Except as otherwise provided in the Agreement, a Notice is effective only (i) upon receipt of the receiving party (and confirmation of such receipt in respect of facsimile or email transmissions), and (ii) if the party giving the Notice has complied with the requirements of this Section.

**27. SEVERABILITY.**

If any of these Terms or other terms or provision of the Agreement are determined to be invalid, illegal or unenforceable in any jurisdiction, such invalidity, illegality or unenforceability shall not affect any other term or provision or invalidate or render unenforceable such term or provision in any other jurisdiction.

**28. CLERICAL ERRORS.**

Seller reserves the right to correct all stenographic or clerical errors or omissions in any documents (whether Quotations, invoices or other documents).

**29. SURVIVAL.**


Any provision of the Agreement that by its nature should apply after any termination or expiration of the Agreement, including (but not limited to) the following provisions: Compliance with Laws, Confidentiality, Governing Law / Jurisdiction and Survival, shall survive any such termination or expiration.

**30. PUBLISHED DATA.**

All published dimensions, weights, temperatures, pre sure ratings and other Product data are approximate. CANCELLATION, CHANGE ORDERS AND RETURNED GOODS POLICY ADDENDUM As guidance and further clarification on the applicable terms and conditions relating to change orders or cancellations, Bray will accept changes and cancellations generally subject to Buyer agreement to pay all costs and expenses incurred by Bray for the order, including, without limitation, costs and expenses relating to engineering, financing costs (including those for any performance or warranty obligations), restocking, order administration, supplies, freight, duties and inspection. For standard product, Bray will generally apply a twentyfive percent (25%) cancellation fee unless such amount is not sufficient to recapture Bray's fees and expenses (e.g., financing costs, freight, duties, etc.) relating to the order. For non standard products (i.e., product with unique feature(s) or specifically designed for the applicable purchase), the cancellation charge will usually be the purchase price of the product(s). For any such agreed cancellation or change, Bray will calculate the specific amount of such costs and expenses incurred to the date of such cancellation or change and advise Buyer of the applicable amount owed. For any standard product returns, exceptional costs such as freight, duties and financing costs will be added to any standard cancellation fee. For any non standard product returns, the cancellation charge will additionally include amounts incurred in connection with the return. Specific terms and conditions relating to the foregoing and the events and circumstances relating to the novel coronavirus COVID-19: Bray will agree to delay the delivery of orders beyond a previously agreed delivery date as long as the Buyer pays an additional storage fee of five percent (5%) relating to such applicable order(s); provided, however, that the applicable order(s) must nevertheless be shipped and invoiced by no later than ninety (90) days after the previously agreed delivery date or the applicable order(s) will be deemed canceled and the cancellation charge (as outlined above) therefor shall be charged.

## **EBV Series-DC Actuators** **Characterized Ball Valves**

2-Way & 3-Way • 1/2" - 2"

| DOCUMENT                                    |   |
|---|---|
| CONTENTS                                    | Features  |
|   | Specifications  |
|   | Exploded View   |
|   | Dimensions  |
|   | Piping Geometry   |
| LOOKING FOR MORE                            | Close-Off Charts  |
|   |  |
| © 2026 Bray International, Inc.<br>06/12/26 |   |

### Application

The Bray Commercial EBV Series characterized control ball valves are industry leading solutions for energy efficient, economical and effective control of a wide range of equipment in HVAC applications.



### System Types

Air Handlers, Fan Coil Units, VAV Reheat Coils,  
Chilled Beams and Computer Room Air Conditioners

### Features and Benefits

#### • Energy Efficient

*ANSI/FCI 70-2 Class VI leakage to eliminate unnecessary pump head loss.  
Low torque for smaller, energy efficient actuators.*

#### • Economical

*Lower torque design allows smaller, more cost effective actuators.  
Bray's world class engineering and manufacturing with over 30 years of experience ensures efficient processes and resulting lower costs.*

#### • Effective

*High 200 psi Close-Off rating.  
High flow capacity to meet most any application.  
High 500:1 Rangeability  
Stainless Steel trim standard for water temperatures up to 284°F and steam up to 15 psig.  
Multiple Cv's for an equal percentage flow characteristic on the control port.*

#### • Warranty

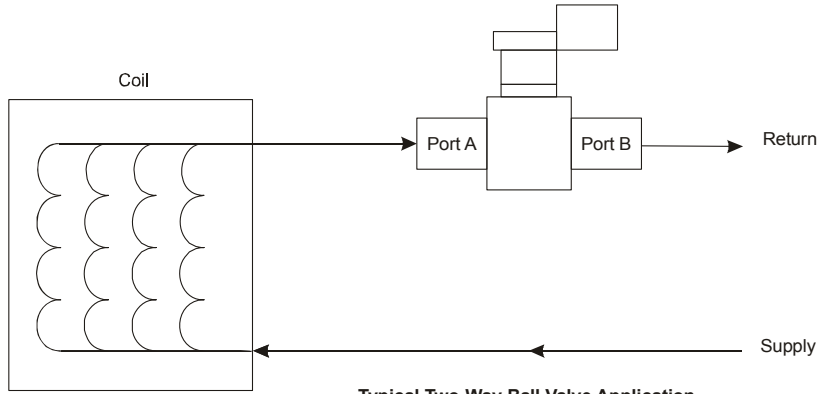
*5 Years - High Reliability tested to over 200K cycles.*

## EBV Series - Valve Body Specifications

| Technical Specifications - EBV Valve Body          |   |   |                    |
|--|---|---|--------------------|
| <b>Service</b>                                     | Hot Water, Chilled Water, Condenser Water up to 60% Glycol<br>15 psig (103 kPa) Saturated Steam @ 250°F for HVAC Systems                |   |                    |
| <b>Size Range</b>                                  | 2-Way & 3-Way - 1/2" through 2" (DN 15 to 50)   |   |                    |
| <b>Valve Body Pressure/<br/>Temperature Rating</b> | Cold Working Pressure   | 580 psi (PN 40)   |                    |
|  | Water (with Standard Mounting)  | -20°F to 203°F @ 580 psi (-29°C to 95°C)                |                    |
|  | Water (with "High Temp" Mounting)   | -20°F to 284°F @ 464 psi (-29°C to 140°C)               |                    |
|  | Saturated Steam (with "High Temp" Mounting)   | 15 psig (103 kPa) at 250°F (121°C)                      |                    |
| <b>Maximum Recommended Operating Pressure Drop</b> | 50 psid Maximum Differential Pressure for Valves with Characterized Flow Control Disk and 30 psid Maximum for Quiet Service Ball Valves |   |                    |
| <b>Flow Characteristics</b>                        | <b>2-Way</b>  | Equal Percentage  |                    |
|  | <b>3-Way</b>  | Equal Percentage Port A, Linear Port B (Bypass)         |                    |
| <b>Rangeability</b>                                | Greater than 500:1 (No disc)  |   |                    |
| <b>Ambient Conditions</b>                          | See Actuator Specifications   |   |                    |
| <b>Close-Off</b>                                   | 200 psi   |   |                    |
| <b>Leakage</b>                                     | Control Port - ANSI/FCI 70-2 Class VI<br>Bypass Port < 1% of Maximum Flow   |   |                    |
| <b>End Connections</b>                             | NPT Threaded, Sweat & Press, BSPP   |   |                    |
| <b>Materials</b>                                   | <b>Body</b>   | Forged Brass  |                    |
|  | <b>Ball</b>   | 300 Series Stainless Steel                              |                    |
|  | <b>Stem</b>   |   |                    |
|  | <b>Seats</b>  | RPTFE - 15% Graphite Reinforced with EPDM O-Ring Backup |                    |
|  | <b>Stem Seals</b>   | EPDM Double O-Rings                                     |                    |
|  | <b>Characterizing Disk</b>  | AMODEL® AS-1145HS Polyphthalamide Resin                 |                    |
| <b>Weights (NPT)<br/>(Valve Body Only)</b>         | <b>Size</b>   | <b>2-Way</b>  | <b>3-Way</b>       |
|  | 1/2"  | 0.71 lb. (0.32 kg)                                      | 0.79 lb. (0.36 kg) |
|  | 3/4"  | 0.75 lb. (0.34 kg)                                      | 0.93 lb. (0.42 kg) |
|  | 1"  | 1.30 lb. (0.59 kg)                                      | 1.59 lb. (0.72 kg) |
|  | 1-1/4"  | 2.05 lb. (0.93 kg)                                      | 2.56 lb. (1.16 kg) |
|  | 1-1/2"  | 2.73 lb. (1.24 kg)                                      | 3.37 lb. (1.53 kg) |
|  | 2"  | 4.61 lb. (2.09 kg)                                      | 5.80 lb. (2.63 kg) |
| <b>Compliance CRN</b>                              | OC25972   |   |                    |
| <b>Warranty</b>                                    | 5 Years limited from time of shipment.  |   |                    |

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

## EBV Series - 2-Way Piping Schematics

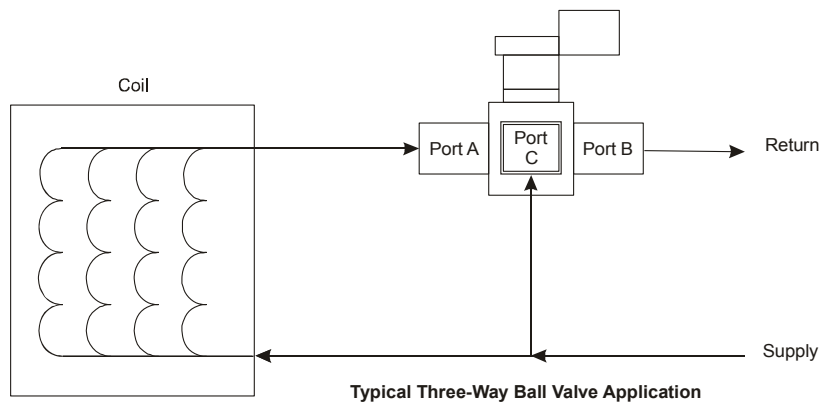


**Note:** Mount the valve downstream from the coil to minimize heat transfer to the actuator.

| 2-Way - Default Configuration for EBV Series Ball Valves   |                         |  |  |
|--|-------------------------|--|--|
| Valve Position at Actuator Position                        | 2-Way Non-Spring Return | 2-Way Spring Return N.O. (Normally Open) | 2-Way Spring Return N.C. (Normally Closed) |
| Valve Position w/ Act CCW                                  | Open                    | Open                                     | Open                                       |
| Valve position w/Act CW                                    | Closed                  | Closed                                   | Closed                                     |
| Valve Position w power removed                             | Last Position           | Open                                     | Closed                                     |
| Modulating actuator control signal Action (Direct Acting)* | CCW at 0; CW at Max     | CCW at 0, CW at Max                      | CW at 0, CCW at Max                        |

\*Proportional **MODULATING** actuators include a switch to field convert from Direct Acting to Reverse Action

## EBV Series - 3-Way Piping Schematics

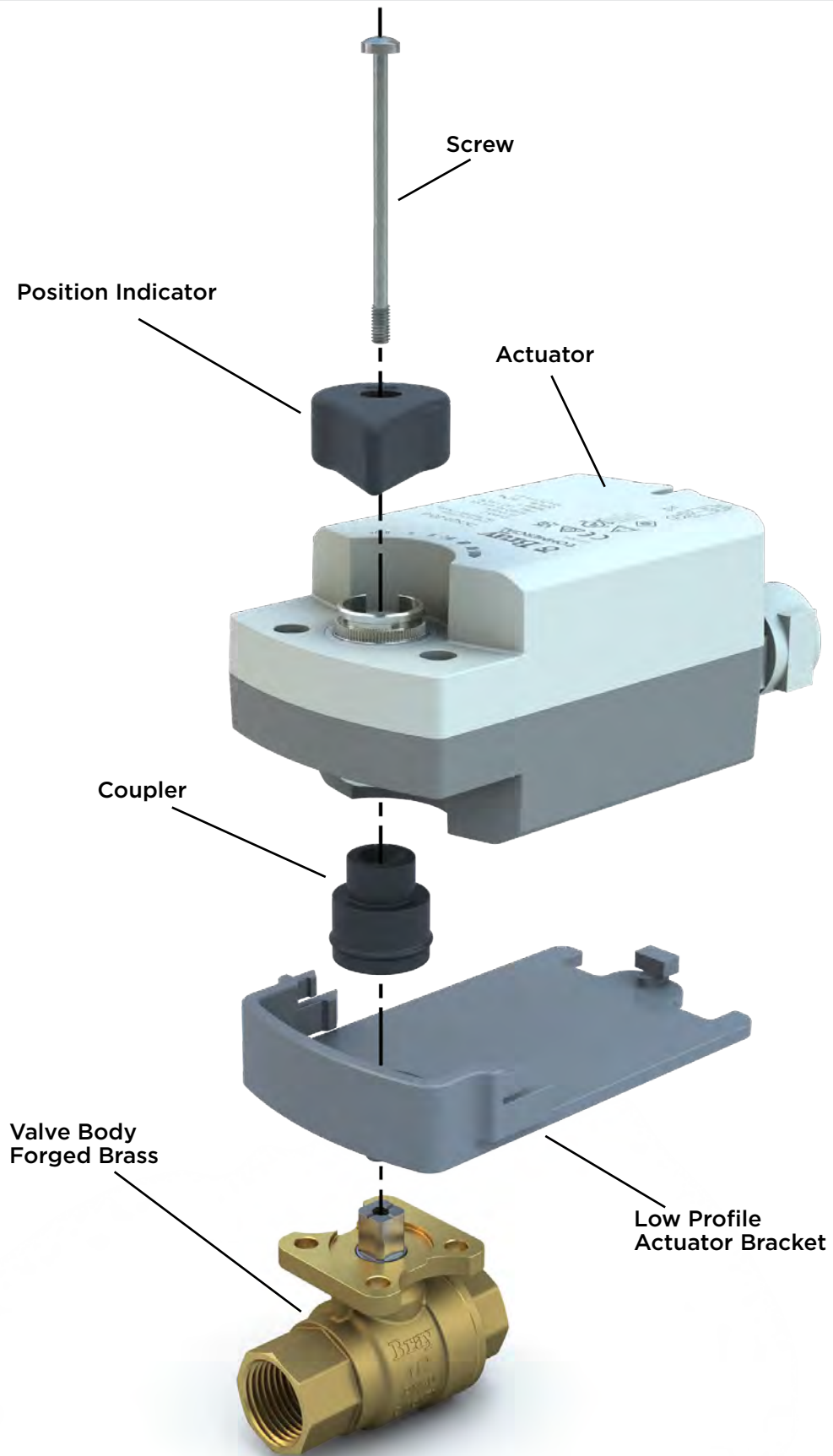


**Note:** Mount the valve downstream from the coil to minimize heat transfer to the actuator. For pure diverting applications (one inlet/two outlets), only the standard port (no characterization disc) versions will work.

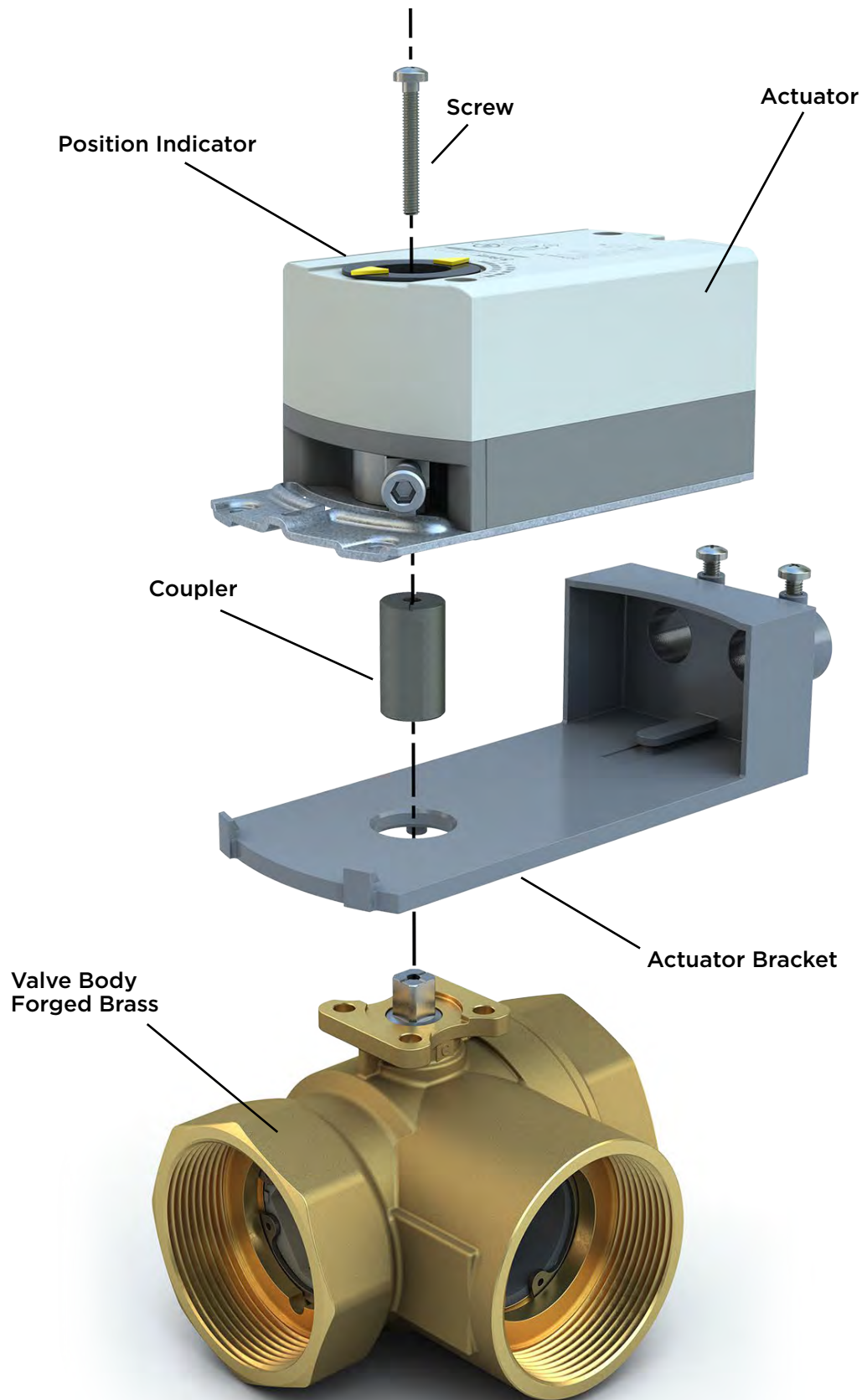
| 3-Way - Default Configuration for EBV Series Ball Valves   |                         |  |  |
|--|-------------------------|--|--|
| Valve Position at Actuator Position                        | 3-Way Non-Spring Return | 3-Way Spring Return N.O. (Normally Open) | 3-Way Spring Return N.C. (Normally Closed) |
| Valve Position w/ Act CCW                                  | A open to B             | A open to B                              | A open to B                                |
| Valve position w/Act CW                                    | C open to B             | C open to B                              | C open to B                                |
| Valve Position w power removed                             | Last Position           | A open to B                              | C open to B                                |
| Modulating actuator control signal Action (Direct Acting)* | CCW at 0; CW at Max     | CCW at 0, CW at Max                      | CW at 0, CCW at Max                        |

\*Proportional **MODULATING** actuators include a switch to field convert from Direct Acting to Reverse Action

## EBV Series - 2-Way Exploded View - Direct Mount Actuators

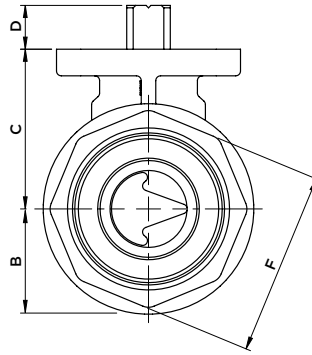
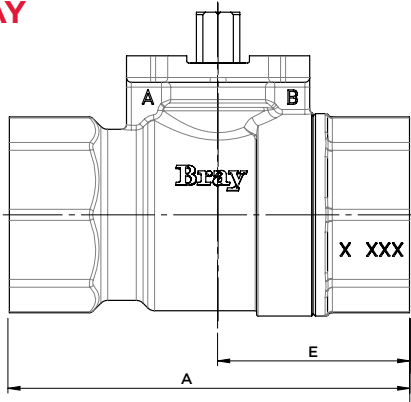


## EBV Series - 3-Way Exploded View - Universal Mount Actuators



# EBV Series - Valve Body Dimensions

## 2-WAY

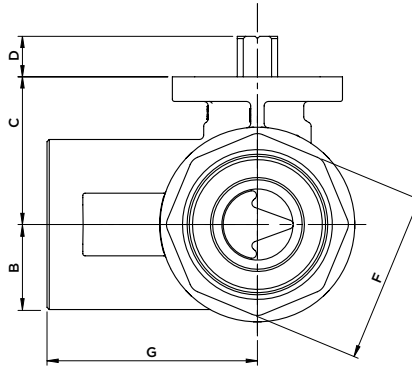
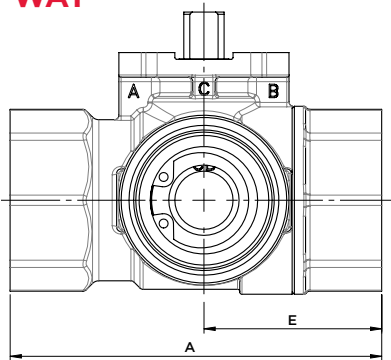


**2-WAY - VALVE BODY DIMENSIONS in. (mm)**

| EBV Valve Model # Prefix | Size  |    | Flow Coefficient |           | A (NPT)    | A (SWEAT/PRESS) | B         | C           | D           | E           | F         | Weights - lbs. (kg) |             |
|--------------------------|-------|----|------------------|-----------|------------|-----------------|-----------|-------------|-------------|-------------|-----------|---------------------|-------------|
|                          | in.   | mm | Cv               | Kv        |            |                 |           |             |             |             |           | NPT                 | SWEAT/PRESS |
| EBV-05-2-x               | 1/2   | 15 | 0.3-17.2         | 0.3-14.9  | 2.60 (66)  | 4.60 (117)      | 0.59 (15) | 1.14 (29)   | 0.35 (9)    | 1.22 (31)   | 1.00 (25) | 0.71 (0.32)         | 0.93 (0.42) |
| EBV-75-2-x               | 3/4   | 20 | 4.9-15.3         | 4.2-13.2  | 2.28 (68)  | 4.74 (120.5)    | 0.59 (15) | 1.14 (29)   | 0.35 (9)    | 1.30 (33)   | 1.22 (31) | 0.75 (0.34)         | 1.15 (0.52) |
| EBV-1-2-x                | 1     | 25 | 7.8-29.9         | 6.7-25.9  | 3.27 (83)  | 5.45 (138.5)    | 0.79 (20) | 1.30 (33)   | 0.36 (9.1)  | 1.56 (39.7) | 1.50 (38) | 1.30 (0.59)         | 1.76 (0.80) |
| EBV-125-2-x              | 1-1/4 | 32 | 11.7-44.8        | 10.1-38.8 | 3.66 (93)  | -               | 0.98 (25) | 1.59 (40.5) | 0.36 (9.15) | 1.79 (45.5) | 1.89 (48) | 2.05 (0.93)         | -           |
| EBV-150-2-x              | 1-1/2 | 40 | 19.6-48.3        | 17.0-41.8 | 3.94 (100) | -               | 1.06 (27) | 1.67 (42.5) | 0.36 (9.15) | 1.93 (49)   | 2.13 (54) | 2.73 (1.24)         | -           |
| EBV-2-2-x                | 2     | 50 | 29.2-95.5        | 25.3-82.6 | 4.61 (117) | -               | 1.46 (37) | 1.93 (49)   | 0.35 (9)    | 2.24 (57)   | 2.68 (68) | 4.61 (2.09)         | -           |

x = Cv

## 3-WAY



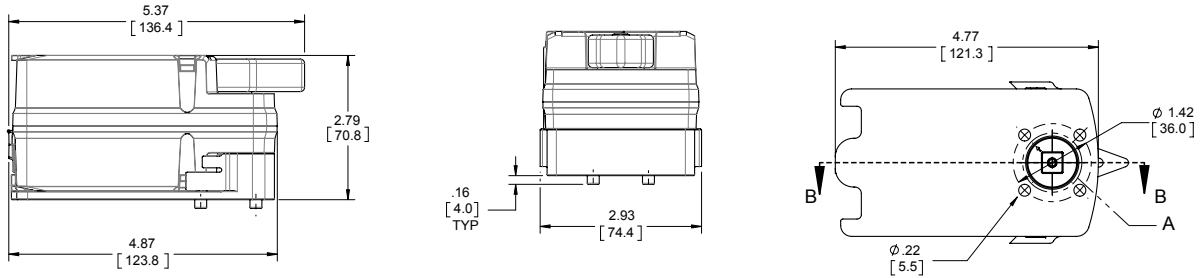
**3-WAY - VALVE BODY DIMENSIONS in. (mm)**

| EBV Valve Model # Prefix | Size  |    | Flow Coefficient |           | A (NPT)    | A (SWEAT/PRESS) | B         | C           | D           | E           | F         | G (NPT)     | G (SWEAT/PRESS) | Weights - lbs. (kg) |             |
|--------------------------|-------|----|------------------|-----------|------------|-----------------|-----------|-------------|-------------|-------------|-----------|-------------|-----------------|---------------------|-------------|
|                          | in.   | mm | Cv               | Kv        |            |                 |           |             |             |             |           |             |                 | NPT                 | SWEAT/PRESS |
| EBV-05-3-x               | 1/2   | 15 | 0.3-17.2         | 0.3-14.9  | 2.60 (66)  | 4.60 (117)      | 0.59 (15) | 1.14 (29)   | 0.35 (9)    | 1.22 (31)   | 1.00 (25) | 1.46 (37)   | 1.93 (49)       | 0.79 (0.36)         | 1.12 (0.51) |
| EBV-75-3-x               | 3/4   | 20 | 4.9-15.3         | 4.2-13.2  | 2.28 (68)  | 4.74 (120.5)    | 0.59 (15) | 1.14 (29)   | 0.35 (9)    | 1.30 (33)   | 1.22 (31) | 1.50 (38)   | 1.93 (49)       | 0.93 (0.42)         | 1.59 (0.72) |
| EBV-1-3-x                | 1     | 25 | 7.8-29.9         | 6.7-25.9  | 3.27 (83)  | 5.45 (138.5)    | 0.79 (20) | 1.30 (33)   | 0.36 (9.1)  | 1.56 (39.7) | 1.50 (38) | 1.85 (47)   | 2.15 (54.7)     | 1.59 (0.72)         | 2.47 (1.12) |
| EBV-125-3-x              | 1-1/4 | 32 | 11.7-44.8        | 10.1-38.8 | 3.66 (93)  | -               | 0.98 (25) | 1.59 (40.5) | 0.36 (9.15) | 1.79 (45.5) | 1.89 (48) | 2.07 (52.5) | -               | 2.56 (1.16)         | -           |
| EBV-150-3-x              | 1-1/2 | 40 | 19.6-48.3        | 17.0-41.8 | 3.94 (100) | -               | 1.06 (27) | 1.67 (42.5) | 0.36 (9.15) | 1.93 (49)   | 2.13 (54) | 2.19 (55.5) | -               | 3.37 (1.53)         | -           |
| EBV-2-3-x                | 2     | 50 | 29.2-95.5        | 25.3-82.6 | 4.61 (117) | -               | 1.46 (37) | 1.93 (49)   | 0.35 (9)    | 2.24 (57)   | 2.68 (68) | 2.56 (65)   | -               | 5.80 (2.63)         | -           |

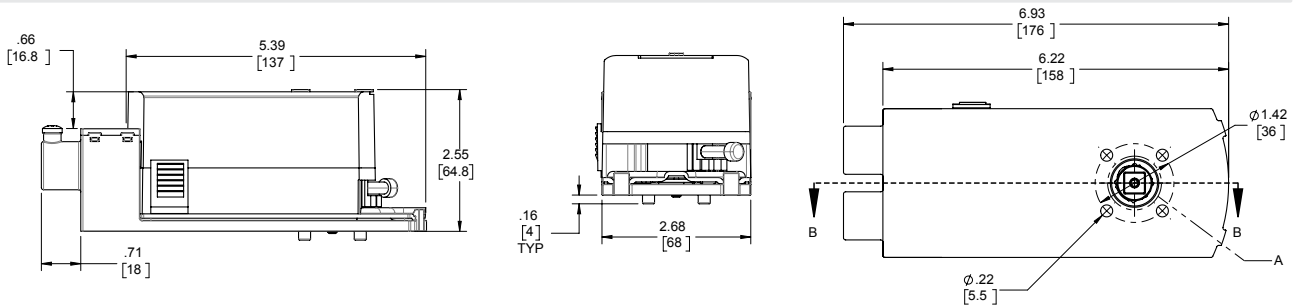
x = Cv

# EBV Series - Actuator Dimensions

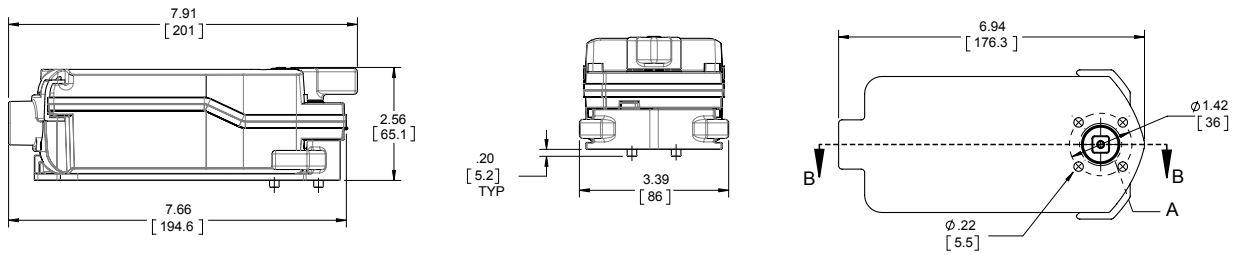
## DCS(M)-20 Series



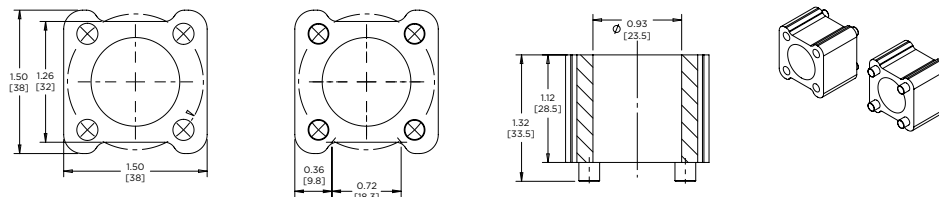
## DC(M)-44 Series



## DCS(M)-62 Series



## Optional High Temperature Barrier



| EBV - Valve Sizing Tips   |  |  |         |  |                |   |
|---|--|--|---------|--|----------------|---|
| <b>Step One</b>   | Determine the designed Cv by using the following equation.   |  |         |  |                |   |
|   | $Cv = \frac{Q\sqrt{G}}{\sqrt{\Delta P}}$   |  |         |  |                |   |
|   | <b>Where</b><br><b>Q</b> = Flow in gallons per minute (GPM) required to pass through the valve<br><b>G</b> = Specific gravity of fluid *<br><b>ΔP</b> = Designed pressure drop across the valve in psi<br><b>Cv</b> = Flow coefficient |  |         |  |                |   |
|   | <b>Notes</b>   | * Specific gravity is negligible (equal to 1) for water below 200°F. Use actual specific gravity of pure fluids other than water. In most cases, the valve selected for a H <sub>2</sub> O mixture will not be affected by the specific gravity.   |         |  |                |   |
| <b>Example</b>  | The Specific Gravity of 50% Water (Compound 1) and 50% Ethylene Glycol Solution (Compound 2):  | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #cfe2f3;"> <th style="text-align: left; padding: 2px;">FORMULA</th> <th style="padding: 2px;"><math>\frac{1}{G_{soln}} = \frac{\text{wt\% of Compound 1}}{\text{Specific Gravity (G)}} + \frac{\text{wt\% of Compound 2}}{\text{Specific Gravity (G)}}</math></th> </tr> </thead> <tbody> <tr> <td style="text-align: left; padding: 2px;"><b>EXAMPLE</b></td> <td style="padding: 2px;"><math>G_{soln} = \frac{0.5}{1.0} + \frac{0.5}{1.113} = 1.05</math></td> </tr> </tbody> </table> | FORMULA | $\frac{1}{G_{soln}} = \frac{\text{wt\% of Compound 1}}{\text{Specific Gravity (G)}} + \frac{\text{wt\% of Compound 2}}{\text{Specific Gravity (G)}}$ | <b>EXAMPLE</b> | $G_{soln} = \frac{0.5}{1.0} + \frac{0.5}{1.113} = 1.05$ |
| FORMULA   | $\frac{1}{G_{soln}} = \frac{\text{wt\% of Compound 1}}{\text{Specific Gravity (G)}} + \frac{\text{wt\% of Compound 2}}{\text{Specific Gravity (G)}}$   |  |         |  |                |   |
| <b>EXAMPLE</b>  | $G_{soln} = \frac{0.5}{1.0} + \frac{0.5}{1.113} = 1.05$  |  |         |  |                |   |
| <b>Step Two</b>   | Determine whether the valve should be line size or sized to match the designed pressure drop (typical for modulating applications where precise control is required.)  |  |         |  |                |   |
|   | <b>Option 1</b>  | <b>LINE SIZE</b><br>Go to page EBV-9, EBV Series Quick Reference Charts. Using the line size, find a valve of the same size with a Cv that best matches the one calculated in Step 1.  |         |  |                |   |
|   | <b>Option 2</b>  | <b>SIZE FOR PRECISE CONTROL</b><br>Go to page EBV-10 (2-Way or 3-Way), EBV Series Piping Geometry Charts. Find the line size at the top of the chart. Scan down the page to the Cv that best matches the one calculated in Step 1.   |         |  |                |   |
| <b>Step Three</b>   | Determine the actual pressure drop using the below equation.   |  |         |  |                |   |
|   | $\Delta P = \left( \frac{Q\sqrt{G}}{Cv} \right)^2$   |  |         |  |                |   |
| If the pressure drop is acceptable†, go to Step 4.<br>If not, repeat Steps 2 and 3, selecting an alternate valve. |  |  |         |  |                |   |
| <b>Step Four</b>  | Check to be sure that the close-off requirements are met. Refer to Page EBV-11 - EBV-14.   |  |         |  |                |   |

† Recommended to be no higher than 35 psi or match the designed pressure drop, 3, 4, 5, and 6 psi are commonly accepted for modulating applications.

## EBV Series - GPM - Quick Reference Sizing and Selection Table

| 2-Way/3-Way GPM - Quick Reference Chart |              |                             |       |       |       |       |       |       |       |       |       |       |
|---|--------------|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Valve Size                              | Model Number | Differential Pressure (psi) |       |       |       |       |       |       |       |       |       |       |
|   |              | 1.0                         | 1.5   | 2.0   | 2.5   | 3.0   | 3.5   | 4.0   | 4.5   | 5.0   | 7.0   | 10.0  |
| 1/2"                                    |              | GPM                         |       |       |       |       |       |       |       |       |       |       |
|   | EBV-05-x-003 | 0.3                         | 0.4   | 0.4   | 0.5   | 0.5   | 0.6   | 0.6   | 0.6   | 0.7   | 0.8   | 0.9   |
|   | EBV-05-x-005 | 0.5                         | 0.6   | 0.7   | 0.8   | 0.9   | 0.9   | 1.0   | 1.1   | 1.1   | 1.3   | 1.6   |
|   | EBV-05-x-009 | 0.9                         | 1.1   | 1.3   | 1.4   | 1.6   | 1.7   | 1.8   | 1.9   | 2.0   | 2.4   | 2.8   |
|   | EBV-05-x-01  | 1.4                         | 1.7   | 2.0   | 2.2   | 2.4   | 2.6   | 2.8   | 3.0   | 3.1   | 3.7   | 4.4   |
|   | EBV-05-x-02  | 2                           | 2.4   | 2.8   | 3.2   | 3.5   | 3.7   | 4.0   | 4.2   | 4.5   | 5.3   | 6.3   |
|   | EBV-05-x-03  | 3                           | 3.7   | 4.2   | 4.7   | 5.2   | 5.6   | 6.0   | 6.4   | 6.7   | 7.9   | 9.5   |
|   | EBV-05-x-05  | 4.9                         | 6.0   | 6.9   | 7.7   | 8.5   | 9.2   | 9.8   | 10.4  | 11.0  | 13.0  | 15.5  |
|   | EBV-05-x-08  | 8                           | 9.8   | 11.3  | 12.6  | 13.9  | 15.0  | 16.0  | 17.0  | 17.9  | 21.2  | 25.3  |
|   | EBV-05-x-13  | 12.5                        | 15.3  | 17.7  | 19.8  | 21.7  | 23.4  | 25.0  | 26.5  | 28.0  | 33.1  | 39.5  |
| EBV-05-x-17                             | 17.2*        | 21.1                        | 24.3  | 27.2  | 29.8  | 32.2  | 34.4  | 36.5  | 38.5  | 45.5  | 54.4  |       |
| 3/4"                                    | EBV-75-x-05  | 4.9                         | 6.0   | 6.9   | 7.7   | 8.5   | 9.2   | 9.8   | 10.4  | 11.0  | 13.0  | 15.5  |
|   | EBV-75-x-08  | 7.8                         | 9.6   | 11.0  | 12.3  | 13.5  | 14.6  | 15.6  | 16.5  | 17.4  | 20.6  | 24.7  |
|   | EBV-75-x-12  | 12.3                        | 15.1  | 17.4  | 19.4  | 21.3  | 23.0  | 24.6  | 26.1  | 27.5  | 32.5  | 38.9  |
|   | EBV-75-x-15  | 15.3*                       | 18.7  | 21.6  | 24.2  | 26.5  | 28.6  | 30.6  | 32.5  | 34.2  | 40.5  | 48.4  |
| 1"                                      | EBV-1-x-08   | 7.8                         | 9.6   | 11.0  | 12.3  | 13.5  | 14.6  | 15.6  | 16.5  | 17.4  | 20.6  | 24.7  |
|   | EBV-1-x-12   | 12.1                        | 14.8  | 17.1  | 19.1  | 21.0  | 22.6  | 24.2  | 25.7  | 27.1  | 32.0  | 38.3  |
|   | EBV-1-x-20   | 19.5                        | 23.9  | 27.6  | 30.8  | 33.8  | 36.5  | 39.0  | 41.4  | 43.6  | 51.6  | 61.7  |
|   | EBV-1-x-30   | 29.9*                       | 36.6  | 42.3  | 47.3  | 51.8  | 55.9  | 59.8  | 63.4  | 66.9  | 79.1  | 94.6  |
| 1-1/4"                                  | EBV-125-x-12 | 11.7                        | 14.3  | 16.5  | 18.5  | 20.3  | 21.9  | 23.4  | 24.8  | 26.2  | 31.0  | 37.0  |
|   | EBV-125-x-20 | 19.8                        | 24.2  | 28.0  | 31.3  | 34.3  | 37.0  | 39.6  | 42.0  | 44.3  | 52.4  | 62.6  |
|   | EBV-125-x-30 | 30.4                        | 37.2  | 43.0  | 48.1  | 52.7  | 56.9  | 60.8  | 64.5  | 68.0  | 80.4  | 96.1  |
|   | EBV-125-x-45 | 44.8*                       | 54.9  | 63.4  | 70.8  | 77.6  | 83.8  | 89.6  | 95.0  | 100.2 | 118.5 | 141.7 |
| 1-1/2"                                  | EBV-150-x-20 | 19.6                        | 24.0  | 27.7  | 31.0  | 33.9  | 36.7  | 39.2  | 41.6  | 43.8  | 51.9  | 62.0  |
|   | EBV-150-x-30 | 30.4                        | 37.2  | 43.0  | 48.1  | 52.7  | 56.9  | 60.8  | 64.5  | 68.0  | 80.4  | 96.1  |
|   | EBV-150-x-48 | 48.3*                       | 59.2  | 68.3  | 76.4  | 83.7  | 90.4  | 96.6  | 102.5 | 108.0 | 127.8 | 152.7 |
| 2"                                      | EBV-2-x-29   | 29.2                        | 35.8  | 41.3  | 46.2  | 50.6  | 54.6  | 58.4  | 61.9  | 65.3  | 77.3  | 92.3  |
|   | EBV-2-x-49   | 48.8                        | 59.8  | 69.0  | 77.2  | 84.5  | 91.3  | 97.6  | 103.5 | 109.1 | 129.1 | 154.3 |
|   | EBV-2-x-75   | 75.2                        | 92.1  | 106.3 | 118.9 | 130.3 | 140.7 | 150.4 | 159.5 | 168.2 | 199.0 | 237.8 |
|   | EBV-2-x-96   | 95.5*                       | 117.0 | 135.1 | 151.0 | 165.4 | 178.7 | 191.0 | 202.6 | 213.5 | 252.7 | 302.0 |

x = 2-Way or 3-Way Assemblies

\* No characterizing disc

## EBV Series - Adjusted Cv Chart for Piping Geometry Factor (Fp)

| <b>2-Way/3-Way PIPING GEOMETRY CHART - At Full Open (Adjusted Cv) - (200 psi Close-Off)</b> |              |            |           |       |       |        |        |       |        |       |
|---|--------------|------------|-----------|-------|-------|--------|--------|-------|--------|-------|
| Valve Size  | Model Number | Nominal Cv | Pipe Size |       |       |        |        |       |        |       |
|   |              |            | 1/2"      | 3/4"  | 1"    | 1-1/4" | 1-1/2" | 2"    | 2-1/2" | 3"    |
| 1/2"  | EBV-05-x-003 | 0.3        | 0.30      | 0.30  | 0.30  | -      | -      | -     | -      | -     |
| 1/2"  | EBV-05-x-005 | 0.5        | 0.50      | 0.50  | 0.50  | -      | -      | -     | -      | -     |
| 1/2"  | EBV-05-x-009 | 0.9        | 0.90      | 0.90  | 0.89  | -      | -      | -     | -      | -     |
| 1/2"  | EBV-05-x-01  | 1.4        | 1.40      | 1.39  | 1.38  | -      | -      | -     | -      | -     |
| 1/2"  | EBV-05-x-02  | 2          | 2.00      | 1.97  | 1.94  | -      | -      | -     | -      | -     |
| 1/2"  | EBV-05-x-03  | 3          | 3.00      | 2.89  | 2.81  | -      | -      | -     | -      | -     |
| 1/2"  | EBV-05-x-05  | 4.9        | 4.90      | 4.47  | 4.20  | -      | -      | -     | -      | -     |
| 1/2"  | EBV-05-x-08  | 8          | 8.00      | 6.46  | 5.70  | -      | -      | -     | -      | -     |
| 1/2"  | EBV-05-x-13  | 12.5       | 12.50     | 8.24  | 6.81  | -      | -      | -     | -      | -     |
| 1/2"  | EBV-05-x-17  | 17.2*      | 17.20     | 9.24  | 7.34  | -      | -      | -     | -      | -     |
| 3/4"  | EBV-75-x-05  | 4.9        | -         | 4.90  | 4.84  | 4.78   | -      | -     | -      | -     |
| 3/4"  | EBV-75-x-08  | 7.8        | -         | 7.80  | 7.57  | 7.33   | -      | -     | -      | -     |
| 3/4"  | EBV-75-x-12  | 12.3       | -         | 12.30 | 11.45 | 10.67  | -      | -     | -      | -     |
| 3/4"  | EBV-75-x-15  | 15.3*      | -         | 15.30 | 13.75 | 12.45  | -      | -     | -      | -     |
| 1"  | EBV-1-x-08   | 7.8        | -         | -     | 7.80  | 7.75   | 7.68   | -     | -      | -     |
| 1"  | EBV-1-x-12   | 12.1       | -         | -     | 12.10 | 11.91  | 11.66  | -     | -      | -     |
| 1"  | EBV-1-x-20   | 19.5       | -         | -     | 19.50 | 18.74  | 17.82  | -     | -      | -     |
| 1"  | EBV-1-x-30   | 29.9*      | -         | -     | 29.90 | 27.35  | 24.70  | -     | -      | -     |
| 1-1/4"  | EBV-125-x-12 | 11.7       | -         | -     | -     | 11.70  | 11.65  | 11.50 | -      | -     |
| 1-1/4"  | EBV-125-x-20 | 19.8       | -         | -     | -     | 19.80  | 19.55  | 18.87 | -      | -     |
| 1-1/4"  | EBV-125-x-30 | 30.4       | -         | -     | -     | 30.40  | 29.53  | 27.33 | -      | -     |
| 1-1/4"  | EBV-125-x-45 | 44.8*      | -         | -     | -     | 44.80  | 42.16  | 36.40 | -      | -     |
| 1-1/2"  | EBV-150-x-20 | 19.6       | -         | -     | -     | -      | 19.60  | 19.36 | 19.11  | -     |
| 1-1/2"  | EBV-150-x-30 | 30.4       | -         | -     | -     | -      | 30.40  | 29.54 | 28.65  | -     |
| 1-1/2"  | EBV-150-x-48 | 48.3*      | -         | -     | -     | -      | 48.30  | 45.07 | 42.07  | -     |
| 2"  | EBV-2-x-29   | 29.2       | -         | -     | -     | -      | -      | 29.20 | 29.03  | 28.80 |
| 2"  | EBV-2-x-49   | 48.8       | -         | -     | -     | -      | -      | 48.80 | 48.03  | 47.01 |
| 2"  | EBV-2-x-75   | 75.2       | -         | -     | -     | -      | -      | 75.20 | 72.46  | 69.11 |
| 2"  | EBV-2-x-96   | 95.5*      | -         | -     | -     | -      | -      | 95.50 | 90.06  | 83.87 |

x = 2-Way or 3-Way Assemblies

\* No characterizing disc

## EBV Series - 2-Way - Non-Spring Return Close-Off Chart (psi)

| 2-Way, On/Off & Floating - Non-Spring Return Actuators - (200 psi - Close Off) |            |    |                  |             |                 |                             |                 |
|--|------------|----|------------------|-------------|-----------------|-----------------------------|-----------------|
| Actuator Model Details   |            |    |                  |             |                 |                             |                 |
| Floating with Time Out/Overload Protection                                     |            |    |                  |             | ■               |                             |                 |
| Auxiliary Switches   |            |    |                  |             |                 | ■                           |                 |
| Conduit Size - Flex(F)/NPT(N)  |            |    |                  | 3/8 F       | 3/8 F           | 3/8 F                       |                 |
| Cable - Standard(S)/Plenum(P)  |            |    |                  | P           | P               | P                           |                 |
| Manual Override  |            |    |                  | Push Button | Push Button     | Push Button                 |                 |
| Model Number   | Valve Size |    | Flow Coefficient |             | 24 VAC Floating | 24 VAC/DC On/Off & Floating | 24 VAC Floating |
|  | In.        | mm | Cv               | Kv          | DC24-44-TP      | DC24-44-TPTO                | DC24-44-TAP     |
| EBV-05-2-003   | 0.5        | 15 | 0.3              | 0.3         | ✓               | ✓                           | ✓               |
| EBV-05-2-005   |            |    | 0.5              | 0.4         |                 |                             |                 |
| EBV-05-2-009   |            |    | 0.9              | 0.8         |                 |                             |                 |
| EBV-05-2-01  |            |    | 1.4              | 1.2         |                 |                             |                 |
| EBV-05-2-02  |            |    | 2                | 1.7         |                 |                             |                 |
| EBV-05-2-03  |            |    | 3                | 2.6         |                 |                             |                 |
| EBV-05-2-05  |            |    | 4.9              | 4.2         |                 |                             |                 |
| EBV-05-2-08  |            |    | 8                | 6.9         |                 |                             |                 |
| EBV-05-2-13  |            |    | 12.5             | 10.8        |                 |                             |                 |
| EBV-05-2-17*   |            |    | 17.2             | 14.9        |                 |                             |                 |
| EBV-75-2-05  | .75        | 20 | 4.9              | 4.2         | ✓               | ✓                           | ✓               |
| EBV-75-2-08  |            |    | 7.8              | 6.7         |                 |                             |                 |
| EBV-75-2-12  |            |    | 12.3             | 10.6        |                 |                             |                 |
| EBV-75-2-15*   |            |    | 15.3             | 13.2        |                 |                             |                 |
| EBV-1-2-08   | 1          | 25 | 7.8              | 6.7         | ✓               | ✓                           | ✓               |
| EBV-1-2-12   |            |    | 12.1             | 10.5        |                 |                             |                 |
| EBV-1-2-20   |            |    | 19.5             | 16.9        |                 |                             |                 |
| EBV-1-2-30*  |            |    | 29.9             | 25.9        |                 |                             |                 |
| EBV-125-2-12   | 1.25       | 32 | 11.7             | 10.1        | ✓               | ✓                           | ✓               |
| EBV-125-2-20   |            |    | 19.8             | 17.1        |                 |                             |                 |
| EBV-125-2-30   |            |    | 30.4             | 26.3        |                 |                             |                 |
| EBV-125-2-45*  |            |    | 44.8             | 38.8        |                 |                             |                 |
| EBV-150-2-20   | 1.5        | 40 | 19.6             | 17.0        | ✓               | ✓                           | ✓               |
| EBV-150-2-30   |            |    | 30.4             | 26.3        |                 |                             |                 |
| EBV-150-2-48*  |            |    | 48.3             | 41.8        |                 |                             |                 |
| EBV-2-2-29   | 2          | 50 | 29.2             | 25.3        | ✓               | ✓                           | ✓               |
| EBV-2-2-49   |            |    | 48.8             | 42.2        |                 |                             |                 |
| EBV-2-2-75   |            |    | 75.2             | 65.0        |                 |                             |                 |
| EBV-2-2-96*  |            |    | 95.5             | 82.6        |                 |                             |                 |

\* No characterizing disc



## EBV Series - 2-Way - Non-Spring Return Close-Off Chart (psi)

| 2-Way, Modulating - Non-Spring Return Actuators - (200 psi - Close Off) |            |    |                  |             |   |   |
|---|------------|----|------------------|-------------|---|---|
| Actuator Model Details  |            |    |                  |             |   |   |
| Modulating with Time Out/Overload Protection                            |            |    |                  | ■           | ■   |   |
| Auxiliary Switches  |            |    |                  |             | ■   |   |
| Conduit Size - Flex(F)/NPT(N)   |            |    |                  | 3/8 F       | 3/8 F                                       |   |
| Cable - Standard(S)/Plenum(P)   |            |    |                  | P           | P   |   |
| Manual Override   |            |    |                  | Push Button | Push Button                                 |   |
| Model Number  | Valve Size |    | Flow Coefficient |             | 24 VAC/DC Modulating 0/2-10V in 0/2-10V out | 24 VAC/DC Modulating 0/2-10V in 0/2-10V out |
|   | In.        | mm | Cv               | Kv          | DCM24-44-P                                  | DCM24-44-AP                                 |
| EBV-05-2-003  | 0.5        | 15 | 0.3              | 0.3         | ✓   | ✓   |
| EBV-05-2-005  |            |    | 0.5              | 0.4         |   |   |
| EBV-05-2-009  |            |    | 0.9              | 0.8         |   |   |
| EBV-05-2-01   |            |    | 1.4              | 1.2         |   |   |
| EBV-05-2-02   |            |    | 2                | 1.7         |   |   |
| EBV-05-2-03   |            |    | 3                | 2.6         |   |   |
| EBV-05-2-05   |            |    | 4.9              | 4.2         |   |   |
| EBV-05-2-08   |            |    | 8                | 6.9         |   |   |
| EBV-05-2-13   |            |    | 12.5             | 10.8        |   |   |
| EBV-05-2-17*  |            |    | 17.2             | 14.9        |   |   |
| EBV-75-2-05   | .75        | 20 | 4.9              | 4.2         | ✓   | ✓   |
| EBV-75-2-08   |            |    | 7.8              | 6.7         |   |   |
| EBV-75-2-12   |            |    | 12.3             | 10.6        |   |   |
| EBV-75-2-15*  |            |    | 15.3             | 13.2        |   |   |
| EBV-1-2-08  | 1          | 25 | 7.8              | 6.7         | ✓   | ✓   |
| EBV-1-2-12  |            |    | 12.1             | 10.5        |   |   |
| EBV-1-2-20  |            |    | 19.5             | 16.9        |   |   |
| EBV-1-2-30*   |            |    | 29.9             | 25.9        |   |   |
| EBV-125-2-12  | 1.25       | 32 | 11.7             | 10.1        | ✓   | ✓   |
| EBV-125-2-20  |            |    | 19.8             | 17.1        |   |   |
| EBV-125-2-30  |            |    | 30.4             | 26.3        |   |   |
| EBV-125-2-45*   |            |    | 44.8             | 38.8        |   |   |
| EBV-150-2-20  | 1.5        | 40 | 19.6             | 17.0        | ✓   | ✓   |
| EBV-150-2-30  |            |    | 30.4             | 26.3        |   |   |
| EBV-150-2-48*   |            |    | 48.3             | 41.8        |   |   |
| EBV-2-2-29  | 2          | 50 | 29.2             | 25.3        | ✓   | ✓   |
| EBV-2-2-49  |            |    | 48.8             | 42.2        |   |   |
| EBV-2-2-75  |            |    | 75.2             | 65.0        |   |   |
| EBV-2-2-96*   |            |    | 95.5             | 82.6        |   |   |

\* No characterizing disc



## EBV Series - 2-Way - Spring Return Close-Off Chart (psi)

| 2-Way, On/Off - Spring Return Actuators - (200 psi - Close Off) |               |    |                     |       |                     |                        |                        |                        |                        |                   |
|---|---------------|----|---------------------|-------|---------------------|------------------------|------------------------|------------------------|------------------------|-------------------|
| Actuator Model Details  |               |    |                     |       |                     |                        |                        |                        |                        |                   |
| Auxiliary Switches  |               |    |                     |       | ■                   |                        | ■                      |                        | ■                      |                   |
| Conduit Size - Flex(F)/NPT(N)                                   |               |    |                     | 1/2 N |                     | 1/2 N                  | 1/2 N                  | 1/2 N                  | 1/2 N                  |                   |
| Cable - Standard(S)/Plenum(P)                                   |               |    |                     | P     | P                   | P                      | S                      | S                      | S                      |                   |
| Manual Override   |               |    |                     | N/A   | N/A                 | Hex Wrench<br>Included | Hex Wrench<br>Included | Hex Wrench<br>Included | Hex Wrench<br>Included |                   |
| Model<br>Number   | Valve<br>Size |    | Flow<br>Coefficient |       | 24 VAC/DC<br>On/Off | 24 VAC/DC<br>On/Off    | 24 VAC/DC<br>On/Off    | 24 VAC/DC<br>On/Off    | 120 VAC<br>On/Off      | 120 VAC<br>On/Off |
|   | In.           | mm | Cv                  | Kv    | DCS24-20-P          | DCS24-20-AP            | DCS24-62-P             | DCS24-62-A             | DCS120-62              | DCS120-62-A       |
| EBV-05-2-003  | 0.5           | 15 | 0.3                 | 0.3   |                     |                        |                        |                        |                        |                   |
| EBV-05-2-005  |               |    | 0.5                 | 0.4   |                     |                        |                        |                        |                        |                   |
| EBV-05-2-009  |               |    | 0.9                 | 0.8   |                     |                        |                        |                        |                        |                   |
| EBV-05-2-01   |               |    | 1.4                 | 1.2   |                     |                        |                        |                        |                        |                   |
| EBV-05-2-02   |               |    | 2                   | 1.7   | ✓                   | ✓                      | -                      | -                      | ✓                      | ✓                 |
| EBV-05-2-03   |               |    | 3                   | 2.6   |                     |                        |                        |                        |                        |                   |
| EBV-05-2-05   |               |    | 4.9                 | 4.2   |                     |                        |                        |                        |                        |                   |
| EBV-05-2-08   |               |    | 8                   | 6.9   |                     |                        |                        |                        |                        |                   |
| EBV-05-2-13   |               |    | 12.5                | 10.8  |                     |                        |                        |                        |                        |                   |
| EBV-05-2-17*  |               |    | 17.2                | 14.9  |                     |                        |                        |                        |                        |                   |
| EBV-75-2-05   | .75           | 20 | 4.9                 | 4.2   |                     |                        |                        |                        |                        |                   |
| EBV-75-2-08   |               |    | 7.8                 | 6.7   | ✓                   | ✓                      | -                      | -                      | ✓                      | ✓                 |
| EBV-75-2-12   |               |    | 12.3                | 10.6  |                     |                        |                        |                        |                        |                   |
| EBV-75-2-15*  |               |    | 15.3                | 13.2  |                     |                        |                        |                        |                        |                   |
| EBV-1-2-08  | 1             | 25 | 7.8                 | 6.7   |                     |                        |                        |                        |                        |                   |
| EBV-1-2-12  |               |    | 12.1                | 10.5  | ✓                   | ✓                      | -                      | -                      | ✓                      | ✓                 |
| EBV-1-2-20  |               |    | 19.5                | 16.9  |                     |                        |                        |                        |                        |                   |
| EBV-1-2-30*   |               |    | 29.9                | 25.9  |                     |                        |                        |                        |                        |                   |
| EBV-125-2-12  | 1.25          | 32 | 11.7                | 10.1  |                     |                        |                        |                        |                        |                   |
| EBV-125-2-20  |               |    | 19.8                | 17.1  |                     |                        | ✓                      | ✓                      | ✓                      | ✓                 |
| EBV-125-2-30  |               |    | 30.4                | 26.3  |                     |                        |                        |                        |                        |                   |
| EBV-125-2-45*   |               |    | 44.8                | 38.8  |                     |                        |                        |                        |                        |                   |
| EBV-150-2-20  | 1.5           | 40 | 19.6                | 17.0  |                     |                        |                        |                        |                        |                   |
| EBV-150-2-30  |               |    | 30.4                | 26.3  |                     |                        | ✓                      | ✓                      | ✓                      | ✓                 |
| EBV-150-2-48*   |               |    | 48.3                | 41.8  |                     |                        |                        |                        |                        |                   |
| EBV-2-2-29  | 2             | 50 | 29.2                | 25.3  |                     |                        |                        |                        |                        |                   |
| EBV-2-2-49  |               |    | 48.8                | 42.2  |                     |                        | ✓                      | ✓                      | ✓                      | ✓                 |
| EBV-2-2-75  |               |    | 75.2                | 65.0  |                     |                        |                        |                        |                        |                   |
| EBV-2-2-96*   |               |    | 95.5                | 82.6  |                     |                        |                        |                        |                        |                   |

\* No characterizing disc



## EBV Series - 2-Way - Spring Return Close-Off Chart (psi)

| 2-Way, Modulating - Spring Return Actuators - (200 psi - Close Off) |            |       |                  |                     |                               |                               |                               |
|---|------------|-------|------------------|---------------------|-------------------------------|-------------------------------|-------------------------------|
| Actuator Model Details  |            |       |                  |                     |                               |                               |                               |
| Auxiliary Switches  |            |       |                  |                     |                               |                               |                               |
| Conduit Size - Flex(F)/NPT(N)                                       |            | 1/2 N |                  | 1/2 N               |                               | 1/2 N                         |                               |
| Cable - Standard(S)/Plenum(P)                                       |            | P     |                  | P                   |                               | S                             |                               |
| Manual Override   |            |       |                  |                     |                               |                               |                               |
|   |            | N/A   |                  | Hex Wrench Included |                               | Hex Wrench Included           |                               |
| Model Number  | Valve Size |       | Flow Coefficient |                     | 24 VAC Modulating 2-10 in/out | 24 VAC Modulating 0-10 in/out | 24 VAC Modulating 0-10 in/out |
|   | In.        | mm    | Cv               | Kv                  | DCMS24-20-P                   | DCMS24-62-P                   | DCMS24-62-A                   |
| EBV-05-2-003  | 0.5        | 15    | 0.3              | 0.3                 | ✓                             | -                             | ✓                             |
| EBV-05-2-005  |            |       | 0.5              | 0.4                 |                               |                               |                               |
| EBV-05-2-009  |            |       | 0.9              | 0.8                 |                               |                               |                               |
| EBV-05-2-01   |            |       | 1.4              | 1.2                 |                               |                               |                               |
| EBV-05-2-02   |            |       | 2                | 1.7                 |                               |                               |                               |
| EBV-05-2-03   |            |       | 3                | 2.6                 |                               |                               |                               |
| EBV-05-2-05   |            |       | 4.9              | 4.2                 |                               |                               |                               |
| EBV-05-2-08   |            |       | 8                | 6.9                 |                               |                               |                               |
| EBV-05-2-13   |            |       | 12.5             | 10.8                |                               |                               |                               |
| EBV-05-2-17*  |            |       | 17.2             | 14.9                |                               |                               |                               |
| EBV-75-2-05   | .75        | 20    | 4.9              | 4.2                 | ✓                             | -                             | ✓                             |
| EBV-75-2-08   |            |       | 7.8              | 6.7                 |                               |                               |                               |
| EBV-75-2-12   |            |       | 12.3             | 10.6                |                               |                               |                               |
| EBV-75-2-15*  |            |       | 15.3             | 13.2                |                               |                               |                               |
| EBV-1-2-08  | 1          | 25    | 7.8              | 6.7                 | ✓                             | -                             | ✓                             |
| EBV-1-2-12  |            |       | 12.1             | 10.5                |                               |                               |                               |
| EBV-1-2-20  |            |       | 19.5             | 16.9                |                               |                               |                               |
| EBV-1-2-30*   |            |       | 29.9             | 25.9                |                               |                               |                               |
| EBV-125-2-12  | 1.25       | 32    | 11.7             | 10.1                | -                             | ✓                             | ✓                             |
| EBV-125-2-20  |            |       | 19.8             | 17.1                |                               |                               |                               |
| EBV-125-2-30  |            |       | 30.4             | 26.3                |                               |                               |                               |
| EBV-125-2-45*   |            |       | 44.8             | 38.8                |                               |                               |                               |
| EBV-150-2-20  | 1.5        | 40    | 19.6             | 17.0                | -                             | ✓                             | ✓                             |
| EBV-150-2-30  |            |       | 30.4             | 26.3                |                               |                               |                               |
| EBV-150-2-48*   |            |       | 48.3             | 41.8                |                               |                               |                               |
| EBV-2-2-29  | 2          | 50    | 29.2             | 25.3                | -                             | ✓                             | ✓                             |
| EBV-2-2-49  |            |       | 48.8             | 42.2                |                               |                               |                               |
| EBV-2-2-75  |            |       | 75.2             | 65.0                |                               |                               |                               |
| EBV-2-2-96*   |            |       | 95.5             | 82.6                |                               |                               |                               |

\* No characterizing disc



## EBV Series - 3-Way - Non-Spring Return Close-Off Chart (psi)

| 3-Way, On/Off & Floating - Non-Spring Return Actuators - (200 psi - Close Off) |            |    |                  |             |                 |                             |                 |
|--|------------|----|------------------|-------------|-----------------|-----------------------------|-----------------|
| Actuator Model Details   |            |    |                  |             |                 |                             |                 |
| Floating with Time Out/Overload Protection                                     |            |    |                  |             | ■               |                             |                 |
| Auxiliary Switches   |            |    |                  |             |                 | ■                           |                 |
| Conduit Size - Flex(F)/NPT(N)  |            |    |                  | 3/8 F       | 3/8 F           | 3/8 F                       |                 |
| Cable - Standard(S)/Plenum(P)  |            |    |                  | P           | P               | P                           |                 |
| Manual Override  |            |    |                  | Push Button | Push Button     | Push Button                 |                 |
| Model Number   | Valve Size |    | Flow Coefficient |             | 24 VAC Floating | 24 VAC/DC On/Off & Floating | 24 VAC Floating |
|  | In.        | mm | Cv               | Kv          | DC24-44-TP      | DC24-44-TPTO                | DC24-44-TAP     |
| EBV-05-3-003   | 0.5        | 15 | 0.3              | 0.3         | ✓               | ✓                           | ✓               |
| EBV-05-3-005   |            |    | 0.5              | 0.4         |                 |                             |                 |
| EBV-05-3-009   |            |    | 0.9              | 0.8         |                 |                             |                 |
| EBV-05-3-01  |            |    | 1.4              | 1.2         |                 |                             |                 |
| EBV-05-3-02  |            |    | 2                | 1.7         |                 |                             |                 |
| EBV-05-3-03  |            |    | 3                | 2.6         |                 |                             |                 |
| EBV-05-3-05  |            |    | 4.9              | 4.2         |                 |                             |                 |
| EBV-05-3-08  |            |    | 8                | 6.9         |                 |                             |                 |
| EBV-05-3-13  |            |    | 12.5             | 10.8        |                 |                             |                 |
| EBV-05-3-17*   |            |    | 17.2             | 14.9        |                 |                             |                 |
| EBV-75-3-05  | .75        | 20 | 4.9              | 4.2         | ✓               | ✓                           | ✓               |
| EBV-75-3-08  |            |    | 7.8              | 6.7         |                 |                             |                 |
| EBV-75-3-12  |            |    | 12.3             | 10.6        |                 |                             |                 |
| EBV-75-3-15*   |            |    | 15.3             | 13.2        |                 |                             |                 |
| EBV-1-3-08   | 1          | 25 | 7.8              | 6.7         | ✓               | ✓                           | ✓               |
| EBV-1-3-12   |            |    | 12.1             | 10.5        |                 |                             |                 |
| EBV-1-3-20   |            |    | 19.5             | 16.9        |                 |                             |                 |
| EBV-1-3-30*  |            |    | 29.9             | 25.9        |                 |                             |                 |
| EBV-125-3-12   | 1.25       | 32 | 11.7             | 10.1        | ✓               | ✓                           | ✓               |
| EBV-125-3-20   |            |    | 19.8             | 17.1        |                 |                             |                 |
| EBV-125-3-30   |            |    | 30.4             | 26.3        |                 |                             |                 |
| EBV-125-3-45*  |            |    | 44.8             | 38.8        |                 |                             |                 |
| EBV-150-3-20   | 1.5        | 40 | 19.6             | 17.0        | ✓               | ✓                           | ✓               |
| EBV-150-3-30   |            |    | 30.4             | 26.3        |                 |                             |                 |
| EBV-150-3-48*  |            |    | 48.3             | 41.8        |                 |                             |                 |
| EBV-2-3-29   | 2          | 50 | 29.2             | 25.3        | ✓               | ✓                           | ✓               |
| EBV-2-3-49   |            |    | 48.8             | 42.2        |                 |                             |                 |
| EBV-2-3-75   |            |    | 75.2             | 65.0        |                 |                             |                 |
| EBV-2-3-96*  |            |    | 95.5             | 82.6        |                 |                             |                 |

\* No characterizing disc



## EBV Series - 3-Way - Non-Spring Return Close-Off Chart (psi)

| 3-Way, Modulating - Non-Spring Return Actuators - (200 psi - Close Off) |            |    |                  |             |   |   |
|---|------------|----|------------------|-------------|---|---|
| Actuator Model Details  |            |    |                  |             |   |   |
| Modulating with Time Out/Overload Protection                            |            |    |                  | ■           | ■   |   |
| Auxiliary Switches  |            |    |                  |             | ■   |   |
| Conduit Size - Flex(F)/NPT(N)   |            |    |                  | 3/8 F       | 3/8 F   |   |
| Cable - Standard(S)/Plenum(P)   |            |    |                  | P           | P   |   |
| Manual Override   |            |    |                  | Push Button | Push Button                                       |   |
| Model Number  | Valve Size |    | Flow Coefficient |             | 24 VAC/DC Modulating<br>0/2-10V in<br>0/2-10V out | 24 VAC/DC Modulating<br>0/2-10V in<br>0/2-10V out |
|   | In.        | mm | Cv               | Kv          | DCM24-44-P  | DCM24-44-AP                                       |
| EBV-05-3-003  | 0.5        | 15 | 0.3              | 0.3         | ✓   | ✓   |
| EBV-05-3-005  |            |    | 0.5              | 0.4         |   |   |
| EBV-05-3-009  |            |    | 0.9              | 0.8         |   |   |
| EBV-05-3-01   |            |    | 1.4              | 1.2         |   |   |
| EBV-05-3-02   |            |    | 2                | 1.7         |   |   |
| EBV-05-3-03   |            |    | 3                | 2.6         |   |   |
| EBV-05-3-05   |            |    | 4.9              | 4.2         |   |   |
| EBV-05-3-08   |            |    | 8                | 6.9         |   |   |
| EBV-05-3-13   |            |    | 12.5             | 10.8        |   |   |
| EBV-05-3-17*  |            |    | 17.2             | 14.9        |   |   |
| EBV-75-3-05   | .75        | 20 | 4.9              | 4.2         | ✓   | ✓   |
| EBV-75-3-08   |            |    | 7.8              | 6.7         |   |   |
| EBV-75-3-12   |            |    | 12.3             | 10.6        |   |   |
| EBV-75-3-15*  |            |    | 15.3             | 13.2        |   |   |
| EBV-1-3-08  | 1          | 25 | 7.8              | 6.7         | ✓   | ✓   |
| EBV-1-3-12  |            |    | 12.1             | 10.5        |   |   |
| EBV-1-3-20  |            |    | 19.5             | 16.9        |   |   |
| EBV-1-3-30*   |            |    | 29.9             | 25.9        |   |   |
| EBV-125-3-12  | 1.25       | 32 | 11.7             | 10.1        | ✓   | ✓   |
| EBV-125-3-20  |            |    | 19.8             | 17.1        |   |   |
| EBV-125-3-30  |            |    | 30.4             | 26.3        |   |   |
| EBV-125-3-45*   |            |    | 44.8             | 38.8        |   |   |
| EBV-150-3-20  | 1.5        | 40 | 19.6             | 17.0        | ✓   | ✓   |
| EBV-150-3-30  |            |    | 30.4             | 26.3        |   |   |
| EBV-150-3-48*   |            |    | 48.3             | 41.8        |   |   |
| EBV-2-3-29  | 2          | 50 | 29.2             | 25.3        | ✓   | ✓   |
| EBV-2-3-49  |            |    | 48.8             | 42.2        |   |   |
| EBV-2-3-75  |            |    | 75.2             | 65.0        |   |   |
| EBV-2-3-96*   |            |    | 95.5             | 82.6        |   |   |

\* No characterizing disc



## EBV Series - 3-Way - Spring Return Close-Off Chart (psi)

| 3-Way, On/Off - Spring Return Actuators - (200 psi - Close Off) |            |    |                  |       |                  |                        |                        |                        |                        |                |
|---|------------|----|------------------|-------|------------------|------------------------|------------------------|------------------------|------------------------|----------------|
| Actuator Model Details  |            |    |                  |       |                  |                        |                        |                        |                        |                |
| Auxiliary Switches  |            |    |                  |       | ■                |                        | ■                      |                        | ■                      |                |
| Conduit Size - Flex(F)/NPT(N)                                   |            |    |                  | 1/2 N |                  | 1/2 N                  | 1/2 N                  | 1/2 N                  | 1/2 N                  |                |
| Cable - Standard(S)/Plenum(P)                                   |            |    |                  | P     | P                | P                      | S                      | S                      | S                      |                |
| Manual Override   |            |    |                  | N/A   | N/A              | Hex Wrench<br>Included | Hex Wrench<br>Included | Hex Wrench<br>Included | Hex Wrench<br>Included |                |
| Model Number  | Valve Size |    | Flow Coefficient |       | 24 VAC/DC On/Off | 24 VAC/DC On/Off       | 24 VAC/DC On/Off       | 24 VAC/DC On/Off       | 120 VAC On/Off         | 120 VAC On/Off |
|   | In.        | mm | Cv               | Kv    | DCS24-20-P       | DCS24-20-AP            | DCS24-62-P             | DCS24-62-A             | DCS120-62              | DCS120-62-A    |
| EBV-05-3-003  | 0.5        | 15 | 0.3              | 0.3   |                  |                        |                        |                        |                        |                |
| EBV-05-3-005  |            |    | 0.5              | 0.4   |                  |                        |                        |                        |                        |                |
| EBV-05-3-009  |            |    | 0.9              | 0.8   |                  |                        |                        |                        |                        |                |
| EBV-05-3-01   |            |    | 1.4              | 1.2   |                  |                        |                        |                        |                        |                |
| EBV-05-3-02   |            |    | 2                | 1.7   | ✓                | ✓                      | -                      | -                      | ✓                      | ✓              |
| EBV-05-3-03   |            |    | 3                | 2.6   |                  |                        |                        |                        |                        |                |
| EBV-05-3-05   |            |    | 4.9              | 4.2   |                  |                        |                        |                        |                        |                |
| EBV-05-3-08   |            |    | 8                | 6.9   |                  |                        |                        |                        |                        |                |
| EBV-05-3-13   |            |    | 12.5             | 10.8  |                  |                        |                        |                        |                        |                |
| EBV-05-3-17*  |            |    | 17.2             | 14.9  |                  |                        |                        |                        |                        |                |
| EBV-75-3-05   | .75        | 20 | 4.9              | 4.2   |                  |                        |                        |                        |                        |                |
| EBV-75-3-08   |            |    | 7.8              | 6.7   | ✓                | ✓                      | -                      | -                      | ✓                      | ✓              |
| EBV-75-3-12   |            |    | 12.3             | 10.6  |                  |                        |                        |                        |                        |                |
| EBV-75-3-15*  |            |    | 15.3             | 13.2  |                  |                        |                        |                        |                        |                |
| EBV-1-3-08  | 1          | 25 | 7.8              | 6.7   |                  |                        |                        |                        |                        |                |
| EBV-1-3-12  |            |    | 12.1             | 10.5  | ✓                | ✓                      | -                      | -                      | ✓                      | ✓              |
| EBV-1-3-20  |            |    | 19.5             | 16.9  |                  |                        |                        |                        |                        |                |
| EBV-1-3-30*   |            |    | 29.9             | 25.9  |                  |                        |                        |                        |                        |                |
| EBV-125-3-12  | 1.25       | 32 | 11.7             | 10.1  |                  |                        |                        |                        |                        |                |
| EBV-125-3-20  |            |    | 19.8             | 17.1  |                  |                        | ✓                      | ✓                      | ✓                      | ✓              |
| EBV-125-3-30  |            |    | 30.4             | 26.3  | -                | -                      |                        |                        |                        |                |
| EBV-125-3-45*   |            |    | 44.8             | 38.8  |                  |                        |                        |                        |                        |                |
| EBV-150-3-20  | 1.5        | 40 | 19.6             | 17.0  |                  |                        |                        |                        |                        |                |
| EBV-150-3-30  |            |    | 30.4             | 26.3  | -                | -                      | ✓                      | ✓                      | ✓                      | ✓              |
| EBV-150-3-48*   |            |    | 48.3             | 41.8  |                  |                        |                        |                        |                        |                |
| EBV-2-3-29  | 2          | 50 | 29.2             | 25.3  |                  |                        |                        |                        |                        |                |
| EBV-2-3-49  |            |    | 48.8             | 42.2  |                  |                        | ✓                      | ✓                      | ✓                      | ✓              |
| EBV-2-3-75  |            |    | 75.2             | 65.0  |                  |                        |                        |                        |                        |                |
| EBV-2-3-96*   |            |    | 95.5             | 82.6  |                  |                        |                        |                        |                        |                |

\* No characterizing disc



## EBV Series - 3-Way - Spring Return Close-Off Chart (psi)

| 3-Way, Modulating - Spring Return Actuators - (200 psi - Close Off) |            |       |                  |                     |                               |                               |                               |
|---|------------|-------|------------------|---------------------|-------------------------------|-------------------------------|-------------------------------|
| Actuator Model Details  |            |       |                  |                     |                               |                               |                               |
| Auxiliary Switches  |            |       |                  |                     |                               |                               |                               |
| Conduit Size - Flex(F)/NPT(N)                                       |            | 1/2 N |                  | 1/2 N               |                               | 1/2 N                         |                               |
| Cable - Standard(S)/Plenum(P)                                       |            | P     |                  | P                   |                               | S                             |                               |
| Manual Override   |            |       |                  |                     |                               |                               |                               |
|   |            | N/A   |                  | Hex Wrench Included |                               | Hex Wrench Included           |                               |
| Model Number  | Valve Size |       | Flow Coefficient |                     | 24 VAC Modulating 2-10 in/out | 24 VAC Modulating 0-10 in/out | 24 VAC Modulating 0-10 in/out |
|   | In.        | mm    | Cv               | Kv                  | DCMS24-20-P                   | DCMS24-62-P                   | DCMS24-62-A                   |
| EBV-05-3-003  | 0.5        | 15    | 0.3              | 0.3                 | ✓                             | -                             | ✓                             |
| EBV-05-3-005  |            |       | 0.5              | 0.4                 |                               |                               |                               |
| EBV-05-3-009  |            |       | 0.9              | 0.8                 |                               |                               |                               |
| EBV-05-3-01   |            |       | 1.4              | 1.2                 |                               |                               |                               |
| EBV-05-3-02   |            |       | 2                | 1.7                 |                               |                               |                               |
| EBV-05-3-03   |            |       | 3                | 2.6                 |                               |                               |                               |
| EBV-05-3-05   |            |       | 4.9              | 4.2                 |                               |                               |                               |
| EBV-05-3-08   |            |       | 8                | 6.9                 |                               |                               |                               |
| EBV-05-3-13   |            |       | 12.5             | 10.8                |                               |                               |                               |
| EBV-05-3-17*  |            |       | 17.2             | 14.9                |                               |                               |                               |
| EBV-75-3-05   | .75        | 20    | 4.9              | 4.2                 | ✓                             | -                             | ✓                             |
| EBV-75-3-08   |            |       | 7.8              | 6.7                 |                               |                               |                               |
| EBV-75-3-12   |            |       | 12.3             | 10.6                |                               |                               |                               |
| EBV-75-3-15*  |            |       | 15.3             | 13.2                |                               |                               |                               |
| EBV-1-3-08  | 1          | 25    | 7.8              | 6.7                 | ✓                             | -                             | ✓                             |
| EBV-1-3-12  |            |       | 12.1             | 10.5                |                               |                               |                               |
| EBV-1-3-20  |            |       | 19.5             | 16.9                |                               |                               |                               |
| EBV-1-3-30*   |            |       | 29.9             | 25.9                |                               |                               |                               |
| EBV-125-3-12  | 1.25       | 32    | 11.7             | 10.1                | -                             | ✓                             | ✓                             |
| EBV-125-3-20  |            |       | 19.8             | 17.1                |                               |                               |                               |
| EBV-125-3-30  |            |       | 30.4             | 26.3                |                               |                               |                               |
| EBV-125-3-45*   |            |       | 44.8             | 38.8                |                               |                               |                               |
| EBV-150-3-20  | 1.5        | 40    | 19.6             | 17.0                | -                             | ✓                             | ✓                             |
| EBV-150-3-30  |            |       | 30.4             | 26.3                |                               |                               |                               |
| EBV-150-3-48*   |            |       | 48.3             | 41.8                |                               |                               |                               |
| EBV-2-3-29  | 2          | 50    | 29.2             | 25.3                | -                             | ✓                             | ✓                             |
| EBV-2-3-49  |            |       | 48.8             | 42.2                |                               |                               |                               |
| EBV-2-3-75  |            |       | 75.2             | 65.0                |                               |                               |                               |
| EBV-2-3-96*   |            |       | 95.5             | 82.6                |                               |                               |                               |

\* No characterizing disc



## EBV Series - Valve Comparison Chart

### The Benefits of Ball Valves in Commercial Applications

Ball valves are generally a superior alternative to globe valves where precise control is required. Ball valves tend to offer higher close-off's and rangeability ratios while providing smaller size, weights and costs. Ball valves also offer more Cv options in order to more closely match your specifications.

Bray offers two distinct lines. These characterized ball valves provide superior control characteristics, low torque requirements for years of trouble free service and multiple actuator options.

| NPT Threaded Comparative Valve Specifications |                  |                   |
|---|------------------|-------------------|
|   | EBV Series       | BV Series         |
| Valve Body Pressure Rating                    | 580 psi          | 1000 psi          |
| Max Water Temperature                         | 284° F @ 36 psi  | 225° F @ 1000 psi |
| Steam   | 15 psig @ 250° F | 150 psig          |
| Max Recommended Operating Pressure Drop       | 50 psi           | 80 psi            |
| Leakage                                       | Class VI         | Bubble Tight      |

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

### EBV Series - Model Number Matrix

| EBV                        | Prefix: EBV Series  | Valve Series    |
|----------------------------|---|-----------------|
| -                          | -   | -               |
| 1                          | Valve Size 05 (1/2"), 75 (3/4"), 1 (1"), 125 (1-1/4"), 150 (1-1/2"), 2 (2") | Valve Size      |
| -                          | -   | -               |
| 2                          | Configuration (2 = 2-Way & 3 = 3-Way)                                       | Configuration   |
| -                          | -   | -               |
| 08                         | Cv  | Cv              |
| -                          | -   | -               |
| C                          | C = Normally Closed   | Normally Closed |
| -                          | -   | -               |
| /                          | /   | /               |
| DC24-44                    | Actuator Series - Refer to Close-Off Charts                                 | Actuator Series |
| EBV - 1 - 2 - 08 / DC24-44 | 1" EBV Body, 2-Way Configuration, 8 Cv, / DC24-44 Actuator                  | Example         |

Note: Valve assemblies ship normally Open from Factory unless you denote normally closed with a "C" after valve CV.

# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

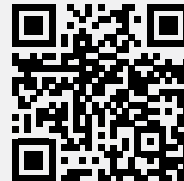
### CORPORATE HEADQUARTERS

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### DIVISION HEADQUARTERS

**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)




All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2026 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

## BV Series

### Threaded Industrial Control Ball Valves

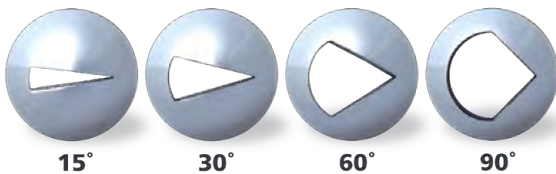
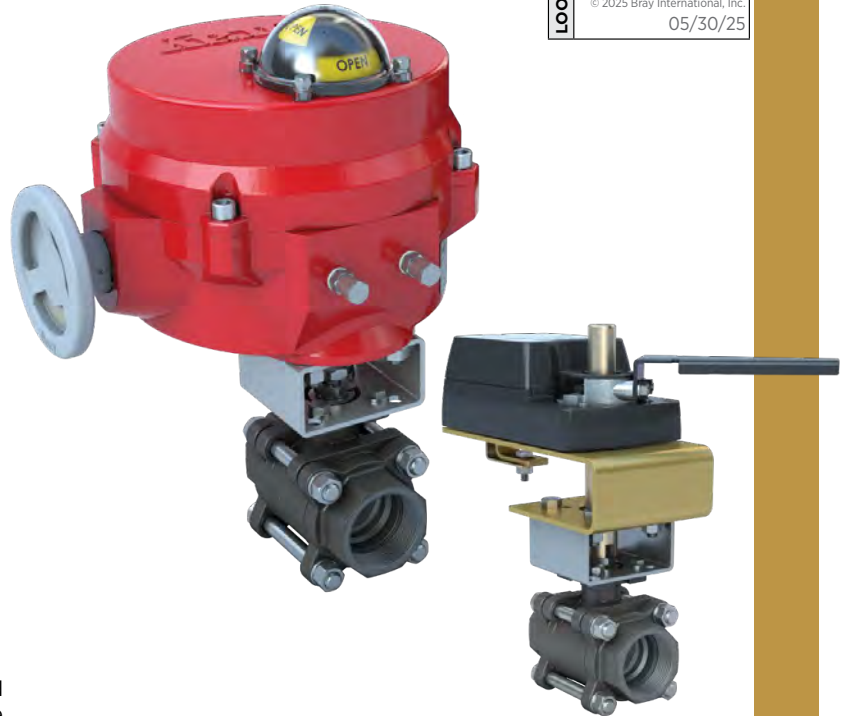
2-Way • 1/2" - 4"

| DOCUMENT         |   |
|------------------|---|
| CONTENTS         | Features  |
|                  | Specifications  |
|                  | Cv Chart  |
|                  | Cut-Away View   |
|                  | Dimensions  |
| Close-Off Charts |   |
| LOOKING FOR MORE |  |
|                  | © 2025 Bray International, Inc.<br>05/30/25   |

#### Application

The BV Series Threaded Industrial Ball Valve product line is ideally suited to high temperature and high pressure water or steam as well as a wide range of heavy commercial HVAC control applications. These valves provide exceptional characterized control, high rangeability, flow capacity and pressure drops; all with bi-directional bubble tight shut off.

Valves in this range feature investment cast 3 piece construction, Carbon Steel housings and Stainless Steel balls and stems with NPT threaded connections. Characterized V-Balls and full port versions provide multiple Cv values in each size.



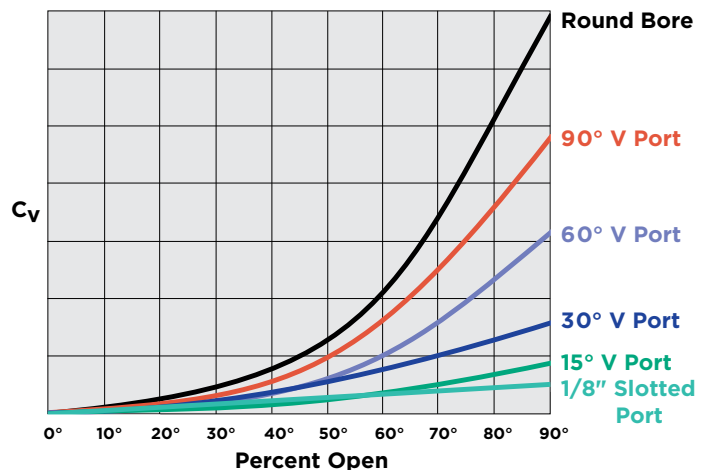
#### Increased Linear Response

Due to the in-line design inherent with characterized control ball valves, line media flows linearly through the piping system. The direct pattern provides increased media control and rapid response times to controller commands.

#### Features and Benefits

- High Cycle Packing Design**  
*Years of trouble free service*
- Bubble Tight Shut-Off with Zero Leakage**  
*Energy efficient*
- 3-Piece Body Design**  
*Allows in-line servicing*
- Phosphate Coated Carbon Steel Bodies**  
*For cost effective applications up to 1,000 psi at 225 °F*
- Commercial Grade & NEMA 4 Actuators**  
*Reliable, cost effective control*

#### Flow Curve Chart



These curves of standard ports are general guidelines and are not specific to any particular valve size.

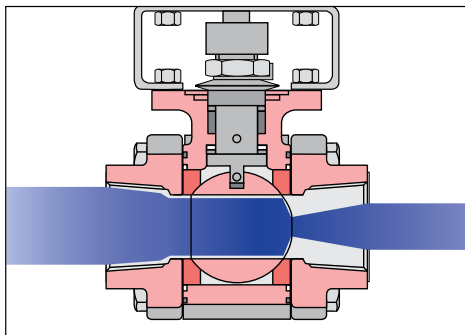
## BV Series - Specifications

| Technical Specifications - BV Series Valve Body (BV = "Equivalent to Bray/FlowTek S7/8000 Series") |   |   |           |
|--|---|---|-----------|
| Carbon Steel Body  |   | V-Port  | Full-Port |
| Service  | Chilled/Hot Water, 50/50 Glycol Solutions and Saturated Steam                   |   |           |
| Size Range   | 2-Way   | 1/2" to 4" Threaded Valves                              |           |
| Maximum Fluid Temperature  | Water   | -20° to 500° F @ 300 psi<br>(-28° to 260° C @ 2068 kPa) |           |
|  | Steam   | 100 psi (689 kPa)                                       |           |
| Valve Body Pressure Rating   | 1000 psi (6895 kPa)   |   |           |
| Maximum Close-Off Pressure   | 300 psi (2,068 kPa) For higher Close-Off's contact Bray.                        |   |           |
| Maximum Recommended Operating Pressure Drop  | Water   | 80 psi (551 kPa)  |           |
|  | Steam   | 50 psi (344 kPa)  |           |
| Flow Characteristic  | V15 Port  | Linear  | N/A       |
|  | V30 Port  | Modified Equal Percentage                               | N/A       |
|  | V60 & Full Port   | Equal Percentage  | N/A       |
| Rangeability   | 200:1   |   |           |
| Leakage  | Bubble Tight per API 598  |   |           |
| End Connections  | Threaded NPT  |   |           |
| Ambient Operating Temperature Range  | See Actuator Rating<br>(Optional high temperature mounting kit may be required) |   |           |
| Materials  | Body  | WCB Carbon Steel  |           |
|  | Ball & Stem   | 316 Stainless Steel                                     |           |
|  | Seat  | Tek-Fil   | RPTFE     |
|  | Stem Seal/<br>Packing   | RPTFE   |           |
|  | Body Seal   | TFM   |           |
|  | Body Bolts  | SS304   |           |
| Warranty   | 3 Years limited from time of shipment.  |   |           |

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

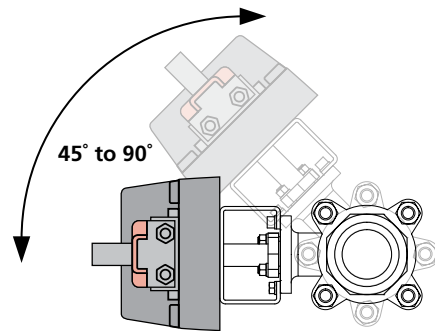
### BV - Piping Diagram

- V-Port valves- Note the arrow engraved on the ends which show the flow going from the bolt head to the nut so that the V-ball is downstream.
- Full Port valves are bi-directional.



Media Flow entering valve from left. Installing the V downstream is preferred.

### BV - For Steam Applications



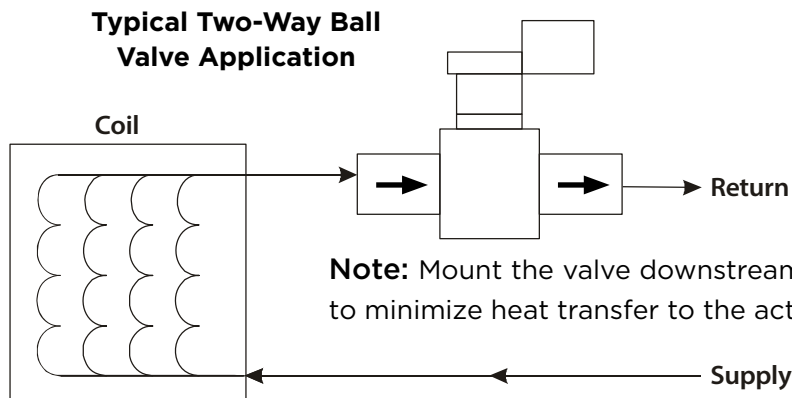
Install valve with stem at 45° to 90° from vertical.

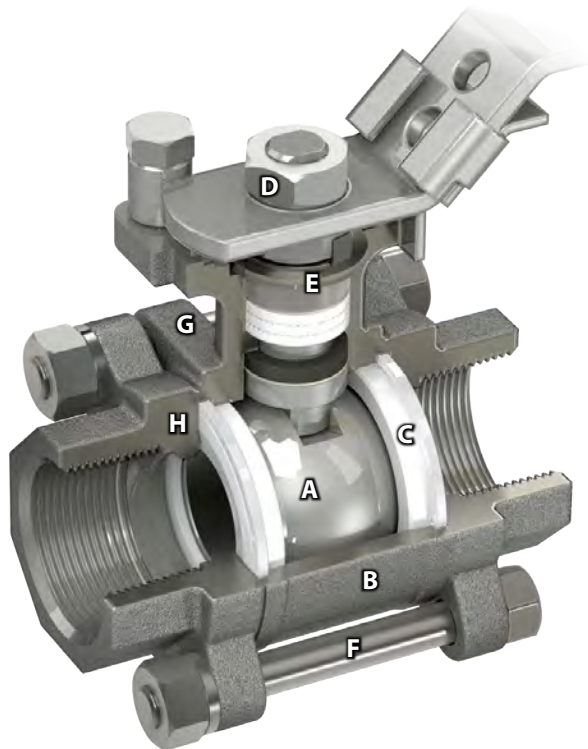
## BV Series - Flow Coefficient Cv Chart

| BV-Segmented Ball Valve - Tek Fil Seat - Class 150 |            |     |           |                          |      |      |      |      |      |      |      |      |      |
|--|------------|-----|-----------|--------------------------|------|------|------|------|------|------|------|------|------|
| Model Number                                       | Valve Size |     | V-Cut     | Percent of Ball Rotation |      |      |      |      |      |      |      |      |      |
|  | In.        | mm  |           | 10%                      | 20%  | 30%  | 40%  | 50%  | 60%  | 70%  | 80%  | 90%  | 100% |
| BV05-CS3-04  | 0.5        | 15  | 15°       | 0.04                     | 0.1  | 0.4  | 0.6  | 0.9  | 1.6  | 2.1  | 2.8  | 3.6  | 4.1  |
| BV05-CS3-05  |            |     | 30°       | 0.04                     | 0.2  | 0.4  | 0.7  | 1.2  | 1.8  | 2.5  | 3.4  | 4.7  | 5.5  |
| BV05-CS3-09  |            |     | 60°       | 0.04                     | 0.2  | 0.7  | 1.1  | 1.8  | 2.9  | 4.3  | 7    | 9.4  | 12.7 |
| BV05-CS3-12  |            |     | 90°       | 0.06                     | 0.4  | 0.8  | 1.3  | 2.1  | 3.2  | 4.7  | 8.3  | 11.6 | 14.7 |
| BV05-CS3-32  |            |     | Full Port | 0.00                     | 0.0  | 0.7  | 3.7  | 7.8  | 12.6 | 17.9 | 23.3 | 28.6 | 32   |
| BV75-CS3-05  | .75        | 20  | 15°       | 0.05                     | 0.2  | 0.5  | 0.9  | 1.3  | 2.1  | 2.8  | 3.7  | 4.8  | 5.5  |
| BV75-CS3-06  |            |     | 30°       | 0.07                     | 0.3  | 0.6  | 1    | 1.6  | 2.4  | 3.3  | 4.5  | 6.1  | 7.3  |
| BV75-CS3-12  |            |     | 60°       | 0.07                     | 0.3  | 0.9  | 1.5  | 2.4  | 3.8  | 5.6  | 9.2  | 12.4 | 16.2 |
| BV75-CS3-15  |            |     | 90°       | 0.08                     | 0.5  | 1.1  | 1.7  | 2.7  | 4.2  | 6.2  | 10.9 | 15.3 | 19.3 |
| BV75-CS3-54  |            |     | Full Port | 0.00                     | 0.0  | 2.5  | 7.7  | 14.2 | 21.7 | 29.7 | 38   | 46.2 | 54   |
| BV1-CS3-09   | 1          | 25  | 15°       | 0.06                     | 0.3  | 0.9  | 1.5  | 2.3  | 3.7  | 4.7  | 6.5  | 8.5  | 9.8  |
| BV1-CS3-13   |            |     | 30°       | 0.08                     | 0.4  | 1.3  | 2.1  | 3.5  | 5.3  | 7.7  | 10.5 | 12.8 | 15.4 |
| BV1-CS3-23   |            |     | 60°       | 0.09                     | 0.6  | 1.7  | 2.8  | 5.1  | 8    | 11.9 | 18.7 | 23.2 | 32.8 |
| BV1-CS3-31   |            |     | 90°       | 0.11                     | 0.9  | 2.8  | 5.1  | 7.7  | 12.2 | 17.3 | 22.5 | 31   | 43.8 |
| BV1-CS3-105  |            |     | Full Port | 0.00                     | 1.2  | 8.6  | 19.4 | 32.4 | 45.7 | 61   | 77   | 92   | 105  |
| BV125-CS3-11                                       | 1.25       | 32  | 15°       | 0.03                     | 1.3  | 0.8  | 1.6  | 2.8  | 4    | 5.9  | 8    | 10.8 | 12.8 |
| BV125-CS3-15                                       |            |     | 30°       | 0.05                     | 0.4  | 1.4  | 2.5  | 4.1  | 6    | 8.8  | 118  | 17.9 | 17.3 |
| BV125-CS3-33                                       |            |     | 60°       | 0.07                     | 0.6  | 2    | 3.4  | 6.5  | 10.8 | 15.4 | 22.4 | 33.4 | 43.4 |
| BV125-CS3-52                                       |            |     | 90°       | 0.08                     | 0.7  | 2.9  | 5.4  | 10.2 | 17.2 | 25.5 | 35.6 | 51   | 65   |
| BV125-CS3-200                                      |            |     | Full Port | 0.00                     | 5.3  | 20.7 | 41.3 | 65   | 91   | 119  | 147  | 174  | 200  |
| BV150-CS3-15                                       | 1.5        | 40  | 15°       | 0.05                     | 0.3  | 1.2  | 2.3  | 3.8  | 5.5  | 8.1  | 11   | 14.9 | 17.6 |
| BV150-CS3-20                                       |            |     | 30°       | 0.07                     | 0.6  | 1.9  | 3.4  | 5.7  | 8.3  | 12.1 | 16.2 | 20.4 | 23.8 |
| BV150-CS3-46                                       |            |     | 60°       | 0.09                     | 0.9  | 2.8  | 4.7  | 8.9  | 14.8 | 21.2 | 30.7 | 45.9 | 59   |
| BV150-CS3-71                                       |            |     | 90°       | 0.10                     | 1.1  | 4    | 7.4  | 14.1 | 22.6 | 31.9 | 48.3 | 71   | 90   |
| BV150-CS3-275                                      |            |     | Full Port | 0.00                     | 3.4  | 22.7 | 50   | 83   | 120  | 159  | 199  | 238  | 275  |
| BV2-CS3-29   | 2          | 50  | 15°       | 0.06                     | 0.6  | 2.2  | 4.5  | 7.4  | 10.6 | 15.4 | 21.4 | 28.8 | 34.6 |
| BV2-CS3-48   |            |     | 30°       | 0.09                     | 1.2  | 3.8  | 7.5  | 12.3 | 17.8 | 26.4 | 36.5 | 48.1 | 55   |
| BV2-CS3-104  |            |     | 60°       | 0.11                     | 1.5  | 5.8  | 10.4 | 20.6 | 33.9 | 48.8 | 69   | 104  | 135  |
| BV2-CS3-130  |            |     | 90°       | 0.16                     | 1.9  | 7.3  | 13.6 | 25.4 | 42.3 | 55   | 87   | 129  | 167  |
| BV2-CS3-500  |            |     | Full Port | 0.00                     | 15.5 | 54   | 106  | 166  | 232  | 300  | 369  | 437  | 500  |
| BV250-CS3-27                                       | 2.5        | 65  | 15°       | 0.07                     | 0.7  | 2.4  | 5.2  | 8.1  | 11.7 | 16.4 | 22.3 | 27.2 | 31.3 |
| BV250-CS3-56                                       |            |     | 30°       | 0.09                     | 1.2  | 4.4  | 7.9  | 13.4 | 20   | 30.4 | 41.9 | 56   | 76   |
| BV250-CS3-114                                      |            |     | 60°       | 0.13                     | 1.5  | 5.9  | 11.9 | 23.2 | 37.9 | 59   | 83   | 113  | 162  |
| BV250-CS3-177                                      |            |     | 90°       | 0.17                     | 1.8  | 7.3  | 16.5 | 31.2 | 53   | 77   | 118  | 177  | 239  |
| BV250-CS3-780                                      |            |     | Full Port | 0.00                     | 25.8 | 87   | 168  | 262  | 363  | 470  | 577  | 682  | 780  |
| BV3-CS3-32   | 3          | 80  | 15°       | 0.08                     | 0.8  | 2.9  | 6.6  | 9.5  | 13.4 | 19.4 | 26.6 | 31.8 | 38.3 |
| BV3-CS3-70   |            |     | 30°       | 0.12                     | 1.2  | 4.1  | 9.4  | 15.9 | 26.7 | 38.9 | 53   | 69   | 85   |
| BV3-CS3-150  |            |     | 60°       | 0.15                     | 2.9  | 6.7  | 15.8 | 29.3 | 46.3 | 73   | 106  | 149  | 193  |
| BV3-CS3-237  |            |     | 90°       | 0.20                     | 4.1  | 8.6  | 21   | 41   | 69   | 105  | 161  | 237  | 359  |
| BV3-CS3-1150                                       |            |     | Full Port | 0.00                     | 33.8 | 123  | 242  | 380  | 531  | 689  | 848  | 1004 | 1150 |
| BV4-CS3-76   | 4          | 100 | 15°       | 0.11                     | 1.4  | 3.7  | 8.9  | 16.7 | 27.9 | 41.9 | 59   | 75   | 96   |
| BV4-CS3-159  |            |     | 30°       | 0.16                     | 1.8  | 7.8  | 18.6 | 35.2 | 58   | 87   | 124  | 158  | 196  |
| BV4-CS3-330  |            |     | 60°       | 0.26                     | 2.2  | 12.4 | 33.7 | 63   | 106  | 160  | 234  | 329  | 437  |
| BV4-CS3-547  |            |     | 90°       | 0.35                     | 4.4  | 19.9 | 50   | 91   | 157  | 240  | 365  | 546  | 830  |
| BV4-CS3-2100                                       |            |     | Full Port | 7.5                      | 118  | 296  | 516  | 766  | 1035 | 1314 | 1592 | 1861 | 2100 |

V-port ball valves have a 20 to 90% max angle of controllability. Therefore, the above assumes modulating actuators and the valve is operating at 60% and 90 % open. Full port valves are assumed to be on/off application and the CV's are stated at 100% open.

### BV - Mode of Actuation





**Ball (A)** Is a precision machined and mirror finished for bubble-tight shut off with less operating torque. Ball edges have machined curvatures to reduce seat wear and provide a high cycle life.

**Body (B)** Valve bodies are investment cast and solution annealed/normalized for the highest quality and added strength. Body castings are marked with a foundry heat number for full traceability. Carbon steel bodies are phosphate coated for increased corrosion resistance.

**Seat (C)** The seat design ensures bi-directional, bubble-tight sealing while providing the lowest possible torque. This seat design reduces friction, minimizes seat wear and reduces operating torque.

**Double Lock Nut Design (D)** These double lock nuts allow handles to be easily and safely removed while the valve is under full line pressure.

**Live-Loaded Stem Seals (E)** The live-loaded seals considerably increase the number of cycles between maintenance adjustments.

**Body Bolts (F)** Standard material is 304 Stainless Steel.

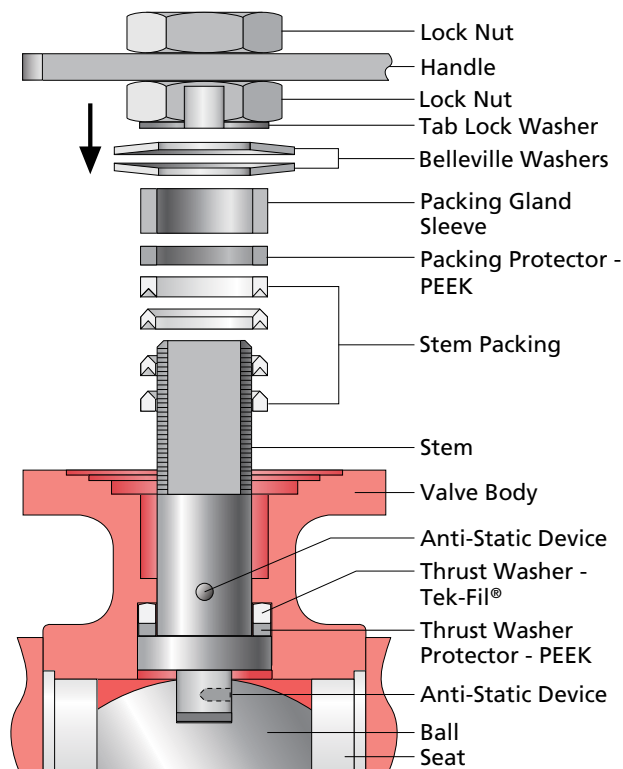
**Body Hinges (G)** Heavy duty hinges, throughout the entire size range, provide positive alignment of body to end connection during swing-out, in-line servicing.

**End Connections (H)** Full range of interchangeable connections. Anti-Static Protection BV Series valves feature anti-static grounding devices as standard. These devices ensure electrical continuity between valve ball, stem and body, thus eliminating the possibility of static electrical charges creating sparks within the valve.

## Smart Stem

### Valve Sizes 1/2" through 2-1/2"

These Interchangeable series of valves feature strong, large diameter stems with live-loaded, self-adjusting sealing utilizing belleville washers which automatically adjust to compensate for changes in temperature and wear. Manual adjustments which can cause damage to the seal and seat are not required. The assembly is secured by a saddle-type lock washer which prevents stem nuts from un-threading in high cycle automation applications.

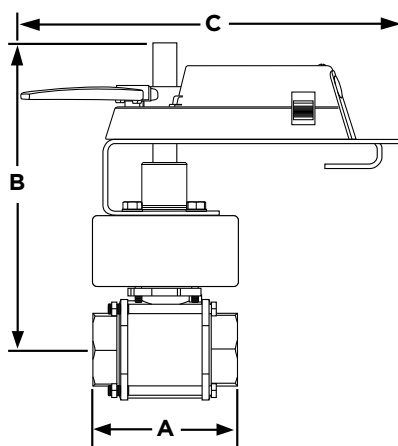


## Stem Packing

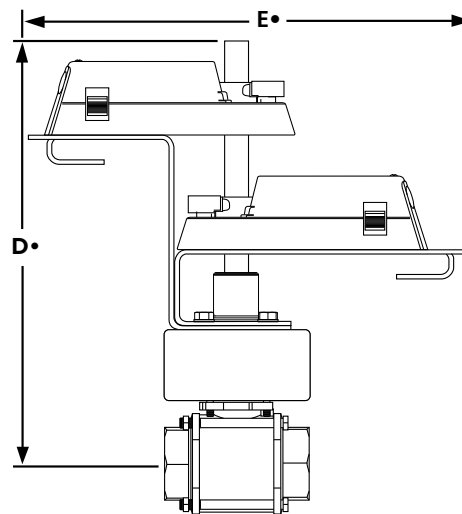
An adjustable V-ring design creates a multiple seal between the stem and body. Each stem assembly is composed of three or four (dependent on valve size) rings providing a very high cycle life by resisting creep and cold flow. The Thrust Washer and the Thrust Washer Protector combine to provide a primary seal, reduce torque and prevent galling. This arrangement is a BV Series exclusive.

## BV Series - 2-Way - Threaded Ball Valve/Commercial Actuator Dimensions

2-Way Setup - Single Actuator



2-Way Setup - Tandem Actuators



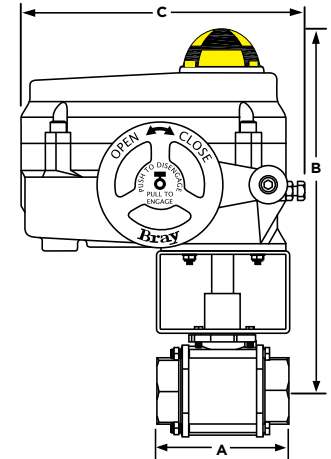
BV Series - 2-Way - Threaded Ball Valve/Commercial Actuator Dimensions in. (mm)

| Model Number  | Valve Size |    | V-Cut     | Flow Coefficient |      | Single Mount Actuators |               |               | Tandem Mount Actuators |               | Weight <sup>1</sup> |      |
|---------------|------------|----|-----------|------------------|------|------------------------|---------------|---------------|------------------------|---------------|---------------------|------|
|               | In.        | mm |           | 100%             | 60%  | A                      | B             | C             | D•                     | E•            | lbs.                | kg.  |
| BV05-CS3-04   | 0.5        | 15 | 15°       | 4.1              | 1.6  | 2.8<br>(71)            | 9.7<br>(246)  | 14.5<br>(368) | -                      | -             | 1.8                 | .82  |
| BV05-CS3-05   |            |    | 30°       | 5.5              | 1.8  |                        |               |               |                        |               |                     |      |
| BV05-CS3-09   |            |    | 60°       | 12.7             | 2.9  |                        |               |               |                        |               |                     |      |
| BV05-CS3-12   |            |    | 90°       | 14.7             | 3.2  |                        |               |               |                        |               |                     |      |
| BV05-CS3-32   |            |    | Full Port | 32               | 12.6 |                        |               |               |                        |               |                     |      |
| BV75-CS3-05   | .75        | 20 | 15°       | 5.5              | 2.1  | 3.4<br>(86)            | 9.8<br>(249)  | 14.5<br>(368) | -                      | -             | 2.3                 | 1.04 |
| BV75-CS3-06   |            |    | 30°       | 7.3              | 2.4  |                        |               |               |                        |               |                     |      |
| BV75-CS3-12   |            |    | 60°       | 16.2             | 3.8  |                        |               |               |                        |               |                     |      |
| BV75-CS3-15   |            |    | 90°       | 19.3             | 4.2  |                        |               |               |                        |               |                     |      |
| BV75-CS3-54   |            |    | Full Port | 54               | 21.7 |                        |               |               |                        |               |                     |      |
| BV1-CS3-09    | 1          | 25 | 15°       | 9.8              | 3.7  | 3.6<br>(91)            | 10.2<br>(259) | 14.5<br>(368) | -                      | -             | 3.4                 | 1.50 |
| BV1-CS3-13    |            |    | 30°       | 15.4             | 5.3  |                        |               |               |                        |               |                     |      |
| BV1-CS3-23    |            |    | 60°       | 32.8             | 8    |                        |               |               |                        |               |                     |      |
| BV1-CS3-31    |            |    | 90°       | 43.8             | 12.2 |                        |               |               |                        |               |                     |      |
| BV1-CS3-105   |            |    | Full Port | 105              | 45.7 |                        |               |               |                        |               |                     |      |
| BV125-CS3-11  | 1.25       | 32 | 15°       | 12.8             | 4    | 4.3<br>(109)           | 10.4<br>(264) | 14.5<br>(368) | 17.5<br>(445)          | 18.0<br>(457) | 4.9                 | 2.20 |
| BV125-CS3-15  |            |    | 30°       | 17.3             | 6    |                        |               |               |                        |               |                     |      |
| BV125-CS3-33  |            |    | 60°       | 43.4             | 10.8 |                        |               |               |                        |               |                     |      |
| BV125-CS3-52  |            |    | 90°       | 65               | 17.2 |                        |               |               |                        |               |                     |      |
| BV125-CS3-200 |            |    | Full Port | 200              | 91   |                        |               |               |                        |               |                     |      |
| BV150-CS3-15  | 1.5        | 40 | 15°       | 17.6             | 5.5  | 4.8<br>(122)           | -             | -             | 17.9<br>(455)          | 18.0<br>(457) | 7.6                 | 3.40 |
| BV150-CS3-20  |            |    | 30°       | 23.8             | 8.3  |                        |               |               |                        |               |                     |      |
| BV150-CS3-46  |            |    | 60°       | 59               | 14.8 |                        |               |               |                        |               |                     |      |
| BV150-CS3-71  |            |    | 90°       | 90               | 22.6 |                        |               |               |                        |               |                     |      |
| BV150-CS3-275 |            |    | Full Port | 275              | 120  |                        |               |               |                        |               |                     |      |

<sup>1</sup> - Weights are for valve bodies only.  
 • Indicates tandem mounted actuators are required.  
 - Largest Actuator dimension shown.  
 For steam applications, install valve with stem at 45° to 90° from vertical.

# BV Series - 2-Way - Threaded Ball Valve/Industrial Actuator Dimensions

2-Way Setup - Industrial Actuator



| BV Series - 2-Way - Threaded Ball Valve/Industrial Actuator Dimensions in. (mm) |            |     |           |                  |      |                        |               |               |                     |      |
|---|------------|-----|-----------|------------------|------|------------------------|---------------|---------------|---------------------|------|
| Model Number  | Valve Size |     | V-Cut     | Flow Coefficient |      | Single Mount Actuators |               |               | Weight <sup>1</sup> |      |
|   | In.        | mm  |           | 100%             | 60%  | A                      | B             | C             | lbs.                | kg.  |
| BV05-CS3-04   | 0.5        | 15  | 15°       | 4.1              | 1.6  | 2.8<br>(71)            | 9.8<br>(249)  | 7.5<br>(191)  | 1.8                 | .82  |
| BV05-CS3-05   |            |     | 30°       | 5.5              | 1.8  |                        |               |               |                     |      |
| BV05-CS3-09   |            |     | 60°       | 12.7             | 2.9  |                        |               |               |                     |      |
| BV05-CS3-12   |            |     | 90°       | 14.7             | 3.2  |                        |               |               |                     |      |
| BV05-CS3-32   |            |     | Full Port | 32               | 12.6 |                        |               |               |                     |      |
| BV75-CS3-05   | .75        | 20  | 15°       | 5.5              | 2.1  | 3.4<br>(86)            | 9.9<br>(252)  | 7.5<br>(191)  | 2.3                 | 1.04 |
| BV75-CS3-06   |            |     | 30°       | 7.3              | 2.4  |                        |               |               |                     |      |
| BV75-CS3-12   |            |     | 60°       | 16.2             | 3.8  |                        |               |               |                     |      |
| BV75-CS3-15   |            |     | 90°       | 19.3             | 4.2  |                        |               |               |                     |      |
| BV75-CS3-54   |            |     | Full Port | 54               | 21.7 |                        |               |               |                     |      |
| BV1-CS3-09  | 1          | 25  | 15°       | 9.8              | 3.7  | 3.6<br>(91)            | 10.3<br>(262) | 7.5<br>(191)  | 3.4                 | 1.50 |
| BV1-CS3-13  |            |     | 30°       | 15.4             | 5.3  |                        |               |               |                     |      |
| BV1-CS3-23  |            |     | 60°       | 32.8             | 8    |                        |               |               |                     |      |
| BV1-CS3-31  |            |     | 90°       | 43.8             | 12.2 |                        |               |               |                     |      |
| BV1-CS3-105   |            |     | Full Port | 105              | 45.7 |                        |               |               |                     |      |
| BV125-CS3-11  | 1.25       | 32  | 15°       | 12.8             | 4    | 4.3<br>(109)           | 10.5<br>(267) | 7.5<br>(191)  | 4.9                 | 2.20 |
| BV125-CS3-15  |            |     | 30°       | 17.3             | 6    |                        |               |               |                     |      |
| BV125-CS3-33  |            |     | 60°       | 43.4             | 10.8 |                        |               |               |                     |      |
| BV125-CS3-52  |            |     | 90°       | 65               | 17.2 |                        |               |               |                     |      |
| BV125-CS3-200   |            |     | Full Port | 200              | 91   |                        |               |               |                     |      |
| BV150-CS3-15  | 1.5        | 40  | 15°       | 17.6             | 5.5  | 4.8<br>(122)           | 11.2<br>(285) | 7.5<br>(191)  | 7.6                 | 3.40 |
| BV150-CS3-20  |            |     | 30°       | 23.8             | 8.3  |                        |               |               |                     |      |
| BV150-CS3-46  |            |     | 60°       | 59               | 14.8 |                        |               |               |                     |      |
| BV150-CS3-71  |            |     | 90°       | 90               | 22.6 |                        |               |               |                     |      |
| BV150-CS3-275   |            |     | Full Port | 275              | 120  |                        |               |               |                     |      |
| BV2-CS3-29  | 2          | 50  | 15°       | 34.6             | 10.6 | 5.6<br>(142)           | 11.5<br>(292) | 7.5<br>(191)  | 11.4                | 5.20 |
| BV2-CS3-48  |            |     | 30°       | 55               | 17.8 |                        |               |               |                     |      |
| BV2-CS3-104   |            |     | 60°       | 135              | 33.9 |                        |               |               |                     |      |
| BV2-CS3-130   |            |     | 90°       | 167              | 42.3 |                        |               |               |                     |      |
| BV2-CS3-500   |            |     | Full Port | 500              | 232  |                        |               |               |                     |      |
| BV250-CS3-27  | 2.5        | 65  | 15°       | 31.3             | 11.7 | 7.3<br>(231)           | 13.4<br>(340) | 10.1<br>(257) | 21.8                | 9.90 |
| BV250-CS3-56  |            |     | 30°       | 76               | 20   |                        |               |               |                     |      |
| BV250-CS3-114   |            |     | 60°       | 162              | 37.9 |                        |               |               |                     |      |
| BV250-CS3-177   |            |     | 90°       | 239              | 53   |                        |               |               |                     |      |
| BV250-CS3-780   |            |     | Full Port | 780              | 363  |                        |               |               |                     |      |
| BV3-CS3-32  | 3          | 80  | 15°       | 38.3             | 13.4 | 8.0<br>(257)           | 15.8<br>(401) | 10.1<br>(257) | 34.6                | 15.7 |
| BV3-CS3-70  |            |     | 30°       | 85               | 26.7 |                        |               |               |                     |      |
| BV3-CS3-150   |            |     | 60°       | 193              | 46.3 |                        |               |               |                     |      |
| BV3-CS3-237   |            |     | 90°       | 359              | 69   |                        |               |               |                     |      |
| BV3-CS3-1150  |            |     | Full Port | 1150             | 531  |                        |               |               |                     |      |
| BV4-CS3-76  | 4          | 100 | 15°       | 96               | 27.9 | 9.1<br>(353)           | 17.2<br>(437) | 12.1<br>(308) | 54.7                | 24.8 |
| BV4-CS3-159   |            |     | 30°       | 196              | 58   |                        |               |               |                     |      |
| BV4-CS3-330   |            |     | 60°       | 437              | 106  |                        |               |               |                     |      |
| BV4-CS3-547   |            |     | 90°       | 830              | 157  |                        |               |               |                     |      |
| BV4-CS3-2100  |            |     | Full Port | 2100             | 1035 |                        |               |               |                     |      |

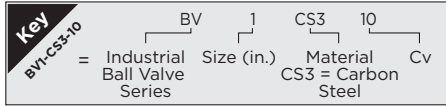
<sup>1</sup> - Weights are for valve bodies only.  
 - Largest Actuator dimension shown.  
 For steam applications, install valve with stem at 45° to 90° from vertical.

# BV Series - 2-Way with NSR & SR Commercial Electric Actuators Close-Off Charts

| 2-Way, Non-Spring Return (100 psi Steam and 300 psi Water) |            |    |   |                  |      |                             |         |         |         |           |                      |          |          |          |            |   |
|--|------------|----|---|------------------|------|-----------------------------|---------|---------|---------|-----------|----------------------|----------|----------|----------|------------|---|
| Actuator Model Details                                     |            |    |   |                  |      |                             |         |         |         |           |                      |          |          |          |            |   |
| Time Out   |            |    | ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■                             |                  |      |                             |         |         |         |           |                      |          |          |          |            |   |
| Auxiliary Switches Available                               |            |    | ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■                             |                  |      |                             |         |         |         |           |                      |          |          |          |            |   |
| Conduit Size - Flex(F)/NPT(N)                              |            |    | 1/2 N 1/2 N 1/2 N 1/2 N 1/2 N 1/2 N 1/2 N 1/2 N 1/2 N 1/2 N |                  |      |                             |         |         |         |           |                      |          |          |          |            |   |
| Enclosed Terminal Block                                    |            |    | ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■                             |                  |      |                             |         |         |         |           |                      |          |          |          |            |   |
| Model Number   | Valve Size |    | V-Cut   | Flow Coefficient |      | 24 VAC/DC On/Off & Floating |         |         |         |           | 24 VAC/DC Modulating |          |          |          |            |   |
|  | In.        | mm |   | 100%             | 60%  | D24-70                      | D24-140 | D24-210 | D24-280 | D24-280-D | DM24-70              | DM24-140 | DM24-210 | DM24-280 | DM24-280-D |   |
| BV05-CS3-04  | 0.5        | 15 | 15°   | 4.1              | 1.6  |                             |         |         |         |           |                      |          |          |          |            |   |
| BV05-CS3-05  |            |    | 30°   | 5.5              | 1.8  |                             |         |         |         |           |                      |          |          |          |            |   |
| BV05-CS3-09  |            |    | 60°   | 12.7             | 2.9  | X                           | -       | -       | -       | -         | X                    | -        | -        | -        | -          | - |
| BV05-CS3-12  |            |    | 90°   | 14.7             | 3.2  |                             |         |         |         |           |                      |          |          |          |            |   |
| BV05-CS3-32  |            |    | Full Port   | 32               | 12.6 |                             |         |         |         |           |                      |          |          |          |            |   |
| BV75-CS3-05  | .75        | 20 | 15°   | 5.5              | 2.1  |                             |         |         |         |           |                      |          |          |          |            |   |
| BV75-CS3-06  |            |    | 30°   | 7.3              | 2.4  |                             |         |         |         |           |                      |          |          |          |            |   |
| BV75-CS3-12  |            |    | 60°   | 16.2             | 3.8  | -                           | X       | -       | -       | -         | -                    | X        | -        | -        | -          | - |
| BV75-CS3-15  |            |    | 90°   | 19.3             | 4.2  |                             |         |         |         |           |                      |          |          |          |            |   |
| BV75-CS3-54  |            |    | Full Port   | 54               | 21.7 |                             |         |         |         |           |                      |          |          |          |            |   |
| BV1-CS3-09   | 1          | 25 | 15°   | 9.8              | 3.7  |                             |         |         |         |           |                      |          |          |          |            |   |
| BV1-CS3-13   |            |    | 30°   | 15.4             | 5.3  |                             |         |         |         |           |                      |          |          |          |            |   |
| BV1-CS3-23   |            |    | 60°   | 32.8             | 8    | -                           | -       | X       | -       | -         | -                    | -        | X        | -        | -          | - |
| BV1-CS3-31   |            |    | 90°   | 43.8             | 12.2 |                             |         |         |         |           |                      |          |          |          |            |   |
| BV1-CS3-105  |            |    | Full Port   | 105              | 45.7 |                             |         |         |         |           |                      |          |          |          |            |   |
| BV125-CS3-11   | 1.25       | 32 | 15°   | 12.8             | 4    |                             |         |         |         |           |                      |          |          |          |            |   |
| BV125-CS3-15   |            |    | 30°   | 17.3             | 6    |                             |         |         |         |           |                      |          |          |          |            |   |
| BV125-CS3-33   |            |    | 60°   | 43.4             | 10.8 | -                           | -       | -       | X       | -         | -                    | -        | -        | X        | -          | - |
| BV125-CS3-52   |            |    | 90°   | 65               | 17.2 |                             |         |         |         |           |                      |          |          |          |            |   |
| BV125-CS3-200  |            |    | Full Port   | 200              | 91   |                             |         |         |         |           |                      |          |          |          |            |   |
| BV150-CS3-15   | 1.5        | 40 | 15°   | 17.6             | 5.5  |                             |         |         |         |           |                      |          |          |          |            |   |
| BV150-CS3-20   |            |    | 30°   | 23.8             | 8.3  |                             |         |         |         |           |                      |          |          |          |            |   |
| BV150-CS3-46   |            |    | 60°   | 59               | 14.8 | -                           | -       | -       | -       | X         | -                    | -        | -        | -        | -          | X |
| BV150-CS3-71   |            |    | 90°   | 90               | 22.6 |                             |         |         |         |           |                      |          |          |          |            |   |
| BV150-CS3-275  |            |    | Full Port   | 275              | 120  |                             |         |         |         |           |                      |          |          |          |            |   |

| 2-Way, Spring Return (100 psi Steam and 300 psi Water) |            |    |                                     |                  |      |                  |          |            |          |           |                      |          |           |             |   |   |  |
|--|------------|----|-------------------------------------|------------------|------|------------------|----------|------------|----------|-----------|----------------------|----------|-----------|-------------|---|---|--|
| Actuator Model Details                                 |            |    |                                     |                  |      |                  |          |            |          |           |                      |          |           |             |   |   |  |
| Auxiliary Switches Available                           |            |    | ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■     |                  |      |                  |          |            |          |           |                      |          |           |             |   |   |  |
| Conduit Size - Flex(F)/NPT(N)                          |            |    | 3/8 F 3/8 F 3/8 F 3/8 F 3/8 F 3/8 F |                  |      |                  |          |            |          |           |                      |          |           |             |   |   |  |
| Cable - Standard(S)/Plenum(P)                          |            |    | S S S S S S                         |                  |      |                  |          |            |          |           |                      |          |           |             |   |   |  |
| Model Number   | Valve Size |    | V-Cut                               | Flow Coefficient |      | 24 VAC/DC On/Off |          |            |          |           | 24 VAC/DC Modulating |          |           |             |   |   |  |
|  | In.        | mm |                                     | 100%             | 60%  | DS24-70          | DS24-180 | DS24-180-D | DMS24-70 | DMS24-180 | DMS24-180-D          | DMS24-70 | DMS24-180 | DMS24-180-D |   |   |  |
| BV05-CS3-04  | 0.5        | 15 | 15°                                 | 4.1              | 1.6  |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV05-CS3-05  |            |    | 30°                                 | 5.5              | 1.8  |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV05-CS3-09  |            |    | 60°                                 | 12.7             | 2.9  | X                | -        | -          | X        | -         | -                    | -        | -         | -           | - | - |  |
| BV05-CS3-12  |            |    | 90°                                 | 14.7             | 3.2  |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV05-CS3-32  |            |    | Full Port                           | 32               | 12.6 |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV75-CS3-05  | .75        | 20 | 15°                                 | 5.5              | 2.1  |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV75-CS3-06  |            |    | 30°                                 | 7.3              | 2.4  |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV75-CS3-12  |            |    | 60°                                 | 16.2             | 3.8  | -                | X        | -          | -        | -         | X                    | -        | -         | -           | - | - |  |
| BV75-CS3-15  |            |    | 90°                                 | 19.3             | 4.2  |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV75-CS3-54  |            |    | Full Port                           | 54               | 21.7 |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV1-CS3-09   | 1          | 25 | 15°                                 | 9.8              | 3.7  |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV1-CS3-13   |            |    | 30°                                 | 15.4             | 5.3  |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV1-CS3-23   |            |    | 60°                                 | 32.8             | 8    | -                | X        | -          | -        | -         | X                    | -        | -         | -           | - | - |  |
| BV1-CS3-31   |            |    | 90°                                 | 43.8             | 12.2 |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV1-CS3-105  |            |    | Full Port                           | 105              | 45.7 |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV125-CS3-11   | 1.25       | 32 | 15°                                 | 12.8             | 4    |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV125-CS3-15   |            |    | 30°                                 | 17.3             | 6    |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV125-CS3-33   |            |    | 60°                                 | 43.4             | 10.8 | -                | -        | X          | -        | -         | -                    | -        | -         | X           | - | - |  |
| BV125-CS3-52   |            |    | 90°                                 | 65               | 17.2 |                  |          |            |          |           |                      |          |           |             |   |   |  |
| BV125-CS3-200  |            |    | Full Port                           | 200              | 91   |                  |          |            |          |           |                      |          |           |             |   |   |  |

**Options/Addrs**  
 1. For optional auxiliary switches, add -A to the end of the actuator part number.  
 2. For normally Closed, add a "C" to the end of the valve part number, i.e. BV05-CS3-04C, otherwise normally open. Spring return models only.  
 Add "SS3" in place of CS3 for Stainless Steel body option.  
 V-port ball valves have a 20 to 90° max angle of controllability.  
 -D Indicates tandem mounted actuators are required.



## BV Series - 2-Way with On/Off Series 70 Industrial Electric Actuators Close-Off Chart

### 2-Way, Non-Spring Return (100 psi Steam and 300 psi Water)

| Actuator Model Details |            |     |           |                  |      |                                     |          |          |                                    |             |             |
|------------------------|------------|-----|-----------|------------------|------|-------------------------------------|----------|----------|------------------------------------|-------------|-------------|
| Model Number           | Valve Size |     | V-Cut     | Flow Coefficient |      | Series 70 Actuators On/Off, 120 VAC |          |          | Series 70 Actuators On/Off, 24 VAC |             |             |
|                        | In.        | mm  |           | 100%             | 60%  | 70-0081H                            | 70-0121H | 70-E301H | 70-24-0081H                        | 70-24-0201H | 70-24-0501H |
| BV05-CS3-04            | 0.5        | 15  | 15°       | 4.1              | 1.6  | X                                   | -        | -        | X                                  | -           | -           |
| BV05-CS3-05            |            |     | 30°       | 5.5              | 1.8  |                                     |          |          |                                    |             |             |
| BV05-CS3-09            |            |     | 60°       | 12.7             | 2.9  |                                     |          |          |                                    |             |             |
| BV05-CS3-12            |            |     | 90°       | 14.7             | 3.2  |                                     |          |          |                                    |             |             |
| BV05-CS3-32            |            |     | Full Port | 32               | 12.6 |                                     |          |          |                                    |             |             |
| BV75-CS3-05            | .75        | 20  | 15°       | 5.5              | 2.1  | X                                   | -        | -        | X                                  | -           | -           |
| BV75-CS3-06            |            |     | 30°       | 7.3              | 2.4  |                                     |          |          |                                    |             |             |
| BV75-CS3-12            |            |     | 60°       | 16.2             | 3.8  |                                     |          |          |                                    |             |             |
| BV75-CS3-15            |            |     | 90°       | 19.3             | 4.2  |                                     |          |          |                                    |             |             |
| BV75-CS3-54            |            |     | Full Port | 54               | 21.7 |                                     |          |          |                                    |             |             |
| BV1-CS3-09             | 1          | 25  | 15°       | 9.8              | 3.7  | X                                   | -        | -        | X                                  | -           | -           |
| BV1-CS3-13             |            |     | 30°       | 15.4             | 5.3  |                                     |          |          |                                    |             |             |
| BV1-CS3-23             |            |     | 60°       | 32.8             | 8    |                                     |          |          |                                    |             |             |
| BV1-CS3-31             |            |     | 90°       | 43.8             | 12.2 |                                     |          |          |                                    |             |             |
| BV1-CS3-105            |            |     | Full Port | 105              | 45.7 |                                     |          |          |                                    |             |             |
| BV125-CS3-11           | 1.25       | 32  | 15°       | 12.8             | 4    | X                                   | -        | -        | X                                  | -           | -           |
| BV125-CS3-15           |            |     | 30°       | 17.3             | 6    |                                     |          |          |                                    |             |             |
| BV125-CS3-33           |            |     | 60°       | 43.4             | 10.8 |                                     |          |          |                                    |             |             |
| BV125-CS3-52           |            |     | 90°       | 65               | 17.2 |                                     |          |          |                                    |             |             |
| BV125-CS3-200          |            |     | Full Port | 200              | 91   |                                     |          |          |                                    |             |             |
| BV150-CS3-15           | 1.5        | 40  | 15°       | 17.6             | 5.5  | X                                   | -        | -        | X                                  | -           | -           |
| BV150-CS3-20           |            |     | 30°       | 23.8             | 8.3  |                                     |          |          |                                    |             |             |
| BV150-CS3-46           |            |     | 60°       | 59               | 14.8 |                                     |          |          |                                    |             |             |
| BV150-CS3-71           |            |     | 90°       | 90               | 22.6 |                                     |          |          |                                    |             |             |
| BV150-CS3-275          |            |     | Full Port | 275              | 120  |                                     |          |          |                                    |             |             |
| BV2-CS3-29             | 2          | 50  | 15°       | 34.6             | 10.6 | X                                   | -        | -        | X                                  | -           | -           |
| BV2-CS3-48             |            |     | 30°       | 55               | 17.8 |                                     |          |          |                                    |             |             |
| BV2-CS3-104            |            |     | 60°       | 135              | 33.9 |                                     |          |          |                                    |             |             |
| BV2-CS3-130            |            |     | 90°       | 167              | 42.3 |                                     |          |          |                                    |             |             |
| BV2-CS3-500            |            |     | Full Port | 500              | 232  |                                     |          |          |                                    |             |             |
| BV250-CS3-27           | 2.5        | 65  | 15°       | 31.3             | 11.7 | X                                   | -        | -        | X                                  | -           | -           |
| BV250-CS3-56           |            |     | 30°       | 76               | 20   |                                     |          |          |                                    |             |             |
| BV250-CS3-114          |            |     | 60°       | 162              | 37.9 |                                     |          |          |                                    |             |             |
| BV250-CS3-177          |            |     | 90°       | 239              | 53   |                                     |          |          |                                    |             |             |
| BV250-CS3-780          |            |     | Full Port | 780              | 363  |                                     |          |          |                                    |             |             |
| BV3-CS3-32             | 3          | 80  | 15°       | 38.3             | 13.4 | -                                   | X        | -        | -                                  | X           | -           |
| BV3-CS3-70             |            |     | 30°       | 85               | 26.7 |                                     |          |          |                                    |             |             |
| BV3-CS3-150            |            |     | 60°       | 193              | 46.3 |                                     |          |          |                                    |             |             |
| BV3-CS3-237            |            |     | 90°       | 359              | 69   |                                     |          |          |                                    |             |             |
| BV3-CS3-1150           |            |     | Full Port | 1150             | 531  |                                     |          |          |                                    |             |             |
| BV4-CS3-76             | 4          | 100 | 15°       | 96               | 27.9 | -                                   | -        | X        | -                                  | -           | X           |
| BV4-CS3-159            |            |     | 30°       | 196              | 58   |                                     |          |          |                                    |             |             |
| BV4-CS3-330            |            |     | 60°       | 437              | 106  |                                     |          |          |                                    |             |             |
| BV4-CS3-547            |            |     | 90°       | 830              | 157  |                                     |          |          |                                    |             |             |
| BV4-CS3-2100           |            |     | Full Port | 2100             | 1035 |                                     |          |          |                                    |             |             |

**Options/Adders**

1. For Battery Back-Up Failsafe Unit (BBU) option on 24 VAC actuators add "-BBU".
  2. For normally Closed, add a "C" to the end of the valve part number, i.e. BV05-CS3-04C, otherwise normally open. BBU models only.  
Add "SS3" in place of CS3 for Stainless Steel body option.
- V-port ball valves have a 20 to 90% max angle of controllability.

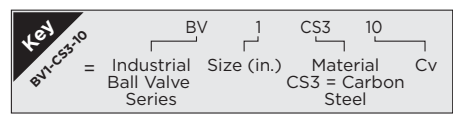
**Key** BV1-CS3-10

|                                |            |          |    |                    |
|--------------------------------|------------|----------|----|--------------------|
| BV                             | 1          | CS3      | 10 |                    |
| = Industrial Ball Valve Series | Size (in.) | Material | Cv | CS3 = Carbon Steel |

# BV Series - 2-Way with Modulating Series 70 Industrial Electric Actuators Close-Off Chart

| 2-Way, Non-Spring Return (100 psi Steam and 300 psi Water) |            |     |           |                  |      |   |            |            |  |               |               |
|--|------------|-----|-----------|------------------|------|---|------------|------------|--|---------------|---------------|
| Actuator Model Details                                     |            |     |           |                  |      |   |            |            |  |               |               |
| Model Number   | Valve Size |     | V-Cut     | Flow Coefficient |      | Series 70 Actuators Modulating, 120 VAC |            |            | Series 70 Actuators Modulating, 24 VAC |               |               |
|  | In.        | mm  |           | 100%             | 60%  | 70-0081SVH                              | 70-0121SVH | 70-E301SVH | 70-24-0081SVH                          | 70-24-0201SVH | 70-24-0501SVH |
| BV05-CS3-04  | 0.5        | 15  | 15°       | 4.1              | 1.6  |   |            |            |  |               |               |
| BV05-CS3-05  |            |     | 30°       | 5.5              | 1.8  |   |            |            |  |               |               |
| BV05-CS3-09  |            |     | 60°       | 12.7             | 2.9  | X                                       | -          | -          | X                                      | -             | -             |
| BV05-CS3-12  |            |     | 90°       | 14.7             | 3.2  |   |            |            |  |               |               |
| BV05-CS3-32  |            |     | Full Port | 32               | 12.6 |   |            |            |  |               |               |
| BV75-CS3-05  | .75        | 20  | 15°       | 5.5              | 2.1  |   |            |            |  |               |               |
| BV75-CS3-06  |            |     | 30°       | 7.3              | 2.4  |   |            |            |  |               |               |
| BV75-CS3-12  |            |     | 60°       | 16.2             | 3.8  | X                                       | -          | -          | X                                      | -             | -             |
| BV75-CS3-15  |            |     | 90°       | 19.3             | 4.2  |   |            |            |  |               |               |
| BV75-CS3-54  |            |     | Full Port | 54               | 21.7 |   |            |            |  |               |               |
| BV1-CS3-09   | 1          | 25  | 15°       | 9.8              | 3.7  |   |            |            |  |               |               |
| BV1-CS3-13   |            |     | 30°       | 15.4             | 5.3  |   |            |            |  |               |               |
| BV1-CS3-23   |            |     | 60°       | 32.8             | 8    | X                                       | -          | -          | X                                      | -             | -             |
| BV1-CS3-31   |            |     | 90°       | 43.8             | 12.2 |   |            |            |  |               |               |
| BV1-CS3-105  |            |     | Full Port | 105              | 45.7 |   |            |            |  |               |               |
| BV125-CS3-11   | 1.25       | 32  | 15°       | 12.8             | 4    |   |            |            |  |               |               |
| BV125-CS3-15   |            |     | 30°       | 17.3             | 6    |   |            |            |  |               |               |
| BV125-CS3-33   |            |     | 60°       | 43.4             | 10.8 | X                                       | -          | -          | X                                      | -             | -             |
| BV125-CS3-52   |            |     | 90°       | 65               | 17.2 |   |            |            |  |               |               |
| BV125-CS3-200  |            |     | Full Port | 200              | 91   |   |            |            |  |               |               |
| BV150-CS3-15   | 1.5        | 40  | 15°       | 17.6             | 5.5  |   |            |            |  |               |               |
| BV150-CS3-20   |            |     | 30°       | 23.8             | 8.3  |   |            |            |  |               |               |
| BV150-CS3-46   |            |     | 60°       | 59               | 14.8 | X                                       | -          | -          | X                                      | -             | -             |
| BV150-CS3-71   |            |     | 90°       | 90               | 22.6 |   |            |            |  |               |               |
| BV150-CS3-275  |            |     | Full Port | 275              | 120  |   |            |            |  |               |               |
| BV2-CS3-29   | 2          | 50  | 15°       | 34.6             | 10.6 |   |            |            |  |               |               |
| BV2-CS3-48   |            |     | 30°       | 55               | 17.8 |   |            |            |  |               |               |
| BV2-CS3-104  |            |     | 60°       | 135              | 33.9 | X                                       | -          | -          | X                                      | -             | -             |
| BV2-CS3-130  |            |     | 90°       | 167              | 42.3 |   |            |            |  |               |               |
| BV2-CS3-500  |            |     | Full Port | 500              | 232  |   |            |            |  |               |               |
| BV250-CS3-27   | 2.5        | 65  | 15°       | 31.3             | 11.7 |   |            |            |  |               |               |
| BV250-CS3-56   |            |     | 30°       | 76               | 20   |   |            |            |  |               |               |
| BV250-CS3-114  |            |     | 60°       | 162              | 37.9 | X                                       | -          | -          | X                                      | -             | -             |
| BV250-CS3-177  |            |     | 90°       | 239              | 53   |   |            |            |  |               |               |
| BV250-CS3-780  |            |     | Full Port | 780              | 363  |   |            |            |  |               |               |
| BV3-CS3-32   | 3          | 80  | 15°       | 38.3             | 13.4 |   |            |            |  |               |               |
| BV3-CS3-70   |            |     | 30°       | 85               | 26.7 |   |            |            |  |               |               |
| BV3-CS3-150  |            |     | 60°       | 193              | 46.3 | -                                       | X          | -          | -                                      | X             | -             |
| BV3-CS3-237  |            |     | 90°       | 359              | 69   |   |            |            |  |               |               |
| BV3-CS3-1150   |            |     | Full Port | 1150             | 531  |   |            |            |  |               |               |
| BV4-CS3-76   | 4          | 100 | 15°       | 96               | 27.9 |   |            |            |  |               |               |
| BV4-CS3-159  |            |     | 30°       | 196              | 58   |   |            |            |  |               |               |
| BV4-CS3-330  |            |     | 60°       | 437              | 106  | -                                       | -          | X          | -                                      | -             | X             |
| BV4-CS3-547  |            |     | 90°       | 830              | 157  |   |            |            |  |               |               |
| BV4-CS3-2100   |            |     | Full Port | 2100             | 1035 |   |            |            |  |               |               |

**Options/Adders**  
 1. For Battery Back-Up Failsafe Unit (BBU) option on 24 VAC actuators add "-BBU".  
 2. For normally Closed, add a "C" to the end of the valve part number, i.e. BV05-CS3-04C, otherwise normally open. BBU models only.  
 Add "SS3" in place of CS3 for Stainless Steel body option.  
 V-port ball valves have a 20 to 90° max angle of controllability.



# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

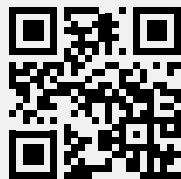
- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

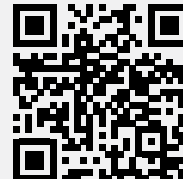
### **CORPORATE HEADQUARTERS**

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### **DIVISION HEADQUARTERS**


**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)



All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

## BVM Series (ANSI 150) Flanged Industrial Control Ball Valves 2-Way • 2-1/2" - 12"

| DOCUMENT         |   |
|------------------|---|
| CONTENTS         | Features  |
|                  | Specifications  |
|                  | Cut-Away View   |
|                  | Close-Off Charts  |
|                  | Pressure/Temp Charts  |
| Dimensions       |   |
| LOOKING FOR MORE |  |
|                  | © 2026 Bray International, Inc.<br>05/17/26   |

### Application

The BVM Series of Flanged Industrial Ball Valves are ideally suited to a wide range of steam and water applications that require a high degree of rangeability. These valves provide exceptional characterized control, flow capacity and pressure drops; all with bi-directional ANSI class VI shut off.

Our exclusive Thrust Washer and Thrust Washer Protector design combine to provide a primary seal, reduce torque and prevent galling. The BVM Series ball valves also feature a floating ball design for low torque and increased cycle life. Characterized V-Balls and full port versions provide multiple Cv values in each size.

### Features and Benefits

- **High Cycle Packing Design**

*Years of trouble free service*

- **Bubble Tight Shut-Off with Zero Leakage**

*Energy efficient*

- **Independent Packing Gland**

*Allows in-line servicing*

- **Phosphate Coated Carbon Steel Bodies**

*For cost effective applications up to 225°F at 285 psi*

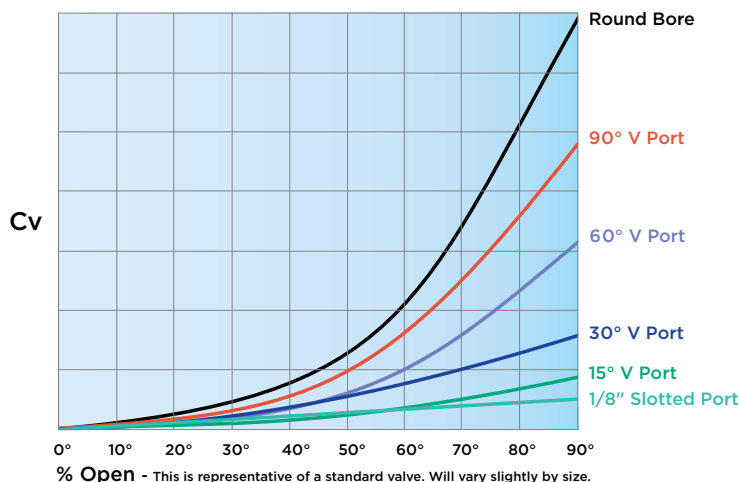
- **Available NEMA 4 Actuators**

*Reliable, cost effective control*



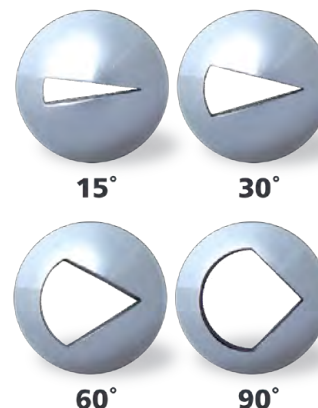
### Flow Curve Chart

These curves of standard ports are general guidelines and are not specific to any particular valve size.



### Increased Linear Response

Due to the in-line design inherent with characterized control ball valves, line media flows linearly through the piping system. The direct pattern provides increased media control and rapid response times to controller commands.



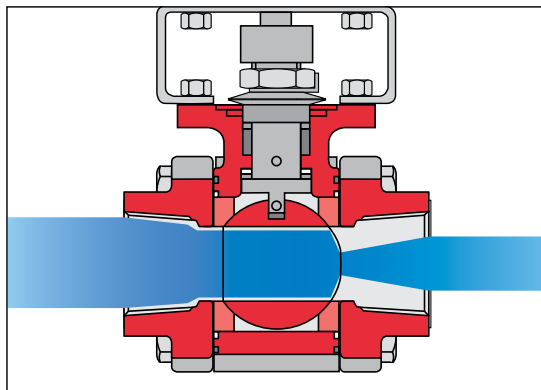
## BVM Series - Specifications

| Technical Specifications - BVM Flanged Industrial Ball Valve Body (BVM = "Equivalent to Bray/FlowTek F15 Series") |                   |   |            |
|---|-------------------|---|------------|
|   |                   | V-Port  | Full- Port |
| Service   |                   | Chilled/Hot Water, 50/50 Glycol Solutions & Saturated Steam                     |            |
| Size Range  | 2-Way             | 2-1/2" to 12" Flanged Valves  |            |
| Valve Fluid Temperature Limits  | Water             | Meets ASME Class 150 temperatures   |            |
|   | Saturated Steam   | 100 psi (689 kPa)   |            |
| Valve Body Pressure Rating  |                   | ANSI Class 150  |            |
| Maximum Close-Off Pressure  |                   | 285 psi (1,965 kPa)   |            |
| Maximum Recommended Operating Pressure Drop   | Water             | 80 psi (551 kPa)  |            |
|   | Steam             | 50 psi (344 kPa)  |            |
| Flow Characteristic   | V15 Port          | Linear  | N/A        |
|   | V30 Port          | Modified Equal Percentage   | N/A        |
|   | V60 & 90 Port     | Equal Percentage  | N/A        |
| Rangeability  |                   | 200:1   |            |
| Leakage   |                   | Bubble Tight per API 598  |            |
| End Connections   |                   | ANSI Class 150  |            |
| Ambient Operating Temperature Range   |                   | See Actuator Rating<br>(Optional high temperature mounting kit may be required) |            |
| Materials   | Body              | WCB Carbon Steel  |            |
|   | Ball & Stem       | 316 Stainless Steel   |            |
|   | Seat              | Tek-Fil   | TFM        |
|   | Stem Seal/Packing | RPTFE   |            |
|   | Body Seal         | 316/Graphite  |            |
|   | Body Bolts        | ASTM A 193 B7   |            |
| Warranty  |                   | 3 Years limited from time of shipment.  |            |

**Disclaimer** - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

### BVM - Piping Diagram

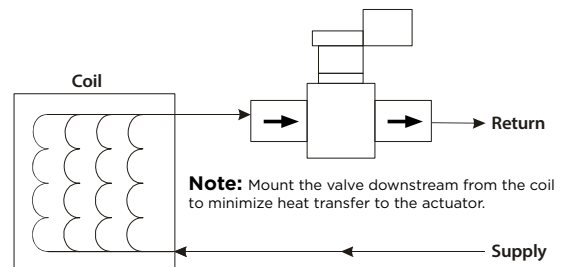
- V-Port Valves - Note the arrow engraved on the ends which shows the flow going from the bolt head to the nut so that the V-ball is downstream.
- Full Port Valves are bi-directional.



Media Flow entering valve from left.  
Installing the V downstream is preferred.

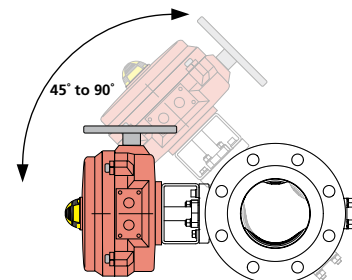
### BVM - Mode of Actuation

Typical Two-Way Ball Valve Application



### BVM - For Steam Applications

Install valve with stem at 45° to 90° from vertical.



## BVM Series - Cut Away View

The **BVM Flanged Series Ball Valves** feature a floating ball design for low torque and increased cycle life. Most standard large size valves feature trunnion-type ball support. These rugged ball valves are ideal for heavy commercial and industrial-type applications.



### Stem Seals

BVM Flanged Series Valves 2½" - 12" valves utilize an independent packing gland which can be easily adjusted without removing mounting hardware or operator. The packing gland is contoured to more uniformly distribute the load across the packing. The primary stem seal is a combination of a thrust washer and a thrust washer protector. An adjustable stem packing creates a secondary seal between the stem and body. The stem packing is composed of RPTFE V-rings as standard - graphite stem packing is standard on all Fire Safe valves.

### Ball

BVM Flanged Series Valves balls are precision machined and mirror finished for bubble-tight shut off and less operating torque. As an added safety feature, a hole in the stem slot of each ball equalizes pressure between the body cavity and the line media flow.

### Seat

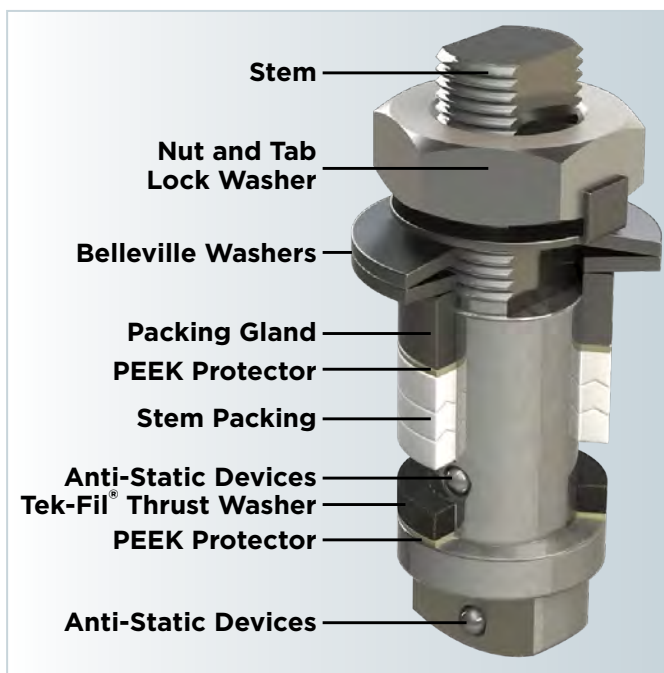
The seat design ensures bi-directional, bubble-tight sealing with low operating torque. All resilient seats feature relief slots or seat O.D. clearance to relieve pressure past the upstream seat, and positive preloading to ensure low pressure/vacuum sealing.

### Stem Assemblies

BVM Flanged Series Valves are heavy duty, high quality stems with double "D" connection to ball and operator mounting. Stems are mated with the ball to ensure positive contact. All stems are internal entry and blowout proof for maximum safety.

### Stem Packing

An adjustable V-ring design creates a multiple seal between the stem and body. Each stem assembly is composed of three or four (dependent on valve size) rings providing a very high cycle life by resisting creep and cold flow. The Thrust Washer and the Thrust Washer Protector combine to provide a primary seal, reduce torque and prevent galling.



## BVM Series - Flow Coefficient Cv Chart

| Flow Coefficient Cv Chart |            |     |           |                  |         |                          |         |         |         |         |          |          |          |          |          |
|---------------------------|------------|-----|-----------|------------------|---------|--------------------------|---------|---------|---------|---------|----------|----------|----------|----------|----------|
| Model Number              | Valve Size |     | V-Cut     | Flow Coefficient |         | Percent of Ball Rotation |         |         |         |         |          |          |          |          |          |
|                           | In.        | mm  |           | 100%             | 60%     | 15%                      | 20%     | 30%     | 40%     | 50%     | 60%      | 70%      | 80%      | 90%      | 100%     |
| BVM250-CF15-27            | 2.5        | 65  | 15°       | 27.2             | 23.5    | 0.07                     | 0.77    | 2.40    | 5.23    | 8.06    | 11.73    | 16.42    | 22.31    | 27.24    | 31.30    |
| BVM250-CF15-56            |            |     | 30°       | 56.3             | 48.5    | 0.09                     | 1.15    | 4.42    | 7.91    | 13.39   | 20.05    | 30.43    | 41.92    | 56.30    | 76.95    |
| BVM250-CF15-114           |            |     | 60°       | 113.7            | 98.0    | 0.13                     | 1.46    | 5.91    | 11.90   | 23.24   | 37.92    | 59.31    | 83.29    | 113.65   | 162.50   |
| BVM250-CF15-177           |            |     | 90°       | 177.3            | 152.8   | 0.17                     | 1.83    | 7.29    | 16.45   | 31.16   | 53.53    | 77.89    | 118.29   | 177.32   | 239.45   |
| BVM250-CF15-780           |            |     | Full Port | 780.0            | 672.4   | 0.00                     | 25.80   | 87.60   | 168.60  | 262.10  | 363.90   | 470.20   | 577.50   | 682.30   | 780.00   |
| BVM3-CF15-32              | 3          | 80  | 15°       | 31.8             | 27.4    | 0.08                     | 0.89    | 2.96    | 6.65    | 9.58    | 13.42    | 19.47    | 26.67    | 31.79    | 38.31    |
| BVM3-CF15-70              |            |     | 30°       | 69.8             | 60.1    | 0.12                     | 1.20    | 4.15    | 9.49    | 15.96   | 26.78    | 38.91    | 53.31    | 69.77    | 85.91    |
| BVM3-CF15-150             |            |     | 60°       | 149.9            | 129.2   | 0.15                     | 2.89    | 6.70    | 15.82   | 29.36   | 46.32    | 73.60    | 106.74   | 149.88   | 193.20   |
| BVM3-CF15-237             |            |     | 90°       | 237.3            | 204.6   | 0.20                     | 4.12    | 8.65    | 21.09   | 41.09   | 69.27    | 105.91   | 161.04   | 237.23   | 359.21   |
| BVM3-CF15-1150            |            |     | Full Port | 1150.0           | 991.3   | 0.00                     | 33.80   | 123.70  | 242.70  | 380.80  | 531.50   | 689.30   | 848.70   | 1004.50  | 1150.00  |
| BVM4-CF15-76              | 4          | 100 | 15°       | 75.5             | 65.1    | 0.11                     | 1.40    | 3.73    | 8.86    | 16.76   | 27.91    | 41.85    | 59.24    | 75.49    | 96.37    |
| BVM4-CF15-159             |            |     | 30°       | 158.5            | 136.7   | 0.16                     | 1.75    | 7.84    | 18.59   | 35.21   | 58.60    | 87.89    | 124.41   | 158.53   | 196.35   |
| BVM4-CF15-330             |            |     | 60°       | 329.5            | 284.0   | 0.26                     | 2.20    | 12.44   | 33.67   | 62.98   | 106.26   | 160.49   | 233.96   | 329.96   | 437.29   |
| BVM4-CF15-547             |            |     | 90°       | 546.6            | 471.2   | 0.35                     | 4.37    | 19.68   | 50.29   | 91.83   | 240.51   | 240.51   | 365.15   | 546.62   | 830.86   |
| BVM4-CF15-2100            |            |     | Full Port | 2100.0           | 1810.2  | 7.50                     | 118.90  | 296.20  | 516.20  | 766.50  | 1035.80  | 1314.30  | 1592.70  | 1861.80  | 2100.00  |
| BVM6-CF15-134             | 6          | 150 | 15°       | 134.4            | 115.9   | 0.20                     | 2.50    | 6.64    | 15.77   | 29.85   | 49.70    | 74.54    | 105.51   | 134.44   | 171.62   |
| BVM6-CF15-282             |            |     | 30°       | 282.3            | 243.3   | 0.29                     | 3.12    | 13.97   | 33.11   | 62.70   | 104.37   | 156.53   | 221.56   | 282.33   | 349.69   |
| BVM6-CF15-587             |            |     | 60°       | 586.8            | 505.8   | 0.46                     | 5.41    | 22.15   | 59.97   | 112.16  | 189.24   | 285.82   | 416.68   | 586.83   | 800.80   |
| BVM6-CF15-974             |            |     | 90°       | 973.5            | 839.2   | 0.66                     | 7.79    | 35.05   | 89.56   | 163.55  | 280.37   | 428.34   | 650.32   | 973.50   | 1479.70  |
| BVM6-CF15-5000            |            |     | Full Port | 5000.0           | 4310.0  | 14.15                    | 224.30  | 631.80  | 1149.90 | 1746.30 | 2392.50  | 3064.20  | 3738.80  | 4393.30  | 5000.00  |
| BVM8-CF15-346             | 8          | 200 | 15°       | 345.5            | 297.8   | 0.34                     | 4.23    | 11.32   | 26.84   | 50.80   | 84.58    | 126.84   | 195.00   | 345.50   | 692.07   |
| BVM8-CF15-481             |            |     | 30°       | 480.5            | 414.2   | 0.49                     | 5.32    | 23.77   | 56.35   | 106.70  | 177.62   | 266.39   | 377.06   | 480.47   | 595.11   |
| BVM8-CF15-999             |            |     | 60°       | 998.7            | 860.9   | 0.79                     | 6.66    | 23.81   | 102.06  | 190.87  | 322.06   | 486.41   | 709.11   | 998.69   | 1325.18  |
| BVM8-CF15-1657            |            |     | 90°       | 1656.8           | 1428.2  | 1.05                     | 13.26   | 59.64   | 152.42  | 278.33  | 477.14   | 728.86   | 1106.69  | 1656.77  | 2518.18  |
| BVM8-CF15-9600            |            |     | Full Port | 9600.0           | 8275.2  | 63.70                    | 600.70  | 1416.30 | 2418.30 | 3552.30 | 4768.20  | 6023.10  | 7275.90  | 8485.10  | 9600.00  |
| BVM10-CF15-545            | 10         | 250 | 15°       | 545.0            | 469.8   | 0.53                     | 6.62    | 17.69   | 41.94   | 79.38   | 132.15   | 198.20   | 350.00   | 545.00   | 856.36   |
| BVM10-CF15-751            |            |     | 30°       | 750.7            | 647.1   | 0.77                     | 8.31    | 37.14   | 88.05   | 166.73  | 277.53   | 416.24   | 589.16   | 750.74   | 929.87   |
| BVM10-CF15-1561           |            |     | 60°       | 1560.5           | 1345.2  | 1.23                     | 10.41   | 37.20   | 159.47  | 298.23  | 503.22   | 760.02   | 1107.99  | 1560.45  | 2070.90  |
| BVM10-CF15-2589           |            |     | 90°       | 2588.7           | 2231.5  | 1.64                     | 20.72   | 93.20   | 238.16  | 434.90  | 745.53   | 1139.00  | 1729.20  | 2588.70  | 3934.65  |
| BVM10-CF15-15000          |            |     | Full Port | 15000.0          | 12930.0 | 184.20                   | 1085.20 | 2381.60 | 3950.90 | 5712.40 | 7591.50  | 9523.90  | 11447.00 | 13298.40 | 15000.00 |
| BVM12-CF15-1101           | 12         | 300 | 15°       | 1101.1           | 949.1   | 0.74                     | 9.26    | 24.76   | 58.72   | 111.13  | 185.01   | 277.47   | 564.00   | 1101.07  | 1638.90  |
| BVM12-CF15-1051           |            |     | 30°       | 1051.0           | 906.0   | 1.07                     | 11.63   | 52.00   | 123.25  | 233.42  | 388.54   | 582.73   | 824.82   | 1051.03  | 1301.81  |
| BVM12-CF15-2185           |            |     | 60°       | 2184.6           | 1883.2  | 1.72                     | 14.57   | 52.08   | 223.25  | 417.52  | 704.51   | 1064.03  | 1551.19  | 2184.63  | 2899.26  |
| BVM12-CF15-3624           |            |     | 90°       | 3624.2           | 3124.0  | 2.29                     | 29.00   | 130.47  | 333.42  | 608.85  | 1043.74  | 1594.59  | 2420.88  | 3624.18  | 5508.51  |
| BVM12-CF15-21000          |            |     | Full Port | 21000.0          | 18102.0 | 139.30                   | 1314.00 | 3046.40 | 5290.00 | 7770.70 | 10430.50 | 13175.60 | 15916.10 | 18561.20 | 21000.00 |

Piping and Installation Tips – For control applications select a valve which offers calculated Cv for the minimum and maximum flow between 15% and 80% of port opening.

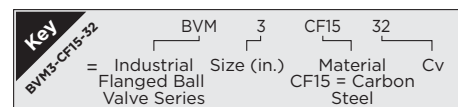
## BVM Series - 2-Way with On/Off Series 70 Actuators Close-Off Charts

### 2-Way, 24 VAC and 120 VAC, On/Off Actuators (100 psi Steam and 285 psi Water)

| Actuator Model Details |            |     |           |                  |          |                                       |                                   |
|------------------------|------------|-----|-----------|------------------|----------|---------------------------------------|-----------------------------------|
| Model Number           | Valve Size |     | V-Cut     | Flow Coefficient |          | Series 70/AU Actuators On/Off, 120VAC | Series 70 Actuators On/Off, 24VAC |
|                        | In.        | mm  |           | 100%             | 60%      | Model                                 | Model                             |
| BVM250-CF15-27         | 2.5        | 65  | 15°       | 31.30            | 11.73    | 70-0081H                              | 70-24-0081H                       |
| BVM250-CF15-56         |            |     | 30°       | 76.95            | 20.05    | 70-0081H                              | 70-24-0081H                       |
| BVM250-CF15-114        |            |     | 60°       | 162.50           | 37.92    | 70-0081H                              | 70-24-0081H                       |
| BVM250-CF15-177        |            |     | 90°       | 239.45           | 53.53    | 70-0081H                              | 70-24-0081H                       |
| BVM250-CF15-780        |            |     | Full Port | 780.00           | 363.90   | 70-0081H                              | 70-24-0081H                       |
| BVM3-CF15-32           | 3          | 80  | 15°       | 38.31            | 13.42    | 70-0121H                              | 70-24-0201H                       |
| BVM3-CF15-70           |            |     | 30°       | 85.91            | 26.78    | 70-0121H                              | 70-24-0201H                       |
| BVM3-CF15-150          |            |     | 60°       | 193.20           | 46.32    | 70-0121H                              | 70-24-0201H                       |
| BVM3-CF15-237          |            |     | 90°       | 359.21           | 69.27    | 70-0121H                              | 70-24-0201H                       |
| BVM3-CF15-1150         |            |     | Full Port | 1150.00          | 531.50   | 70-0121H                              | 70-24-0201H                       |
| BVM4-CF15-76           | 4          | 100 | 15°       | 96.37            | 27.91    | 70-E301H                              | 70-24-0501H                       |
| BVM4-CF15-159          |            |     | 30°       | 196.35           | 58.60    | 70-E301H                              | 70-24-0501H                       |
| BVM4-CF15-330          |            |     | 60°       | 437.29           | 106.26   | 70-E301H                              | 70-24-0501H                       |
| BVM4-CF15-547          |            |     | 90°       | 830.86           | 240.51   | 70-E301H                              | 70-24-0501H                       |
| BVM4-CF15-2100         |            |     | Full Port | 2100.00          | 1035.80  | 70-E301H                              | 70-24-0501H                       |
| BVM6-CF15-134          | 6          | 150 | 15°       | 171.62           | 49.70    | 70-0651H                              | 70-24-0501H*                      |
| BVM6-CF15-282          |            |     | 30°       | 349.69           | 104.37   | 70-0651H                              | 70-24-0501H*                      |
| BVM6-CF15-587          |            |     | 60°       | 800.80           | 189.24   | 70-0651H                              | 70-24-0501H*                      |
| BVM6-CF15-974          |            |     | 90°       | 1479.70          | 280.37   | 70-0651H                              | 70-24-0501H*                      |
| BVM6-CF15-5000         |            |     | Full Port | 5000.00          | 2392.50  | 70-0651H                              | 70-24-0501H*                      |
| BVM8-CF15-346          | 8          | 200 | 15°       | 692.07           | 84.58    | 70-1300H                              | -                                 |
| BVM8-CF15-481          |            |     | 30°       | 595.11           | 177.62   | 70-1300H                              | -                                 |
| BVM8-CF15-999          |            |     | 60°       | 1325.18          | 322.06   | 70-1300H                              | -                                 |
| BVM8-CF15-1657         |            |     | 90°       | 2518.18          | 477.14   | 70-1300H                              | -                                 |
| BVM8-CF15-9600         |            |     | Full Port | 9600.00          | 4768.20  | 70-1300H                              | -                                 |
| BVM10-CF15-545         | 10         | 250 | 15°       | 856.36           | 132.15   | AU-2130                               | -                                 |
| BVM10-CF15-751         |            |     | 30°       | 929.87           | 277.53   | AU-2130                               | -                                 |
| BVM10-CF15-1561        |            |     | 60°       | 2070.90          | 503.22   | AU-2130                               | -                                 |
| BVM10-CF15-2589        |            |     | 90°       | 3934.65          | 745.53   | AU-2130                               | -                                 |
| BVM10-CF15-15000       |            |     | Full Port | 15000.00         | 7591.50  | AU-2130                               | -                                 |
| BVM12-CF15-1101        | 12         | 300 | 15°       | 1638.90          | 185.01   | AU-4068                               | -                                 |
| BVM12-CF15-1051        |            |     | 30°       | 1301.81          | 388.54   | AU-4068                               | -                                 |
| BVM12-CF15-2185        |            |     | 60°       | 2899.26          | 704.51   | AU-4068                               | -                                 |
| BVM12-CF15-3624        |            |     | 90°       | 5508.51          | 1043.74  | AU-4068                               | -                                 |
| BVM12-CF15-21000       |            |     | Full Port | 21000.00         | 10430.50 | AU-4068                               | -                                 |

**Options/Adders**

1. For Battery Back-Up Failsafe Option (BBU) option on 24VAC actuators, add "-BBU".
  - \*\* Add "SF15" in place of CF15 for Stainless Steel body option.
  - \* Steam Only
  2. \*\*For normally Closed, add a "C" to the end of the valve part number, i.e. BVM250-CF15-27C, otherwise normally open. Fail safe models only.
- V-port ball valves have a 20 to 85% max angle of controllability.



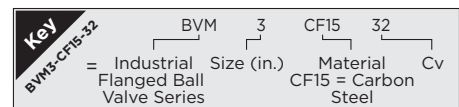
## BVM Series - 2-Way with Modulating Series 70 Actuators Close-Off Charts

### 2-Way, 24 VAC and 120 VAC, Modulating Actuators (100 psi Steam and 285 psi Water)

| Actuator Model Details |            |     |           |                  |          |   |                                       |
|------------------------|------------|-----|-----------|------------------|----------|---|---------------------------------------|
| Model Number           | Valve Size |     | V-Cut     | Flow Coefficient |          | Series 70/AU Actuators Modulating, 120VAC | Series 70 Actuators Modulating, 24VAC |
|                        | In.        | mm  |           | 100%             | 60%      | Model                                     | Model                                 |
| BVM250-CF15-27         | 2.5        | 65  | 15°       | 31.30            | 11.73    | 70-0081SVH                                | 70-24-0081SVH                         |
| BVM250-CF15-56         |            |     | 30°       | 76.95            | 20.05    | 70-0081SVH                                | 70-24-0081SVH                         |
| BVM250-CF15-114        |            |     | 60°       | 162.50           | 37.92    | 70-0081SVH                                | 70-24-0081SVH                         |
| BVM250-CF15-177        |            |     | 90°       | 239.45           | 53.53    | 70-0081SVH                                | 70-24-0081SVH                         |
| BVM250-CF15-780        |            |     | Full Port | 780.00           | 363.90   | 70-0081SVH                                | 70-24-0081SVH                         |
| BVM3-CF15-32           | 3          | 80  | 15°       | 38.31            | 13.42    | 70-0121SVH                                | 70-24-0201SVH                         |
| BVM3-CF15-70           |            |     | 30°       | 85.91            | 26.78    | 70-0121SVH                                | 70-24-0201SVH                         |
| BVM3-CF15-150          |            |     | 60°       | 193.20           | 46.32    | 70-0121SVH                                | 70-24-0201SVH                         |
| BVM3-CF15-237          |            |     | 90°       | 359.21           | 69.27    | 70-0121SVH                                | 70-24-0201SVH                         |
| BVM3-CF15-1150         |            |     | Full Port | 1150.00          | 531.50   | 70-0121SVH                                | 70-24-0201SVH                         |
| BVM4-CF15-76           | 4          | 100 | 15°       | 96.37            | 27.91    | 70-E301SVH                                | 70-24-0501SVH                         |
| BVM4-CF15-159          |            |     | 30°       | 196.35           | 58.60    | 70-E301SVH                                | 70-24-0501SVH                         |
| BVM4-CF15-330          |            |     | 60°       | 437.29           | 106.26   | 70-E301SVH                                | 70-24-0501SVH                         |
| BVM4-CF15-547          |            |     | 90°       | 830.86           | 240.51   | 70-E301SVH                                | 70-24-0501SVH                         |
| BVM4-CF15-2100         |            |     | Full Port | 2100.00          | 1035.80  | 70-E301SVH                                | 70-24-0501SVH                         |
| BVM6-CF15-134          | 6          | 150 | 15°       | 171.62           | 49.70    | 70-0651SVH                                | 70-24-0501SVH*                        |
| BVM6-CF15-282          |            |     | 30°       | 349.69           | 104.37   | 70-0651SVH                                | 70-24-0501SVH*                        |
| BVM6-CF15-587          |            |     | 60°       | 800.80           | 189.24   | 70-0651SVH                                | 70-24-0501SVH*                        |
| BVM6-CF15-974          |            |     | 90°       | 1479.70          | 280.37   | 70-0651SVH                                | 70-24-0501SVH*                        |
| BVM6-CF15-5000         |            |     | Full Port | 5000.00          | 2392.50  | 70-0651SVH                                | 70-24-0501SVH*                        |
| BVM8-CF15-346          | 8          | 200 | 15°       | 692.07           | 84.58    | 70-1300SVH                                | -                                     |
| BVM8-CF15-481          |            |     | 30°       | 595.11           | 177.62   | 70-1300SVH                                | -                                     |
| BVM8-CF15-999          |            |     | 60°       | 1325.18          | 322.06   | 70-1300SVH                                | -                                     |
| BVM8-CF15-1657         |            |     | 90°       | 2518.18          | 477.14   | 70-1300SVH                                | -                                     |
| BVM8-CF15-9600         |            |     | Full Port | 9600.00          | 4768.20  | 70-1300SVH                                | -                                     |
| BVM10-CF15-545         | 10         | 250 | 15°       | 856.36           | 132.15   | AU-2130SV                                 | -                                     |
| BVM10-CF15-751         |            |     | 30°       | 929.87           | 277.53   | AU-2130SV                                 | -                                     |
| BVM10-CF15-1561        |            |     | 60°       | 2070.90          | 503.22   | AU-2130SV                                 | -                                     |
| BVM10-CF15-2589        |            |     | 90°       | 3934.65          | 745.53   | AU-2130SV                                 | -                                     |
| BVM10-CF15-15000       |            |     | Full Port | 15000.00         | 7591.50  | AU-2130SV                                 | -                                     |
| BVM12-CF15-1101        | 12         | 300 | 15°       | 1638.90          | 185.01   | AU-4068SV                                 | -                                     |
| BVM12-CF15-1051        |            |     | 30°       | 1301.81          | 388.54   | AU-4068SV                                 | -                                     |
| BVM12-CF15-2185        |            |     | 60°       | 2899.26          | 704.51   | AU-4068SV                                 | -                                     |
| BVM12-CF15-3624        |            |     | 90°       | 5508.51          | 1043.74  | AU-4068SV                                 | -                                     |
| BVM12-CF15-21000       |            |     | Full Port | 21000.00         | 10430.50 | AU-4068SV                                 | -                                     |

**Options/Adders**

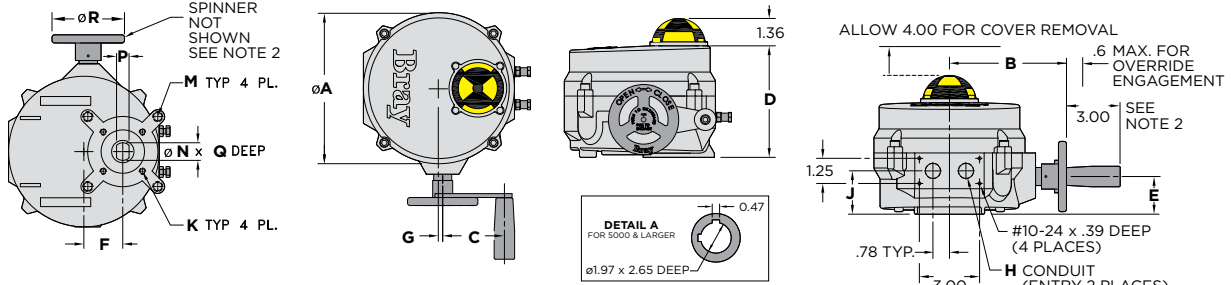
1. For Battery Back-Up Failsafe Option (BBU) option on 24VAC actuators, add "-BBU".
  - \*\* Add "SF15" in place of CF15 for Stainless Steel body option.
  - \* Steam Only
  2. \*\*For normally Closed, add a "C" to the end of the valve part number, i.e. BVM250-CF15-27C, otherwise normally open. Fail safe models only.
- V-port ball valves have a 20 to 85% max angle of controllability.



# BVM Series - 2-Way - Flanged Ball Valve/70 Series Actuator Dimensions

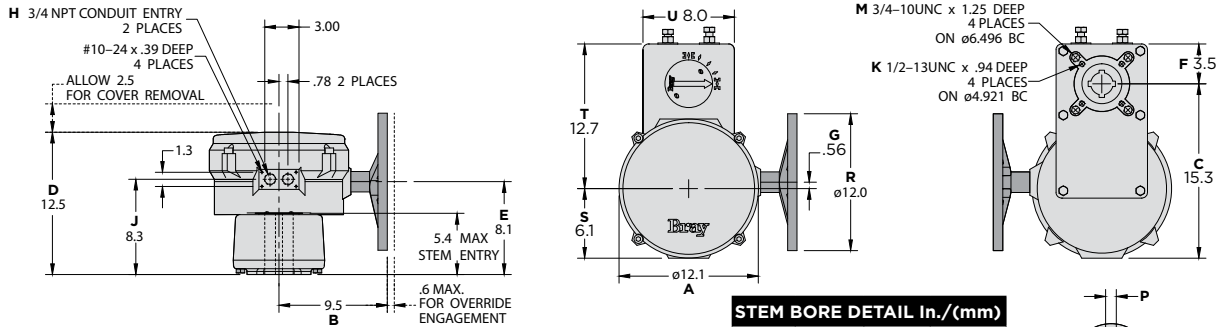
## 70-0081 TO 70-0651

| Series 70 Actuator - DIMENSIONS In./(mm) |               |              |              |              |             |                |               |                       |             |                                       |  |                |               |                |               |                        |
|--|---------------|--------------|--------------|--------------|-------------|----------------|---------------|-----------------------|-------------|---------------------------------------|--|----------------|---------------|----------------|---------------|------------------------|
| Actuator Model Number                    | øA            | B            | C            | D            | E           | F              | G             | H                     | J           | K<br>UNC x B.C.<br>(MM x B.C.)        | M<br>UNC x B.C.<br>(MM x B.C.)           | N              | P             | Q              | øR            | Weight<br>lbs.<br>(kg) |
| S70-0081                                 | 7.5<br>(191)  | 5.8<br>(147) | 3.0<br>(76)  | 5.6<br>(141) | 1.9<br>(48) | 1.94<br>(49.2) | .19<br>(4.7)  | 1/2<br>(M20<br>x 1.5) | 2.2<br>(55) | 5/16-18 x ø2.76<br>[M8 x 1.25 x ø70]  | —  | .75<br>(19.0)  | .51<br>(13.0) | 1.75<br>(44.5) | 3.5<br>(89)   | 13<br>(6)              |
| S70-0121<br>S70-0201<br>S70-E301         | 10.1<br>(256) | 7.8<br>(198) | 3.7<br>(93)  | 6.6<br>(168) | 2.4<br>(62) | 2.69<br>(68.3) | .56<br>(14.3) | 3/4<br>(M25<br>x 1.5) | 2.6<br>(66) | 5/16-18 x ø2.76<br>[M8 x 1.25 x ø70]  | 1/2-13 x ø4.92<br>[M12 x 1.75 x<br>ø125] | 1.18<br>(30.0) | .87<br>(22.0) | 2.22<br>(56.3) | 8.0<br>(203)  | 28<br>(13)             |
| S70-0501<br>S70-0651                     | 12.1<br>(308) | 9.5<br>(241) | 5.5<br>(139) | 7.2<br>(183) | 2.9<br>(73) | 3.19<br>(80.9) | .56<br>(14.3) | 3/4<br>(M25<br>x 1.5) | 3.1<br>(78) | 1/2-13 x ø4.92<br>[M12 x 1.75 x ø125] | 3/4-10 x ø6.50<br>[M20 x 2.5 x ø165]     | See Detail A   |               |                | 12.0<br>(305) | 48<br>(22)             |



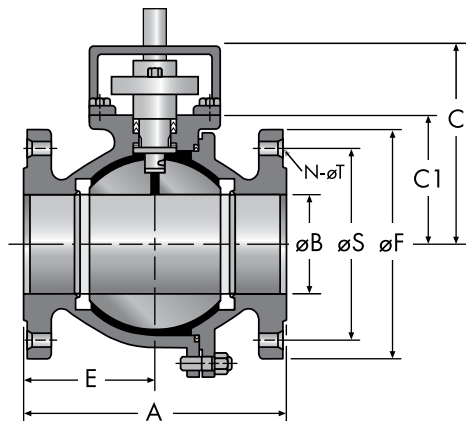
## 70-1300 TO 70-1800

| Series 70 Actuator - DIMENSIONS In./(mm) |               |              |               |               |              |             |               |                       |              |   |   |                         |   |   |               |              |               |              |                        |
|--|---------------|--------------|---------------|---------------|--------------|-------------|---------------|-----------------------|--------------|---|---|-------------------------|---|---|---------------|--------------|---------------|--------------|------------------------|
| Actuator Model Number                    | øA            | B            | C             | D             | E            | F           | G             | H                     | J            | K<br>UNC x B.C.<br>(MM x B.C.)                    | M<br>UNC x B.C.<br>(MM x B.C.)                    | N                       | P | Q | øR            | S            | T             | U            | Weight<br>lbs.<br>(kg) |
| S70-1300<br>S70-1800                     | 12.1<br>(308) | 9.5<br>(241) | 15.3<br>(389) | 12.5<br>(316) | 8.1<br>(206) | 3.5<br>(89) | .56<br>(14.3) | 3/4<br>(M25<br>x 1.5) | 8.3<br>(211) | 1/2-13 x<br>ø4.921 F12<br>(12 x 125 BC<br>x 23.9) | 3/4-10 x<br>ø6.496 F16<br>(20 x 165 BC<br>x 31.8) | See Stem<br>Bore Detail |   |   | 12.0<br>(305) | 6.1<br>(155) | 12.7<br>(322) | 8.0<br>(203) | 118<br>(54)            |



| STEM BORE DETAIL In./(mm) |                |                |                |
|---------------------------|----------------|----------------|----------------|
| Size                      | N              | P              | Q              |
| 70-1306<br>70-1806        | 2.51<br>(63.6) | 0.63<br>(15.9) | 3.05<br>(77.5) |
| 70-1316<br>70-1816        | 1.97<br>(50.0) | 0.47<br>(12.0) | 2.38<br>(60.6) |

## VALVE BODY



## ANSI Class 150 in. (mm)

| SIZE           | A             | øB            | C             | C1            | E             | øF            | øS            | N / øT                   | Cv (Kv)          | Weight<br>LBS (KG) |
|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------------------|------------------|--------------------|
| 2-1/2"<br>(65) | 7.5<br>(191)  | 2.6<br>(65)   | 7.4<br>(188)  | 3.4<br>(86)   | 3.1<br>(78)   | 7.0<br>(178)  | 5.5<br>(140)  | 4 x 0.75<br>(4 x 19.0)   | 780<br>(675)     | 36<br>(16)         |
| 3"<br>(80)     | 8.0<br>(203)  | 3.0<br>(76)   | 7.7<br>(196)  | 3.7<br>(93)   | 3.7<br>(95)   | 7.5<br>(191)  | 6.0<br>(152)  | 4 x 0.75<br>(4 x 19.0)   | 1150<br>(995)    | 45<br>(20)         |
| 4"<br>(100)    | 9.0<br>(229)  | 4.0<br>(101)  | 8.4<br>(224)  | 4.4<br>(112)  | 4.5<br>(114)  | 9.0<br>(229)  | 7.5<br>(191)  | 8 x 0.75<br>(8 x 19.0)   | 2100<br>(1817)   | 65<br>(30)         |
| 6"<br>(150)    | 15.5<br>(394) | 6.0<br>(152)  | 11.2<br>(284) | 7.2<br>(182)  | 7.6<br>(194)  | 11.0<br>(279) | 9.5<br>(241)  | 8 x 0.88<br>(8 x 22.0)   | 5000<br>(4325)   | 157<br>(71)        |
| 8"<br>(200)    | 18.0<br>(457) | 7.9<br>(200)  | 11.6<br>(295) | 7.6<br>(193)  | 8.4<br>(212)  | 13.5<br>(343) | 11.8<br>(299) | 8 x 0.88 (8<br>x 22.0)   | 9600<br>(8304)   | 290<br>(132)       |
| 10"<br>(250)   | 21.0<br>(533) | 9.8<br>(250)  | 15.9<br>(404) | 9.9<br>(251)  | 10.5<br>(266) | 16.0<br>(406) | 14.3<br>(362) | 12 x 1.00<br>(12 x 25.0) | 15000<br>(12975) | 500<br>(227)       |
| 12"<br>(300)   | 24.0<br>(610) | 11.8<br>(300) | 17.5<br>(445) | 11.5<br>(291) | 12.0<br>(305) | 19.0<br>(483) | 17.0<br>(432) | 12 x 1.00<br>(12 x 25.0) | 21000<br>(18165) | 700<br>(318)       |

# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Where ever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

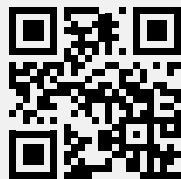
- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

### **CORPORATE HEADQUARTERS**

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### **DIVISION HEADQUARTERS**

**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)




All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

## BVMS Series (ANSI 150) Flanged Industrial Control Segmented Ball Valves

2-Way • 2" - 12"

| DOCUMENT                                    |   |
|---|---|
| CONTENTS                                    | Features  |
|   | Specifications  |
|   | Cut-Away View   |
|   | Close-Off Charts  |
|   | Pressure/Temp Charts  |
| LOOKING FOR MORE                            | Dimensions  |
|   |  |
| © 2026 Bray International, Inc.<br>04/16/26 |   |

### Application

The BVMS Series Industrial Ball valves are flanged segmented valves designed for control and On/Off applications where high temperature and high pressure water or steam are used. The valves feature a characterized ball segment for high rangeability with a splined stem connection for precise control, as well as a low friction shaft and thrust bearings for longer life and smaller actuators.

These valves provide ample flow capacity, equal percentage flow characteristics and Class VI leakage. Valve bodies are one-piece carbon steel with cast Stainless Steel balls and ANSI 150 flanges.



### Features and Benefits

- Characterized Ball Segment**

*High Rangeability in excess of 300:1*

- ANSI Class VI Leakage Rating**

*Suitable for HVAC applications*

- One Piece Phosphate Coated Carbon Steel Bodies**

*For cost effective applications up to 380°F at 200 psi*

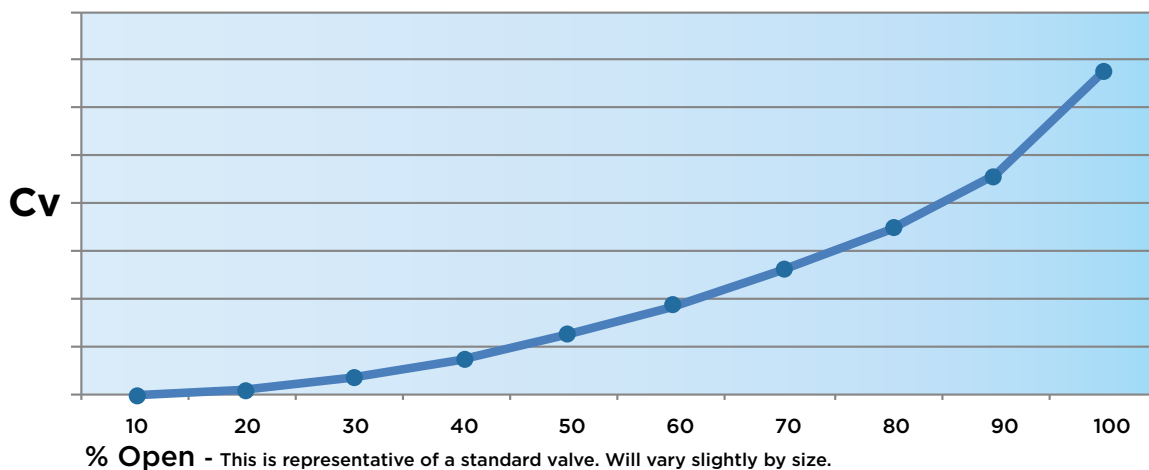
- Available NEMA 4 Actuators**

*Reliable, cost effective control*

### Applications

Heat Exchangers, Standard and Computer Room Air Conditioning Units.

### Flow Curve Chart



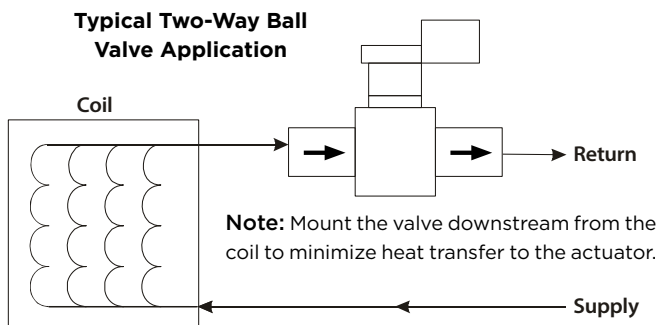
## BVMS Series - Specifications

| Technical Specifications - BVMS Segmented Industrial Ball Valve Body<br>(BVMS = "Equivalent to Bray/FlowTek S19 Series") |   |   |
|--|---|---|
| Service  | Chilled/Hot Water, 50/50 Glycol Solutions and Saturated Steam                   |   |
| Size Range   | 2-Way   | 2" to 12" Flanged Segmented Valves                    |
| Maximum Fluid Temperature  | Water   | -20° to 380°F @ 200 psi<br>(-28° to 193°C @ 1378 kPa) |
|  | Saturated Steam   | 100 psig (689 kPa) with upgraded AFLAS (FEPM) O-Ring  |
| Valve Body Pressure Rating   | ANSI Class 150  |   |
| Maximum Close-Off Pressure   | Water   | 285 psi (1965 kPa)                                    |
|  | Saturated Steam   | 100 psig (689 kPa)                                    |
| Maximum Recommended Operating Pressure Drop  | 1/3 of Inlet Pressure   |   |
| Flow Characteristic  | Equal Percentage  |   |
| Rangeability   | 300:1   |   |
| Leakage  | ANSI Class VI   |   |
| End Connections  | ANSI Class 150  |   |
| Ambient Operating Temperature Range  | See Actuator Rating<br>(Optional high temperature mounting kit may be required) |   |
| Materials  | Body  | ASTM A216 Gr WCB Carbon Steel                         |
|  | Ball Segment  | 316 Stainless Steel                                   |
|  | Stem  | ASTM A564 Type 630 Cond H1150D (17-4PH)               |
|  | Seat  | Tek-Fil   |
|  | Stem Seal/Packing   | PTFE + Carbon Fiber                                   |
|  | Gasket  | PTFE  |
|  | O-Ring  | Viton (FKM) or Optional AFLAS (FEPM) for steam        |
| Warranty   | 3 Years limited from time of shipment.  |   |

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

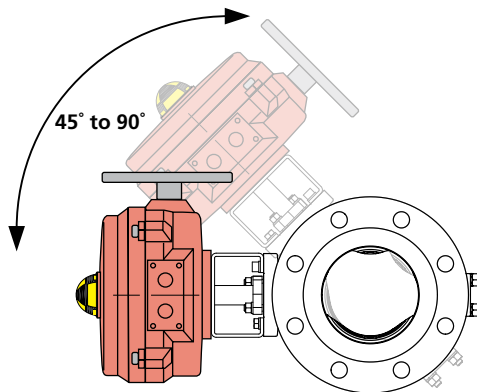
### BVMS - Mode of Actuation

Typical Two-Way Ball Valve Application



### BVMS - For Steam Applications

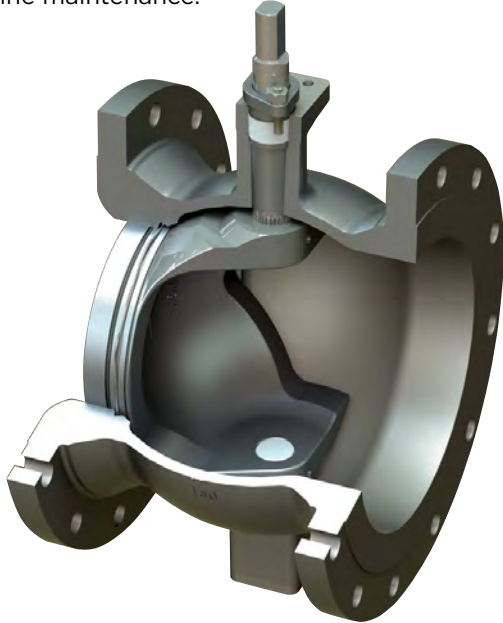
Install valve with stem at 45° to 90° from vertical.



## BVMS Series - Cut Away View

### Ball - Stem Connection

- Close-fit splined connection between stem and the segment offers extra strength with no lost motion or dead band.
- Perfectly oriented, specially designed shaft pin facilitates self-alignment of the ball segment while simplifying the assembly and disassembly during routine maintenance.



### Seat

- Standard soft seat design uses Tek-Fil® to maintain exceptional chemical and heat resistance.
- Tek-Fil® provides higher compressive strength, lower co-efficient of friction, superior abrasion and wear resistance, lower permeability, lower porosity, and reduced cold flow.
- Directs the flow away from the sealing area.
- Pressure energized seat design offers excellent sealing even at very low differential pressures. Self-aligning seat is independent of external pipe loads and offers excellent sealing even in adverse conditions.

### Bearings

- Stem and end post bearings are low friction and maintenance free.
- Made of wear resistant PTFE compound supported by metal fabric.
- Additional thrust bearing on stem collar for high pressure applications eliminates unbalanced axial load for consistent high performance and precision control.

## BVMS - 2-Way-On/Off & Modulating Series 70 Industrial Electric Actuators Close-Off Charts

**2-Way, 24 VAC & 120 VAC, On/Off Actuators - (285 psi WATER/100 psi STEAM Close-Off)**

| Model Number     | Valve Size |     | Flow Coefficient |     | Series 70<br>120 VAC On/Off | Series 70<br>24 VAC On/Off |
|------------------|------------|-----|------------------|-----|-----------------------------|----------------------------|
|                  | In.        | mm  | 100%             | 60% | Model                       | Model                      |
| BVMS2-C150-0095  | 2          | 50  | 95               | 20  | 70-0081H                    | 70-24-0081H                |
| BVMS3-C150-0287  | 3          | 80  | 287              | 64  | 70-0081H                    | 70-24-0081H                |
| BVMS4-C150-0436  | 4          | 100 | 436              | 98  | 70-0121H                    | 70-24-0201H                |
| BVMS6-C150-0760  | 6          | 150 | 760              | 191 | 70-0201H                    | 70-24-0201H                |
| BVMS8-C150-1350  | 8          | 200 | 1350             | 369 | 70-E301H                    | 70-24-0501H                |
| BVMS10-C150-2380 | 10         | 250 | 2380             | 571 | 70-0501H                    | 70-24-0501H                |
| BVMS12-C150-3410 | 12         | 300 | 3410             | 780 | 70-1300H                    | -                          |

**2-Way, 24 VAC & 120 VAC, Modulating Actuators - (285 psi WATER/100 psi STEAM Close-Off)**

| Model Number     | Valve Size |     | Flow Coefficient |     | Series 70<br>120 VAC Modulating | Series 70<br>24 VAC Modulating |
|------------------|------------|-----|------------------|-----|---------------------------------|--------------------------------|
|                  | In.        | mm  | 100%             | 60% | Model                           | Model                          |
| BVMS2-C150-0095  | 2          | 50  | 95               | 20  | 70-0081SVH                      | 70-24-0081SVH                  |
| BVMS3-C150-0287  | 3          | 80  | 287              | 64  | 70-0081SVH                      | 70-24-0081SVH                  |
| BVMS4-C150-0436  | 4          | 100 | 436              | 98  | 70-0121SVH                      | 70-24-0201SVH                  |
| BVMS6-C150-0760  | 6          | 150 | 760              | 191 | 70-0201SVH                      | 70-24-0201SVH                  |
| BVMS8-C150-1350  | 8          | 200 | 1350             | 369 | 70-E301SVH                      | 70-24-0501SVH                  |
| BVMS10-C150-2380 | 10         | 250 | 2380             | 571 | 70-0501SVH                      | 70-24-0501SVH                  |
| BVMS12-C150-3410 | 12         | 300 | 3410             | 780 | 70-1300SVH                      | -                              |

#### Options/Addrs

1. For Battery Back-Up Failsafe Unit (BBU) option on 24 VAC actuators add "-BBU".
2. For normally Closed, add a "C" to the end of the valve part number, i.e. BVMS2-C150-0095C, otherwise normally open. BBU models only. Add "S150" in place of C150 for Stainless Steel body option.

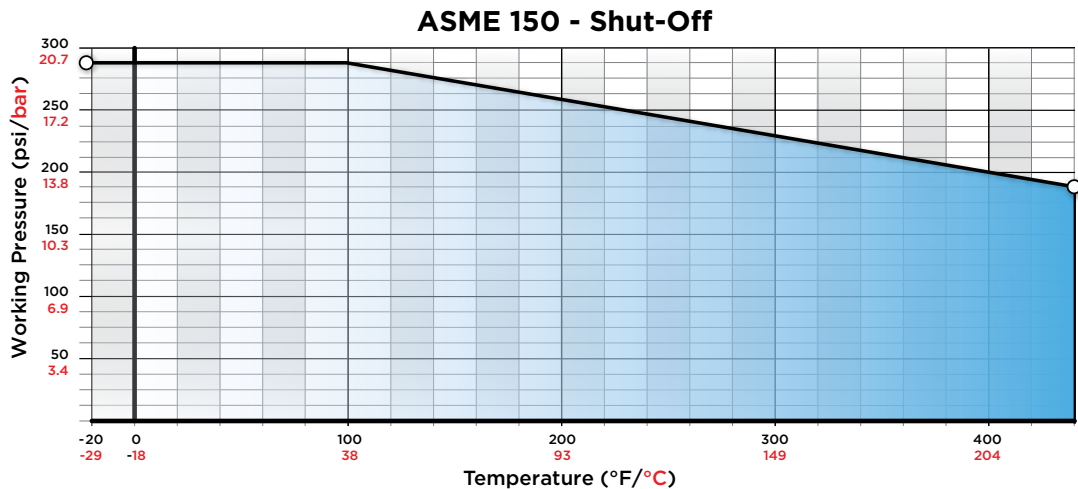
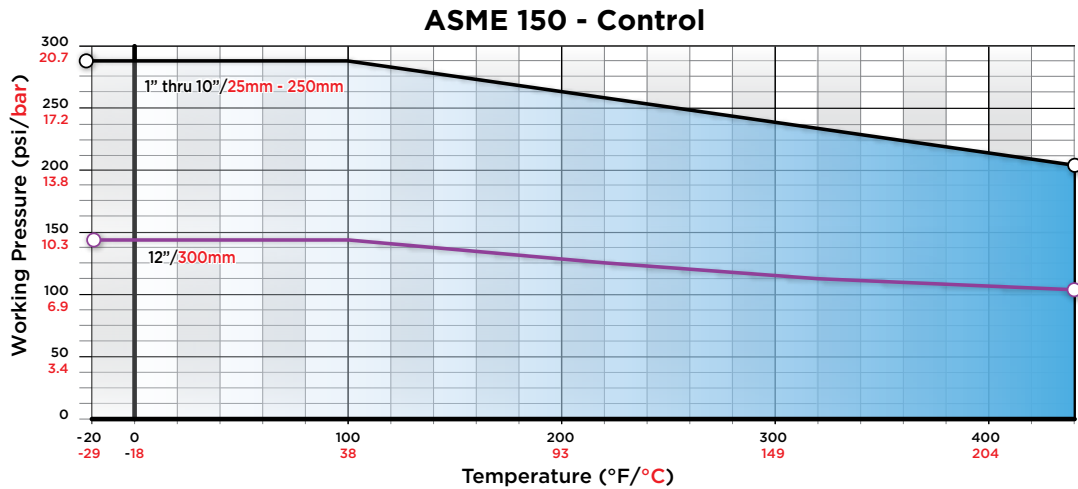
|                               |  |            |                              |            |      |
|-------------------------------|--|------------|------------------------------|------------|------|
| <b>Key</b><br>BVMS2-C150-0095 | BVMS                                   | 2          | C                            | 150        | 0095 |
|                               | = Industrial Flanged Ball Valve Series | Size (in.) | Material CF15 = Carbon Steel | ANSI Class | Cv   |

## BVMS Series - Flow Coefficient Cv Chart

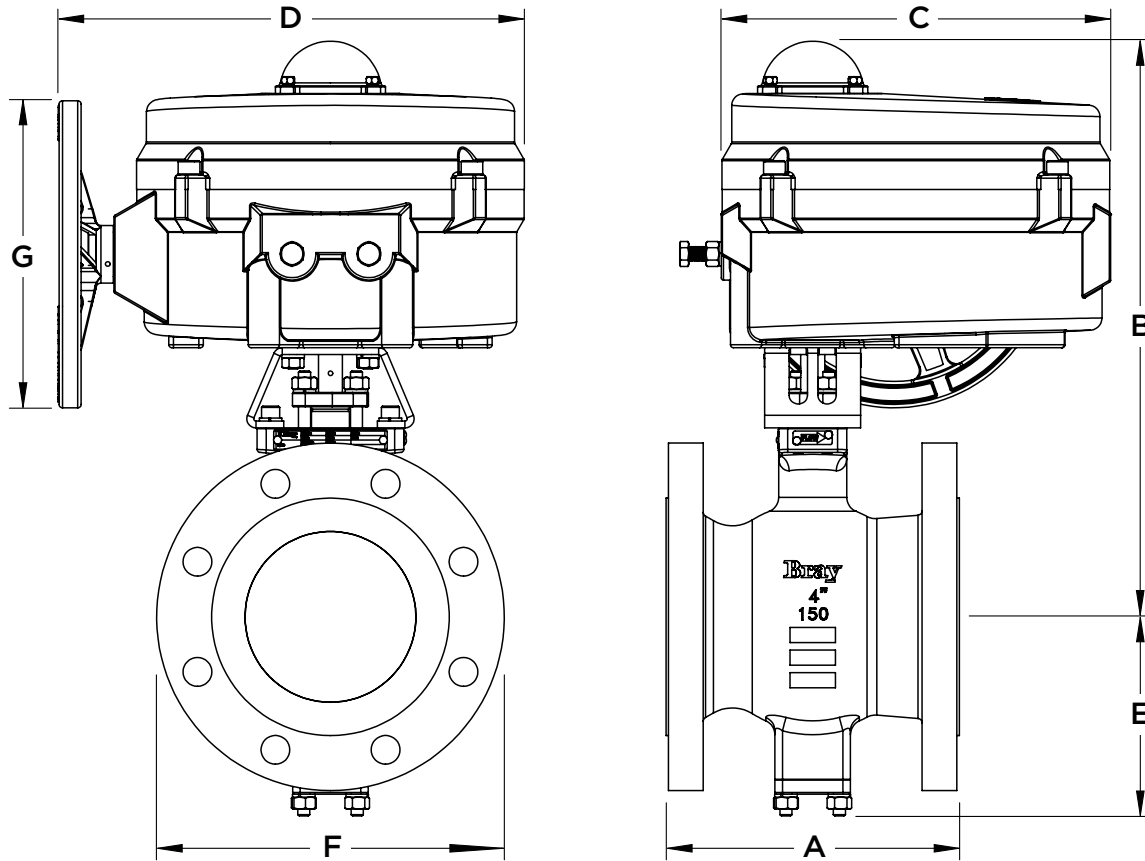
| BVMS-Segmented Ball Valve - Tek Fil Seat - Class 150 |            |     |                  |     |                          |      |       |       |       |       |        |        |        |        |
|--|------------|-----|------------------|-----|--------------------------|------|-------|-------|-------|-------|--------|--------|--------|--------|
| Model Number   | Valve Size |     | Flow Coefficient |     | Percent of Ball Rotation |      |       |       |       |       |        |        |        |        |
|  | In.        | mm  | 100%             | 60% | 15%                      | 20%  | 30%   | 40%   | 50%   | 60%   | 70%    | 80%    | 90%    | 100%   |
| BVMS2-C150-0095                                      | 2          | 50  | 95               | 20  | 0.00                     | 0.00 | 1.21  | 5.1   | 11.2  | 19.5  | 29.5   | 44.0   | 70.0   | 95.0   |
| BVMS3-C150-0287                                      | 3          | 80  | 287              | 64  | 0.17                     | 2.1  | 10.4  | 24.0  | 41.0  | 64.0  | 93.0   | 131.0  | 181.0  | 287.0  |
| BVMS4-C150-0436                                      | 4          | 100 | 436              | 98  | 1.8                      | 6.0  | 20.6  | 41.0  | 68.0  | 98.0  | 136.0  | 196.0  | 283.0  | 436.0  |
| BVMS6-C150-0760                                      | 6          | 150 | 760              | 191 | 2.7                      | 11.2 | 38.5  | 77.4  | 126.0 | 191.2 | 274.6  | 364.5  | 584.0  | 760.0  |
| BVMS8-C150-1350                                      | 8          | 200 | 1350             | 369 | 8.2                      | 23.0 | 73.0  | 145.0 | 247.0 | 369.0 | 517.0  | 686.0  | 922.5  | 1350.0 |
| BVMS10-C150-2380                                     | 10         | 250 | 2380             | 571 | 17.2                     | 43.0 | 121.0 | 238.0 | 385.0 | 571.0 | 790.0  | 1046.0 | 1372.0 | 2380.0 |
| BVMS12-C150-3410                                     | 12         | 300 | 3410             | 780 | 17.7                     | 52.0 | 157.0 | 322.0 | 532.0 | 780.0 | 1094.0 | 1458.0 | 1954.0 | 3410.0 |

Piping and Installation Tips - For control applications select a valve which offers calculated Cv for the minimum and maximum flow between 15% and 80% of port opening.

## BVMS - Pressure/Temperature Chart



## BVMS Series - 2-Way - Segmented Ball Valve/Actuator Dimensions



**BVMS Dimensions - ANSI 150 - 2" - 12" - 2-Way, Segmented with Industrial Actuators - in. (mm)**

| Model Number     | Valve Size |     | Flow Coefficient |      | A             | B             | C             | D             | E             | F             | G             | Weight           |
|------------------|------------|-----|------------------|------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|------------------|
|                  | In.        | mm  | Cv               | Kv   |               |               |               |               |               |               |               |                  |
| BVMS2-C150-0095  | 2          | 50  | 95               | 82   | 4.9<br>(124)  | 12.9<br>(327) | 7.5<br>(191)  | 9.3<br>(236)  | 3.9<br>(99)   | 6.0<br>(152)  | 3.5<br>(89)   | 17.9<br>[8.1]    |
| BVMS3-C150-0287  | 3          | 80  | 287              | 247  | 6.5<br>(165)  | 12.9<br>(327) | 7.5<br>(191)  | 9.3<br>(236)  | 4.8<br>(121)  | 7.5<br>(190)  | 3.5<br>(89)   | 32.0<br>[14.4]   |
| BVMS4-C150-0436  | 4          | 100 | 436              | 375  | 7.6<br>(194)  | 15.0<br>(380) | 10.1<br>(256) | 12.1<br>(308) | 5.2<br>(133)  | 9.1<br>(230)  | 8.0<br>(203)  | 45.2<br>[20.5]   |
| BVMS6-C150-0760  | 6          | 150 | 760              | 654  | 9.0<br>(229)  | 19.0<br>(481) | 10.1<br>(256) | 12.1<br>(308) | 7.6<br>(193)  | 11.0<br>(280) | 8.0<br>(203)  | 86.0<br>[39.0]   |
| BVMS8-C150-1350  | 8          | 200 | 1350             | 1161 | 9.6<br>(243)  | 20.1<br>(522) | 12.1<br>(308) | 13.1<br>(333) | 8.4<br>(213)  | 13.6<br>(345) | 12.0<br>(305) | 131.0<br>[59.4]  |
| BVMS10-C150-2380 | 10         | 250 | 2380             | 2047 | 11.7<br>(297) | 20.1<br>(522) | 12.1<br>(308) | 13.1<br>(333) | 10.1<br>(256) | 16.0<br>(406) | 12.0<br>(305) | 191.0<br>[86.7]  |
| BVMS12-C150-3410 | 12         | 300 | 3410             | 2933 | 13.3<br>(338) | 25.8<br>(656) | 12.1<br>(308) | 14.8<br>(375) | 11.5<br>(292) | 19.0<br>(483) | 12.0<br>(305) | 302.0<br>[137.0] |

Dimensions for largest Actuator shown  
Weights (valve only) are in lbs. [kg in brackets]

# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

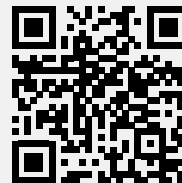
### **CORPORATE HEADQUARTERS**

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### **DIVISION HEADQUARTERS**


**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)



All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

## Simple Set™ Pressure Independent Control Valves 2-Way – 1/2" - 2"

| DOCUMENT                                    |   |
|---|---|
| CONTENTS                                    | Features  |
|   | Specifications  |
|   | Wiring  |
|   | Piping Geometry   |
|   | Dimensions  |
| LOOKING FOR MORE                            | Flow Rate Charts  |
|   |  |
| © 2026 Bray International, Inc.<br>05/13/26 |   |

### Application

The Bray Simple Set™ is a threaded pressure independent control (PIC) valve designed for a wide variety of hot water and chilled water control applications. The SS Series combines high rangeability control and dynamic balancing into a single compact housing, eliminating the material, installation and commissioning costs of a separate balancing component.

The maximum flow rate is easily set by hand with an adjustment on the top of the valve. The unique design of the Simple Set provides full stroke of the control element, even when the flow rate setting is a small percentage of the maximum flow capacity of the valve.

Simple Set valves achieve a continuous flow rate at any fixed position of the valve irrespective of inlet pressure change. This prevents overflow at any load condition, which contributes to optimal coil performance and primary equipment efficiency.



### System Types

Fan Coils, VAV Reheat Coils, Chilled Beams, Computer Room Air Conditioning Units and Air Handling Units.

### Features and Benefits

- **Brass Housing with High Flow Cavity**

*Robust design, resistant to high temperatures and moderate levels of particulate.*

- **Low Pressure Drop**

*Reduces pump head requirements for added energy efficiency.*

- **Long Stroke**

*Provides greater controllability.*

- **No minimum straight pipe lengths required before or after the valve**

*Provides for maximum piping flexibility, even in crowded mechanical rooms.*

## Simple Set - Valve Body Specifications

| Technical Specifications - Valve Body |  |   |
|---------------------------------------|--|---|
| Service                               | Hot Water, Chilled Water, Up to 50% Glycol               |   |
| Size Range                            | 2-Way - 1/2" through 2" (DN 15 to 50)                    |   |
| Body Cold Working Pressure Ratings    | 375 psi (25 Bar)   |   |
| Media Temperature Range               | 32°F to 248°F (0°C to 120°C)                             |   |
| Operational ΔP                        | Minimum  | Varies by size. See pages SS-10 & SS-11 |
|                                       | Maximum  | 58 psid (400kPa)                        |
| Max. Close-Off Pressure               | 58 psid (400kPa)   |   |
| Valve Operation                       | Push Down to Close, Normally Open                        |   |
| Shut-Off Leakage                      | ANSI Class IV (0.01%)                                    |   |
| Stroke                                | 1/2" to 1-1/4" = 0.22" (5.5mm) 1.5" to 2" = 0.59" (15mm) |   |
| Rangeability                          | >100:1   |   |
| End Connections                       | NPT Threaded   |   |
| Materials                             | Body   | DZR Brass                               |
|                                       | Flow Regulation Unit                                     | PPS 40% Glass                           |
|                                       | Diaphragm  | HNBR                                    |
|                                       | Spring   | Stainless Steel                         |
|                                       | O-Rings  | EPDM                                    |
| Weights<br>(Valve Body Only)          | 1/2"   | 1.98 lb. (.90 kg)                       |
|                                       | 3/4"   | 1.98 lb. (.90 kg)                       |
|                                       | 1"   | 2.21 lb. (1.00 kg)                      |
|                                       | 1-1/4"   | 3.35 lb. (1.60 kg)                      |
|                                       | 1-1/2"   | 6.34 lb. (2.90 kg)                      |
|                                       | 2"   | 8.70 lb. (4.00 kg)                      |
| Warranty                              | 5 Years limited from time of shipment.                   |   |
| Approvals & Certifications            | PED 2014/68/EU, ROHS 2011/65/EU                          |   |

**Disclaimer** - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

### Auto-Stroke Settings for Modulating (Analog) - (PAM Series)

Analog actuators perform an Auto-Stroke sequence upon every power-up. The Auto-Stroke sequence runs from 0 to the end position and back in order to automatically detect the stroke limits and calibrate the input signal to the detected stroke limits. The Auto-Stroke sequence can take up to a maximum of 2 minutes to complete.



If the actuator and/or adaptor are removed from the valve after initial installation, an Auto-Stroke sequence must be initiated to recalibrate the actuator. To do so, remove and reapply the power.

#### Notice

During the Auto-Stroke sequence, the status LED remains on and the actuator will not perform any other action.

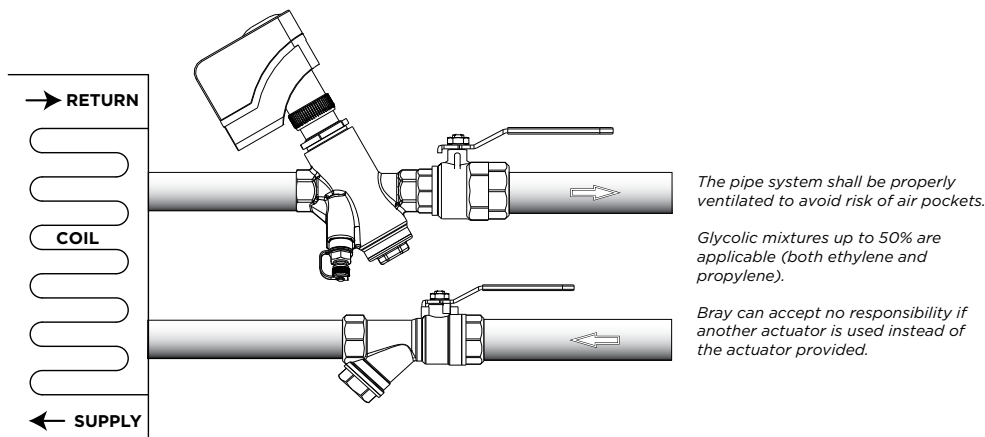
## Simple Set - Actuator Specifications

| Technical Specifications - Actuators |  |  |  |                                   |  |                       |
|--------------------------------------|--|--|--|-----------------------------------|--|-----------------------|
| Actuator Models                      | For Valves Sizes 1/2" to 1-1/4"            |  |  |                                   | For Valves Sizes 1.5" to 2"  |                       |
|                                      | PA24-27                                    | PA24-27-FS                                 | PAM24-27   | PAM24-27-FS                       | PAM24-100  | PAM24-100-FS          |
|                                      | On/Off & Floating                          |  | Modulating   |                                   | On/Off, Floating & Modulating  |                       |
|                                      | Non-Fail Safe                              | Fail Safe                                  | Non-Fail Safe  | Fail Safe                         | Non-Fail Safe  | Fail Safe             |
| Supply Voltage                       | 22 to 26 AC/DC                             |  |  |                                   | 22 to 26 VAC or 28 to 32 VDC   |                       |
| Power Consumption                    | 5VA  | 10VA                                       | 5VA  | 10VA                              | 6VA  | 6VA, 20VA Start Up    |
| Control Signal                       | 2 Position On/Off or 3-Point Floating      |  | Analog, 0-10VDC or 2-10VDC; 4-20mA with external 500Ω resistor |                                   | 2 Position On/Off (Digital-Pulse Width Modulation), 3 Point Floating, Modulating (Analog), 2-10VDC; 4-20mA |                       |
| Input Impedance                      | 4.7 K                                      |  | 10.0 K   | 100.0 K                           | 100.0 K  |                       |
| Feedback Signal                      | No   |  | 0-10VDC or 2-10VDC   |                                   | 4 to 20 mA or 2 to 10VDC adjustable  |                       |
| Failsafe Function                    | No   | Yes (60 Sec. Runtime)                      | No   | Yes (60 Sec. Runtime)             | No   | Yes (60 Sec. Runtime) |
| Anti-Stick                           | No   |  | Optional <sup>1</sup>  |                                   | Yes  |                       |
| Operation Time                       | 120 Seconds                                |  |  |                                   | 90 Seconds   |                       |
| Enclosure Rating                     | NEMA type 3R (Equivalent to IP54)          |  |  |                                   |  |                       |
| Ambient Temperature                  | 36°F to 122°F (2°C to 50°C)                |  |  |                                   | 0°F to 122° (-18°C to 50°C)  |                       |
| Humidity Rating                      | 5 to 95% RH Non Condensing                 |  |  |                                   |  |                       |
| Connection                           | 3 wires 18 AWG halogen free cable, 3.2 ft. | 4 wires 18 AWG halogen free cable, 3.2 ft. |  |                                   | Terminal Connection. Use 18 AWG Minimum  |                       |
| Noise Rating                         | >35dBA                                     |  |  |                                   |  |                       |
| Dimensions                           | (L) 4.09" x (W) 2.08" x (H) 3.62"          |  |  | (L) 4.09" x (W) 2.08" x (H) 4.18" | (L) 4.80" x (W) 3.60" x (H) 6.93"  |                       |
| Weight                               | 0.9 lb. (0.4 kg)                           |  |  |                                   | 2.0 lb. (0.9 kg)   |                       |
| Warranty                             | 5 Years limited from time of shipment      |  |  |                                   |  |                       |
| Agency Listing                       | UL, C E                                    |  |  |                                   |  |                       |

### <sup>1</sup>Anti-Stick Option

With the anti-stick option activated, the actuator will make one full cycle every 24 hours, if the actuator constantly has been in fully open or fully closed position during the previous 24 hours. This operation will clear up any possible impurities accumulated in the valve, and re-calculate the end positions.

## Simple Set - Piping Diagram

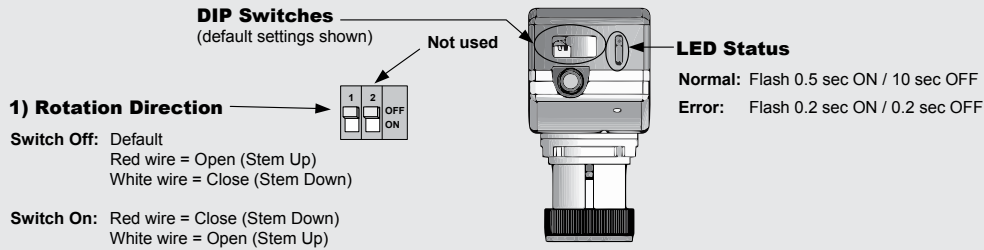


# Simple Set - Actuator Wiring

## WIRING - (CABLE)



## DIP SWITCHES

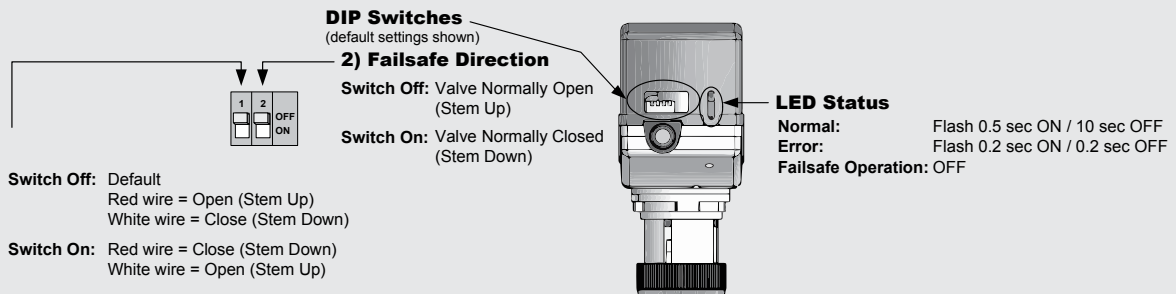


*NOTE: For additional operating information consult PA24-27 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.*

## WIRING - (CABLE)



## DIP SWITCHES

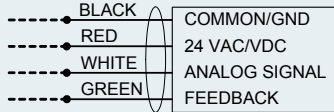


*NOTE: The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to its failsafe position during a power failure. For additional operating information consult PA24-27 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.*

# Simple Set - Actuator Wiring

## WIRING - (CABLE)

**PAM24-27 (27 lb force)**  
**MODULATING (ANALOG), NON-FAILSAFE**



## DIP SWITCHES

### 1) Rotation Direction

Switch Off: Default  
 Valve Open  
 (Stem Up) - (0 VDC)

Switch On: Valve Closed  
 (Stem Down) - (0 VDC)

### 2) Anti-Stick System

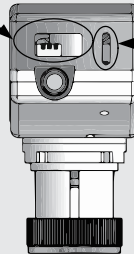
Switch Off: Deactivated  
 Switch On: Activated

**DIP Switches**  
 (default settings shown)



### 3) Input Analog - Signal & Feedback

Switch Off: 2-10 VDC  
 Switch On: 0-10 VDC



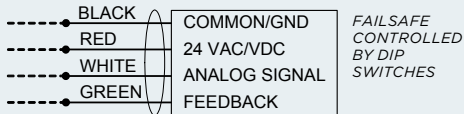
### LED Status

Normal: Flash 0.5 sec ON / 10 sec OFF  
 Error: Flash 0.2 sec ON / 0.2 sec OFF  
 Auto stroke: Continuous ON

*NOTE: For additional operating information consult PAM24-27 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.*

## WIRING - (CABLE)

**PAM24-27-FS (27 lb force)**  
**MODULATING (ANALOG), FAILSAFE**



## DIP SWITCHES

### 1) Rotation Direction

Switch Off: Default  
 Valve Open  
 (Stem Up) - (0VDC)

Switch On: Valve Closed  
 (Stem Down) - (0VDC)

### 2) Anti-Stick System

Switch Off: Deactivated  
 Switch On: Activated

**DIP Switches**  
 (default settings shown)

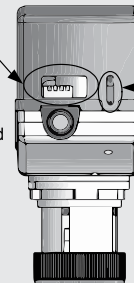


### 4) Failsafe Direction

Switch Off: Valve Normally Open  
 (Stem Up)  
 Switch On: Valve Normally Closed  
 (Stem Down)

### 3) Input Analog - Signal & Feedback

Switch Off: 2-10 VDC  
 Switch On: 0-10 VDC



### LED Status

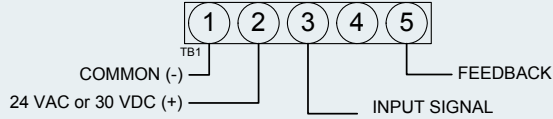
Normal: Flash 0.5 sec ON / 10 sec OFF  
 Error: Flash 0.2 sec ON / 0.2 sec OFF  
 Auto stroke: Continuous ON  
 Failsafe charge: Continuous ON  
 Failsafe operation: OFF

*NOTE: The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to it failsafe position during a power failure. For additional operating information consult PAM24-27 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.*

# Simple Set - Actuator Wiring

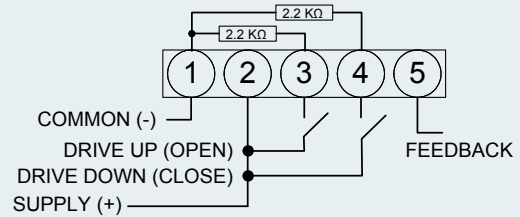
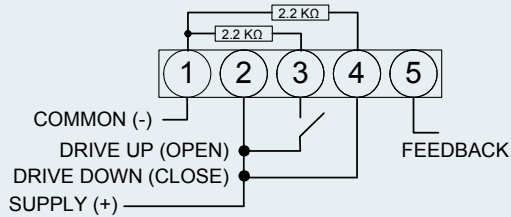
## WIRING - (TERMINAL)

**PAM24-100 (100 lb force)**  
**ON/OFF, FLOATING & MODULATING (ANALOG) , NON-FAILSAFE**



**DIGITAL SIGNAL**

|                                   |                                  |
|-----------------------------------|----------------------------------|
| <b>3 WIRE / 2 POSITION ON/OFF</b> | <b>4 WIRE / 3 POINT FLOATING</b> |
|-----------------------------------|----------------------------------|

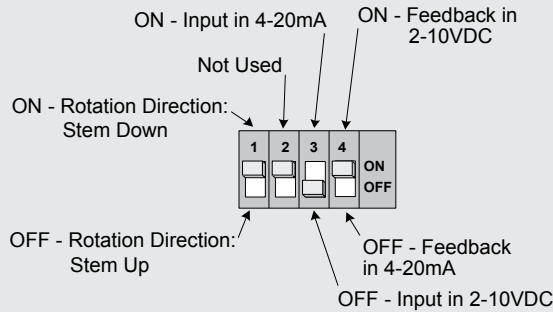


### Special Consideration for Digital Control

In this mode, the actuator is sensitive to induced electrical voltages **from external sources**. To prevent such interference, if the signal on pins 4 and 3 on TB1 are from an **external 24VAC source**, install a resistor 2.2kohm, 0.5W between pins 4 and 1 and another of 2.2kohms, 0.5W between pins 3 and 1 of TB1. These resistors are included.

*NOTE: For additional operating information consult PAM24-100 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.*

## DIP SWITCHES - DIGITAL SIGNAL

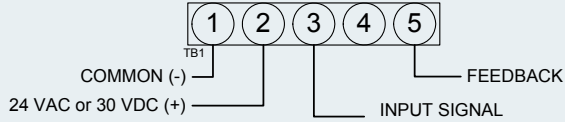


# Simple Set - Actuator Wiring

## WIRING - (TERMINAL)

**PAM24-100-FS (100 lb force)**

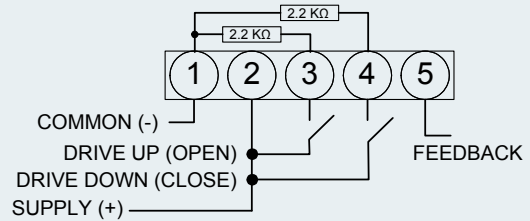
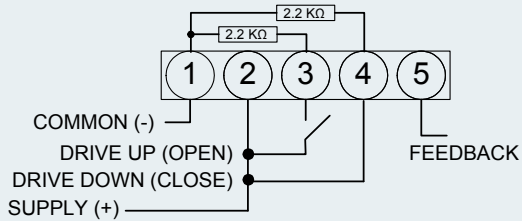
**ON/OFF, FLOATING & MODULATING (ANALOG) ,FAILSAFE**



### DIGITAL SIGNAL

**3 WIRE / 2 POSITION ON/OFF**

**4 WIRE / 3 POINT FLOATING**

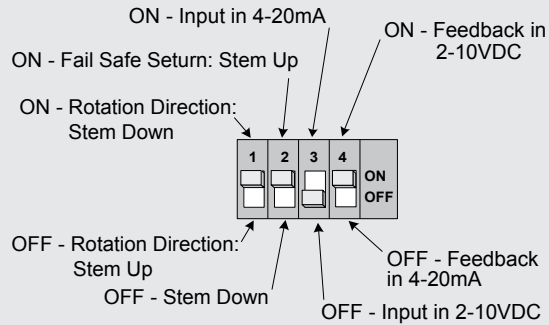


#### Special Consideration for Digital Control

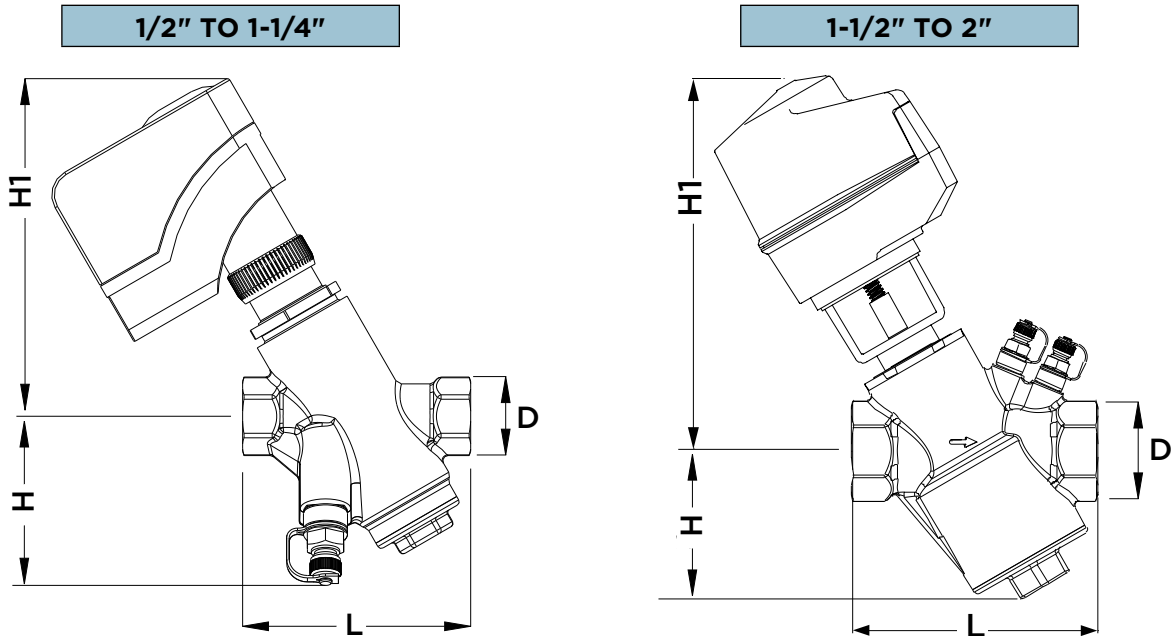
In this mode, the actuator is sensitive to induced electrical voltages **from external sources**. To prevent such interference, if the signal on pins 4 and 3 on TB1 are from an **external 24VAC source**, install a resistor 2.2kohm, 0.5W between pins 4 and 1 and another of 2.2kohms, 0.5W between pins 3 and 1 of TB1. These resistors are included.

*NOTE: The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to it failsafe position during a power failure. For additional operating information consult PAM24-100 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.*

## DIP SWITCHES - DIGITAL SIGNAL



## Simple Set - Valve/Actuator Dimensions



### Simple Set - Technical Data and Dimensions

| Valve Size           |                          |                     | 1/2"         | 3/4"         | 1"           | 1-1/4"       | 1-1/2"       | 2"            |
|----------------------|--------------------------|---------------------|--------------|--------------|--------------|--------------|--------------|---------------|
| Flow Rate            | Liters per hour (l/h)    | Low Flow Cartridge  | 75 - 700     | 77 - 745     | -            | -            | -            | -             |
|                      |                          | Std. Flow Cartridge | 291 - 1576   | 305 - 1821   | 400 - 1830   | 690 - 3000   | 541 - 7582   | 596 - 14700   |
|                      | Gallons per minute (gpm) | Low Flow Cartridge  | .3 - 3.1     | .3 - 3.3     | -            | -            | -            | -             |
|                      |                          | Std. Flow Cartridge | 1.3 - 6.9    | 1.3 - 8.0    | 1.8 - 8.1    | 3.0 - 13.2   | 2.4 - 33.4   | 2.6 - 64.7    |
| Dimensions in., (mm) | L                        |                     | 3.62, (92)   | 3.62, (92)   | 3.78, (96)   | 5.0, (128)   | 5.71, (145)  | 6.34, (161)   |
|                      | H                        |                     | 2.68, (68)   | 2.68, (68)   | 2.68, (68)   | 3.03, (77)   | 3.43, (87)   | 3.70, (94)    |
|                      | H1                       |                     | 7.88, (200)  | 7.88, (200)  | 7.88, (200)  | 6.04, (153)  | 16.00, (406) | 15.25, (387)  |
|                      | D                        |                     | 1.18, (30)   | 1.42, (36)   | 1.73, (44)   | 2.05, (52)   | 2.33, (59)   | 3.07, (78)    |
| Weight               | lbs., (kg)               |                     | 2.50, (1.14) | 2.50, (1.14) | 2.60, (1.18) | 4.10, (1.86) | 7.90, (3.60) | 10.30, (4.70) |

Dimensions may vary, depending on the actuator.  
 Dimensions are shown for the largest actuator currently available.  
 Dimensions are shown in inches and are approximate.

### Simple Set - Model Number Matrix

| SS Prefix: Simple Set |   |   |   |   |   |         | Valve Series  |
|-----------------------|---|---|---|---|---|---------|---|
| 1                     |   | Valve Size (1/2" to 2")   |   |   |   |         | Valve Size  |
| N                     |   | End Connections - NPT   |   |   |   |         | End Connections   |
| S                     |   | Flow Range Pressure Cartridge - (H) High, (L) Low or (S) Standard |   |   |   |         | Cartridge   |
| X                     |   | Flow Setting GPM. See Charts on Page SS-10 & SS-11                |   |   |   |         | GPM   |
| /                     |   |   |   |   |   |         | /   |
|                       |   | PA24-27   |   | 24V On/Off & Floating - Non-Fail Safe             |   |         | Actuator Selection  |
|                       |   | PA24-27-FS  |   | 24V On/Off & Floating - Fail Safe                 |   |         |   |
|                       |   | PAM24-27  |   | 24V Modulating - Non-Fail Safe                    |   |         |   |
|                       |   | PAM24-27-FS   |   | 24V Modulating - Fail Safe                        |   |         |   |
|                       |   | PAM24-100   |   | 24V On/Off, Floating & Modulating - Non-Fail Safe |   |         |   |
|                       |   | PAM24-100-FS  |   | 24V On/Off, Floating & Modulating - Fail Safe     |   |         |   |
| SS                    | 1 | N   | S | 1.8   | / | PA24-27 | 1" Simple Set Body, NPT End Connections, Standard Flow Rate, GPM of 1.8, 24V PA Series Actuator |
|                       |   |   |   |   |   |         | Example   |

## Simple Set - How it Works

### Function

Unlike conventional control valve sizing where valves are sized to a Cv, the Simple Set valves are simply sized for flow and pipe size. Refer to the ordering table for the wide range of flow values available.

### Notice

If valve size differs from pipe size, dP across the valve can not exceed the rating of the valve.

### Design

The design of Simple Set combines high performance with small size and compact construction. The main components of the valve are:

#### Pre-Setting Dial (Detail)



#### 3. Pre-Setting Dial

Sets maximum flow allowed through the valve.

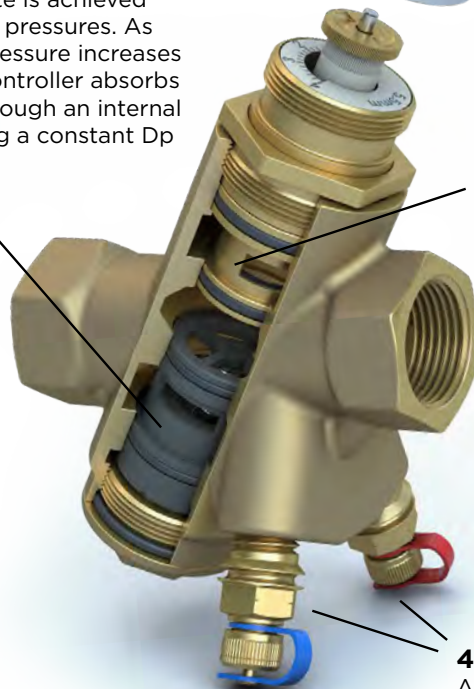
#### 5. Actuator

Reacts to building controller call for more or less flow.



#### 1. Pressure Control Cartridge

Ensures constant flow rate is achieved under fluctuating system pressures. As the system differential pressure increases and decreases, the Dp controller absorbs and releases pressure through an internal capillary tube maintaining a constant Dp across the valve.



#### 2. Modulating Control Component

1. Rotates laterally to limit max flow through the valve per the Pre-Setting Scale.
2. Moves vertically in response to the actuator call for more or less flow.

#### 4. P/T Plugs

Allows for measurement of pressure and temperature.

## Simple Set - Flow Rate Charts

| 1/2"           |         | 1/2" Low Flow Rate Cartridge |          |          |
|----------------|---------|------------------------------|----------|----------|
| Model Number   | Pre-Set | Min. Delta P (psid)          | Flow l/h | Flow GPM |
| SS-050-N-L-0.3 | 0.3     | 2.2                          | 75.0     | 0.3      |
| SS-050-N-L-0.4 | 0.4     | 2.2                          | 81.8     | 0.4      |
| SS-050-N-L-0.5 | 0.6     | 2.2                          | 106.7    | 0.5      |
| SS-050-N-L-0.6 | 0.8     | 2.2                          | 134.0    | 0.6      |
| SS-050-N-L-0.7 | 1       | 2.2                          | 161.3    | 0.7      |
| SS-050-N-L-0.8 | 1.2     | 2.5                          | 190.8    | 0.8      |
| SS-050-N-L-1.0 | 1.4     | 2.5                          | 222.6    | 1.0      |
| SS-050-N-L-1.1 | 1.6     | 2.5                          | 256.7    | 1.1      |
| SS-050-N-L-1.3 | 1.8     | 2.5                          | 290.7    | 1.3      |
| SS-050-N-L-1.4 | 2       | 2.5                          | 327.1    | 1.4      |
| SS-050-N-L-1.6 | 2.2     | 2.5                          | 365.7    | 1.6      |
| SS-050-N-L-1.8 | 2.4     | 2.5                          | 404.3    | 1.8      |
| SS-050-N-L-2.0 | 2.6     | 2.5                          | 442.9    | 2.0      |
| SS-050-N-L-2.1 | 2.8     | 2.5                          | 481.5    | 2.1      |
| SS-050-N-L-2.3 | 3       | 2.5                          | 520.1    | 2.3      |
| SS-050-N-L-2.5 | 3.2     | 2.5                          | 556.5    | 2.5      |
| SS-050-N-L-2.6 | 3.4     | 2.5                          | 592.8    | 2.6      |
| SS-050-N-L-2.8 | 3.6     | 2.5                          | 629.1    | 2.8      |
| SS-050-N-L-3.0 | 3.8     | 2.5                          | 672.3    | 3.0      |
| SS-050-N-L-3.1 | 4       | 2.5                          | 699.5    | 3.1      |

| 1/2"           |         | 1/2" Standard Flow Rate Cartridge |          |          |
|----------------|---------|-----------------------------------|----------|----------|
| Model Number   | Pre-Set | Min. Delta P (psid)               | Flow l/h | Flow GPM |
| SS-050-N-S-1.3 | 0.3     | 2.8                               | 291.0    | 1.3      |
| SS-050-N-S-1.4 | 0.4     | 2.8                               | 308.0    | 1.4      |
| SS-050-N-S-1.7 | 0.6     | 2.8                               | 378.0    | 1.7      |
| SS-050-N-S-2.0 | 0.8     | 2.8                               | 459.0    | 2.0      |
| SS-050-N-S-2.5 | 1       | 2.8                               | 575.0    | 2.5      |
| SS-050-N-S-2.9 | 1.2     | 2.8                               | 654.0    | 2.9      |
| SS-050-N-S-3.4 | 1.4     | 2.8                               | 765.0    | 3.4      |
| SS-050-N-S-3.9 | 1.6     | 2.9                               | 875.0    | 3.9      |
| SS-050-N-S-4.3 | 1.8     | 2.9                               | 977.0    | 4.3      |
| SS-050-N-S-4.7 | 2       | 2.9                               | 1066.0   | 4.7      |
| SS-050-N-S-5.0 | 2.2     | 3.0                               | 1145.0   | 5.0      |
| SS-050-N-S-5.3 | 2.4     | 3.0                               | 1213.0   | 5.3      |
| SS-050-N-S-5.6 | 2.6     | 3.0                               | 1274.0   | 5.6      |
| SS-050-N-S-5.9 | 2.8     | 3.0                               | 1329.0   | 5.9      |
| SS-050-N-S-6.1 | 3       | 3.0                               | 1390.0   | 6.1      |
| SS-050-N-S-6.3 | 3.2     | 3.1                               | 1424.0   | 6.3      |
| SS-050-N-S-6.5 | 3.4     | 3.2                               | 1466.0   | 6.5      |
| SS-050-N-S-6.6 | 3.6     | 3.2                               | 1505.0   | 6.6      |
| SS-050-N-S-6.8 | 3.8     | 3.3                               | 1542.0   | 6.8      |
| SS-050-N-S-6.9 | 4       | 3.3                               | 1576.0   | 6.9      |

| 3/4"           |         | 3/4" Low Flow Rate Cartridge |          |          |
|----------------|---------|------------------------------|----------|----------|
| Model Number   | Pre-Set | Min. Delta P (psid)          | Flow l/h | Flow GPM |
| SS-075-N-L-0.3 | 0.3     | 2.3                          | 77.2     | 0.3      |
| SS-075-N-L-0.4 | 0.4     | 2.3                          | 81.8     | 0.4      |
| SS-075-N-L-0.5 | 0.6     | 2.3                          | 106.7    | 0.5      |
| SS-075-N-L-0.6 | 0.8     | 2.3                          | 136.3    | 0.6      |
| SS-075-N-L-0.7 | 1       | 2.3                          | 168.1    | 0.7      |
| SS-075-N-L-0.9 | 1.2     | 2.6                          | 197.6    | 0.9      |
| SS-075-N-L-1.0 | 1.4     | 2.6                          | 227.1    | 1.0      |
| SS-075-N-L-1.2 | 1.6     | 2.6                          | 268.0    | 1.2      |
| SS-075-N-L-1.3 | 1.8     | 2.6                          | 304.3    | 1.3      |
| SS-075-N-L-1.5 | 2       | 2.6                          | 345.2    | 1.5      |
| SS-075-N-L-1.7 | 2.2     | 2.6                          | 388.4    | 1.7      |
| SS-075-N-L-1.9 | 2.4     | 2.6                          | 431.5    | 1.9      |
| SS-075-N-L-2.1 | 2.6     | 2.6                          | 474.7    | 2.1      |
| SS-075-N-L-2.3 | 2.8     | 2.6                          | 517.8    | 2.3      |
| SS-075-N-L-2.5 | 3       | 2.6                          | 567.8    | 2.5      |
| SS-075-N-L-2.6 | 3.2     | 2.6                          | 599.6    | 2.6      |
| SS-075-N-L-2.8 | 3.4     | 2.6                          | 635.9    | 2.8      |
| SS-075-N-L-3.0 | 3.6     | 2.6                          | 672.3    | 3.0      |
| SS-075-N-L-3.1 | 3.8     | 2.6                          | 706.4    | 3.1      |
| SS-075-N-L-3.3 | 4       | 2.6                          | 745.0    | 3.3      |

| 3/4"           |         | 3/4" Standard Flow Rate Cartridge |          |          |
|----------------|---------|-----------------------------------|----------|----------|
| Model Number   | Pre-Set | Min. Delta P (psid)               | Flow l/h | Flow GPM |
| SS-075-N-S-1.3 | 0.3     | 2.8                               | 305.0    | 1.3      |
| SS-075-N-S-1.5 | 0.4     | 2.8                               | 333.0    | 1.5      |
| SS-075-N-S-1.8 | 0.6     | 2.9                               | 406.0    | 1.8      |
| SS-075-N-S-2.1 | 0.8     | 3                                 | 487.0    | 2.1      |
| SS-075-N-S-2.6 | 1       | 3.2                               | 598.0    | 2.6      |
| SS-075-N-S-3.0 | 1.2     | 3.2                               | 672.0    | 3.0      |
| SS-075-N-S-3.4 | 1.4     | 3.2                               | 775.0    | 3.4      |
| SS-075-N-S-3.9 | 1.6     | 3.2                               | 884.0    | 3.9      |
| SS-075-N-S-4.4 | 1.8     | 3.2                               | 993.0    | 4.4      |
| SS-075-N-S-4.8 | 2       | 3.2                               | 1100.0   | 4.8      |
| SS-075-N-S-5.3 | 2.2     | 3.2                               | 1201.0   | 5.3      |
| SS-075-N-S-5.7 | 2.4     | 3.2                               | 1294.0   | 5.7      |
| SS-075-N-S-6.1 | 2.6     | 3.2                               | 1379.0   | 6.1      |
| SS-075-N-S-6.4 | 2.8     | 3.2                               | 1457.0   | 6.4      |
| SS-075-N-S-6.8 | 3       | 3.2                               | 1544.0   | 6.8      |
| SS-075-N-S-7.0 | 3.2     | 3.2                               | 1593.0   | 7.0      |
| SS-075-N-S-7.3 | 3.4     | 3.2                               | 1653.0   | 7.3      |
| SS-075-N-S-7.5 | 3.6     | 3.3                               | 1709.0   | 7.5      |
| SS-075-N-S-7.8 | 3.8     | 3.3                               | 1761.0   | 7.8      |
| SS-075-N-S-8.0 | 4       | 3.3                               | 1821.0   | 8.0      |

**Note:** Min. Delta P Available at Selected Flow Rate.  
See Website for Specific Flow Rate Settings Calculator

## Simple Set - Flow Rate Charts

| 1"           |         | 1" Standard Flow Rate Cartridge |          |          |
|--------------|---------|---------------------------------|----------|----------|
| Model Number | Pre-Set | Min. Delta P (psid)             | Flow l/h | Flow GPM |
| SS-1-N-S-1.8 | 0.3     | 3.9                             | 400.0    | 1.8      |
| SS-1-N-S-1.8 | 0.4     | 3.9                             | 414.0    | 1.8      |
| SS-1-N-S-2.1 | 0.6     | 3.9                             | 470.0    | 2.1      |
| SS-1-N-S-2.3 | 0.8     | 3.9                             | 532.0    | 2.3      |
| SS-1-N-S-2.7 | 1       | 3.9                             | 618.0    | 2.7      |
| SS-1-N-S-3.0 | 1.2     | 3.9                             | 676.0    | 3.0      |
| SS-1-N-S-3.4 | 1.4     | 3.9                             | 762.0    | 3.4      |
| SS-1-N-S-3.8 | 1.6     | 4                               | 857.0    | 3.8      |
| SS-1-N-S-4.2 | 1.8     | 4                               | 961.0    | 4.2      |
| SS-1-N-S-4.7 | 2       | 4                               | 1071.0   | 4.7      |
| SS-1-N-S-5.2 | 2.2     | 4                               | 1182.0   | 5.2      |
| SS-1-N-S-5.7 | 2.4     | 4                               | 1286.0   | 5.7      |
| SS-1-N-S-6.1 | 2.6     | 4                               | 1381.0   | 6.1      |
| SS-1-N-S-6.5 | 2.8     | 4                               | 1467.0   | 6.5      |
| SS-1-N-S-6.9 | 3       | 4.1                             | 1560.0   | 6.9      |
| SS-1-N-S-7.1 | 3.2     | 4.1                             | 1611.0   | 7.1      |
| SS-1-N-S-7.4 | 3.4     | 4.2                             | 1673.0   | 7.4      |
| SS-1-N-S-7.6 | 3.6     | 4.3                             | 1730.0   | 7.6      |
| SS-1-N-S-7.8 | 3.8     | 4.4                             | 1781.0   | 7.8      |
| SS-1-N-S-8.1 | 4       | 4.5                             | 1830.0   | 8.1      |

| 1-1/4"          |         | 1-1/4" Standard Flow Rate Cartridge |          |          |
|-----------------|---------|-------------------------------------|----------|----------|
| Model Number    | Pre-Set | Min. Delta P (psid)                 | Flow l/h | Flow GPM |
| SS-125-N-S-3.0  | 0.3     | 3                                   | 690.0    | 3.0      |
| SS-125-N-S-3.2  | 0.4     | 3.1                                 | 735.0    | 3.2      |
| SS-125-N-S-4.0  | 0.6     | 3.1                                 | 910.0    | 4.0      |
| SS-125-N-S-4.8  | 0.8     | 3.1                                 | 1079.0   | 4.8      |
| SS-125-N-S-5.5  | 1       | 3.2                                 | 1245.0   | 5.5      |
| SS-125-N-S-6.2  | 1.2     | 3.2                                 | 1406.0   | 6.2      |
| SS-125-N-S-6.9  | 1.4     | 3.2                                 | 1564.0   | 6.9      |
| SS-125-N-S-7.6  | 1.6     | 3.2                                 | 1718.0   | 7.6      |
| SS-125-N-S-8.2  | 1.8     | 3.2                                 | 1869.0   | 8.2      |
| SS-125-N-S-8.9  | 2       | 3.2                                 | 2017.0   | 8.9      |
| SS-125-N-S-9.5  | 2.2     | 3.2                                 | 2162.0   | 9.5      |
| SS-125-N-S-10.1 | 2.4     | 3.2                                 | 2304.0   | 10.1     |
| SS-125-N-S-10.8 | 2.6     | 3.2                                 | 2444.0   | 10.8     |
| SS-125-N-S-11.4 | 2.8     | 3.2                                 | 2581.0   | 11.4     |
| SS-125-N-S-12.1 | 3       | 3.2                                 | 2748.0   | 12.1     |
| SS-125-N-S-12.3 | 3.2     | 3.2                                 | 2787.0   | 12.3     |
| SS-125-N-S-12.5 | 3.4     | 3.3                                 | 2837.0   | 12.5     |
| SS-125-N-S-12.7 | 3.6     | 3.3                                 | 2887.0   | 12.7     |
| SS-125-N-S-12.9 | 3.8     | 3.4                                 | 2938.0   | 12.9     |
| SS-125-N-S-13.2 | 4       | 3.5                                 | 3000.0   | 13.2     |

| 1-1/2"          |         | 1-1/2" Standard Flow Rate Cartridge |          |          |
|-----------------|---------|-------------------------------------|----------|----------|
| Model Number    | Pre-Set | Min. Delta P (psid)                 | Flow l/h | Flow GPM |
| SS-150-N-S-2.4  | 0.3     | 3.0                                 | 541.0    | 2.4      |
| SS-150-N-S-3.1  | 0.4     | 3.0                                 | 695.0    | 3.1      |
| SS-150-N-S-5.7  | 0.6     | 3.0                                 | 1291.0   | 5.7      |
| SS-150-N-S-8.2  | 0.8     | 3.0                                 | 1856.0   | 8.2      |
| SS-150-N-S-10.9 | 1       | 3.0                                 | 2480.0   | 10.9     |
| SS-150-N-S-12.8 | 1.2     | 3.1                                 | 2912.0   | 12.8     |
| SS-150-N-S-15.0 | 1.4     | 3.2                                 | 3409.0   | 15.0     |
| SS-150-N-S-17.1 | 1.6     | 3.4                                 | 3887.0   | 17.1     |
| SS-150-N-S-19.1 | 1.8     | 3.5                                 | 4346.0   | 19.1     |
| SS-150-N-S-21.1 | 2       | 3.6                                 | 4797.0   | 21.1     |
| SS-150-N-S-23.0 | 2.2     | 3.7                                 | 5231.0   | 23.0     |
| SS-150-N-S-24.9 | 2.4     | 3.8                                 | 5653.0   | 24.9     |
| SS-150-N-S-26.7 | 2.6     | 3.9                                 | 6064.0   | 26.7     |
| SS-150-N-S-28.5 | 2.8     | 3.9                                 | 6465.0   | 28.5     |
| SS-150-N-S-30.3 | 3       | 4.0                                 | 6875.0   | 30.3     |
| SS-150-N-S-31.0 | 3.2     | 4.2                                 | 7051.0   | 31.0     |
| SS-150-N-S-31.6 | 3.4     | 4.4                                 | 7183.0   | 31.6     |
| SS-150-N-S-32.2 | 3.6     | 4.5                                 | 7315.0   | 32.2     |
| SS-150-N-S-32.8 | 3.8     | 4.7                                 | 7447.0   | 32.8     |
| SS-150-N-S-33.4 | 4       | 4.9                                 | 7582     | 33.4     |

| 2"            |         | 2" Standard Flow Rate Cartridge |          |          |
|---------------|---------|---------------------------------|----------|----------|
| Model Number  | Pre-Set | Min. Delta P (psid)             | Flow l/h | Flow GPM |
| SS-2-N-S-2.6  | 0.3     | 4.9                             | 596.0    | 2.6      |
| SS-2-N-S-3.5  | 0.4     | 4.9                             | 797.0    | 3.5      |
| SS-2-N-S-7.1  | 0.6     | 4.9                             | 1613.0   | 7.1      |
| SS-2-N-S-10.8 | 0.8     | 4.9                             | 2449.0   | 10.8     |
| SS-2-N-S-15.5 | 1       | 4.9                             | 3514.0   | 15.5     |
| SS-2-N-S-18.3 | 1.2     | 4.9                             | 4161.0   | 18.3     |
| SS-2-N-S-22.1 | 1.4     | 4.9                             | 5025.0   | 22.1     |
| SS-2-N-S-25.9 | 1.6     | 4.9                             | 5885.0   | 25.9     |
| SS-2-N-S-29.7 | 1.8     | 4.9                             | 6736.0   | 29.7     |
| SS-2-N-S-33.3 | 2       | 4.9                             | 7572.0   | 33.3     |
| SS-2-N-S-36.9 | 2.2     | 4.9                             | 8387.0   | 36.9     |
| SS-2-N-S-40.4 | 2.4     | 4.9                             | 9180.0   | 40.4     |
| SS-2-N-S-43.8 | 2.6     | 4.9                             | 9946.0   | 43.8     |
| SS-2-N-S-47.1 | 2.8     | 4.9                             | 10686.0  | 47.1     |
| SS-2-N-S-50.9 | 3       | 4.9                             | 11568.0  | 50.9     |
| SS-2-N-S-53.2 | 3.2     | 5.0                             | 12082.0  | 53.2     |
| SS-2-N-S-56.1 | 3.4     | 5.1                             | 12740.0  | 56.1     |
| SS-2-N-S-58.9 | 3.6     | 5.3                             | 13372.0  | 58.9     |
| SS-2-N-S-61.6 | 3.8     | 5.4                             | 13988.0  | 61.6     |
| SS-2-N-S-64.7 | 4       | 5.5                             | 14700.0  | 64.7     |

**Note:** Min. Delta P Available at Selected Flow Rate.  
See Website for Specific Flow Rate Settings Calculator

# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

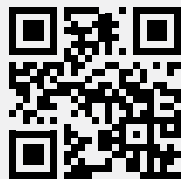
- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

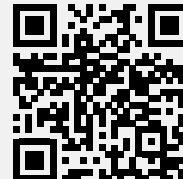
### **CORPORATE HEADQUARTERS**

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### **DIVISION HEADQUARTERS**


**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)



All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

## **Simple Set Max<sup>®</sup>** **Pressure Independent Control Valves** **ANSI 125 • 2-Way — 2-1/2" - 12"**

| DOCUMENT         |   |
|------------------|---|
| CONTENTS         | Features  |
|                  | Valve Specs   |
|                  | Dimensions  |
|                  | Valve Sizing  |
|                  | Flow Rate Charts  |
| LOOKING FOR MORE |  |
|                  | © 2026 Bray International, Inc.<br>06/18/26   |

### Application

The Bray Simple Set Max<sup>®</sup> is a flanged pressure independent control (PIC) valve designed for a wide variety of hot water and chilled water control applications. The SSM Series combines high rangeability control with dynamic balancing into a single compact housing, eliminating material installation and commissioning costs of separate balancing components.

The maximum flow rate is easily set by hand with an adjustment on the top of the valve. The unique design of the Simple Set Max provides full stroke of the control element, even when the flow rate setting is a small percentage of the maximum flow capacity of the valve.

Simple Set Max valves provide a continuous flow rate at any fixed position of the valve irrespective of inlet pressure change. This prevents overflow at any load condition, which contributes to optimal coil performance and primary equipment efficiency.

### System Types

Air Handling Units  
Heat Exchangers  
Computer Rooms  
and more.



### Features and Benefits

- **Cast/Ductile Iron housing with Stainless Steel flow regulation unit**

*Robust design, resistant to high temperatures and moderate levels of particulate.*

- **Low pressure drop**

*Reduces pump head requirements for added energy efficiency*

- **Easily adjustable flow rates and actuator characteristics**

*Saves time and money in commissioning and start up.*

- **No minimum straight pipe lengths required upstream or downstream of the valve**

*Provides for maximum piping flexibility, even in crowded mechanical rooms.*

## Simple Set Max - Valve Body Specifications

| Technical Specifications - Valve |  |  |
|----------------------------------|--|--|
| Service                          | Hot Water, Chilled Water, 50-50 Glycol Solutions   |  |
| Size Range                       | 2-Way  | 2-1/2" through 12" (DN 65 to 300)                        |
| Cold Working Pressure            | 2-1/2" through 12" - 200 psi @ 100°F, ANSI 125     |  |
| Media Temperature Range          | 2.5" to 5"   | 32°F to 248°F (0°C to 120°C)                             |
|                                  | 6" to 12"  | 32°F to 230°F (0°C to 110°C)                             |
| Min. Operational ΔP              | Refer to Flow Rate Charts on Page SSM-5 thru SSM-8 |  |
| Max. Operational ΔP              | 116 psid (800kPa)                                  |  |
| Max. Close-Off Pressure          | 116 psi (800kPa)                                   |  |
| Valve Operation                  | Push down to close, Normally Open                  |  |
| Shut-Off Leakage                 | <ANSI ClassIV (0.01%)                              |  |
| Flow Rate Range                  | 19.27 to 2641 GPM                                  |  |
| Stroke                           | 2.5" & 3"  | 0.79" (20mm)   |
|                                  | 4" & 5"  | 1.58" (40mm)   |
|                                  | 6" & 8"  | 1.69" (43mm)   |
|                                  | 10" & 12"  | 1.89" (48mm)   |
| Rangeability                     | >100:1   |  |
| Flange Connections               | ANSI 125   |  |
| Test Ports                       | 1/4" NPT   |  |
| Materials                        | Body   | 2-1/2" thru 6" - Cast Iron<br>8" thru 12" - Ductile Iron |
|                                  | Flow Regulation Unit                               | Stainless Steel  |
|                                  | Diaphragm  | Reinforced EPDM (Ethylene Propylene Diene Monomer)       |
|                                  | Spring   | Stainless Steel  |
|                                  | O-Rings  | EPDM   |
| Weights                          | See Dimensions                                     |  |

**Disclaimer** - The pipe system shall be properly ventilated to avoid risk of air pockets. Glycolic mixtures up to 50% are applicable (both ethylene and propylene). Bray can accept no responsibility if another actuator is used instead of the Bray actuator recommendation: Water treatment to VDI 2035.

## Simple Set Max - Model Number Matrix

| SSM Prefix: Simple Set Max   |   |   |   |     |   |                 | Valve Series  |         |
|--|---|---|---|-----|---|-----------------|---|---------|
| 5 Valve Size (2-1/2" to 12")   |   |   |   |     |   |                 | Valve Size  |         |
| A End Connections - ANSI Flanged   |   |   |   |     |   |                 | End Connections   |         |
| L Flow Range Pressure Cartridge - (H) High, (L) Low  |   |   |   |     |   |                 | Cartridge   |         |
| X Flow Setting GPM. See Charts on Page SSM-5 & SSM-6   |   |   |   |     |   |                 | GPM   |         |
| /  |   |   |   |     |   |                 | /   |         |
| <b>PAM24-112</b> 24V On/Off & Floating - Non-Fail Safe<br><b>GA24-562</b> 24V On/Off, Floating and Modulating<br><b>GASRE24-450</b> 24V On/Off, Floating and Modulating, Shaft Normally Retracted<br><b>GASEX24-450</b> 24V On/Off, Floating and Modulating, Shaft Normally Extended |   |   |   |     |   |                 | Actuator Selection  |         |
| SSM  | 5 | A | L | 246 | / | <b>GA24-562</b> | 5" Simple Set Max Body, NPT End Connections, Low Flow Rate, GPM of 246, 24V GA24-562 Actuator | Example |

## Simple Set Max - Dimensions - 2-1/2" - 12"

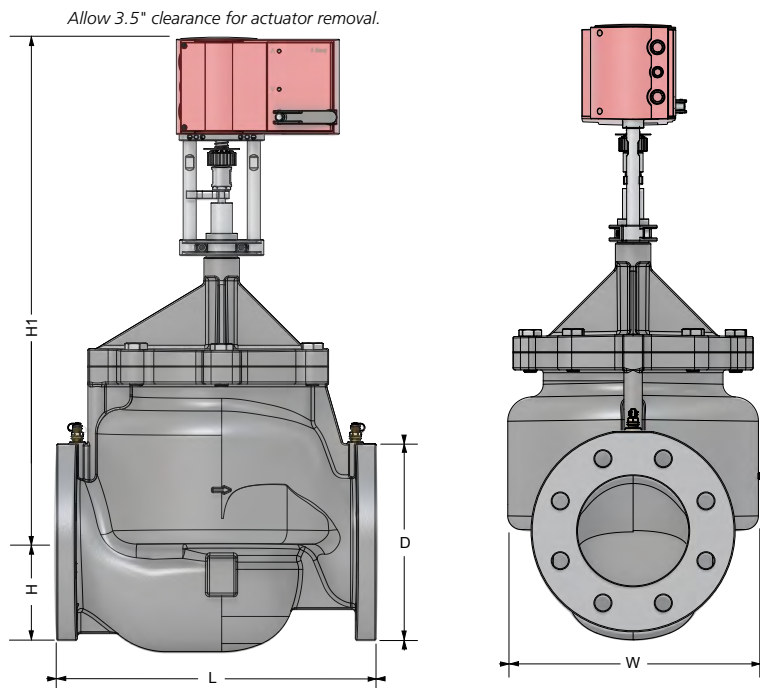
### Simple Set Max ANSI 125 Dimensions with PAM24-112 Actuator — 2-1/2" - 3"

| ANSI 125 Model # | Connection |    | Flow Range     | Please Reference the Illustration |     |      |    |       |     |      |     |      |     |        |    |
|------------------|------------|----|----------------|-----------------------------------|-----|------|----|-------|-----|------|-----|------|-----|--------|----|
|                  |            |    |                | L                                 |     | H    |    | H1    |     | D    |     | W    |     | Weight |    |
| x = Flow in GPM  | in.        | mm | GPM            | in.                               | mm  | in.  | mm | in.   | mm  | in.  | mm  | in.  | mm  | lbs    | kg |
| SSM-250-A-L-x    | 2.5        | 65 | 19.27 - 110.06 | 10.87                             | 276 | 3.51 | 89 | 15.50 | 394 | 7.01 | 178 | 6.41 | 163 | 35     | 16 |
| SSM-250-A-H-x    | 2.5        | 65 | 26.21 - 154.11 | 10.87                             | 276 | 3.51 | 89 | 15.50 | 394 | 7.01 | 178 | 6.41 | 163 | 35     | 16 |
| SSM-3-A-L-x      | 3.0        | 80 | 25.53 - 149.78 | 11.73                             | 298 | 3.75 | 95 | 16.35 | 415 | 7.52 | 191 | 7.96 | 202 | 55     | 25 |
| SSM-3-A-H-x      | 3.0        | 80 | 30.92 - 189.47 | 11.73                             | 298 | 3.75 | 95 | 16.35 | 415 | 7.52 | 191 | 7.96 | 202 | 55     | 25 |

### Simple Set Max ANSI 125 Dimensions with GA(S) Actuators — 2-1/2" - 12"

| ANSI 125 Model # | Connection |     | Flow Range     | Please Reference the Illustration |     |       |     |       |     |       |     |       |     |        |     |
|------------------|------------|-----|----------------|-----------------------------------|-----|-------|-----|-------|-----|-------|-----|-------|-----|--------|-----|
|                  |            |     |                | L                                 |     | H     |     | H1    |     | D     |     | W     |     | Weight |     |
| x = Flow in GPM  | in.        | mm  | GPM            | in.                               | mm  | in.   | mm  | in.   | mm  | in.   | mm  | in.   | mm  | lbs    | kg  |
| SM-250-A-L-x     | 2.5        | 65  | 19.27 - 110.06 | 10.87                             | 276 | 3.51  | 89  | 15.50 | 394 | 7.01  | 178 | 6.41  | 163 | 41     | 19  |
| SSM-250-A-H-x    | 2.5        | 65  | 26.21 - 154.11 | 10.87                             | 276 | 3.51  | 89  | 19.12 | 486 | 7.01  | 178 | 6.41  | 163 | 41     | 19  |
| SSM-3-A-L-x      | 3.0        | 80  | 25.53 - 149.78 | 11.73                             | 298 | 3.75  | 95  | 19.98 | 507 | 7.52  | 191 | 7.96  | 202 | 61     | 28  |
| SSM-3-A-H-x      | 3.0        | 80  | 30.92 - 189.47 | 11.73                             | 298 | 3.75  | 95  | 19.98 | 507 | 7.52  | 191 | 7.96  | 202 | 61     | 28  |
| SSM-4-A-L-x      | 4.0        | 100 | 53.41-299.41   | 13.86                             | 352 | 4.51  | 115 | 24.52 | 623 | 9.02  | 229 | 10.53 | 267 | 123    | 56  |
| SSM-4-A-H-x      | 4.0        | 100 | 64.99-396.54   | 13.86                             | 352 | 4.51  | 115 | 24.52 | 623 | 9.02  | 229 | 10.53 | 267 | 123    | 56  |
| SSM-5-A-L-x      | 5.0        | 125 | 81.45-484.32   | 15.75                             | 400 | 5.00  | 127 | 25.58 | 650 | 10.00 | 254 | 11.90 | 302 | 171    | 78  |
| SSM-5-A-H-x      | 5.0        | 125 | 101.26-594.37  | 15.75                             | 400 | 5.00  | 127 | 25.58 | 650 | 10.00 | 254 | 11.90 | 302 | 171    | 78  |
| SSM-6-A-L-x      | 6.0        | 150 | 112.71-651.59  | 17.76                             | 451 | 5.49  | 139 | 27.26 | 692 | 10.98 | 279 | 14.00 | 356 | 241    | 109 |
| SSM-6-A-H-x      | 6.0        | 150 | 140.89-858.56  | 17.76                             | 451 | 5.49  | 139 | 27.26 | 692 | 10.98 | 279 | 14.00 | 356 | 241    | 109 |
| SSM-8-A-L-x      | 8.0        | 200 | 418-925        | 23.62                             | 600 | 7.48  | 190 | 27.38 | 695 | 14.96 | 380 | 18.58 | 472 | 386    | 175 |
| SSM-8-A-H-x      | 8.0        | 200 | 572-1233       | 23.62                             | 600 | 7.48  | 190 | 27.38 | 695 | 14.96 | 380 | 18.58 | 472 | 386    | 175 |
| SSM-10-A-L-x     | 10.0       | 250 | 837-2091       | 28.74                             | 730 | 8.74  | 222 | 33.44 | 849 | 17.48 | 444 | 21.69 | 551 | 677    | 307 |
| SSM-10-A-H-x     | 10.0       | 250 | 1079-2641      | 28.74                             | 730 | 8.74  | 222 | 33.44 | 849 | 17.48 | 444 | 21.69 | 551 | 677    | 307 |
| SSM-12-A-L-x     | 12.0       | 300 | 837-2091       | 33.46                             | 850 | 10.24 | 260 | 33.44 | 849 | 20.47 | 520 | 28.39 | 721 | 1036   | 470 |
| SSM-12-A-H-x     | 12.0       | 300 | 1079 - 2641    | 33.46                             | 850 | 10.24 | 260 | 33.44 | 849 | 20.47 | 520 | 28.39 | 721 | 1036   | 470 |

Weights shown are for valve/actuator assemblies  
Add 3.2 lbs. (1.5 kg) for spring return GA(S) actuator

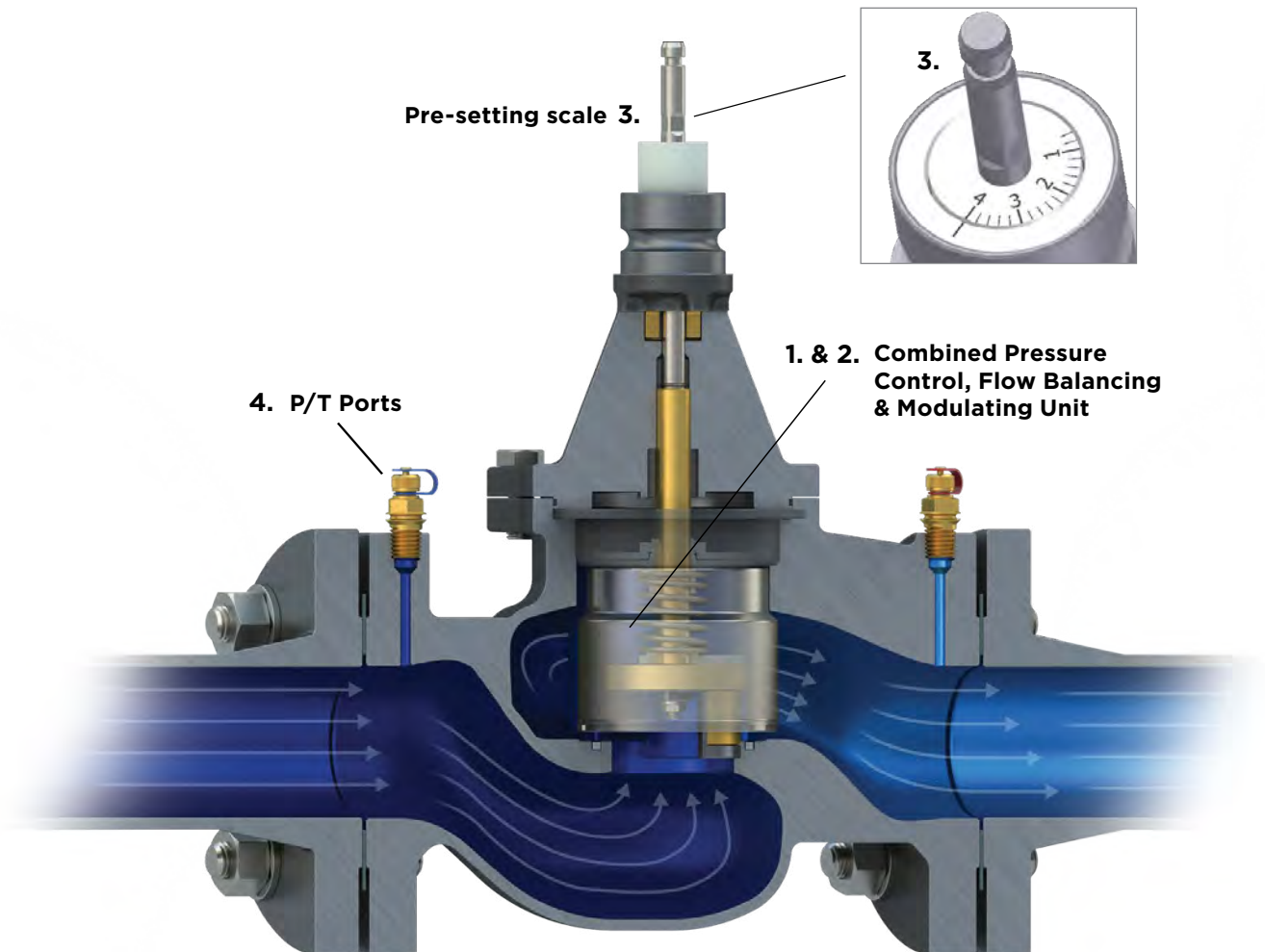


## Simple Set Max - Valve Sizing

Unlike conventional control valve sizing where valves are sized to a Cv, the Simple Set Max valves are simply sized for flow and pipe size. Refer to the ordering table for the wide range of flow values available.

The design of Simple Set Max combines high performance and a compact design. The main components of the valve are:

- 1. Differential Pressure Control Cartridge** - Ensures constant flow rate is achieved under fluctuating system pressures. As the system differential pressure increases and decreases, the Dp controller absorbs and releases pressure through an internal capillary tube maintaining a constant Dp across the valve.
- 2. Modulating Control Component** -
  1. Rotates laterally to limit max flow through the valve per the Pre-Setting Scale.
  2. Moves vertically in response to the actuator call for more or less flow.
- 3. Presetting Scale** - Sets maximum flow allowed through valve.
- 4. P/T Ports** - Allows for measurement of water flow and temperature.



## Simple Set Max - Flow Rate Charts

| 2-1/2"          |         | 2-1/2" Low Flow Rate Cartridge |                        |          |
|-----------------|---------|--------------------------------|------------------------|----------|
| Model Number    | Pre-Set | Min. Delta P (psid)            | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-250-A-L-19  | 0.6     | 2.18                           | 4.4                    | 19       |
| SSM-250-A-L-24  | 0.8     | 2.18                           | 5.6                    | 24       |
| SSM-250-A-L-29  | 1.0     | 2.18                           | 6.6                    | 29       |
| SSM-250-A-L-34  | 1.2     | 2.31                           | 7.7                    | 34       |
| SSM-250-A-L-38  | 1.4     | 2.41                           | 8.6                    | 38       |
| SSM-250-A-L-42  | 1.6     | 2.49                           | 9.6                    | 42       |
| SSM-250-A-L-46  | 1.8     | 2.55                           | 10.5                   | 46       |
| SSM-250-A-L-51  | 2.0     | 2.61                           | 11.5                   | 51       |
| SSM-250-A-L-55  | 2.2     | 2.66                           | 12.5                   | 55       |
| SSM-250-A-L-60  | 2.4     | 2.7                            | 13.5                   | 60       |
| SSM-250-A-L-65  | 2.6     | 2.76                           | 14.7                   | 65       |
| SSM-250-A-L-70  | 2.8     | 2.82                           | 15.8                   | 70       |
| SSM-250-A-L-75  | 3.0     | 2.9                            | 17.1                   | 75       |
| SSM-250-A-L-81  | 3.2     | 3                              | 18.5                   | 81       |
| SSM-250-A-L-88  | 3.4     | 3.11                           | 19.9                   | 88       |
| SSM-250-A-L-95  | 3.6     | 3.26                           | 21.5                   | 95       |
| SSM-250-A-L-102 | 3.8     | 3.42                           | 23.2                   | 102      |
| SSM-250-A-L-110 | 4.0     | 3.59                           | 25.0                   | 110      |

| 2-1/2"          |         | 2-1/2" High Flow Rate Cartridge |                        |          |
|-----------------|---------|---------------------------------|------------------------|----------|
| Model Number    | Pre-Set | Min. Delta P (psid)             | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-250-A-H-26  | 0.6     | 4.35                            | 6.0                    | 26       |
| SSM-250-A-H-33  | 0.8     | 4.35                            | 7.6                    | 33       |
| SSM-250-A-H-40  | 1.0     | 4.35                            | 9.1                    | 40       |
| SSM-250-A-H-46  | 1.2     | 4.51                            | 10.5                   | 46       |
| SSM-250-A-H-53  | 1.4     | 4.6                             | 11.9                   | 53       |
| SSM-250-A-H-59  | 1.6     | 4.64                            | 13.3                   | 59       |
| SSM-250-A-H-65  | 1.8     | 4.65                            | 14.7                   | 65       |
| SSM-250-A-H-71  | 2.0     | 4.64                            | 16.0                   | 71       |
| SSM-250-A-H-77  | 2.2     | 4.64                            | 17.5                   | 77       |
| SSM-250-A-H-84  | 2.4     | 4.67                            | 19.0                   | 84       |
| SSM-250-A-H-91  | 2.6     | 4.74                            | 20.6                   | 91       |
| SSM-250-A-H-98  | 2.8     | 4.87                            | 22.3                   | 98       |
| SSM-250-A-H-106 | 3.0     | 5.09                            | 24.1                   | 106      |
| SSM-250-A-H-114 | 3.2     | 5.4                             | 26.0                   | 114      |
| SSM-250-A-H-123 | 3.4     | 5.81                            | 28.0                   | 123      |
| SSM-250-A-H-133 | 3.6     | 6.36                            | 30.2                   | 133      |
| SSM-250-A-H-143 | 3.8     | 7.06                            | 32.5                   | 143      |
| SSM-250-A-H-154 | 4.0     | 8.01                            | 35.0                   | 154      |

| 3"            |         | 3" Low Flow Rate Cartridge |                        |          |
|---------------|---------|----------------------------|------------------------|----------|
| Model Number  | Pre-Set | Min. Delta P (psid)        | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-3-A-L-26  | 0.6     | 2.32                       | 5.3                    | 26       |
| SSM-3-A-L-30  | 0.8     | 2.32                       | 6.9                    | 30       |
| SSM-3-A-L-36  | 1.0     | 2.33                       | 8.3                    | 36       |
| SSM-3-A-L-42  | 1.2     | 2.41                       | 9.6                    | 42       |
| SSM-3-A-L-48  | 1.4     | 2.47                       | 10.9                   | 48       |
| SSM-3-A-L-54  | 1.6     | 2.52                       | 12.2                   | 54       |
| SSM-3-A-L-59  | 1.8     | 2.57                       | 13.5                   | 59       |
| SSM-3-A-L-65  | 2.0     | 2.61                       | 14.8                   | 65       |
| SSM-3-A-L-71  | 2.2     | 2.65                       | 16.2                   | 71       |
| SSM-3-A-L-77  | 2.4     | 2.7                        | 17.6                   | 77       |
| SSM-3-A-L-84  | 2.6     | 2.75                       | 19.1                   | 84       |
| SSM-3-A-L-91  | 2.8     | 2.82                       | 20.7                   | 91       |
| SSM-3-A-L-99  | 3.0     | 2.9                        | 22.4                   | 99       |
| SSM-3-A-L-107 | 3.2     | 3                          | 24.3                   | 107      |
| SSM-3-A-L-116 | 3.4     | 3.13                       | 26.4                   | 116      |
| SSM-3-A-L-126 | 3.6     | 3.28                       | 28.7                   | 126      |
| SSM-3-A-L-138 | 3.8     | 3.44                       | 31.2                   | 138      |
| SSM-3-A-L-150 | 4.0     | 3.61                       | 34.0                   | 150      |

| 3"            |         | 3" High Flow Rate Cartridge |                        |          |
|---------------|---------|-----------------------------|------------------------|----------|
| Model Number  | Pre-Set | Min. Delta P (psid)         | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-3-A-H-31  | 0.6     | 3.34                        | 7.0                    | 31       |
| SSM-3-A-H-40  | 0.8     | 3.34                        | 9.0                    | 40       |
| SSM-3-A-H-48  | 1.0     | 3.34                        | 11.0                   | 48       |
| SSM-3-A-H-56  | 1.2     | 3.43                        | 12.8                   | 56       |
| SSM-3-A-H-64  | 1.4     | 3.49                        | 14.5                   | 64       |
| SSM-3-A-H-71  | 1.6     | 3.53                        | 16.2                   | 71       |
| SSM-3-A-H-79  | 1.8     | 3.57                        | 18.0                   | 79       |
| SSM-3-A-H-86  | 2.0     | 3.61                        | 19.6                   | 86       |
| SSM-3-A-H-94  | 2.2     | 3.68                        | 21.4                   | 94       |
| SSM-3-A-H-102 | 2.4     | 3.77                        | 23.2                   | 102      |
| SSM-3-A-H-111 | 2.6     | 3.91                        | 25.1                   | 111      |
| SSM-3-A-H-119 | 2.8     | 4.11                        | 27.1                   | 119      |
| SSM-3-A-H-129 | 3.0     | 4.39                        | 29.3                   | 129      |
| SSM-3-A-H-139 | 3.2     | 4.75                        | 31.6                   | 139      |
| SSM-3-A-H-150 | 3.4     | 5.19                        | 34.1                   | 150      |
| SSM-3-A-H-162 | 3.6     | 5.73                        | 36.8                   | 162      |
| SSM-3-A-H-175 | 3.8     | 6.39                        | 39.8                   | 175      |
| SSM-3-A-H-189 | 4.0     | 7.19                        | 43.0                   | 189      |

**Note:** Min. Delta P (psid) Available at Selected Flow Rate.  
See Website for Specific Flow Rate Settings Calculator

## Simple Set Max - Flow Rate Charts

| 4"            |         | 4" Low Flow Rate Cartridge |                        |          |
|---------------|---------|----------------------------|------------------------|----------|
| Model Number  | Pre-Set | Min. Delta P (psid)        | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-4-A-L-53  | 0.6     | 2.75                       | 12.1                   | 53       |
| SSM-4-A-L-67  | 0.8     | 2.83                       | 15.3                   | 67       |
| SSM-4-A-L-80  | 1.0     | 2.9                        | 18.1                   | 80       |
| SSM-4-A-L-91  | 1.2     | 2.96                       | 20.8                   | 91       |
| SSM-4-A-L-102 | 1.4     | 3.02                       | 23.2                   | 102      |
| SSM-4-A-L-112 | 1.6     | 3.08                       | 25.5                   | 112      |
| SSM-4-A-L-122 | 1.8     | 3.13                       | 27.8                   | 122      |
| SSM-4-A-L-132 | 2.0     | 3.19                       | 30.0                   | 132      |
| SSM-4-A-L-143 | 2.2     | 3.25                       | 32.4                   | 143      |
| SSM-4-A-L-154 | 2.4     | 3.32                       | 34.9                   | 154      |
| SSM-4-A-L-166 | 2.6     | 3.4                        | 37.6                   | 166      |
| SSM-4-A-L-179 | 2.8     | 3.5                        | 40.6                   | 179      |
| SSM-4-A-L-194 | 3.0     | 3.63                       | 44.0                   | 194      |
| SSM-4-A-L-210 | 3.2     | 3.78                       | 47.7                   | 210      |
| SSM-4-A-L-229 | 3.4     | 3.98                       | 51.9                   | 229      |
| SSM-4-A-L-249 | 3.6     | 4.25                       | 56.7                   | 249      |
| SSM-4-A-L-273 | 3.8     | 4.6                        | 62.0                   | 273      |
| SSM-4-A-L-299 | 4.0     | 5.08                       | 68.0                   | 299      |

| 4"            |         | 4" High Flow Rate Cartridge |                        |          |
|---------------|---------|-----------------------------|------------------------|----------|
| Model Number  | Pre-Set | Min. Delta P (psid)         | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-4-A-H-65  | 0.6     | 4.14                        | 14.8                   | 65       |
| SSM-4-A-H-83  | 0.8     | 4.24                        | 18.9                   | 83       |
| SSM-4-A-H-99  | 1.0     | 4.35                        | 22.6                   | 99       |
| SSM-4-A-H-114 | 1.2     | 4.48                        | 26.0                   | 114      |
| SSM-4-A-H-128 | 1.4     | 4.61                        | 29.1                   | 128      |
| SSM-4-A-H-141 | 1.6     | 4.75                        | 32.1                   | 141      |
| SSM-4-A-H-154 | 1.8     | 4.91                        | 35.1                   | 154      |
| SSM-4-A-H-168 | 2.0     | 5.08                        | 38.1                   | 168      |
| SSM-4-A-H-181 | 2.2     | 5.27                        | 41.2                   | 181      |
| SSM-4-A-H-196 | 2.4     | 5.5                         | 44.5                   | 196      |
| SSM-4-A-H-212 | 2.6     | 5.78                        | 48.2                   | 212      |
| SSM-4-A-H-230 | 2.8     | 6.11                        | 52.2                   | 230      |
| SSM-4-A-H-250 | 3.0     | 6.52                        | 56.7                   | 250      |
| SSM-4-A-H-272 | 3.2     | 7.05                        | 61.9                   | 272      |
| SSM-4-A-H-298 | 3.4     | 7.7                         | 67.7                   | 298      |
| SSM-4-A-H-327 | 3.6     | 8.51                        | 74.2                   | 327      |
| SSM-4-A-H-360 | 3.8     | 9.56                        | 81.7                   | 360      |
| SSM-4-A-H-396 | 4.0     | 10.87                       | 90.0                   | 396      |

| 5"            |         | 5" Low Flow Rate Cartridge |                        |          |
|---------------|---------|----------------------------|------------------------|----------|
| Model Number  | Pre-Set | Min. Delta P (psid)        | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-5-A-L-81  | 0.6     | 2.32                       | 18.5                   | 81       |
| SSM-5-A-L-104 | 0.8     | 2.32                       | 23.6                   | 104      |
| SSM-5-A-L-125 | 1.0     | 2.32                       | 28.5                   | 125      |
| SSM-5-A-L-147 | 1.2     | 2.39                       | 33.3                   | 147      |
| SSM-5-A-L-167 | 1.4     | 2.46                       | 38.0                   | 167      |
| SSM-5-A-L-188 | 1.6     | 2.51                       | 42.6                   | 188      |
| SSM-5-A-L-207 | 1.8     | 2.56                       | 47.1                   | 207      |
| SSM-5-A-L-227 | 2.0     | 2.61                       | 51.5                   | 227      |
| SSM-5-A-L-246 | 2.2     | 2.67                       | 55.9                   | 246      |
| SSM-5-A-L-266 | 2.4     | 2.73                       | 60.4                   | 266      |
| SSM-5-A-L-286 | 2.6     | 2.81                       | 65.0                   | 286      |
| SSM-5-A-L-308 | 2.8     | 2.91                       | 69.8                   | 308      |
| SSM-5-A-L-330 | 3.0     | 3.05                       | 75.0                   | 330      |
| SSM-5-A-L-355 | 3.2     | 3.23                       | 80.6                   | 355      |
| SSM-5-A-L-382 | 3.4     | 3.48                       | 86.7                   | 382      |
| SSM-5-A-L-412 | 3.6     | 3.83                       | 93.6                   | 412      |
| SSM-5-A-L-446 | 3.8     | 4.34                       | 101.3                  | 446      |
| SSM-5-A-L-484 | 4.0     | 5.08                       | 110.0                  | 484      |

| 5"            |         | 5" High Flow Rate Cartridge |                        |          |
|---------------|---------|-----------------------------|------------------------|----------|
| Model Number  | Pre-Set | Min. Delta P (psid)         | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-5-A-H-101 | 0.6     | 3.92                        | 23.0                   | 101      |
| SSM-5-A-H-132 | 0.8     | 3.92                        | 29.9                   | 131      |
| SSM-5-A-H-161 | 1.0     | 3.92                        | 36.5                   | 161      |
| SSM-5-A-H-188 | 1.2     | 3.99                        | 42.8                   | 188      |
| SSM-5-A-H-215 | 1.4     | 4.05                        | 48.7                   | 215      |
| SSM-5-A-H-240 | 1.6     | 4.1                         | 54.5                   | 240      |
| SSM-5-A-H-264 | 1.8     | 4.15                        | 60.0                   | 264      |
| SSM-5-A-H-288 | 2.0     | 4.21                        | 65.5                   | 288      |
| SSM-5-A-H-312 | 2.2     | 4.27                        | 70.9                   | 312      |
| SSM-5-A-H-336 | 2.4     | 4.35                        | 76.4                   | 336      |
| SSM-5-A-H-361 | 2.6     | 4.46                        | 82.0                   | 361      |
| SSM-5-A-H-387 | 2.8     | 4.6                         | 87.8                   | 387      |
| SSM-5-A-H-414 | 3.0     | 7.79                        | 94.0                   | 414      |
| SSM-5-A-H-443 | 3.2     | 5.05                        | 100.7                  | 443      |
| SSM-5-A-H-475 | 3.4     | 5.41                        | 108.0                  | 475      |
| SSM-5-A-H-511 | 3.6     | 5.92                        | 116.0                  | 511      |
| SSM-5-A-H-550 | 3.8     | 6.65                        | 125.0                  | 550      |
| SSM-5-A-H-594 | 4.0     | 7.69                        | 135.0                  | 594      |

**Note:** Min. Delta P (psid) Available at Selected Flow Rate.  
See Website for Specific Flow Rate Settings Calculator

## Simple Set Max - Flow Rate Charts

| 6"            |         | 6" Low Flow Rate Cartridge |                        |          |
|---------------|---------|----------------------------|------------------------|----------|
| Model Number  | Pre-Set | Min. Delta P (psid)        | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-6-A-L-113 | 0.6     | 3.05                       | 25.6                   | 113      |
| SSM-6-A-L-143 | 0.8     | 3.05                       | 32.6                   | 143      |
| SSM-6-A-L-173 | 1.0     | 3.05                       | 39.2                   | 173      |
| SSM-6-A-L-201 | 1.2     | 3.05                       | 45.6                   | 201      |
| SSM-6-A-L-228 | 1.4     | 3.05                       | 51.8                   | 228      |
| SSM-6-A-L-255 | 1.6     | 3.05                       | 58.0                   | 255      |
| SSM-6-A-L-282 | 1.8     | 3.05                       | 64.1                   | 282      |
| SSM-6-A-L-310 | 2.0     | 3.19                       | 70.4                   | 310      |
| SSM-6-A-L-338 | 2.2     | 3.39                       | 76.8                   | 338      |
| SSM-6-A-L-367 | 2.4     | 3.61                       | 83.4                   | 367      |
| SSM-6-A-L-398 | 2.6     | 3.86                       | 90.3                   | 398      |
| SSM-6-A-L-429 | 2.8     | 4.11                       | 97.5                   | 429      |
| SSM-6-A-L-462 | 3.0     | 4.35                       | 105.0                  | 462      |
| SSM-6-A-L-497 | 3.2     | 4.58                       | 112.9                  | 497      |
| SSM-6-A-L-533 | 3.4     | 4.77                       | 121.1                  | 533      |
| SSM-6-A-L-571 | 3.6     | 4.93                       | 129.7                  | 571      |
| SSM-6-A-L-610 | 3.8     | 5.03                       | 138.7                  | 610      |
| SSM-6-A-L-652 | 4.0     | 5.08                       | 148.0                  | 652      |

| 6"            |         | 6" High Flow Rate Cartridge |                        |          |
|---------------|---------|-----------------------------|------------------------|----------|
| Model Number  | Pre-Set | Min. Delta P (psid)         | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-6-A-H-141 | 0.6     | 4.79                        | 32.0                   | 141      |
| SSM-6-A-H-182 | 0.8     | 4.79                        | 41.3                   | 182      |
| SSM-6-A-H-220 | 1.0     | 4.79                        | 50.0                   | 220      |
| SSM-6-A-H-256 | 1.2     | 4.79                        | 58.2                   | 256      |
| SSM-6-A-H-291 | 1.4     | 4.79                        | 66.0                   | 291      |
| SSM-6-A-H-324 | 1.6     | 4.79                        | 73.7                   | 324      |
| SSM-6-A-H-358 | 1.8     | 4.79                        | 81.3                   | 358      |
| SSM-6-A-H-392 | 2.0     | 4.93                        | 89.0                   | 392      |
| SSM-6-A-H-427 | 2.2     | 5.16                        | 96.9                   | 427      |
| SSM-6-A-H-463 | 2.4     | 5.46                        | 105.2                  | 463      |
| SSM-6-A-H-501 | 2.6     | 5.82                        | 113.9                  | 501      |
| SSM-6-A-H-542 | 2.8     | 6.23                        | 123.1                  | 542      |
| SSM-6-A-H-586 | 3.0     | 6.68                        | 133.0                  | 586      |
| SSM-6-A-H-632 | 3.2     | 7.14                        | 143.6                  | 632      |
| SSM-6-A-H-683 | 3.4     | 7.69                        | 155.1                  | 683      |
| SSM-6-A-H-737 | 3.6     | 8.23                        | 167.4                  | 737      |
| SSM-6-A-H-796 | 3.8     | 8.81                        | 180.7                  | 796      |
| SSM-6-A-H-859 | 4.0     | 9.44                        | 195.0                  | 859      |

| 8"            |         | 8" Low Flow Rate Cartridge |                        |          |
|---------------|---------|----------------------------|------------------------|----------|
| Model Number  | Pre-Set | Min. Delta P (psid)        | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-8-A-L-418 | 1       | 1.6                        | 95.2                   | 418      |
| SSM-8-A-L-435 | 1.2     | 1.7                        | 98.8                   | 435      |
| SSM-8-A-L-460 | 1.4     | 1.8                        | 104.5                  | 460      |
| SSM-8-A-L-485 | 1.6     | 1.9                        | 110.2                  | 485      |
| SSM-8-A-L-515 | 1.8     | 2.1                        | 117.0                  | 515      |
| SSM-8-A-L-545 | 2       | 2.3                        | 123.8                  | 545      |
| SSM-8-A-L-575 | 2.2     | 2.5                        | 130.6                  | 575      |
| SSM-8-A-L-610 | 2.4     | 2.7                        | 138.6                  | 610      |
| SSM-8-A-L-640 | 2.6     | 2.9                        | 145.4                  | 640      |
| SSM-8-A-L-680 | 2.8     | 3.2                        | 154.4                  | 680      |
| SSM-8-A-L-720 | 3       | 3.4                        | 163.5                  | 720      |
| SSM-8-A-L-760 | 3.2     | 3.7                        | 172.6                  | 760      |
| SSM-8-A-L-795 | 3.4     | 3.9                        | 180.6                  | 795      |
| SSM-8-A-L-835 | 3.6     | 4.2                        | 189.7                  | 835      |
| SSM-8-A-L-875 | 3.8     | 4.4                        | 198.7                  | 875      |
| SSM-8-A-L-925 | 4       | 4.6                        | 209.9                  | 925      |

| 8"             |         | 8" High Flow Rate Cartridge |                        |          |
|----------------|---------|-----------------------------|------------------------|----------|
| Model Number   | Pre-Set | Min. Delta P (psid)         | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-8-A-H-572  | 1       | 4.5                         | 130.1                  | 572      |
| SSM-8-A-H-598  | 1.2     | 5                           | 135.8                  | 598      |
| SSM-8-A-H-630  | 1.4     | 5                           | 143.1                  | 630      |
| SSM-8-A-H-664  | 1.6     | 5                           | 150.8                  | 664      |
| SSM-8-A-H-702  | 1.8     | 5                           | 159.4                  | 702      |
| SSM-8-A-H-739  | 2       | 6                           | 167.9                  | 739      |
| SSM-8-A-H-779  | 2.2     | 6                           | 176.9                  | 779      |
| SSM-8-A-H-823  | 2.4     | 7                           | 186.9                  | 823      |
| SSM-8-A-H-865  | 2.6     | 7                           | 196.5                  | 865      |
| SSM-8-A-H-910  | 2.8     | 8                           | 206.7                  | 910      |
| SSM-8-A-H-957  | 3       | 9                           | 217.4                  | 957      |
| SSM-8-A-H-1008 | 3.2     | 9                           | 228.9                  | 1008     |
| SSM-8-A-H-1058 | 3.4     | 10                          | 240.3                  | 1058     |
| SSM-8-A-H-1109 | 3.6     | 10                          | 251.9                  | 1109     |
| SSM-8-A-H-1164 | 3.8     | 11                          | 264.4                  | 1164     |
| SSM-8-A-H-1233 | 4       | 11                          | 279.8                  | 1233     |

**Note:** Min. Delta P (psid) Available at Selected Flow Rate.  
See Website for Specific Flow Rate Settings Calculator

## Simple Set Max - Flow Rate Charts

| 10"             |         | 10" Low Flow Rate Cartridge |                        |          |
|-----------------|---------|-----------------------------|------------------------|----------|
| Model Number    | Pre-Set | Min. Delta P (psid)         | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-10-A-L-837  | 1       | 1.5                         | 190.1                  | 837      |
| SSM-10-A-L-900  | 1.2     | 1.5                         | 204.4                  | 900      |
| SSM-10-A-L-960  | 1.4     | 1.6                         | 218.0                  | 960      |
| SSM-10-A-L-1020 | 1.6     | 1.7                         | 231.7                  | 1020     |
| SSM-10-A-L-1075 | 1.8     | 1.9                         | 244.2                  | 1075     |
| SSM-10-A-L-1135 | 2       | 2.1                         | 257.8                  | 1135     |
| SSM-10-A-L-1195 | 2.2     | 2.4                         | 271.4                  | 1195     |
| SSM-10-A-L-1255 | 2.4     | 2.6                         | 285.0                  | 1255     |
| SSM-10-A-L-1325 | 2.6     | 2.9                         | 300.9                  | 1325     |
| SSM-10-A-L-1400 | 2.8     | 3.3                         | 318.0                  | 1400     |
| SSM-10-A-L-1480 | 3       | 3.6                         | 336.1                  | 1480     |
| SSM-10-A-L-1570 | 3.2     | 3.9                         | 356.6                  | 1570     |
| SSM-10-A-L-1680 | 3.4     | 3.4                         | 381.6                  | 1680     |
| SSM-10-A-L-1795 | 3.6     | 4.5                         | 407.7                  | 1795     |
| SSM-10-A-L-1930 | 3.8     | 4.8                         | 438.4                  | 1930     |
| SSM-10-A-L-2091 | 4       | 5.1                         | 474.9                  | 2091     |

| 10"             |         | 10" High Flow Rate Cartridge |                        |          |
|-----------------|---------|------------------------------|------------------------|----------|
| Model Number    | Pre-Set | Min. Delta P (psid)          | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-10-A-H-1079 | 1       | 2.18                         | 245.1                  | 1079     |
| SSM-10-A-H-1118 | 1.2     | 2.3                          | 253.9                  | 1118     |
| SSM-10-A-H-1178 | 1.4     | 2.5                          | 267.6                  | 1178     |
| SSM-10-A-H-1246 | 1.6     | 2.8                          | 283.0                  | 1246     |
| SSM-10-A-H-1330 | 1.8     | 3.1                          | 302.1                  | 1330     |
| SSM-10-A-H-1420 | 2       | 3.6                          | 322.5                  | 1420     |
| SSM-10-A-H-1515 | 2.2     | 4.1                          | 344.1                  | 1515     |
| SSM-10-A-H-1620 | 2.4     | 4.6                          | 367.9                  | 1620     |
| SSM-10-A-H-1730 | 2.6     | 5.2                          | 392.9                  | 1730     |
| SSM-10-A-H-1845 | 2.8     | 5.8                          | 419.1                  | 1845     |
| SSM-10-A-H-1965 | 3       | 6.4                          | 446.3                  | 1965     |
| SSM-10-A-H-2090 | 3.2     | 7.1                          | 474.7                  | 2090     |
| SSM-10-A-H-2220 | 3.4     | 7.8                          | 504.2                  | 2220     |
| SSM-10-A-H-2355 | 3.6     | 8.6                          | 534.9                  | 2355     |
| SSM-10-A-H-2490 | 3.8     | 9.3                          | 565.5                  | 2490     |
| SSM-10-A-H-2642 | 4       | 10.2                         | 599.8                  | 2642     |

| 12"             |         | 12" Low Flow Rate Cartridge |                        |          |
|-----------------|---------|-----------------------------|------------------------|----------|
| Model Number    | Pre-Set | Min. Delta P (psid)         | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-12-A-L-837  | 1       | 1.5                         | 190.1                  | 837      |
| SSM-12-A-L-895  | 1.2     | 1.5                         | 203.3                  | 895      |
| SSM-12-A-L-955  | 1.4     | 1.6                         | 216.9                  | 955      |
| SSM-12-A-L-1015 | 1.6     | 1.7                         | 230.5                  | 1015     |
| SSM-12-A-L-1075 | 1.8     | 1.8                         | 244.2                  | 1075     |
| SSM-12-A-L-1130 | 2       | 2.1                         | 256.7                  | 1130     |
| SSM-12-A-L-1195 | 2.2     | 2.4                         | 271.4                  | 1195     |
| SSM-12-A-L-1255 | 2.4     | 2.6                         | 285.0                  | 1255     |
| SSM-12-A-L-1325 | 2.6     | 2.9                         | 300.9                  | 1325     |
| SSM-12-A-L-1400 | 2.8     | 3.3                         | 318.0                  | 1400     |
| SSM-12-A-L-1480 | 3       | 3.6                         | 336.1                  | 1480     |
| SSM-12-A-L-1570 | 3.2     | 3.2                         | 356.6                  | 1570     |
| SSM-12-A-L-1680 | 3.4     | 4.2                         | 381.6                  | 1680     |
| SSM-12-A-L-1795 | 3.6     | 4.5                         | 407.7                  | 1795     |
| SSM-12-A-L-1930 | 3.8     | 4.8                         | 438.4                  | 1930     |
| SSM-12-A-L-2091 | 4       | 5.1                         | 474.9                  | 2091     |

| 12"             |         | 12" High Flow Rate Cartridge |                        |          |
|-----------------|---------|------------------------------|------------------------|----------|
| Model Number    | Pre-Set | Min. Delta P (psid)          | Flow m <sup>3</sup> /h | Flow GPM |
| SSM-12-A-H-1079 | 1       | 2.2                          | 245.1                  | 1079     |
| SSM-12-A-H-1118 | 1.2     | 2.3                          | 253.9                  | 1118     |
| SSM-12-A-H-1178 | 1.4     | 2.5                          | 267.6                  | 1178     |
| SSM-12-A-H-1248 | 1.6     | 2.8                          | 283.5                  | 1248     |
| SSM-12-A-H-1330 | 1.8     | 3.1                          | 302.1                  | 1330     |
| SSM-12-A-H-1418 | 2       | 3.6                          | 322.1                  | 1418     |
| SSM-12-A-H-1515 | 2.2     | 4.1                          | 344.1                  | 1515     |
| SSM-12-A-H-1618 | 2.4     | 4.6                          | 367.5                  | 1618     |
| SSM-12-A-H-1730 | 2.6     | 5.2                          | 392.9                  | 1730     |
| SSM-12-A-H-1847 | 2.8     | 5.8                          | 419.5                  | 1847     |
| SSM-12-A-H-1969 | 3       | 6.5                          | 447.2                  | 1969     |
| SSM-12-A-H-2090 | 3.2     | 7.1                          | 474.7                  | 2090     |
| SSM-12-A-H-2225 | 3.4     | 7.9                          | 505.4                  | 2225     |
| SSM-12-A-H-2350 | 3.6     | 8.6                          | 533.7                  | 2350     |
| SSM-12-A-H-2490 | 3.8     | 9.3                          | 565.5                  | 2490     |
| SSM-12-A-H-2642 | 4       | 10.2                         | 599.8                  | 2642     |

**Note:** Min. Delta P (psid) Available at Selected Flow Rate.  
See Website for Specific Flow Rate Settings Calculator

# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

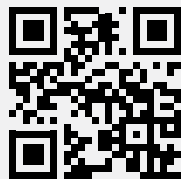
- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

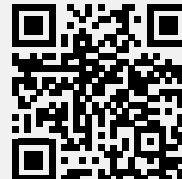
### **CORPORATE HEADQUARTERS**

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### **DIVISION HEADQUARTERS**

**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)




All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

This page is intentionally left blank

## **Flanged DG Series** **Flanged Globe Valves** **2-Way & 3-Way • 2-1/2" - 6"**

| DOCUMENT                                    |   |
|---|---|
| CONTENTS                                    | Features  |
|   | Specifications  |
|   | Piping Charts   |
|   | Close-Off Charts  |
|   | Steam Sizing  |
| LOOKING FOR MORE                            | DIMENSIONS  |
|   |  |
| © 2026 Bray International, Inc.<br>05/29/26 |   |

Flanged DG Series Globe Valves provide stable and accurate control of both water, 50/50 water Glycol solutions and steam heat exchangers on fan coil units, VAV reheat coils, and air handling units up to 900 GPM. These globe valves feature rangeability of greater than 100:1 to provide precise control.

Two way standard trim valves provide an equal percentage flow characteristic for use on hot water and chilled water.

Two way stainless trim valves - recommended for steam applications, and 3-way mixing valves provide a linear flow characteristic.

All Flanged DG Series Globe Valves feature a cartridge style packing, which is easily replaceable while the valve is in line. Constant plug guiding and precision-machined metal to metal seating assures ANSI Class IV shutoff (.01%) which provides low leakage and energy conservation.



### **Features and Benefits**

- **Rangeability >100:1**  
*Superior control accuracy*
- **Cartridge Packing**  
*Easily replaceable while valve is in line*
- **2-Way and 3-Way bodies from 2-1/2" to 6"**  
*Covers all applications from fan coil units to air handling units*
- **Stainless Steel Trim Option**  
*Applicable to steam inlet pressure up to 15 psi*

## Flanged DG Series - Specifications

| Technical Specifications - Flanged Globe Valve Body |   |  |   |     |
|---|---|--|---|-----|
| Service   | Chilled/Hot Water   |  | Steam (0 to 15 psi Max Inlet Pressure)            |     |
|   | Chilled/Hot Water, 50/50 Glycol Solutions & Saturated Steam   |  |   |     |
| Size Range  | 2-1/2" - 6", 2-Way Normally Open, 3-Way Universal Mixing or Diverting   |  | 2-1/2" - 6", 2-Way Normally Open                  |     |
| Available Cv's                                      | 63, 100, 160, 250, 400  |  |   |     |
| Media Temperature Range                             | 20°F to 250°F (-7°C to 120°C)   |  |   |     |
| Max Inlet Temperature/Pressure                      | °F  | psi                                      | °F  | psi |
|   | -20° to 150°  | 200                                      | 250°  | 15  |
|   | 200°  | 190                                      |   |     |
|   | 250°  | 175                                      |   |     |
| Maximum Recommended Differential Pressure           | 50 psi Water  |  | 15 psig Steam                                     |     |
| Valve Body Pressure Rating                          | ANSI Class 125  |  |   |     |
| Maximum Close-Off Pressure                          | Refer to Close-Off Charts   |  |   |     |
| Close-Off Ratings                                   | According to ANSI/FCI 70-2  |  |   |     |
| Flow Characteristic                                 | Equal Percentage for 2-Way valves with standard trim.<br>Linear for 2-Way valves with Stainless Steel trim.<br>3-Way is equal percentage NC port, and linear for NO port. |  |   |     |
| Stroke  | 2-1/2" and 3" - 3/4" (20 mm)<br>4", 5" and 6" - 1-1/2" (40 mm)  |  |   |     |
| Leakage Rate  | Class IV (0.01% of Cv)  |  |   |     |
| Rangeability  | > 100:1   |  |   |     |
| Seat Style  | Flanged - Metal to metal  |  |   |     |
| Materials   | Body  | Cast iron ASTM A 126 Class B             |   |     |
|   | Stem  | Stainless Steel (ASTM A582 Type 303)     |   |     |
|   | Valve Trim Required   | Bronze                                   | Stainless Steel<br>(noted by SS in the valve P/N) |     |
|   | Packing   | Double Ethylene propylene (EPDM) O-Rings |   |     |
| Certifications                                      | CRN - OC24303.5   |  |   |     |
| Warranty  | 5 Years limited from time of shipment.  |  |   |     |

**Note** - Normally closed available upon request.  
High temperature steam available upon request.  
When the valve is used for diverting applications, the max DP is restricted to 90% of the max DP that is specified for the valve when it is used in a mixing application

**Disclaimer** - The performance specifications are nominal and conform to acceptable industry standards.

For application at conditions beyond these specifications, consult the local Bray office.

Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

## Flanged DG Series - Actuator Options

### GA Series



- **Multiple control inputs for both spring return and non spring return models.**  
Meets the requirements of virtually any heat exchanger control application
- **GA(S) Series automatically adapts to valve stroke**  
Built-in intelligence matches the actuator to the valve stroke.
- **GA(S) Series automatically connects spindle after application of control voltage**  
Easy assembly with valve.
- **Spring Return Models**  
Available "fail up/retracted" and "fail down/extended"

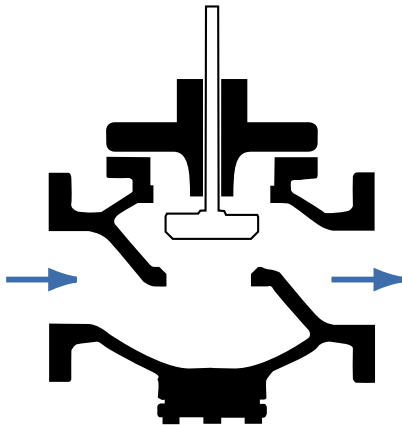


### VAL Series

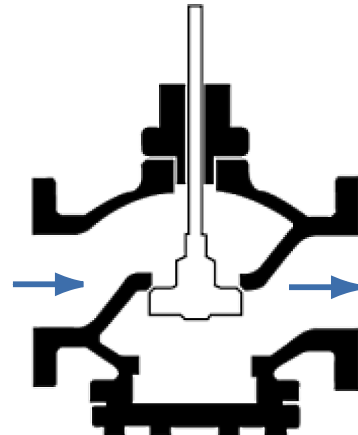
- **High Output Force**  
Provides high close-off pressure ratings
- **Direct Mount to Bray DG Series Globe Valves**  
Eases installation and minimizes space requirements
- **Spring Return Operation**  
Returns valve to the open position upon loss of power
- **User-Selectable Input Signals**  
Accepts current or voltage inputs
- **Visual and Electronic Position Indication**  
Provides position feedback and provides for remote monitoring

## Flanged DG Series - Piping Setup for 2-Way Valves

**2-Way Application:**  
Push down to Close



**2-Way Application:**  
Push down to Open

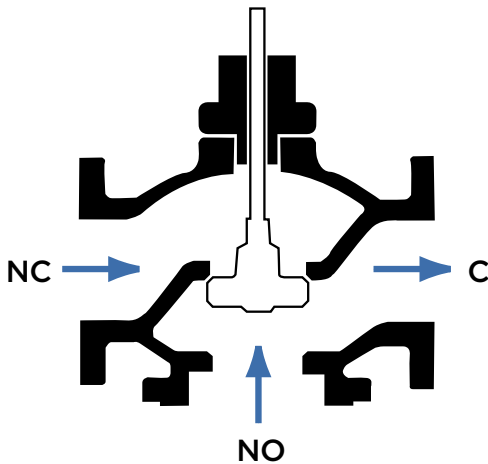


Any configuration of fail open, fail closed, reverse acting or direct acting can be set up upon special request. Push down to close is the standard configuration.

## Flanged DG Series - Mixing and Diverting Piping Setup for 3-Way Valves

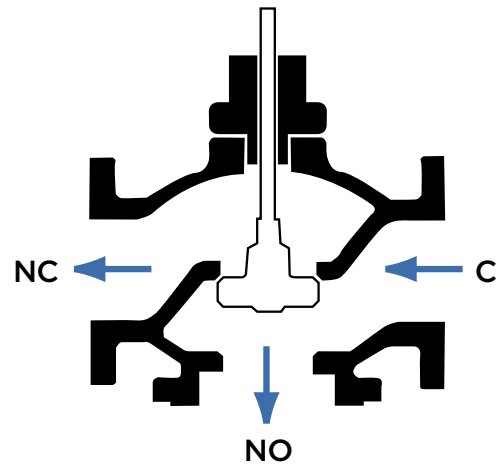
**3-Way Mixing:**

Stem down = Flow from NC to C (Common).  
Stem up = Flow from NO to C (Common).



**3-Way Diverting:**

Stem down = Flow from C (Common) to NC.  
Stem up = Flow from C (Common) to NO.



Any configuration of fail open, fail closed, reverse acting or direct acting can be set up upon special request. All diverting globe valves will ship in the above configuration unless otherwise specified.

## Flanged DG Series - Mode of Actuation

### GA(S) Series Linear Actuators:

GA actuators can be wired for three modes of actuation; 2-point on/off, 3-point floating or proportional actuation. When the actuator is used for proportional actuation the unit can be wired such that the shaft will extend or retract with an increasing signal. For wiring instructions reference installation instructions. 0-10 VDC feedback is available for all three modes of actuation.

- 1) For non-spring return model GA24-562, if power is removed the actuator will fail in place. For wiring instructions reference installation instructions.
- 2) Two different spring return models can be selected. The GASEX24-450 is designed such that the shaft will extend when power is removed and the GASRE24-450 is designed such that the shaft will retract when power is removed.

## Flanged DG Series - Mode of Actuation (Continued)

- 1) For non spring return assemblies a fully extended shaft will close the valve and a fully retracted shaft will open the valve.
- 2) For spring return assemblies the spring extended models are used for normally closed assemblies and the spring retracted models are used for normally open assemblies.

### 3 Way Valve Assemblies:

- 1) For non spring return assemblies a fully extended shaft will make port NC open to C and a fully retracted shaft will make port NO open to C.
- 2) For spring return assemblies the spring extended models are used when the normal position desired is port NC open to C and the spring retracted models are used when the normal position desired is port NO open to C.

### VAL Series Linear Actuators:

VAL actuators are spring return and used for proportional actuation only. The unit is designed such that the shaft will retract when power is removed. The actuator shaft will extend with an increasing signal. 0-10 VDC or 4-20 mA feedback is available.

### 2 Way Valve Assemblies:

Valve assemblies are designed to be normally open since the actuators' spring normally retracts the shaft.

### 3 Way Valve Assemblies:

Valve assemblies are used when the normal position desired is port NO open to C since the actuators' spring normally retracts the shaft.

## Flanged DG Series - 2-Way Actuator Selection and Close-Off Charts

| 2-Way (Flanged DG) with GA(S) Series Actuator - Close-Off Chart (psi) - Water* |      |     |                  |     | Non-Spring Return                          | Spring Return Normally Open | Spring Return Normally Closed |
|--|------|-----|------------------|-----|--|-----------------------------|-------------------------------|
| Actuator Model Details   |      |     |                  |     | GA24-562                                   | GASRE24-450                 | GASEX24-450                   |
| Model Number   | Size |     | Flow Coefficient |     | On/Off, Floating and Modulating            |                             |                               |
|  | In.  | mm  | Cv               | Kv  | 24 VAC (±20%) at 50/60 Hz or 24 VDC (±15%) |                             |                               |
| DG250-2-63X  | 2.5  | 65  | 63               | 54  | 86   | 69                          | 69                            |
| DG3-2-100X   | 3    | 80  | 100              | 85  | 57   | 45                          | 45                            |
| DG4-2-160X   | 4    | 100 | 160              | 137 | 37   | 29                          | 29                            |
| DG5-2-250X   | 5    | 125 | 250              | 214 | 24   | 19                          | 19                            |
| DG6-2-400X   | 6    | 150 | 400              | 340 | 16   | 12                          | 13                            |

X - indicates "N = Normally Open", Shaft Retracted or  
"C = Normally Closed", Shaft Extended

No Specification is required for Non-Spring Return Actuators  
-A - add at end of part number for optional Auxiliary Switches

\* Above Close-Off ratings apply to steam up to 15 psi for SS trim models only. Steam Close-Offs should not exceed 15 psi.

| 2-Way (Flanged DG) with VAL <sup>1</sup> Series Actuator - Close-Off Chart (psi) - Water* |      |     |                  |     | Spring Return Normally Open | Spring Return Normally Closed | Spring Return Normally Open | Spring Return Normally Closed |
|---|------|-----|------------------|-----|-----------------------------|-------------------------------|-----------------------------|-------------------------------|
| Actuator Model Details  |      |     |                  |     | VAL-SRS07P                  | VAL-SRS15P                    | VAL-SRS07P                  | VAL-SRS15P                    |
| Model Number  | Size |     | Flow Coefficient |     | Modulating                  |                               |                             |                               |
|   | In.  | mm  | Cv               | Kv  | 24 VAC (±20%), 50/60 Hz     |                               |                             |                               |
| DG250-2-63X   | 2.5  | 65  | 63               | 54  | 153                         | -                             | 97                          | -                             |
| DG3-2-100X  | 3    | 80  | 100              | 85  | 101                         | -                             | 63                          | -                             |
| DG4-2-160X  | 4    | 100 | 160              | 137 | -                           | 65                            | -                           | 39                            |
| DG5-2-250X  | 5    | 125 | 250              | 214 | -                           | 42                            | -                           | 25                            |
| DG6-2-400X  | 6    | 150 | 400              | 340 | -                           | 29                            | -                           | 17                            |

X - indicates "N = Normally Open", Shaft Retracted or  
"C = Normally Closed", Shaft Extended

\* Above Close-Off ratings apply to steam up to 15 psi for SS trim models only. Steam Close-Offs should not exceed 15 psi.

## Flanged DG Series - 3-Way Actuator Selection and Close-Off Charts

| 3-Way (Flanged DG) with GA(S) Series Actuator - Close-Off Chart (psi) - Water* |      |     |                  |     |  | Non-Spring Return Shaft Retracted <sup>1</sup> | Non-Spring Return Shaft Extended <sup>2</sup> | Spring Return Normally Retracted <sup>3</sup> | Spring Return Normally Extended <sup>4</sup> |
|--|------|-----|------------------|-----|--|--|---|---|--|
| Actuator Model Details   |      |     |                  |     |  | GA24-562                                       | GA24-562                                      | GASRE24-450                                   | GASEX24-450                                  |
| Model Number   | Size |     | Flow Coefficient |     | On/Off, Floating and Modulating            |  |   |   |  |
|  | In.  | mm  | Cv               | Kv  | 24 VAC (±20%) at 50/60 Hz or 24 VDC (±15%) |  |   |   |  |
| DG250-3-63   | 2.5  | 65  | 63               | 54  | 85   | 86   | 68  | 69  |  |
| DG3-3-100  | 3    | 80  | 100              | 85  | 55   | 57   | 44  | 45  |  |
| DG4-3-160  | 4    | 100 | 160              | 137 | 34   | 37   | 27  | 29  |  |
| DG5-3-250  | 5    | 125 | 250              | 214 | 22   | 24   | 18  | 19  |  |
| DG6-3-400  | 6    | 150 | 400              | 340 | 15   | 16   | 12  | 13  |  |

1 - Indicates Shaft Retracted. Ports NO to C open

2 - Indicates Shaft Extended. Ports NC to C open

3 - Valve is shipped ports NO to C open

4 - Valve is shipped ports NC to C open

-A - add at end of part number for optional Auxiliary Switches

\* Above Close-Off ratings apply to steam up to 15 psi for SS trim models only. Steam Close-Offs should not exceed 15 psi.

| 3-Way (Flanged DG) with VAL <sup>5</sup> Series Actuator - Close-Off Chart (psi) - Water* |      |     |                  |     |                         | Spring Return Shaft Retracted <sup>1</sup> | Spring Return Shaft Extended <sup>2</sup> |            |            |
|---|------|-----|------------------|-----|-------------------------|--|---|------------|------------|
| Actuator Model Details  |      |     |                  |     |                         | VAL-SRS07P                                 | VAL-SRS15P                                | VAL-SRS07P | VAL-SRS15P |
| Model Number  | Size |     | Flow Coefficient |     | Modulating              |  |   |            |            |
|   | In.  | mm  | Cv               | Kv  | 24 VAC (±20%), 50/60 Hz |  |   |            |            |
| DG250-3-63  | 2.5  | 65  | 63               | 54  | 97                      | -  | 153                                       | -          |            |
| DG3-3-100   | 3    | 80  | 100              | 85  | 63                      | -  | 101                                       | -          |            |
| DG4-3-160   | 4    | 100 | 160              | 137 | -                       | 39   | -   | 65         |            |
| DG5-3-250   | 5    | 125 | 250              | 214 | -                       | 25   | -   | 42         |            |
| DG6-3-400   | 6    | 150 | 400              | 340 | -                       | 17   | -   | 29         |            |

1 - Indicates Shaft Retracted. Ports NO to C open

2 - Indicates Shaft Extended. Ports NC to C open

5 - VAL Series Actuators are Spring Return, Shaft Retracted

\* Above Close-Off ratings apply to steam up to 15 psi for SS trim models only. Steam Close-Offs should not exceed 15 psi.

## Flanged DG Series - Adjusted Cv Chart

| Adjusted Cv Chart - (Flanged DG) |      |     |                  |     |                                       |       |       |       |       |       |       |  |
|----------------------------------|------|-----|------------------|-----|---------------------------------------|-------|-------|-------|-------|-------|-------|--|
| Mode/Valve Size                  |      |     |                  |     | Pipe Size /At Full Open (Adjusted Cv) |       |       |       |       |       |       |  |
| Model Number                     | Size |     | Flow Coefficient |     |                                       |       |       |       |       |       |       |  |
|                                  | In.  | mm  | Cv               | Kv  | 2-1/2"                                | 3"    | 4"    | 5"    | 6"    | 8"    | 10"   |  |
| DG250-X-63                       | 2.5  | 65  | 63               | 54  | 63.0                                  | 62.7  | 61.7  | 61.1  | -     | -     | -     |  |
| DG3-X-100                        | 3    | 80  | 100              | 85  | -                                     | 100.0 | 98.7  | 97.3  | 96.3  | -     | -     |  |
| DG4-X-160                        | 4    | 100 | 160              | 137 | -                                     | -     | 160.0 | 158.9 | 157.3 | 155.2 | -     |  |
| DG5-X-250                        | 5    | 125 | 250              | 214 | -                                     | -     | -     | 250.0 | 248.7 | 245.0 | 242.5 |  |
| DG5-X-400                        | 6    | 150 | 400              | 340 | -                                     | -     | -     | -     | 400.0 | 394.8 | 389.1 |  |

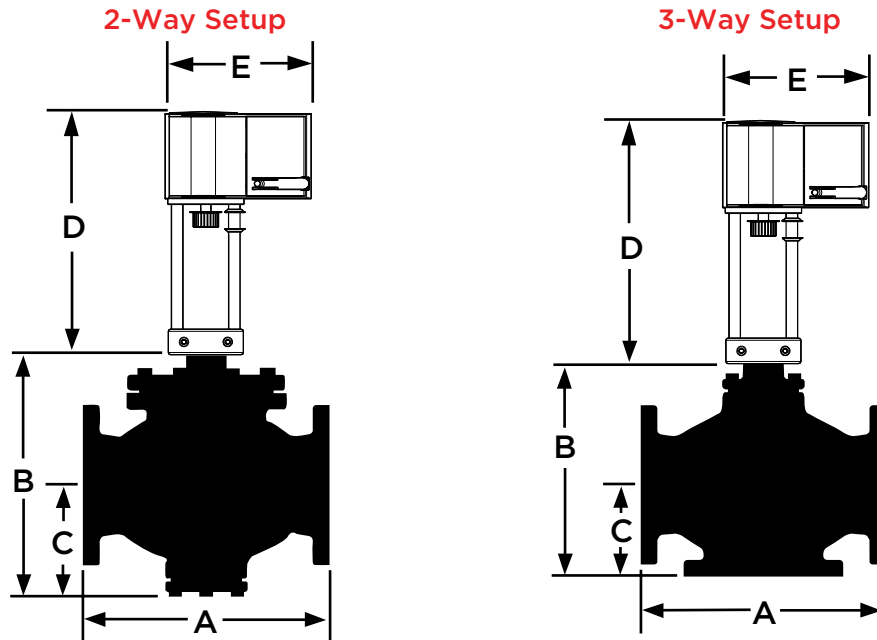
X = (2) for 2-Way  
(3) for 3-Way

## Flanged DG Series - Steam Tables

| Steam Sizing Table (Flow Rate lbs./hr) |   |       |       |       |        |        |        |        |  |        |        |        |        |        |  |        |
|--|---|-------|-------|-------|--------|--------|--------|--------|--|--------|--------|--------|--------|--------|--|--------|
| Cv                                     | Low Pressure Steam<br>Inlet Pressure (psig) |       |       |       |        |        |        |        | Medium Pressure Steam<br>Inlet Pressure (psig) |        |        |        |        |        | High Pressure<br>Steam<br>Inlet Pressure<br>(psig) |        |
|  | 2   |       | 5     |       | 10     |        | 15     |        | 20   |        | 25     |        | 40     |        | 50   |        |
|  | ΔP  |       | ΔP    |       | ΔP     |        | ΔP     |        | ΔP   |        | ΔP     |        | ΔP     |        | ΔP   |        |
|  | 0.2*  | 1.6   | 0.5*  | 4.0   | 1.0*   | 8.0    | 1.5*   | 12.0   | 2.0*   | 14.0   | 2.5*   | 16.0   | 4.0*   | 23.0   | 5.0*   | 27.0   |
| 0.4                                    | 2.2   | 5.9   | 3.7   | 9.5   | 5.9    | 13.9   | 7.8    | 17.5   | 9.7  | 20.4   | 11.6   | 23.4   | 17.1   | 32.4   | 20.7   | 38.3   |
| 0.95                                   | 5.2   | 14    | 8.8   | 22.6  | 13.9   | 32.9   | 18.5   | 41.5   | 23   | 48.5   | 27.5   | 55.5   | 40.6   | 77     | 49.2   | 90.9   |
| 0.99                                   | 5.4   | 14.6  | 9.2   | 23.5  | 14.5   | 34.3   | 19.3   | 43.3   | 24   | 50.6   | 28.6   | 57.8   | 42.3   | 80.2   | 51.3   | 94.8   |
| 1.1                                    | 6   | 16.2  | 10.2  | 26.2  | 16.1   | 38.1   | 21.5   | 48.1   | 26.7   | 56.2   | 31.8   | 64.3   | 47     | 89.1   | 57   | 105.3  |
| 1.3                                    | 7.1   | 19.2  | 12.2  | 31    | 19     | 45.1   | 25.4   | 56.8   | 31.5   | 66.4   | 37.6   | 75.9   | 55.5   | 105.3  | 67.4   | 124.4  |
| 1.8                                    | 9.8   | 27    | 18.7  | 43    | 26.3   | 62.4   | 35.1   | 78.7   | 43.7   | 91.9   | 52.1   | 105.2  | 76.9   | 145.8  | 93.3   | 172.3  |
| 2.2                                    | 12  | 32.4  | 20.4  | 52    | 32     | 76     | 43     | 96     | 53   | 112    | 63.6   | 128.5  | 94     | 178    | 114  | 210.3  |
| 2.5                                    | 13.6  | 37    | 23    | 59    | 37     | 87     | 49     | 109    | 61   | 128    | 72     | 146    | 107    | 203    | 130  | 239    |
| 3.3                                    | 18  | 49    | 31    | 79    | 48     | 114    | 64     | 144    | 80   | 169    | 95     | 193    | 141    | 267    | 171  | 316    |
| 3.6                                    | 19.6  | 53    | 34    | 86    | 53     | 125    | 70     | 157    | 87   | 184    | 104    | 210    | 154    | 292    | 187  | 345    |
| 3.8                                    | 20.7  | 56    | 35    | 90    | 56     | 132    | 74     | 166    | 92   | 194    | 110    | 222    | 162    | 308    | 197  | 364    |
| 4.0                                    | 22  | 59    | 37    | 95    | 58     | 139    | 78     | 175    | 97   | 204    | 116    | 234    | 171    | 324    | 207  | 383    |
| 5.0                                    | 27  | 74    | 47    | 119   | 73     | 173    | 98     | 219    | 121  | 255    | 145    | 292    | 214    | 405    | 259  | 479    |
| 5.5                                    | 30  | 81    | 51    | 131   | 80     | 191    | 107    | 240    | 134  | 281    | 159    | 321    | 235    | 446    | 285  | 526    |
| 6.0                                    | 33  | 89    | 56    | 143   | 88     | 208    | 117    | 262    | 146  | 306    | 174    | 351    | 256    | 486    | 311  | 574    |
| 6.2                                    | 34  | 91    | 58    | 147   | 91     | 215    | 121    | 271    | 150  | 317    | 179    | 362    | 265    | 502    | 321  | 593    |
| 7.4                                    | 40  | 109   | 69    | 176   | 108    | 257    | 144    | 324    | 180  | 378    | 214    | 432    | 316    | 599    | 384  | 708    |
| 7.5                                    | 41  | 111   | 70    | 178   | 110    | 260    | 146    | 328    | 182  | 383    | 217    | 438    | 320    | 608    | 389  | 718    |
| 8.2                                    | 45  | 121   | 76    | 195   | 120    | 284    | 160    | 359    | 199  | 419    | 237    | 479    | 350    | 664    | 425  | 785    |
| 8.5                                    | 46  | 125   | 79    | 202   | 124    | 295    | 166    | 372    | 206  | 434    | 246    | 497    | 363    | 689    | 441  | 814    |
| 9.0                                    | 49  | 133   | 84    | 214   | 131    | 312    | 176    | 393    | 218  | 460    | 260    | 526    | 385    | 729    | 466  | 861    |
| 10.5                                   | 57  | 155   | 98    | 250   | 153    | 364    | 205    | 459    | 255  | 536    | 304    | 613    | 449    | 851    | 544  | 1005   |
| 11.0                                   | 60  | 162   | 102   | 262   | 161    | 381    | 215    | 481    | 267  | 562    | 318    | 643    | 470    | 891    | 570  | 1053   |
| 15.0                                   | 82  | 221   | 139   | 357   | 219    | 520    | 293    | 656    | 304  | 766    | 434    | 876    | 641    | 1215   | 777  | 1436   |
| 16.0                                   | 87  | 236   | 149   | 380   | 234    | 555    | 312    | 700    | 388  | 817    | 463    | 935    | 684    | 1296   | 829  | 1531   |
| 17.4                                   | 95  | 257   | 162   | 414   | 254    | 603    | 340    | 761    | 422  | 889    | 503    | 1016   | 743    | 1409   | 902  | 1665   |
| 25.0                                   | 136   | 369   | 232   | 594   | 365    | 867    | 488    | 1093   | 607  | 1277   | 723    | 1460   | 1068   | 2025   | 1296   | 2393   |
| 35.8                                   | 195   | 528   | 333   | 851   | 523    | 1241   | 699    | 1565   | 867  | 1828   | 1036   | 2091   | 1529   | 2900   | 1856   | 3427   |
| 40.0                                   | 218   | 590   | 372   | 951   | 584    | 1387   | 780    | 1749   | 970  | 2043   | 1157   | 2337   | 1709   | 3240   | 2073   | 3829   |
| 45.0                                   | 245   | 664   | 418   | 1070  | 657    | 1560   | 878    | 1967   | 1092   | 2298   | 1302   | 2629   | 1923   | 3645   | 2332   | 4307   |
| 56                                     | 305   | 826   | 521   | 1331  | 818    | 1942   | 1093   | 2448   | 1359   | 2860   | 1620   | 3271   | 2392   | 4536   | 2903   | 5360   |
| 65                                     | 354   | 958   | 604   | 1545  | 949    | 2254   | 1268   | 2842   | 1577   | 3320   | 1881   | 3797   | 2777   | 5265   | 3369   | 6221   |
| 70                                     | 381   | 1032  | 651   | 1664  | 1022   | 2427   | 1366   | 3061   | 1698   | 3575   | 2025   | 4089   | 2991   | 5670   | 3628   | 6670   |
| 75                                     | 409   | 1106  | 697   | 1783  | 1095   | 2601   | 1463   | 3279   | 1820   | 3830   | 2170   | 4381   | 3204   | 6075   | 3887   | 7179   |
| 85                                     | 463   | 1253  | 790   | 2021  | 1241   | 2947   | 1658   | 3716   | 2062   | 4341   | 2459   | 4966   | 3631   | 6885   | 4406   | 8136   |
| 100                                    | 545   | 1475  | 930   | 2377  | 1460   | 3468   | 1951   | 4372   | 2426   | 5107   | 2893   | 5842   | 4272   | 8101   | 5183   | 9571   |
| 115                                    | 627   | 1696  | 1069  | 2734  | 1680   | 3988   | 2244   | 5028   | 2790   | 5873   | 3327   | 6718   | 4913   | 9316   | 5961   | 11007  |
| 145                                    | 790   | 2138  | 1348  | 3447  | 2118   | 5028   | 2829   | 6340   | 3518   | 7405   | 4195   | 8471   | 6195   | 11746  | 7516   | 13878  |
| 170                                    | 926   | 2507  | 1580  | 4042  | 2483   | 5895   | 3177   | 7433   | 4124   | 8682   | 4918   | 9931   | 7263   | 13771  | 8811   | 16271  |
| 200                                    | 1090  | 2949  | 1859  | 4755  | 2921   | 6935   | 3902   | 8744   | 4852   | 10214  | 5786   | 11684  | 8544   | 16201  | 10366  | 19143  |
| 235                                    | 1281  | 3465  | 2184  | 5587  | 3432   | 8149   | 4585   | 10275  | 5701   | 12002  | 6799   | 13729  | 10040  | 19036  | 12180  | 22493  |
| 275                                    | 1499  | 4055  | 2556  | 6538  | 4016   | 9536   | 5366   | 12024  | 6672   | 14044  | 7956   | 16065  | 11749  | 22277  | 14254  | 26321  |
| 350                                    | 1907  | 5161  | 3253  | 8321  | 5112   | 12136  | 6829   | 15303  | 8491   | 17875  | 10126  | 20447  | 14953  | 28352  | 18141  | 33500  |
| 425                                    | 2316  | 6267  | 3950  | 10104 | 6207   | 14737  | 8292   | 18582  | 10311  | 21705  | 12296  | 24828  | 18157  | 34427  | 22028  | 40678  |
| 440                                    | 2398  | 6488  | 4090  | 10461 | 6426   | 15257  | 8585   | 19238  | 10675  | 22471  | 12730  | 25704  | 18798  | 35642  | 22806  | 42114  |
| 640                                    | 3488  | 9437  | 5949  | 15215 | 9347   | 22192  | 12487  | 27982  | 15527  | 32685  | 18516  | 37388  | 27342  | 51844  | 33172  | 61257  |
| 680                                    | 3706  | 10027 | 6321  | 16166 | 9931   | 23579  | 13268  | 29731  | 16498  | 34728  | 19673  | 39725  | 29051  | 55084  | 35245  | 65085  |
| 1125                                   | 6131  | 16589 | 10457 | 26746 | 16430  | 39010  | 21950  | 49187  | 27294  | 57454  | 32547  | 65722  | 48063  | 91131  | 58310  | 107678 |
| 1150                                   | 6267  | 16958 | 10689 | 27340 | 16796  | 39877  | 22438  | 50280  | 27900  | 58731  | 33271  | 67182  | 49131  | 93156  | 59606  | 110071 |
| 1750                                   | 9537  | 25805 | 16267 | 41604 | 25558  | 60682  | 34145  | 76513  | 42457  | 89373  | 50629  | 102234 | 74764  | 141760 | 90705  | 167499 |
| 1850                                   | 10082                                       | 27280 | 17196 | 43982 | 27019  | 64150  | 36096  | 80885  | 44883  | 94481  | 53522  | 108076 | 79036  | 149860 | 95888  | 177070 |
| 2600                                   | 14169                                       | 38339 | 24167 | 61812 | 37972  | 90157  | 50730  | 113677 | 63079  | 132783 | 75220  | 151890 | 111078 | 210614 | 134762   | 248855 |
| 2650                                   | 14442                                       | 39076 | 24632 | 63001 | 38703  | 91890  | 51706  | 115863 | 64292  | 135337 | 76667  | 154811 | 113214 | 214665 | 137353   | 253641 |
| 3400                                   | 18529                                       | 50136 | 31604 | 80831 | 49656  | 117897 | 66339  | 148654 | 82488  | 173640 | 98365  | 198625 | 145256 | 275419 | 176227   | 325426 |
| 4500                                   | 24524                                       | 66356 | 41828 | -     | 65722  | -      | 87802  | -      | 109175   | -      | 130189 | -      | -      | -      | -  | -      |
| 5400                                   | 29429                                       | 79628 | 50194 | -     | 78866  | -      | 105362 | -      | -  | -      | -      | -      | -      | -      | -  | -      |
| 7000                                   | 38148                                       | -     | 65066 | -     | 102234 | -      | -      | -      | -  | -      | -      | -      | -      | -      | -  | -      |
| 10000                                  | 54498                                       | -     | 92952 | -     | -      | -      | -      | -      | -  | -      | -      | -      | -      | -      | -  | -      |

\* Indicates 2-Position Control Applications. Higher Pressure Drop for Modulating Control Applications.  
 Note: Steam Capacity in Pounds per Hour. Table is Based on Saturated Steam.

## Flanged DG Series - 2 & 3-Way - GA(S) Series Actuator Dimensions



| 2-Way Dimensions for GA(S) Series Actuator with Flanged DG Valve |      |     |                  |     |                |              |               |              |                   |                  |                     |     |
|--|------|-----|------------------|-----|----------------|--------------|---------------|--------------|-------------------|------------------|---------------------|-----|
| Model Number   | Size |     | Flow Coefficient |     | Stroke in.(mm) | A            | B             | C            | D Actuator Height | E Actuator Width | Weight <sup>1</sup> |     |
|  | In.  | mm  | Cv               | Kv  |                |              |               |              |                   |                  | lbs.                | kg. |
| DG250-2-63   | 2.5  | 65  | 63               | 54  | 3/4 (20)       | 10-7/8 (276) | 11 (281)      | 4-7/8 (123)  | 11-3/8 (289)      | 9-1/16 (230)     | 62                  | 28  |
| DG3-2-100  | 3    | 80  | 100              | 85  | 3/4 (20)       | 11-3/4 (299) | 12-1/4 (312)  | 5-5/16 (135) |                   |                  | 79                  | 35  |
| DG4-2-160  | 4    | 100 | 160              | 137 | 1-1/2 (40)     | 13-7/8 (352) | 13-9/16 (345) | 6-5/16 (160) | 12-5/16 (313)     | 9-1/16 (230)     | 129                 | 58  |
| DG5-2-250  | 5    | 125 | 250              | 214 | 1-1/2 (40)     | 15-3/4 (400) | 15-3/16 (385) | 7 (177)      |                   |                  | 162                 | 73  |
| DG6-2-400  | 6    | 150 | 400              | 340 | 1-1/2 (40)     | 17-3/4 (451) | 16-3/4 (426)  | 7-7/8 (200)  |                   |                  | 222                 | 101 |

<sup>1</sup> Weights are for Valve Only.  
Add 3.94 in. for optional High Media Temperature Height Extender

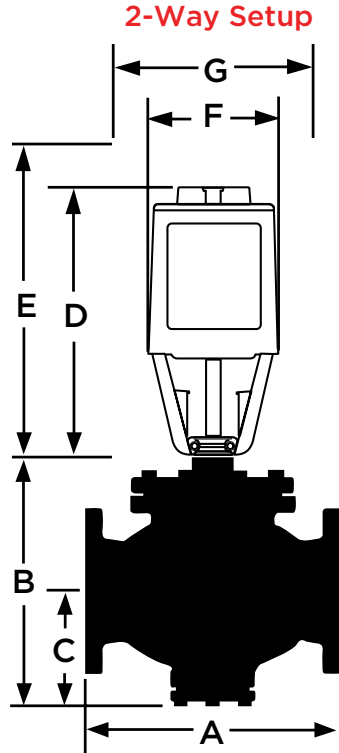
Non-Spring Return Actuator Weight 9.1 lb. (4.1 kg)  
Spring Return Actuator Weight 12.3 lb. (5.6 kg)

| 3-Way Dimensions for GA(S) Series Actuator with Flanged DG Valve |      |     |                  |     |                |              |              |             |                   |                  |                     |     |
|--|------|-----|------------------|-----|----------------|--------------|--------------|-------------|-------------------|------------------|---------------------|-----|
| Model Number   | Size |     | Flow Coefficient |     | Stroke in.(mm) | A            | B            | C           | D Actuator Height | E Actuator Width | Weight <sup>1</sup> |     |
|  | In.  | mm  | Cv               | Kv  |                |              |              |             |                   |                  | lbs.                | kg. |
| DG250-3-63   | 2.5  | 65  | 63               | 54  | 3/4 (20)       | 10-7/8 (276) | 9-3/8 (239)  | 3-3/4 (95)  | 11-3/8 (289)      | 9-1/16 (230)     | 50                  | 23  |
| DG3-3-100  | 3    | 80  | 100              | 85  | 3/4 (20)       | 11-3/4 (299) | 10-3/4 (272) | 4-3/8 (111) |                   |                  | 65                  | 30  |
| DG4-3-160  | 4    | 100 | 160              | 137 | 1-1/2 (40)     | 13-7/8 (352) | 12-1/2 (317) | 5-1/8 (132) | 12-5/16 (313)     | 9-1/16 (230)     | 110                 | 50  |
| DG5-3-250  | 5    | 125 | 250              | 214 | 1-1/2 (40)     | 15-3/4 (400) | 13-3/4 (349) | 5-3/4 (146) |                   |                  | 136                 | 62  |
| DG6-3-400  | 6    | 150 | 400              | 340 | 1-1/2 (40)     | 17-3/4 (451) | 15-1/2 (393) | 6-5/8 (167) |                   |                  | 141                 | 64  |

<sup>1</sup> Weights are for Valve Only.  
Add 3.94 in. for optional High Media Temperature Height Extender

Non-Spring Return Actuator Weight 9.1 lb. (4.1 kg)  
Spring Return Actuator Weight 12.3 lb. (5.6 kg)

## Flanged DG Series - 2-Way - VAL Series Actuator Dimensions



**2-Way Dimensions for VAL Series Actuator with Flanged DG Valve - (Normally Open)**

| Model Number | Size |     | Flow Coefficient |     | Stroke in.(mm) | A            | B             | C            | D Actuator Height | E Service Height | F Actuator Width  |         | G Service Width | Weight <sup>1</sup> |     |
|--------------|------|-----|------------------|-----|----------------|--------------|---------------|--------------|-------------------|------------------|-------------------|---------|-----------------|---------------------|-----|
|              | In.  | mm  | Cv               | Kv  |                |              |               |              |                   |                  | Housing and panel | Housing |                 | lbs.                | kg. |
| DG250-2-63   | 2.5  | 65  | 63               | 54  | 3/4 (20)       | 10-7/8 (276) | 11 (281)      | 4-7/8 (123)  | 14-3/4 (375)      | 22-3/4 (578)     | 8-15/16 (226)     | 7 (177) | 25 (635)        | 62                  | 28  |
| DG3-2-100    | 3    | 80  | 100              | 85  | 3/4 (20)       | 11-3/4 (299) | 12-1/4 (312)  | 5-5/16 (135) |                   |                  |                   |         |                 | 79                  | 35  |
| DG4-2-160    | 4    | 100 | 160              | 137 | 1-1/2 (40)     | 13-7/8 (352) | 13-9/16 (345) | 6-5/16 (160) |                   |                  |                   |         |                 | 129                 | 58  |
| DG5-2-250    | 5    | 125 | 250              | 214 | 1-1/2 (40)     | 15-3/4 (400) | 15-3/16 (385) | 7 (177)      |                   |                  |                   |         |                 | 162                 | 73  |
| DG6-2-400    | 6    | 150 | 400              | 340 | 1-1/2 (40)     | 17-3/4 (451) | 16-3/4 (426)  | 7-7/8 (200)  |                   |                  |                   |         |                 | 222                 | 101 |

<sup>1</sup> Weights are for Valve Only.

VAL-SRS07P Actuator Weight 18.9 lb. (8.6 kg)  
VAL-SRS15P Actuator Weight 22.0 lb. (10.0 kg)

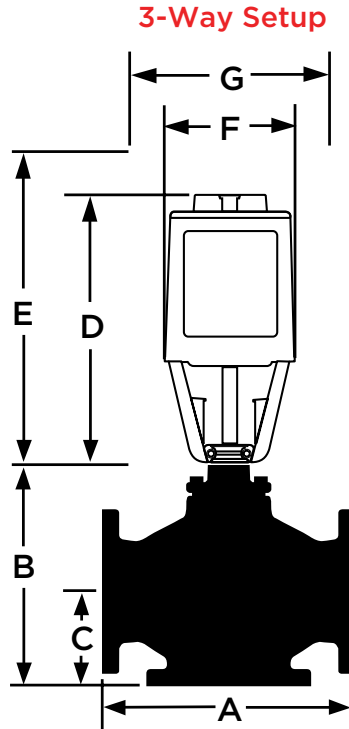
**2-Way Dimensions for VAL Series Actuator with Flanged DG Valve - (Normally Closed)**

| Model Number | Size |     | Flow Coefficient |     | Stroke in.(mm) | A            | B             | C            | D Actuator Height | E Service Height | F Actuator Width  |         | G Service Width | Weight <sup>1</sup> |     |
|--------------|------|-----|------------------|-----|----------------|--------------|---------------|--------------|-------------------|------------------|-------------------|---------|-----------------|---------------------|-----|
|              | In.  | mm  | Cv               | Kv  |                |              |               |              |                   |                  | Housing and panel | Housing |                 | lbs.                | kg. |
| DG250-2-63C  | 2.5  | 65  | 63               | 54  | 3/4 (20)       | 10-7/8 (276) | 10-5/8 (269)  | 5 (125)      | 14-3/4 (375)      | 22-3/4 (578)     | 8-15/16 (226)     | 7 (177) | 25 (635)        | 60                  | 27  |
| DG3-2-100C   | 3    | 80  | 100              | 85  | 3/4 (20)       | 11-3/4 (299) | 12 (303)      | 5-5/8 (142)  |                   |                  |                   |         |                 | 78                  | 35  |
| DG4-2-160C   | 4    | 100 | 160              | 137 | 1-1/2 (40)     | 13-7/8 (352) | 14 (354)      | 6-5/8 (168)  |                   |                  |                   |         |                 | 128                 | 58  |
| DG5-2-250C   | 5    | 125 | 250              | 214 | 1-1/2 (40)     | 15-3/4 (400) | 15-1/4 (388)  | 7-1/2 (185)  |                   |                  |                   |         |                 | 160                 | 72  |
| DG6-2-400C   | 6    | 150 | 400              | 340 | 1-1/2 (40)     | 17-3/4 (451) | 17-1/16 (433) | 8-3/16 (207) |                   |                  |                   |         |                 | 219                 | 100 |

<sup>1</sup> Weights are for Valve Only.

VAL-SRS07P Actuator Weight 18.9 lb. (8.6 kg)  
VAL-SRS15P Actuator Weight 22.0 lb. (10.0 kg)

## Flanged DG Series 3-Way - VAL Series Actuator Dimensions




**3-Way Dimensions for VAL Series Actuator with Flanged DG Valve**

| Model Number | Size |     | Flow Coefficient |     | Stroke in. (mm) | A            | B            | C           | D Actuator Height | E Service Height | F Actuator Width  |         | G Service Width | Weight <sup>1</sup> |     |
|--------------|------|-----|------------------|-----|-----------------|--------------|--------------|-------------|-------------------|------------------|-------------------|---------|-----------------|---------------------|-----|
|              | In.  | mm  | Cv               | Kv  |                 |              |              |             |                   |                  | Housing and panel | Housing |                 | lbs.                | kg. |
| DG250-3-63   | 2.5  | 65  | 63               | 54  | 3/4 (20)        | 10-7/8 (276) | 9-3/8 (239)  | 3-3/4 (95)  | 14-3/4 (375)      | 22-3/4 (578)     | 8-15/16 (226)     | 7 (177) | 25 (635)        | 50                  | 23  |
| DG3-3-100    | 3    | 80  | 100              | 85  | 3/4 (20)        | 11-3/4 (299) | 10-3/4 (272) | 4-3/8 (111) |                   |                  |                   |         |                 | 65                  | 30  |
| DG4-3-160    | 4    | 100 | 160              | 137 | 1-1/2 (40)      | 13-7/8 (352) | 12-1/2 (317) | 5-1/8 (132) |                   |                  |                   |         |                 | 110                 | 50  |
| DG5-3-250    | 5    | 125 | 250              | 214 | 1-1/2 (40)      | 15-3/4 (400) | 13-3/4 (349) | 5-3/4 (146) |                   |                  |                   |         |                 | 136                 | 62  |
| DG6-3-400    | 6    | 150 | 400              | 340 | 1-1/2 (40)      | 17-3/4 (451) | 15-1/2 (393) | 6-5/8 (167) |                   |                  |                   |         |                 | 141                 | 64  |

<sup>1</sup> Weights are for Valve Only.

VAL-SRS07P Actuator Weight 18.9 lb. (8.6 kg)  
VAL-SRS15P Actuator Weight 22.0 lb. (10.0 kg)

## **CG/DG Series** **Threaded Globe Valves** 2-Way and 3-Way – 1/2" - 2"

|   |                    |
|---|--------------------|
| <b>CONTENTS</b>   | <b>DOCUMENT</b>    |
|   | Features           |
|   | Valve Specs        |
|   | Dimensions         |
|   | Part Number Matrix |
| <b>LOOKING FOR MORE</b>   | Close-Off's        |
|   | Steam Charts       |
|  |                    |
| © 2022 Bray International, Inc.<br>03/28/25   |                    |

### Application

Bray Commercial's CG/DG Series threaded globe valves provide stable and accurate control of both water and steam heat exchangers on a wide range of HVAC applications. These brass bodied valves are available in both brass and Stainless-Steel trim in 2-Way and 3-Way configurations for cost effective solutions to your applications.

Constant plug guiding and precision-machined metal to metal seating assures ANSI Class IV shutoff (.01%) which provides low leakage and energy conservation up to 283 GPM. These high close-off globe valves feature a rangeability greater than 100:1 for precise control. Available with floating or modulating control in both spring and non-spring return versions.



### System Types

Baseboard Heating, Fan Coil Units, Terminal Units, VAV Reheat Coils, and Unit Ventilators

## Features and Benefits

- **ANSI Class IV leakage**

*Less than 0.01% of Cv at rated Close-Off pressure – for maximum energy efficiency*

- **Superior Control**

*High rangeability and equal percentage flow characteristic*

- **Versatile**

*Available with Stainless Steel Trim for steam applications up to 15 PSI (103 kPa) on CG valves, 100 PSI (689 kPa) on DG valves*

- **5-Year Warranty**

*Industry leading 5-year warranty from the industry's premier valve automation supplier*

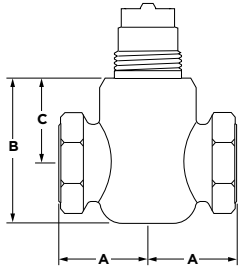
## CG/DG Series Globe Valves - Valve Body Specifications

| Technical Specifications - Threaded Globe Valve Body |   |   |  |
|--|---|---|--|
| Service  | CG Series   | DG Series   |  |
|  | Chilled/Hot Water, 50/50 Glycol Solutions & Saturated Steam   |   |  |
| Size Range   | 1/2" - 1", 2-Way Normally Open**,<br>3-Way Mixing   | 1-1/4" - 2"****, 2-Way Normally Open**,<br>3-Way Universal Mixing or Diverting****                                |  |
| Available Cv's                                       | 0.4 to 10 (See page CG/DG 6)  |   |  |
| Media Temperature Range                              | <b>Water/Steam</b> — 35° to 250°F (2° to 120°C)   | <b>Water</b> — 20°F to 250°F (-7°C to 120°C)<br><b>Steam</b> — 337°F (170°C) Maximum<br>Stainless Steel Trim Only |  |
| Max Inlet Temperature/Pressure                       | <b>Water</b> — 20°F (-7°C) @ 400 psi (2758 kPa) to 250°F (120°C) @ 365 psi (2517 kPa)               |   |  |
|  | <b>Steam</b> — 15 psi (103 kPa)<br>Stainless Steel Trim Only  | <b>Steam</b> — 100 psi (689 kPa)<br>Stainless Steel Trim Only   |  |
| Maximum Differential Pressure                        | <b>Water</b> — 25 psid (173 kPa) Brass Trim/50 psid (345 kPa) Stainless Steel Trim                  |   |  |
|  | <b>Steam</b> — 15 psid (103 kPa)<br>Stainless Steel Trim Only                                       | <b>Steam</b> — 50 psid (345 kPa)<br>Stainless Steel Trim Only   |  |
| Valve Body Pressure Rating                           | ANSI Class 250  |   |  |
| Maximum Close-Off Pressure                           | Refer to Close-Off Charts (See page CG/DG 6)  |   |  |
| Close-Off Ratings                                    | According to ANSI/FCI 70-2  |   |  |
| Flow Characteristic                                  | 2-Way Valves - Equal Percentage*<br>3-Way Valves - A (Coil) = Equal Percentage, B (Bypass) = Linear |   |  |
| Stem Lift  | 7/32" Stroke  | 3/4" Stroke   |  |
| Leakage Rate   | Class IV (0.01% of Cv)  |   |  |
| Rangeability   | Cv < 1 — > 50:1<br>Cv > 1 — > 100:1   | > 100:1   |  |
| End Connections                                      | Female NPT  |   |  |
| Materials  | Body  | 1/2" & 3/4" C37700 Forged Brass<br>1" UNS CA 844 Bronze   | UNS CA 844 Bronze  |
|  | Stem  | Stainless Steel (ASTM A582 Type 303)  |  |
|  | Globe   | <b>Water</b> — Brass<br><b>Steam</b> — Stainless Steel  |  |
|  | Packing   | Ethylene propylene (EPDM) O-Ring  | Brass Trim = EPDM<br>Stainless Steel Trim = Teflon V-Ring/<br>EPDM -O-Ring |
| Certifications                                       | CE, CRN - OC24303.5   |   |  |
| Warranty   | 5 Years limited from time of shipment.  |   |  |

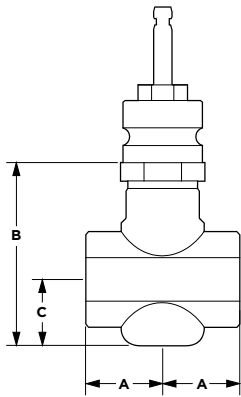
- Note -** \* Linear flow characteristic available upon request. (DG Series only, with modulating actuators)  
 \*\* Normally closed available upon request  
 \*\*\* DG available in 1/2" to 1" for steam applications up to 100 (689 kPa) psi or 3-Way Diverting applications..  
 \*\*\*\* When the valve is used for diverting applications, the max DP is restricted to 90% of the max DP that is specified for the valve when it is used in a mixing application

**Disclaimer -** The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

**2-Way - Valve Dimensions**

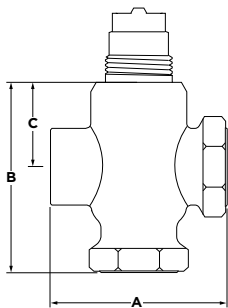


| CG Series Dimensions |      |    |                 |               |                |        |     |
|----------------------|------|----|-----------------|---------------|----------------|--------|-----|
| Valve Model Number   | Size |    | A               | B             | C              | Weight |     |
|                      | in.  | mm |                 |               |                | lb.    | kg. |
| CG05-2-xxx           | 1/2  | 15 | 1-3/8<br>(35)   | 2-1/4<br>(57) | 1-5/16<br>(33) | 1.3    | 0.6 |
| CG75-2-xxx           | 3/4  | 20 | 1-5/8<br>(41)   | 2-3/8<br>(59) | 1-5/16<br>(33) | 1.8    | 0.8 |
| CG1-2-xxx            | 1    | 25 | 1-15/16<br>(49) | 2-3/4<br>(69) | 1-9/16<br>(39) | 2.6    | 1.2 |

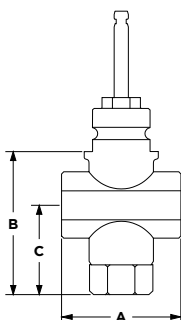


| DG Series Dimensions |       |    |                |                 |               |        |     |
|----------------------|-------|----|----------------|-----------------|---------------|--------|-----|
| Valve Model Number   | Size  |    | A              | B               | C             | Weight |     |
|                      | in.   | mm |                |                 |               | lb.    | kg. |
| DG125-2-16           | 1-1/4 | 32 | 2-1/2<br>(62)  | 4-1/8<br>(104)  | 1-5/8<br>(40) | 7      | 3.2 |
| DG150-2-25           | 1-1/2 | 40 | 2-9/16<br>(65) | 4-1/4<br>(109)  | 1-3/4<br>(44) | 9      | 4.1 |
| DG2-2-40             | 2     | 50 | 3-1/8<br>(79)  | 4-9/16<br>(116) | 2<br>(51)     | 13     | 5.9 |

**3-Way - Valve Dimensions**



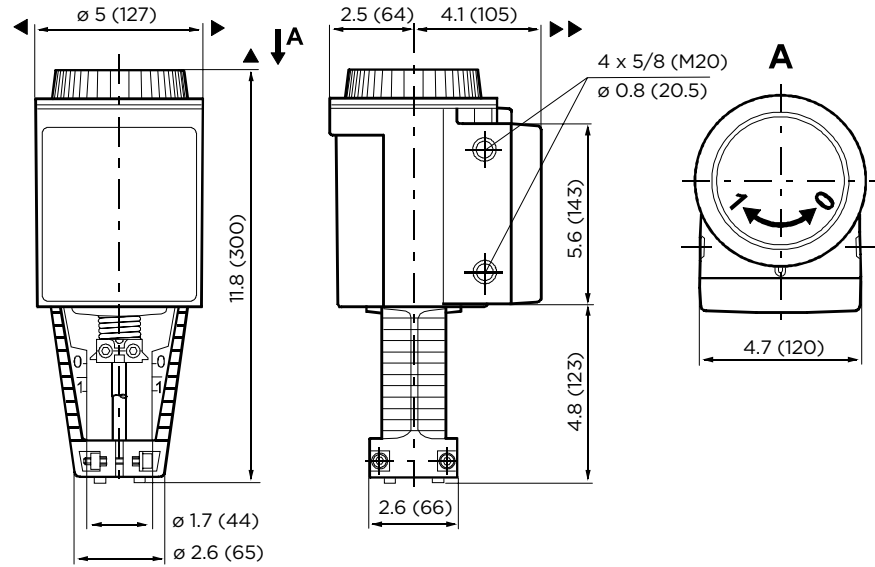
| CG Series Dimensions |      |    |               |                 |                |        |      |
|----------------------|------|----|---------------|-----------------|----------------|--------|------|
| Valve Model Number   | Size |    | A             | B               | C              | Weight |      |
|                      | in.  | mm |               |                 |                | lb.    | kg.  |
| CG05-3-xxx           | 1/2  | 15 | 2-3/4<br>(70) | 2-15/16<br>(74) | 1-5/16<br>(33) | 1.5    | 0.7  |
| CG75-3-xxx           | 3/4  | 20 | 3-1/4<br>(83) | 2-3/8<br>(59)   | 1-5/16<br>(33) | 2.3    | 1.05 |
| CG1-3-xxx            | 1    | 25 | 3-7/8<br>(98) | 3-15/16<br>(99) | 1-9/16<br>(39) | 3.3    | 1.5  |



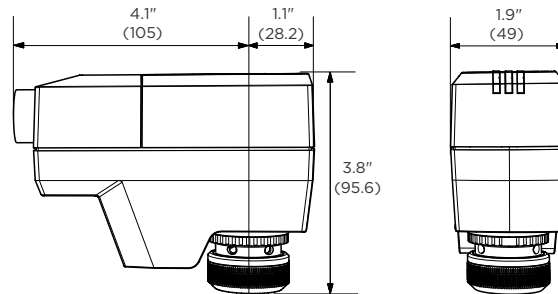
| DG Series Dimensions |       |    |                  |                |                 |        |     |
|----------------------|-------|----|------------------|----------------|-----------------|--------|-----|
| Valve Model Number   | Size  |    | A                | B              | C               | Weight |     |
|                      | in.   | mm |                  |                |                 | lb.    | kg. |
| DG125-3-16           | 1-1/4 | 32 | 4-15/16<br>(125) | 4-5/8<br>(116) | 2-15/16<br>(74) | 7      | 3.2 |
| DG150-3-25           | 1-1/2 | 40 | 5-1/8<br>(130)   | 4-5/8<br>(117) | 3<br>(76)       | 9      | 4.1 |
| DG2-3-40             | 2     | 50 | 6-1/4<br>(158)   | 4-3/4<br>(121) | 3-3/16<br>(81)  | 13     | 5.9 |

## CG/DG Series Globe Valves - Actuator Dimensions

### GA(M)(S)24-225 Series



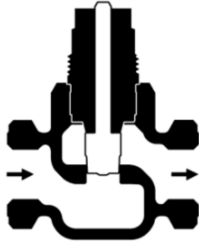
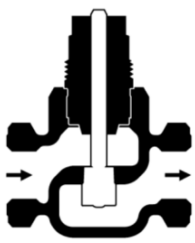
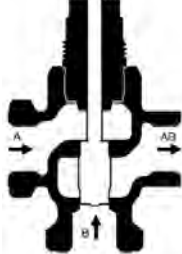
### GA(M)24-67 Series



## CG/DG Series Globe Valves - Part Number Matrix

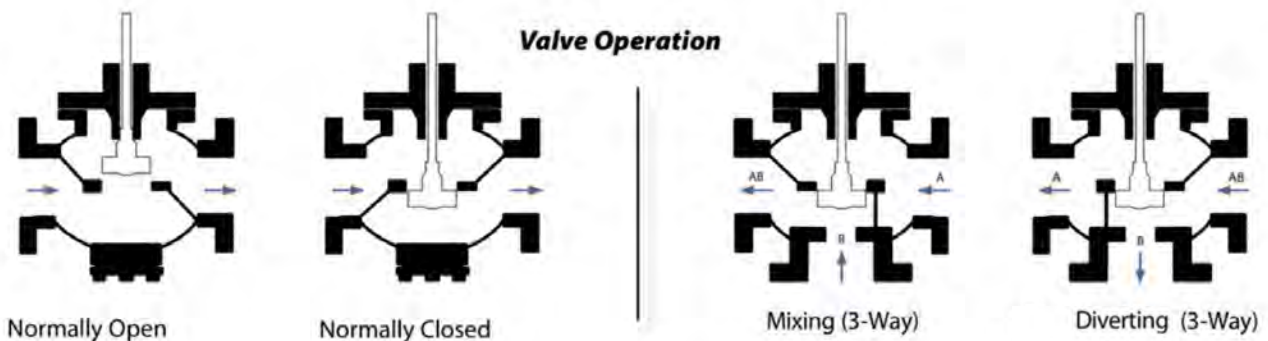
| CG                | Prefix: CG Series Globe Valves - (1/2" to 1")<br>DG Series Globe Valves - (1-1/4" to 2")   | Valve Series       |
|-------------------|--|--------------------|
| 05                | Valve Size (1/2" to 2")  | Valve Size         |
| -                 |  | -                  |
| 2                 | Configuration - 2-Way or 3-Way   | Configuration      |
| -                 |  | -                  |
| 004               | CV   | Cv                 |
| SS                | SS = Stainless Steel   | SS                 |
| C                 | C = Normally Closed  | C                  |
| /                 |  | /                  |
|                   | <b>GA24-67</b> Non-Fail Safe, 24 VAC, Floating<br><b>GAM24-67</b> Non-Fail Safe, 24 VAC/DC, 0 to 10 VDC, Modulating<br><b>GA24-67-FS</b> Fail Safe, 24 VAC, Floating<br><b>GAM24-67-FS</b> Fail Safe, 24 VAC/DC, 0 to 10 VDC, Modulating<br><b>GA24-225</b> Non-Spring Return, 24 VAC, Floating<br><b>GAM24-225</b> Non-Spring Return, 24 VAC, 0 to 10 VDC/4-20mA, Modulating<br><b>GAS24-225</b> Spring Return, 24 VAC, Floating<br><b>GAMS24-225</b> Spring Return, 24 VAC, 0 to 10 VDC/4-20mA, Modulating | Actuator Selection |
| CG 05 - 2 - 004 / | <b>GA24-67</b>   | Example            |
|                   | <b>1/2" Globe Valve, 2-Way, Flow Coefficient Cv of 004, GA24-67 Actuator</b>   |                    |

CG Series Globe Valves - Piping Diagrams

|                          | Normally Open Valve   | Normally Closed Valve  | Three-Way Valve   |
|--------------------------|---|--|---|
| Example PN               | CGxx-2-xx   | CGxx-2-xxC   | CGxx-3-xx   |
| Actuator <b>Extends</b>  | Valve Closes  | Valve Opens  | Valve opens between Port A and AB   |
| Actuator <b>Retracts</b> | Valve Opens   | Valve Closes   | Valve opens between Port B and Port AB  |
| Valve Diagram            |  |  |  |

DG Series Globe Valves - Piping Diagrams

|                                      | Normally Open Valve | Normally Closed Valve | Three-Way Valve<br>Universal Mixing/Diverting |
|--------------------------------------|---------------------|-----------------------|---|
| Example PN                           | DGxx-2-xx           | DGxx-2-xxC            | DGxx-3-xx                                     |
| Actuator <b>Extends</b><br>(0 to 1)  | Valve Closes        | Valve Opens           | Valve Opens between Port A and AB             |
| Actuator <b>Retracts</b><br>(1 to 0) | Valve Opens         | Valve Closes          | Valve Opens between Port B and AB             |



## CG/DG Series Globe Valves - Close-Off Charts

### 2-Way Close-Off Chart (PSI)

| Actuator Model Details |      |    |      | Non-Fail Safe |                       | Non-Spring Return |                           | Fail Safe  |              | Spring Return |                           |
|------------------------|------|----|------|---------------|-----------------------|-------------------|---------------------------|------------|--------------|---------------|---------------------------|
|                        |      |    |      | GA24-67       | GAM24-67              | GA24-225          | GAM24-225                 | GA24-67-FS | GAM24-67-FS  | GAMS24-225    | GAMS24-225                |
| Model Number           | Size |    | Cv   | Floating      | Modulating            | Floating          | Modulating                | Floating   | Modulating   | Floating      | Modulating                |
|                        | In.  | mm |      | 24 VAC        | 24 VAC<br>0 to 10 VDC | 24 VAC            | 24 VAC<br>0-10 VDC/4-20mA | 24 VAC     | 0 to 10 VDC* | 24 VAC        | 24 VAC<br>0-10 VDC/4-20mA |
| CG05-2-004             | .5   | 15 | 0.4  | 120           | 120                   | -                 | -                         | 120        | 120          | -             | -                         |
| CG05-2-006             | .5   | 15 | 0.63 |               |                       |                   |                           |            |              |               |                           |
| CG05-2-01              | .5   | 15 | 1    |               |                       |                   |                           |            |              |               |                           |
| CG05-2-02              | .5   | 15 | 1.6  |               |                       |                   |                           |            |              |               |                           |
| CG05-2-03              | .5   | 15 | 2.5  | 65            | 65                    | -                 | -                         | 65         | 65           | -             | -                         |
| CG05-2-04              | .5   | 15 | 4    |               |                       |                   |                           |            |              |               |                           |
| CG75-2-07              | .75  | 20 | 6.3  | 55            | 55                    | -                 | -                         | 55         | 55           | -             | -                         |
| CG1-2-10               | 1.0  | 25 | 10   |               |                       |                   |                           |            |              |               |                           |
| DG125-2-16             | 1.25 | 32 | 16   | -             | -                     | 124               | -                         | -          | -            | 124           | -                         |
| DG150-2-25             | 1.5  | 40 | 25   | -             | -                     | 80                | -                         | -          | -            | 80            | -                         |
| DG2-2-40               | 2.0  | 50 | 40   | -             | -                     | 49                | -                         | -          | -            | 49            | -                         |

### 3-Way Close-Off Chart (PSI)

| Actuator Model Details |      |    |      | Non-Fail Safe |                       | Non-Spring Return |                           | Fail Safe  |              | Spring Return |                           |
|------------------------|------|----|------|---------------|-----------------------|-------------------|---------------------------|------------|--------------|---------------|---------------------------|
|                        |      |    |      | GA24-67       | GAM24-67              | GA24-225          | GAM24-225                 | GA24-67-FS | GAM24-67-FS  | GAMS24-225    | GAMS24-225                |
| Model Number           | Size |    | Cv   | Floating      | Modulating            | Floating          | Modulating                | Floating   | Modulating   | Floating      | Modulating                |
|                        | In.  | mm |      | 24 VAC        | 24 VAC<br>0 to 10 VDC | 24 VAC            | 24 VAC<br>0-10 VDC/4-20mA | 24 VAC     | 0 to 10 VDC* | 24 VAC        | 24 VAC<br>0-10 VDC/4-20mA |
| CG05-3-004             | .5   | 15 | 0.4  | 95            | 95                    | -                 | -                         | 95         | 95           | -             | -                         |
| CG05-3-006             | .5   | 15 | 0.63 |               |                       |                   |                           |            |              |               |                           |
| CG05-3-01              | .5   | 15 | 1    |               |                       |                   |                           |            |              |               |                           |
| CG05-3-02              | .5   | 15 | 1.6  |               |                       |                   |                           |            |              |               |                           |
| CG05-3-03              | .5   | 15 | 2.5  | 50            | 50                    | -                 | -                         | 50         | 50           | -             | -                         |
| CG05-3-04              | .5   | 15 | 4    |               |                       |                   |                           |            |              |               |                           |
| CG75-3-07              | .75  | 20 | 6.3  | 40            | 40                    | -                 | -                         | 40         | 40           | -             | -                         |
| CG1-3-10               | 1.0  | 25 | 10   |               |                       |                   |                           |            |              |               |                           |
| DG125-3-16             | 1.25 | 32 | 16   | -             | -                     | 117               | -                         | -          | -            | 117           | -                         |
| DG150-3-25             | 1.5  | 40 | 25   | -             | -                     | 73                | -                         | -          | -            | 73            | -                         |
| DG2-3-40               | 2.0  | 50 | 40   | -             | -                     | 44                | -                         | -          | -            | 44            | -                         |

NOTE: Values in chart are for 10 VDC supplied to the actuator.

## CG/DG Series Globe Valves - Steam Capacity Chart

| Steam Capacity Chart - lb/hr (CG & DG) |      |    |      |                      |      |      |      |      |      |      |      |      |      |      |
|--|------|----|------|----------------------|------|------|------|------|------|------|------|------|------|------|
| Mode/Valve Size                        |      |    |      | Inlet Pressure (PSI) |      |      |      |      |      |      |      |      |      |      |
|  |      |    |      | 2                    |      |      | 5    |      |      | 10   |      |      | 15   |      |
| Model Number                           | Size |    | Cv   | lb/hr                |      |      |      |      |      |      |      |      |      |      |
|  | In.  | mm |      | 1                    | 2    | 3    | 4    | 5    | 6    | 8    | 10   | 9    | 12   | 15   |
| CG05-2-004                             | .5   | 15 | 0.4  | 4.78                 | 6.66 | 8.78 | 10   | 11   | 14   | 15   | 17   | 18   | 19   | 22   |
| CG05-2-006                             | .5   | 15 | 0.63 | 7.53                 | 11   | 14   | 16   | 17   | 21   | 24   | 26   | 28   | 31   | 34   |
| CG05-2-01                              | .5   | 15 | 1    | 12                   | 17   | 22   | 25   | 28   | 34   | 38   | 42   | 45   | 48   | 54   |
| CG05-2-02                              | .5   | 15 | 1.6  | 19                   | 27   | 35   | 40   | 44   | 54   | 61   | 67   | 72   | 78   | 87   |
| CG052-03                               | .5   | 15 | 2.5  | 30                   | 42   | 55   | 62   | 69   | 85   | 96   | 104  | 112  | 121  | 135  |
| CG05-2-04                              | .5   | 15 | 4    | 48                   | 67   | 88   | 100  | 110  | 136  | 153  | 167  | 179  | 194  | 217  |
| CG75-2-07                              | .75  | 20 | 6.3  | 75                   | 105  | 138  | 157  | 174  | 214  | 241  | 263  | 282  | 305  | 341  |
| CG1-2-10                               | 1.0  | 25 | 10   | 120                  | 166  | 219  | 250  | 275  | 339  | 382  | 417  | 447  | 485  | 542  |
| DG125-2-16SS                           | 1.25 | 32 | 16   | 191                  | 266  | 351  | 400  | 441  | 542  | 611  | 667  | 716  | 775  | 867  |
| DG150-2-25SS                           | 1.5  | 40 | 25   | 299                  | 416  | 549  | 625  | 689  | 847  | 955  | 1042 | 1118 | 1211 | 1355 |
| DG2-2-40SS                             | 2.0  | 50 | 40   | 478                  | 666  | 878  | 1000 | 1102 | 1356 | 1529 | 1667 | 1789 | 1938 | 2168 |

| Steam Capacity Chart - lb/hr (DG Only) |      |    |    |                      |      |      |      |      |      |      |      |
|--|------|----|----|----------------------|------|------|------|------|------|------|------|
| Mode/Valve Size                        |      |    |    | Inlet Pressure (PSI) |      |      |      |      |      |      |      |
|  |      |    |    | 25                   |      |      | 50   |      |      | 100  |      |
| Model Number                           | Size |    | Cv | lb/hr                |      |      |      |      |      |      |      |
|  | In.  | mm |    | 5                    | 15   | 20   | 15   | 30   | 32.5 | 50   | 57.5 |
| DG125-2-16SS                           | 1.25 | 32 | 16 | 648                  | 1044 | 1158 | 1392 | 1835 | 1885 | 3182 | 3340 |
| DG150-2-25SS                           | 1.5  | 40 | 25 | 1013                 | 1632 | 1810 | 2175 | 2867 | 2946 | 4972 | 5220 |
| DG2-2-40SS                             | 2.0  | 50 | 40 | 1620                 | 2611 | 2895 | 3480 | 4587 | 4713 | 7956 | 8351 |

NOTE: Table is expressed in pounds per hour (lb/h).

## CG/DG Series Globe Valves - Adjusted Cv Chart

| Adjusted Cv Chart - (CG & DG) |      |    |      |                                       |      |       |        |        |       |        |       |       |   |
|-------------------------------|------|----|------|---------------------------------------|------|-------|--------|--------|-------|--------|-------|-------|---|
| Mode/Valve Size               |      |    |      | Pipe Size /At Full Open (Adjusted Cv) |      |       |        |        |       |        |       |       |   |
|                               |      |    |      | 1/2"                                  | 3/4" | 1"    | 1-1/4" | 1-1/2" | 2"    | 2-1/2" | 3"    | 4"    |   |
| Model Number                  | Size |    | Cv   |                                       |      |       |        |        |       |        |       |       |   |
|                               | In.  | mm |      |                                       |      |       |        |        |       |        |       |       |   |
| CG05-X-004                    | .5   | 15 | 0.4  | 0.40                                  | 0.40 | 0.40  | 0.40   | -      | -     | -      | -     | -     | - |
| CG05-X-006                    | .5   | 15 | 0.63 | 0.63                                  | 0.63 | 0.63  | 0.63   | -      | -     | -      | -     | -     | - |
| CG05-X-01                     | .5   | 15 | 1    | 1.00                                  | 1.00 | 0.99  | 0.99   | -      | -     | -      | -     | -     | - |
| CG05-X-02                     | .5   | 15 | 1.6  | 1.60                                  | 1.58 | 1.57  | 1.56   | -      | -     | -      | -     | -     | - |
| CG05X-03                      | .5   | 15 | 2.5  | 2.50                                  | 2.44 | 2.39  | 2.36   | -      | -     | -      | -     | -     | - |
| CG05-X-04                     | .5   | 15 | 4    | 4.00                                  | 3.76 | 3.59  | 3.50   | -      | -     | -      | -     | -     | - |
| CG75-X-07                     | .75  | 20 | 6.3  | -                                     | 6.30 | 6.18  | 6.04   | 5.96   | -     | -      | -     | -     | - |
| CG1-X-10                      | 1.0  | 25 | 10   | -                                     | -    | 10.00 | 9.89   | 9.75   | 9.56  | -      | -     | -     | - |
| DG125-X-16SS                  | 1.25 | 32 | 16   | -                                     | -    | -     | 16.00  | 15.87  | 15.50 | 15.26  | -     | -     | - |
| DG150-X-25SS                  | 1.5  | 40 | 25   | -                                     | -    | -     | -      | 25.00  | 24.52 | 24.00  | 23.65 | -     | - |
| DG2-X-40SS                    | 2.0  | 50 | 40   | -                                     | -    | -     | -      | -      | 40.00 | 39.57  | 39.00 | 38.23 | - |

X = (2) for 2-Way  
(3) for 3-Way

# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

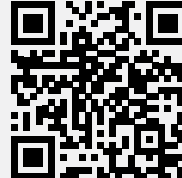
### CORPORATE HEADQUARTERS

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### DIVISION HEADQUARTERS


**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)



All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

## 3L Series Resilient Seated Butterfly Valves 2-Way — 2"- 24" and 3-Way — 2"- 20"

| DOCUMENT                                    |   |
|---|---|
| CONTENTS                                    | Features  |
|   | Valve Specs   |
|   | Sizing/Install Tips   |
|   | Piping Geometry   |
|   | Dimensions  |
| LOOKING FOR MORE                            | Close-Off's   |
|   |  |
| © 2026 Bray International, Inc.<br>04/24/26 |   |

### Application

Bray's 3L Series Nylon 11 coated and Stainless Steel disc resilient seated butterfly valves are designed for maximum reliability and low torque for the most efficient automation possible. Specifically designed for automated applications on chilled water, hot water and condenser water, all automated butterfly valves are 100% factory tested for bubble tight shut-off and industry leading low torque operation.

3L Series valves are available in 2-way configurations to 24" and 3-way configurations in sizes from 2" to 20". Actuators include industrial electric, commercial electric, high pressure pneumatic and low pressure pneumatic in both spring return and non spring return variations for On/Off and Modulating control applications. Differential pressure ratings are available for high Close-Off (up to 175 psi) and low Close-Off (50 psi) requirements.



### Features and Benefits

- **High purity Peroxide Cured EPDM seats**

*Low torque and superior rubber stability over the shelf life and service life of the valve*

- **Nylon coated ductile iron disc - 3LNE Series**

*Superior corrosion and abrasion resistance extends the life of the valve  
Reduced torque requirements*

- **Dead-End Service Rated**

*Fully automatable for dead-end service applications*

- **Wide variety of direct mount actuators**

*Reduces size, cost and hysteresis*

- **Full and 50 psi close-off pressure ratings available**

*For maximum actuator pricing efficiency*

## 3L Series Butterfly Valves - Valve Body Specifications

| Technical Specifications                                  |   |  |
|---|---|--|
| Service   | Hot Water, Chilled Water, Condenser Water up to 50% Glycol                        |  |
| Size Range  | 2-Way   | 2" through 24" (DN 50 to 600)                                      |
|   | 3-Way   | 2" through 20" (DN 50 to 500)                                      |
| Body Style  | One Piece Lug, 2-Way and 3-Way, for ANSI 125 and ANSI 150 Flanges                 |  |
| Flow Characteristics                                      | Modified Equal Percentage - See Page 3L-3   |  |
| Flow Coefficients   | See Page 3L-8   |  |
| Fluid Temperature Limits                                  | -20 to 250 °F (-28° to 121°C)   |  |
| Maximum Fluid Velocity                                    | 30 ft/second (9 m/second)   |  |
| Leakage   | Bubble tight at rated maximum differential pressure                               |  |
| Body Cold Working Pressure Ratings                        | 250 psi (17.2 Bar)  |  |
| Close-Off - Pressure Ratings<br>Dead End Service Rated    | 2" to 12"   | 50 or 175 psi  |
|   | 14" to 24"  | 50 or 150 psi  |
|   | Automated versions for 250 psi Dead End rated service available.                  |  |
|   | See pages 3L-12 to 3L-22  |  |
| Materials<br><br>(other materials available upon request) | Body  | A536 Gr. 65-45-12 High Temperature Polyester Coated Ductile Iron   |
|   | Disc  | 3LNE Series - Nylon 11 coated<br>3LSE Series - 316 Stainless Steel |
|   | Seat  | EPDM (Ethylene Propylene Diene Monomer)                            |
|   | Stem  | 416 Stainless Steel  |
|   | Upper & Lower Stem Bearing  | Steel/Bronze + PTFE Self-lubricating                               |
|   | Tee   | Ductile Iron (3-Way valves only)                                   |
| Weights   | See Dimensions  |  |
| Design Standard   | MSS SP-67, API 609, Category A  |  |
| Testing Standard  | MSS SP-61, API 598, EN 12266-1  |  |
| Face to Face  | MSS SP-67, API 609, Category A, EN 558  |  |
| Approvals & Certifications                                | ABS, ATEX, Bureau Veritas, CRN, DNV, FDA 21 CFR 177.1550, NSF 61/372, PED, PE(S)R |  |

**Disclaimer** - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

### 3L Series Butterfly Valves - Advantages

#### MOLDED-IN SEAT

Tightly controlled vulcanization process produces accurate and repeatable dimensions, which leads to consistently lower torques over the valve's lifetime.

#### PRECISION ENGINEERED PROFILED DISC SEALING EDGE

Extends the valve life by reducing seat wear.

#### ROBUST FLANGE SEALING

Tear-dropped shaped seat face enables tight sealing with a wide variety of industrial flanges.

#### END OF LINE SERVICE

Sealing at full rated differential pressure.

#### ISO 5211 TOP FLANGE

Direct mounting capability between the valve and Bray actuation reduces package height and complexity.

#### UPPER AND LOWER STEM BEARINGS

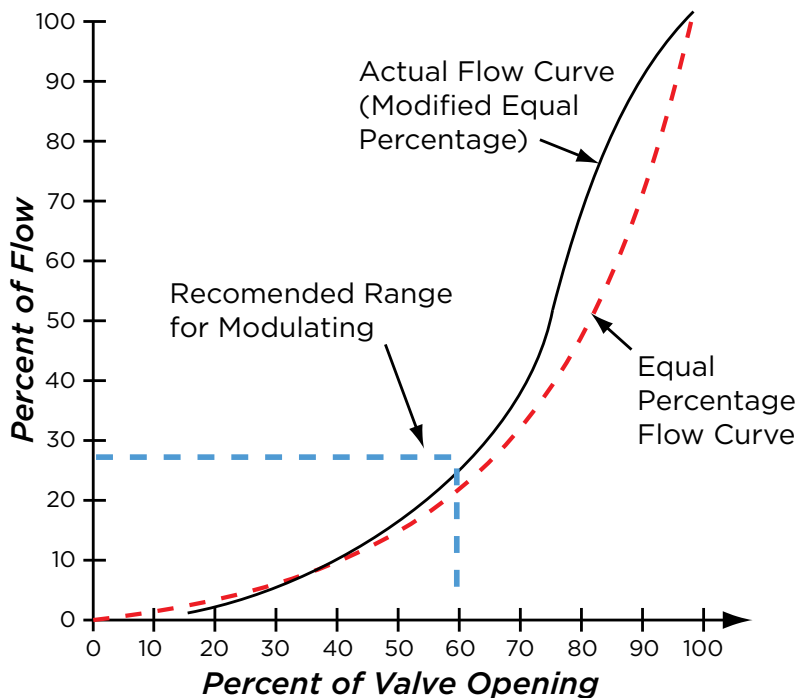
Reduce operating torque and increase reliability in high cycle applications.



## 3L Series Butterfly Valves - Cv's at Various Angles of Openings

| Low and Standard Pressure Cv Disc Values |     |     |      |      |      |       |       |       |       |
|--|-----|-----|------|------|------|-------|-------|-------|-------|
| ANGLE OF DISC OPENING                    |     |     |      |      |      |       |       |       |       |
| Valve Size                               | 10° | 20° | 30°  | 40°  | 50°  | 60°*  | 70°   | 80°   | 90°   |
| 2"                                       | 1   | 1   | 15   | 29   | 46   | 66    | 73    | 86    | 87    |
| 2.5"                                     | 1   | 8   | 26   | 44   | 66   | 98    | 141   | 177   | 185   |
| 3"                                       | 2   | 22  | 43   | 71   | 112  | 171   | 256   | 338   | 360   |
| 4"                                       | 8   | 37  | 78   | 118  | 192  | 310   | 505   | 689   | 740   |
| 5"                                       | 9   | 53  | 98   | 170  | 288  | 470   | 759   | 1131  | 1218  |
| 6"                                       | 13  | 86  | 175  | 297  | 479  | 757   | 1190  | 1715  | 1900  |
| 8"                                       | 19  | 121 | 254  | 429  | 754  | 1247  | 2096  | 3376  | 3765  |
| 10"                                      | 37  | 178 | 365  | 728  | 1215 | 2005  | 3342  | 5814  | 6661  |
| 12"                                      | 69  | 240 | 492  | 1008 | 1696 | 2868  | 4961  | 8455  | 10066 |
| 14"                                      | 110 | 287 | 609  | 1141 | 1975 | 3328  | 5571  | 9269  | 11598 |
| 16"                                      | 147 | 421 | 844  | 1547 | 2651 | 4440  | 7412  | 12214 | 15395 |
| 18"                                      | 190 | 470 | 968  | 1807 | 3228 | 5509  | 9382  | 18231 | 20120 |
| 20"                                      | 230 | 675 | 1341 | 2455 | 4210 | 7056  | 11803 | 19637 | 25329 |
| 24"                                      | 317 | 952 | 1957 | 3592 | 6128 | 10267 | 17226 | 29061 | 39396 |

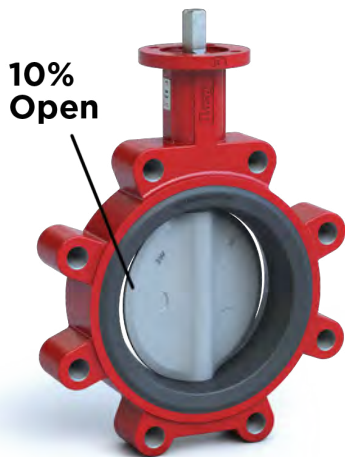
## 3L Series Butterfly Valves - Equal Percentage Flow Curve Chart



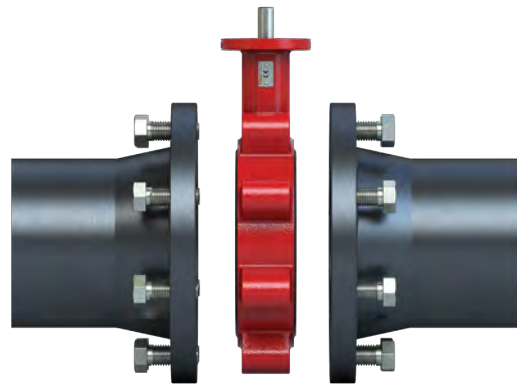
## 3L Series Butterfly Valves - Installation Tips



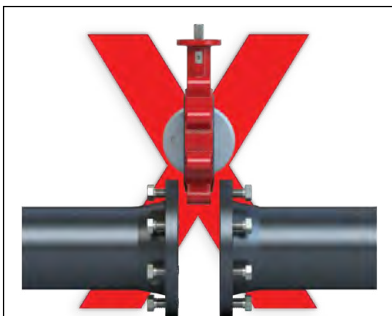
| Valve Size | Bolt Size - inches      | Maximum Bolt Torque Requirement (ft-lbs) |
|------------|-------------------------|--|
| 2" & 2.5"  | 5/8 - 11 Threads UNC-2B | 30                                       |
| 3"         | 5/8 - 11 Threads UNC-2B | 35                                       |
| 4"         | 5/8 - 11 Threads UNC-2B | 35 - 40                                  |
| 5"         | 3/4 - 10 Threads UNC-2B | 35 - 45                                  |
| 6"         | 3/4 - 10 Threads UNC-2B | 35 - 50                                  |
| 8"         | 3/4 - 10 Threads UNC-2B | 45 - 55                                  |
| 10"        | 7/8 - 9 Threads UNC-2B  | 55 - 75                                  |
| 12"        | 7/8 - 9 Threads UNC-2B  | 65 - 110                                 |
| 14" & 16"  | 1 - 8 Threads UN-2B     | 75 - 120                                 |
| 18" & 20"  | 1-1/8 - 8 Threads UN-2B | 85 - 130                                 |
| 24"        | 1-1/4 - 8 Threads UN-2B | 100 - 150                                |



Lower the valve into the open pipe work with the disc in the 10° open position. Valves with non-spring actuators are shipped in this position.



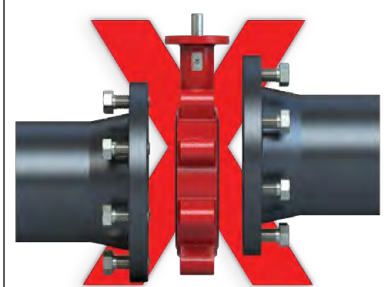
Once the valve is placed in the pipe work, turn the disc to the full-open position. Gradually remove the flange spreaders. Center the valve body to the flanges, and tighten the bolts hand-tight. Slowly close the valve clockwise to check for adequate disc clearance. Return disc to full-open position and cross tighten all bolts to proper torque specification (see tightening pattern above). DO NOT install with disc in fully closed position. This will cause seat distortion. When flange bolts are tightened, rubber will close around disc edge creating excessive torque in initial operation.



**DO NOT** lower the valve into the pipe with the pipe work spread in sufficiently or with the disc in the fully open position. This can lead to disc edge damage and can impact the flange.



**DO NOT USE FLANGE GASKETS**  
The Butterfly Valve seat has a molded-in O-Ring that creates a positive seal against standard ANSI flange faces\*.



**INCORRECT** pipe alignment will cause interference between disc edge and flange face creating leakage, excessive torque, and damage to disc and seat.

\* When installing valve in a grooved-type piping system, consult piping manufacturer's specification to choose proper sealing surface. Installing valve without proper surface may cause damage to the valve seat or leakage at the valve.

## 3L Series Butterfly Valves - Applications

### Bray Butterfly Valves for HVAC Applications

Bray is the largest butterfly valve manufacturer in the western hemisphere for a reason. Bray's in house design team and Bray owned ISO 9001 manufacturing facilities have over 30 years of experience with this product. Our track record of reliability in thousands of installations over time bear this out.

Bray Commercial Division offers two distinct lines of butterfly valves for HVAC applications. These low torque, high cycle life designs have emerged as the design standard in the commercial building market worldwide.

| Comparative Valve Specifications |  |  |
|----------------------------------|--|--|
|                                  | 3L Series  | MK Series  |
| Design                           | Resilient Seated, Nylon Coated or Stainless Steel Disc | Double Offset, Pressure assisted, but not pressure dependent seat design. Stainless Steel Disc |
| Max. Close-Off Pressure          | 50 to 175 psi  | ANSI 150- 285 psi<br>ANSI 300- 740 psi   |
| Temperature Rating               | -20° F to 250° F                                       | -40° F to 500° F   |

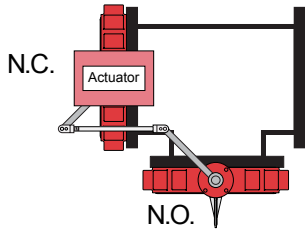
**Disclaimer** - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.



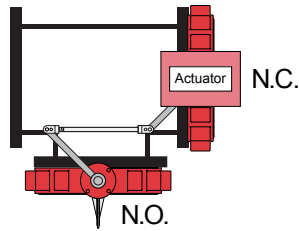
## 3L Series Butterfly Valves - 3-Way Configurations

### Spring Return and Non-Spring Return

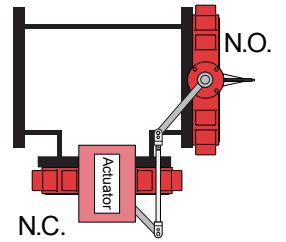
**Configuration 1**



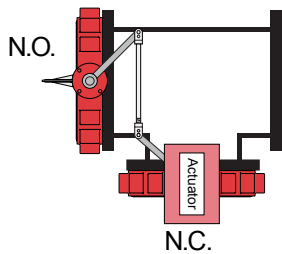
**Configuration 2**



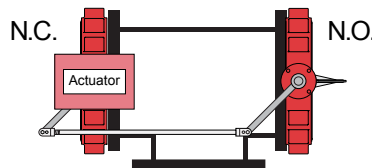
**Configuration 3**



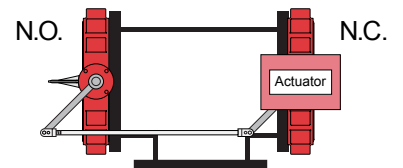
**Configuration 4**



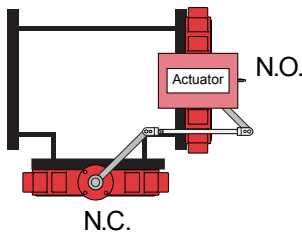
**Configuration 5**



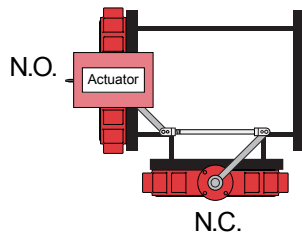
**Configuration 6**



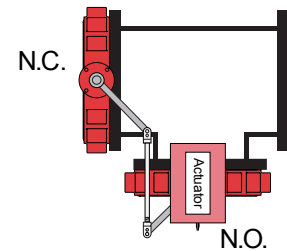
**Configuration 7**



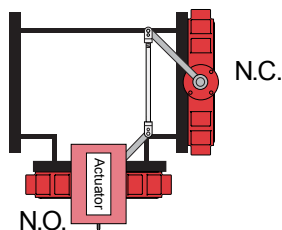
**Configuration 8**



**Configuration 9**



**Configuration 10**  
(PN placeholder is 0)



**Note:** All 3-Way butterfly valve assembly orders should have configuration specified. Pricing remains the same, however Bray must know the specifications in order to manufacture the appropriate linkage kit.

**Note:** Configurations 7, 8, 9, & 10 with power fail-safe actuators will be configured as Forward Acting & Fail Open. Actuators without power fail-safe capabilities will be set to Reverse Acting, when configurable.

**Note:** Unless otherwise requested valve will be shipped as illustrated by Configuration 3.

## 3L Series Butterfly Valves - Part Number Matrix

| 3 Series 3L Ductile Iron Body, 416 SS Stem, EPDM Seat |   |   |   |   |    |   |   |   |   |            | Valve Series                   |   |          |
|---|---|---|---|---|----|---|---|---|---|------------|--------------------------------|---|----------|
| L   | Lug Body  |   |   |   |    |   |   |   |   |            | Body Type                      |   |          |
| W   | Wafer Body  |   |   |   |    |   |   |   |   |            | Body Type                      |   |          |
| N   | 3LN Series - Nylon 11 coated                          |   |   |   |    |   |   |   |   |            | Disc Material                  |   |          |
| S   | 3LS Series - 316 Stainless Steel                      |   |   |   |    |   |   |   |   |            | Disc Material                  |   |          |
| E   | EPDM (Ethylene Propylene Diene Monomer)               |   |   |   |    |   |   |   |   |            | Seat Material                  |   |          |
| -   |   |   |   |   |    |   |   |   |   |            |                                |   |          |
| XX  | Size (in.) 08=8", 12=12", etc.                        |   |   |   |    |   |   |   |   |            | Valve Size                     |   |          |
| L   | Low = 50 psi  |   |   |   |    |   |   |   |   |            | Close-Off Pressure             |   |          |
| S   | Standard = 175/150 psi                                |   |   |   |    |   |   |   |   |            |                                |   |          |
| H   | High = 250 psi  |   |   |   |    |   |   |   |   |            |                                |   |          |
| 2   | 2-Way   |   |   |   |    |   |   |   |   |            | Valve Type                     |   |          |
| 3   | 3-Way   |   |   |   |    |   |   |   |   |            |                                |   |          |
| C   | 2-way Assembly, Normally Closed                       |   |   |   |    |   |   |   |   |            | Configuration                  |   |          |
| N   | 2-way Assembly, Normally Open                         |   |   |   |    |   |   |   |   |            |                                |   |          |
| X   | For 3-Way only - (X= Configuration # - See page 3L-6) |   |   |   |    |   |   |   |   |            |                                |   |          |
| /   |   |   |   |   |    |   |   |   |   |            |                                |   |          |
| 70-xxxx   | Series 70 Electric Actuators                          |   |   |   |    |   |   |   |   |            | Actuator                       |   |          |
| AU  | Auma Actuators  |   |   |   |    |   |   |   |   |            |                                |   |          |
| 92-xxx  | High Pressure Pneumatic, Double Acting                |   |   |   |    |   |   |   |   |            |                                |   |          |
| 93-xxx  | High Pressure Pneumatic, Spring Return                |   |   |   |    |   |   |   |   |            |                                |   |          |
| 98-xxx  | High Pressure Pneumatic, Spring Return                |   |   |   |    |   |   |   |   |            |                                |   |          |
| D or DC   | Commercial Electric Actuators                         |   |   |   |    |   |   |   |   |            |                                |   |          |
| SV  | Servo Card for 0-10 VDC or 4-20 mA modulation         |   |   |   |    |   |   |   |   |            | Electric Actuator Accessories  |   |          |
| H   | Anti-Condensation Heater                              |   |   |   |    |   |   |   |   |            |                                |   |          |
| BBU   | Battery Back-Up Unit                                  |   |   |   |    |   |   |   |   |            |                                |   |          |
| -S  | 120 VAC Solenoid Valve                                |   |   |   |    |   |   |   |   |            | Pneumatic Actuator Accessories |   |          |
| -S4   | 24 VAC Solenoid Valve                                 |   |   |   |    |   |   |   |   |            |                                |   |          |
| -SW   | Valve Status Monitor for Pneumatic Actuator           |   |   |   |    |   |   |   |   |            |                                |   |          |
| -C  | 1-Set Speed Controls for Solenoids                    |   |   |   |    |   |   |   |   |            |                                |   |          |
| -P  | 3-15 psi Pneumatic Positioner                         |   |   |   |    |   |   |   |   |            |                                |   |          |
| -EP   | 4-20 mA Electro-Pneumatic Positioner                  |   |   |   |    |   |   |   |   |            |                                |   |          |
| -05   | Dec clutchable Handwheel Manual Override              |   |   |   |    |   |   |   |   |            |                                |   |          |
| 3   | L   | N | E | - | 12 | S | 2 | C | / | 70-E301    | SVH                            | 12" lugged butterfly valve, ductile iron body, standard pressure nylon coated disc, EPDM seat, 2-Way, normally closed with 3,000 in/lb 120 V modulating actuator with heater. | Examples |
| 3   | L   | N | E | - | 06 | L | 3 | 5 | / | 70-24-0081 |                                | 6" lugged butterfly valve, ductile iron body, undercut nylon coated disc, EPDM seat, three way configuration 5 with 800 in/lb 24 V On/Off S70 actuator                        |          |

## 3L Series Butterfly Valves - Piping Geometry Charts

### 2-Way & 3-Way PIPING GEOMETRY CHART - Adjusted Cv at 60° Rotation

| Valve Size | Model Number | Nominal Cv | Pipe Size |      |     |     |     |     |      |      |      |      |      |      |      |      |       |       |      |
|------------|--------------|------------|-----------|------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|-------|-------|------|
|            |              |            | 2"        | 2.5" | 3"  | 4"  | 5"  | 6"  | 8"   | 10"  | 12"  | 14"  | 16"  | 18"  | 20"  | 22"  | 24"   | 26"   | 28"  |
| 2"         | 3L_E-02S**   | 66         | 66        | 64   | 62  |     |     |     |      |      |      |      |      |      |      |      |       |       |      |
| 2.5"       | 3L_E-25S**   | 98         |           | 98   | 96  | 91  |     |     |      |      |      |      |      |      |      |      |       |       |      |
| 3"         | 3L_E-03S**   | 171        |           |      | 171 | 162 | 153 |     |      |      |      |      |      |      |      |      |       |       |      |
| 4"         | 3L_E-04X**   | 310        |           |      |     | 310 | 298 | 284 |      |      |      |      |      |      |      |      |       |       |      |
| 5"         | 3L_E-05X**   | 470        |           |      |     |     | 470 | 457 | 425  |      |      |      |      |      |      |      |       |       |      |
| 6"         | 3L_E-06X**   | 757        |           |      |     |     |     | 757 | 708  | 663  |      |      |      |      |      |      |       |       |      |
| 8"         | 3L_E-08X**   | 1247       |           |      |     |     |     |     | 1247 | 1198 | 1140 |      |      |      |      |      |       |       |      |
| 10"        | 3L_E-10X**   | 2005       |           |      |     |     |     |     |      | 2005 | 1944 | 1860 |      |      |      |      |       |       |      |
| 12"        | 3L_E-12X**   | 2868       |           |      |     |     |     |     |      |      | 2868 | 2803 | 2700 |      |      |      |       |       |      |
| 14"        | 3L_E-14X**   | 3328       |           |      |     |     |     |     |      |      |      | 3328 | 3285 | 3209 |      |      |       |       |      |
| 16"        | 3L_E-16X**   | 4440       |           |      |     |     |     |     |      |      |      |      | 4440 | 4391 | 4301 |      |       |       |      |
| 18"        | 3L_E-18X**   | 5509       |           |      |     |     |     |     |      |      |      |      |      | 5509 | 5461 | 5368 |       |       |      |
| 20"        | 3L_E-20X**   | 7056       |           |      |     |     |     |     |      |      |      |      |      |      | 7056 | 7001 | 6889  | 6766  |      |
| 24"        | 3L_E-24X**   | 10267      |           |      |     |     |     |     |      |      |      |      |      |      |      |      | 10267 | 10207 | 9124 |

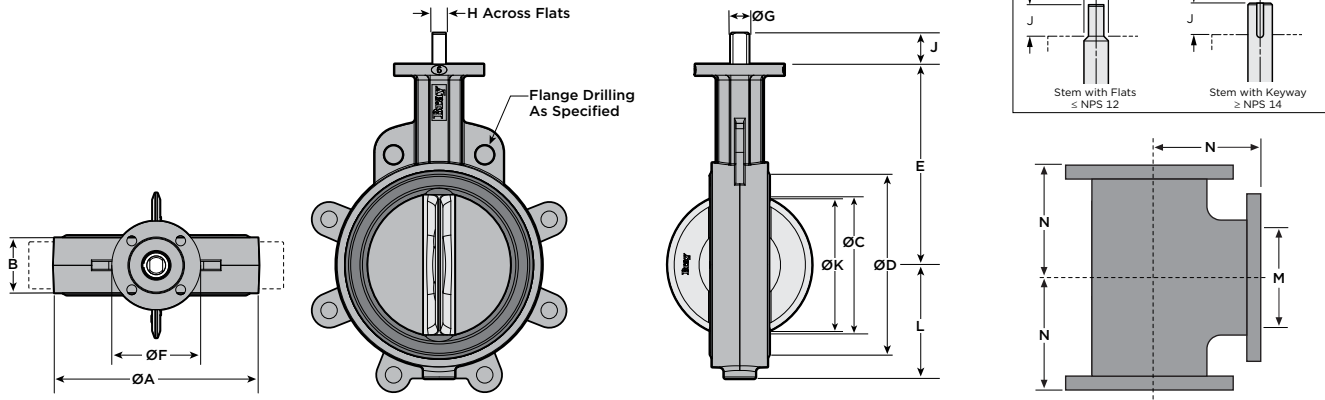
\*\* = (2C) 2-Way - Normally Closed  
       (2N) 2-Way - Normally Open  
       (3) 3-Way + Configuration Number (see pg. 3L-6)  
 X or S = (L) Low Pressure or (S) Standard Pressure  
 \_ = (N) Nylon Coated Disc or (S) Stainless Steel Disc

### 2-Way & 3-Way PIPING GEOMETRY CHART - Adjusted Cv at 90° Rotation

| Valve Size | Model Number | Nominal Cv | Pipe Size |      |     |     |      |      |      |      |       |       |       |       |       |       |       |       |       |
|------------|--------------|------------|-----------|------|-----|-----|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|            |              |            | 2"        | 2.5" | 3"  | 4"  | 5"   | 6"   | 8"   | 10"  | 12"   | 14"   | 16"   | 18"   | 20"   | 22"   | 24"   | 26"   | 28"   |
| 2"         | 3L_E-02S**   | 87         | 87        | 83   | 78  |     |      |      |      |      |       |       |       |       |       |       |       |       |       |
| 2.5"       | 3L_E-25S**   | 185        |           | 185  | 173 | 149 |      |      |      |      |       |       |       |       |       |       |       |       |       |
| 3"         | 3L_E-03S**   | 360        |           |      | 360 | 292 | 248  |      |      |      |       |       |       |       |       |       |       |       |       |
| 4"         | 3L_E-04X**   | 740        |           |      |     | 740 | 611  | 509  |      |      |       |       |       |       |       |       |       |       |       |
| 5"         | 3L_E-05X**   | 1218       |           |      |     |     | 1218 | 1039 | 773  |      |       |       |       |       |       |       |       |       |       |
| 6"         | 3L_E-06X**   | 1900       |           |      |     |     |      | 1900 | 1379 | 1111 |       |       |       |       |       |       |       |       |       |
| 8"         | 3L_E-08X**   | 3765       |           |      |     |     |      |      | 3765 | 2841 | 2250  |       |       |       |       |       |       |       |       |
| 10"        | 3L_E-10X**   | 6661       |           |      |     |     |      |      |      | 6661 | 5112  | 3985  |       |       |       |       |       |       |       |
| 12"        | 3L_E-12X**   | 10066      |           |      |     |     |      |      |      |      | 10066 | 8009  | 6271  |       |       |       |       |       |       |
| 14"        | 3L_E-14X**   | 11598      |           |      |     |     |      |      |      |      |       | 11598 | 10079 | 8368  |       |       |       |       |       |
| 16"        | 3L_E-16X**   | 15395      |           |      |     |     |      |      |      |      |       |       | 15395 | 13669 | 11507 |       |       |       |       |
| 18"        | 3L_E-18X**   | 20120      |           |      |     |     |      |      |      |      |       |       |       | 20120 | 18108 | 15385 | 13431 |       |       |
| 20"        | 3L_E-20X**   | 25329      |           |      |     |     |      |      |      |      |       |       |       |       | 25329 | 23088 | 19833 | 17369 |       |
| 24"        | 3L_E-24X**   | 39396      |           |      |     |     |      |      |      |      |       |       |       |       |       |       | 39396 | 36382 | 31593 |

\*\* = (2C) 2-Way - Normally Closed  
       (2N) 2-Way - Normally Open  
       (3) 3-Way + Configuration Number (see pg. 3L-6)  
 X or S = (L) Low Pressure or (S) Standard Pressure  
 \_ = (N) Nylon Coated Disc or (S) Stainless Steel Disc

## 3L Series Butterfly Valves - Valve Dimensions



### VALVE BODY DIMENSIONS in. (mm)

| Valve Model Number | Size |     | A          | B         | C          | D          | E          | F         | G        | H               | J         | K*         | L          |            |
|--------------------|------|-----|------------|-----------|------------|------------|------------|-----------|----------|-----------------|-----------|------------|------------|------------|
|                    | in.  | mm  |            |           |            |            |            |           |          |                 |           |            | Wafer      | Lug        |
| 3L_E-02S**         | 2    | 50  | 3.7 (94)   | 1.7 (43)  | 2.0 (51)   | 2.8 (71)   | 5.5 (140)  | 3.5 (90)  | 0.6 (14) | 0.39 (10)       | 1.25 (32) | 1.3 (32)   | 2.2 (56)   | 2.3 (58)   |
| 3L_E-25S**         | 2.5  | 65  | 4.3 (106)  | 1.8 (46)  | 2.5 (64)   | 3.3 (84)   | 6.0 (152)  | 3.5 (90)  | 0.6 (14) | 0.39 (10)       | 1.25 (32) | 1.9 (48)   | 2.5 (63)   | 2.6 (65)   |
| 3L_E-03S**         | 3    | 80  | 4.9 (124)  | 1.8 (46)  | 3.0 (76)   | 4.0 (100)  | 6.3 (159)  | 3.5 (90)  | 0.6 (14) | 0.39 (10)       | 1.25 (32) | 2.5 (64)   | 2.8 (71)   | 2.8 (71)   |
| 3L_E-04x**         | 4    | 100 | 6.1 (154)  | 2.1 (52)  | 4.1 (103)  | 5.1 (129)  | 7.0 (178)  | 3.5 (90)  | 0.6 (16) | 0.43 (11)       | 1.25 (32) | 3.6 (91)   | 3.4 (87)   | 4.1 (104)  |
| 3L_E-05x**         | 5    | 125 | 7.1 (179)  | 2.2 (56)  | 5.0 (128)  | 6.2 (157)  | 7.5 (191)  | 3.5 (90)  | 0.8 (19) | 0.51 (13)       | 1.25 (32) | 4.6 (117)  | 4.0 (102)  | 4.6 (117)  |
| 3L_E-06x**         | 6    | 150 | 8.1 (206)  | 2.2 (56)  | 5.8 (146)  | 7.1 (180)  | 8.0 (203)  | 3.5 (90)  | 0.8 (19) | 0.51 (13)       | 1.25 (32) | 5.4 (137)  | 4.5 (115)  | 5.1 (129)  |
| 3L_E-08x**         | 8    | 200 | 10.5 (267) | 2.4 (60)  | 7.8 (197)  | 9.3 (237)  | 9.5 (241)  | 5.9 (150) | 0.9 (22) | 0.63 (16)       | 1.25 (32) | 7.5 (190)  | 5.8 (146)  | 6.1 (154)  |
| 3L_E-10x**         | 10   | 250 | 12.6 (324) | 2.7 (68)  | 9.8 (249)  | 11.4 (291) | 10.8 (273) | 5.9 (150) | 1.2 (30) | 0.87 (22)       | 2.0 (51)  | 9.5 (242)  | 7.1 (181)  | 7.7 (195)  |
| 3L_E-12x**         | 12   | 300 | 14.9 (373) | 3.1 (78)  | 11.8 (299) | 13.5 (342) | 12.3 (311) | 5.9 (150) | 1.2 (30) | 0.87 (22)       | 2.0 (51)  | 11.5 (291) | 8.1 (206)  | 9.0 (229)  |
| 3L_E-14x**         | 14   | 350 | 17.1 (433) | 3.1 (78)  | 13.3 (337) | 15.3 (388) | 13.6 (346) | 5.9 (150) | 1.4 (35) | .39x.39 (10x10) | 2.0 (51)  | 13.0 (331) | 9.4 (238)  | 9.9 (252)  |
| 3L_E-16x**         | 16   | 400 | 19.2 (488) | 4.0 (102) | 15.3 (387) | 17.4 (442) | 14.8 (375) | 5.9 (150) | 1.4 (35) | .39x.39 (10x10) | 2.0 (51)  | 14.9 (377) | 10.8 (273) | 11.3 (287) |
| 3L_E-18x**         | 18   | 450 | 21.1 (536) | 4.5 (114) | 17.3 (438) | 19.5 (495) | 16.0 (406) | 8.3 (210) | 2.0 (50) | .47x.39 (12x10) | 2.5 (64)  | 16.8 (427) | 12.0 (305) | 12.2 (309) |
| 3L_E-20x**         | 20   | 500 | 23.3 (591) | 5.0 (127) | 19.3 (489) | 21.6 (548) | 17.3 (438) | 8.3 (210) | 2.0 (50) | .47x.39 (12x10) | 2.5 (64)  | 18.8 (476) | 14.0 (356) | 14.0 (356) |
| 3L_E-24S**         | 24   | 600 | 28.2 (716) | 6.1 (154) | 23.3 (591) | 25.6 (650) | 19.5 (495) | 8.3 (210) | 2.5 (64) | .62x.62 (16x16) | 4.0 (102) | 22.7 (575) | 17.6 (446) | 17.6 (446) |

\*\* = (2C) 2-Way - Normally Closed  
 (2N) 2-Way - Normally Open  
 (3) 3-Way + Configuration Number (see pg. 3L-6)

X or S = (L) Low Pressure or (S) Standard Pressure

\_ = (N) Nylon Coated Disc or (S) Stainless Steel Disc

\*Note: K dimension is the disc chordal diameter at the valve face.

### VALVE BODY DIMENSIONS in. (mm) - Continued

| Size |     | Top Plate Drilling |          |           | Lug Bolt Data |       |         | Tee        |            | Adp. Code | Weights - lbs. (kg) |             |             |
|------|-----|--------------------|----------|-----------|---------------|-------|---------|------------|------------|-----------|---------------------|-------------|-------------|
| in.  | mm  | Bolt Circle        | Hole Qty | Hole Dia. | BC            | Holes | Threads | M          | N          |           | Wafer               | Lug         | Tee***      |
| 2    | 50  | 2.8 (70)           | 4        | 0.4 (10)  | 4.8 (122)     | 4     | 5/8-11  | 2.0 (51)   | 4.5 (114)  | A         | 6 (2.7)             | 7 (3.2)     | 19 (8.6)    |
| 2.5  | 65  | 2.8 (70)           | 4        | 0.4 (10)  | 5.5 (140)     | 4     | 5/8-11  | 2.5 (64)   | 5.0 (127)  | A         | 7 (3.2)             | 8 (3.36)    | 27 (12.3)   |
| 3    | 80  | 2.8 (70)           | 4        | 0.4 (10)  | 6.0 (152)     | 4     | 5/8-11  | 3.0 (76)   | 5.5 (140)  | A         | 8 (3.6)             | 9 (4.1)     | 39 (17.7)   |
| 4    | 100 | 2.8 (70)           | 4        | 0.4 (10)  | 7.5 (191)     | 8     | 5/8-11  | 4.0 (102)  | 6.5 (165)  | B         | 12 (5.4)            | 16 (7.3)    | 62 (28.1)   |
| 5    | 125 | 2.8 (70)           | 4        | 0.4 (10)  | 8.5 (216)     | 8     | 3/4-10  | 5.0 (127)  | 7.5 (191)  | C         | 15 (6.8)            | 21 (9.5)    | 79 (35.78)  |
| 6    | 150 | 2.8 (70)           | 4        | 0.4 (10)  | 9.5 (241)     | 8     | 3/4-10  | 6.0 (152)  | 8.0 (203)  | C         | 19 (8.6)            | 25 (11.3)   | 96 (43.5)   |
| 8    | 200 | 4.9 (125)          | 4        | 0.6 (15)  | 11.8 (300)    | 8     | 3/4-10  | 8.0 (203)  | 9.0 (229)  | D         | 34 (15.4)           | 40 (18.1)   | 155 (70.3)  |
| 10   | 250 | 4.9 (125)          | 4        | 0.6 (15)  | 14.3 (363)    | 12    | 7/8-9   | 10.0 (254) | 11.0 (279) | E         | 51 (23.1)           | 62 (28.1)   | 270 (122.5) |
| 12   | 300 | 4.9 (125)          | 4        | 0.6 (15)  | 17.0 (432)    | 12    | 7/8-9   | 12.0 (305) | 12.0 (305) | E         | 68 (3.8)            | 91 (41.3)   | 380 (172.4) |
| 14   | 350 | 4.9 (125)          | 4        | 0.6 (15)  | 18.8 (478)    | 12    | 1-8     | 14.0 (356) | 14.0 (356) | F         | 105 (47.6)          | 122 (55.3)  | 435 (197.3) |
| 16   | 400 | 4.9 (125)          | 4        | 0.6 (15)  | 21.3 (541)    | 16    | 1-8     | 16.0 (406) | 15.0 (381) | F         | 150 (68.0)          | 166 (75.3)  | 550 (249.5) |
| 18   | 450 | 6.5 (165)          | 4        | 0.8 (21)  | 22.8 (579)    | 16    | 1-1/8-8 | 18.0 (457) | 16.5 (419) | G         | 212 (96.1)          | 233 (105.7) | 665 (301.6) |
| 20   | 500 | 6.5 (165)          | 4        | 0.8 (21)  | 25.0 (635)    | 20    | 1-1/8-8 | 20.0 (508) | 18.0 (457) | G         | 285 (129.3)         | 340 (154.0) | 855 (387.8) |
| 24   | 600 | 6.5 (165)          | 4        | 0.8 (21)  | 29.5 (749)    | 20    | 1-1/4-8 | -          | -          | H         | 410 (186.0)         | 490 (222.3) | -           |

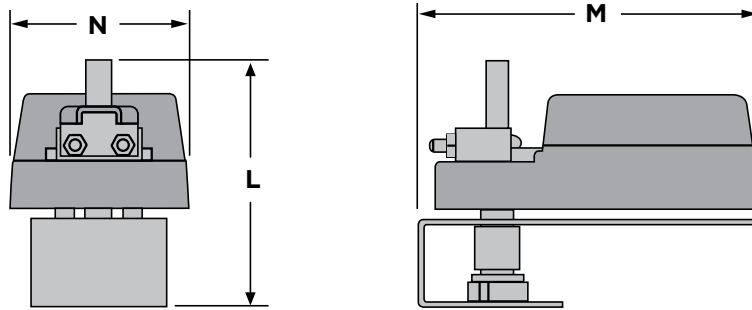
\*\*\*Tee weight is the weight of the Tee alone. For 3-Way assemblies add the weight of two lug valves.

### BOLT SIZE - in.

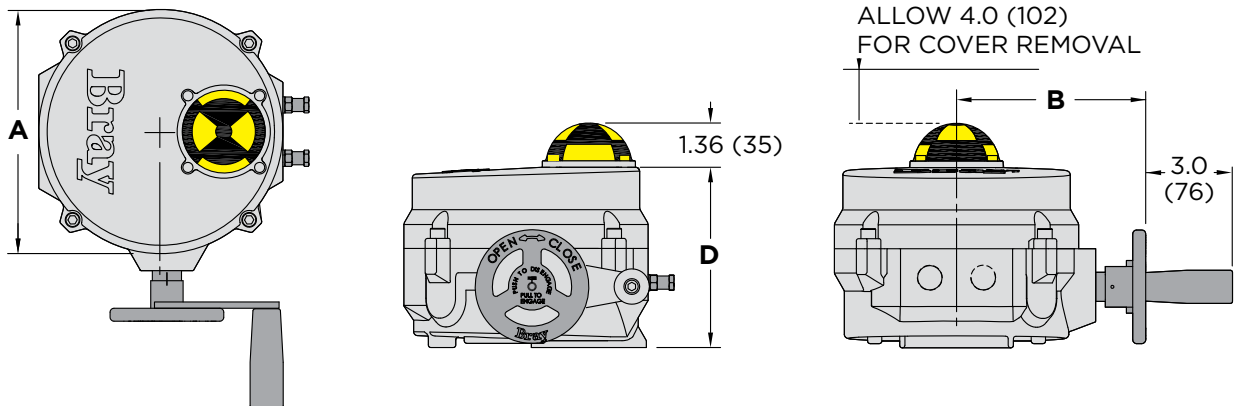
| Size |     | Bolt Size - in.         |
|------|-----|-------------------------|
| in.  | mm  |                         |
| 2    | 50  | 5/8 - 11 Threads UNC-2B |
| 2.5  | 65  |                         |
| 3    | 80  |                         |
| 4    | 100 |                         |
| 5    | 125 | 3/4 - 10 Threads UNC-2B |
| 6    | 150 |                         |
| 8    | 200 | 7/8 - 9 Threads UNC-2B  |
| 10   | 250 |                         |
| 12   | 300 |                         |
| 14   | 350 | 1 - 8 Threads UN-2B     |
| 16   | 400 |                         |
| 18   | 450 | 1-1/8 - 8 Threads UN-2B |
| 20   | 500 |                         |
| 24   | 600 | 1-1/4 - 8 Threads UN-2B |

## 3L Series Butterfly Valves - Actuator Dimensions

| COMMERCIAL ACTUATOR DIMENSIONS in. (mm) |            |            |           |                  |
|---|------------|------------|-----------|------------------|
| Actuator Model Number                   | L          | M          | N         | Weight lbs. (kg) |
| DCS-140 Series                          | 7.4 (188)  | 11.0 (279) | 4.0 (102) | 4.9 (2.2)        |
| DC-310 Series                           | 7.4 (188)  | 11.0 (279) | 4.0 (102) | 4.4 (2.0)        |
| D-140/210 Series                        | 6.7 (170)  | 7.5 (191)  | 4.0 (102) | 2.9 (1.3)        |
| DS-180 Series                           | 7.4 (188)  | 11.0 (279) | 4.0 (102) | 6.4 (2.9)        |
| Tandem Actuators                        | 11.8 (300) | 18.0 (457) | 4.0 (102) | 12.8 (5.8)       |



| INDUSTRIAL ACTUATOR DIMENSIONS in. (mm) |            |            |            |            |                  |
|---|------------|------------|------------|------------|------------------|
| Actuator Model Number                   | A          | B          | D*         |            | Weight lbs. (kg) |
|   |            |            | 2-Way      | 3-Way      |                  |
| 70-0081 (Small Frame)                   | 7.5 (191)  | 5.8 (147)  | 5.6 (141)  | 8.6 (218)  | 13 (6)           |
| 70-0121/0201/E301                       | 10.1 (256) | 7.8 (198)  | 6.6 (168)  | 10.7 (273) | 28 (13)          |
| 70-0501/0651                            | 12.1 (308) | 9.5 (241)  | 7.2 (183)  | 13.2 (335) | 48 (22)          |
| 70-1300/1800                            | 12.1 (308) | 9.5 (241)  | 12.5 (316) | 20.5 (521) | 118 (54)         |
| AU-4068                                 | 32.1 (815) | 28.9 (734) | 12.3 (312) | 22.3 (566) | 195 (88)         |
| AU-7080                                 | 32.1 (815) | 31.9 (810) | 12.3 (312) | -          | 285 (129)        |

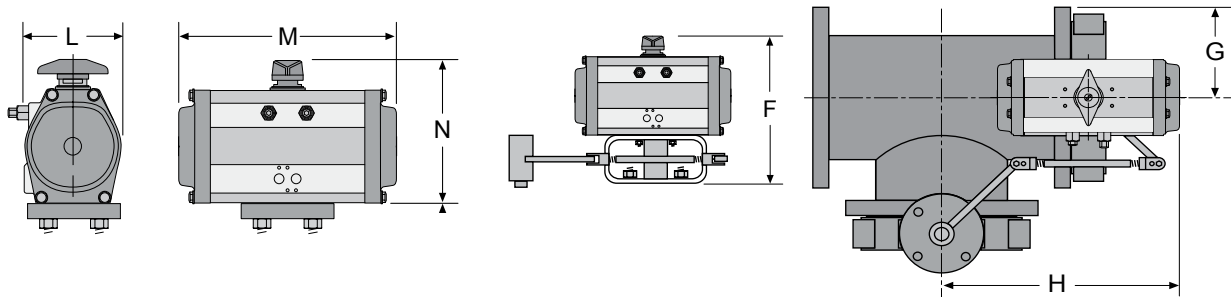


## 3L Series Butterfly Valves - Actuator Dimensions

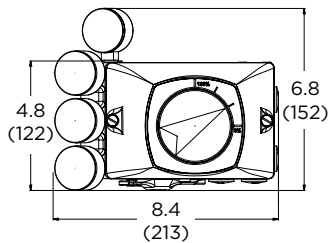
### PNEUMATIC ACTUATOR DIMENSIONS in. (mm)

| Actuator Model Number | L          | M           | N          | F          | G          | H          | Weight lbs. (kg) |               |
|-----------------------|------------|-------------|------------|------------|------------|------------|------------------|---------------|
|                       |            |             |            |            |            |            | Double Acting    | Spring Return |
| 92/93-063             | 3.1 (79)   | 5.6 (142)   | 4.5 (114)  | 7.5 (191)  | 3.0 (76)   | 9.1 (231)  | 3.4 (1.5)        | 4.1 (1.9)     |
| 92/93-083             | 4.1 (104)  | 7.4 (188)   | 5.4 (137)  | 8.4 (213)  | 4.5 (114)  | 13.3 (338) | 6.3 (3)          | 8.1 (4)       |
| 92/93-093             | 4.4 (112)  | 9.1 (231)   | 5.8 (147)  | 8.8 (224)  | 5.5 (140)  | 14.9 (378) | 8.5 (4)          | 10.8 (5)      |
| 92/93-119             | 5.2 (132)  | 12.4 (325)  | 7.3 (185)  | 11.4 (290) | 8.0 (203)  | 19.9 (505) | 16.9 (8)         | 22.3 (10)     |
| 92/93-128             | 5.6 (142)  | 12.8 (734)  | 8.1 (2.6)  | 12.2 (310) | 8.0 (203)  | 19.9 (505) | 21.0 (10)        | 27.6 (13)     |
| 92/93-160             | 7.2 (183)  | 15.5 (394)  | 9.4 (239)  | 13.5 (343) | 10.5 (267) | 26.6 (676) | 38.8 (18)        | 53.2 (24)     |
| 92/93-210             | 9.0 (229)  | 19.6 (498)  | 11.6 (295) | 17.6 (447) | 13.8 (351) | 33.1 (841) | 77.8 (35)        | 109.6 (50)    |
| 92/93-255             | 10.8 (274) | 28.8 (732)  | 13.5 (343) | 19.5 (495) | 13.8 (351) | 33.1 (841) | 167.0 (76)       | 210.8 (96)    |
| 98-45E2-...           | 14.8 (376) | 52.8 (1341) | 9.7 (246)  | -          | -          | -          | 183 (83)         | 355 (161)     |
| 98-14E3-...           | 21.3 (541) | 72.6 (1844) | 12.1 (307) | -          | -          | -          | 485 (220)        | 937 (425)     |
| 98-73E2-...           | 16.8 (427) | 60.1 (1527) | 11.8 (300) | -          | -          | -          | 254 (115)        | 547 (248)     |

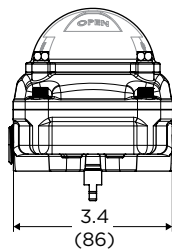
Allow 3.0" for Series 92/93 actuator removal and up to 12" for Series 98



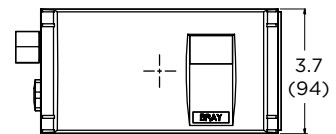
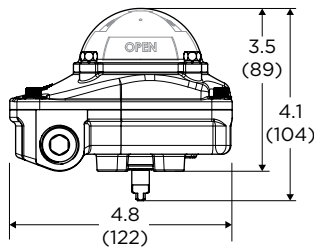
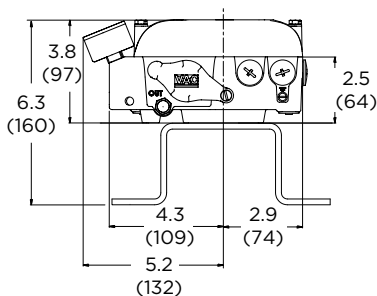
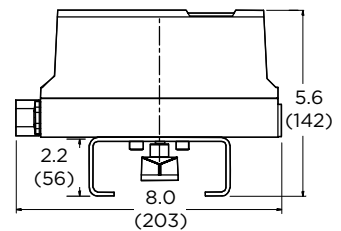
**VP200 Pneumatic Positioner**



**Series 5A Switch Box**



**Series 6A Electro Pneumatic Positioner**



## 3L Series Butterfly Valves - Close-Off Charts

### 2-Way with NSR/SR DC-Series Commercial Electric Actuators

Nylon Coated Disc

| 2-Way, On/Off & Floating - Nylon Coated Disc |      |     |               |      |     | Non-Spring Return |              | Spring Return |             |            |              |
|--|------|-----|---------------|------|-----|-------------------|--------------|---------------|-------------|------------|--------------|
| Actuator Model Details                       |      |     |               |      |     | DC24-310-T        | DC24-310-T-D | DCS24-140     | DCS24-140-D | DCS120-140 | DCS120-140-D |
| Model Number                                 | Size |     | Close-Off psi | Cv   |     | Floating          |              | On/Off        |             |            |              |
|  | In.  | mm  |               | 90°  | 60° | 24 VAC            |              | 24 VAC/DC     |             | 120 VAC    |              |
| 3LNE-02S2C                                   | 2    | 50  | 175           | 87   | 66  | X                 | -            | X             | -           | X          | -            |
| 3LNE-25S2C                                   | 2.5  | 65  | 175           | 185  | 98  | X                 | -            | X             | -           | X          | -            |
| 3LNE-03S2C                                   | 3    | 80  | 175           | 360  | 171 | X                 | -            | -             | X           | -          | X            |
| 3LNE-04L2C                                   | 4    | 100 | 50            | 740  | 310 | X                 | -            | X             | -           | X          | -            |
| 3LNE-04S2C                                   | 4    | 100 | 175           | 740  | 310 | X                 | -            | -             | X           | -          | X            |
| 3LNE-05L2C                                   | 5    | 125 | 50            | 1218 | 470 | X                 | -            | -             | X           | -          | X            |
| 3LNE-06L2C                                   | 6    | 150 | 50            | 1900 | 757 | -                 | X            | -             | -           | -          | -            |

| 2-Way, Modulating - Nylon Coated Disc |      |     |               |      |     | Non-Spring Return |             | Spring Return |              |
|---------------------------------------|------|-----|---------------|------|-----|-------------------|-------------|---------------|--------------|
| Actuator Model Details                |      |     |               |      |     | DCM24-310         | DCM24-310-D | DCMS24-140    | DCMS24-140-D |
| Model Number                          | Size |     | Close-Off psi | Cv   |     | Modulating        |             |               |              |
|                                       | In.  | mm  |               | 90°  | 60° | 24 VAC            |             | 24 VAC/DC     |              |
| 3LNE-02S2C                            | 2    | 50  | 175           | 87   | 66  | X                 | -           | X             | -            |
| 3LNE-25S2C                            | 2.5  | 65  | 175           | 185  | 98  | X                 | -           | X             | -            |
| 3LNE-03S2C                            | 3    | 80  | 175           | 360  | 171 | X                 | -           | -             | X            |
| 3LNE-04L2C                            | 4    | 100 | 50            | 740  | 310 | X                 | -           | X             | -            |
| 3LNE-04S2C                            | 4    | 100 | 175           | 740  | 310 | X                 | -           | -             | X            |
| 3LNE-05L2C                            | 5    | 125 | 50            | 1218 | 470 | X                 | -           | -             | X            |
| 3LNE-06L2C                            | 6    | 150 | 50            | 1900 | 757 | -                 | X           | -             | -            |

Stainless Steel Disc

| 2-Way, On/Off & Floating - Stainless Steel Disc |      |     |               |      |     | Non-Spring Return |              | Spring Return |             |            |              |
|---|------|-----|---------------|------|-----|-------------------|--------------|---------------|-------------|------------|--------------|
| Actuator Model Details                          |      |     |               |      |     | DC24-310-T        | DC24-310-T-D | DCS24-140     | DCS24-140-D | DCS120-140 | DCS120-140-D |
| Model Number                                    | Size |     | Close-Off psi | Cv   |     | Floating          |              | On/Off        |             |            |              |
|   | In.  | mm  |               | 90°  | 60° | 24 VAC            |              | 24 VAC/DC     |             | 120 VAC    |              |
| 3LSE-02S2C                                      | 2    | 50  | 175           | 87   | 66  | X                 | -            | X             | -           | X          | -            |
| 3LSE-25S2C                                      | 2.5  | 65  | 175           | 185  | 98  | X                 | -            | X             | -           | X          | -            |
| 3LSE-03S2C                                      | 3    | 80  | 175           | 360  | 171 | X                 | -            | -             | X           | -          | X            |
| 3LSE-04L2C                                      | 4    | 100 | 50            | 740  | 310 | X                 | -            | -             | X           | -          | X            |
| 3LSE-04S2C                                      | 4    | 100 | 175           | 740  | 310 | X                 | -            | -             | X           | -          | X            |
| 3LSE-05L2C                                      | 5    | 125 | 50            | 1218 | 470 | X                 | -            | -             | X           | -          | X            |
| 3LSE-06L2C                                      | 6    | 150 | 50            | 1900 | 757 | -                 | X            | -             | -           | -          | -            |

| 2-Way, Modulating - Stainless Steel Disc |      |     |               |      |     | Non-Spring Return |             | Spring Return |              |
|--|------|-----|---------------|------|-----|-------------------|-------------|---------------|--------------|
| Actuator Model Details                   |      |     |               |      |     | DCM24-310         | DCM24-310-D | DCMS24-140    | DCMS24-140-D |
| Model Number                             | Size |     | Close-Off psi | Cv   |     | Modulating        |             |               |              |
|  | In.  | mm  |               | 90°  | 60° | 24 VAC            |             | 24 VAC/DC     |              |
| 3LSE-02S2C                               | 2    | 50  | 175           | 87   | 66  | X                 | -           | X             | -            |
| 3LSE-25S2C                               | 2.5  | 65  | 175           | 185  | 98  | X                 | -           | X             | -            |
| 3LSE-03S2C                               | 3    | 80  | 175           | 360  | 171 | X                 | -           | -             | X            |
| 3LSE-04L2C                               | 4    | 100 | 50            | 740  | 310 | X                 | -           | -             | X            |
| 3LSE-04S2C                               | 4    | 100 | 175           | 740  | 310 | X                 | -           | -             | X            |
| 3LSE-05L2C                               | 5    | 125 | 50            | 1218 | 470 | X                 | -           | -             | X            |
| 3LSE-06L2C                               | 6    | 150 | 50            | 1900 | 757 | -                 | X           | -             | -            |

**Options/Addrs**  
 For optional auxiliary switches, add -A to the end of the actuator part number.  
 For Spring Return Units:  
 N = Normally Open  
 C = Normally Closed - Factory default  
 -D = Dual mounted actuators

## 3L Series Butterfly Valves - Close-Off Charts

### 3-Way with NSR/SR DC-Series Commercial Electric Actuators

Nylon Coated Disc

| Actuator Model Details |      |     |                  |      |     | Non-Spring Return |              | Spring Return |             |            |              |
|------------------------|------|-----|------------------|------|-----|-------------------|--------------|---------------|-------------|------------|--------------|
|                        |      |     |                  |      |     | DC24-310-T        | DC24-310-T-D | DCS24-140     | DCS24-140-D | DCS120-140 | DCS120-140-D |
| Valve Model Details    | Size |     | Close-Off<br>psi | Cv   |     | Floating          |              | On/Off        |             |            |              |
|                        | In.  | mm  |                  | 90°  | 60° | 24 VAC            |              | 24 VAC/DC     |             | 120 VAC    |              |
| 3LNE-02S3X             | 2    | 50  | 175              | 87   | 66  | X                 | -            | X             | -           | X          | -            |
| 3LNE-25S3X             | 2.5  | 65  | 175              | 185  | 98  | X                 | -            | -             | X           | -          | X            |
| 3LNE-03S3X             | 3    | 80  | 175              | 360  | 171 | X                 | -            | -             | X           | -          | X            |
| 3LNE-04L3X             | 4    | 100 | 50               | 740  | 310 | X                 | -            | -             | X           | -          | X            |
| 3LNE-04S3X             | 4    | 100 | 175              | 740  | 310 | -                 | X            | -             | -           | -          | -            |
| 3LNE-05L3X             | 5    | 125 | 50               | 1218 | 470 | X                 | -            | -             | X           | -          | X            |
| 3LNE-06L3X             | 6    | 150 | 50               | 1900 | 757 | -                 | X            | -             | -           | -          | -            |

| Actuator Model Details |      |     |                  |      |     | Non-Spring Return |             | Spring Return |              |
|------------------------|------|-----|------------------|------|-----|-------------------|-------------|---------------|--------------|
|                        |      |     |                  |      |     | DCM24-310         | DCM24-310-D | DCMS24-140    | DCMS24-140-D |
| Valve Model Details    | Size |     | Close-Off<br>psi | Cv   |     | Modulating        |             |               |              |
|                        | In.  | mm  |                  | 90°  | 60° | 24 VAC            |             | 24 VAC/DC     |              |
| 3LNE-02S3X             | 2    | 50  | 175              | 87   | 66  | X                 | -           | X             | -            |
| 3LNE-25S3X             | 2.5  | 65  | 175              | 185  | 98  | X                 | -           | -             | X            |
| 3LNE-03S3X             | 3    | 80  | 175              | 360  | 171 | X                 | -           | -             | X            |
| 3LNE-04L3X             | 4    | 100 | 50               | 740  | 310 | X                 | -           | -             | X            |
| 3LNE-04S3X             | 4    | 100 | 175              | 740  | 310 | -                 | X           | -             | -            |
| 3LNE-05L3X             | 5    | 125 | 50               | 1218 | 470 | X                 | -           | -             | X            |
| 3LNE-06L3X             | 6    | 150 | 50               | 1900 | 757 | -                 | X           | -             | -            |

Stainless Steel Disc

| Actuator Model Details |      |     |                  |      |     | Non-Spring Return |              | Spring Return |             |            |              |
|------------------------|------|-----|------------------|------|-----|-------------------|--------------|---------------|-------------|------------|--------------|
|                        |      |     |                  |      |     | DC24-310-T        | DC24-310-T-D | DCS24-140     | DCS24-140-D | DCS120-140 | DCS120-140-D |
| Valve Model Details    | Size |     | Close-Off<br>psi | Cv   |     | Floating          |              | On/Off        |             |            |              |
|                        | In.  | mm  |                  | 90°  | 60° | 24 VAC            |              | 24 VAC/DC     |             | 120 VAC    |              |
| 3LSE-02S3X             | 2    | 50  | 175              | 87   | 66  | X                 | -            | X             | -           | X          | -            |
| 3LSE-25S3X             | 2.5  | 65  | 175              | 185  | 98  | X                 | -            | -             | X           | -          | X            |
| 3LSE-03S3X             | 3    | 80  | 175              | 360  | 171 | X                 | -            | -             | X           | -          | X            |
| 3LSE-04L3X             | 4    | 100 | 50               | 740  | 310 | X                 | -            | -             | X           | -          | X            |
| 3LSE-04S3X             | 4    | 100 | 175              | 740  | 310 | -                 | X            | -             | -           | -          | -            |
| 3LSE-05L3X             | 5    | 125 | 50               | 1218 | 470 | -                 | X            | -             | X           | -          | X            |
| 3LSE-06L3X             | 6    | 150 | 50               | 1900 | 757 | -                 | X            | -             | -           | -          | -            |

| Actuator Model Details |      |     |                  |      |     | Non-Spring Return |             | Spring Return |              |
|------------------------|------|-----|------------------|------|-----|-------------------|-------------|---------------|--------------|
|                        |      |     |                  |      |     | DCM24-310         | DCM24-310-D | DCMS24-140    | DCMS24-140-D |
| Valve Model Details    | Size |     | Close-Off<br>psi | Cv   |     | Modulating        |             |               |              |
|                        | In.  | mm  |                  | 90°  | 60° | 24 VAC            |             | 24 VAC/DC     |              |
| 3LSE-02S3X             | 2    | 50  | 175              | 87   | 66  | X                 | -           | X             | -            |
| 3LSE-25S3X             | 2.5  | 65  | 175              | 185  | 98  | X                 | -           | -             | X            |
| 3LSE-03S3X             | 3    | 80  | 175              | 360  | 171 | X                 | -           | -             | X            |
| 3LSE-04L3X             | 4    | 100 | 50               | 740  | 310 | X                 | -           | -             | X            |
| 3LSE-04S3X             | 4    | 100 | 175              | 740  | 310 | -                 | X           | -             | -            |
| 3LNE-05L3X             | 5    | 125 | 50               | 1218 | 470 | -                 | X           | -             | X            |
| 3LSE-06L3X             | 6    | 150 | 50               | 1900 | 757 | -                 | X           | -             | -            |

**Options/Adders**  
 For optional auxiliary switches, add -A to the end of the actuator part number.  
 X = 3-Way Assemblies (Refer to Configuration Chart, Page 6)  
 -D = Dual mounted actuators

## 3L Series Butterfly Valves - Close-Off Charts

### 2-Way with NSR/SR D-Series Commercial Electric Actuators

Nylon Coated Disc

| 2-Way, On/Off or Floating - Nylon Coated Disc |      |     |               |      |     | Non-Spring Return |         |           | Spring Return |            |
|---|------|-----|---------------|------|-----|-------------------|---------|-----------|---------------|------------|
| Actuator Model Details                        |      |     |               |      |     | D24-140           | D24-210 | D24-210-D | DS24-180      | DS24-180-D |
| Valve Model Details                           | Size |     | Close-Off psi | Cv   |     | On/Off & Floating |         |           | On/Off        |            |
|   | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |         |           | 24 VAC/DC     |            |
| 3LNE-02S2C                                    | 2    | 50  | 175           | 87   | 66  | X                 | -       | -         | X             | -          |
| 3LNE-25S2C                                    | 2.5  | 65  | 175           | 185  | 98  | X                 | -       | -         | X             | -          |
| 3LNE-03S2C                                    | 3    | 80  | 175           | 360  | 171 | -                 | X       | -         | X             | -          |
| 3LNE-04L2C                                    | 4    | 100 | 50            | 740  | 310 | -                 | X       | -         | X             | -          |
| 3LNE-04S2C                                    | 4    | 100 | 175           | 740  | 310 | -                 | -       | X         | -             | X          |
| 3LNE-05L2C                                    | 5    | 125 | 50            | 1218 | 470 | -                 | X       | -         | -             | X          |
| 3LNE-05S2C                                    | 5    | 125 | 175           | 1218 | 470 | -                 | -       | X         | -             | -          |
| 3LNE-06L2C                                    | 6    | 150 | 50            | 1900 | 757 | -                 | -       | X         | -             | X          |

| 2-Way, Modulating - Nylon Coated Disc |      |     |               |      |     | Non-Spring Return |          |            | Spring Return |             |
|---------------------------------------|------|-----|---------------|------|-----|-------------------|----------|------------|---------------|-------------|
| Actuator Model Details                |      |     |               |      |     | DM24-140          | DM24-210 | DM24-210-D | DMS24-180     | DMS24-180-D |
| Valve Model Details                   | Size |     | Close-Off psi | Cv   |     | Modulating        |          |            |               |             |
|                                       | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |          |            | 24 VAC/DC     |             |
| 3LNE-02S2C                            | 2    | 50  | 175           | 87   | 66  | X                 | -        | -          | X             | -           |
| 3LNE-25S2C                            | 2.5  | 65  | 175           | 185  | 98  | X                 | -        | -          | X             | -           |
| 3LNE-03S2C                            | 3    | 80  | 175           | 360  | 171 | -                 | X        | -          | X             | -           |
| 3LNE-04L2C                            | 4    | 100 | 50            | 740  | 310 | -                 | X        | -          | X             | -           |
| 3LNE-04S2C                            | 4    | 100 | 175           | 740  | 310 | -                 | -        | X          | -             | X           |
| 3LNE-05L2C                            | 5    | 125 | 50            | 1218 | 470 | -                 | X        | -          | -             | X           |
| 3LNE-05S2C                            | 5    | 125 | 175           | 1218 | 470 | -                 | -        | X          | -             | -           |
| 3LNE-06L2C                            | 6    | 150 | 50            | 1900 | 757 | -                 | -        | X          | -             | X           |

Stainless Steel Disc

| 2-Way, On/Off or Floating - Stainless Steel Disc |      |     |               |      |     | Non-Spring Return |         |           | Spring Return |            |
|--|------|-----|---------------|------|-----|-------------------|---------|-----------|---------------|------------|
| Actuator Model Details                           |      |     |               |      |     | D24-140           | D24-210 | D24-210-D | DS24-180      | DS24-180-D |
| Valve Model Details                              | Size |     | Close-Off psi | Cv   |     | On/Off & Floating |         |           | On/Off        |            |
|  | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |         |           | 24 VAC/DC     |            |
| 3LSE-02S2C                                       | 2    | 50  | 175           | 87   | 66  | X                 | -       | -         | X             | -          |
| 3LSE-25S2C                                       | 2.5  | 65  | 175           | 185  | 98  | -                 | X       | -         | X             | -          |
| 3LSE-03S2C                                       | 3    | 80  | 175           | 360  | 171 | -                 | X       | -         | X             | -          |
| 3LSE-04L2C                                       | 4    | 100 | 50            | 740  | 310 | -                 | X       | -         | X             | -          |
| 3LSE-04S2C                                       | 4    | 100 | 175           | 740  | 310 | -                 | -       | X         | -             | X          |
| 3LSE-05L2C                                       | 5    | 125 | 50            | 1218 | 470 | -                 | X       | -         | -             | X          |
| 3LSE-05S2C                                       | 5    | 125 | 175           | 1218 | 470 | -                 | -       | X         | -             | -          |
| 3LSE-06L2C                                       | 6    | 150 | 50            | 1900 | 757 | -                 | -       | X         | -             | -          |

| 2-Way, Modulating - Stainless Steel Disc |      |     |               |      |     | Non-Spring Return |          |            | Spring Return |             |
|--|------|-----|---------------|------|-----|-------------------|----------|------------|---------------|-------------|
| Actuator Model Details                   |      |     |               |      |     | DM24-140          | DM24-210 | DM24-210-D | DMS24-180     | DMS24-180-D |
| Valve Model Details                      | Size |     | Close-Off psi | Cv   |     | Modulating        |          |            |               |             |
|  | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |          |            | 24 VAC/DC     |             |
| 3LSE-02S2C                               | 2    | 50  | 175           | 87   | 66  | X                 | -        | -          | X             | -           |
| 3LSE-25S2C                               | 2.5  | 65  | 175           | 185  | 98  | -                 | X        | -          | X             | -           |
| 3LSE-03S2C                               | 3    | 80  | 175           | 360  | 171 | -                 | X        | -          | X             | -           |
| 3LSE-04L2C                               | 4    | 100 | 50            | 740  | 310 | -                 | X        | -          | X             | -           |
| 3LSE-04S2C                               | 4    | 100 | 175           | 740  | 310 | -                 | -        | X          | -             | X           |
| 3LSE-05L2C                               | 5    | 125 | 50            | 1218 | 470 | -                 | X        | -          | -             | X           |
| 3LSE-05S2C                               | 5    | 125 | 175           | 1218 | 470 | -                 | -        | X          | -             | -           |
| 3LSE-06L2C                               | 6    | 150 | 50            | 1900 | 757 | -                 | -        | X          | -             | -           |

**Options/Adders**  
 For optional auxiliary switches, add -A to the end of the actuator part number.  
 For Spring Return Units:  
 N = Normally Open  
 C = Normally Closed - Factory default  
 -D = Dual mounted actuators

## 3L Series Butterfly Valves - Close-Off Charts

### 3-Way with NSR/SR Series with D-Series Commercial Electric Actuators

Nylon Coated Disc

| Actuator Model Details |      |     |               |      |     | Non-Spring Return |         |           | Spring Return |            |
|------------------------|------|-----|---------------|------|-----|-------------------|---------|-----------|---------------|------------|
|                        |      |     |               |      |     | D24-140           | D24-210 | D24-210-D | DS24-180      | DS24-180-D |
| Valve Model Details    | Size |     | Close-Off psi | Cv   |     | On/Off & Floating |         |           | On/Off        |            |
|                        | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |         |           | 24 VAC/DC     |            |
| 3LNE-02S3X             | 2    | 50  | 175           | 87   | 66  | X                 | -       | -         | X             | -          |
| 3LNE-25S3X             | 2.5  | 65  | 175           | 185  | 98  | -                 | X       | -         | X             | -          |
| 3LNE-03S3X             | 3    | 80  | 175           | 360  | 171 | -                 | X       | -         | -             | X          |
| 3LNE-04L3X             | 4    | 100 | 50            | 740  | 310 | -                 | X       | -         | -             | X          |
| 3LNE-04S3X             | 4    | 100 | 175           | 740  | 310 | -                 | -       | X         | -             | X          |
| 3LNE-05L3X             | 5    | 125 | 50            | 1218 | 470 | -                 | -       | X         | -             | X          |
| 3LNE-06L3X             | 6    | 150 | 50            | 1900 | 757 | -                 | -       | X         | -             | -          |

| Actuator Model Details |      |     |               |      |     | Non-Spring Return |          |            | Spring Return |             |
|------------------------|------|-----|---------------|------|-----|-------------------|----------|------------|---------------|-------------|
|                        |      |     |               |      |     | DM24-140          | DM24-210 | DM24-210-D | DMS24-180     | DMS24-180-D |
| Valve Model Details    | Size |     | Close-Off psi | Cv   |     | Modulating        |          |            |               |             |
|                        | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |          |            | 24 VAC/DC     |             |
| 3LNE-02S3X             | 2    | 50  | 175           | 87   | 66  | X                 | -        | -          | X             | -           |
| 3LNE-25S3X             | 2.5  | 65  | 175           | 185  | 98  | -                 | X        | -          | X             | -           |
| 3LNE-03S3X             | 3    | 80  | 175           | 360  | 171 | -                 | X        | -          | -             | X           |
| 3LNE-04L3X             | 4    | 100 | 50            | 740  | 310 | -                 | X        | -          | -             | X           |
| 3LNE-04S3X             | 4    | 100 | 175           | 740  | 310 | -                 | -        | X          | -             | X           |
| 3LNE-05L3X             | 5    | 125 | 50            | 1218 | 470 | -                 | -        | X          | -             | X           |
| 3LNE-06L3X             | 6    | 150 | 50            | 1900 | 757 | -                 | -        | X          | -             | -           |

Stainless Steel Disc

| Actuator Model Details |      |     |               |      |     | Non-Spring Return |           | Spring Return |            |  |
|------------------------|------|-----|---------------|------|-----|-------------------|-----------|---------------|------------|--|
|                        |      |     |               |      |     | D24-210           | D24-210-D | DS24-180      | DS24-180-D |  |
| Valve Model Details    | Size |     | Close-Off psi | Cv   |     | On/Off & Floating |           |               | On/Off     |  |
|                        | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |           |               | 24 VAC/DC  |  |
| 3LSE-02S3X             | 2    | 50  | 175           | 87   | 66  | X                 | -         | X             | -          |  |
| 3LSE-25S3X             | 2.5  | 65  | 175           | 185  | 98  | X                 | -         | X             | -          |  |
| 3LSE-03S3X             | 3    | 80  | 175           | 360  | 171 | -                 | X         | -             | X          |  |
| 3LSE-04L3X             | 4    | 100 | 50            | 740  | 310 | X                 | -         | -             | X          |  |
| 3LSE-04S3X             | 4    | 100 | 175           | 740  | 310 | -                 | X         | -             | -          |  |
| 3LSE-05L3X             | 5    | 125 | 50            | 1218 | 470 | -                 | X         | -             | X          |  |

| Actuator Model Details |      |     |               |      |     | Non-Spring Return |            | Spring Return |             |  |
|------------------------|------|-----|---------------|------|-----|-------------------|------------|---------------|-------------|--|
|                        |      |     |               |      |     | DM24-210          | DM24-210-D | DMS24-180     | DMS24-180-D |  |
| Valve Model Details    | Size |     | Close-Off psi | Cv   |     | Modulating        |            |               |             |  |
|                        | In.  | mm  |               | 90°  | 60° | 24 VAC/DC         |            |               | 24 VAC/DC   |  |
| 3LSE-02S3X             | 2    | 50  | 175           | 87   | 66  | X                 | -          | X             | -           |  |
| 3LSE-25S3X             | 2.5  | 65  | 175           | 185  | 98  | X                 | -          | X             | -           |  |
| 3LSE-03S3X             | 3    | 80  | 175           | 360  | 171 | -                 | X          | -             | X           |  |
| 3LSE-04L3X             | 4    | 100 | 50            | 740  | 310 | X                 | -          | -             | X           |  |
| 3LSE-04S3X             | 4    | 100 | 175           | 740  | 310 | -                 | X          | -             | -           |  |
| 3LSE-05L3X             | 5    | 125 | 50            | 1218 | 470 | -                 | X          | -             | X           |  |

**Options/Adders**  
 For optional auxiliary switches, add -A to the end of the actuator part number.  
 X = 3-Way Assemblies (Refer to Configuration Chart, Page 6)  
 -D = Dual mounted actuators

## 3L Series Butterfly Valves - Close-Off Charts

### 2-Way with Industrial Electric Actuators

Nylon Coated Disc

| 2-Way, 24 VAC and 120 VAC, On/Off & Modulating - Nylon Coated Disc |                        |     |                  |       |       |                       |            |            |              |
|--|------------------------|-----|------------------|-------|-------|-----------------------|------------|------------|--------------|
| Valve Model Details  | Actuator Model Details |     |                  |       |       | Series 70 & AU Series |            | Series 70  |              |
|  | Size                   |     | Close-Off<br>psi | Cv    |       | On/Off                | Modulating | On/Off     | Modulating   |
|  | In.                    | mm  |                  | 90°   | 60°   | 120 VAC               | 120 VAC    | 24 VAC     | 24 VAC       |
| 3LNE-02S2C   | 2                      | 50  | 175              | 87    | 66    | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-25S2C   | 2.5                    | 65  | 175              | 185   | 98    | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-03S2C   | 3                      | 80  | 175              | 360   | 171   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-04L2C   | 4                      | 100 | 50               | 740   | 310   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-04S2C   | 4                      | 100 | 175              | 740   | 310   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-05L2C   | 5                      | 125 | 50               | 1218  | 470   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-05S2C   | 5                      | 125 | 175              | 1218  | 470   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-06L2C   | 6                      | 150 | 50               | 1900  | 757   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-06S2C   | 6                      | 150 | 175              | 1900  | 757   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-08L2C   | 8                      | 200 | 50               | 3765  | 1247  | 70-0121               | 70-0121SV  | 70-24-0201 | 70-24-0201SV |
| 3LNE-08S2C   | 8                      | 200 | 175              | 3765  | 1247  | 70-0121               | 70-0121SV  | 70-24-0201 | 70-24-0201SV |
| 3LNE-10L2C   | 10                     | 250 | 50               | 6661  | 2005  | 70-0121               | 70-0121SV  | 70-24-0201 | 70-24-0201SV |
| 3LNE-10S2C   | 10                     | 250 | 175              | 6661  | 2005  | 70-0201               | 70-0201SV  | 70-24-0201 | 70-24-0201SV |
| 3LNE-12L2C   | 12                     | 300 | 50               | 10066 | 2868  | 70-0201               | 70-0201SV  | 70-24-0201 | 70-24-0201SV |
| 3LNE-12S2C   | 12                     | 300 | 175              | 10066 | 2868  | 70-E301               | 70-E301SV  | 70-24-0501 | 70-24-0501SV |
| 3LNE-14L2C   | 14                     | 350 | 50               | 11598 | 3328  | 70-0501               | 70-0501SV  | 70-24-0501 | 70-24-0501SV |
| 3LNE-14S2C   | 14                     | 350 | 150              | 11598 | 3328  | 70-0501               | 70-0501SV  | 70-24-0501 | 70-24-0501SV |
| 3LNE-16L2C   | 16                     | 400 | 50               | 15395 | 4440  | 70-0501               | 70-0501SV  | 70-24-0501 | 70-24-0501SV |
| 3LNE-16S2C   | 16                     | 400 | 150              | 15395 | 4440  | 70-0651               | 70-0651SV  | -          | -            |
| 3LNE-18L2C   | 18                     | 450 | 50               | 20120 | 5509  | 70-0651               | 70-0651SV  | -          | -            |
| 3LNE-18S2C   | 18                     | 450 | 150              | 20120 | 5509  | 70-1300               | 70-1300SV  | -          | -            |
| 3LNE-20L2C   | 20                     | 500 | 50               | 25329 | 7056  | 70-1300               | 70-1300SV  | -          | -            |
| 3LNE-20S2C   | 20                     | 500 | 150              | 25329 | 7056  | 70-1800               | 70-1800SV  | -          | -            |
| 3LNE-24L2C   | 24                     | 600 | 50               | 39396 | 10267 | 70-1800               | 70-1800SV  | -          | -            |
| 3LNE-24S2C   | 24                     | 600 | 150              | 39396 | 10267 | AU-4068               | AU-4068SV  | -          | -            |
| NYF2-C301  | 30                     | 750 | 75               | 52443 | 18090 | AU-4068               | AU-4068SV  | -          | -            |
| NYF2-C300  | 30                     | 750 | 150              | 52443 | 18090 | AU-7080               | AU-7080SV  | -          | -            |

Stainless Steel Disc

| 2-Way, 24 VAC and 120 VAC, On/Off & Modulating - Stainless Steel Disc |                        |     |                  |       |       |                       |            |            |              |
|---|------------------------|-----|------------------|-------|-------|-----------------------|------------|------------|--------------|
| Valve Model Details   | Actuator Model Details |     |                  |       |       | Series 70 & AU Series |            | Series 70  |              |
|   | Size                   |     | Close-Off<br>psi | Cv    |       | On/Off                | Modulating | On/Off     | Modulating   |
|   | In.                    | mm  |                  | 90°   | 60°   | 120 VAC               | 120 VAC    | 24 VAC     | 24 VAC       |
| 3LSE-02S2C  | 2                      | 50  | 175              | 87    | 66    | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-25S2C  | 2.5                    | 65  | 175              | 185   | 98    | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-03S2C  | 3                      | 80  | 175              | 360   | 171   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-04L2C  | 4                      | 100 | 50               | 740   | 310   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-04S2C  | 4                      | 100 | 175              | 740   | 310   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-05L2C  | 5                      | 125 | 50               | 1218  | 470   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-05S2C  | 5                      | 125 | 175              | 1218  | 470   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-06L2C  | 6                      | 150 | 50               | 1900  | 757   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-06S2C  | 6                      | 150 | 175              | 1900  | 757   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-08L2C  | 8                      | 200 | 50               | 3765  | 1247  | 70-0121               | 70-0121SV  | 70-24-0201 | 70-24-0201SV |
| 3LSE-08S2C  | 8                      | 200 | 175              | 3765  | 1247  | 70-0201               | 70-0201SV  | 70-24-0201 | 70-24-0201SV |
| 3LSE-10L2C  | 10                     | 250 | 50               | 6661  | 2005  | 70-0121               | 70-0121SV  | 70-24-0201 | 70-24-0201SV |
| 3LSE-10S2C  | 10                     | 250 | 175              | 6661  | 2005  | 70-0201               | 70-0201SV  | 70-24-0201 | 70-24-0201SV |
| 3LSE-12L2C  | 12                     | 300 | 50               | 10066 | 2868  | 70-0201               | 70-0201SV  | 70-24-0201 | 70-24-0201SV |
| 3LSE-12S2C  | 12                     | 300 | 175              | 10066 | 2868  | 70-E301               | 70-E301SV  | 70-24-0501 | 70-24-0501SV |
| 3LSE-14S2C  | 14                     | 350 | 150              | 11598 | 3328  | 70-0501               | 70-0501SV  | 70-24-0501 | 70-24-0501SV |
| 3LSE-16S2C  | 16                     | 400 | 150              | 15395 | 4440  | 70-1300               | 70-1300SV  | -          | -            |
| 3LSE-18S2C  | 18                     | 450 | 150              | 20120 | 5509  | 70-1300               | 70-1300SV  | -          | -            |
| 3LSE-20S2C  | 20                     | 500 | 150              | 25329 | 7056  | 70-1800               | 70-1800SV  | -          | -            |
| 3LSE-24S2C  | 24                     | 600 | 150              | 39396 | 10267 | AU-4068               | AU-4068SV  | -          | -            |

**Options/Addrs**  
 For Heater/Thermostat kit, add "H" to the actuator part number.  
 For Battery Back-Up Failsafe Option (BBU) option on 24 VAC actuators, add "-BBU".  
 For Spring Return Units:  
 N = Normally Open  
 C = Normally Closed - Factory default

## 3L Series Butterfly Valves - Close-Off Charts

### 3-Way with Industrial Electric Actuators

Nylon Coated Disc

| 3-Way, 24 VAC and 120 VAC, On/Off & Modulating - Nylon Coated Disc |                        |     |                  |       |      |                       |            |            |              |
|--|------------------------|-----|------------------|-------|------|-----------------------|------------|------------|--------------|
| Valve Model Details  | Actuator Model Details |     |                  |       |      | Series 70 & AU Series |            | Series 70  |              |
|  | Size                   |     | Close-Off<br>psi | Cv    |      | On/Off                | Modulating | On/Off     | Modulating   |
|  | In.                    | mm  |                  | 90°   | 60°  | 120 VAC               | 120 VAC    | 24 VAC     | 24 VAC       |
| 3LNE-02S3X   | 2                      | 50  | 175              | 87    | 66   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-25S3X   | 2.5                    | 65  | 175              | 185   | 98   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-03S3X   | 3                      | 80  | 175              | 360   | 171  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-04L3X   | 4                      | 100 | 50               | 740   | 310  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-04S3X   | 4                      | 100 | 175              | 740   | 310  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-05L3X   | 5                      | 125 | 50               | 1218  | 470  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-05S3X   | 5                      | 125 | 175              | 1218  | 470  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-06L3X   | 6                      | 150 | 50               | 1900  | 757  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-06S3X   | 6                      | 150 | 175              | 1900  | 757  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LNE-08L3X   | 8                      | 200 | 50               | 3765  | 1247 | 70-0121               | 70-0121SV  | 70-24-0201 | 70-24-0201SV |
| 3LNE-08S3X   | 8                      | 200 | 175              | 3765  | 1247 | 70-0201               | 70-0201SV  | 70-24-0201 | 70-24-0201SV |
| 3LNE-10L3X   | 10                     | 250 | 50               | 6661  | 2005 | 70-0201               | 70-0201SV  | 70-24-0201 | 70-24-0201SV |
| 3LNE-10S3X   | 10                     | 250 | 175              | 6661  | 2005 | 70-E301               | 70-E301SV  | 70-24-0501 | 70-24-0501SV |
| 3LNE-12L3X   | 12                     | 300 | 50               | 10066 | 2868 | 70-0201               | 70-0201SV  | 70-24-0201 | 70-24-0201SV |
| 3LNE-12S3X   | 12                     | 300 | 175              | 10066 | 2868 | 70-0501               | 70-0501SV  | 70-24-0501 | 70-24-0501SV |
| 3LNE-14L3X   | 14                     | 350 | 50               | 11598 | 3328 | 70-0501               | 70-0501SV  | 70-24-0501 | 70-24-0501SV |
| 3LNE-14S3X   | 14                     | 350 | 150              | 11598 | 3328 | 70-0651               | 70-0651SV  | -          | -            |
| 3LNE-16L3X   | 16                     | 400 | 50               | 15395 | 4440 | 70-0651               | 70-0651SV  | -          | -            |
| 3LNE-16S3X   | 16                     | 400 | 150              | 15395 | 4440 | 70-1300               | 70-1300SV  | -          | -            |
| 3LNE-18L3X   | 18                     | 450 | 50               | 20120 | 5509 | 70-1300               | 70-1300SV  | -          | -            |
| 3LNE-18S3X   | 18                     | 450 | 150              | 20120 | 5509 | 70-1800               | 70-1800SV  | -          | -            |
| 3LNE-20L3X   | 20                     | 500 | 50               | 25329 | 7056 | 70-1800               | 70-1800SV  | -          | -            |
| 3LNE-20S3X   | 20                     | 500 | 150              | 25329 | 7056 | AU-4068               | AU-4068SV  | -          | -            |

Stainless Steel Disc

| 3-Way, 24 VAC and 120 VAC, On/Off & Modulating - Stainless Steel Disc |                        |     |                  |       |      |                       |            |            |              |
|---|------------------------|-----|------------------|-------|------|-----------------------|------------|------------|--------------|
| Valve Model Details   | Actuator Model Details |     |                  |       |      | Series 70 & AU Series |            | Series 70  |              |
|   | Size                   |     | Close-Off<br>psi | Cv    |      | On/Off                | Modulating | On/Off     | Modulating   |
|   | In.                    | mm  |                  | 90°   | 60°  | 120 VAC               | 120 VAC    | 24 VAC     | 24 VAC       |
| 3LSE-02S3X  | 2                      | 50  | 175              | 87    | 66   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-25S3X  | 2.5                    | 65  | 175              | 185   | 98   | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-03S3X  | 3                      | 80  | 175              | 360   | 171  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-04L3X  | 4                      | 100 | 50               | 740   | 310  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-04S3X  | 4                      | 100 | 175              | 740   | 310  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-05L3X  | 5                      | 125 | 50               | 1218  | 470  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-05S3X  | 5                      | 125 | 175              | 1218  | 470  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-06L3X  | 6                      | 150 | 50               | 1900  | 757  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-06S3X  | 6                      | 150 | 175              | 1900  | 757  | 70-0081               | 70-0081SV  | 70-24-0081 | 70-24-0081SV |
| 3LSE-08L3X  | 8                      | 200 | 50               | 3765  | 1247 | 70-0121               | 70-0121SV  | 70-24-0201 | 70-24-0201SV |
| 3LSE-08S3X  | 8                      | 200 | 175              | 3765  | 1247 | 70-0201               | 70-0201SV  | 70-24-0201 | 70-24-0201SV |
| 3LSE-10L3X  | 10                     | 250 | 50               | 6661  | 2005 | 70-0201               | 70-0201SV  | 70-24-0201 | 70-24-0201SV |
| 3LSE-10S3X  | 10                     | 250 | 175              | 6661  | 2005 | 70-E301               | 70-E301SV  | 70-24-0501 | 70-24-0501SV |
| 3LSE-12L3X  | 12                     | 300 | 50               | 10066 | 2868 | 70-E301               | 70-E301SV  | 70-24-0501 | 70-24-0501SV |
| 3LSE-12S3X  | 12                     | 300 | 175              | 10066 | 2868 | 70-0501               | 70-0501SV  | 70-24-0501 | 70-24-0501SV |
| 3LSE-14S3X  | 14                     | 350 | 150              | 11598 | 3328 | 70-0651               | 70-0651SV  | -          | -            |
| 3LSE-16S3X  | 16                     | 400 | 150              | 15395 | 4440 | 70-1300               | 70-1300SV  | -          | -            |
| 3LSE-18S3X  | 18                     | 450 | 150              | 20120 | 5509 | 70-1800               | 70-1800SV  | -          | -            |
| 3LSE-20S3X  | 20                     | 500 | 150              | 25329 | 7056 | AU-4068               | AU-4068SV  | -          | -            |

**Options/Adders**

X = 3-Way Assemblies (Refer to Configuration Chart, Page 6)  
 For Heater/Thermostat kit, add "H" to the actuator part number.  
 For Battery Back-Up FailSafe Option (BBU) option on 24 VAC actuators, add "-BBU".

## 3L Series Butterfly Valves - Close-Off Charts

### 2-Way with Series 92 Double Acting Pneumatic Actuators

Nylon Coated Disc

| 2-Way, Double Acting Pneumatic - Nylon Coated Disc |      |     |               |       |       |        |        |        |        |        |        |        |
|--|------|-----|---------------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| Actuator Model Details                             |      |     |               |       |       | 92-063 | 92-083 | 92-119 | 92-128 | 92-160 | 92-210 | 92-255 |
| Valve Model Details                                | Size |     | Close-Off psi | Cv    |       |        |        |        |        |        |        |        |
|  | In.  | mm  |               | 90°   | 60°   |        |        |        |        |        |        |        |
| 3LNE-02S2C   | 2    | 50  | 175           | 87    | 66    | X      | -      | -      | -      | -      | -      | -      |
| 3LNE-25S2C   | 2.5  | 65  | 175           | 185   | 98    | X      | -      | -      | -      | -      | -      | -      |
| 3LNE-03S2C   | 3    | 80  | 175           | 360   | 171   | X      | -      | -      | -      | -      | -      | -      |
| 3LNE-04L2C   | 4    | 100 | 50            | 740   | 310   | -      | X      | -      | -      | -      | -      | -      |
| 3LNE-04S2C   | 4    | 100 | 175           | 740   | 310   | -      | X      | -      | -      | -      | -      | -      |
| 3LNE-05L2C   | 5    | 125 | 50            | 1218  | 470   | -      | X      | -      | -      | -      | -      | -      |
| 3LNE-05S2C   | 5    | 125 | 175           | 1218  | 470   | -      | X      | -      | -      | -      | -      | -      |
| 3LNE-06L2C   | 6    | 150 | 50            | 1900  | 757   | -      | X      | -      | -      | -      | -      | -      |
| 3LNE-06S2C   | 6    | 150 | 175           | 1900  | 757   | -      | X      | -      | -      | -      | -      | -      |
| 3LNE-08L2C   | 8    | 200 | 50            | 3765  | 1247  | -      | -      | X      | -      | -      | -      | -      |
| 3LNE-08S2C   | 8    | 200 | 175           | 3765  | 1247  | -      | -      | X      | -      | -      | -      | -      |
| 3LNE-10L2C   | 10   | 250 | 50            | 6661  | 2005  | -      | -      | X      | -      | -      | -      | -      |
| 3LNE-10S2C   | 10   | 250 | 175           | 6661  | 2005  | -      | -      | X      | -      | -      | -      | -      |
| 3LNE-12L2C   | 12   | 300 | 50            | 10066 | 2868  | -      | -      | X      | -      | -      | -      | -      |
| 3LNE-12S2C   | 12   | 300 | 175           | 10066 | 2868  | -      | -      | -      | X      | -      | -      | -      |
| 3LNE-14L2C   | 14   | 350 | 50            | 11598 | 3328  | -      | -      | -      | X      | -      | -      | -      |
| 3LNE-14S2C   | 14   | 350 | 150           | 11598 | 3328  | -      | -      | -      | -      | X      | -      | -      |
| 3LNE-16L2C   | 16   | 400 | 50            | 15395 | 4440  | -      | -      | -      | -      | X      | -      | -      |
| 3LNE-16S2C   | 16   | 400 | 150           | 15395 | 4440  | -      | -      | -      | -      | -      | X      | -      |
| 3LNE-18L2C   | 18   | 450 | 50            | 20120 | 5509  | -      | -      | -      | -      | -      | X      | -      |
| 3LNE-18S2C   | 18   | 450 | 150           | 20120 | 5509  | -      | -      | -      | -      | -      | X      | -      |
| 3LNE-20L2C   | 20   | 500 | 50            | 25329 | 7056  | -      | -      | -      | -      | -      | X      | -      |
| 3LNE-20S2C   | 20   | 500 | 150           | 25329 | 7056  | -      | -      | -      | -      | -      | -      | X      |
| 3LNE-24L2C   | 24   | 600 | 50            | 39396 | 10267 | -      | -      | -      | -      | -      | -      | X      |
| NYF2-C301  | 30   | 750 | 75            | 52443 | 18090 | -      | -      | -      | -      | -      | -      | X      |

Stainless Steel Disc

| 2-Way, Spring Return Pneumatic - Nylon Coated Disc |      |     |               |       |       |  |                 |  |  |  |  |  |
|--|------|-----|---------------|-------|-------|--|-----------------|--|--|--|--|--|
| Actuator Model Details                             |      |     |               |       |       | Series 98 Pneumatic Scotch Yoke (Fail Close) |                 |  |  |  |  |  |
| Valve Model Details                                | Size |     | Close-Off psi | Cv    |       | 98-45E2-12-DA                                | 98-14E3-12-DA-C |  |  |  |  |  |
|  | In.  | mm  |               | 90°   | 60°   |  |                 |  |  |  |  |  |
| 3LNE-24S2C   | 24   | 600 | 150           | 39396 | 10267 | X  | -               |  |  |  |  |  |
| NYF2-C300  | 30   | 750 | 150           | 52443 | 18090 | -  | X               |  |  |  |  |  |

| 2-Way, Double Acting Pneumatic - Stainless Steel Disc |      |     |               |       |      |        |        |        |        |        |        |        |
|---|------|-----|---------------|-------|------|--------|--------|--------|--------|--------|--------|--------|
| Actuator Model Details                                |      |     |               |       |      | 92-063 | 92-083 | 92-119 | 92-128 | 92-160 | 92-210 | 92-255 |
| Valve Model Details                                   | Size |     | Close-Off psi | Cv    |      |        |        |        |        |        |        |        |
|   | In.  | mm  |               | 90°   | 60°  |        |        |        |        |        |        |        |
| 3LSE-02S2C  | 2    | 50  | 175           | 87    | 66   | X      | -      | -      | -      | -      | -      | -      |
| 3LSE-25S2C  | 2.5  | 65  | 175           | 185   | 98   | X      | -      | -      | -      | -      | -      | -      |
| 3LSE-03S2C  | 3    | 80  | 175           | 360   | 171  | X      | -      | -      | -      | -      | -      | -      |
| 3LSE-04L2C  | 4    | 100 | 50            | 740   | 310  | -      | X      | -      | -      | -      | -      | -      |
| 3LSE-04S2C  | 4    | 100 | 175           | 740   | 310  | -      | X      | -      | -      | -      | -      | -      |
| 3LSE-05L2C  | 5    | 125 | 50            | 1218  | 470  | -      | X      | -      | -      | -      | -      | -      |
| 3LSE-05S2C  | 5    | 125 | 175           | 1218  | 470  | -      | X      | -      | -      | -      | -      | -      |
| 3LSE-06L2C  | 6    | 150 | 50            | 1900  | 757  | -      | X      | -      | -      | -      | -      | -      |
| 3LSE-06S2C  | 6    | 150 | 175           | 1900  | 757  | -      | X      | -      | -      | -      | -      | -      |
| 3LSE-08L2C  | 8    | 200 | 50            | 3765  | 1247 | -      | -      | X      | -      | -      | -      | -      |
| 3LSE-08S2C  | 8    | 200 | 175           | 3765  | 1247 | -      | -      | X      | -      | -      | -      | -      |
| 3LSE-10L2C  | 10   | 250 | 50            | 6661  | 2005 | -      | -      | X      | -      | -      | -      | -      |
| 3LSE-10S2C  | 10   | 250 | 175           | 6661  | 2005 | -      | -      | X      | -      | -      | -      | -      |
| 3LSE-12L2C  | 12   | 300 | 50            | 10066 | 2868 | -      | -      | X      | -      | -      | -      | -      |
| 3LSE-12S2C  | 12   | 300 | 175           | 10066 | 2868 | -      | -      | -      | X      | -      | -      | -      |
| 3LSE-14S2C  | 14   | 350 | 150           | 11598 | 3328 | -      | -      | -      | -      | X      | -      | -      |
| 3LSE-16S2C  | 16   | 400 | 150           | 15395 | 4440 | -      | -      | -      | -      | -      | X      | -      |
| 3LSE-18S2C  | 18   | 450 | 150           | 20120 | 5509 | -      | -      | -      | -      | -      | X      | -      |
| 3LSE-20S2C  | 20   | 500 | 150           | 25329 | 7056 | -      | -      | -      | -      | -      | -      | X      |

**Options/Adders**  
 \* For Manual Override, add "-5" to the end of the part number.  
 For Spring Return Units:  
 N = Normally Open  
 C = Normally Closed - Factory default

## 3L Series Butterfly Valves - Close-Off Charts

### 3-Way with Series 92 Double Acting Pneumatic Actuators

Nylon Coated Disc

| 3-Way, Double Acting Pneumatic - Nylon Coated Disc |      |     |                  |       |      |        |        |        |        |        |        |
|--|------|-----|------------------|-------|------|--------|--------|--------|--------|--------|--------|
| Actuator Model Details                             |      |     |                  |       |      | 92-063 | 92-083 | 92-119 | 92-160 | 92-210 | 92-255 |
| Valve Model Details                                | Size |     | Close-Off<br>psi | Cv    |      |        |        |        |        |        |        |
|  | In.  | mm  |                  | 90°   | 60°  |        |        |        |        |        |        |
| 3LNE-02S3X   | 2    | 50  | 175              | 87    | 66   | X      | -      | -      | -      | -      | -      |
| 3LNE-25S3X   | 2.5  | 65  | 175              | 185   | 98   | X      | -      | -      | -      | -      | -      |
| 3LNE-03S3X   | 3    | 80  | 175              | 360   | 171  | X      | -      | -      | -      | -      | -      |
| 3LNE-04L3X   | 4    | 100 | 50               | 740   | 310  | X      | -      | -      | -      | -      | -      |
| 3LNE-04S3X   | 4    | 100 | 175              | 740   | 310  | X      | -      | -      | -      | -      | -      |
| 3LNE-05L3X   | 5    | 125 | 50               | 1218  | 470  | X      | -      | -      | -      | -      | -      |
| 3LNE-05S3X   | 5    | 125 | 175              | 1218  | 470  | -      | X      | -      | -      | -      | -      |
| 3LNE-06L3X   | 6    | 150 | 50               | 1900  | 757  | -      | X      | -      | -      | -      | -      |
| 3LNE-06S3X   | 6    | 150 | 175              | 1900  | 757  | -      | X      | -      | -      | -      | -      |
| 3LNE-08L3X   | 8    | 200 | 50               | 3765  | 1247 | -      | -      | X      | -      | -      | -      |
| 3LNE-08S3X   | 8    | 200 | 175              | 3765  | 1247 | -      | -      | X      | -      | -      | -      |
| 3LNE-10L3X   | 10   | 250 | 50               | 6661  | 2005 | -      | -      | X      | -      | -      | -      |
| 3LNE-10S3X   | 10   | 250 | 175              | 6661  | 2005 | -      | -      | X      | -      | -      | -      |
| 3LNE-12L3X   | 12   | 300 | 50               | 10066 | 2868 | -      | -      | X      | -      | -      | -      |
| 3LNE-12S3X   | 12   | 300 | 175              | 10066 | 2868 | -      | -      | -      | X      | -      | -      |
| 3LNE-14L3X   | 14   | 350 | 50               | 11598 | 3328 | -      | -      | -      | X      | -      | -      |
| 3LNE-14S3X   | 14   | 350 | 150              | 11598 | 3328 | -      | -      | -      | -      | X      | -      |
| 3LNE-16L3X   | 16   | 400 | 50               | 15395 | 4440 | -      | -      | -      | -      | X      | -      |
| 3LNE-16S3X   | 16   | 400 | 150              | 15395 | 4440 | -      | -      | -      | -      | -      | X      |
| 3LNE-18L3X   | 18   | 450 | 50               | 20120 | 5509 | -      | -      | -      | -      | X      | -      |
| 3LNE-18S3X   | 18   | 450 | 150              | 20120 | 5509 | -      | -      | -      | -      | -      | X      |
| 3LNE-20L3X   | 20   | 500 | 50               | 25329 | 7056 | -      | -      | -      | -      | X      | -      |
| 3LNE-20S3X   | 20   | 500 | 150              | 25329 | 7056 | -      | -      | -      | -      | -      | X      |

Stainless Steel Disc

| 3-Way, Double Acting Pneumatic - Stainless Steel Disc |      |     |                  |       |      |        |        |        |        |        |        |        |
|---|------|-----|------------------|-------|------|--------|--------|--------|--------|--------|--------|--------|
| Actuator Model Details                                |      |     |                  |       |      | 92-063 | 92-083 | 92-119 | 92-128 | 92-160 | 92-210 | 92-255 |
| Valve Model Details                                   | Size |     | Close-Off<br>psi | Cv    |      |        |        |        |        |        |        |        |
|   | In.  | mm  |                  | 90°   | 60°  |        |        |        |        |        |        |        |
| 3LSE-02S3X  | 2    | 50  | 175              | 87    | 66   | X      | -      | -      | -      | -      | -      | -      |
| 3LSE-25S3X  | 2.5  | 65  | 175              | 185   | 98   | X      | -      | -      | -      | -      | -      | -      |
| 3LSE-03S3X  | 3    | 80  | 175              | 360   | 171  | X      | -      | -      | -      | -      | -      | -      |
| 3LSE-04L3X  | 4    | 100 | 50               | 740   | 310  | X      | -      | -      | -      | -      | -      | -      |
| 3LSE-04S3X  | 4    | 100 | 175              | 740   | 310  | -      | X      | -      | -      | -      | -      | -      |
| 3LSE-05L3X  | 5    | 125 | 50               | 1218  | 470  | -      | X      | -      | -      | -      | -      | -      |
| 3LSE-05S3X  | 5    | 125 | 175              | 1218  | 470  | -      | X      | -      | -      | -      | -      | -      |
| 3LSE-06L3X  | 6    | 150 | 50               | 1900  | 757  | -      | X      | -      | -      | -      | -      | -      |
| 3LSE-06S3X  | 6    | 150 | 175              | 1900  | 757  | -      | X      | -      | -      | -      | -      | -      |
| 3LSE-08L3X  | 8    | 200 | 50               | 3765  | 1247 | -      | -      | X      | -      | -      | -      | -      |
| 3LSE-08S3X  | 8    | 200 | 175              | 3765  | 1247 | -      | -      | X      | -      | -      | -      | -      |
| 3LSE-10L3X  | 10   | 250 | 50               | 6661  | 2005 | -      | -      | X      | -      | -      | -      | -      |
| 3LSE-10S3X  | 10   | 250 | 175              | 6661  | 2005 | -      | -      | -      | X      | -      | -      | -      |
| 3LSE-12L3X  | 12   | 300 | 50               | 10066 | 2868 | -      | -      | X      | -      | -      | -      | -      |
| 3LSE-12S3X  | 12   | 300 | 175              | 10066 | 2868 | -      | -      | -      | -      | X      | -      | -      |
| 3LSE-14S3X  | 14   | 350 | 150              | 11598 | 3328 | -      | -      | -      | -      | -      | X      | -      |
| 3LSE-16S3X  | 16   | 400 | 150              | 15395 | 4440 | -      | -      | -      | -      | -      | -      | X      |
| 3LSE-18S3X  | 18   | 450 | 150              | 20120 | 5509 | -      | -      | -      | -      | -      | -      | X      |
| 3LSE-20S3X  | 20   | 500 | 150              | 25329 | 7056 | -      | -      | -      | -      | -      | -      | X      |

Options/Adders  
X = 3-Way Assemblies (Refer to Configuration Chart, Page 6)  
\* For Manual Override, add "-5" to the end of the part number.

## 3L Series Butterfly Valves - Close-Off Charts

### 2-Way with Series 93 & 98 Spring Return Pneumatic Actuators

Nylon Coated Disc

| 2-Way, Spring Return Pneumatic - Nylon Coated Disc |                        |     |               |       |      |                               |                           |
|--|------------------------|-----|---------------|-------|------|-------------------------------|---------------------------|
| Valve Model Details                                | Actuator Model Details |     |               | Cv    |      | Normally Closed (Fail Closed) | Normally Open (Fail Open) |
|  | Size                   |     | Close-Off psi | 90°   | 60°  |                               |                           |
|  | In.                    | mm  |               |       |      |                               |                           |
| 3LNE-02S2C   | 2                      | 50  | 175           | 87    | 66   | 93-0833                       | 93-0832                   |
| 3LNE-25S2C   | 2.5                    | 65  | 175           | 185   | 98   | 93-0833                       | 93-0832                   |
| 3LNE-03S2C   | 3                      | 80  | 175           | 360   | 171  | 93-0834                       | 93-0833                   |
| 3LNE-04L2C   | 4                      | 100 | 50            | 740   | 310  | 93-0833                       | 93-0833                   |
| 3LNE-04S2C   | 4                      | 100 | 175           | 740   | 310  | 93-0836                       | 93-0834                   |
| 3LNE-05L2C   | 5                      | 125 | 50            | 1218  | 470  | 93-0835                       | 93-0834                   |
| 3LNE-05S2C   | 5                      | 125 | 175           | 1218  | 470  | 93-0935                       | 93-0934                   |
| 3LNE-06L2C   | 6                      | 150 | 50            | 1900  | 757  | 93-0935                       | 93-0934                   |
| 3LNE-06S2C   | 6                      | 150 | 175           | 1900  | 757  | 93-1194                       | 93-1193                   |
| 3LNE-08L2C   | 8                      | 200 | 50            | 3765  | 1247 | 93-1194                       | 93-1193                   |
| 3LNE-08S2C   | 8                      | 200 | 175           | 3765  | 1247 | 93-1603                       | 93-1284                   |
| 3LNE-10L2C   | 10                     | 250 | 50            | 6661  | 2005 | 93-1603                       | 93-1283                   |
| 3LNE-10S2C   | 10                     | 250 | 175           | 6661  | 2005 | 93-1605                       | 93-1603                   |
| 3LNE-12L2C   | 12                     | 300 | 50            | 10066 | 2868 | 93-1604                       | 93-1603                   |
| 3LNE-12S2C   | 12                     | 300 | 175           | 10066 | 2868 | 93-2103                       | 93-2102                   |
| 3LNE-14L2C   | 14                     | 350 | 50            | 11598 | 3328 | 93-2103                       | 93-2102                   |
| 3LNE-14S2C   | 14                     | 350 | 150           | 11598 | 3328 | 93-2106                       | 93-2104                   |
| 3LNE-16L2C   | 16                     | 400 | 50            | 15395 | 4440 | 93-2105                       | 93-2103                   |
| 3LNE-16S2C   | 16                     | 400 | 150           | 15395 | 4440 | 93-2554                       | 93-2553                   |
| 3LNE-18L2C   | 18                     | 450 | 50            | 20120 | 5509 | 93-2105                       | 93-2103                   |
| 3LNE-18S2C   | 18                     | 450 | 150           | 20120 | 5509 | 93-2555                       | 93-2553                   |
| 3LNE-20L2C   | 20                     | 500 | 50            | 25329 | 7056 | 93-2553                       | 93-2552                   |
| 3LNE-20S2C   | 20                     | 500 | 150           | 25329 | 7056 | 93-2556                       | 93-2554                   |

Stainless Steel Disc

| 2-Way, Spring Return Pneumatic - Nylon Coated Disc |                        |     |               |       |       |  |                  |                  |                  |
|--|------------------------|-----|---------------|-------|-------|--|------------------|------------------|------------------|
| Valve Model Details                                | Actuator Model Details |     |               | Cv    |       | Series 98 Pneumatic Scotch Yoke (Fail Close) |                  |                  |                  |
|  | Size                   |     | Close-Off psi | 90°   | 60°   | 98-45E2-12-SR3                               | 98-73E2-14-SR4-C | 98-73E2-14-SR3-C | 98-14E3-14-SR3-C |
|  | In.                    | mm  |               |       |       |  |                  |                  |                  |
| 3LNE-24L2C   | 24                     | 600 | 50            | 39396 | 10267 | X  | -                | -                | -                |
| 3LNE-24S2C   | 24                     | 600 | 150           | 39396 | 10267 | -  | X                | -                | -                |
| NYF2-C301  | 30                     | 750 | 75            | 52443 | 18090 | -  | -                | X                | -                |
| NYF2-C300  | 30                     | 750 | 150           | 52443 | 18090 | -  | -                | -                | 41094            |

| 2-Way, Spring Return Pneumatic - Stainless Steel Disc |                        |     |               |       |      |                               |                           |
|---|------------------------|-----|---------------|-------|------|-------------------------------|---------------------------|
| Valve Model Details                                   | Actuator Model Details |     |               | Cv    |      | Normally Closed (Fail Closed) | Normally Open (Fail Open) |
|   | Size                   |     | Close-Off psi | 90°   | 60°  |                               |                           |
|   | In.                    | mm  |               |       |      |                               |                           |
| 3LSE-02S2C  | 2                      | 50  | 175           | 87    | 66   | 93-0833                       | 93-0832                   |
| 3LSE-25S2C  | 2.5                    | 65  | 175           | 185   | 98   | 93-0833                       | 93-0833                   |
| 3LSE-03S2C  | 3                      | 80  | 175           | 360   | 171  | 93-0834                       | 93-0833                   |
| 3LSE-04L2C  | 4                      | 100 | 50            | 740   | 310  | 93-0834                       | 93-0833                   |
| 3LSE-04S2C  | 4                      | 100 | 175           | 740   | 310  | 93-0935                       | 93-0933                   |
| 3LSE-05L2C  | 5                      | 125 | 50            | 1218  | 470  | 93-0835                       | 93-0834                   |
| 3LSE-05S2C  | 5                      | 125 | 175           | 1218  | 470  | 93-1193                       | 93-1194                   |
| 3LSE-06L2C  | 6                      | 150 | 50            | 1900  | 757  | 93-0935                       | 93-0934                   |
| 3LSE-06S2C  | 6                      | 150 | 175           | 1900  | 757  | 93-1194                       | 93-1193                   |
| 3LSE-08L2C  | 8                      | 200 | 50            | 3765  | 1247 | 93-1195                       | 93-1193                   |
| 3LSE-08S2C  | 8                      | 200 | 175           | 3765  | 1247 | 93-1603                       | 93-1283                   |
| 3LSE-10L2C  | 10                     | 250 | 50            | 6661  | 2005 | 93-1603                       | 93-1283                   |
| 3LSE-10S2C  | 10                     | 250 | 175           | 6661  | 2005 | 93-1605                       | 93-1603                   |
| 3LSE-12L2C  | 12                     | 300 | 50            | 10066 | 2868 | 93-1605                       | 93-1603                   |
| 3LSE-12S2C  | 12                     | 300 | 175           | 10066 | 2868 | 93-2104                       | 93-2103                   |
| 3LSE-14S2C  | 14                     | 350 | 150           | 11598 | 3328 | 93-2553                       | 93-2552                   |
| 3LSE-16S2C  | 16                     | 400 | 150           | 15395 | 4440 | 93-255                        | 93-2554                   |
| 3LSE-18S2C  | 18                     | 450 | 150           | 20120 | 5509 | 93-2553                       | 93-2553                   |

| 2-Way, Spring Return Pneumatic - Stainless Steel Disc |                        |     |               |       |       |  |                  |
|---|------------------------|-----|---------------|-------|-------|--|------------------|
| Valve Model Details                                   | Actuator Model Details |     |               | Cv    |       | Series 98 Pneumatic Scotch Yoke (Fail Close) |                  |
|   | Size                   |     | Close-Off psi | 90°   | 60°   | 98-45E2-12-SR3                               | 98-14E3-14-SR3-C |
|   | In.                    | mm  |               |       |       |  |                  |
| 3LSE-20S2C  | 20                     | 500 | 150           | 25329 | 7056  | X  | -                |
| 3LSE-24S2C  | 24                     | 600 | 150           | 39396 | 10267 | X  | -                |
| NYF2-C301   | 30                     | 750 | 75            | 52443 | 18090 | X  | -                |
| NYF2-C300   | 30                     | 750 | 150           | 52443 | 18090 | -  | X                |

**Options/Adders**  
 \* For Manual Override, add "-5" to the end of the part number.  
 For Spring Return Units:  
 N = Normally Open  
 C = Normally Closed - Factory default

## 3L Series Butterfly Valves - Close-Off Charts

### 3-Way with Series 93 Spring Return Pneumatic Actuators

Nylon Coated Disc

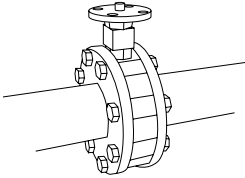
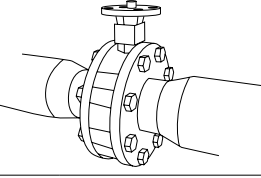
| 3-Way, Spring Return Pneumatic - Nylon Coated Disc |      |     |               |       |      |         |         |         |         |         |         |
|--|------|-----|---------------|-------|------|---------|---------|---------|---------|---------|---------|
| Actuator Model Details                             |      |     |               |       |      | 93-0834 | 93-0935 | 93-1194 | 93-1605 | 93-2105 | 93-2554 |
| Valve Model Details                                | Size |     | Close-Off psi | Cv    |      |         |         |         |         |         |         |
|  | In.  | mm  |               | 90°   | 60°  |         |         |         |         |         |         |
| 3LNE-02S3X   | 2    | 50  | 175           | 87    | 66   | X       | -       | -       | -       | -       | -       |
| 3LNE-25S3X   | 2.5  | 65  | 175           | 185   | 98   | X       | -       | -       | -       | -       | -       |
| 3LNE-03S3X   | 3    | 80  | 175           | 360   | 171  | X       | -       | -       | -       | -       | -       |
| 3LNE-04L3X   | 4    | 100 | 50            | 740   | 310  | X       | -       | -       | -       | -       | -       |
| 3LNE-04S3X   | 4    | 100 | 175           | 740   | 310  | -       | X       | -       | -       | -       | -       |
| 3LNE-05L3X   | 5    | 125 | 50            | 1218  | 470  | -       | X       | -       | -       | -       | -       |
| 3LNE-05S3X   | 5    | 125 | 175           | 1218  | 470  | -       | -       | X       | -       | -       | -       |
| 3LNE-06L3X   | 6    | 150 | 50            | 1900  | 757  | -       | X       | -       | -       | -       | -       |
| 3LNE-06S3X   | 6    | 150 | 175           | 1900  | 757  | -       | -       | X       | -       | -       | -       |
| 3LNE-08L3X   | 8    | 200 | 50            | 3765  | 1247 | -       | -       | X       | -       | -       | -       |
| 3LNE-08S3X   | 8    | 200 | 175           | 3765  | 1247 | -       | -       | -       | X       | -       | -       |
| 3LNE-10L3X   | 10   | 250 | 50            | 6661  | 2005 | -       | -       | -       | X       | -       | -       |
| 3LNE-10S3X   | 10   | 250 | 175           | 6661  | 2005 | -       | -       | -       | X       | -       | -       |
| 3LNE-12L3X   | 12   | 300 | 50            | 10066 | 2868 | -       | -       | -       | X       | -       | -       |
| 3LNE-12S3X   | 12   | 300 | 175           | 10066 | 2868 | -       | -       | -       | -       | X       | -       |
| 3LNE-14L3X   | 14   | 350 | 50            | 11598 | 3328 | -       | -       | -       | -       | X       | -       |
| 3LNE-14S3X   | 14   | 350 | 150           | 11598 | 3328 | -       | -       | -       | -       | -       | X       |
| 3LNE-16L3X   | 16   | 400 | 50            | 15395 | 4440 | -       | -       | -       | -       | -       | X       |
| 3LNE-18L3X   | 18   | 450 | 50            | 20120 | 5509 | -       | -       | -       | -       | -       | X       |
| 3LNE-20L3X   | 20   | 500 | 50            | 25329 | 7056 | -       | -       | -       | -       | -       | X       |

Stainless Steel Disc

| 3-Way, Spring Return Pneumatic - Stainless Steel Disc |      |     |               |       |      |         |         |         |         |         |         |
|---|------|-----|---------------|-------|------|---------|---------|---------|---------|---------|---------|
| Actuator Model Details                                |      |     |               |       |      | 93-0835 | 93-0935 | 93-1195 | 93-1605 | 93-2105 | 93-2554 |
| Valve Model Details                                   | Size |     | Close-Off psi | Cv    |      |         |         |         |         |         |         |
|   | In.  | mm  |               | 90°   | 60°  |         |         |         |         |         |         |
| 3LSE-02S3X  | 2    | 50  | 175           | 87    | 66   | X       | -       | -       | -       | -       | -       |
| 3LSE-25S3X  | 2.5  | 65  | 175           | 185   | 98   | X       | -       | -       | -       | -       | -       |
| 3LSE-03S3X  | 3    | 80  | 175           | 360   | 171  | X       | -       | -       | -       | -       | -       |
| 3LSE-04L3X  | 4    | 100 | 50            | 740   | 310  | X       | -       | -       | -       | -       | -       |
| 3LSE-04S3X  | 4    | 100 | 175           | 740   | 310  | -       | X       | -       | -       | -       | -       |
| 3LSE-05L3X  | 5    | 125 | 50            | 1218  | 470  | X       | -       | -       | -       | -       | -       |
| 3LSE-05S3X  | 5    | 125 | 175           | 1218  | 470  | -       | -       | X       | -       | -       | -       |
| 3LSE-06L3X  | 6    | 150 | 50            | 1900  | 757  | -       | X       | -       | -       | -       | -       |
| 3LSE-06S3X  | 6    | 150 | 175           | 1900  | 757  | -       | -       | X       | -       | -       | -       |
| 3LSE-08L3X  | 8    | 200 | 50            | 3765  | 1247 | -       | -       | X       | -       | -       | -       |
| 3LSE-08S3X  | 8    | 200 | 175           | 3765  | 1247 | -       | -       | -       | X       | -       | -       |
| 3LSE-10L3X  | 10   | 250 | 50            | 6661  | 2005 | -       | -       | -       | X       | -       | -       |
| 3LSE-10S3X  | 10   | 250 | 175           | 6661  | 2005 | -       | -       | -       | X       | -       | -       |
| 3LSE-12L3X  | 12   | 300 | 50            | 10066 | 2868 | -       | -       | -       | X       | -       | -       |
| 3LSE-12S3X  | 12   | 300 | 175           | 10066 | 2868 | -       | -       | -       | -       | X       | -       |
| 3LSE-14S3X  | 14   | 350 | 150           | 11598 | 3328 | -       | -       | -       | -       | -       | X       |
| 3LSE-16S3X  | 16   | 400 | 150           | 15395 | 4440 | -       | -       | -       | -       | -       | X       |
| 3LSE-18S3X  | 18   | 450 | 150           | 20120 | 5509 | -       | -       | -       | -       | -       | X       |
| 3LSE-20S3X  | 20   | 500 | 150           | 25329 | 7056 | -       | -       | -       | -       | -       | X       |

**Options/Adders**  
 X = 3-Way Assemblies (Refer to Configuration Chart, Page 6)  
 \* For Manual Override, add "-5" to the end of the part number.


## 3L Series Butterfly Valves - Valve Sizing

| 3L Series - Valve Sizing Tips       |  |   |     |   |     |                     |     |      |                             |  |   |     |   |  |
|-------------------------------------|--|---|-----|---|-----|---------------------|-----|------|-----------------------------|--|---|-----|---|--|
| <b>Step One</b>                     | Determine the designed Cv by using the following equation.* <span style="float: right;"><math display="block">Cv = \frac{Q\sqrt{G}}{\sqrt{\Delta P}}</math></span>   |   |     |   |     |                     |     |      |                             |  |   |     |   |  |
|                                     | <b>Where</b><br><b>Q</b> = Flow in gallons per minute (GPM) required to pass through the valve<br><b>G</b> = Specific gravity of fluid**<br><b>ΔP</b> = Designed pressure drop across the valve in psi<br><b>Cv</b> = Flow coefficient   |   |     |   |     |                     |     |      |                             |  |   |     |   |  |
|                                     | <b>Notes</b> ** Specific gravity is negligible (equal to 1) for water below 200°F. Use actual specific gravity of pure fluids other than water. In most cases, the valve selected for a H <sub>2</sub> O mixture will not be affected by the specific gravity.   |   |     |   |     |                     |     |      |                             |  |   |     |   |  |
|                                     | <b>Example</b> The Specific Gravity of 50% Water (Compound 1) and 50% Ethylene Glycol Solution (Compound 2): <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><math>\frac{1}{\text{Specific Gravity}}</math></td> <td style="padding: 5px;"><math>=</math></td> <td style="padding: 5px;"><math>\frac{0.5}{1.0}</math></td> <td style="padding: 5px;"><math>+</math></td> <td style="padding: 5px;"><math>\frac{0.5}{1.113}</math></td> <td style="padding: 5px;"><math>=</math></td> <td style="padding: 5px;">1.05</td> </tr> <tr> <td style="padding: 5px;"><math>\frac{1}{G_{\text{soln}}}</math></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"><math>\frac{\text{wt\% of Compound 1}}{\text{Specific Gravity (G)}}</math></td> <td style="padding: 5px;"><math>+</math></td> <td style="padding: 5px;"><math>\frac{\text{wt\% of Compound 2}}{\text{Specific Gravity (G)}}</math></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> </table> | $\frac{1}{\text{Specific Gravity}}$                             | $=$ | $\frac{0.5}{1.0}$   | $+$ | $\frac{0.5}{1.113}$ | $=$ | 1.05 | $\frac{1}{G_{\text{soln}}}$ |  | $\frac{\text{wt\% of Compound 1}}{\text{Specific Gravity (G)}}$ | $+$ | $\frac{\text{wt\% of Compound 2}}{\text{Specific Gravity (G)}}$ |  |
| $\frac{1}{\text{Specific Gravity}}$ | $=$  | $\frac{0.5}{1.0}$   | $+$ | $\frac{0.5}{1.113}$   | $=$ | 1.05                |     |      |                             |  |   |     |   |  |
| $\frac{1}{G_{\text{soln}}}$         |  | $\frac{\text{wt\% of Compound 1}}{\text{Specific Gravity (G)}}$ | $+$ | $\frac{\text{wt\% of Compound 2}}{\text{Specific Gravity (G)}}$ |     |                     |     |      |                             |  |   |     |   |  |
| <b>Step Two</b>                     | <b>Option 1</b> <b>LINE SIZE</b><br>On/Off Valves<br>Select the valve size to equal the pipe size.    |   |     |   |     |                     |     |      |                             |  |   |     |   |  |
|                                     | <b>Option 2</b> <b>SIZE FOR MODULATING CONTROL</b><br>Modulating Valves<br>Size the valve for design flow at 60 degrees open.<br><br><i>60° rotation for modulating control</i>    |   |     |   |     |                     |     |      |                             |  |   |     |   |  |
| <b>Step Three</b>                   | Determine the actual pressure drop using the below equation. <span style="float: right;"><math display="block">\Delta P = \left( \frac{Q\sqrt{G}}{Cv} \right)^2</math></span>  |   |     |   |     |                     |     |      |                             |  |   |     |   |  |
|                                     | If the pressure drop is acceptable†, go to Step 4.<br>If not, repeat Steps 2 and 3, selecting an alternate valve.  |   |     |   |     |                     |     |      |                             |  |   |     |   |  |
| <b>Step Four</b>                    | Check to be sure that the Close-Off requirements are met. Refer to Page 3L-12 - 3L-22.   |   |     |   |     |                     |     |      |                             |  |   |     |   |  |

† Recommended to be no higher than 25 psi or match the designed pressure drop, 3, 4, 5, and 6 psi are commonly accepted for modulating applications.

\* For modulating butterfly valves, size for design flow at 60° rotation

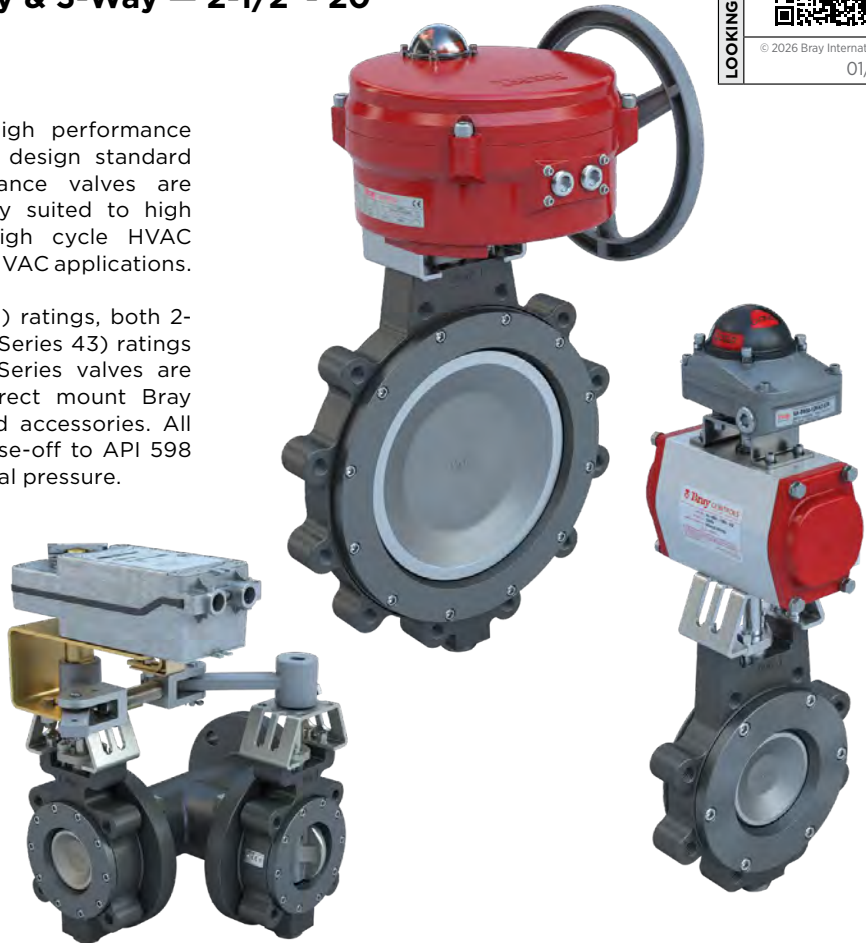
## MK Series High Performance Butterfly Valves 2-Way & 3-Way — 2-1/2" - 20"

| DOCUMENT         |   |
|------------------|---|
| CONTENTS         | Features  |
|                  | Valve Specs   |
|                  | Materials   |
|                  | Cv Chart  |
|                  | Dimensions  |
|                  | Close-Off's   |
| LOOKING FOR MORE |  |
|                  | © 2026 Bray International, Inc.<br>01/13/26   |

### Application

The Bray McCannalok MK Series high performance butterfly valves set the quality and design standard by which all other high performance valves are measured. The MK Series is ideally suited to high pressure, high temperature, and high cycle HVAC applications as well as mission critical HVAC applications.

Available in ANSI Class 150 (Series 41) ratings, both 2-way and 3-way, and ANSI Class 300 (Series 43) ratings in 2-way configurations, Bray's MK Series valves are provided with a wide variety of direct mount Bray electric and pneumatic actuators and accessories. All valves are tested for bubble tight close-off to API 598 standards at maximum rated differential pressure.



### Features and Benefits

- **Double Offset Stem/Disc Design**

*Reduced seat wear, zero leakage, and low torque*

- **Blow-Out Proof Stem**

*Safety and ease of use*

- **Energized RPTFE Seat**

*Zero leakage, self adjusting for wear and easily field replaceable*

- **Pressure Assisted, but not Pressure Dependent Seat Design**

*Optimal performance and sealing at high or low differential pressures*

- **Adjustable PTFE Packing**

*Packing can be adjusted while the valve is in service*

- **Dead End Rating Equal to Nominal Pressure Rating**

*Allows the control valve to also function as an isolation valve*

## MK Series Butterfly Valves - Valve Body Specifications

| Technical Specifications                                  |  |  |
|---|--|--|
| Service   | Hot Water, Chilled Water, Condenser Water up to 50% Glycol & Steam   |  |
| Size Range  | 2-1/2" through 20" (DN 65 to 500)  |  |
| Body Style  | Lug  | 2-Way — ANSI 150 and ANSI 300 Flanges<br>3-Way — ANSI 150 Flanges only |
| Flow Characteristics                                      | Modified Equal Percentage  |  |
| Fluid Temperature Limits                                  | Water -40 to 500 °F (-40 to 260 °C)  |  |
| Maximum Fluid Velocity                                    | 30 ft/second (9 m/second)  |  |
| Leakage   | Bubble tight at rated maximum differential pressure  |  |
| Body Cold Working Pressure Ratings                        | ANSI 150<br>ANSI 300   | 285 PSI (20 BAR)<br>740 PSI (50 BAR)                                   |
| Close-Off Pressure Ratings                                | See pages MK-13 to MK-19   |  |
| Maximum Steam Pressure                                    | On/Off Applications<br>Modulating Applications   | 150 PSI (10 BAR)<br>50 PSI (3.5 BAR)                                   |
| Materials<br><br>(other materials available upon request) | Body   | Carbon Steel   |
|   | Disc   | 316 Stainless Steel  |
|   | Seat   | RPTFE  |
|   | Packing  | PTFE (adjustable)  |
|   | Stem   | 17-4 Stainless Steel   |
|   | Tee  | Ductile Iron (3-Way ANSI 150 valves only)                              |
| Weights   | See Dimensions - Page MK-10 to MK-12   |  |
| Design Standard   | API 609 Category B, ASME B16.34, ASME BPVC VIII, EN 593, EN 12516, MSS SP 68                                     |  |
| Face to Face  | API 609 Category B, ASME B16.10, EN 558, ISO 5752  |  |
| Approvals   | ABS Type, ATEX 2014/34/EU, Bureau Veritas Type, China Classification Society (CCS) Type, CRN, DNV, EC1935, TR CU |  |
| Certifications  | ANSI/NSF 61/372 (SS Bodies Only), CE: PED 2014/68/EU, SIL 3 Capable  |  |

**Disclaimer** - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

### MK Series Butterfly Valves - Double Offset Stem & Disc Design

The disc motion of the double offset design provides many performance benefits:

#### DISC OPENING

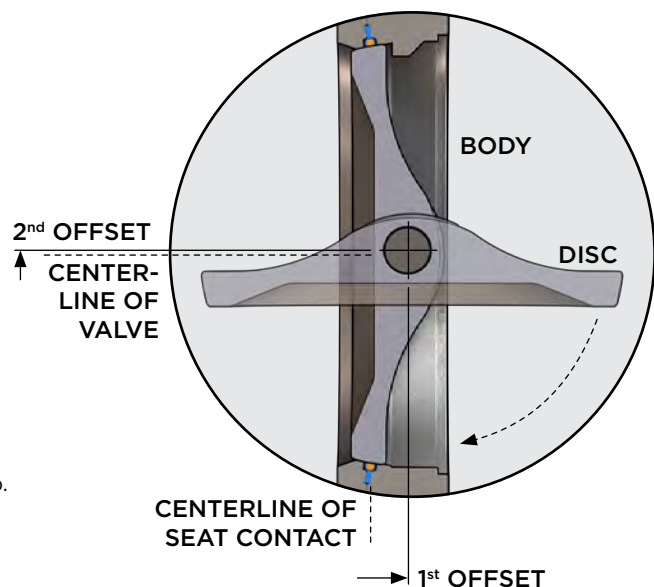
- Cam-action movement pulls disc away from seat.
- Reduces seat wear.

#### OPEN POSITION

- Disc does not contact seat.
- Eliminates seat deformation.
- Reduces operating torques.
- Extends service life.

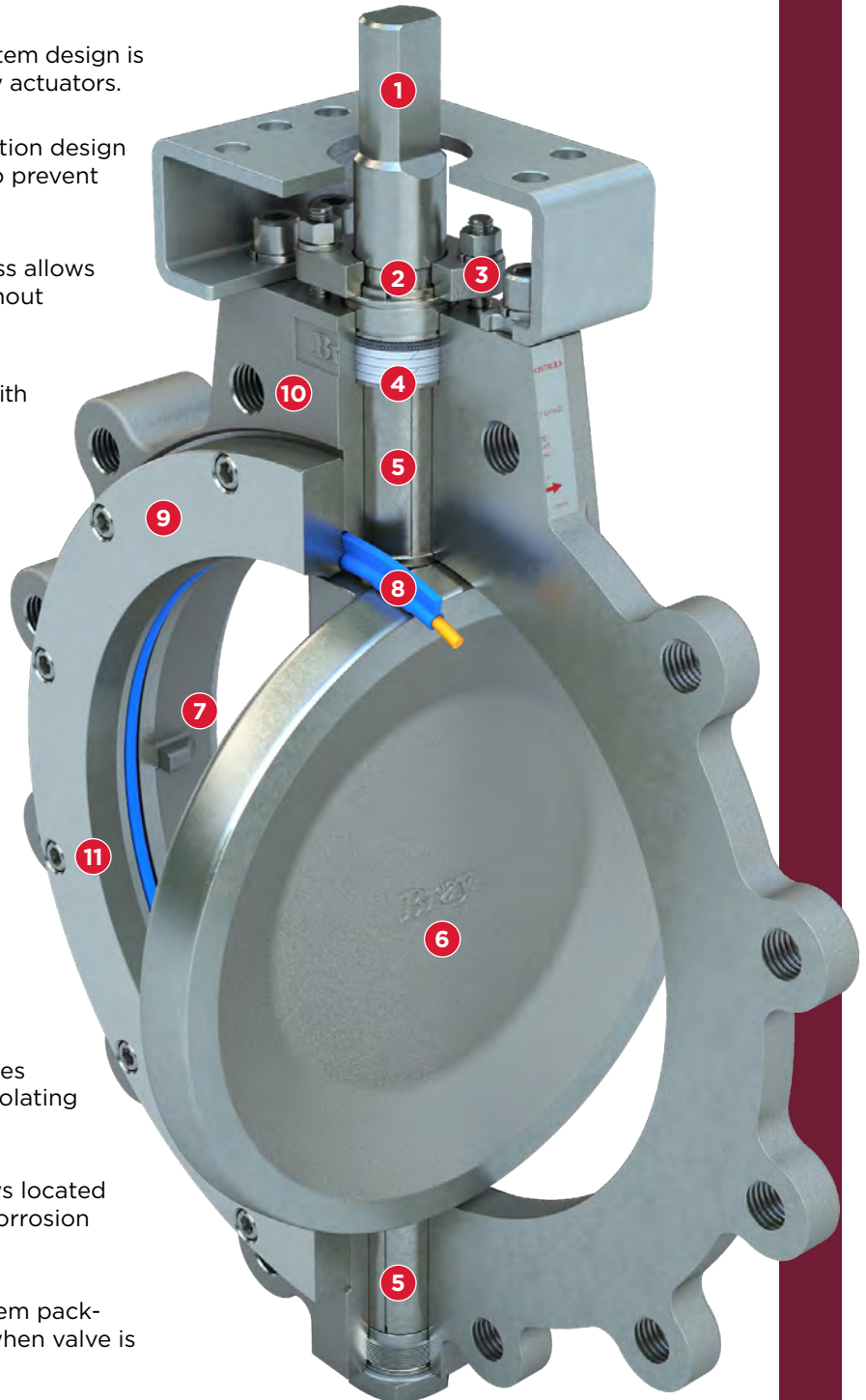
#### DISC CLOSING

- Linear motion pushes disc onto seat.
- Wiping action prevents undesirable material buildup.



### Design Features

- 1 STEM DESIGN:** High-strength, one-piece stem design is standardized for interchangeability of Bray actuators.
- 2 BLOWOUT-PROOF STEM:** The stem retention design does not rely on actuation components to prevent stem blowout.
- 3 ADJUSTABLE STEM PACKING:** Easy access allows simple quarter-turn field adjustments without actuator removal.
- 4 STEM SEAL SYSTEM:** PTFE packing rings with carbon fiber anti-extrusion ring provides constant compression for a positive seal around the stem. Options are available for high temperature, high cycle and firesafe applications.
- 5 STEM BEARINGS:** Top and bottom bearings securely support the stem, provide excellent corrosion resistance, and minimize deflection from high temperatures and mechanical loading forces.
- 6 DISC:** The disc is engineered to maximize flow and minimize resistance for optimal flow rates.
- 7 INTERNAL OVER-TRAVEL STOP:** Designed to minimize possible seat damage — extending the service life of the seat.
- 8 BIDIRECTIONAL RESILIENT SEAT:** Provides bidirectional zero-leakage sealing while isolating the energizer from line media.
- 9 FULL-FACED SEAT RETAINER:** Cap screws located outside sealing area are protected from corrosion while allowing simple seat replacement.
- 10 BODY:** Extended neck allows access to stem packing adjustments and actuator mounting when valve is fully insulated.
- 11 DEAD-END SERVICE:** Lug and double-flanged bodies are full rated for bidirectional dead-end service.



## MK Series Butterfly Valves - Materials of Construction

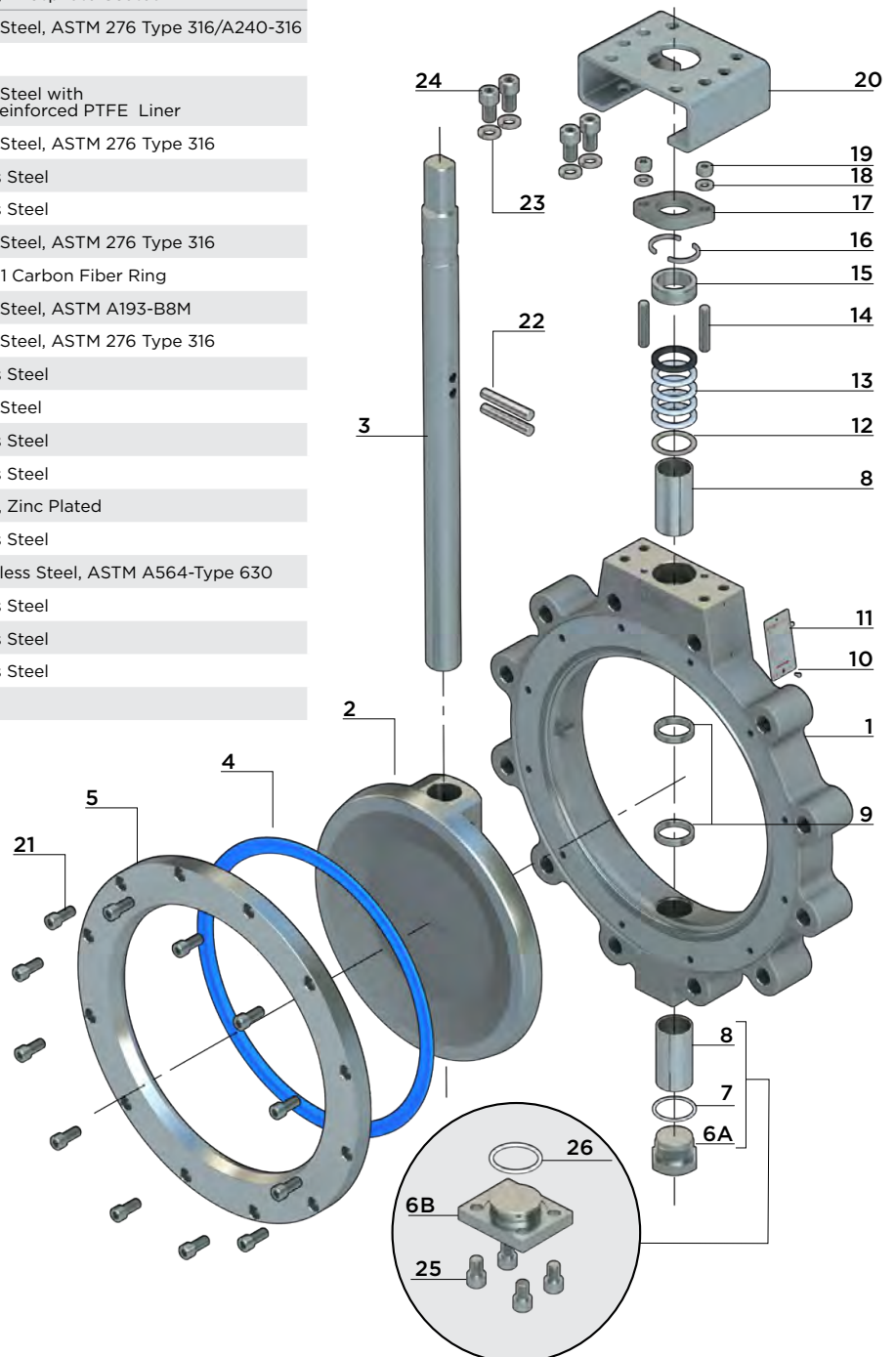
| ITEM | DESCRIPTION           | MATERIAL   |
|------|-----------------------|--|
| 1    | Body                  | Carbon Steel, ASTM A216 Gr. WCB/A516 Gr. 70                |
|      |                       | Stainless Steel, ASTM A351 Gr. CF8M                        |
| 2    | Disc                  | Stainless Steel, ASTM A351 Gr. CF8M                        |
| 3    | Stem                  | 17-4 PH Stainless Steel, ASTM A564-Type 630                |
| 4    | Seat Assembly         | RPTFE <sup>1</sup> with Resilient Energizer                |
| 5    | Seat Retainer         | Carbon Steel, ASTM A216 Gr. WCB/A516 Gr. 70                |
|      |                       | Stainless Steel, ASTM A351 Gr. CF8M                        |
| 6A   | Locating Plug         | 316 Stainless Steel, ASTM 276 Type 316/A240-316            |
| 6B   | Bottom Plate          | Carbon Steel, Phosphate Coated                             |
|      |                       | 316 Stainless Steel, ASTM 276 Type 316/A240-316            |
| 7    | Gasket, Locating Plug | PTFE   |
| 8    | Bearing               | 316 Stainless Steel with Glass Fiber Reinforced PTFE Liner |
| 9    | Disc Spacers          | 316 Stainless Steel, ASTM 276 Type 316                     |
| 10   | Drive Screw           | 18-8 Stainless Steel                                       |
| 11   | ID Tag                | 18-8 Stainless Steel                                       |
| 12   | Thrust Washer         | 316 Stainless Steel, ASTM 276 Type 316                     |
| 13   | Stem Seal Set         | PTFE rings + 1 Carbon Fiber Ring                           |
| 14   | Stud                  | 316 Stainless Steel, ASTM A193-B8M                         |
| 15   | Gland Ring            | 316 Stainless Steel, ASTM 276 Type 316                     |
| 16   | Retaining Ring        | 18-8 Stainless Steel                                       |
| 17   | Gland Retainer        | 316 Stainless Steel  |
| 18   | Lock Washers          | 18-8 Stainless Steel                                       |
| 19   | Hex Nut               | 18-8 Stainless Steel                                       |
| 20   | Mounting Bracket      | Carbon Steel, Zinc Plated                                  |
| 21   | Cap Screws            | 18-8 Stainless Steel                                       |
| 22   | Taper Pins            | 17-4 PH Stainless Steel, ASTM A564-Type 630                |
| 23   | Lock Washers          | 18-8 Stainless Steel                                       |
| 24   | Cap Screws            | 18-8 Stainless Steel                                       |
| 25   | Cap Screws            | 18-8 Stainless Steel                                       |
| 26   | Gasket, Bottom Plate  | PTFE   |

### NOTES

Material specifications provided for reference only, and are subject to change without notice.

Additional materials available upon request.

<sup>1</sup>RPTFE is supplied by Bray as RPTFE (reinforced polytetrafluoroethylene.)



For Sizes Greater than 14" (DN 350)

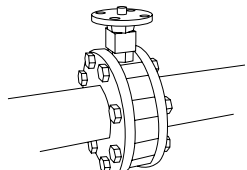
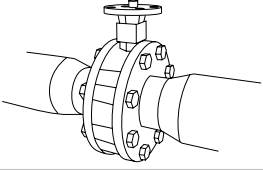
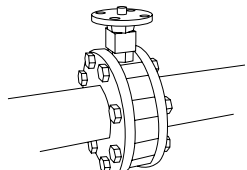
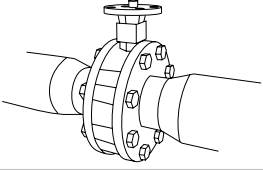
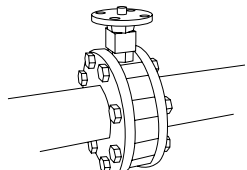
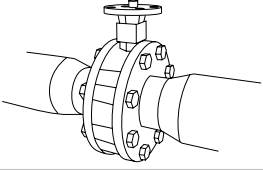
## MK Series Butterfly Valves - Cv's at Various Angles of Openings

| <b>ANSI Class 150 - Low and Standard Pressure Cv Disc Values</b> |     |     |       |       |       |       |       |        |        |
|--|-----|-----|-------|-------|-------|-------|-------|--------|--------|
| <b>ANGLE OF DISC OPENING</b>                                     |     |     |       |       |       |       |       |        |        |
| Valve Size   | 10° | 20° | 30°   | 40°   | 50°   | 60°*  | 70°   | 80°    | 90°    |
| 2.5"   | 3   | 8   | 16    | 30    | 50    | 78    | 100   | 136    | 160    |
| 3"   | 5   | 14  | 32    | 56    | 87    | 123   | 155   | 178    | 185    |
| 4"   | 10  | 31  | 63    | 115   | 175   | 250   | 315   | 365    | 375    |
| 5"   | 16  | 41  | 78    | 146   | 238   | 360   | 500   | 675    | 790    |
| 6"   | 35  | 81  | 140   | 218   | 330   | 510   | 750   | 1,070  | 1,350  |
| 8"   | 65  | 165 | 280   | 456   | 685   | 1,060 | 1,590 | 2,230  | 2,800  |
| 10"  | 100 | 250 | 450   | 700   | 1,050 | 1,630 | 2,430 | 3,450  | 4,300  |
| 12"  | 155 | 390 | 700   | 1,080 | 1,630 | 2,530 | 3,750 | 5,330  | 6,650  |
| 14"  | 175 | 450 | 810   | 1,250 | 1,890 | 2,900 | 4,300 | 6,100  | 7,650  |
| 16"  | 230 | 580 | 1,020 | 1,530 | 2,420 | 3,700 | 5,510 | 7,860  | 9,800  |
| 18"  | 170 | 500 | 1,180 | 2,220 | 3,520 | 5,100 | 6,960 | 9,100  | 10,500 |
| 20"  | 200 | 640 | 1,530 | 2,820 | 4,500 | 6,500 | 8,800 | 11,700 | 13,500 |

| <b>ANSI Class 300 - Low and Standard Pressure Cv Disc Values</b> |     |     |       |       |       |       |       |       |        |
|--|-----|-----|-------|-------|-------|-------|-------|-------|--------|
| <b>ANGLE OF DISC OPENING</b>                                     |     |     |       |       |       |       |       |       |        |
| Valve Size   | 10° | 20° | 30°   | 40°   | 50°   | 60°*  | 70°   | 80°   | 90°    |
| 2.5"   | 3   | 8   | 16    | 30    | 50    | 78    | 100   | 136   | 160    |
| 3"   | 5   | 14  | 32    | 56    | 87    | 123   | 155   | 178   | 185    |
| 4"   | 10  | 31  | 63    | 115   | 175   | 250   | 315   | 365   | 375    |
| 5"   | 16  | 41  | 78    | 146   | 238   | 360   | 500   | 675   | 790    |
| 6"   | 26  | 79  | 138   | 240   | 370   | 530   | 710   | 875   | 1,000  |
| 8"   | 47  | 121 | 240   | 405   | 630   | 950   | 1,360 | 1,720 | 2,000  |
| 10"  | 61  | 150 | 295   | 510   | 780   | 1,200 | 1,740 | 2,250 | 2,650  |
| 12"  | 92  | 220 | 430   | 710   | 1,100 | 1,690 | 2,500 | 3,400 | 4,000  |
| 14"  | 100 | 240 | 490   | 830   | 1,200 | 1,770 | 2,600 | 3,500 | 4,100  |
| 16"  | 180 | 420 | 730   | 1,160 | 1,840 | 2,970 | 4,550 | 6,540 | 7,800  |
| 18"  | 94  | 440 | 1,080 | 1,970 | 3,110 | 4,530 | 6,170 | 8,000 | 9,500  |
| 20"  | 110 | 530 | 1,250 | 2,330 | 3,720 | 5,400 | 7,300 | 9,570 | 11,000 |

\* When selecting a butterfly valve for a modulating application, use a valve where the calculated Cv falls between 0 - 60 degrees.

## MK Series Butterfly Valves - Valve Sizing Steps

| MK Series - Valve Sizing Tips |   |  |   |   |                      |  |  |      |                  |  |     |  |       |  |  |   |        |                   |   |                   |                      |  |  |  |                      |  |                      |  |  |
|-------------------------------|---|--|---|---|----------------------|--|--|------|------------------|--|-----|--|-------|--|--|---|--------|-------------------|---|-------------------|----------------------|--|--|--|----------------------|--|----------------------|--|--|
| <b>Step One</b>               | <p>Determine the designed Cv by using the following equation.*</p> $Cv = \frac{Q\sqrt{G}}{\sqrt{\Delta P}}$ <p><b>Where</b><br/> <b>Q</b> = Flow in gallons per minute (GPM) required to pass through the valve<br/> <b>G</b> = Specific gravity of fluid**<br/> <b>ΔP</b> = Designed pressure drop across the valve in PSI<br/> <b>Cv</b> = Flow coefficient</p> <p><b>Notes</b>    ** Specific gravity is negligible (equal to 1) for water below 200°F. Use actual specific gravity of pure fluids other than water. In most cases, the valve selected for a H<sub>2</sub>O mixture will not be affected by the specific gravity.</p> <p><b>Example</b>    The Specific Gravity of 50% Water (Compound 1) and 50% Ethylene Glycol Solution (Compound 2):</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">=</td> <td style="text-align: center;">0.5</td> <td style="text-align: center;">+</td> <td style="text-align: center;">0.5</td> <td style="text-align: center;">=</td> <td style="text-align: center;">1.05</td> </tr> <tr> <td style="text-align: center;">Specific Gravity</td> <td></td> <td style="text-align: center;">1.0</td> <td></td> <td style="text-align: center;">1.113</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">G soln</td> <td style="text-align: center;">wt% of Compound 1</td> <td style="text-align: center;">+</td> <td style="text-align: center;">wt% of Compound 2</td> <td style="text-align: center;">Specific Gravity (G)</td> <td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">Specific Gravity (G)</td> <td></td> <td style="text-align: center;">Specific Gravity (G)</td> <td></td> <td></td> </tr> </table> | 1  | =   | 0.5   | +                    | 0.5  | =  | 1.05 | Specific Gravity |  | 1.0 |  | 1.113 |  |  | 1 | G soln | wt% of Compound 1 | + | wt% of Compound 2 | Specific Gravity (G) |  |  |  | Specific Gravity (G) |  | Specific Gravity (G) |  |  |
| 1                             | =   | 0.5  | +   | 0.5   | =                    | 1.05   |  |      |                  |  |     |  |       |  |  |   |        |                   |   |                   |                      |  |  |  |                      |  |                      |  |  |
| Specific Gravity              |   | 1.0  |   | 1.113   |                      |  |  |      |                  |  |     |  |       |  |  |   |        |                   |   |                   |                      |  |  |  |                      |  |                      |  |  |
| 1                             | G soln  | wt% of Compound 1  | +   | wt% of Compound 2   | Specific Gravity (G) |  |  |      |                  |  |     |  |       |  |  |   |        |                   |   |                   |                      |  |  |  |                      |  |                      |  |  |
|                               |   | Specific Gravity (G)   |   | Specific Gravity (G)  |                      |  |  |      |                  |  |     |  |       |  |  |   |        |                   |   |                   |                      |  |  |  |                      |  |                      |  |  |
| <b>Step Two</b>               | <p>Determine whether the valve should be line size or sized to match the designed pressure drop (typical for modulating applications where precise control is required.)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center; vertical-align: middle;"><b>Option 1</b></td> <td style="padding: 5px;"> <p><b>LINE SIZE</b><br/>On/Off Valves<br/>Select the valve size to equal the pipe size.</p> </td> <td style="text-align: center; vertical-align: middle;"></td> </tr> <tr> <td style="text-align: center; vertical-align: middle;"><b>Option 2</b></td> <td style="padding: 5px;"> <p><b>SIZE FOR MODULATING CONTROL</b><br/>Modulating Valves<br/>Size the valve for design flow at 60 degrees open.<br/><br/><i>60° rotation for modulating control</i></p> </td> <td style="text-align: center; vertical-align: middle;"></td> </tr> </table>   | <b>Option 1</b>  | <p><b>LINE SIZE</b><br/>On/Off Valves<br/>Select the valve size to equal the pipe size.</p> |  | <b>Option 2</b>      | <p><b>SIZE FOR MODULATING CONTROL</b><br/>Modulating Valves<br/>Size the valve for design flow at 60 degrees open.<br/><br/><i>60° rotation for modulating control</i></p> |  |      |                  |  |     |  |       |  |  |   |        |                   |   |                   |                      |  |  |  |                      |  |                      |  |  |
| <b>Option 1</b>               | <p><b>LINE SIZE</b><br/>On/Off Valves<br/>Select the valve size to equal the pipe size.</p>   |   |   |   |                      |  |  |      |                  |  |     |  |       |  |  |   |        |                   |   |                   |                      |  |  |  |                      |  |                      |  |  |
| <b>Option 2</b>               | <p><b>SIZE FOR MODULATING CONTROL</b><br/>Modulating Valves<br/>Size the valve for design flow at 60 degrees open.<br/><br/><i>60° rotation for modulating control</i></p>  |  |   |   |                      |  |  |      |                  |  |     |  |       |  |  |   |        |                   |   |                   |                      |  |  |  |                      |  |                      |  |  |
| <b>Step Three</b>             | <p>Determine the actual pressure drop using the below equation.</p> $\Delta P = \left( \frac{Q\sqrt{G}}{Cv} \right)^2$ <p>If the pressure drop is acceptable†, go to Step 4.<br/>If not, repeat Steps 2 and 3, selecting an alternate valve.</p>  |  |   |   |                      |  |  |      |                  |  |     |  |       |  |  |   |        |                   |   |                   |                      |  |  |  |                      |  |                      |  |  |
| <b>Step Four</b>              | <p>Check to be sure that the Close-Off requirements are met. Refer to Page MK-13 to MK-19</p>   |  |   |   |                      |  |  |      |                  |  |     |  |       |  |  |   |        |                   |   |                   |                      |  |  |  |                      |  |                      |  |  |

† Recommended to be no higher than 25 PSI or match the designed pressure drop, 3, 4, 5, and 6 PSI are commonly accepted for modulating applications.

\* For modulating butterfly valves, size for design flow at 60° rotation

### MK Series Butterfly Valves - Set Features

- Proven zero-leakage shutoff in both directions. Interference-fit sealing, even when there is no differential line pressure.
- Pressure-assisted sealing is energized by line media pressure, providing a tighter seal in higher differential pressure services.
- Extended service life with reliable sealing after 1 million cycles.
- Resilient energizer ring is fully encapsulated by the seat and isolated from all line media contact.
- Full-faced retainer secures seat in the correct position, even without mating flange.
- Seat self-adjusts for wear and temperature changes, providing longer service life.
- Simplified seat replacement.

#### INTERFERENCE-FIT SEALING

Provides bidirectional sealing for low pressure applications.



**Disc in Open Position.**  
Seat non-compressed.



**Disc in Closed Position.**  
No line pressure.

#### PRESSURE-ASSISTED SEALING

Provides tighter bidirectional sealing in higher pressure applications.



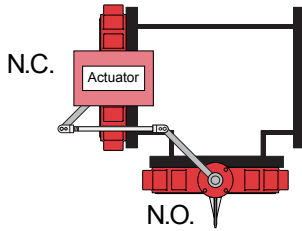
**Disc in Closed Position.**  
Line pressure applied from the preferred flow direction.



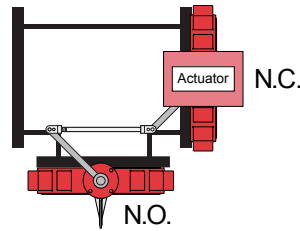
**Disc in Closed Position.**  
Line pressure applied from the non-preferred flow direction.

## Spring Return and Non-Spring Return

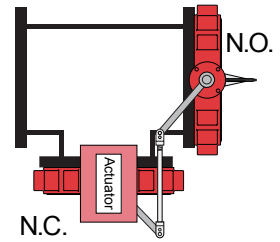
**Configuration 1**



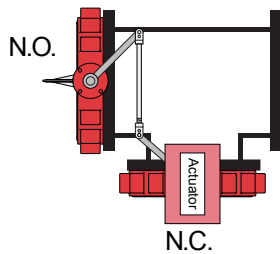
**Configuration 2**



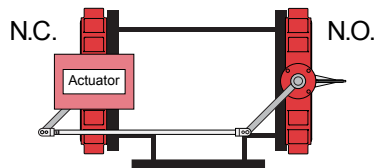
**Configuration 3**



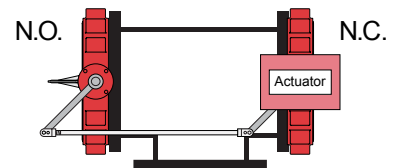
**Configuration 4**



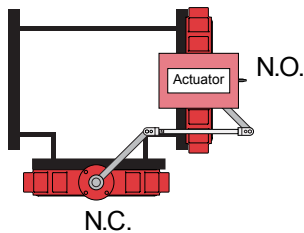
**Configuration 5**



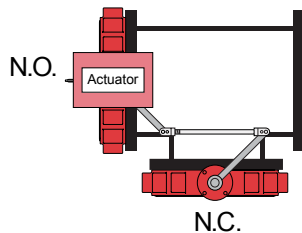
**Configuration 6**



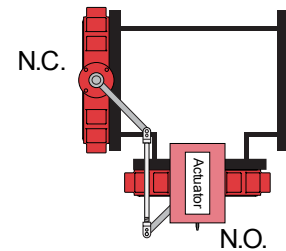
**Configuration 7**



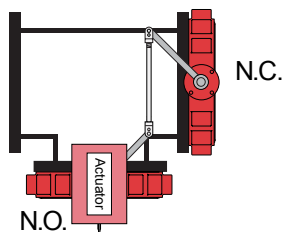
**Configuration 8**



**Configuration 9**



**Configuration 10  
(PN placeholder is 0)**



**Note:** All 3-Way butterfly valve assembly orders should have configuration specified. Pricing remains the same, however Bray must know the specifications in order to manufacture the appropriate linkage kit.

**Note:** Configurations 7, 8, 9, & 10 with power fail-safe actuators will be configured as Forward Acting & Fail Open. Actuators without power fail-safe capabilities will be set to Reverse Acting, when configurable.

**Note:** Unless otherwise requested valve will be shipped as illustrated by Configuration 3.

## MK Series Butterfly Valves - Part Number Matrix

|                |   |   |          |          |           |          |          |                                |                       |  |          |
|----------------|---|---|----------|----------|-----------|----------|----------|--------------------------------|-----------------------|--|----------|
| <b>MK</b>      | Series 41, ANSI 150, Carbon Steel Body, 316 Stainless Steel Disc, 17-4 SS Stem, RPTFE Seat.<br>Series 43 , ANSI 300, Carbon Steel Body, 316 Stainless Steel Disc, 17-4 SS Stem, RPTFE Seat. |   |          |          |           |          |          |                                | Valve Series          |  |          |
|                | <b>L</b>  | Lug Body  |          |          |           |          |          |                                | Body Type             |  |          |
|                | <b>2</b>  | 2-Way Valve Assembly                                  |          |          |           |          |          |                                | Valve Type            |  |          |
|                | <b>3</b>  | 3-Way Valve Assembly                                  |          |          |           |          |          |                                |                       |  |          |
|                | -   |   |          |          |           |          |          |                                |                       |  |          |
|                | <b>C</b>  | 2-way Assembly, Normally Closed                       |          |          |           |          |          |                                | Configuration         |  |          |
|                | <b>N</b>  | 2-way Assembly, Normally Open                         |          |          |           |          |          |                                |                       |  |          |
|                | <b>X</b>  | For 3-Way only - (X= Configuration # - See page MK-7) |          |          |           |          |          |                                |                       |  |          |
|                | <b>XX</b>   | Size (in.) 08=8", 12=12", etc.                        |          |          |           |          |          |                                | Valve Size            |  |          |
|                | <b>0</b>  | Series 41 Carbon Steel Body,                          |          |          |           |          |          |                                | Valve Shut-Off Rating |  |          |
|                | <b>3</b>  | Series 43 Carbon Steel Body,                          |          |          |           |          |          |                                |                       |  |          |
|                | /   |   |          |          |           |          |          |                                |                       |  |          |
| <b>70-xxxx</b> | Series 70 Electric Actuators  |   |          |          |           |          |          | Actuator                       |                       |  |          |
| <b>AU</b>      | Auma Actuators  |   |          |          |           |          |          |                                |                       |  |          |
| <b>92-xxx</b>  | High Pressure Pneumatic, Double Acting  |   |          |          |           |          |          |                                |                       |  |          |
| <b>93-xxx</b>  | High Pressure Pneumatic, Spring Return  |   |          |          |           |          |          |                                |                       |  |          |
| <b>D or DC</b> | Commercial Electric Actuators   |   |          |          |           |          |          |                                |                       |  |          |
| <b>SV</b>      | Servo Card for 0-10 VDC or 4-20 mA modulation   |   |          |          |           |          |          | Electric Actuator Accessories  |                       |  |          |
| <b>H</b>       | Anti-Condensation Heater  |   |          |          |           |          |          |                                |                       |  |          |
| <b>BBU</b>     | Battery Back-Up Unit  |   |          |          |           |          |          |                                |                       |  |          |
| <b>-S</b>      | 120 VAC Solenoid Valve  |   |          |          |           |          |          | Pneumatic Actuator Accessories |                       |  |          |
| <b>-S4</b>     | 24 VAC Solenoid Valve   |   |          |          |           |          |          |                                |                       |  |          |
| <b>-SW</b>     | Valve Status Monitor for Pneumatic Actuator   |   |          |          |           |          |          |                                |                       |  |          |
| <b>-C</b>      | 1-Set Speed Controls for Solenoids  |   |          |          |           |          |          |                                |                       |  |          |
| <b>-P</b>      | 3-15 PSI Pneumatic Positioner   |   |          |          |           |          |          |                                |                       |  |          |
| <b>-EP</b>     | 4-20 mA Electro-Pneumatic Positioner  |   |          |          |           |          |          |                                |                       |  |          |
| <b>-05</b>     | Declutchable Handwheel Manual Override  |   |          |          |           |          |          |                                |                       |  |          |
| <b>MK</b>      | <b>L</b>  | <b>2</b>  | <b>-</b> | <b>C</b> | <b>12</b> | <b>3</b> | <b>/</b> | <b>70-1300</b>                 | <b>SVH</b>            | <b>12" lugged 2-way butterfly valve, carbon steel body, 316 SS Disc,17-4 SS Stem, RPTFE Seat, Series 70-1300, 120 VAC modulating electric actuator with heater</b> | Examples |

## MK Series Butterfly Valves - Piping Geometry Charts

ANSI 150

60° Rotation

| 2-Way & 3-Way - ANSI 150 - UpStream PIPING GEOMETRY CHART - Adjusted Cv at 60° Rotation |              |            |           |     |     |     |     |      |      |      |      |      |      |      |      |      |
|---|--------------|------------|-----------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|
| Valve Size  | Model Number | Nominal Cv | Pipe Size |     |     |     |     |      |      |      |      |      |      |      |      |      |
|   |              |            | 2.5"      | 3"  | 4"  | 5"  | 6"  | 8"   | 10"  | 12"  | 14"  | 16"  | 18"  | 20"  | 22"  | 24"  |
| 2.5"  | MKL_*025     | 78         | 78        | 77  | 74  |     |     |      |      |      |      |      |      |      |      |      |
| 3"  | MKL_*030     | 123        |           | 123 | 119 | 116 |     |      |      |      |      |      |      |      |      |      |
| 4"  | MKL_*040     | 250        |           |     | 250 | 244 | 236 |      |      |      |      |      |      |      |      |      |
| 5"  | MKL_*050     | 360        |           |     |     | 360 | 354 | 339  |      |      |      |      |      |      |      |      |
| 6"  | MKL_*060     | 510        |           |     |     |     | 510 | 494  | 478  |      |      |      |      |      |      |      |
| 8"  | MKL_*080     | 1060       |           |     |     |     |     | 1060 | 1030 | 992  |      |      |      |      |      |      |
| 10"   | MKL_*100     | 1630       |           |     |     |     |     |      | 1630 | 1597 | 1549 |      |      |      |      |      |
| 12"   | MKL_*120     | 2530       |           |     |     |     |     |      |      | 2530 | 2485 | 2413 |      |      |      |      |
| 14"   | MKL_*140     | 2900       |           |     |     |     |     |      |      |      | 2900 | 2872 | 2820 |      |      |      |
| 16"   | MKL_*160     | 3700       |           |     |     |     |     |      |      |      |      | 3700 | 3672 | 3618 |      |      |
| 18"   | MKL_*180     | 5100       |           |     |     |     |     |      |      |      |      |      | 5100 | 5062 | 4987 |      |
| 20"   | MKL_*200     | 6500       |           |     |     |     |     |      |      |      |      |      |      | 6500 | 6457 | 6369 |

90° Rotation

| 2-Way & 3-Way - ANSI 150 - UpStream PIPING GEOMETRY CHART - Adjusted Cv at 90° Rotation |              |            |           |     |     |     |      |      |      |      |      |      |       |       |       |       |
|---|--------------|------------|-----------|-----|-----|-----|------|------|------|------|------|------|-------|-------|-------|-------|
| Valve Size  | Model Number | Nominal Cv | Pipe Size |     |     |     |      |      |      |      |      |      |       |       |       |       |
|   |              |            | 2.5"      | 3"  | 4"  | 5"  | 6"   | 8"   | 10"  | 12"  | 14"  | 16"  | 18"   | 20"   | 22"   | 24"   |
| 2.5"  | MKL_*025     | 160        | 160       | 152 | 135 |     |      |      |      |      |      |      |       |       |       |       |
| 3"  | MKL_*030     | 185        |           | 185 | 174 | 163 |      |      |      |      |      |      |       |       |       |       |
| 4"  | MKL_*040     | 375        |           |     | 375 | 354 | 331  |      |      |      |      |      |       |       |       |       |
| 5"  | MKL_*050     | 790        |           |     |     | 790 | 734  | 620  |      |      |      |      |       |       |       |       |
| 6"  | MKL_*060     | 1350       |           |     |     |     | 1350 | 1120 | 962  |      |      |      |       |       |       |       |
| 8"  | MKL_*080     | 2800       |           |     |     |     |      | 2800 | 2351 | 1982 |      |      |       |       |       |       |
| 10"   | MKL_*100     | 4300       |           |     |     |     |      |      | 4300 | 3785 | 3253 |      |       |       |       |       |
| 12"   | MKL_*120     | 6650       |           |     |     |     |      |      |      | 6650 | 5941 | 5118 |       |       |       |       |
| 14"   | MKL_*140     | 7650       |           |     |     |     |      |      |      |      | 7650 | 7162 | 6464  |       |       |       |
| 16"   | MKL_*160     | 9800       |           |     |     |     |      |      |      |      |      | 9800 | 9307  | 8530  |       |       |
| 18"   | MKL_*180     | 10500      |           |     |     |     |      |      |      |      |      |      | 10500 | 10180 | 9611  |       |
| 20"   | MKL_*200     | 13500      |           |     |     |     |      |      |      |      |      |      |       | 13500 | 13126 | 12432 |

ANSI 300

60° Rotation

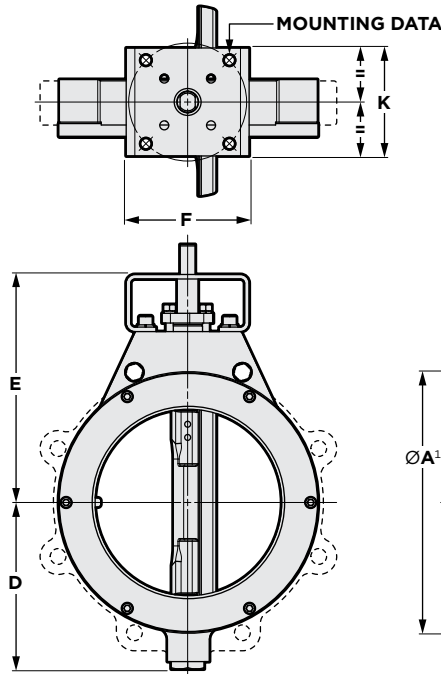
| 2-Way - ANSI 300 - UpStream PIPING GEOMETRY CHART - Adjusted Cv at 60° Rotation |              |            |           |     |     |     |     |     |      |      |      |      |      |      |      |      |
|---|--------------|------------|-----------|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|
| Valve Size  | Model Number | Nominal Cv | Pipe Size |     |     |     |     |     |      |      |      |      |      |      |      |      |
|   |              |            | 2.5"      | 3"  | 4"  | 5"  | 6"  | 8"  | 10"  | 12"  | 14"  | 16"  | 18"  | 20"  | 22"  | 24"  |
| 2.5"  | MKL2-*253    | 78         | 78        | 77  | 74  |     |     |     |      |      |      |      |      |      |      |      |
| 3"  | MKL2-*033    | 123        |           | 123 | 119 | 116 |     |     |      |      |      |      |      |      |      |      |
| 4"  | MKL2-*043    | 250        |           |     | 250 | 244 | 236 |     |      |      |      |      |      |      |      |      |
| 5"  | MKL2-*053    | 360        |           |     |     | 360 | 354 | 339 |      |      |      |      |      |      |      |      |
| 6"  | MKL2-*063    | 530        |           |     |     |     | 530 | 512 | 494  |      |      |      |      |      |      |      |
| 8"  | MKL2-*083    | 950        |           |     |     |     |     | 950 | 928  | 900  |      |      |      |      |      |      |
| 10"   | MKL2-*103    | 1200       |           |     |     |     |     |     | 1200 | 1187 | 1167 |      |      |      |      |      |
| 12"   | MKL2-*123    | 1690       |           |     |     |     |     |     |      | 1690 | 1676 | 1654 |      |      |      |      |
| 14"   | MKL2-*143    | 1770       |           |     |     |     |     |     |      |      | 1770 | 1763 | 1751 |      |      |      |
| 16"   | MKL2-*163    | 2970       |           |     |     |     |     |     |      |      |      | 2970 | 2955 | 2927 |      |      |
| 18"   | MKL2-*183    | 4530       |           |     |     |     |     |     |      |      |      |      | 4530 | 4503 | 4451 |      |
| 20"   | MKL2-*203    | 5400       |           |     |     |     |     |     |      |      |      |      |      | 5400 | 5375 | 5324 |

90° Rotation

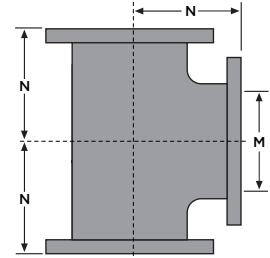
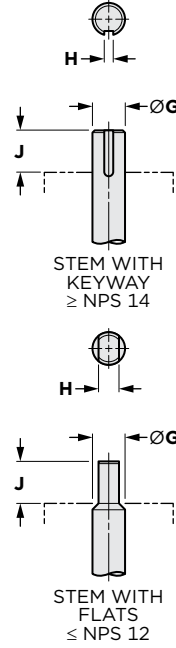
| 2-Way - ANSI 300 - UpStream PIPING GEOMETRY CHART - Adjusted Cv at 90° Rotation |              |            |           |     |     |     |      |      |      |      |      |      |      |       |       |       |
|---|--------------|------------|-----------|-----|-----|-----|------|------|------|------|------|------|------|-------|-------|-------|
| Valve Size  | Model Number | Nominal Cv | Pipe Size |     |     |     |      |      |      |      |      |      |      |       |       |       |
|   |              |            | 2.5"      | 3"  | 4"  | 5"  | 6"   | 8"   | 10"  | 12"  | 14"  | 16"  | 18"  | 20"   | 22"   | 24"   |
| 2.5"  | MKL2-*253    | 160        | 160       | 152 | 135 |     |      |      |      |      |      |      |      |       |       |       |
| 3"  | MKL2-*033    | 185        |           | 185 | 174 | 163 |      |      |      |      |      |      |      |       |       |       |
| 4"  | MKL2-*043    | 375        |           |     | 375 | 354 | 331  |      |      |      |      |      |      |       |       |       |
| 5"  | MKL2-*053    | 790        |           |     |     | 790 | 734  | 620  |      |      |      |      |      |       |       |       |
| 6"  | MKL2-*063    | 1000       |           |     |     |     | 1000 | 895  | 808  |      |      |      |      |       |       |       |
| 8"  | MKL2-*083    | 2000       |           |     |     |     |      | 2000 | 1816 | 1629 |      |      |      |       |       |       |
| 10"   | MKL2-*103    | 2650       |           |     |     |     |      |      | 2650 | 2515 | 2339 |      |      |       |       |       |
| 12"   | MKL2-*123    | 4000       |           |     |     |     |      |      |      | 4000 | 3829 | 3579 |      |       |       |       |
| 14"   | MKL2-*143    | 4100       |           |     |     |     |      |      |      |      | 4100 | 4019 | 3883 |       |       |       |
| 16"   | MKL2-*163    | 7800       |           |     |     |     |      |      |      |      |      | 7800 | 7544 | 7112  |       |       |
| 18"   | MKL2-*183    | 9500       |           |     |     |     |      |      |      |      |      |      | 9500 | 9261  | 8827  |       |
| 20"   | MKL2-*203    | 11000      |           |     |     |     |      |      |      |      |      |      |      | 11000 | 10795 | 10399 |

- = 2-Way or 3-Way  
 \* = Configuration (N) = Normally Open, (C) = Normally Closed

# MK Series Butterfly Valves - Valve Dimensions



## STEM DETAILS



| TEE DIMENSIONS - in. (mm) |            |            | WEIGHT lbs |
|---------------------------|------------|------------|------------|
| Size                      | M          | N          |            |
| 2                         | 2.0 (51)   | 4.5 (114)  | 19         |
| 2.5                       | 2.5 (64)   | 5.0 (127)  | 27         |
| 3                         | 3.0 (76)   | 5.5 (140)  | 39         |
| 4                         | 4.0 (102)  | 6.5 (165)  | 62         |
| 5                         | 5.0 (127)  | 7.5 (191)  | 79         |
| 6                         | 6.0 (152)  | 8.0 (203)  | 96         |
| 8                         | 8.0 (203)  | 9.0 (229)  | 155        |
| 10                        | 10.0 (254) | 11.0 (279) | 270        |
| 12                        | 12.0 (305) | 12.0 (305) | 380        |
| 14                        | 14.0 (356) | 14.0 (356) | 435        |
| 16                        | 16.0 (406) | 15.0 (381) | 550        |
| 18                        | 18.0 (457) | 16.5 (419) | 665        |
| 20                        | 20.0 (508) | 18.0 (457) | 855        |

### NOTES

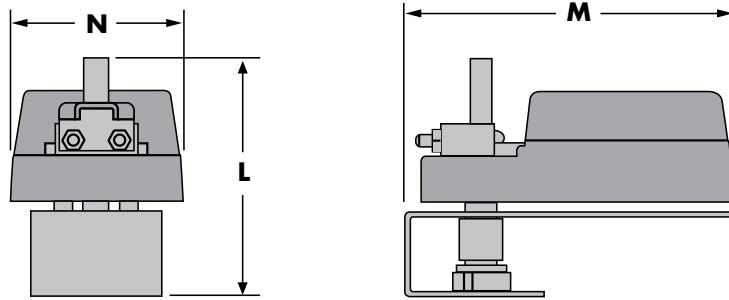
- Additional flange drilling options available
- Weights are for cast steel bodies, except when noted.
- 1 Dimension A is diameter of raised face flange.
- 2 Dimension C is absolute minimum pipe ID at valve face (without gasket).
- 3 Flame cut body weights. Flame cut steel and Stainless Steel bodies vary.

Tee weight is the weight of the Tee alone. For 3-Way assemblies add the weight of two lug valves.

| ANSI CLASS 150 (Series 41) DIMENSIONS - in. |       |      |       |       |       |       |      |           |      |      |      | Mounting Data |          |          | WEIGHT lbs |     |
|---|-------|------|-------|-------|-------|-------|------|-----------|------|------|------|---------------|----------|----------|------------|-----|
| Size  | ØA¹   | B    | ØC²   | D     | E     | F     | ØG   | H         | J    | K    | L    | Bolt Circle   | Hole Qty | Hole Dia | Wafer      | Lug |
| 2 ½   | 4.75  | 1.88 | 2.32  | 3.82  | 6.38  | 4.36  | 0.63 | 0.43      | 1.25 | 2.50 | 0.77 | 2.76          | 4        | 0.38     | 11         | 13  |
| 3   | 5.25  | 1.88 | 2.90  | 4.10  | 6.63  | 4.36  | 0.63 | 0.43      | 1.25 | 2.50 | 0.77 | 2.76          | 4        | 0.38     | 13         | 15  |
| 4   | 6.72  | 2.03 | 3.83  | 4.72  | 7.50  | 4.36  | 0.63 | 0.43      | 1.25 | 2.50 | 0.75 | 2.76          | 4        | 0.38     | 20         | 23  |
| 5   | 7.62  | 2.23 | 4.81  | 5.07  | 7.50  | 5.12  | 0.75 | 0.51      | 1.25 | 4.50 | 0.94 | 4.92          | 4        | 0.53     | 27         | 32  |
| 6   | 8.62  | 2.23 | 5.88  | 5.57  | 8.00  | 5.12  | 0.75 | 0.51      | 1.25 | 4.50 | 0.94 | 4.92          | 4        | 0.53     | 32         | 36  |
| 8   | 10.81 | 2.40 | 7.94  | 6.94  | 9.50  | 5.12  | 0.88 | 0.63      | 1.25 | 4.50 | 0.94 | 4.92          | 4        | 0.53     | 48         | 54  |
| 10  | 13.06 | 2.75 | 10.02 | 8.56  | 10.75 | 6.12  | 1.18 | 0.87      | 2.00 | 4.50 | 1.07 | 4.92          | 4        | 0.53     | 79         | 93  |
| 12  | 15.42 | 3.08 | 11.87 | 10.18 | 12.25 | 6.12  | 1.18 | 0.87      | 2.00 | 4.50 | 1.13 | 4.92          | 4        | 0.53     | 118        | 134 |
| 14  | 17.24 | 3.73 | 13.00 | 11.95 | 14.50 | 7.75  | 1.38 | .39 x .39 | 2.00 | 6.50 | 1.42 | 4.92          | 4        | 0.53     | 211        | 221 |
| 16  | 19.50 | 4.11 | 14.75 | 13.10 | 11.75 | 10.38 | 1.97 | .47 x .39 | 2.50 | 6.50 | 1.66 | 6.50          | 4        | 0.81     | 314        | 337 |
| 18  | 21.38 | 4.61 | 16.62 | 14.37 | 20.00 | 10.38 | 1.97 | .47 x .39 | 2.50 | 6.50 | 1.86 | 6.50          | 4        | 0.81     | 404        | 429 |
| 20  | 23.62 | 5.03 | 18.50 | 15.55 | 22.75 | 10.38 | 2.50 | .63 x .63 | 4.00 | 6.50 | 2.06 | 6.50          | 4        | 0.81     | 533        | 568 |

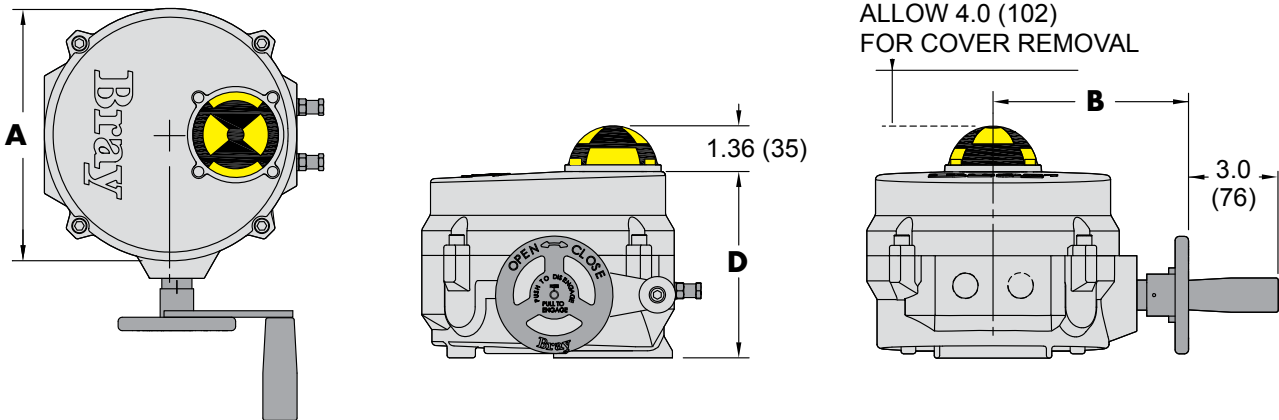
| ANSI CLASS 300 (Series 43) DIMENSIONS - in. |       |      |       |       |       |       |      |           |      |       |      | Mounting Data |          |          | WEIGHT lbs |     |
|---|-------|------|-------|-------|-------|-------|------|-----------|------|-------|------|---------------|----------|----------|------------|-----|
| Size  | ØA¹   | B    | ØC²   | D     | E     | F     | ØG   | H         | J    | K     | L    | Bolt Circle   | Hole Qty | Hole Dia | Wafer      | Lug |
| 2 ½   | 4.75  | 1.88 | 2.32  | 3.82  | 6.38  | 4.36  | 0.63 | 0.43      | 1.25 | 2.50  | 0.77 | 2.76          | 4        | 0.38     | 11         | 13  |
| 3   | 5.25  | 1.88 | 2.90  | 4.10  | 6.63  | 4.36  | 0.63 | 0.43      | 1.25 | 2.50  | 0.77 | 2.76          | 4        | 0.38     | 13         | 15  |
| 4   | 6.72  | 2.03 | 3.83  | 4.72  | 7.50  | 4.36  | 0.63 | 0.43      | 1.25 | 2.50  | 0.75 | 2.76          | 4        | 0.38     | 20         | 23  |
| 5   | 8.25  | 2.23 | 4.81  | 5.07  | 8.00  | 5.12  | 0.75 | 0.51      | 1.25 | 4.50  | 0.94 | 4.92          | 4        | 0.53     | 33         | 39  |
| 6   | 8.88  | 2.42 | 5.76  | 6.25  | 8.75  | 5.12  | 0.87 | 0.63      | 1.25 | 4.50  | 0.99 | 4.92          | 4        | 0.53     | 41         | 51  |
| 8   | 10.94 | 2.82 | 7.63  | 7.55  | 10.00 | 6.12  | 1.18 | 0.87      | 2.00 | 4.50  | 1.10 | 4.92          | 4        | 0.53     | 69         | 83  |
| 10  | 13.26 | 3.28 | 9.50  | 9.36  | 11.38 | 6.12  | 1.38 | .39 x .39 | 2.00 | 4.50  | 1.28 | 4.92          | 4        | 0.53     | 114        | 137 |
| 12  | 15.42 | 3.62 | 11.37 | 10.89 | 13.50 | 7.75  | 1.38 | .39 x .39 | 2.00 | 6.50  | 1.40 | 4.92          | 4        | 0.53     | 173        | 210 |
| 14  | 17.27 | 4.66 | 11.50 | 12.50 | 18.25 | 10.38 | 1.97 | .47 x .39 | 2.50 | 6.50  | 2.13 | 6.50          | 4        | 0.81     | 333        | 445 |
| 16  | 19.50 | 5.35 | 14.38 | 14.18 | 21.00 | 10.38 | 2.50 | .63 x .63 | 4.00 | 6.50  | 2.50 | 6.50          | 4        | 0.81     | 454        | 531 |
| 18  | 21.38 | 5.98 | 15.25 | 15.43 | 21.00 | 15.38 | 2.50 | .63 x .63 | 4.00 | 11.75 | 2.65 | 10.00         | 8        | 0.67     | 609        | 753 |
| 20  | 23.76 | 6.33 | 16.50 | 16.80 | 22.25 | 15.38 | 3.00 | .75 x .75 | 4.00 | 11.75 | 2.90 | 10.00         | 8        | 0.67     | 783        | 960 |

## MK Series Butterfly Valves - Actuator Dimensions



### COMMERCIAL ACTUATOR DIMENSIONS — in. (mm)

| Actuator Model Number | L          | M          | N         | Weight lbs. (kg) |
|-----------------------|------------|------------|-----------|------------------|
| DCS-140 Series        | 7.4 (188)  | 11.0 (279) | 4.0 (102) | 4.9 (2.2)        |
| DC-310 Series         | 7.4 (188)  | 11.0 (279) | 4.0 (102) | 4.4 (2.0)        |
| D-140/210 Series      | 6.7 (170)  | 7.5 (191)  | 4.0 (102) | 2.9 (1.3)        |
| DS-180 Series         | 7.4 (188)  | 11.0 (279) | 4.0 (102) | 6.4 (2.9)        |
| Tandem Actuators      | 11.8 (300) | 18.0 (457) | 4.0 (102) | 12.8 (5.8)       |



### INDUSTRIAL ACTUATOR DIMENSIONS — in. (mm)

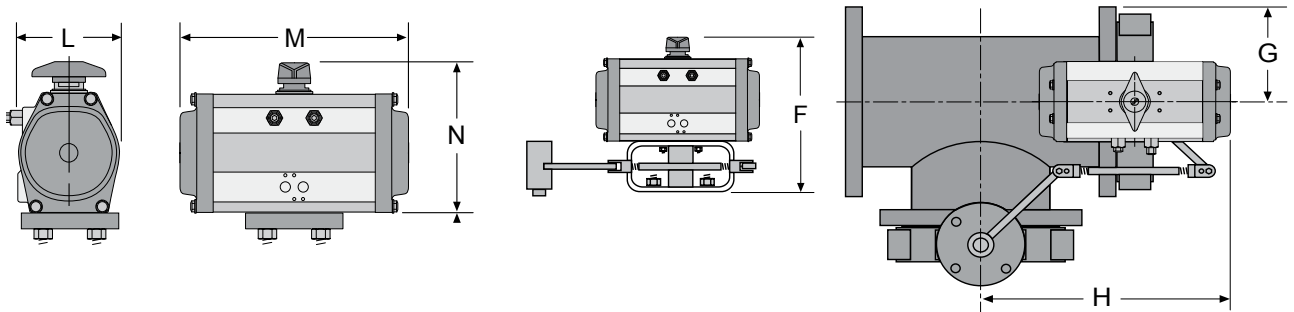
| Actuator Model Number | A          | B          | D*         |            | Weight lbs. (kg) |
|-----------------------|------------|------------|------------|------------|------------------|
|                       |            |            | 2-Way      | 3-Way      |                  |
| 70-0081               | 7.5 (191)  | 5.8 (147)  | 5.6 (141)  | 8.6 (218)  | 13 (6)           |
| 70-0121/0201/E301     | 10.1 (256) | 7.8 (198)  | 6.6 (168)  | 10.7 (273) | 28 (13)          |
| 70-0501/0651          | 12.1 (308) | 9.5 (241)  | 7.2 (183)  | 13.2 (335) | 48 (22)          |
| 70-1300/1800          | 12.1 (308) | 9.5 (241)  | 12.5 (316) | 20.5 (521) | 118 (54)         |
| AU-4068               | 32.1 (815) | 28.9 (734) | 12.3 (312) | 22.3 (566) | 195 (88)         |
| AU-7080               | 32.1 (815) | 31.9 (810) | 12.3 (312) | -          | 285 (129)        |

## MK Series Butterfly Valves - Actuator Dimensions

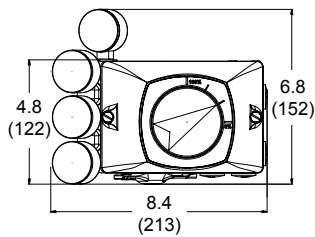
### PNEUMATIC ACTUATOR DIMENSIONS — in. (mm)

| Actuator Model Number | L          | M           | N          | F          | G          | H          | Weight lbs. (kg) |               |
|-----------------------|------------|-------------|------------|------------|------------|------------|------------------|---------------|
|                       |            |             |            |            |            |            | Double Acting    | Spring Return |
| 92/93-063             | 3.1 (79)   | 5.6 (142)   | 4.5 (114)  | 7.5 (191)  | 3.0 (76)   | 9.1 (231)  | 3.4 (1.5)        | 4.1 (1.9)     |
| 92/93-083             | 4.1 (104)  | 7.4 (188)   | 5.4 (137)  | 8.4 (213)  | 4.5 (114)  | 13.3 (338) | 6.3 (3)          | 8.1 (4)       |
| 92/93-093             | 4.4 (112)  | 9.1 (231)   | 5.8 (147)  | 8.8 (224)  | 5.5 (140)  | 14.9 (378) | 8.5 (4)          | 10.8 (5)      |
| 92/93-119             | 5.2 (132)  | 12.4 (325)  | 7.3 (185)  | 11.4 (290) | 8.0 (203)  | 19.9 (505) | 16.9 (8)         | 22.3 (10)     |
| 92/93-128             | 5.6 (142)  | 12.8 (734)  | 8.1 (2.6)  | 12.2 (310) | 8.0 (203)  | 19.9 (505) | 21.0 (10)        | 27.6 (13)     |
| 92/93-160             | 7.2 (183)  | 15.5 (394)  | 9.4 (239)  | 13.5 (343) | 10.5 (267) | 26.6 (676) | 38.8 (18)        | 53.2 (24)     |
| 92/93-210             | 9.0 (229)  | 19.6 (498)  | 11.6 (295) | 17.6 (447) | 13.8 (351) | 33.1 (841) | 77.8 (35)        | 109.6 (50)    |
| 92/93-255             | 10.8 (274) | 28.8 (732)  | 13.5 (343) | 19.5 (495) | 13.8 (351) | 33.1 (841) | 167.0 (76)       | 210.8 (96)    |
| 98-45E2-...           | 14.8 (376) | 52.8 (1341) | 9.7 (246)  | -          | -          | -          | 183 (83)         | 355 (161)     |
| 98-14E3-...           | 21.3 (541) | 72.6 (1844) | 12.1 (307) | -          | -          | -          | 485 (220)        | 937 (425)     |
| 98-73E2-...           | 16.8 (427) | 60.1 (1527) | 11.8 (300) | -          | -          | -          | 254 (115)        | 547 (248)     |

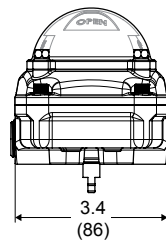
Allow 3.0" for Series 92/93 actuator removal and up to 12" for Series 98



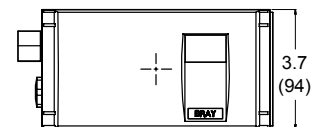
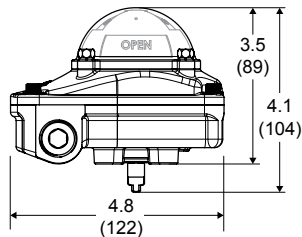
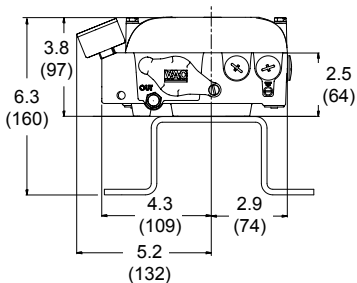
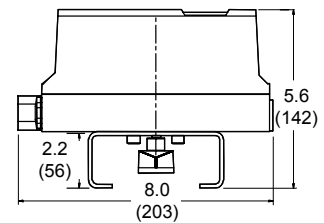
**VP200 Pneumatic Positioner**



**Series 5A Switch Box**



**Series 6A Electro Pneumatic Positioner**



## MK Series Butterfly Valves - Close-Off Charts

### MK Series Butterfly Valves 2 & 3-Way with NSR/SR DC-Series Commercial Electric Actuators (ANSI 150)

2-Way

| 2-Way, On/Off or Floating - ANSI 150 |      |     |               |     |     |                   |              |               |            |
|--------------------------------------|------|-----|---------------|-----|-----|-------------------|--------------|---------------|------------|
| Actuator Model Details               |      |     |               |     |     | Non-Spring Return |              | Spring Return |            |
|                                      |      |     |               |     |     | DC24-310-T        | DC24-310-T-D | DS24-180      | DS24-180-D |
| Model Number                         | Size |     | Close-Off PSI | Cv  |     | Floating          |              | On/Off        |            |
|                                      | In.  | mm  |               | 90° | 60° | 24 VAC            |              | 24 VAC/DC     |            |
|                                      | 2.5  | 65  | 285           | 160 | 78  | x                 | -            | x             | -          |
| MKL2-C030                            | 3    | 80  |               | 185 | 123 | x                 | -            | -             | x          |
| MKL2-C040                            | 4    | 100 |               | 375 | 250 | -                 | x            | -             | x          |

| 2-Way, Modulating - ANSI 150 |      |     |               |     |     |                   |             |               |             |
|------------------------------|------|-----|---------------|-----|-----|-------------------|-------------|---------------|-------------|
| Actuator Model Details       |      |     |               |     |     | Non-Spring Return |             | Spring Return |             |
|                              |      |     |               |     |     | DCM24-310         | DCM24-310-D | DMS24-180     | DMS24-180-D |
| Model Number                 | Size |     | Close-Off PSI | Cv  |     | Modulating        |             |               |             |
|                              | In.  | mm  |               | 90° | 60° | 24 VAC            |             | 24 VAC/DC     |             |
| MKL2-C025                    | 2.5  | 65  | 285           | 160 | 78  | x                 | -           | x             | -           |
| MKL2-C030                    | 3    | 80  |               | 185 | 123 | x                 | -           | -             | x           |
| MKL2-C040                    | 4    | 100 |               | 375 | 250 | -                 | x           | -             | x           |

3-Way

| 3-Way, On/Off or Floating - ANSI 150 |      |     |               |     |     |                   |              |               |            |
|--------------------------------------|------|-----|---------------|-----|-----|-------------------|--------------|---------------|------------|
| Actuator Model Details               |      |     |               |     |     | Non-Spring Return |              | Spring Return |            |
|                                      |      |     |               |     |     | DC24-310-T        | DC24-310-T-D | DS24-180      | DS24-180-D |
| Model Number                         | Size |     | Close-Off PSI | Cv  |     | Floating          |              | On/Off        |            |
|                                      | In.  | mm  |               | 90° | 60° | 24 VAC            |              | 24 VAC/DC     |            |
| MKL3-x025                            | 2.5  | 65  | 285           | 160 | 78  | x                 | -            | -             | x          |
| MKL3-x030                            | 3    | 80  |               | 185 | 123 | -                 | x            | -             | x          |
| MKL3-x040                            | 4    | 100 |               | 375 | 250 | -                 | x            | -             | -          |

| 3-Way, Modulating - ANSI 150 |      |     |               |     |     |                   |             |               |             |
|------------------------------|------|-----|---------------|-----|-----|-------------------|-------------|---------------|-------------|
| Actuator Model Details       |      |     |               |     |     | Non-Spring Return |             | Spring Return |             |
|                              |      |     |               |     |     | DCM24-310         | DCM24-310-D | DMS24-180     | DMS24-180-D |
| Model Number                 | Size |     | Close-Off PSI | Cv  |     | Modulating        |             |               |             |
|                              | In.  | mm  |               | 90° | 60° | 24 VAC            |             | 24 VAC/DC     |             |
| MKL3-x025                    | 2.5  | 65  | 285           | 160 | 78  | x                 | -           | -             | x           |
| MKL3-x030                    | 3    | 80  |               | 185 | 123 | -                 | x           | -             | x           |
| MKL3-x040                    | 4    | 100 |               | 375 | 250 | -                 | x           | -             | -           |

**Options/Adders**  
 For optional auxiliary switches, add -A to the end of the actuator part number.  
 X = 3-Way Assemblies (Refer to Configuration Chart, Page 22)  
 For Spring Return Units:  
 N = Normally Open  
 C = Normally Closed - Factory default  
 -D = Dual mounted actuators

## MK Series Butterfly Valves - Close-Off Charts

### MK Series Butterfly Valves 2-Way with Industrial Electric Actuators (ANSI 150)

| 2-Way, 120 VAC, On/Off & Modulating - ANSI 150 |      |     |       |      |                                     |           |            |   |           |            |
|--|------|-----|-------|------|-------------------------------------|-----------|------------|---|-----------|------------|
| Actuator Model Details                         |      |     |       |      | Series 70<br>Seat Retainer UPSTREAM |           |            | Series 70 & AU Series<br>Seat Retainer DOWNSTREAM |           |            |
| Valve Model<br>Details                         | Size |     | Cv    |      | Close-Off<br>PSI                    | On/Off    | Modulating | Close-Off<br>PSI                                  | On/Off    | Modulating |
|  | In.  | mm  | 90°   | 60°  |                                     | 120 VAC   | 120 VAC    |   | 120 VAC   | 120 VAC    |
| MKL2-C025                                      | 2.5  | 65  | 160   | 78   | 285                                 | 70-0081   | 70-0081SV  | 285   | 70-0081   | 70-0081SV  |
| MKL2-C030                                      | 3    | 80  | 185   | 123  |                                     | 70-0081   | 70-0081SV  |   | 70-0081   | 70-0081SV  |
| MKL2-C040                                      | 4    | 100 | 375   | 250  |                                     | 70-0081   | 70-0081SV  |   | 70-0081   | 70-0081SV  |
| MKL2-C050                                      | 5    | 125 | 790   | 360  |                                     | 70-0121   | 70-0121SV  |   | 70-0121   | 70-0121SV  |
| MKL2-C060                                      | 6    | 150 | 1350  | 510  |                                     | 70-0121   | 70-0121SV  |   | 70-0121   | 70-0121SV  |
| MKL2-C080                                      | 8    | 200 | 2800  | 1060 |                                     | 70-0201   | 70-0201SV  |   | 70-E301   | 70-E301SV  |
| MKL2-C100                                      | 10   | 250 | 4300  | 1630 |                                     | 70-E301   | 70-E301SV  |   | 70-0501   | 70-0501SV  |
| MKL2-C120                                      | 12   | 300 | 6650  | 2530 |                                     | 70-0501   | 70-0501SV  |   | 70-0651   | 70-0651SV  |
| MKL2-C140                                      | 14   | 350 | 7650  | 2900 |                                     | 70-0651   | 70-0651SV  |   | 70-1300   | 70-1300SV  |
| MKL2-C160                                      | 16   | 400 | 9800  | 3700 |                                     | 70-1300   | 70-1300SV  |   | 70-1800   | 70-1800SV  |
| MKL2-C180                                      | 18   | 450 | 10500 | 5100 | 70-1800                             | 70-1800SV | 250        | AU-2130   | AU-2130SV |            |
| MKL2-C200                                      | 20   | 500 | 13500 | 6500 | 200                                 | 70-1800   | 70-1800SV  | 200   | AU-2130   | AU-2130SV  |

| 2-Way, 24 VAC, On/Off & Modulating - ANSI 150 |      |     |      |      |                                     |            |              |   |            |              |
|---|------|-----|------|------|-------------------------------------|------------|--------------|---|------------|--------------|
| Actuator Model Details                        |      |     |      |      | Series 70<br>Seat Retainer UPSTREAM |            |              | Series 70 & AU Series<br>Seat Retainer DOWNSTREAM |            |              |
| Valve Model<br>Details                        | Size |     | Cv   |      | Close-Off<br>PSI                    | On/Off     | Modulating   | Close-Off<br>PSI                                  | On/Off     | Modulating   |
|   | In.  | mm  | 90°  | 60°  |                                     | 24 VAC     | 24 VAC       |   | 24 VAC     | 24 VAC       |
| MKL2-C025                                     | 2.5  | 65  | 160  | 78   | 285                                 | 70-24-0081 | 70-24-0081SV | 285   | 70-24-0081 | 70-24-0081SV |
| MKL2-C030                                     | 3    | 80  | 185  | 123  |                                     | 70-24-0081 | 70-24-0081SV |   | 70-24-0081 | 70-24-0081SV |
| MKL2-C040                                     | 4    | 100 | 375  | 250  |                                     | 70-24-0081 | 70-24-0081SV |   | 70-24-0081 | 70-24-0081SV |
| MKL2-C050                                     | 5    | 125 | 790  | 360  |                                     | 70-24-0201 | 70-24-0201SV |   | 70-24-0201 | 70-24-0201SV |
| MKL2-C060                                     | 6    | 150 | 1350 | 510  |                                     | 70-24-0201 | 70-24-0201SV |   | 70-24-0201 | 70-24-0201SV |
| MKL2-C080                                     | 8    | 200 | 2800 | 1060 |                                     | 70-24-0201 | 70-24-0201SV |   | 70-24-0501 | 70-24-0501SV |
| MKL2-C100                                     | 10   | 250 | 4300 | 1630 |                                     | 70-24-0501 | 70-24-0501SV |   | 70-24-0501 | 70-24-0501SV |
| MKL2-C120                                     | 12   | 300 | 6650 | 2530 |                                     | 70-24-0501 | 70-24-0501SV |   | -          | -            |

**Options/Adders**  
 For Heater/Thermostat kit, add "H" to the actuator part number.  
 For Battery Back-Up Failsafe Option (BBU) option on 24 VAC actuators, add "-BBU"  
 For Battery Back-UP Failsafe units:  
 N = Normally Open  
 C = Normally Closed - Factory default

**Note**  
 The actuator sizes shown here are based on maximum valve pressure rating.  
 Use "Seat Retainer Upstream for Unidirectional Close off; Use Downstream for Bi-Directional Close off  
 For applications at lower pressure requirements, consult factory for smaller actuator choices.

## MK Series Butterfly Valves - Close-Off Charts

### MK Series Butterfly Valves 2-Way with Industrial Electric Actuators (ANSI 300)

| 2-Way, 120 VAC, On/Off & Modulating - ANSI 300 |      |     |       |      |  |         |            |  |         |            |
|--|------|-----|-------|------|--|---------|------------|--|---------|------------|
| Actuator Model Details                         |      |     |       |      | Series 70 & AU Series Seat Retainer UPSTREAM |         |            | Series 70 & AU Series Seat Retainer DOWNSTREAM |         |            |
| Valve Model Details                            | Size |     | Cv    |      | Close-Off PSI                                | On/Off  | Modulating | Close-Off PSI                                  | On/Off  | Modulating |
|  | In.  | mm  | 90°   | 60°  |  | 120 VAC | 120 VAC    |  | 120 VAC | 120 VAC    |
| MKL2-C253                                      | 2.5  | 65  | 160   | 78   | 740  | 70-0081 | 70-0081SV  | 550  | 70-0081 | 70-0081SV  |
| MKL2-C033                                      | 3    | 80  | 185   | 123  | 740  | 70-0081 | 70-0081SV  | 550  | 70-0081 | 70-0081SV  |
| MKL2-C043                                      | 4    | 100 | 375   | 250  | 550  | 70-0081 | 70-0081SV  | 350  | 70-0081 | 70-0081SV  |
| MKL2-C053                                      | 5    | 125 | 790   | 360  | 350  | 70-0121 | 70-0121SV  | 550  | 70-0201 | 70-0201SV  |
| MKL2-C063                                      | 6    | 150 | 1000  | 530  | 550  | 70-0201 | 70-0201SV  | 350  | 70-0201 | 70-0201SV  |
| MKL2-C083                                      | 8    | 200 | 2000  | 950  | 350  | 70-E301 | 70-E301SV  | 550  | 70-0501 | 70-0501SV  |
| MKL2-C103                                      | 10   | 250 | 2650  | 1200 | 350  | 70-0501 | 70-0501SV  | 350  | 70-0651 | 70-0651SV  |
| MKL2-C123                                      | 12   | 300 | 4000  | 1690 | 740  | 70-1300 | 70-1300SV  | 550  | 70-1300 | 70-1300SV  |
| MKL2-C143                                      | 14   | 350 | 4100  | 1770 | 350  | 70-1300 | 70-1300SV  | 350  | 70-1800 | 70-1800SV  |
| MKL2-C163                                      | 16   | 400 | 7800  | 2970 | 350  | 70-1800 | 70-1800SV  | 740  | AU-4068 | AU-4068SV  |
| MKL2-C183                                      | 18   | 450 | 9500  | 4530 | 740  | AU-4068 | AU-4068SV  | 550  | AU-4068 | AU-4068SV  |
| MKL2-C203                                      | 20   | 500 | 11000 | 5400 | 550  | AU-4068 | AU-4068SV  | 350  | AU-4068 | AU-4068SV  |

| 2-Way, 24 VAC, On/Off & Modulating - ANSI 300 |      |     |      |      |                                  |            |              |  |            |              |
|---|------|-----|------|------|----------------------------------|------------|--------------|--|------------|--------------|
| Actuator Model Details                        |      |     |      |      | Series 70 Seat Retainer UPSTREAM |            |              | Series 70 & AU Series Seat Retainer DOWNSTREAM |            |              |
| Valve Model Details                           | Size |     | Cv   |      | Close-Off PSI                    | On/Off     | Modulating   | Close-Off PSI                                  | On/Off     | Modulating   |
|   | In.  | mm  | 90°  | 60°  |                                  | 24 VAC     | 24 VAC       |  | 24 VAC     | 24 VAC       |
| MKL2-C253                                     | 2.5  | 65  | 160  | 78   | 740                              | 70-24-0081 | 70-24-0081SV | 550  | 70-24-0081 | 70-24-0081SV |
| MKL2-C033                                     | 3    | 80  | 185  | 123  | 740                              | 70-24-0081 | 70-24-0081SV | 550  | 70-24-0081 | 70-24-0081SV |
| MKL2-C043                                     | 4    | 100 | 375  | 250  | 550                              | 70-24-0081 | 70-24-0081SV | 350  | 70-24-0081 | 70-24-0081SV |
| MKL2-C053                                     | 5    | 125 | 790  | 360  | 350                              | 70-24-0201 | 70-24-0201SV | 550  | 70-24-0201 | 70-24-0201SV |
| MKL2-C063                                     | 6    | 150 | 1000 | 530  | 550                              | 70-24-0201 | 70-24-0201SV | 350  | 70-24-0201 | 70-24-0201SV |
| MKL2-C083                                     | 8    | 200 | 2000 | 950  | 350                              | 70-24-0501 | 70-24-0501SV | 550  | 70-24-0501 | 70-24-0501SV |
| MKL2-C103                                     | 10   | 250 | 2650 | 1200 | 350                              | 70-24-0501 | 70-24-0501SV | -  | -          | -            |

**Options/Adders**

For Heater/Thermostat kit, add "H" to the actuator part number.  
 For Battery Back-Up Failsafe Option (BBU) option on 24 VAC actuators, add "-BBU"  
 For Battery Back-UP Failsafe units:  
 N = Normally Open  
 C = Normally Closed - Factory default

**Note**

The actuator sizes shown here are based on maximum valve pressure rating.  
 Use "Seat Retainer Upstream for Unidirectional Close off; Use Downstream for Bi-Directional Close off  
 For applications at lower pressure requirements, consult factory for smaller actuator choices.

## MK Series Butterfly Valves - Close-Off Charts

### MK Series Butterfly Valves 3-Way with Industrial Electric Actuators (ANSI 150)

| 3-Way, 24 VAC & 120 VAC, On/Off - ANSI 150 |      |     |                  |                      |                     |                      |            |         |
|--|------|-----|------------------|----------------------|---------------------|----------------------|------------|---------|
| Actuator Model Details                     |      |     |                  | Series 70<br>120 VAC | Series 70<br>24 VAC | AU-Series<br>120 VAC |            |         |
| Valve Model<br>Details                     | Size |     | Close-Off<br>PSI | Cv                   |                     | Model #              | Model #    | Model # |
|  | In.  | mm  |                  | 90°                  | 60°                 |                      |            |         |
| MKL3-X025                                  | 2.5  | 65  | 250              | 160                  | 78                  | 70-0081              | 70-24-0081 | -       |
| MKL3-X030                                  | 3    | 80  |                  | 185                  | 123                 | 70-0081              | 70-24-0081 | -       |
| MKL3-X040                                  | 4    | 100 |                  | 375                  | 250                 | 70-0121              | 70-24-0201 | -       |
| MKL3-X050                                  | 5    | 125 |                  | 790                  | 360                 | 70-0121              | 70-24-0201 | -       |
| MKL3-X060                                  | 6    | 150 |                  | 1350                 | 510                 | 70-0121              | 70-24-0201 | -       |
| MKL3-X080                                  | 8    | 200 |                  | 2800                 | 1060                | 70-0201              | 70-24-0201 | -       |
| MKL3-X100                                  | 10   | 250 |                  | 4300                 | 1630                | 70-0501              | 70-24-0501 | -       |
| MKL3-X120                                  | 12   | 300 |                  | 6650                 | 2530                | 70-0651              | -          | -       |
| MKL3-X140                                  | 14   | 350 |                  | 7650                 | 2900                | 70-1300              | -          | -       |
| MKL3-X160                                  | 16   | 400 |                  | 9800                 | 3700                | -                    | -          | AU-2130 |
| MKL3-X180                                  | 18   | 450 |                  | 10500                | 5100                | -                    | -          | AU-4068 |
| MKL3-X200                                  | 20   | 500 |                  | 13500                | 6500                | -                    | -          | AU-4068 |

| 3-Way, 24 VAC & 120 VAC, Modulating - ANSI 150 |      |     |                  |                      |                     |                      |              |           |
|--|------|-----|------------------|----------------------|---------------------|----------------------|--------------|-----------|
| Actuator Model Details                         |      |     |                  | Series 70<br>120 VAC | Series 70<br>24 VAC | AU-Series<br>120 VAC |              |           |
| Valve Model<br>Details                         | Size |     | Close-Off<br>PSI | Cv                   |                     | Model #              | Model #      | Model #   |
|  | In.  | mm  |                  | 90°                  | 60°                 |                      |              |           |
| MKL3-X025                                      | 2.5  | 65  | 250              | 160                  | 78                  | 70-0081SV            | 70-24-0081SV | -         |
| MKL3-X030                                      | 3    | 80  |                  | 185                  | 123                 | 70-0081SV            | 70-24-0081SV | -         |
| MKL3-X040                                      | 4    | 100 |                  | 375                  | 250                 | 70-0121SV            | 70-24-0201SV | -         |
| MKL3-X050                                      | 5    | 125 |                  | 790                  | 360                 | 70-0121SV            | 70-24-0201SV | -         |
| MKL3-X060                                      | 6    | 150 |                  | 1350                 | 510                 | 70-0121SV            | 70-24-0201SV | -         |
| MKL3-X080                                      | 8    | 200 |                  | 2800                 | 1060                | 70-0201SV            | 70-24-0201SV | -         |
| MKL3-X100                                      | 10   | 250 |                  | 4300                 | 1630                | 70-0501SV            | 70-24-0501SV | -         |
| MKL3-X120                                      | 12   | 300 |                  | 6650                 | 2530                | 70-0651SV            | -            | -         |
| MKL3-X140                                      | 14   | 350 |                  | 7650                 | 2900                | 70-1300SV            | -            | -         |
| MKL3-X160                                      | 16   | 400 |                  | 9800                 | 3700                | -                    | -            | AU-2130SV |
| MKL3-X180                                      | 18   | 450 |                  | 10500                | 5100                | -                    | -            | AU-4068SV |
| MKL3-X200                                      | 20   | 500 |                  | 13500                | 6500                | -                    | -            | AU-4068SV |

**Options/Adders**

For Heater/Thermostat kit, add "H" to the actuator part number.  
 For Battery Back-Up Failsafe Option (BBU) option on 24 VAC actuators, add "-BBU"

## MK Series Butterfly Valves - Close-Off Charts

### MK Series Butterfly Valves 2-Way with Double Acting Pneumatic Actuators (ANSI 150 & 300)

| 2-Way, Double Acting Pneumatic - ANSI 150 |      |     |                  |       |  |  |         |
|---|------|-----|------------------|-------|--|--|---------|
| Actuator Model Details                    |      |     |                  |       | Series 92<br>Seat Retainer<br>UPSTREAM | Series 92<br>Seat Retainer<br>DOWNSTREAM |         |
| Valve Model<br>Details                    | Size |     | Close-Off<br>PSI | Cv    |  |  |         |
|   | In.  | mm  |                  | 90°   | 60°                                    | Model #                                  | Model # |
| MKL2-C025                                 | 2.5  | 65  | 285              | 160   | 78                                     | S92-83                                   | S92-83  |
| MKL2-C030                                 | 3    | 80  |                  | 185   | 123                                    | S92-83                                   | S92-83  |
| MKL2-C040                                 | 4    | 100 |                  | 375   | 250                                    | S92-83                                   | S92-83  |
| MKL2-C050                                 | 5    | 125 |                  | 790   | 360                                    | S92-92                                   | S92-119 |
| MKL2-C060                                 | 6    | 150 |                  | 1350  | 510                                    | S92-92                                   | S92-119 |
| MKL2-C080                                 | 8    | 200 |                  | 2800  | 1060                                   | S92-119                                  | S92-119 |
| MKL2-C100                                 | 10   | 250 |                  | 4300  | 1630                                   | S92-128                                  | S92-160 |
| MKL2-C120                                 | 12   | 300 |                  | 6650  | 2530                                   | S92-160                                  | S92-210 |
| MKL2-C140                                 | 14   | 350 |                  | 7650  | 2900                                   | S92-210                                  | S92-210 |
| MKL2-C160                                 | 16   | 400 |                  | 9800  | 3700                                   | S92-210                                  | S92-255 |
| MKL2-C180                                 | 18   | 450 |                  | 10500 | 5100                                   | S92-255                                  | S92-255 |
| MKL2-C200                                 | 20   | 500 |                  | 13500 | 6500                                   | S92-255                                  | S92-255 |

| 2-Way, Double Acting Pneumatic - ANSI 300 |      |     |                  |      |  |  |                 |
|---|------|-----|------------------|------|--|--|-----------------|
| Actuator Model Details                    |      |     |                  |      | Series 92<br>Seat Retainer<br>UPSTREAM | Series 92<br>Seat Retainer<br>DOWNSTREAM |                 |
| Valve Model<br>Details                    | Size |     | Close-Off<br>PSI | Cv   |  |  |                 |
|   | In.  | mm  |                  | 90°  | 60°                                    | Model #                                  | Model #         |
| MKL2-C253                                 | 2.5  | 65  | 740              | 160  | 78                                     | S92-83                                   | S92-83          |
| MKL2-C033                                 | 3    | 80  |                  | 185  | 123                                    | S92-83                                   | S92-93          |
| MKL2-C043                                 | 4    | 100 |                  | 375  | 250                                    | S92-83                                   | S92-93          |
| MKL2-C053                                 | 5    | 125 |                  | 790  | 360                                    | S92-119                                  | S92-128         |
| MKL2-C063                                 | 6    | 150 |                  | 1000 | 530                                    | S92-119                                  | S92-160         |
| MKL2-C083                                 | 8    | 200 |                  | 2000 | 950                                    | S92-160                                  | S92-160         |
| MKL2-C103                                 | 10   | 250 |                  | 2650 | 1200                                   | S92-210                                  | S92-210         |
| MKL2-C123                                 | 12   | 300 |                  | 4000 | 1690                                   | S92-210                                  | S92-255         |
| MKL2-C143                                 | 14   | 350 |                  | 4100 | 1770                                   | S92-255                                  | S92-255         |
| MKL2-C163                                 | 16   | 400 |                  | 7800 | 2970                                   | S92-255                                  | Consult Factory |

**Options/Adders**

- \* For Manual Override, add "-5" to the end of the part number.
- \* Manual overrides sized for seat retainer upstream. For seat retainer downstream, consult factory.

**Note**

The actuator sizes shown here are based on maximum valve pressure rating.  
Use "Seat Retainer Upstream for Unidirectional Close off; Use Downstream for Bi-Directional Close Off  
For applications at lower pressure requirements, consult factory for smaller actuator choices.

## MK Series Butterfly Valves - Close-Off Charts

### MK Series Butterfly Valves 2-Way with Spring Return Pneumatic Actuators (ANSI 150 & 300)

| 2-Way, Spring Return - ANSI 150 |           |     |                  |      |  |                            |  |                            |                              |
|---------------------------------|-----------|-----|------------------|------|--|----------------------------|--|----------------------------|------------------------------|
| Actuator Model Details          |           |     |                  |      | Series 92<br>Seat Retainer UP-<br>STREAM |                            | Series 92<br>Seat Retainer<br>DOWNSTREAM |                            |                              |
| Valve Model<br>Details          | Size      |     | Close-Off<br>PSI | Cv   |  | Normally<br>Open<br>(N.O.) | Normally<br>Closed<br>(N.C.)             | Normally<br>Open<br>(N.O.) | Normally<br>Closed<br>(N.C.) |
|                                 | In.       | mm  |                  | 90°  | 60°                                      | Model #                    | Model #                                  | Model #                    | Model #                      |
|                                 | MKL2-C025 | 2.5 |                  | 65   | 285                                      | 160                        | 78                                       | 93-833                     | 93-834                       |
| MKL2-C030                       | 3         | 80  | 185              | 123  |  | 93-833                     | 93-834                                   | 93-834                     | 93-836                       |
| MKL2-C040                       | 4         | 100 | 375              | 250  |  | 93-834                     | 92-836                                   | 93-934                     | 93-936                       |
| MKL2-C050                       | 5         | 125 | 790              | 360  |  | 93-1193                    | 93-1194                                  | 93-1283                    | 93-1196                      |
| MKL2-C060                       | 6         | 150 | 1350             | 510  |  | 93-1193                    | 93-1195                                  | 93-1283                    | 93-1285                      |
| MKL2-C080                       | 8         | 200 | 2800             | 1060 |  | 93-1602                    | 93-1604                                  | 93-1603                    | 93-1605                      |
| MKL2-C100                       | 10        | 250 | 4300             | 1630 |  | 93-2102                    | 93-2103                                  | 93-2103                    | 93-2105                      |
| MKL2-C120                       | 12        | 300 | 6650             | 2530 |  | 93-2103                    | 93-2105                                  | 93-2552                    | 93-2553                      |
| MKL2-C140                       | 14        | 350 | 7650             | 2900 |  | 93-2552                    | 93-2553                                  | 93-2553                    | 93-2555                      |
| MKL2-C160                       | 16        | 400 | 9800             | 3700 |  | 93-2553                    | 93-2555                                  | Consult Factory            |                              |

| 2-Way, Spring Return - ANSI 300 |           |     |                  |      |  |                            |  |                            |                              |
|---------------------------------|-----------|-----|------------------|------|--|----------------------------|--|----------------------------|------------------------------|
| Actuator Model Details          |           |     |                  |      | Series 92<br>Seat Retainer UP-<br>STREAM |                            | Series 92<br>Seat Retainer<br>DOWNSTREAM |                            |                              |
| Valve Model<br>Details          | Size      |     | Close-Off<br>PSI | Cv   |  | Normally<br>Open<br>(N.O.) | Normally<br>Closed<br>(N.C.)             | Normally<br>Open<br>(N.O.) | Normally<br>Closed<br>(N.C.) |
|                                 | In.       | mm  |                  | 90°  | 60°                                      | Model #                    | Model #                                  | Model #                    | Model #                      |
|                                 | MKL2-C253 | 2.5 |                  | 65   | 740                                      | 160                        | 78                                       | 93-934                     | 93-1193                      |
| MKL2-C033                       | 3         | 80  | 185              | 123  |  | 93-934                     | 93-1193                                  | 93-1193                    | 93-1194                      |
| MKL2-C043                       | 4         | 100 | 375              | 250  |  | 93-1193                    | 93-1194                                  | 93-1283                    | 93-1196                      |
| MKL2-C053                       | 5         | 125 | 790              | 360  |  | 93-1603                    | 93-1604                                  | 93-1604                    | 93-1606                      |
| MKL2-C063                       | 6         | 150 | 1000             | 530  |  | 93-1603                    | 93-1605                                  | 93-2102                    | 93-2104                      |
| MKL2-C083                       | 8         | 200 | 2000             | 950  |  | 93-2103                    | 93-2104                                  | 93-2104                    | 93-2106                      |
| MKL2-C103                       | 10        | 250 | 2650             | 1200 |  | 93-2552                    | 93-2553                                  | 93-2553                    | 93-2555                      |
| MKL2-C123                       | 12        | 300 | 4000             | 1690 |  | 93-2553                    | 93-2555                                  | Consult Factory            |                              |

#### Options/Adders

\* For Manual Override, add "-5" to the end of the part number.  
 \* Manual overrides sized for seat retainer upstream. For seat retainer downstream, consult factory.  
 For Spring Return Units:  
 N = Normally Open  
 C = Normally Closed - Factory default

#### Note

The actuator sizes shown here are based on maximum valve pressure rating.  
 Use "Seat Retainer Upstream for Unidirectional Close off; Use Downstream for Bi-Directional Close off  
 For applications at lower pressure requirements, consult factory for smaller actuator choices.

## MK Series Butterfly Valves - Close-Off Charts

### MK Series Butterfly Valves 3-Way with Double Acting & Spring Return Pneumatic Actuators (ANSI 150)

| 3-Way, Double Acting Pneumatic - ANSI 150 |      |     |                  |       |                            |         |
|---|------|-----|------------------|-------|----------------------------|---------|
| Actuator Model Details                    |      |     |                  |       | Series 92<br>Double Acting |         |
| Valve Model<br>Details                    | Size |     | Close-Off<br>PSI | Cv    |                            | Model # |
|   | In.  | mm  |                  | 90°   | 60°                        |         |
| MKL3-x025                                 | 2.5  | 65  | 250              | 160   | 78                         | S92-083 |
| MKL3-x030                                 | 3    | 80  |                  | 185   | 123                        | S92-083 |
| MKL3-x040                                 | 4    | 100 |                  | 375   | 250                        | S92-083 |
| MKL3-x050                                 | 5    | 125 |                  | 790   | 360                        | S92-119 |
| MKL3-x060                                 | 6    | 150 |                  | 1350  | 510                        | S92-119 |
| MKL3-x080                                 | 8    | 200 |                  | 2800  | 1060                       | S92-128 |
| MKL3-x100                                 | 10   | 250 |                  | 4300  | 1630                       | S92-160 |
| MKL3-x120                                 | 12   | 300 |                  | 6650  | 2530                       | S92-210 |
| MKL3-x140                                 | 14   | 350 |                  | 7650  | 2900                       | S92-210 |
| MKL3-x160                                 | 16   | 400 |                  | 9800  | 3700                       | S92-255 |
| MKL3-x180                                 | 18   | 450 |                  | 10500 | 5100                       | S92-255 |
| MKL3-x200                                 | 20   | 500 |                  | 13500 | 6500                       | S92-255 |

| 3-Way, Spring Return Pneumatic - ANSI 150 |      |     |                  |       |                            |                 |
|---|------|-----|------------------|-------|----------------------------|-----------------|
| Actuator Model Details                    |      |     |                  |       | Series 92<br>Spring Return |                 |
| Valve Model<br>Details                    | Size |     | Close-Off<br>PSI | Cv    |                            | Model #         |
|   | In.  | mm  |                  | 90°   | 60°                        |                 |
| MKL3-x025                                 | 2.5  | 65  | 250              | 160   | 78                         | S93-924         |
| MKL3-x030                                 | 3    | 80  |                  | 185   | 123                        | S93-924         |
| MKL3-x040                                 | 4    | 100 |                  | 375   | 250                        | S93-1193        |
| MKL3-x050                                 | 5    | 125 |                  | 790   | 360                        | S93-1284        |
| MKL3-x060                                 | 6    | 150 |                  | 1350  | 510                        | S93-1603        |
| MKL3-x080                                 | 8    | 200 |                  | 2800  | 1060                       | S93-2103        |
| MKL3-x100                                 | 10   | 250 |                  | 4300  | 1630                       | S93-2552        |
| MKL3-x120                                 | 12   | 300 |                  | 6650  | 2530                       | S93-2553        |
| MKL3-x140                                 | 14   | 350 |                  | 7650  | 2900                       | S93-2553        |
| MKL3-x160                                 | 16   | 400 |                  | 9800  | 3700                       | Consult Factory |
| MKL3-x180                                 | 18   | 450 |                  | 10500 | 5100                       | Consult Factory |
| MKL3-x200                                 | 20   | 500 |                  | 13500 | 6500                       | Consult Factory |

**Options/Adders**

X = 3-Way Assemblies (Refer to Configuration Chart, Page 22)

\* For Manual Override, add "-5" to the end of the part number.

\* Manual overrides sized for seat retainer upstream. For seat retainer downstream, consult factory.

# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

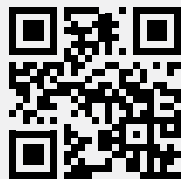
- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

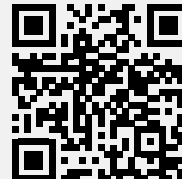
### **CORPORATE HEADQUARTERS**

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454




### **DIVISION HEADQUARTERS**

**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)



All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

| DOCUMENT                        |   |
|---------------------------------|---|
| CONTENTS                        | Features  |
|                                 | Specifications  |
|                                 | Cv Tables   |
|                                 | Cut-Away View   |
|                                 | Dimensions  |
| LOOKING FOR MORE                | Close-Off Charts  |
|                                 |  |
| © 2026 Bray International, Inc. |   |
| 05/17/26                        |   |

## GA(S) Series - Linear Valve Actuators

- Non-Spring Return - GA24-562
- Spring Return - GASRE24-450
- Spring Return - GASEX24-450

### Application

The GA(S) Series is a direct mount line of linear motor actuators to be used primarily on PIC and Globe Valves. The patented drive-valve coupling allows the drive to be connected to the valve automatically as soon as the power is applied to the actuator. An external crank handle enables the desired position to be set manually as well. Microprocessor technology enables the actuator to identify the functions required and to adapt itself automatically to the control valve properties.

These actuators operate on 24V AC or DC power supply. The control signal operates on 0-10VDC, 4-20mA, On/Off (2-point), or Floating (3-point). The position feedback signal operates on 0-10VDC.

These actuators operate both 2 and 3-Way valves and are available in non-spring return and spring return versions. The GA(S) series is bi-directional, selectable via screw terminals.



### Features and Benefits

- **Easy Assembly with Valve**

*Stem connection takes place automatically after application of control voltage*

- **Works with Bray Simple Set Max and Most Globe Valve Brands**

*Multiple adaptors allow assembly on third-party valves*

*Spring return versions allow for fail-open or fail-closed configurations*

- **Automatic Adaptation to Valve Stroke**

*Built-in intelligence matches the actuator to the valve stroke.*

- **Easy Configurability**

*Meets the requirements of virtually any heat exchanger control application.*

- **Spring Return Models**

*Available "fail up/retracted" and "fail down/extended"*

## GA(S) Series - Technical Specifications

| Technical Specifications - Actuator    |   |   |
|--|---|---|
| Non-Spring Return                      | GA24-562  | On/Off, Floating and Modulating                           |
| Spring Return                          | GASRE24-450   | On/Off, Floating and Modulating, Shaft Normally Retracted |
|  | GASEX24-450   | On/Off, Floating and Modulating, Shaft Normally Extended  |
| Power Requirements                     | On/Off, Floating and Modulating   | 24 VAC (±20%) at 50/60 Hz or 24 VDC (±15%)                |
| Positioner <sup>1</sup>                | Control Signal 1  | 0 to 10 V, Ri > 100 kΩ                                    |
|  | Control Signal 2  | 4 to 20 mA, Ri = 50Ω                                      |
|  | Position Feedback Signal  | 0 to 10 V, Load >10 kΩ                                    |
| Action                                 | Direct or Reverse Acting  |   |
| Switching Range                        | 300 mv  |   |
| Power Consumption <sup>2</sup>         | Non-Spring Return   | 10W, 18VA   |
|  | Spring Return   | 7.5W, 20VA  |
| Force                                  | Non-Spring Return   | 562 lbf (2,500 N)   |
|  | Spring Return   | 450 lbf (2,000 N) Power Stroke and Spring Stroke          |
| Stroke                                 | 0" to 1.93" (0-49mm)  |   |
| Max. Temperature of Media <sup>3</sup> | 248°F (120°C)   |   |
| Ambient Conditions                     | Temperature   | 14°F to 131°F (-10° to 55°C)                              |
|  | Humidity  | 0 to 95% RH without condensation                          |
|  | Storage Temperature   | -4°F to 158°F (-20° to 70°C)                              |
| Level of Protection                    | IP 66. Not intended for outdoor use without additional protection.  |   |
| Enclosure                              | Self-extinguishing plastic  |   |
| Gear Materials                         | Gears & Gearbox   | Steel   |
|  | Mounting Column   | Stainless Steel   |
|  | Mounting Bracket  | Cast Light Alloy  |
| Electrical Connection                  | 13 AWG (2.5 mm <sup>2</sup> ) with screw terminals.<br>Three knock-out cable entries for M20×1.5 (2×) and M16×1.5 |   |
| Motor Run Time sec. per in. (mm)       | 51 (2), 102 (4), 153 (6), DIP Switch Adjustable   |   |
| Spring Run Time <sup>4</sup>           | 15... 30 seconds  |   |
| Number of Spring Returns               | > 40,000  |   |
| Response Time - 3-Point                | 200 ms  |   |
| Weights                                | Non-Spring Return   | 9.1 lbs. (4.1 kg)   |
|  | Spring Return   | 12.3 lbs. (5.6 kg)  |
| Agency Certifications                  | CE, UL Listed - Temperature-Indicating and Regulating Equipment, XAPX, XAPX7. File E366456                        |   |
| Warranty                               | 5 Years limited from time of shipment.  |   |

<sup>1</sup> Also for On/Off (2-point) or Floating (3 point) depending on the connection for 24V-

<sup>2</sup> Design the transformers for this value, otherwise functional faults may occur.

<sup>3</sup> An intermediate piece is required for media temperatures between 248°F (120°C) and 464°F (240°C)

<sup>4</sup> The return time corresponds to a stroke of 0.55 in. (14 mm) to 1.58 in. (40 mm) and does not depend on the set run time.

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards.

For application at conditions beyond these specifications consult the local Bray office.

Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

## GA(S) - Curve Characteristic Switch Settings

| DIP Switch Position | Characteristic Curve for Actuator Drive |                      | Retract/ Extend Position |
|---------------------|---|----------------------|--------------------------|
|                     | Wired to Terminal 2b                    | Wired to Terminal 2a |                          |
|                     |   |                      | <b>RETRACTED</b><br>     |
|                     |   |                      | <b>EXTENDED</b><br>      |
|                     |   |                      |                          |
|                     |   |                      |                          |

Note: When using a 4-20 mA control signal, the actuator drive's characteristic curves remain unchanged. When wired for 4-20 mA control...  
 - 4 mA command results in the same drive response as 0 VDC  
 - 20 mA command results in the same drive response as 10 VDC

## GA(S) - Default Assembly Settings

| Valve       | Desired Characteristic Curve | Switch Coding | Characteristic Curve for Valve | Characteristic Curve for Drive | Effect on Valve |
|-------------|------------------------------|---------------|--------------------------------|--------------------------------|-----------------|
| Globe Valve | Equal Percentage             |               |                                |                                |                 |
| PIC Valve   | Equal Percentage             |               |                                |                                |                 |

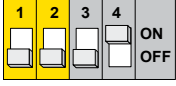
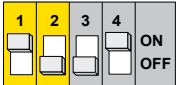
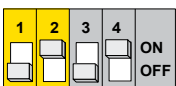
Note: the graphs shown for the default assembly settings apply only to the valves that close in the down (extended) position and open in the up (retracted) position.

### Model Number Selection Chart

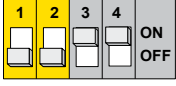
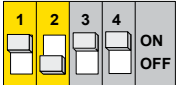
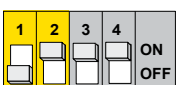
| Model Number | Force in. lbf | Voltage | Control Signal                   | Auxiliary Switches | High Temperature Kit |
|--------------|---------------|---------|----------------------------------|--------------------|----------------------|
| GA24-562     | 562           | 24 VAC  | On/Off<br>Floating<br>Modulating | -A                 | -HT                  |

GA(S) - Stroke Times

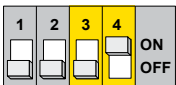

SSM Valve Stroke Times GA(S) Total Stroke = 1.93" (49mm)

| Valve Stroke      |                   | Non-Spring Return or Spring Return  |  | GA & GAS                 | GA & GAS                | GA & GAS                | GA Only                   |
|-------------------|-------------------|---|--|--------------------------|-------------------------|-------------------------|---------------------------|
|                   |                   | Switch Coding   | Size   | 2.5" & 3"<br>.79" (20mm) | 4" & 5"<br>1.58" (40mm) | 6" & 8"<br>1.69" (43mm) | 10" & 12"<br>1.89" (48mm) |
| GA(S) Stroke Time | 51 s/in. (2s/mm)  |  | Default Setting for Simple Set Max 2-1/2 thru 8" | 40 Sec.                  | 80 Sec.                 | 86 Sec.                 | 96 Sec.                   |
|                   | 102 s/in. (4s/mm) |  | Optional Setting                                 | 80 Sec.                  | 160 Sec.                | 172 Sec.                | 192 Sec.                  |
|                   | 153 s/in. (6s/mm) |  | Default Setting for 10" and 12"                  | 120 Sec.                 | 240 Sec.                | 258 Sec.                | 288 Sec.                  |

DG Valve Stroke Times GA(S) Total Stroke = 1.93" (49mm)

| Valve Stroke      |                   | Non-Spring Return or Spring Return  |                                  | GA & GAS                 | GA & GAS               |
|-------------------|-------------------|---|----------------------------------|--------------------------|------------------------|
|                   |                   | Switch Coding   | Size                             | 2.5" & 3"<br>.75" (19mm) | 4" & 6"<br>1.5" (38mm) |
| GA(S) Stroke Time | 51 s/in. (2s/mm)  |  | Default Setting for Globe Valves | 38 Sec.                  | 76 Sec.                |
|                   | 102 s/in. (4s/mm) |  | Optional Setting                 | 76 Sec.                  | 152 Sec.               |
|                   | 153 s/in. (6s/mm) |  | Optional Setting                 | 114 Sec.                 | 228 Sec.               |

Stand Alone Actuator Stroke Times GA(S) Total Stroke = 1.93" (49mm)

| Valve Stroke      |                   | Non-Spring Return or Spring Return  |  |
|-------------------|-------------------|---|--|
|                   |                   | Switch Coding   |  |
| GA(S) Stroke Time | 153 s/in. (6s/mm) |  |  =<br>Default Setting for Stand Alone GA Actuator |

## GA(S) Series - LED Display



### LED Display - The display consists of two dual-color LEDs (red/green).

|   |  |
|---|--|
| <b>Both LEDs flashing red</b>               | Calibration procedure  |
| <b>Upper LED lit red</b>                    | Upper limit stop or shaft is fully retracted   |
| <b>Lower LED lit red</b>                    | Lower limit stop or shaft is fully extended  |
| <b>Upper LED flashing green</b>             | Drive running, moving towards shaft retracted  |
| <b>Upper LED lit green</b>                  | Drive stationary, last direction of running was shaft was retracting                                     |
| <b>Lower LED flashing green</b>             | Drive running, moving towards shaft extended   |
| <b>Lower LED lit green</b>                  | Drive stationary, last direction of running shaft extending  |
| <b>Both LEDs lit green</b>                  | Waiting time after switching on or after Spring Return-Spring Return Only                                |
| <b>No LED lit</b>                           | No power supply (GAS Spring Return models, terminal 21 (GA Non-Spring return models, terminals 2a or 2b) |
| <b>Both LEDs are flashing red and green</b> | Drive is in manual mode  |

### Convenience Features

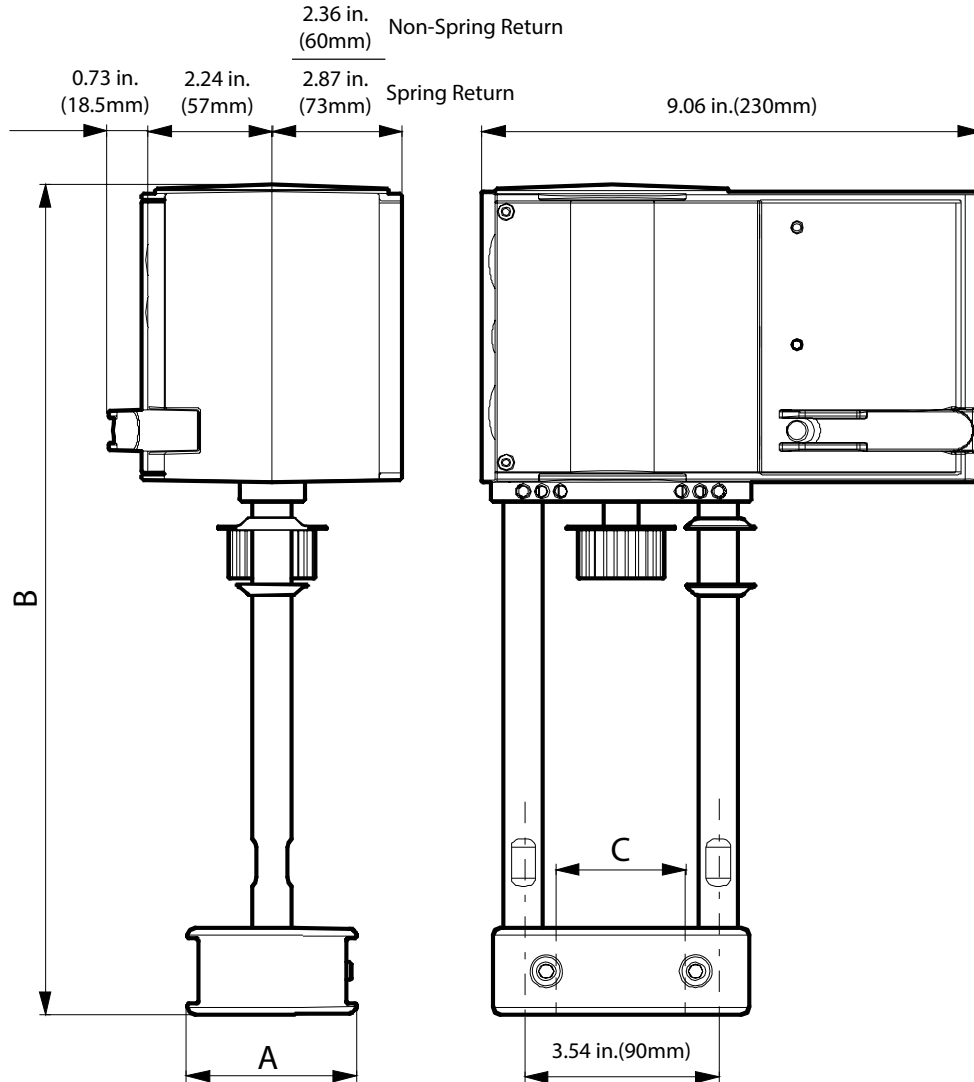
This Bray series of actuators is the most convenient retrofit actuator you can buy. This actuator calibrates itself automatically. As soon as voltage is applied to the drive for the first time, it moves to the lower limit stop on the valve, thus enabling automatic connection with the valve stem. Then it moves to the upper limit stop and the value is recorded and saved with the help of a path measurement system. The control signal and feedback signal are adjusted to this effective stroke. There is no re-calibration if the voltage is interrupted or the voltage supply is removed. The values remain saved.

The patented drive-valve coupling automatically attaches to valve spindle and easily detaches when you simply grasp the coupling and push up. There are adapters available for assembly to most globe valve manufacturers.

Furthermore, these actuators can be replaced while keeping the valve in-line for non-spring return and spring return version for both fail open and failed closed configurations.

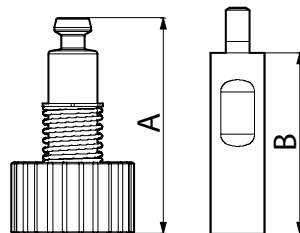


## GA(S) Series - Dimensions



| Description  | A                  | B                    | C                  |
|--------------|--------------------|----------------------|--------------------|
| GA(S) Series | 2.52 in.<br>(64mm) | 11.38 in.<br>(289mm) | 1.73 in.<br>(44mm) |

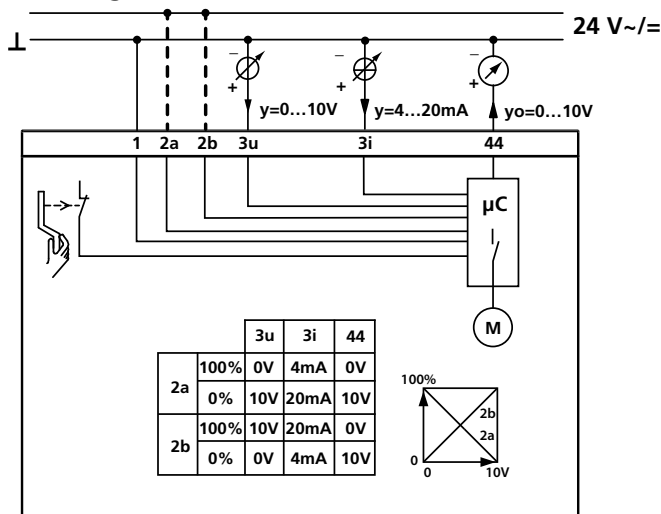
Adaptor for media temperatures between  
266°F (130°C) and 464°F (240°C)



| Part Number | A                     | B                   |
|-------------|-----------------------|---------------------|
| 0372336 240 | 4.31 in.<br>(109.4mm) | 3.94 in.<br>(100mm) |

## Non-Spring Return

### Modulating



Y = modulating signal

1= Neutral/Common for power and signal

2a/2b- These terminals determine forward acting/reverse acting. Only one should be powered with 24V.

Reverse Acting 2a = Extends. 0 volts = 100% retracted. 10V = 0% retracted.

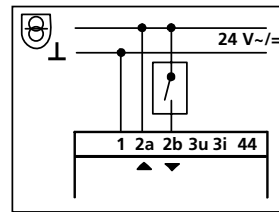
Forward Acting 2b = Retracts. 0 volts = 0% retracted. 10V = 100% retracted.

3u = 0 .. 10 V, in case of control by voltage

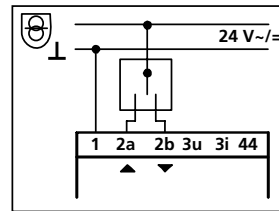
3i = 4 .. 20 mA, in case of control by current

44 = 0 .. 10 V Feedback, independent from the use of 3u or 3i

### On/Off (2 Point)



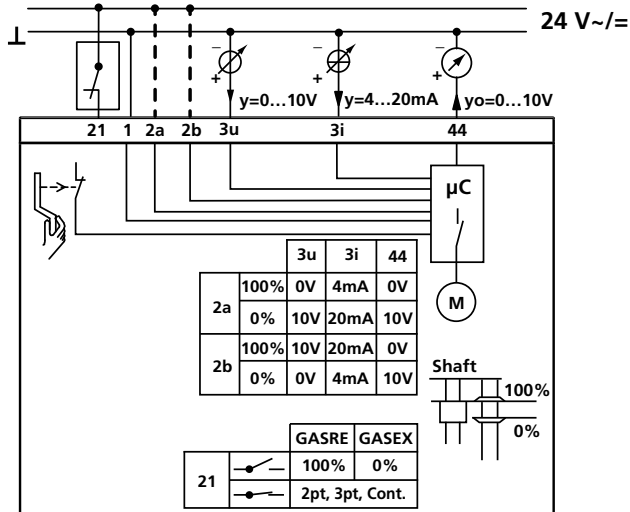
### Floating (3 Point)



= Extra Low Voltage

## Spring Return

### Modulating



Y = modulating signal

1= Neutral/Common for power and signal

2a/2b- These terminals determine forward acting/reverse acting. Only one should be powered with 24V.

Reverse Acting 2a = Extends. 0 volts = 100% retracted. 10V = 0% retracted.

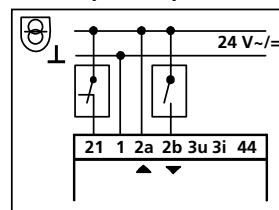
Forward Acting 2b = Retracts. 0 volts = 0% retracted. 10V = 100% retracted.

3u = 0 .. 10 V, in case of control by voltage

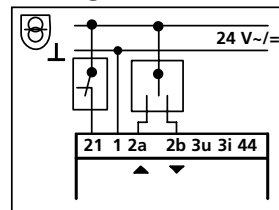
3i = 4 .. 20 mA, in case of control by current

44 = 0 .. 10 V Feedback, independent from the use of 3u or 3i

### On/Off (2 Point)



### Floating (3 Point)



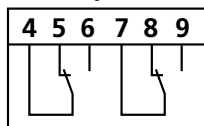
= Extra Low Voltage

## Options

0372333 001

0372333 002

(Auxillary Switches)



# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

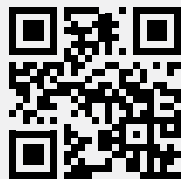
- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

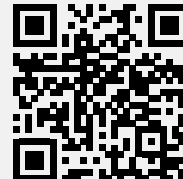
### CORPORATE HEADQUARTERS

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### DIVISION HEADQUARTERS

**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)




All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

## PA Series PA(M) Series Pressure Independent Control Valve Actuators

Starting at 27 lb-force and up to 112 lb-force

| DOCUMENT                                    |   |
|---|---|
| CONTENTS                                    | Features  |
|   | Valve Specs   |
|   | Sizing/Install Tips   |
|   | Piping Geometry   |
|   | Dimensions  |
| LOOKING FOR MORE                            | Close-Off's   |
|   |  |
| © 2026 Bray International, Inc.<br>05/18/26 |   |

### Application

The PA(M) Series is a line of linear motor actuators to be used primarily on Bray PIC Valves utilized in Building Automation Systems. These actuators are available with a multitude of options for On/Off/ Floating or Modulating with or without electronic Failsafe.

These actuators automatically calibrate to the stroke of the valve as soon as power is applied and are field selectable direct or reverse acting.

A simple, reliable, versatile solution for your Bray Commercial Simple Set pressure Independent control valves!



## PA Series Actuators - Specifications

| Technical Specifications - Actuators |  |  |  |                                   |  |                       |
|--------------------------------------|--|--|--|-----------------------------------|--|-----------------------|
| Actuator Models                      | For Valves Sizes 1/2" to 1-1/4"            |  |  |                                   | For Valves Sizes 1.5" to 2"  |                       |
|                                      | PA24-27                                    | PA24-27-FS                                 | PAM24-27   | PAM24-27-FS                       | PAM24-100  | PAM24-100-FS          |
|                                      | On/Off & Floating                          |  | Modulating   |                                   | On/Off, Floating & Modulating  |                       |
|                                      | Non-Fail Safe                              | Fail Safe                                  | Non-Fail Safe  | Fail Safe                         | Non-Fail Safe  | Fail Safe             |
| Supply Voltage                       | 22 to 26 AC/DC                             |  |  |                                   | 22 to 26 VAC or 28 to 32 VDC   |                       |
| Power Consumption                    | 5VA  | 10VA                                       | 5VA  | 10VA                              | 6VA  | 6VA, 20VA Start Up    |
| Control Signal                       | 2 Position On/Off or 3-Point Floating      |  | Analog, 0-10VDC or 2-10VDC; 4-20mA with external 500Ω resistor |                                   | 2 Position On/Off (Digital-Pulse Width Modulation), 3 Point Floating, Modulating (Analog), 2-10VDC; 4-20mA |                       |
| Input Impedance                      | 4.7 K                                      |  | 10.0 K   | 100.0 K                           | 100.0 K  |                       |
| Feedback Signal                      | No   |  | 0-10VDC or 2-10VDC   |                                   | 4 to 20 mA or 2 to 10VDC adjustable  |                       |
| Failsafe Function                    | No   | Yes (60 Sec. Runtime)                      | No   | Yes (60 Sec. Runtime)             | No   | Yes (60 Sec. Runtime) |
| Anti-Stick                           | No   |  | Optional <sup>1</sup>  |                                   | Yes  |                       |
| Operation Time                       | 120 Seconds                                |  |  |                                   | 90 Seconds   |                       |
| Enclosure Rating                     | NEMA type 3R (Equivalent to IP54)          |  |  |                                   |  |                       |
| Ambient Temperature                  | 36°F to 122°F (2°C to 50°C)                |  |  |                                   | 0°F to 122° (-18°C to 50°C)  |                       |
| Humidity Rating                      | 5 to 95% RH Non Condensing                 |  |  |                                   |  |                       |
| Connection                           | 3 wires 18 AWG halogen free cable, 3.2 ft. | 4 wires 18 AWG halogen free cable, 3.2 ft. |  |                                   | Terminal Connection. Use 18 AWG Minimum  |                       |
| Noise Rating                         | >35dBA                                     |  |  |                                   |  |                       |
| Dimensions                           | (L) 4.09" x (W) 2.08" x (H) 3.62"          |  |  | (L) 4.09" x (W) 2.08" x (H) 4.18" | (L) 4.80" x (W) 3.60" x (H) 6.93"  |                       |
| Weight                               | 0.9 lb. (0.4 kg)                           |  |  |                                   | 2.0 lb. (0.9 kg)   |                       |
| Warranty                             | 5 Years limited from time of shipment      |  |  |                                   |  |                       |
| Agency Listing                       | UL, C E                                    |  |  |                                   |  |                       |

### <sup>1</sup>Anti-Stick Option

With the anti-stick option activated, the actuator will make one full cycle every 24 hours, if the actuator constantly has been in fully open or fully closed position during the previous 24 hours. This operation will clear up any possible impurities accumulated in the valve, and re-calculate the end positions.

## PA Series Actuators - Model Number Matrix

|                     |  |
|---------------------|--|
| <b>PA24-27</b>      | <b>24V On/Off &amp; Floating - Non-Fail Safe</b>             |
| <b>PA24-27-FS</b>   | <b>24V On/Off &amp; Floating - Fail Safe</b>                 |
| <b>PAM24-27</b>     | <b>24V Modulating - Non-Fail Safe</b>                        |
| <b>PAM24-27-FS</b>  | <b>24V Modulating - Fail Safe</b>                            |
| <b>PAM24-100</b>    | <b>24V On/Off, Floating &amp; Modulating - Non-Fail Safe</b> |
| <b>PAM24-100-FS</b> | <b>24V On/Off, Floating &amp; Modulating - Fail Safe</b>     |
| <b>PAM24-112</b>    | <b>24V On/Off, Floating &amp; Modulating - Non-Fail Safe</b> |



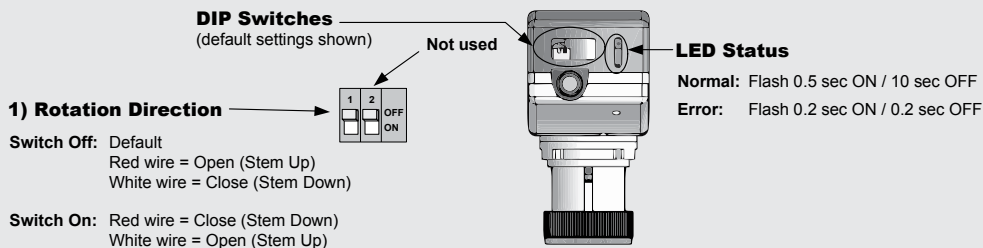
## PA Series Actuators - PA24-27

| Technical Specifications - PA24-27 Actuator |                       |   |
|---|-----------------------|---|
| Electrical                                  | Actuator Model        | PA24-27 For Simple Set PIC Valve sizes 1/2" to 1-1/4"   |
|   | Type                  | On/Off and Floating   |
|   | Force                 | 27 lb-force   |
|   | Operating Voltage     | 22 to 26 AC/DC  |
|   | Power Consumption     | 5 VA  |
|   | Input Signal          | Digital, 2 positions or 3 point floating  |
|   | Input Impedance       | 4.7 K   |
| Operation                                   | Electrical Connection | 3-wire halogen free cable 18 AWG (0.8 mm <sup>2</sup> ), 3.2 feet (1M) long)  |
|   | Fail Safe             | No  |
|   | Stall Protection      | Auto Shutoff for end of travel and jammed/stuck   |
|   | Runtime               | 120 Seconds   |
|   | Direction             | Reversible. Default - Up to Open  |
|   | Cycle Life            | 30,000  |
| Environmental                               | Manual Override       | Yes   |
|   | Enclosure Rating      | IP54 (Equivalent to NEMA 3R) - Not intended for outdoor use without additional protection.  |
|   | Ambient Conditions    | <b>Operating</b> — 36°F to 122°F (2°C to 50°C)<br><b>Media Temp.</b> — 36°F to 248°F (2°C to 120°C)<br><b>Storage</b> — -22 to 122°F (-30 to 50°C)<br><b>Humidity Rating</b> — 5 to 95% RH Non Condensing |
|   | Audible Noise Rating  | >35 dBA   |
|   | Dimensions            | (L) 4.09"x (W) 2.08"x (H) 3.62"   |
| Misc  | Weight                | 0.9 lb. (0.4 kg)  |
|   | Agency Certifications | UL, CE  |
|   | Warranty              | 5 Years limited from time of shipment.  |

### WIRING - (CABLE)



### DIP SWITCHES



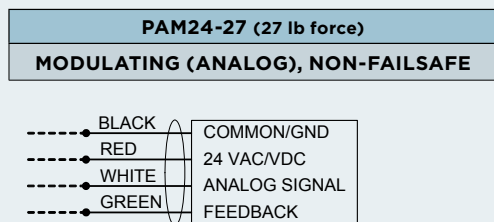
NOTE: For additional operating information consult PA24-27 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

# PA Series Actuators - PAM24-27

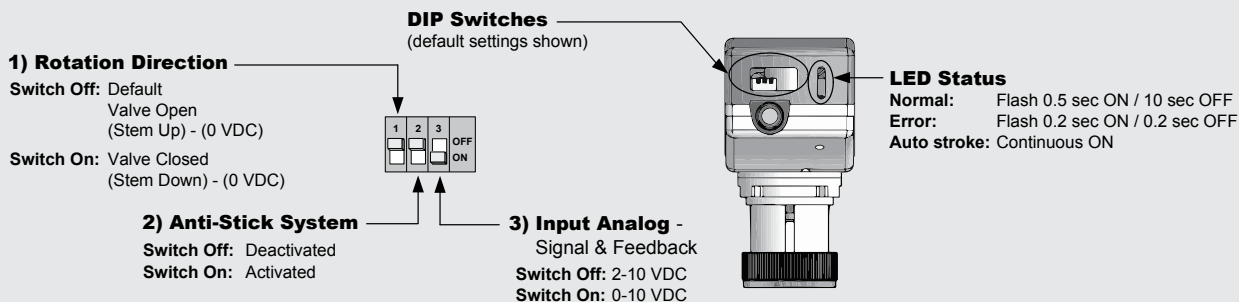


| Technical Specifications - PAM24-27 Actuator |                       |   |
|--|-----------------------|---|
| Electrical                                   | Actuator Model        | PAM24-27 For Simple Set PIC Valve sizes 1/2" to 1-1/4"  |
|  | Type                  | Modulating  |
|  | Force                 | 27 lb-force   |
|  | Operating Voltage     | 22 to 26 AC/DC  |
|  | Power Consumption     | 5 VA  |
|  | Input Signal          | Analog, 0-10VDC or 2-10VDC; 4-20mA with external 500Ω resistor  |
|  | Feedback Signal       | 0-10VDC or 2-10VDC  |
|  | Input Impedance       | 10.0 K  |
| Operation                                    | Electrical Connection | 4-wire halogen free cable 18 AWG (0.8 mm <sup>2</sup> ), 3.2 feet (1M) long)  |
|  | Fail Safe             | No  |
|  | Stall Protection      | Auto Shutoff for end of travel and jammed/stuck   |
|  | Runtime               | 120 Seconds   |
|  | Direction             | Reversible. Default - Up to Open  |
|  | Auto Stroke           | Yes   |
| Environmental                                | Cycle Life            | 30,000  |
|  | Manual Override       | Yes   |
|  | Enclosure Rating      | IP54 (Equivalent to NEMA 3R) - Not intended for outdoor use without additional protection.  |
|  | Ambient Conditions    | Operating — 36°F to 122°F (2°C to 50°C)<br>Media Temp. — 36°F to 248°F (2°C to 120°C)<br>Storage — -22 to 122°F (-30 to 50°C)<br>Humidity Rating — 5 to 95% RH Non Condensing |
|  | Audible Noise Rating  | >35 dBA   |
|  | Dimensions            | (L) 4.09"x (W) 2.08"x (H) 3.62"   |
| Misc   | Weight                | 0.9 lb. (0.4 kg)  |
|  | Agency Certifications | UL, CE  |
|  | Warranty              | 5 Years limited from time of shipment.  |

## WIRING - (CABLE)



## DIP SWITCHES



NOTE: For additional operating information consult PAM24-27 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.



## PA Series Actuators - PA24-27-FS

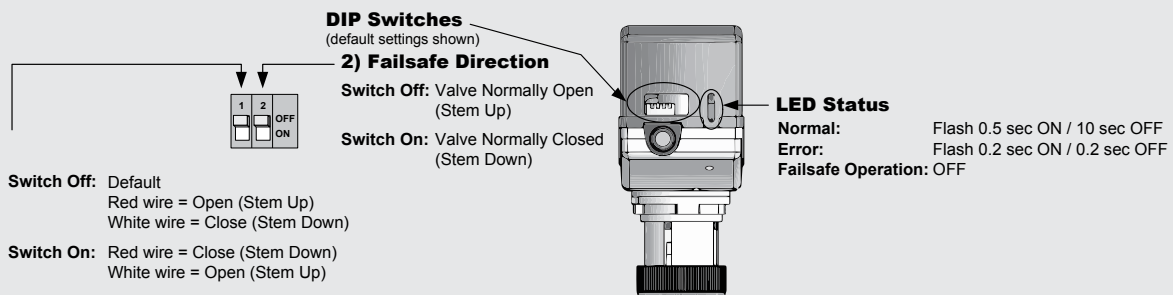
| Technical Specifications - PA24-27-FS Actuator |                       |   |
|--|-----------------------|---|
| Electrical                                     | Actuator Model        | PA24-27-FS For Simple Set PIC Valve sizes 1/2" to 1-1/4"  |
|  | Type                  | On/Off and Floating   |
|  | Force                 | 27 lb-force   |
|  | Operating Voltage     | 22 to 26 AC/DC  |
|  | Power Consumption     | 10 VA   |
|  | Input Signal          | Digital, 2 positions or 3 point floating  |
|  | Input Impedance       | 4.7 K   |
| Operation                                      | Electrical Connection | 4-wire halogen free cable 18 AWG (0.8 mm <sup>2</sup> ), 3.2 feet (1M) long)  |
|  | Fail Safe             | Yes - 60 Seconds Runtime  |
|  | Fail Safe Function    | Electronic - Enerdrive <sup>1</sup>   |
|  | Stall Protection      | Auto Shutoff for end of travel and jammed/stuck   |
|  | Runtime               | 120 Seconds   |
|  | Direction             | Reversible. Default - Up to Open  |
|  | Cycle Life            | 30,000  |
| Environmental                                  | Manual Override       | Yes   |
|  | Enclosure Rating      | IP54 (Equivalent to NEMA 3R) - Not intended for outdoor use without additional protection.  |
|  | Ambient Conditions    | <b>Operating</b> — 36°F to 122°F (2°C to 50°C)<br><b>Media Temp.</b> — 36°F to 248°F (2°C to 120°C)<br><b>Storage</b> — -22 to 122°F (-30 to 50°C)<br><b>Humidity Rating</b> — 5 to 95% RH Non Condensing |
|  | Audible Noise Rating  | >35 dBA   |
|  | Dimensions            | (L) 4.09"x (W) 2.08"x (H) 3.62"   |
| Misc   | Weight                | 0.9 lb. (0.4 kg)  |
|  | Agency Certifications | UL, CE  |
|  | Warranty              | 5 Years limited from time of shipment.  |

Note: The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to its failsafe position during a power failure. For additional operating information consult PA24-27-FS IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

### WIRING - (CABLE)



### DIP SWITCHES



NOTE: The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to its failsafe position during a power failure. For additional operating information consult PA24-27 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

# PA Series Actuators - PAM24-27-FS

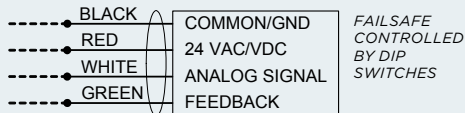


| Technical Specifications - PAM24-27-FS Actuator |                       |   |
|---|-----------------------|---|
| Electrical                                      | Actuator Model        | PAM24-27-FS For Simple Set PIC Valve sizes 1/2" to 1-1/4"   |
|   | Type                  | Modulating  |
|   | Force                 | 27 lb-force   |
|   | Operating Voltage     | 22 to 26 AC/DC  |
|   | Power Consumption     | 10 VA   |
|   | Input Signal          | Analog, 0-10VDC or 2-10VDC; 4-20mA with external 500Ω resistor  |
|   | Feedback Signal       | 0-10VDC or 2-10VDC  |
|   | Input Impedance       | 100 K   |
| Operation                                       | Electrical Connection | 4-wire halogen free cable 18 AWG (0.8 mm <sup>2</sup> ), 3.2 feet (1M) long)  |
|   | Fail Safe             | Yes - 60 Seconds Runtime  |
|   | Fail Safe Function    | Electronic - Enerdrive <sup>1</sup>   |
|   | Stall Protection      | Auto Shutoff for end of travel and jammed/stuck   |
|   | Runtime               | 120 Seconds   |
|   | Direction             | Reversible. Default - Up to Open  |
|   | Auto Stroke           | Yes   |
| Environmental                                   | Cycle Life            | 30,000  |
|   | Manual Override       | Yes   |
|   | Enclosure Rating      | IP54 (Equivalent to NEMA 3R) - Not intended for outdoor use without additional protection.  |
|   | Ambient Conditions    | <b>Operating</b> — 36°F to 122°F (2°C to 50°C)<br><b>Media Temp.</b> — 36°F to 248°F (2°C to 120°C)<br><b>Storage</b> — -22 to 122°F (-30 to 50°C)<br><b>Humidity Rating</b> — 5 to 95% RH Non Condensing |
|   | Audible Noise Rating  | >35 dBA   |
| Misc  | Dimensions            | (L) 4.09"x (W) 2.08"x (H) 3.62"   |
|   | Weight                | 0.9 lb. (0.4 kg)  |
|   | Agency Certifications | UL, CE  |
|   | Warranty              | 5 Years limited from time of shipment.  |

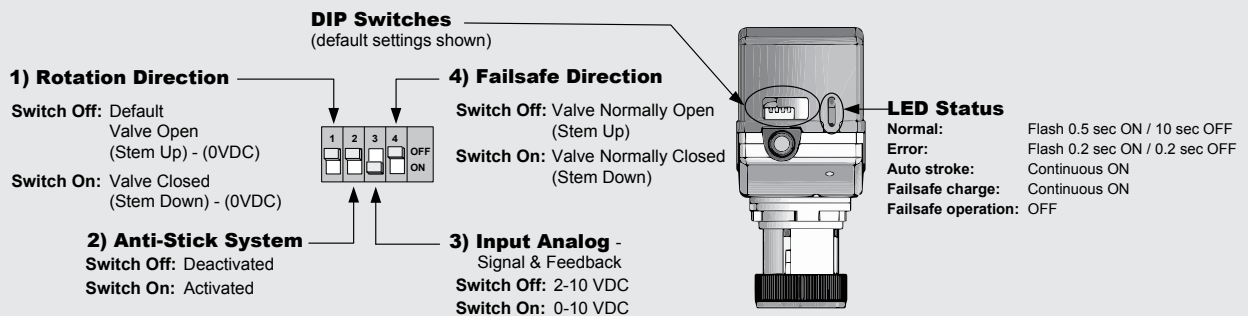
Note<sup>1</sup>: The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to it failsafe position during a power failure. For additional operating information consult PAM24-27-FS IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

## WIRING - (CABLE)

**PAM24-27-FS (27 lb force)**  
**MODULATING (ANALOG), FAILSAFE**



## DIP SWITCHES



NOTE: The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to it failsafe position during a power failure. For additional operating information consult PAM24-27 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.



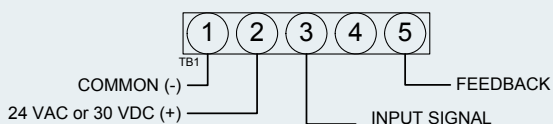
## PA Series Actuators - PAM24-100

| Technical Specifications - PAM24-100 Actuator |                       |   |
|---|-----------------------|---|
| Electrical                                    | Actuator Model        | PAM24-100 For Simple Set PIC Valve sizes 1-1/2" to 2"   |
|   | Type                  | On/Off, Floating and Modulating   |
|   | Force                 | 100 lb-force  |
|   | Operating Voltage     | 22 to 26VAC / 28 to 32 VDC  |
|   | Power Consumption     | 6 VA  |
|   | Input Signal          | 2 Position On/Off (Digital-Pulse Width Modulation),<br>3 Point Floating, Modulating (Analog), 2-10VDC; 4-20mA   |
|   | Feedback Signal       | 4 to 20 mA or 2 to 10 VDC adjustable (factory set 2-10 VDC)   |
|   | Input Impedance       | 100 K   |
| Operation                                     | Electrical Connection | 4-wire halogen free cable 18 AWG (0.8 mm <sup>2</sup> ), 3.2 feet (1M) long)<br>Terminal Connection. Use 18AWG [0.8mm <sup>2</sup> ] minimum          |
|   | Fail Safe             | No  |
|   | Stall Protection      | Auto Shutoff for end of travel and jammed/stuck   |
|   | Runtime               | 90 Seconds  |
|   | Direction             | Reversible. Default - Up to Open  |
|   | Auto Stroke           | Yes   |
|   | Cycle Life            | 60,000  |
|   | Manual Override       | Yes   |
| Environmental                                 | Enclosure Rating      | NEMA Type 2 - Not intended for outdoor use without additional protection.   |
|   | Ambient Conditions    | <b>Operating</b> — 0°F to 122°F (-18°C to 50°C)<br><b>Storage</b> — -22 to 122°F (-30 to 50°C)<br><b>Humidity Rating</b> — 5 to 95% RH Non Condensing |
|   | Audible Noise Rating  | >35 dBA   |
|   | Dimensions            | (L) 4.80"x (W) 3.60"x (H) 6.93"   |
|   | Weight                | 2.0 lb. (0.9 kg)  |
| Misc  | Agency Certifications | UL, CE  |
|   | Warranty              | 5 Years limited from time of shipment.  |

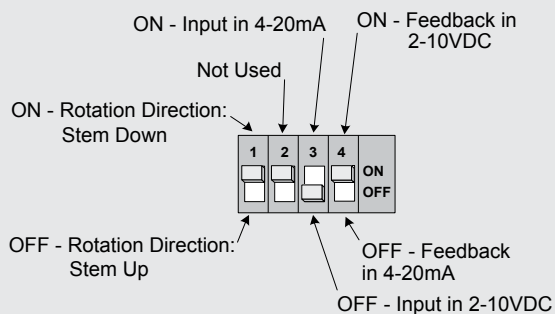
### WIRING - (TERMINAL)

**PAM24-100 (100 lb force)**

**ON/OFF, FLOATING & MODULATING (ANALOG), NON-FAILSAFE**

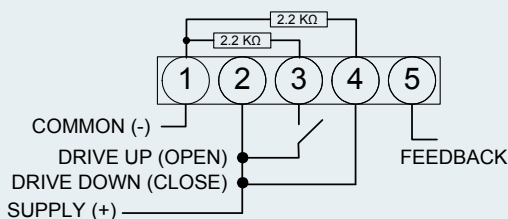


### DIP SWITCHES - DIGITAL SIGNAL

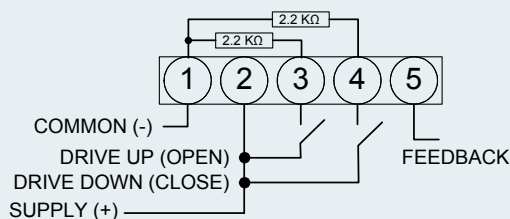


### DIGITAL SIGNAL

#### 3 WIRE / 2 POSITION ON/OFF



#### 4 WIRE / 3 POINT FLOATING



#### Special Consideration for Digital Control

In this mode, the actuator is sensitive to induced electrical voltages from external sources. To prevent such interference, if the signal on pins 4 and 3 on TB1 are from an external 24VAC source, install a resistor 2.2kohm, 0.5W between pins 4 and 1 and another of 2.2k ohms, 0.5W between pins 3 and 1 of TB1. These resistors are included.

NOTE: For additional operating information consult PAM24-100 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

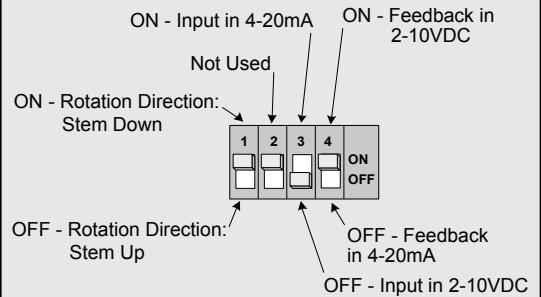
# PA Series Actuators - PAM24-100-FS



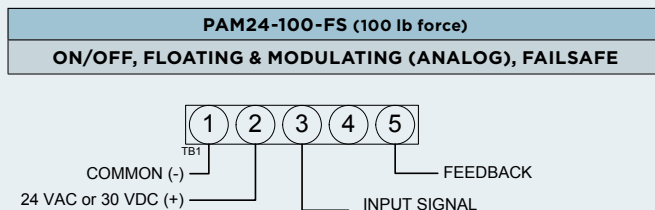
| Technical Specifications - PAM24-100-FS Actuator |                       |   |
|--|-----------------------|---|
| Electrical                                       | Actuator Model        | PAM24-100-FS For Simple Set PIC Valve sizes 1-1/2" to 2"  |
|  | Type                  | On/Off, Floating and Modulating   |
|  | Force                 | 100 lb-force  |
|  | Operating Voltage     | 22 to 26VAC / 28 to 32 VDC  |
|  | Power Consumption     | 6 VA, 20VA Start Up   |
|  | Input Signal          | 2 Position On/Off (Digital-Pulse Width Modulation),<br>3 Point Floating, Modulating (Analog), 2-10VDC; 4-20mA   |
|  | Feedback Signal       | 4 to 20 mA or 2 to 10 VDC adjustable (factory set 2-10 VDC)   |
|  | Input Impedance       | 100 K   |
| Operation  | Electrical Connection | 4-wire halogen free cable 18 AWG (0.8 mm <sup>2</sup> ), 3.2 feet (1M) long)<br>Terminal Connection. Use 18AWG [0.8mm <sup>2</sup> ] minimum          |
|  | Fail Safe             | Yes   |
|  | Fail Safe Function    | Electronic - Enerdrive <sup>1</sup>   |
|  | Stall Protection      | Auto Shutoff for end of travel and jammed/stuck   |
|  | Runtime               | 90 Seconds  |
|  | Direction             | Reversible. Default - Up to Open  |
|  | Auto Stroke           | Yes   |
| Environmental                                    | Cycle Life            | 60,000  |
|  | Enclosure Rating      | NEMA Type 2 - Not intended for outdoor use without additional protection.   |
|  | Ambient Conditions    | <b>Operating</b> — 0°F to 122°F (-18°C to 50°C)<br><b>Storage</b> — -22 to 122°F (-30 to 50°C)<br><b>Humidity Rating</b> — 5 to 95% RH Non Condensing |
|  | Audible Noise Rating  | >35 dBA   |
|  | Dimensions            | (L) 4.80"x (W) 3.60"x (H) 6.93"   |
| Misc   | Weight                | 2.0 lb. (0.9 kg)  |
|  | Agency Certifications | UL, CE  |
|  | Warranty              | 5 Years limited from time of shipment.  |

Note: The Enerdrive system is a patented method of storing energy (using super capacitors) that is later used to drive the actuator to its failsafe position during a power failure. For additional operating information consult PAM24-100-FS IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

## DIP SWITCHES - DIGITAL SIGNAL

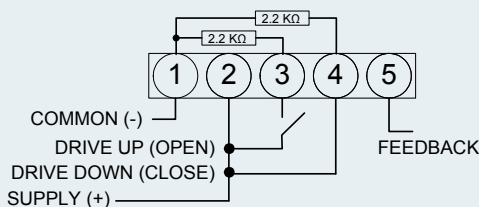


## WIRING - (TERMINAL)

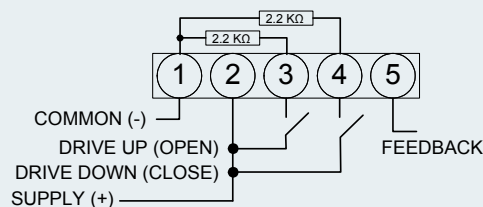


## DIGITAL SIGNAL

### 3 WIRE / 2 POSITION ON/OFF



### 4 WIRE / 3 POINT FLOATING



### Special Consideration for Digital Control

In this mode, the actuator is sensitive to induced electrical voltages **from external sources**. To prevent such interference, if the signal on pins 4 and 3 on TB1 are from an **external 24VAC source**, install a resistor 2.2kohm, 0.5W between pins 4 and 1 and another of 2.2k ohms, 0.5W between pins 3 and 1 of TB1. These resistors are included.

NOTE: For additional operating information consult PAM24-100-FS IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

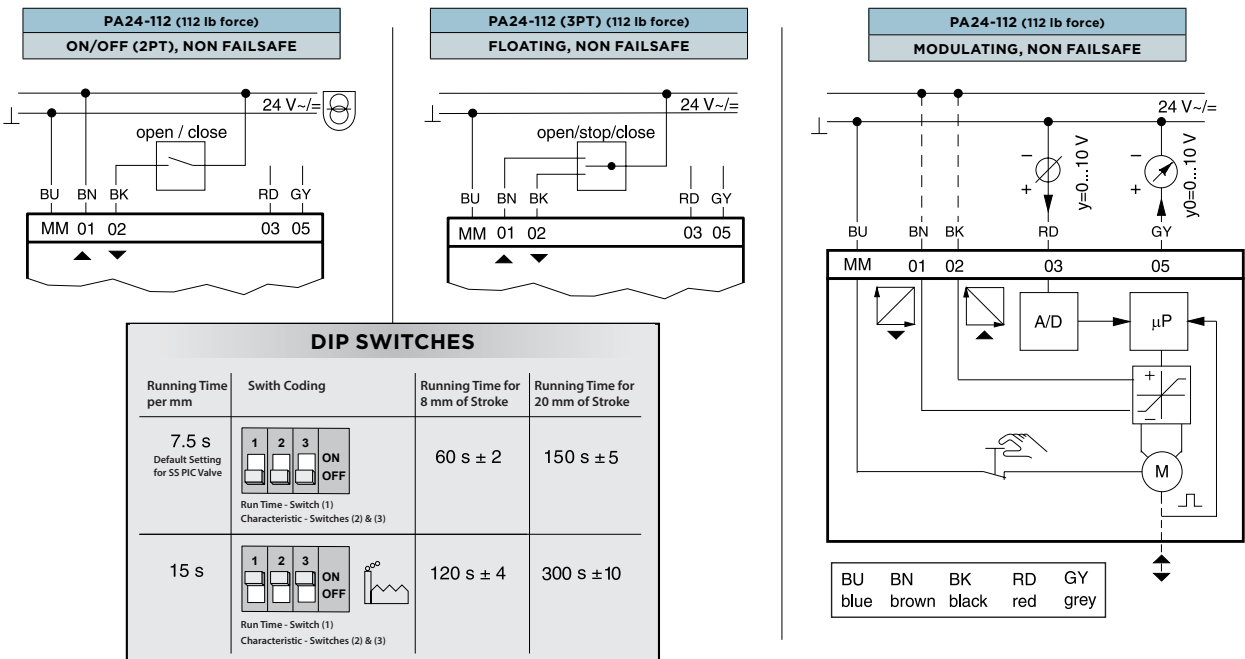
# PA Series Actuators - PAM24-112

## Technical Specifications - PAM24-112 Actuator

|               |                       | Actuator Model  | PAM24-112                     | For Simple Set 2" High Flow Valves & Simple Set Max PIC Valve sizes 2-1/2" to 3" |
|---------------|-----------------------|---|-------------------------------|--|
| Electrical    | Type                  | On/Off, Floating and Modulating   |                               |  |
|               | Force                 | 112 lb-force  |                               |  |
|               | Operating Voltage     | 24 VAC (+/-20%) at 50/60 Hz or 24 VDC (+20%, -10%)  |                               |  |
|               | Power Consumption     | 3.5 W, 6.6 VA   |                               |  |
|               | Input Signal          | On/Off, Floating and Modulating - 0 to 10 V, Ri> 100kΩ  |                               |  |
|               | Feedback Signal       | 0 to 10 V, Load> 10 kΩ  | Starting Point U <sub>0</sub> | 0 or 10 V  |
|               |                       |   | Control Span ΔU               | 10 V   |
|               |                       | Switching Range Xsh   | 200 mV                        |  |
|               | Electrical Connection | 5 x 20 AWG (0.20 mm <sup>2</sup> )  |                               |  |
| Operation     | Fail Safe             | No  |                               |  |
|               | Action                | Direct or Reverse Acting  |                               |  |
|               | Stall Protection      | Auto Shutoff for end of travel and jammed/stuck   |                               |  |
|               | Runtime               | 150 Seconds default (DIP switch adjustable) at full stroke for Simple Set Max 2-1/2" & 3"   |                               |  |
|               | Response Time         | 200 ms  |                               |  |
|               | Stroke                | 0.31 to .78 inches (8 to 20mm)  |                               |  |
|               | Cycle Life            | 80,000  |                               |  |
|               | Manual Override       | Yes   |                               |  |
| Environmental | Enclosure Rating      | IP54 (NEMA 3S Equivalent); Flame Retardent Plastic - Not intended for outdoor use without additional protection.                            |                               |  |
|               | Ambient Conditions    | Ambient Temperature — 14° to 131°F (-10° to 55°C)<br>Max. Media Temperature — 212°F (100°C)<br>Humidity Rating — 5 to 85% RH Non Condensing |                               |  |
|               | Dimensions            | (L) 6.40"x (W) 2.80"x (H) 7.90"   |                               |  |
|               | Weight                | 2.1 lb. (1 kg)  |                               |  |
| Misc          | Agency Certifications | CE  |                               |  |
|               | Warranty              | 5 Years limited from time of shipment.  |                               |  |

Note: For additional operating information consult PAM24-112 IOM Manual. The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

## Wiring



# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

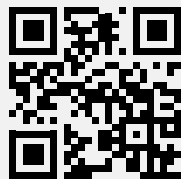
- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

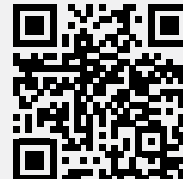
### CORPORATE HEADQUARTERS

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### DIVISION HEADQUARTERS

**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)



All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

## Retrofit Kits Butterfly Valves

| DOCUMENT         |   |
|------------------|---|
| CONTENTS         | Features  |
|                  | Retrofit Library  |
|                  | Retrofit Kit Forms  |
|                  | Exploded View   |
|                  | Dimensions  |
| LOOKING FOR MORE |  |
|                  | © 2022 Bray International, Inc.<br>01/12/23   |

### Application

Pneumatic valves and systems have been used for controls in the HVAC market for the past several decades. In the early days of building automation systems, before the advent of control networks, control systems consisted of pneumatic controls or wire bundles connected to relays, switches, potentiometers, and actuators.

Cabling was installed in a point-to-point fashion between electrical panels, the sensor inputs and actuator outputs. The functionality of these control systems are relatively rudimentary and inflexible. With the dawn of electronic actuation coupled with newly advanced building automation systems, it only follows that many pneumatically controlled valves are now being partially or completely replaced with electronic valve assemblies.

The advent of solid state technology offers a means of using logic circuits to replace wire and relays. Pneumatic controls and electrical panels have given way to direct digital controllers, which are programmed or configured.

Our Retrofit Kits make the transition from Pneumatic to DDC easier. In those instances when an existing globe and butterfly valve needs to be fitted with the proper electronic actuator, Bray has a quick, easy, and cost effective solution.



### Features and Benefits - Butterfly

#### Assembly

- Butterfly Valves up to 20", 2-Way or 3-Way
- Electronic Actuation
- On/Off, Floating, & Modulating
- Convenient Electronic Forms
- Easy Installation

### Features and Benefits - Butterfly

#### Actuation

- Manual Override
- 24 VAC, 120 VAC
- 2-Position or Floating
- Modulating 0(2)-10VDC or 0(4)-20mA
- Non-Spring Return or Spring Return
- Positive Position Feedback
- Weather Proof Enclosure Optional

## Retrofit Kits - Butterfly Valve Retrofit Library 2" to 12"

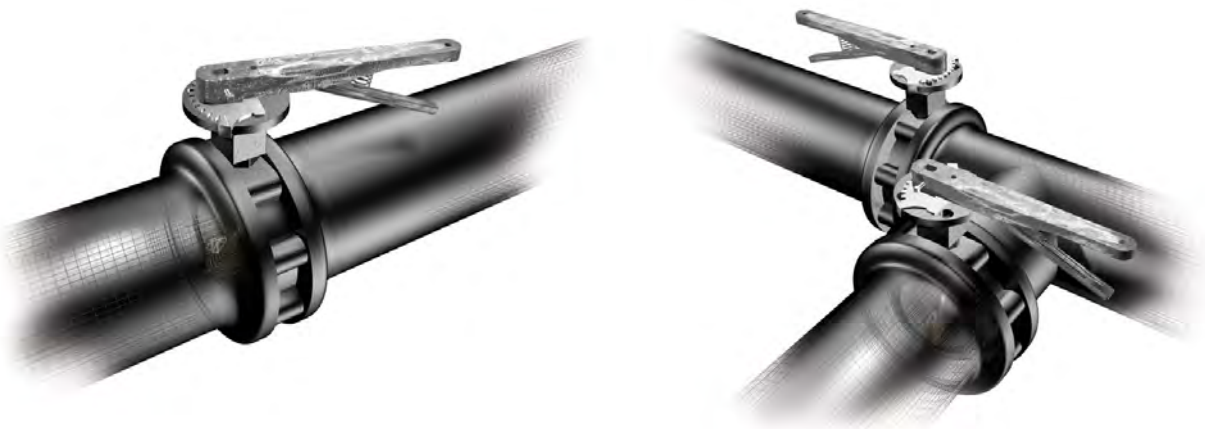
### Butterfly Valve Retrofit Library 2" to 4"

| Existing Valve Manufacturer | Existing Valve Model #        | Existing Valve Size |        |        |        |
|-----------------------------|-------------------------------|---------------------|--------|--------|--------|
|                             |                               | 2"                  | 2-1/2" | 3"     | 4"     |
| Centerline                  | Series 200 (A/LT, WA, WL, AF) | ...CE1              | ...CE1 | ...CE1 | ...CE2 |
|                             | Series 205 (NAT, NLT)         | ...CE1              | ...CE1 | ...CE1 | ...CE2 |
|                             | Series 225 (B-285)            | ...CE1              | ...CE1 | ...CE1 | ...CE2 |
|                             | Series 400 (ADV)              | ...CE1              | ...CE1 | ...CE1 | ...CE2 |
| Challenger                  | CVM                           | ...CR1              | ...CR1 | ...CR1 | ...CR2 |
| Keystone                    | AR1 / AR2                     | ...KE1              | ...KE1 | ...KE1 | ...KE2 |
|                             | 221 / 222                     | ...KE1              | ...KE1 | ...KE1 | ...KE2 |
|                             | F310 / F312                   | ...KE6              | ...KE7 | ...KE7 | ...KE7 |
| Nibco                       | LD / WD 2000 Series           | ...NO1              | ...NO2 | ...NO2 | ...NO3 |
|                             | LD / WD 3000 Series           | ...NO1              | ...NO2 | ...NO2 | ...NO3 |
| Watts                       | BF-03 / BF-04                 | ...WS1              | ...WS1 | ...WS1 | ...WS2 |

### Butterfly Valve Retrofit Library 5" to 12"

| Existing Valve Manufacturer | Existing Valve Model #        | Existing Valve Size |        |        |         |         |
|-----------------------------|-------------------------------|---------------------|--------|--------|---------|---------|
|                             |                               | 5"                  | 6"     | 8"     | 10"     | 12"     |
| Centerline                  | Series 200 (A/LT, WA, WL, AF) | ...CE3              | ...CE3 | ...CE4 | ...CE5  | ...CE6  |
|                             | Series 205 (NAT, NLT)         | ...CE3              | ...CE3 | ...CE4 | ...CE5  | ...CE6  |
|                             | Series 225 (B-285)            | ...CE3              | ...CE3 | ...CE4 | ...CE5  | ...CE6  |
|                             | Series 400 (ADV)              | ...CE3              | ...CE3 | ...CE4 | ...CE5  | ...CE6  |
| Challenger                  | CVM                           | ...CR2              | ...CR3 | ...CR4 | ...CR5  | ...CR5  |
| Keystone                    | AR1 / AR2                     | ...KE3              | ...KE3 | ...KE4 | ...KE5  | ...KE5  |
|                             | 221 / 222                     | ...KE3              | ...KE3 | ...KE4 | ...KE5  | ...KE5  |
|                             | F310 / F312                   | ...KE8              | ...KE8 | ...KE9 | ...KE10 | ...KE10 |
| Nibco                       | LD / WD 2000 Series           | ...NO4              | ...NO4 | ...NO5 | ...NO6  | ...NO7  |
|                             | LD / WD 3000 Series           | ...NO4              | ...NO4 | ...NO5 | ...NO6  | ...NO7  |
| Watts                       | BF-03 / BF-04                 | ...WS2              | ...WS2 | ...WS3 | ...WS4  | ...WS5  |

Please fill out the Butterfly Valve Retrofit form (Form BFV-01).  
 When ordering please use the following model numbering system:  
 DR (Valve Size) B (2 or 3-way) - Kit Number from Above / Actuator,  
 ex. Nibco 6" 2-way LD/WD 2000 = DR6B2-NO4/Actuator



# Retrofit Kits - Butterfly Valves Retrofit Form

**SECTION - 1**

Quantity \_\_\_\_\_

Nominal Valve Size \_\_\_\_\_

Valve Manufacturer (if known) \_\_\_\_\_

Model No. (if known) \_\_\_\_\_

Valve Style: \_\_\_\_\_

2-Way or  3-Way

**SECTION - 2**

Mounting Style (A2, B2, or C2 below)

Dimensions: A = \_\_\_\_\_ (in.)

B = \_\_\_\_\_ (in.)

C = \_\_\_\_\_ (in.)

Are Mounting Holes Drilled and Tapped:

No, Hole Diameter \_\_\_\_\_

Yes, Bolt Size \_\_\_\_\_ Threads/inch

**SECTION - 3**

Shaft Style (A3, B3, C3, or E3 below):

Dimensions: D = \_\_\_\_\_ (in.)

E = \_\_\_\_\_ (in.)

F = \_\_\_\_\_ (in.)

G = \_\_\_\_\_ (in.)

H = \_\_\_\_\_ (in.)

Note: Dimension F (for keywayed, flattened, or pinned) is it  perpendicular or  parallel to disc.

**ACTUATION: (Check all that apply)**

On/Off    Tri-State    Modulating

Spring Return

24VAC    120VAC

Weather Proof Enclosure

Approximate Torque Required \_\_\_\_\_ (in-lbs.)

**ADDITIONAL COMMENTS**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Please fill in the following dimensions. A model number will be assigned by Bray after receiving this form.

Dimensions should be measured to closest 0.001 inch. All dimensions should be measured in inches.

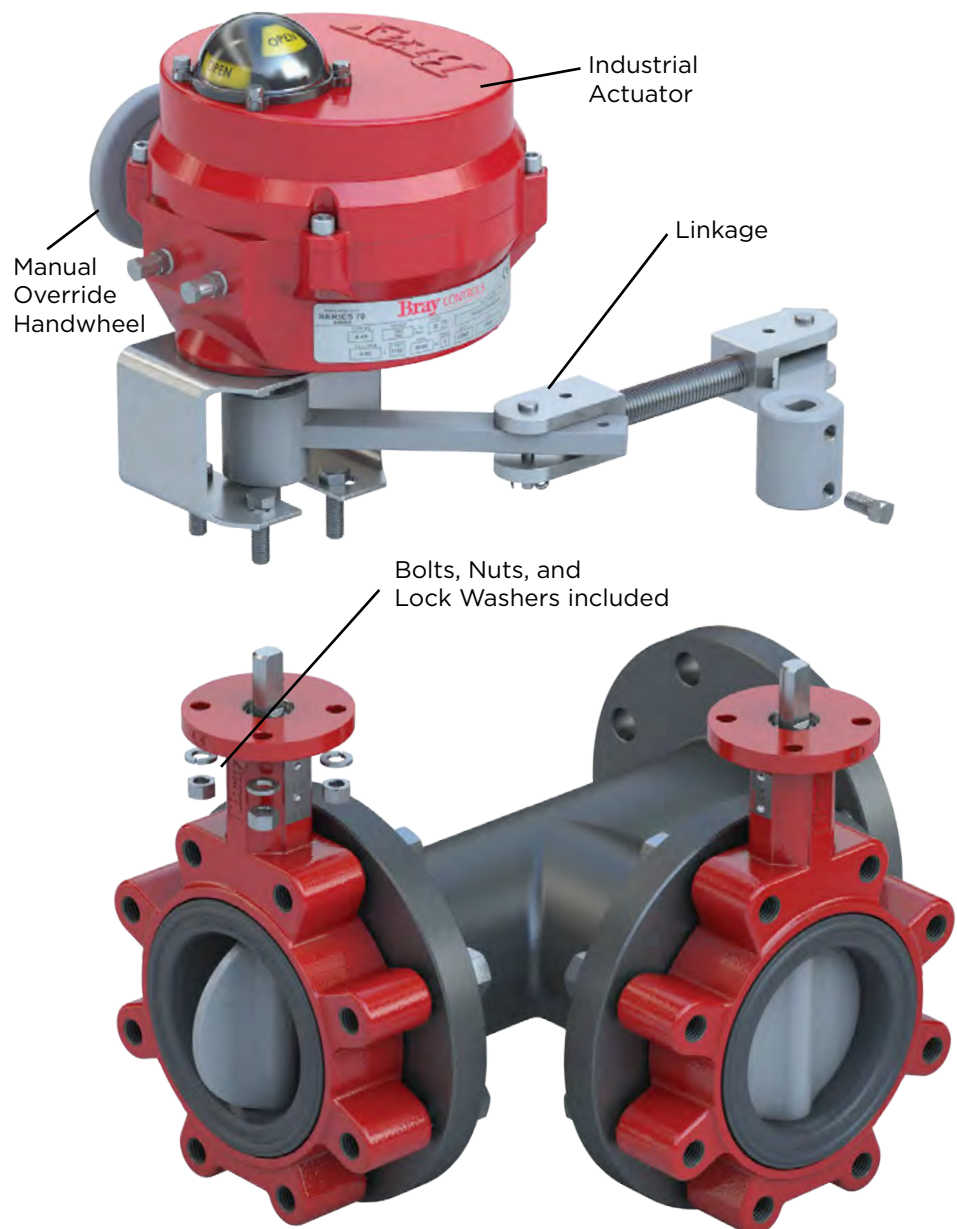
## MOUNTING AND SHAFT STYLES

|   |   |
|---|---|
| <p style="text-align: center;"><b>Mounting Style - A2</b></p> | <p style="text-align: center;"><b>Shaft Style - A3 / Keywayed</b></p>     |
| <p style="text-align: center;"><b>Mounting Style - B2</b></p> | <p style="text-align: center;"><b>Shaft Style - B3 / Woodruff Key</b></p> |
| <p style="text-align: center;"><b>Mounting Style - C2</b></p> | <p style="text-align: center;"><b>Shaft Style - C3 / Double D</b></p>     |
|   | <p style="text-align: center;"><b>Shaft Style - D3 / Hexed</b></p>        |
|   | <p style="text-align: center;"><b>Shaft Style - E3 / Pinned</b></p>       |
|   | <p style="text-align: center;"><b>Shaft Style - Square</b></p>            |

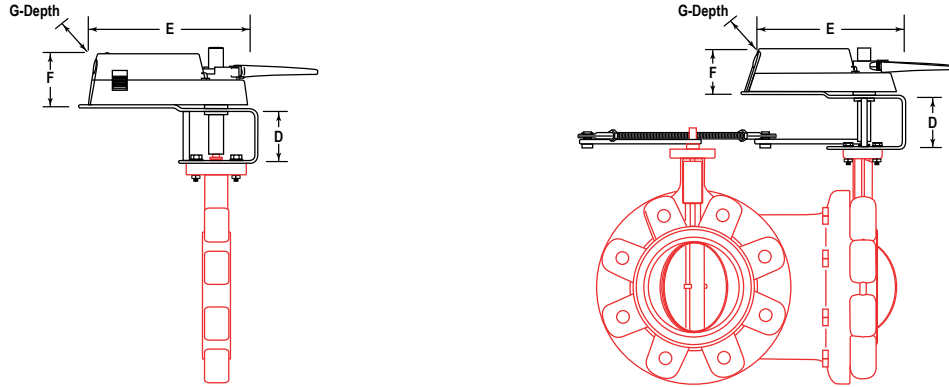
Please fill in the following dimensions. A model number will be assigned by Bray after receiving this form. Dimensions should be measured to closest 0.001 inch. All dimensions should be measured in inches.

### Features of the Bray Butterfly Valve Retrofit Linkage:

- May be used in high-stress applications
- May be used in high-temperature applications
- Makes pneumatic to electronic conversion simple
- A wide range of control systems can be used
- High close-off pressures available for most applications
- May use tandem actuators for higher close-off pressures
- Easy retrofit on non-standard valves
- Available actuators include: D-140/210/280, DC-310, DS-180 Series and Bray's Industrial Series Actuator where applicable.



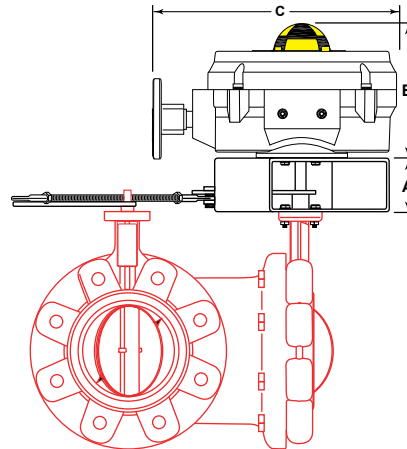
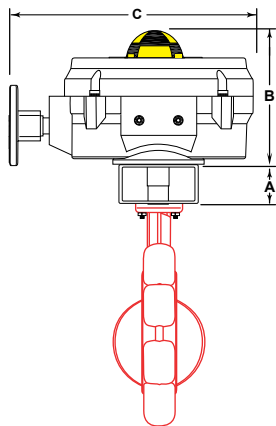
## Retrofit Kits - Butterfly Linkage Dimensions



### DIMENSIONS - 2" - 6" with D/DC Series Actuators

| Butterfly Valve Retrofit Linkage Model # Prefix | Connection |     | Please reference illustration above |    |      |     |       |       |       |       |
|---|------------|-----|-------------------------------------|----|------|-----|-------|-------|-------|-------|
|   |            |     | D                                   |    | E    |     | F     |       | G     |       |
|   | in.        | mm  | in.                                 | mm | in.  | mm  | in.   | mm    | in.   | mm    |
| DR2B(2 or 3)...                                 | 2          | 50  | 3.3                                 | 84 | 9.8  | 249 | 3.5   | 89    | 4.6   | 117   |
| DR250B(2 or 3)...                               | 2.5        | 65  | 3.3                                 | 84 | 9.8  | 249 | 3.5   | 89    | 4.6   | 117   |
| DR3B(2 or 3)...                                 | 3          | 80  | 3.3                                 | 84 | 11.0 | 279 | 3.5   | 89    | 4.6   | 117   |
| DR4B(2 or 3)...                                 | 4          | 100 | 3.3                                 | 84 | 11.0 | 279 | 3.5   | 89    | 4.6   | 117   |
| DR5B(2 or 3)...                                 | 5          | 125 | 3.3                                 | 84 | 11.0 | 279 | 7.1** | 180** | 4.6** | 117** |
| DR6B(2 or 3)...                                 | 6          | 150 | 3.3                                 | 84 | 11.0 | 279 | 5.9** | 150** | 4.0   | 102   |

\*\* Indicates tandem mounted actuators.  
 Dimensions listed are approximate. In some cases custom brackets and pins are required.  
 Largest actuator(s) dimension shown



### 2-Way DIMENSIONS, 2" - 16" with Industrial Series Actuators


| Butterfly Valve Retrofit Linkage Model # Prefix | Connection |     | Please reference illustration above |     |      |     |       |     |
|---|------------|-----|-------------------------------------|-----|------|-----|-------|-----|
|   |            |     | A                                   |     | B    |     | C     |     |
|   | in.        | mm  | in.                                 | mm  | in.  | mm  | in.   | mm  |
| DR2B...   | 2          | 50  | 4.0                                 | 102 | 6.96 | 177 | 9.29  | 236 |
| DR250B...                                       | 2.5        | 65  | 4.0                                 | 102 | 6.96 | 177 | 9.29  | 236 |
| DR3B...   | 3          | 80  | 4.0                                 | 102 | 6.96 | 177 | 9.29  | 236 |
| DR4B...   | 4          | 100 | 4.0                                 | 102 | 6.96 | 177 | 9.29  | 236 |
| DR5B...   | 5          | 125 | 4.0                                 | 102 | 6.96 | 177 | 9.29  | 236 |
| DR6B...   | 6          | 150 | 4.0                                 | 102 | 6.96 | 177 | 9.29  | 236 |
| DR8B...   | 8          | 200 | 4.0                                 | 102 | 7.96 | 202 | 12.12 | 308 |
| DR10B...  | 10         | 250 | 4.0                                 | 102 | 8.56 | 217 | 13.09 | 333 |
| DR12B...  | 12         | 300 | 4.0                                 | 102 | 8.56 | 217 | 13.09 | 333 |
| DR14B...  | 14         | 350 | 4.0                                 | 102 | 8.56 | 217 | 13.09 | 333 |
| DR16B...  | 16         | 400 | 4.0                                 | 102 | 8.56 | 217 | 13.09 | 333 |

### 3-Way DIMENSIONS, 2" - 16" with Industrial Series Actuators

| Butterfly Valve Retrofit Linkage Model # Prefix | Connection |     | Please reference illustration above |     |      |     |       |     |
|---|------------|-----|-------------------------------------|-----|------|-----|-------|-----|
|   |            |     | A                                   |     | B    |     | C     |     |
|   | in.        | mm  | in.                                 | mm  | in.  | mm  | in.   | mm  |
| DR2B...   | 2          | 50  | 4.0                                 | 102 | 6.96 | 177 | 9.29  | 236 |
| DR250B...                                       | 2.5        | 65  | 4.0                                 | 102 | 6.96 | 177 | 9.29  | 236 |
| DR3B...   | 3          | 80  | 4.0                                 | 102 | 6.96 | 177 | 9.29  | 236 |
| DR4B...   | 4          | 100 | 4.0                                 | 102 | 6.96 | 177 | 9.29  | 236 |
| DR5B...   | 5          | 125 | 4.0                                 | 102 | 6.96 | 177 | 9.29  | 236 |
| DR6B...   | 6          | 150 | 4.0                                 | 102 | 7.96 | 202 | 12.12 | 308 |
| DR8B...   | 8          | 200 | 4.0                                 | 102 | 7.96 | 202 | 12.12 | 308 |
| DR10B...  | 10         | 250 | 4.0                                 | 102 | 7.96 | 202 | 12.12 | 308 |
| DR12B...  | 12         | 300 | 4.0                                 | 102 | 8.56 | 217 | 13.09 | 333 |
| DR14B...  | 14         | 350 | 4.0                                 | 102 | 8.56 | 217 | 13.09 | 333 |
| DR16B...  | 16         | 400 | 4.0                                 | 102 | 8.56 | 217 | 13.09 | 333 |

Dimensions listed are approximate. In some cases custom brackets and pins are required.  
 Largest actuator(s) dimension shown

## Retrofit Kits Globe Valves

| DOCUMENT         |   |
|------------------|---|
| CONTENTS         | Features  |
|                  | Selection Chart   |
|                  | Close-Off Chart   |
|                  | Retrofit Form   |
|                  | Dimensions  |
| LOOKING FOR MORE |  |
|                  | © 2022 Bray International, Inc.<br>03/21/24   |

### Application

Pneumatic valves and systems have been used for controls in the HVAC market for the past several decades. In the early days of building automation systems, before the advent of control networks, control systems consisted of pneumatic controls or wire bundles connected to relays, switches, potentiometers, and actuators.

Cabling was installed in a point-to-point fashion between electrical panels, the sensor inputs and actuator outputs. The functionality of these control systems are relatively rudimentary and inflexible. With the dawn of electronic actuation coupled with newly advanced building automation systems, it only follows that many pneumatically controlled valves are now being partially or completely replaced with electronic valve assemblies.

The advent of solid state technology offers a means of using logic circuits to replace wire and relays. Pneumatic controls and electrical panels have given way to direct digital controllers, which are programmed or configured.

Our Retrofit Kits make the transition from Pneumatic to DDC easier. In those instances when an existing globe and butterfly valve needs to be fitted with the proper electronic actuator, Bray has a quick, easy, and cost effective solution.



### Features and Benefits - Globe

#### Assembly

- Globe Valves up to 6", 2-Way or 3-Way
- Electronic & Pneumatic Actuation
- Easy Installation - Stem connection takes place automatically after application of control voltage.
- Convenient Electronic Forms

### Features and Benefits - Globe

#### Acuation

- Manual Override
- 24 VAC, 120 VAC
- One model for On/Off, Floating or Modulating 0(2)-10VDC or 0(4)-20mA
- NEMA 4 Equivalent
- Non-Spring Return or Spring Return
- Positive Position Feedback
- Easy flow curve configurability

## Retrofit Kits - Globe Valves Selection Chart

### Retrofit Linkage Kits

| Existing Valve Manufacturer            | 2 1/2"    | 3" | 4"        | 5" | 6" |
|--|-----------|----|-----------|----|----|
| Bray DG Series                         | GRK-BRA-1 |    | GRK-BR-2  |    |    |
| Siemens/Landis/Staefa 599 Series       | GRK-BRA-1 |    | GRK-BR-2  |    |    |
| Honeywell V5011, 2W                    | GRK-HON-1 |    | GRK-HON-2 |    |    |
| Honeywell V5013, 3W                    |           |    |           |    |    |
| Johnson Controls VG2000                | GRK-JCI   |    |           |    |    |
| Schneider/Barber Coleman/Siebe VB-8000 | GRK-SCH-2 |    |           |    |    |
| Schneider/Barber Coleman/Siebe VB-92x3 |           |    |           |    |    |

Consult factory for other makes and models

### Available Actuators

|                          |   |
|--------------------------|---|
| <b>Non-Spring Return</b> |   |
| GA24-562                 | On/Off, Floating and Modulating                     |
| <b>Spring Return</b>     |   |
| GASRE24-450              | On/Off, Floating and Modulating- Normally Retracted |
| GASEX24-450              | On/Off, Floating and Modulating- Normally Extended  |

## Retrofit Kits - Globe Valves Close-Off Chart

### 2-Way Retrofit Kit Close-Off (PSI)

| Existing Valve Manufacturer    | 2-1/2"  |    | 3"  |    | 4"  |    | 5"  |    | 6"  |    |   |
|--------------------------------|---------|----|-----|----|-----|----|-----|----|-----|----|---|
|                                | NSR     | SR | NSR | SR | NSR | SR | NSR | SR | NSR | SR |   |
| Bray DG Series                 | 85      | 68 | 56  | 44 | 34  | 27 | 22  | 18 | 15  | 12 |   |
| Siemens 599 Series             | 85      | 68 | 56  | 44 | 34  | 27 | 22  | 18 | 15  | 12 |   |
| Landis/Staefa 599 Series       | 85      | 68 | 56  | 44 | 34  | 27 | 22  | 18 | 15  | 12 |   |
| Honeywell V5011, 2W            | 90      | 84 | 70  | 56 | 38  | 30 | 24  | 18 | 15  | 12 |   |
| Johnson Controls VG2000        | 95      | 75 | 64  | 50 | 37  | 29 | 22  | 18 | 16  | 12 |   |
| Schneider/Barber Coleman/Siebe | VB-8000 | 70 | 58  | 50 | 38  | 25 | 22  | 12 | 10  | 8  | 6 |
|                                | VB-92x3 | 70 | 58  | 50 | 38  | 25 | 22  | 12 | 10  | 8  | 6 |

### 3-Way Retrofit Kit Close-Off (PSI)

| Existing Valve Manufacturer    | 2-1/2"  |    | 3"  |    | 4"  |    | 5"  |    | 6"  |    |   |
|--------------------------------|---------|----|-----|----|-----|----|-----|----|-----|----|---|
|                                | NSR     | SR | NSR | SR | NSR | SR | NSR | SR | NSR | SR |   |
| Bray DG Series                 | 85      | 68 | 56  | 44 | 34  | 27 | 22  | 18 | 15  | 12 |   |
| Siemens 599 Series             | 85      | 68 | 56  | 44 | 34  | 27 | 22  | 18 | 15  | 12 |   |
| Landis/Staefa 599 Series       | 85      | 68 | 56  | 44 | 34  | 27 | 22  | 18 | 15  | 12 |   |
| Honeywell V5013                | 90      | 84 | 70  | 56 | 38  | 30 | 24  | 18 | 15  | 12 |   |
| Johnson Controls VG2000        | 95      | 75 | 64  | 50 | 37  | 29 | 22  | 18 | 16  | 12 |   |
| Schneider/Barber Coleman/Siebe | VB-8000 | 70 | 58  | 50 | 38  | 25 | 22  | 12 | 10  | 8  | 6 |
|                                | VB-9313 | 70 | 58  | 50 | 38  | 25 | 22  | 12 | 10  | 8  | 6 |

## Retrofit Kits - Globe Valves Retrofit Form

This form is to be used if your existing valve is not listed in Retrofit Library. Make photocopies of this form, downloaded from our website, (or contact Bray for additional copies) and fax completed forms to Bray Controls to ensure proper linkage compatibility. A separate form should be used for each valve when information is different for valve size or manufacturer. Please fill out form completely. Draw your own diagram using the space in Figure 4 below if necessary.

### EXISTING GLOBE VALVE BODY INFORMATION

Quantity \_\_\_\_\_  
 Figure No. (choose 1, 2, or 3 below) \_\_\_\_\_  
 Manufacturer (if known) \_\_\_\_\_  
 Model No. (if known) \_\_\_\_\_  
 Valve Size \_\_\_\_\_  
 2-Way or  3-Way

### ACTUATION (Check all that apply)

On/Off    Tri-State    Modulating  
 Spring Return  
 24VAC    120VAC  
 Weather Proof Enclosure  
 Approximate Close-Off Required \_\_\_\_\_ (PSI)

### EXISTING GLOBE VALVE BODY DIMENSIONS

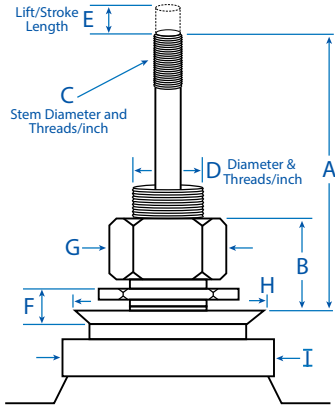
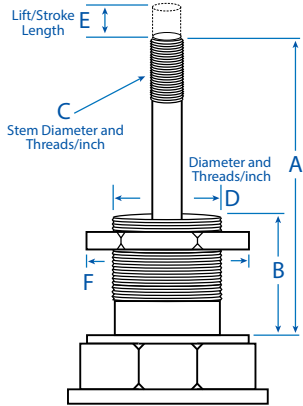
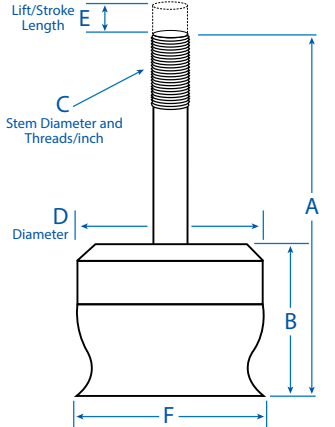
A = Height with stem down \_\_\_\_\_ (in.)  
 B = Length of the neck \_\_\_\_\_ (in.)  
 C = Stem diameter and threads/inch \_\_\_\_\_ (in.) \_\_\_\_\_ (th/in.)  
 D = Major diameter and threads/inch \_\_\_\_\_ (in.) \_\_\_\_\_ (th/in.)  
 E = Lift (Stroke Length) \_\_\_\_\_ (in.)  
 F = Neck Dimensions \_\_\_\_\_ (in.)  
 G = Neck Dimensions \_\_\_\_\_ (in.)  
 H = Neck Dimensions \_\_\_\_\_ (in.)  
 I = Neck Dimensions \_\_\_\_\_ (in.)

### ADDITIONAL COMMENTS

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Please specify upon ordering if the valve stem is threaded or grooved.

### POSSIBLE EXISTING GLOBE VALVE TYPES

| Figure No.1   | Figure No.2   |
|---|---|
|   |    |
| Figure No.3   | Figure No.4   |
|  | <p>If Fig. 1, 2, 3, do not match valve, please sketch below.)</p> <div style="text-align: center; font-size: 2em; opacity: 0.5; transform: rotate(-15deg);">DRAW YOUR OWN</div> |

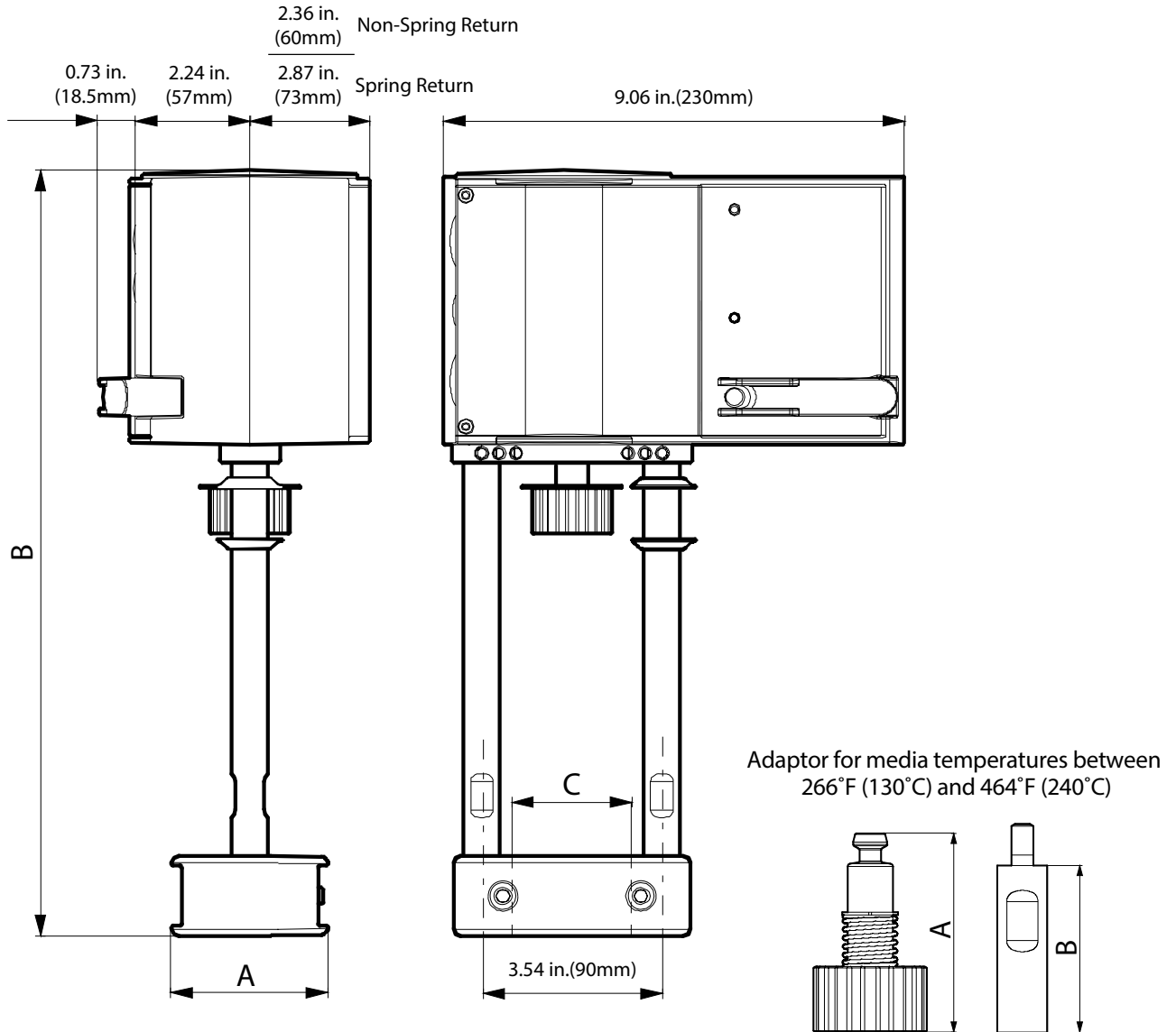
Please fill in the following dimensions. A model number will be assigned by Bray after receiving this fax form. Dimensions should be measured to closest 0.001 inch. All dimensions should be measured in inches.

## Retrofit Kits - Globe Valve Linkage Application

### Application

The GRK Series Retrofit Linkage is available for many types of globe valves ranging in sizes from 1/2" to 6". The valve linkage is constructed of sturdy extruded aluminum which prevents twisting and distorting. This linkage assembly may be used to control many types of fluids including steam applications.

The supplied actuator is mounted to the linkage body with a single screw. The rotary motion of the actuator is transmitted through a shaft, running in bronze bearings, impregnated with oil for long life, to a self-adjusting, floating rack and pinion, to the valve operating rod. A specially designed spring mechanism, built into the valve operating rod, maintains constant force on the valve seat without power to the actuator. This feature ensures tight shut-off of the valve even with temperature variations. All mounting hardware and the selected actuator is supplied with the GRK series linkage kit for such manufacturers as SIEBE, Siemens, Honeywell, Landis & Staefa, Schneider and Johnson. For odd valves please fill in the information on Fax Form on page GKR-3 to ensure a proper fit.



| Description  | A               | B                 | C               |
|--------------|-----------------|-------------------|-----------------|
| GA(S) Series | 2.52 in. (64mm) | 11.38 in. (289mm) | 1.73 in. (44mm) |

| Part Number | A                  | B                |
|-------------|--------------------|------------------|
| 0372336 240 | 4.31 in. (109.4mm) | 3.94 in. (100mm) |

# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

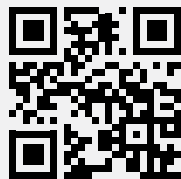
- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

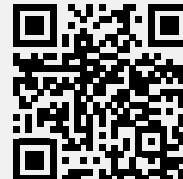
### **CORPORATE HEADQUARTERS**

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### **DIVISION HEADQUARTERS**


**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)



All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

## **Series 70 Actuators** **24 VAC/DC and 120 VAC** **800 to 18,000 lb.-in.**

|                         |   |
|-------------------------|---|
| <b>DOCUMENT</b>         |   |
| <b>CONTENTS</b>         | <b>Specifications</b>   |
|                         | <b>Model Selection</b>  |
|                         | <b>Features</b>   |
|                         | <b>Dimensions</b>   |
|                         | <b>Wiring</b>   |
| <b>LOOKING FOR MORE</b> |  |
|                         | © 2026 Bray International, Inc.<br>01/05/26   |

### **Application**

Bray's years of proven success in quarter turn electric actuation, combined with innovative engineering, has produced the modern Series 70. The Series 70 has become the industry standard in the Commercial HVAC industry due to its compact, reliable design that mounts directly to Bray's industry leading butterfly and industrial ball valves without the need for brackets and linkages. Available in torque outputs from 800 to 18,000 lb.-in. (90 to 2033 NM), 24 VAC/DC and 120 VAC, On/Off and Modulating units all in NEMA 4x and IP65 rated housings.

These actuators are ideal for use on valves for Chillers, Cooling Towers, Boilers, Heat Exchangers and other outdoor applications. Furthermore, its advanced electronics assure reliable compatibility with virtually any analog control signal used in today's building automation and temperature control system.

There is no better choice for building automation!

### **System Types**

Air Handling Units  
Heat Exchangers  
Computer Rooms  
and more.



### **Features and Benefits**

- **Compact Design and Direct Mounting**  
*Assists in field operation*
- **High Visibility Beacon Position Indicator**  
*Reduces pump head requirements for added energy efficiency*
- **Manual Declutchable Override Handwheel**  
*Manual positioning without disconnecting power*
- **Servo NXT Option for Modulating Control**  
*One Touch Menu driven pushbutton selection of all settings*
- **Available with Battery Backup on 24 VAC/DC Models**  
*Assures return to a predetermined position upon loss of power supply*

## Series 70 - Specifications

| Construction                   |   |
|--------------------------------|---|
| Housing                        | ASTM B85 Pressure Die Cast Aluminum - Polyester Powder Coated   |
| Motor                          | 120 VAC<br>24 VAC/DC     Single Phase, Reversible, Permanent Split Capacitor Induction Motor<br>Permanent Magnet-Brush D.C. Motor |
| Heater                         | 5 Watt PTC style (Heater operation required for humid environments)   |
| Terminal Strip                 | Switch Plate     12 - 22 AWG (2.0 - 0.65mm)<br>Servo                14 - 24 AWG (1.63 - 0.51mm)                                   |
| Torque Limiting                | Optional, Open and Closed preset at factory - Standard on 13,000 & 18,000 lb.-in.   |
| Auxiliary/Limit Switches: SPDT | 120 VAC            10A- 1/3 HP  |
|                                | 220 VAC            10A-1/2 HP   |
|                                | 250 VDC            1/4A   |
|                                | 12 VDC             2A   |
| Exposed Fasteners              | Stainless Steel   |
| Travel Stops                   | Externally adjustable at both 0 and 90 degrees  |
| Conduit Entries                | 800 lb.-in.        Two 1/2" NPT   |
|                                | 1200 lb.-in. and Higher     Two 3/4" NPT  |
| Weight                         | See Dimensions  |
| Enclosure                      | Designed to meet NEMA Type 4, 4x and IP65 specifications  |
| Warranty                       | 3 Years   |
| Certifications                 | UL/CSA 120V. CE 24 & 120V   |

| Operating Conditions |   |
|----------------------|---|
| Motor Insulation     | 120 VAC:            Class F, 311°F (155°C) thermal trip at 275°F (135°C)<br>24 VAC/DC:        Class B, Fast Blow Fuse 5A 250VAC |
| Ambient Temperature  | -20° to 150°F (-29° to 65°C)  |
| Continuous Duty      | Will operate continuously at a maximum ambient temperature of 104°F (40°C)  |
| Manual Operation     | Pull to Engage, Push to Disengage - 30:1 drive ratio, 13 & 18K lb.-in. models are 90:1  |

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

| Torque and Motor Data       |                     |         |      |                 |                   |                         |
|-----------------------------|---------------------|---------|------|-----------------|-------------------|-------------------------|
| 24 V Models                 | Voltage<br>50/60 Hz | (lb.in) | (NM) | Stroke<br>Time* | Full Load<br>Amps | Power<br>Consumption VA |
| 70-24-0081H & 70-24-0081SVH | 24 VAC/DC           | 800     | 90   | 60 Sec.         | 2.90              | 70                      |
| 70-24-0201H & 70-24-0201SVH | 24 VAC/DC           | 2000    | 226  | 80 Sec.         | 3.50              | 84                      |
| 70-24-0501H                 | 24 VAC              | 5000    | 565  | 90 Sec          | 4.00              | 96                      |
| 70-24-0501SVH               | 24 VAC/DC           | 5000    | 565  | 90 Sec.         | 4.00              | 96                      |

All 24V current ratings include heaters and servos

- 24V heater = 208 mA
- 24V modulating servo current draw = 0.3 A

| Torque and Motor Data |                     |         |       |                 |                   |                      |
|-----------------------|---------------------|---------|-------|-----------------|-------------------|----------------------|
| 120 VAC Models        | Voltage<br>50/60 Hz | (lb.in) | (NM)  | Stroke<br>Time* | Full Load<br>Amps | Locked Rotor<br>Amps |
| 70-0081H & 70-0081SVH | 120 VAC             | 800     | 90    | 30 Sec          | 0.80              | 1.00                 |
| 70-0121H & 70-0121SVH | 120 VAC             | 1,200   | 135   | 30 Sec          | 0.75              | 2.10                 |
| 70-0201H & 70-0201SVH | 120 VAC             | 2,000   | 226   | 30 Sec          | 0.85              | 2.10                 |
| 70-E301H & 70-E301SVH | 120 VAC             | 3,000   | 339   | 30 Sec          | 1.00              | 2.10                 |
| 70-0501H & 70-0501SVH | 120 VAC             | 5,000   | 565   | 30 Sec          | 1.60              | 3.00                 |
| 70-0651H & 70-0651SVH | 120 VAC             | 6,500   | 734   | 30 Sec          | 2.30              | 3.10                 |
| 70-1300H & 70-1300SVH | 120 VAC             | 13,000  | 1,470 | 110 Sec         | 2.30              | 3.10                 |
| 70-1800H & 70-1800SVH | 120 VAC             | 18,000  | 2,034 | 110 Sec         | 2.50              | 3.10                 |

For 120V models, heater and servo current draws are additive

- 120V Heater + 42 mA
- 120V servo + 0.3 A

\*Stroke Times shown are with 60 Hz power.

Actuators with 50 Hz power supply will be 20% slower.

## Series 70 - Servo NXT Specifications

| Specifications - Servo NXT |                                  |  |
|----------------------------|----------------------------------|--|
| Power Requirements         | 120 VAC                          | +/- 10% (50/60Hz)  |
|                            | 24 VAC                           | +/- 10% (50/60Hz)  |
|                            | 24 VDC                           | -10%, + 30%  |
|                            | 5 VA                             | For NXT electronic module alone (see S70 Power Consumption for full power requirements)                                  |
|                            | Fuse                             | 5A Fast Blow 5mm x 20mm  |
| Input Signal               | Control Signal                   | 4-20mA, 0-10VDC, 0-5 VDC, 2-10VDC  |
|                            | Input Impedance                  | >100 Meg Ohms (0-10V, 2-10V, 0-5V) and 200 Ohms (4-20mA)   |
| Output Signal              | Operating Modes                  | 4-20mA, 0-10VDC, 0-5 VDC   |
|                            | Required Control Panel Impedance | ≤ 400 Ohms (4-20mA Output Mode)<br>≥ 1,000 Ohms (0-10VDC Output, 0-5VDC Output)  |
|                            | NXT Loop Power                   | 12 VDC Max, Do not supply external power (4-20mA Output)<br>24mA Max, Do not supply external power (0-10, 0-5VDC Output) |
| Resolution                 | Absolute Position Accuracy       | < 1%   |
|                            | Dead Band Adjustment             | 1% (+/- 0.5%) to 6% (+/- 3%) (3% default) 1% minimum increment   |
| Speed Control              | Open/Close Speed                 | 0% - 100% (default). Step size: 20%. Actuator open/close speed referenced below  |
| Operating Mode             | Normal Mode                      | Modulating - Follow Setpoint   |
|                            | Loss of Signal                   | Settable to Open, Close, or Last   |
|                            | Reverse Acting Modes             | Flashing "ON" LED = Reversed input and output signal<br>Solid "ON" LED = Reversed input and normal output signal         |
|                            | Auto Calibration                 | Automation of storing calibration settings   |
|                            | Manual Operation                 | Keypad electrical manual operation of actuator (Open, Stop, Close)   |
|                            | Control Box Operation            | Optional inputs available  |
| Torque Protection          | Stall Detection                  | Motor detected stationary > 2 Seconds (800 to 6500 lb.-in. units only)   |
|                            | Torque Limit                     | Optional connected Open/Close Torque Limit switch  |
| Environmental              | Ambient Temperature              | -22°F (-30°C) to 150°F (65°C), Non condensing humidity   |

The Servo NXT offers precise modulating service for accurate position control.

- One touch automatic calibration
- User-friendly interface
- Advanced control of proportional band and dead band
- Automatic pulsing mode for precise positioning
- Self diagnostics
- Action on loss of command signal
- Go to position commands



**Actuator Open/Close Speed Chart**

| Speed Setting | 24 VAC/DC        | 120 VAC | 120 VAC 13k/18k |
|---------------|------------------|---------|-----------------|
| Percentage    | Seconds (at x %) |         |                 |
| 100           | 60               | 30      | 110             |
| 80            | 119              | 59      | 219             |
| 60            | 178              | 88      | 328             |
| 40            | 237              | 117     | 437             |
| 20            | 296              | 146     | 546             |
| 0             | 355              | 175     | 655             |

## Series 70 - Model Selection Charts

### 24 V Actuators

| 800 lb.in<br>Model Number | 24<br>VAC/DC | 24<br>VAC/<br>30 VDC | On/<br>Off | Modulating | Heater | AUX.<br>Switches | Battery<br>Backup |
|---------------------------|--------------|----------------------|------------|------------|--------|------------------|-------------------|
| 70-24-0081H               | ●            |                      | ●          |            | ●      | ●                |                   |
| 70-24-0081SVH             | ●            |                      |            | ●          | ●      | ●                |                   |
| 70-24-0081H-BBU           |              | ●                    | ●          |            | ●      | ●                | ●                 |
| 70-24-0081SVH-BBU         |              | ●                    |            | ●          | ●      | ●                | ●                 |

| 2000 lb.in<br>Model Number | 24<br>VAC/DC | 24<br>VAC/<br>30 VDC | On/<br>Off | Modulating | Heater | AUX.<br>Switches | Battery<br>Backup |
|----------------------------|--------------|----------------------|------------|------------|--------|------------------|-------------------|
| 70-24-0201H                | ●            |                      | ●          |            | ●      | ●                |                   |
| 70-24-0201SVH              | ●            |                      |            | ●          | ●      | ●                |                   |
| 70-24-0201H-BBU            |              | ●                    | ●          |            | ●      | ●                | ●                 |
| 70-24-0201SVH-BBU          |              | ●                    |            | ●          | ●      | ●                | ●                 |

| 5000 lb.in<br>Model Number | 24<br>VAC/DC | 24<br>VAC | 24<br>VAC/<br>30 VDC | On/<br>Off | Modulating | Heater | AUX.<br>Switches | Battery<br>Backup |
|----------------------------|--------------|-----------|----------------------|------------|------------|--------|------------------|-------------------|
| 70-24-0501H                |              | ●         |                      | ●          |            | ●      | ●                |                   |
| 70-24-0501SVH              | ●            |           |                      |            | ●          | ●      | ●                |                   |
| 70-24-0501H-BBU            |              |           | ●                    | ●          |            | ●      | ●                | ●                 |
| 70-24-0501SVH-BBU          |              |           | ●                    |            | ●          | ●      | ●                | ●                 |

### 120 VAC Actuators

| 800 lb.in<br>Model Number | 120<br>VAC | On/<br>Off | Modulating | Heater | AUX.<br>Switches |
|---------------------------|------------|------------|------------|--------|------------------|
| 70-0081H                  | ●          | ●          |            | ●      | ●                |
| 70-0081SVH                | ●          |            | ●          | ●      | ●                |

| 1200 lb.in<br>Model Number | 120<br>VAC | On/<br>Off | Modulating | Heater | AUX.<br>Switches |
|----------------------------|------------|------------|------------|--------|------------------|
| 70-0121H                   | ●          | ●          |            | ●      | ●                |
| 70-0121SVH                 | ●          |            | ●          | ●      | ●                |

| 2000 lb.in<br>Model Number | 120<br>VAC | On/<br>Off | Modulating | Heater | AUX.<br>Switches |
|----------------------------|------------|------------|------------|--------|------------------|
| 70-0201H                   | ●          | ●          |            | ●      | ●                |
| 70-0201SVH                 | ●          |            | ●          | ●      | ●                |

| 3000 lb.in<br>Model Number | 120<br>VAC | On/<br>Off | Modulating | Heater | AUX.<br>Switches |
|----------------------------|------------|------------|------------|--------|------------------|
| 70-E301H                   | ●          | ●          |            | ●      | ●                |
| 70-E301SVH                 | ●          |            | ●          | ●      | ●                |

| 5000 lb.in<br>Model Number | 120<br>VAC | On/<br>Off | Modulating | Heater | AUX.<br>Switches |
|----------------------------|------------|------------|------------|--------|------------------|
| 70-0501H                   | ●          | ●          |            | ●      | ●                |
| 70-0501SVH                 | ●          |            | ●          | ●      | ●                |

| 6500 lb.in<br>Model Number | 120<br>VAC | On/<br>Off | Modulating | Heater | AUX.<br>Switches |
|----------------------------|------------|------------|------------|--------|------------------|
| 70-0651H                   | ●          | ●          |            | ●      | ●                |
| 70-0651SVH                 | ●          |            | ●          | ●      | ●                |

| 13000 lb.in<br>Model Number | 120<br>VAC | On/<br>Off | Modulating | Heater | AUX.<br>Switches |
|-----------------------------|------------|------------|------------|--------|------------------|
| 70-1300H                    | ●          | ●          |            | ●      | ●                |
| 70-1300SVH                  | ●          |            | ●          | ●      | ●                |

| 18000 lb.in<br>Model Number | 120<br>VAC | On/<br>Off | Modulating | Heater | AUX.<br>Switches |
|-----------------------------|------------|------------|------------|--------|------------------|
| 70-1800H                    | ●          | ●          |            | ●      | ●                |
| 70-1800SVH                  | ●          |            | ●          | ●      | ●                |

#### Application Note:

Use Series 70 actuators only to control equipment under normal operating conditions. Where failure or malfunction of the electric actuator could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices, such as supervisory or alarm systems or safety or limit controls, intended to warn of or protect against failure or malfunction of the electric actuator.

## Series 70 - External Features

### High-Visibility Position Indicator

Prominently labeled and color coded  
High impact, heat and chemical resistant  
O-Ring weather seal for dome cover  
No protrusion through enclosure

### Captive Cover Bolts

placed outside sealing area

### O-Ring Seal

To ensure a weather proof enclosure- NEMA 4, 4X, IP65

### Mechanical Travel Stop Bolts

Lock-nut to prevent loosening  
Sealed to prevent moisture ingress  
Designed to prevent over-travel while operating the actuator manually  
Prevents adjustment of travel stops below 90° limit switch adjustment  
Permits up to 5° over travel

### Extremely Low Profile Actuator

Direct mounting to Bray valves

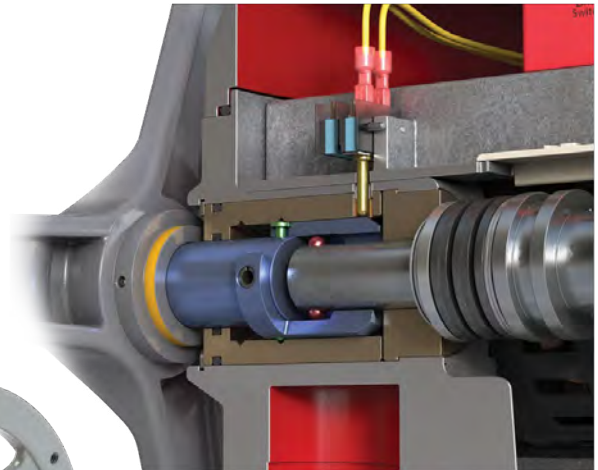
### Die-Cast Aluminum Housing

High quality polyester powder coating  
Easy to remove and re-install cover



### Conduit Entries

The Series 70 features two conduit connections one for power, one for control wiring.



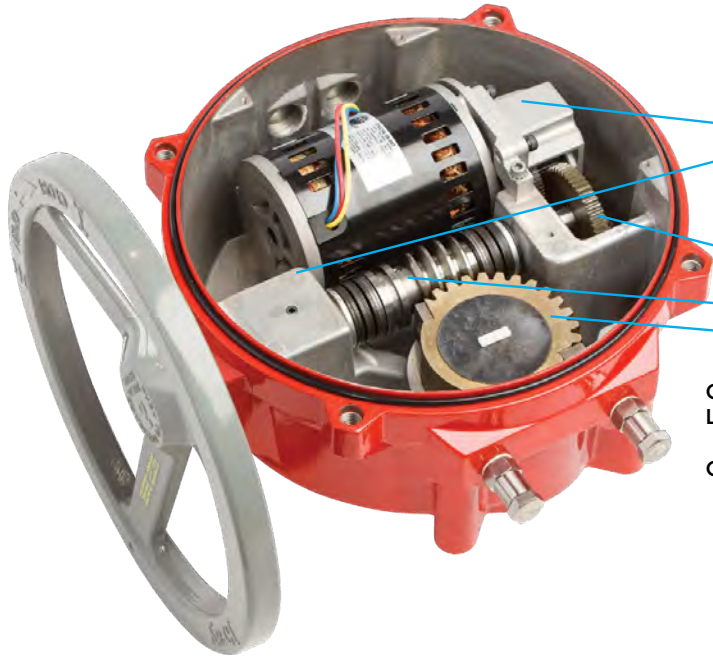
### Handwheel Manual Override

Pull Out Handwheel to engage override/  
push-in to disengage

Yellow stripe around handwheel shaft  
notes override is engaged

Electrical switch interrupts power to  
the motor

## Series 70 - Internal Features



### Power Center

#### BEARINGS

- Motor Gear** - Permanently sealed ball bearing
- Worm Shaft** - Sintered Bronze bushing with heavy duty thrust bearing

#### GEARING

- Spur Gearing** - AGMA Class 9, Alloy Steel, Nitride Hardened
- Worm** - Chromoly
- Worm Gear** - Aluminum Bronze

- Capacitor (120V Only)** - Metalized Polyester
- Lubrication** - High Temperature Synthetic Grease

- Override Wheel** - 17-4PH Stainless Steel Hardened to H 900

### Control Center

**SERVO NXT** - Provides precise modulating control of valve position

#### One Touch Programming

Menu driven, pushbutton-programming with LED confirmation of all settings:

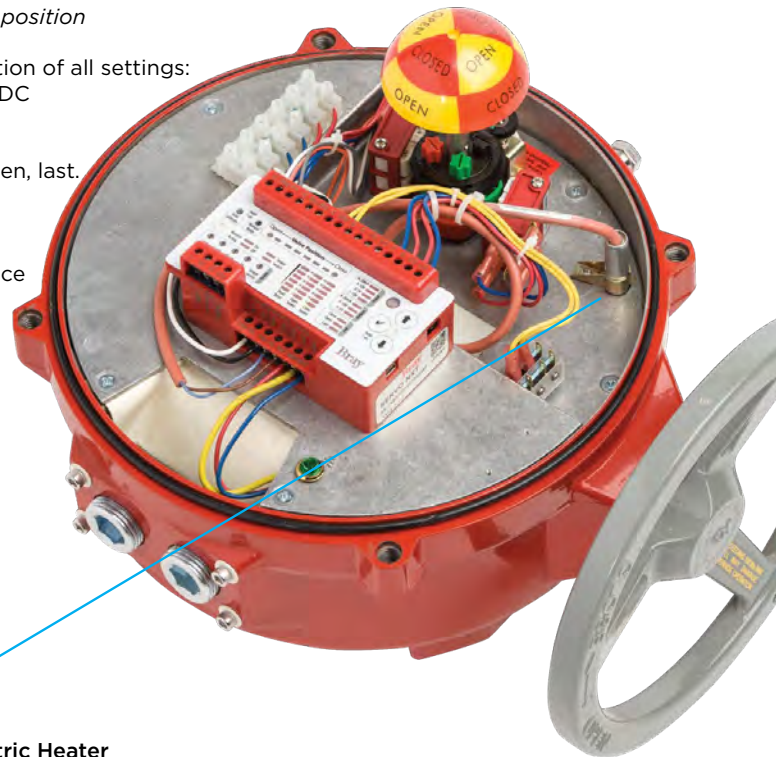
- Configurable Input Control - 4-20 mA, 0-10, 0-5 or 2-10 VDC
- Position Feedback - 4-20 mA, 0-10 or 0-5 VDC
- Auto Calibrating sequence for travel limits
- Fail Position (loss of input signal) - Configurable close, open, last.
- Speed Control - Independent for open & close direction

#### Including:

- Manual Mode - Local operation via Servo NXT user interface
- Fault display - Simplifies troubleshooting
- Stall detection - Eliminates mechanical damage in case of obstruction or bad switch settings

#### Optical Independent isolation of all inputs/outputs

- Provides interoperability with all controllers
- Earth ground tolerant
- Allows for parallel operation



#### Electric Heater

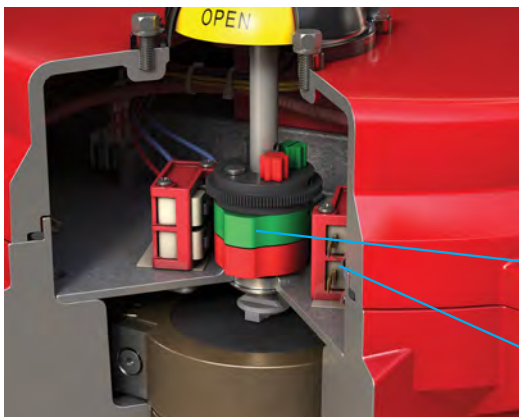
- Self-regulating temperature controlled

#### Patented Travel Limit Switch Cams

- Green Open/Red Closed
- Infinitely Adjustable

#### 2 SPDT Auxiliary Switches

- Indicate travel position to remote customer control systems



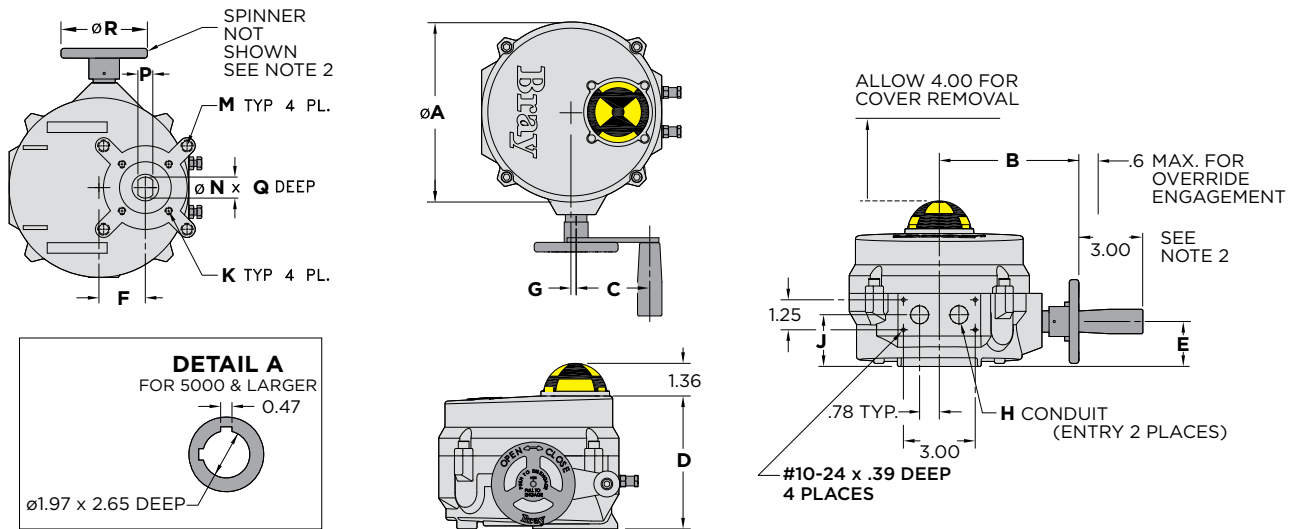
## Series 70 - Dimensions

### 70-0081 TO 70-0651

#### Series 70 Actuator - DIMENSIONS In./.(mm)

| Actuator Model Number                                 | øA            | B            | C            | D            | E           | F              | G             | H                      | J           | K<br>(UNC) x B.C.<br>(K x B.C.)       | M<br>(UNC) x B.C.<br>(M x B.C.)       | N              | P             | Q              | øR            | Weight<br>lbs.<br>(kg) |
|---|---------------|--------------|--------------|--------------|-------------|----------------|---------------|------------------------|-------------|---------------------------------------|---------------------------------------|----------------|---------------|----------------|---------------|------------------------|
| <b>S70-0081</b>                                       | 7.5<br>(191)  | 5.8<br>(147) | 3.0<br>(76)  | 5.6<br>(141) | 1.9<br>(48) | 1.94<br>(49.2) | .19<br>(4.7)  | 1/2 NPT<br>(M20 x 1.5) | 2.2<br>(55) | 5/16-18 x ø2.76<br>(M8 x 1.25 x ø70)  | —                                     | .75<br>(19.0)  | .51<br>(13.0) | 1.75<br>(44.5) | 3.5<br>(89)   | 13<br>(6)              |
| <b>S70-0121</b><br><b>S70-0201</b><br><b>S70-E301</b> | 10.1<br>(256) | 7.8<br>(198) | 3.7<br>(93)  | 6.6<br>(168) | 2.4<br>(62) | 2.69<br>(68.3) | .56<br>(14.3) | 3/4 NPT<br>(M25 x 1.5) | 2.6<br>(66) | 5/16-18 x ø2.76<br>(M8 x 1.25 x ø70)  | 1/2-13 x ø4.92<br>(M12 x 1.75 x ø125) | 1.18<br>(30.0) | .87<br>(22.0) | 2.22<br>(56.3) | 8.0<br>(203)  | 28<br>(13)             |
| <b>S70-0501</b><br><b>S70-0651</b>                    | 12.1<br>(308) | 9.5<br>(241) | 5.5<br>(139) | 7.2<br>(183) | 2.9<br>(73) | 3.19<br>(80.9) | .56<br>(14.3) | 3/4 NPT<br>(M25 x 1.5) | 3.1<br>(78) | 1/2-13 x ø4.92<br>(M12 x 1.75 x ø125) | 3/4-10 x ø6.50<br>(M20 x 2.5 x ø165)  | See Detail A   |               |                | 12.0<br>(305) | 48<br>(22)             |

**Note:** Products are sold in **imperial units**; metric dimensions are listed for **reference only**. Items with metric dimensions are different products with different PN's—please contact **BCD Sales** for details.

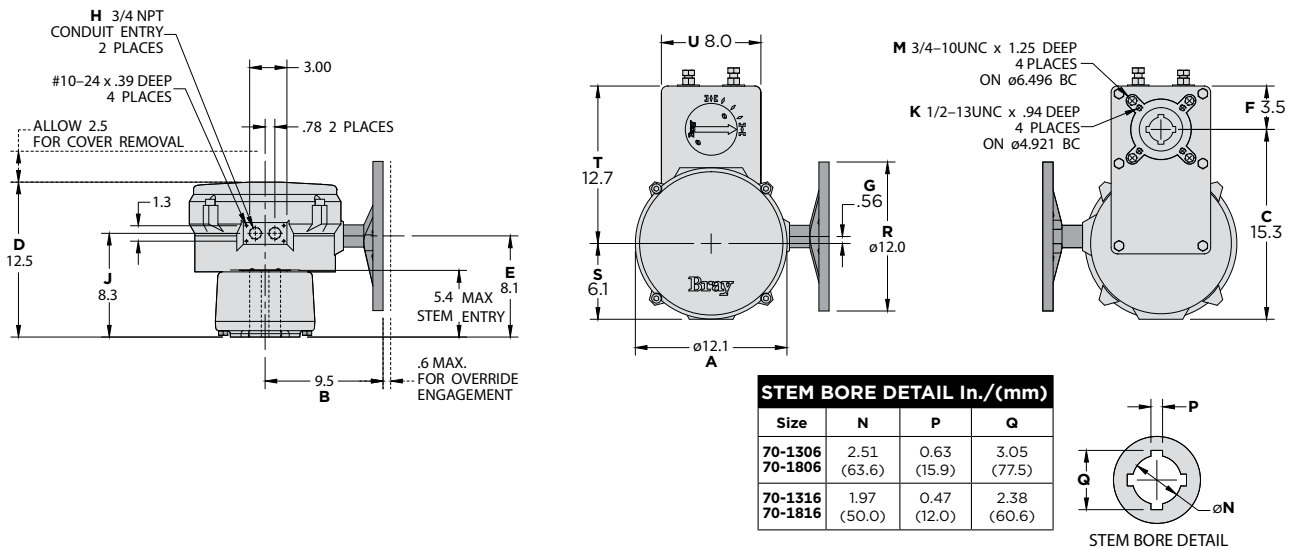


### 70-1300 TO 70-1800

#### Series 70 Actuator - DIMENSIONS In./.(mm)


| Actuator Model Number              | øA            | B            | C             | D             | E            | F           | G             | H                      | J            | K<br>(UNC) x B.C.<br>(MM) x B.C.)           | M<br>(UNC) x B.C.<br>(MM) x B.C.)           | N                    | P | Q | øR            | S            | T             | U            | Weight<br>lbs.<br>(kg) |
|------------------------------------|---------------|--------------|---------------|---------------|--------------|-------------|---------------|------------------------|--------------|---|---|----------------------|---|---|---------------|--------------|---------------|--------------|------------------------|
| <b>S70-1300</b><br><b>S70-1800</b> | 12.1<br>(308) | 9.5<br>(241) | 15.3<br>(389) | 12.5<br>(316) | 8.1<br>(206) | 3.5<br>(89) | .56<br>(14.3) | 3/4 NPT<br>(M25 x 1.5) | 8.3<br>(211) | 1/2-13 x ø4.921 F12<br>(12 x 125 BC x 23.9) | 3/4-10 x ø6.496 F16<br>(20 x 165 BC x 31.8) | See Stem Bore Detail |   |   | 12.0<br>(305) | 6.1<br>(155) | 12.7<br>(322) | 8.0<br>(203) | 118<br>(54)            |

**Note:** Products are sold in **imperial units**; metric dimensions are listed for **reference only**. Items with metric dimensions are different products with different PN's—please contact **BCD Sales** for details.

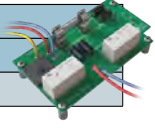
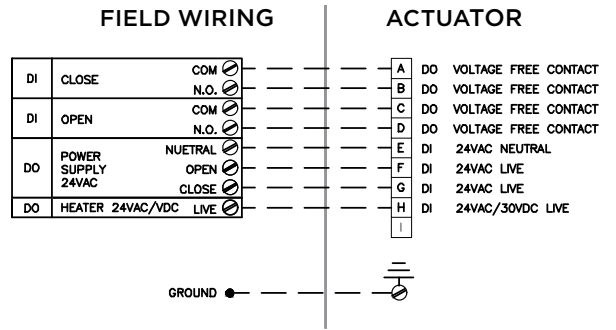
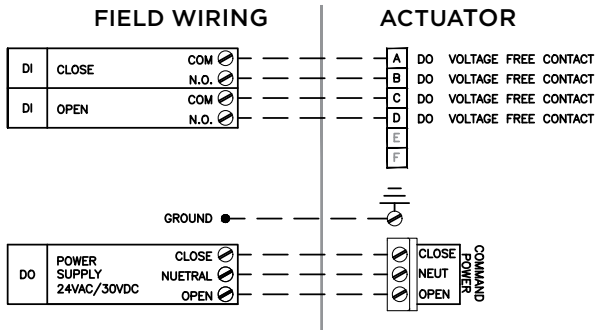


# Series 70 - Wiring - On/Off

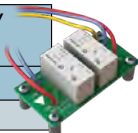
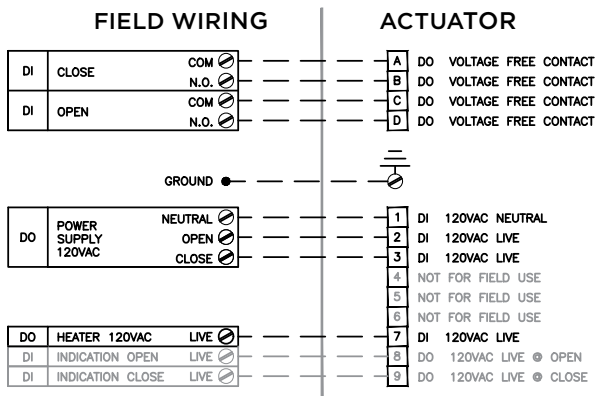
**70-24-0081H / 70-24-0201H**  
**24VAC/30VDC ON/OFF NXT**  
 REFERENCE WIRING DIAGRAM: WD-000528



**70-24-0501H**  
**24VAC ON/OFF PCB**  
 REFERENCE WIRING DIAGRAM: WD-000111

**70-0081H / 70-0121H / 70-0201H / 70-E301H / 70-0501H / 70-0651H / 70-1300H / 70-1800H**  
**120VAC ON/OFF IRB**  
 REFERENCE WIRING DIAGRAM: WD-000045

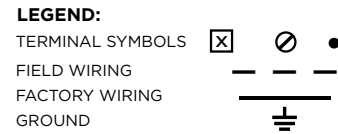



**CALIBRATION SEQUENCE:**  
 PLEASE VISIT THE S70 INDUSTRIAL ELECTRIC ACTUATOR SECTION OF OUR WEBSITE AND REFER TO THE QUICK START GUIDE AND VIDEO TUTORIAL LINK IN THE DOCUMENTS SECTION.

**TERMINAL STRIP:**  
 14-24 AWG FOR CONTROLLER & BBU, MAX TIGHTENING TORQUE 3.5 IN-LBS  
 14-22 AWG FOR OTHER, MAX TIGHTENING TORQUE 8 IN-LBS  
 105 °C, 300V MIN RATED WIRE

**NOTES:**

- HEATER (REQUIRED FOR HUMID ENVIRONMENTS).
- SWITCHES ARE SPDT (FORM C).
- DO NOT INSTALL OR USE THE SERIES 70 ELECTRIC ACTUATOR IN OR NEAR ENVIRONMENTS WHERE CORROSIVE SUBSTANCES OR VAPORS COULD BE PRESENT. EXPOSURE OF THE ELECTRIC ACTUATOR TO CORROSIVE ENVIRONMENTS MAY DAMAGE THE INTERNAL COMPONENTS OF THE DEVICE, AND WILL VOID THE WARRANTY.



**FUSE:**  
 FAST BLOW 250V 5A 5x20MM

**LIMIT SWITCH:**  
 125/250 VAC, 10A, 1/2 HP  
 125/250 VDC, 0.25A INDUCTIVE  
 125/250 VDC, 0.5A RESISTIVE

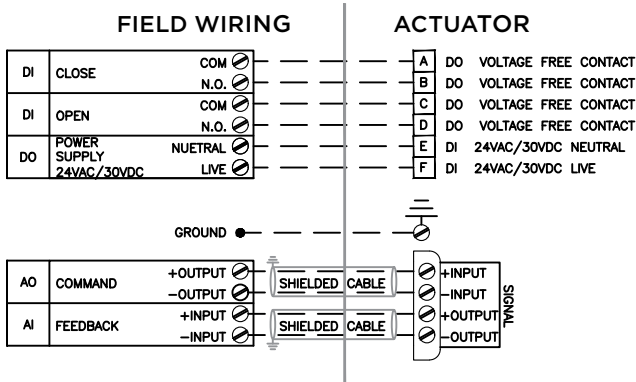
| Wiring Distance (only applicable to 24V actuators)  |   |      |      |
|---|---|------|------|
| Conduit Entries (2) - 3/4" NPT Terminal Block - 14 to 24 AWG.<br>Size wires per NEC guidelines with respect to distance and current draw. |   |      |      |
|   | Max Distance Between Actuator and Supply - ft |      |      |
| Torque (in-lbs)   | 800   | 2000 | 5000 |
| I <sub>load</sub> (Amps)  | 2.90  | 3.50 | 4.00 |
| 8 GA  | 3025  | 741  | 370  |
| 10 GA   | 1899  | 465  | 233  |
| 12 GA   | 1195  | 293  | 146  |
| 14 GA   | 752   | 184  | 92   |
| 16 GA   | 463   | 113  | 57   |
| 18 GA   | 290   | 71   | 36   |

# Series 70 - Wiring - Modulating

70-24-0081SVH / 70-24-0201SVH / 70-24-0501SVH

24VAC/30VDC SERVO NXT

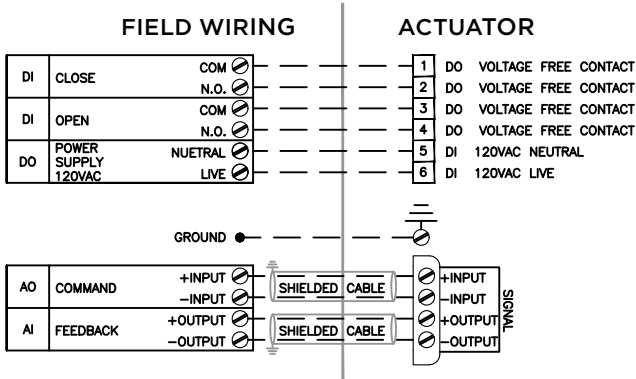
REFERENCE WIRING DIAGRAMS: WD-000347 AND WD-000554



70-0081SVH / 70-0121SVH / 70-0201SVH /  
70-E301SVH / 70-0501SVH / 70-0651SVH /  
70-1300SVH / 70-1800SVH

120VAC SERVO NXT

REFERENCE WIRING DIAGRAM: WD-000339



### CALIBRATION SEQUENCE:

PLEASE VISIT THE S70 INDUSTRIAL ELECTRIC ACTUATOR SECTION OF OUR WEBSITE AND REFER TO THE QUICK START GUIDE AND VIDEO TUTORIAL LINK IN THE DOCUMENTS SECTION.

### TERMINAL STRIP:

14-24 AWG FOR CONTROLLER & BBU, MAX TIGHTENING TORQUE 3.5 IN-LBS  
14-22 AWG FOR OTHER, MAX TIGHTENING TORQUE 8 IN-LBS  
105 °C, 300V MIN RATED WIRE

### NOTES:

1. HEATER (REQUIRED FOR HUMID ENVIRONMENTS)
2. SWITCHES ARE SPDT (FORM C).
3. WHEN USING 0-10VDC, 0-5 VDC & 2-10VDC, THE COMMON OF THE COMMAND SIGNAL SHOULD NOT BE GROUND/EARTH REFERENCED.
4. COMMAND SIGNAL AND FEEDBACK SIGNAL MUST BE ISOLATED FROM EACH OTHER AND ANY OTHER CIRCUITS.
5. COMMAND SIGNAL & FEEDBACK SIGNAL WIRES SHOULD BE SHIELDED PROPERLY & SHIELD SHOULD BE GROUNDED/EARTHED ON ONE END ONLY, PREFERABLY THE CONTROLLER END.
6. FEEDBACK LOOP IS POWERED BY THE SERVO, DO NOT SUPPLY EXTERNAL POWER.
7. FEEDBACK LOAD DEVICE NOT TO EXCEED 400 OHMS (4-20mA CONFIGURATION).
8. DO NOT INSTALL OR USE THE SERIES 70 ELECTRIC ACTUATOR IN OR NEAR ENVIRONMENTS WHERE CORROSIVE SUBSTANCES OR VAPORS COULD BE PRESENT. EXPOSURE OF THE ELECTRIC ACTUATOR TO CORROSIVE ENVIRONMENTS MAY DAMAGE THE INTERNAL COMPONENTS OF THE DEVICE, AND WILL VOID THE WARRANTY.

### LEGEND:

TERMINAL SYMBOLS

FIELD WIRING — — —

FACTORY WIRING — — —

GROUND

### FUSE:

FAST BLOW 250V 5A 5x20MM

### LIMIT SWITCH:

125/250VAC, 10A, 1/2 HP  
125/250VDC, 0.25A INDUCTIVE  
125/250VDC, 0.5A RESISTIVE

### Wiring Distance (only applicable to 24V actuators)

Conduit Entries (2) - 3/4" NPT Terminal Block - 14 to 24 AWG.  
Size wires per NEC guidelines with respect to distance and current draw.

|                          | Max Distance Between Actuator and Supply - ft |      |      |
|--------------------------|---|------|------|
| Torque (in-lbs)          | 800   | 2000 | 5000 |
| I <sub>load</sub> (Amps) | 2.90  | 3.50 | 4.00 |
| 8 GA                     | 3025  | 741  | 370  |
| 10 GA                    | 1899  | 465  | 233  |
| 12 GA                    | 1195  | 293  | 146  |
| 14 GA                    | 752   | 184  | 92   |
| 16 GA                    | 463   | 113  | 57   |
| 18 GA                    | 290   | 71   | 36   |

# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

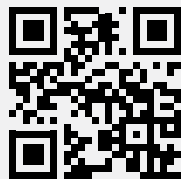
- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

### CORPORATE HEADQUARTERS

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### DIVISION HEADQUARTERS

**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)




All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

# AU Series

## Industrial Electric Actuators

21,300 in-lb to 70,800 in-lb

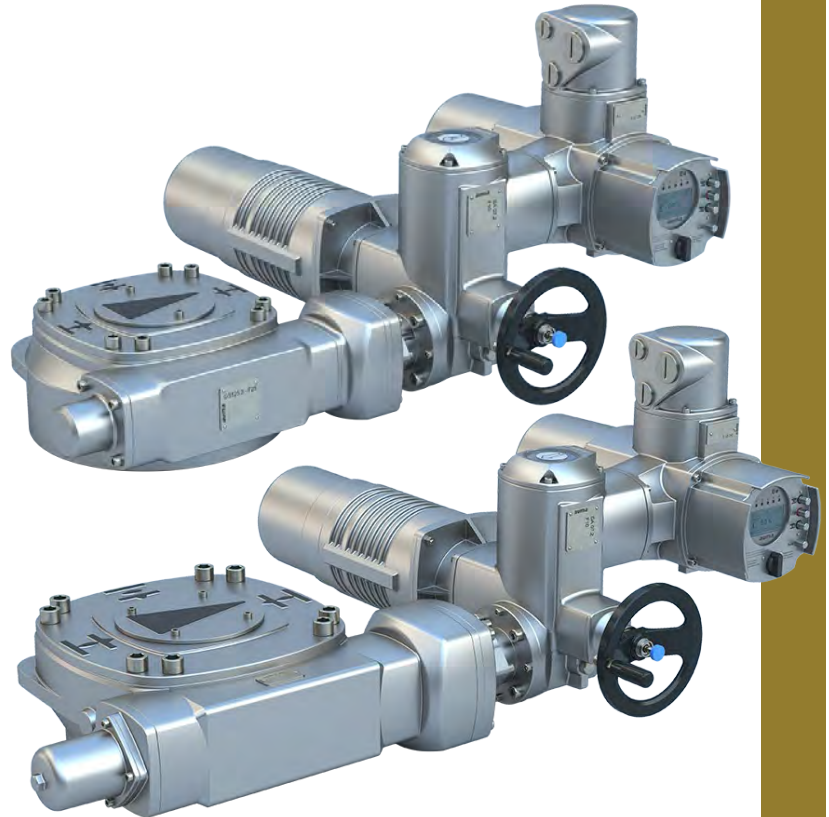
| DOCUMENT         |   |
|------------------|---|
| CONTENTS         | Features  |
|                  | Specifications  |
|                  | Cv Tables   |
|                  | Cut-Away View   |
|                  | Dimensions  |
| Close-Off Charts |   |
| LOOKING FOR MORE |  |
|                  | © 2022 Bray International, Inc.<br>11/17/22   |

### Application

AU Series Electric actuators provide precise, durable control of quarter turn valves including rubber seated butterfly valves, high performance butterfly valves and industrial ball valves. The compact industrial housing is rated to NEMA 4X (IP 67) standards for outdoor use. All models include integrated controls and a manual override handwheel.

The standard AU models are 120V single phase. Three phase units are available as an option. All AU series actuators include two auxiliary switches, torque switches, a position indicator and a heater. Modulating units provide position feedback as standard.

AU series actuators mount directly to Bray butterfly valves and ball valves without the need for adapter bracket. Thermal overload protection is provided by means of PTC thermistors connected directly to the motor windings.



### Features and Benefits

- Heavy Duty Design**

*Rated for 15K full stroke cycles, 2.5M repositions*

- Manual Declutchable Override Handwheel**

*Manual positioning without disconnecting power*

- Position and Motion Indicator Lights**

*For operation feedback*

- Integrated Digital Display Controls**

*Local menu driven actuator operation without DIP switches*

### Model Number Selection Chart

| Model Number | Torque in.lbs. | On/Off | Modulating |
|--------------|----------------|--------|------------|
| 7AU-2130     | 21,300         | ●      |            |
| AU-2130SV    |                |        | ●          |
| AU-4068      | 40,680         | ●      |            |
| AU-4068SV    |                |        | ●          |
| AU-7080      | 70,800         | ●      |            |
| AU-7080SV    |                |        | ●          |

Note - Heaters and Auxiliary Switches are standard with all models.

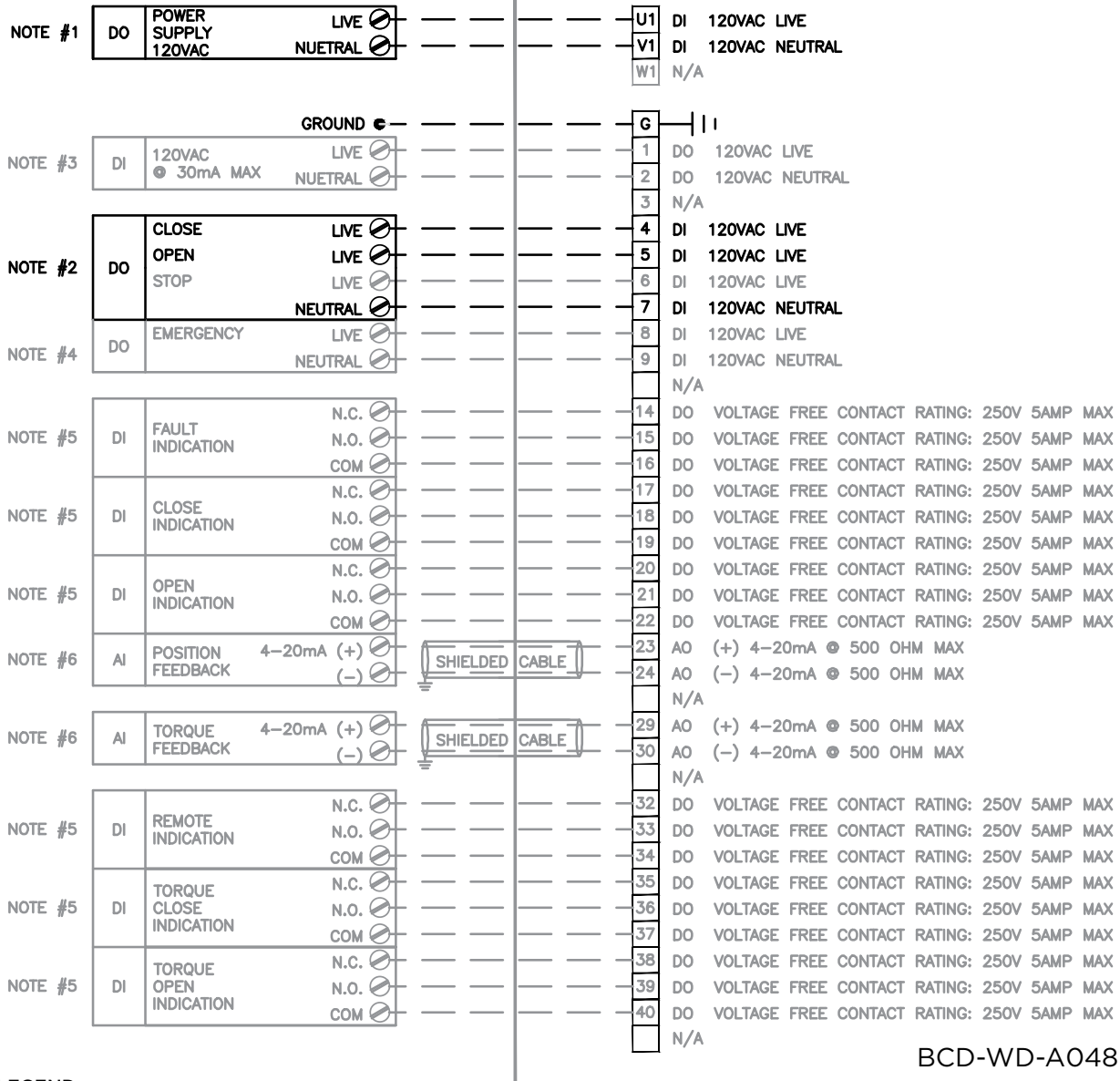
## AU Series - Technical Specifications

| Technical Specifications - Actuator |  |   |
|-------------------------------------|--|---|
| Control Type                        | AU-xxxx  | On/Off or Floating                                      |
|                                     | AU-xxxxSV  | Modulating  |
| Power Supply                        | 120 VAC, 60 Hz, +/- 10%, Single-Phase, Reversible, Permanent Split Capacitor Induction Motor                       |   |
| Current Draw                        | Full Load  | AU-2130 5.9 A   |
|                                     |  | AU-4068 & AU-7080 6.4 A                                 |
|                                     | Locked Rotor   | 14 A  |
| Motor Protection                    | 1 Ph-1 thermal switch 284°F (140°C) Class F insulation, tropicalized winding                                       |   |
| Control Module Voltage              | On/Off, Floating   | 110 - 120 VAC   |
|                                     | Modulating   | 24 VDC  |
| Output Aux. Voltage                 | On/Off, Floating   | 115 VAC - 30 mA   |
|                                     | Modulating   | 24 VDC - 100 mA   |
| Feedback Signal                     | 4 to 20 mA   |   |
| Torque                              | 21,300 in-lb to 70,800 in-lb (2,407 Nm to 8,000 Nm)  |   |
| Control Input Signal                | Modulating   | 4 to 20 mA  |
| Output Contacts                     | 6 Output contacts: 6 NO/NC without common 5A   |   |
| Output Signals                      | Default Setting - Fault, End pos. CLOSED End pos. OPEN, Selector sw. REMOTE, Torque fault CLOSE, Torque fault OPEN |   |
| Terminal Strip                      | Power Terminals  | 8 to 10 AWG (6 to 10 mm <sup>2</sup> )                  |
|                                     | Controls Contacts  | 14 AWG (2.5 mm <sup>2</sup> )                           |
| Enclosure                           | NEMA types 6P (IP68) Corrosion Protection: KS  |   |
| Heater                              | On/Off, Floating   | 120 V internal (12.5 W)                                 |
|                                     | Modulating   | 24 V internal (12.5 W)                                  |
| Conduit Entries                     | Plug/socket 100 mm, 2 × 3/4" NPT; 1 × 1-1/4" NPT   |   |
| Operating Time                      | 60 Seconds   |   |
| Angle of Rotation                   | 92° maximum  |   |
| Manual Operation                    | Declutchable   | To close the valve, turn handwheel clockwise.           |
|                                     | Override Handwheel   | Drive shaft (valve) turns clockwise in close direction. |
| Dimensions                          | See Page 4   |   |
| Weights                             | AU-2130  | 158 lbs. (72 kg)  |
|                                     | AU-4068  | 181 lbs. (82 kg)  |
|                                     | AU-7080  | 278 lbs. (127 kg)                                       |
| Ambient Temperature                 | -13°F to 158°F (-25°C to 70°C)   |   |
| Fail Position                       | Loss of supply power - Fail-in-place   |   |
| Duty Cycle                          | On/Off, Floating   | S2 -15 min continuous, max. six starts/minute           |
|                                     | Modulating   | S4 - 25% Intermittent duty                              |
| Life Cycle                          | 15,000 Full Stroke Cycles; 2,500,000 Repositions at Rated Running Torque   |   |
| Certifications                      | CE   |   |
| Warranty                            | 3 Years limited from time of shipment.   |   |

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

FIELD WIRING

ACTUATOR



BCD-WD-A048

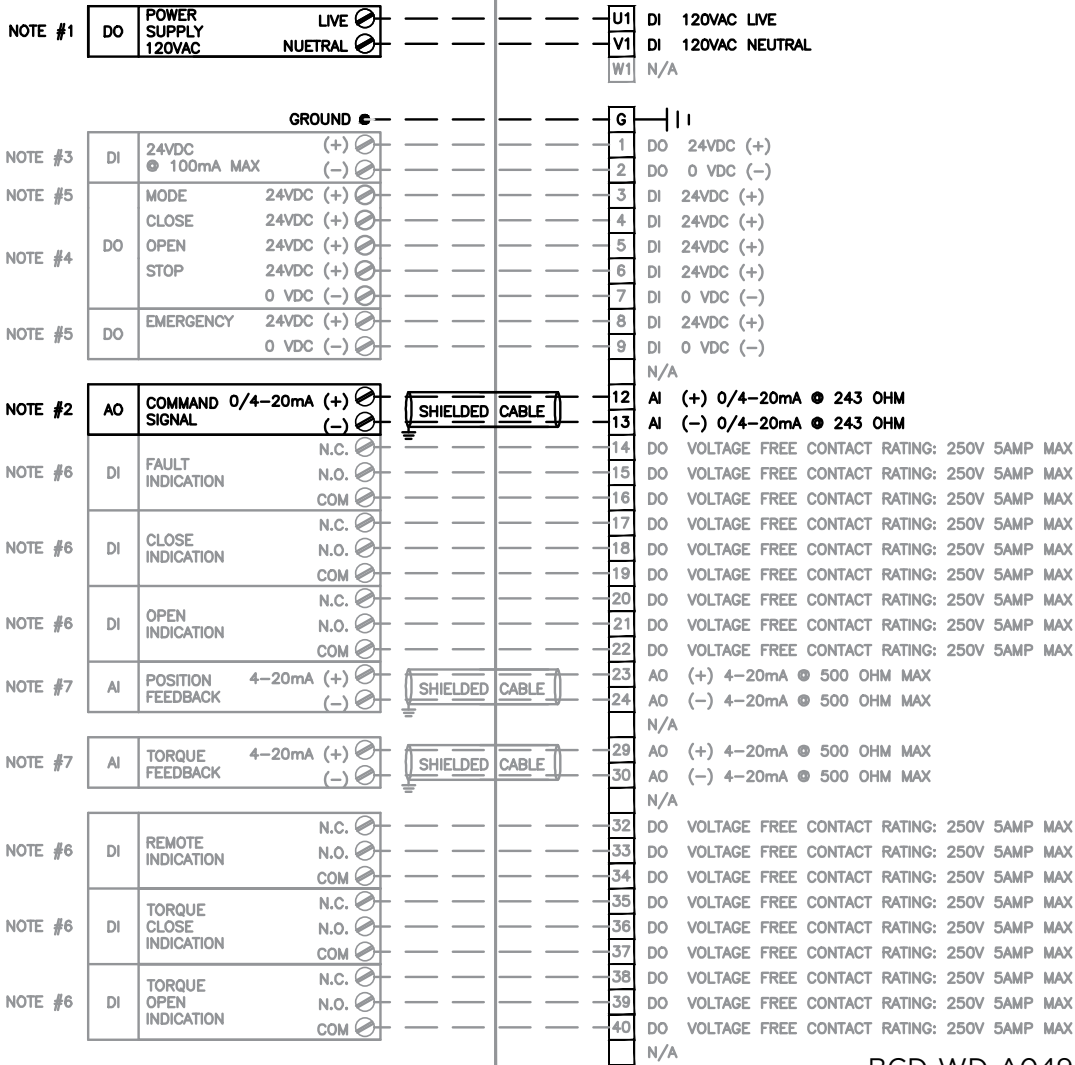
**LEGEND:**  
 TERMINAL SYMBOLS   
 FIELD WIRING   
 FACTORY WIRING   
 GROUND

**CALIBRATION SEQUENCE:**  
 ACTUATOR THAT WAS FACTORY MOUNTED TO VALVE WAS CALIBRATED BY THE FACTORY IN ACCORDANCE WITH THE APPLICABLE AUMA OPERATION MANUAL.

- NOTES:**
1. POWER INPUT FROM FIELD CONTROL PANEL TO ACTUATOR
  2. 120VAC COMMAND SIGNAL INPUT FROM FIELD CONTROL PANEL TO ACTUATOR (LIVE AND NEUTRAL BOTH REQUIRED FOR OPERATION)
  3. OPTIONAL: POWER OUTPUT FROM ACTUATOR TO BE USED BY FIELD CONTROL PANEL CONTACTS FOR ACTUATOR INPUTS
  4. OPTIONAL: 120VAC COMMAND SIGNAL INPUT FROM FIELD CONTROL PANEL TO ACTUATOR (LIVE AND NEUTRAL BOTH REQUIRED FOR OPERATION). FUNCTIONAL PURPOSE IS DETERMINED BY PROGRAMMING SELECTION
  5. OPTIONAL: DIGITAL OUTPUT FROM ACTUATOR, VOLTAGE FREE CONTACT. RATING: 250V 5AMP
  6. OPTIONAL: ANALOG OUTPUT FROM ACTUATOR TO BE USED BY FIELD PLC FROM MONITORING. 4-20mA @ 500 OHM MAX

FIELD WIRING

ACTUATOR



BCD-WD-A049

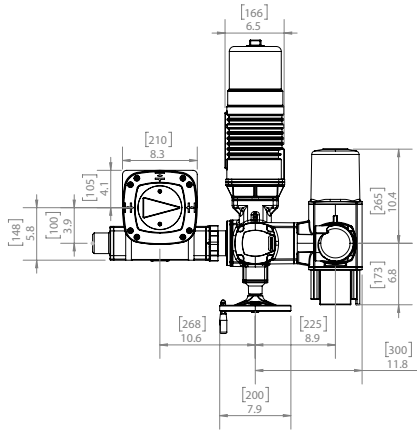
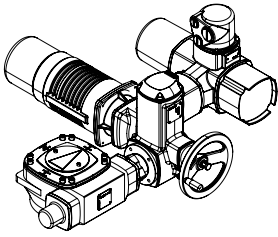
**LEGEND:**  
 TERMINAL SYMBOLS [X] ○ ●  
 FIELD WIRING — — —  
 FACTORY WIRING - - -  
 GROUND ⊥

**CALIBRATION SEQUENCE:**  
 ACTUATOR THAT WAS FACTORY MOUNTED TO VALVE WAS CALIBRATED BY THE FACTORY IN ACCORDANCE WITH THE APPLICABLE AUMA OPERATION MANUAL.

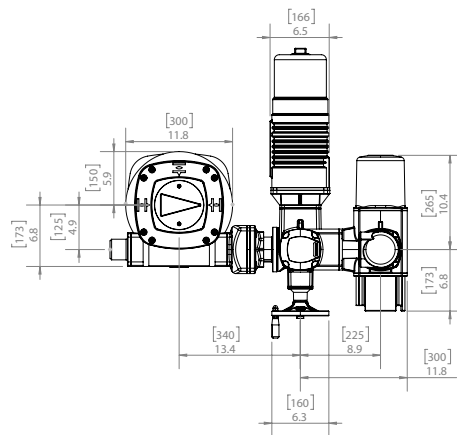
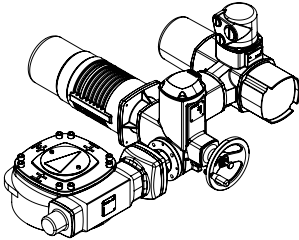
- NOTES:**
1. POWER INPUT FROM FIELD CONTROL PANEL TO ACTUATOR
  2. 0/4-20mA COMMAND SIGNAL INPUT FROM FIELD CONTROL PANEL TO ACTUATOR
  3. OPTIONAL: POWER OUTPUT FROM ACTUATOR TO BE USED BY FIELD CONTROL PANEL CONTACTS FOR ACTUATOR INPUTS
  4. OPTIONAL: 24VDC COMMAND SIGNAL INPUT FROM FIELD CONTROL PANEL TO ACTUATOR (POSITIVE (+) AND NEGATIVE (-) BOTH REQUIRED FOR OPERATION)
  5. OPTIONAL: 24VDC COMMAND SIGNAL INPUT FROM FIELD CONTROL PANEL TO ACTUATOR (POSITIVE (+) AND NEGATIVE (-) BOTH REQUIRED FOR OPERATION). FUNCTIONAL PURPOSE IS DETERMINED BY PROGRAMMING SELECTION
  6. OPTIONAL: DIGITAL OUTPUT FROM ACTUATOR, VOLTAGE FREE CONTACT, RATING: 250V 5AMP
  7. OPTIONAL: ANALOG OUTPUT FROM ACTUATOR TO BE USED BY FIELD PLC FROM MONITORING. 4-20mA @ 500 OHM MAX

# AU Series - Dimensions - in. [mm]

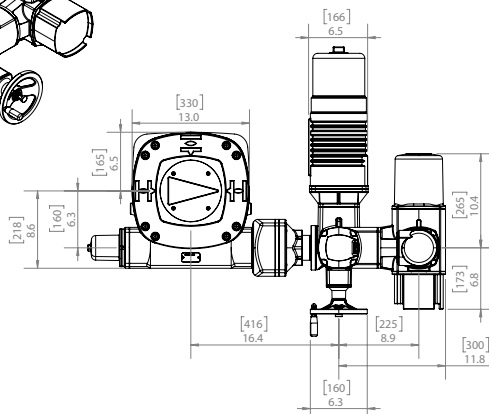
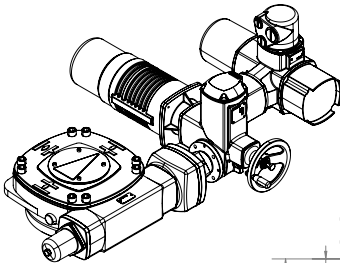
## AU-2130



## AU-4068



## AU-7080



# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

### CORPORATE HEADQUARTERS

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### DIVISION HEADQUARTERS

**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)



All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

## VAL Series Globe Valve Actuators

Spring Return • For use on 2-1/2" - 6" Globe Valves

### Application

The VAL-SRS07 and VAL-SRS15P Spring Return Electro Hydraulic Actuators provide precise modulating control of Bray DG Series Globe Valves.

These actuators use electro hydraulic force to achieve superior close-off pressure ratings. The stroke of these actuators is up at the low input signal condition, and down in the high signal input condition.

A weather shield is available to offer a degree of protection against rain, sleet and damage from external ice formation.

### Features and Benefits

- **High Output Force**

*Provides high close-off pressure ratings*

- **Direct Mount to Bray DG Series Globe Valves**

*Eases installation and minimizes space requirements*

- **Spring Return Operation**


*Returns valve to the open position upon loss of power*

- **User-Selectable Input Signals**

*Accepts current or voltage inputs*

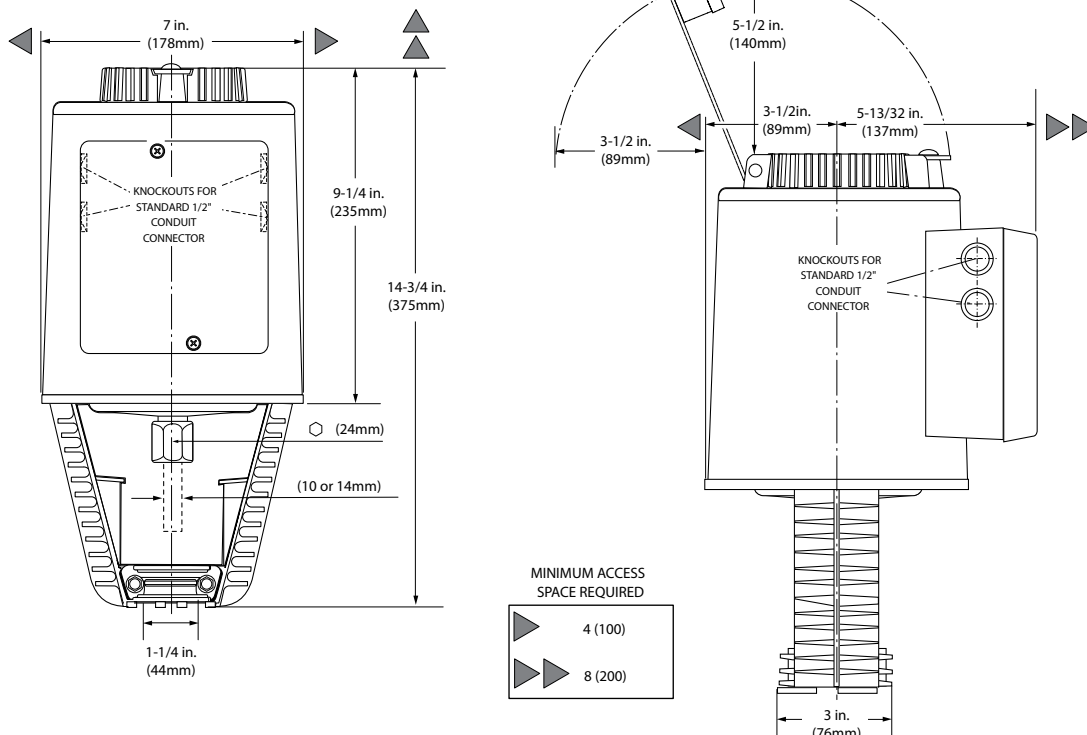
- **Visual and Electronic Position Indication**

*Provides position feedback and provides for remote monitoring*

| DOCUMENT         |   |
|------------------|---|
| CONTENTS         | Features  |
|                  | Specifications  |
|                  | Cv Chart  |
|                  | Cut-Away View   |
|                  | Dimensions  |
| Close-Off Charts |   |
| LOOKING FOR MORE |  |
|                  | © 2022 Bray International, Inc.<br>11/07/24   |



### VAL Series - Dimensions



## VAL Series - Specifications

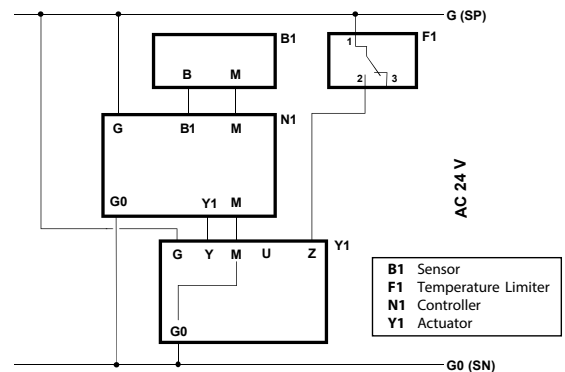
| Technical Specifications - Actuator |   |  |                   |
|-------------------------------------|---|--|-------------------|
| Model Number                        |   | VAL-SRS07P                               | VAL-SRS15P        |
|                                     |   | 2-1/2" to 3" valves                      | 4" to 6" valves   |
| Power Requirements                  | 24 VAC (±20%),<br>50/60 Hz  | 18 VA Nominal                            | 28 VA Nominal     |
| Control Input Signal                | Input Y   | 0 to 10 VDC                              |                   |
|                                     | Input R   | 4 to 20 mA                               |                   |
| Input Impedance                     | Current   | 100,000 Ω                                |                   |
|                                     | Voltage   | 250 Ω                                    |                   |
| Feedback Signal                     | Current   | 0 to 10 VDC                              |                   |
|                                     | Voltage   | 4 to 20 mA                               |                   |
| Mechanical Output                   | Stem Up   | 640 lbs. (2800 N) (Spring return stroke) |                   |
|                                     | Stem Down   | 1000 lbs. (4400 N) (Power stroke)        |                   |
| Stroke Range                        |   | 3/4" (20 mm)                             | 1-1/2" (40 mm)    |
| Nominal Stroke Timing               | Power Stroke  | 120 seconds                              |                   |
|                                     | Return Stroke   | 15 seconds                               | 20 seconds        |
| Ambient Operating Conditions        | 5 to 130°F (-15 to 55°C), 10 to 90% RH, non-condensing, 86°F (30°C) maximum dew point |  |                   |
| Enclosure Rating                    | NEMA 1, Weather shield available  |  |                   |
| Shipping Weight                     |   | 18.5 lb. (8.4 kg)                        | 21.4 lb. (9.7 kg) |
| Agency Compliance                   | UL 873 Listed, C-UL C22.2 No. 24-93   |  |                   |
| Warranty                            | 5 Years limited from time of shipment.  |  |                   |

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray Controls shall not be liable for damages resulting from misapplication or misuse of its products.

## VAL Series - Wiring

| Actuator    | Power Consumption | Actuators per Class 2 Supply Circuit* (80% of transformer VA) |
|-------------|-------------------|---|
| VAL-SRS07P  | 17 VA             | 4   |
| VAL-SRS015P | 28 VA             | 2   |

\* Operating more actuators requires additional transformers or separate 100 VA power supplies.



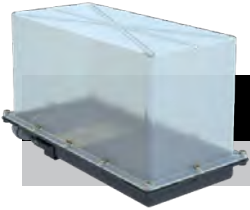
Do not use autotransformers. Use earth ground isolating step-down Class 2 transformers.

Determine supply transformer rating by summing total VA of all actuators used. The maximum rating for Class 2 step-down transformer is 100 VA.

| 24 VAC Actuator - Connecting Terminals |   |
|--|---|
| G                                      | System potential (SP)   |
| G0                                     | System neutral (SN)   |
| Y                                      | Control input 0 to 10 Vdc or 4 to 20 mA (DIP switch selectable)     |
| Z                                      | Override control  |
| M                                      | Measuring neutral   |
| U                                      | Output for 0 to 10 Vdc or 4 to 20 mA measuring voltage. (see above) |

| Actuator Output Signal |                     |                |
|------------------------|---------------------|----------------|
| Actuator Input Signal  | Receiving Impedance |                |
|                        | Low (<500 Ohm)      | High (>10 Ohm) |
| 0 to 10 VDC            | 0 to 20 mA          | 0 to 10 VDC    |
| 4 to 20 mA             | 4 to 20 mA          | 2 to 10 VDC    |

The position output signal U will switch from 0 to 10 VDC to 4 to 20 mA when a 4 to 20 mA input signal is selected and used on the Y terminal.



## Large Weather Shield – Submittal/Technical Data

For Ball & Butterfly Valve Actuators

### Description

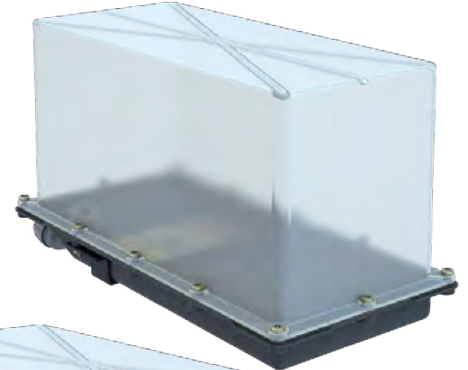
The Bray Weather Shield is an industrial grade, convenient, and cost-effective method of protecting actuators from the harsh elements and washdowns, not just weather.

### Features

- ABS - Injected with ultraviolet inhibitors
- Includes a gasket, anti-rotation bracket, anti-rotation pin, and liquid-tight conduit connector.
- Base - Durable nylon blend that provides flexibility and durability

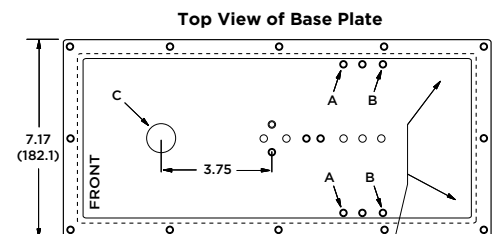
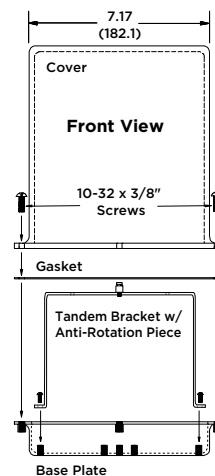
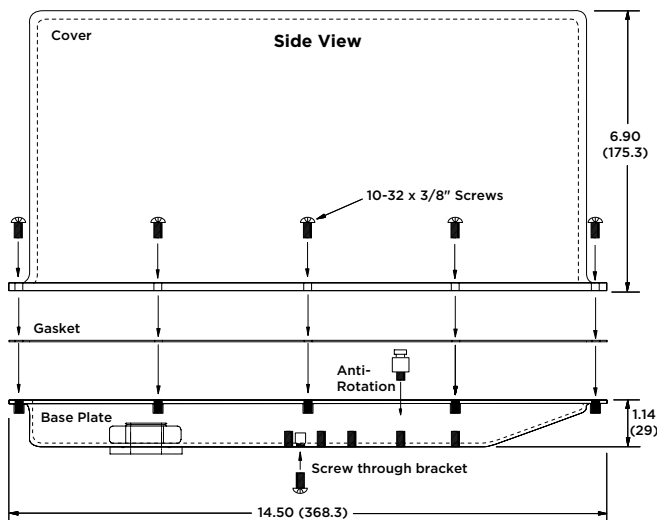
### Benefits

- UV inhibitors prevent cover from becoming brittle
- Translucent Cover allows the actuator to be fully viewable

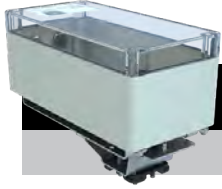


| Model Number | Description - Actuators Covered |
|--------------|---------------------------------|
| WS-B-S180    | DS-180                          |
| WS-B-S180-T  | Tandem DS-180                   |
| WS-B-280     | D-140, D-210 and D-280          |
| WS-B-280-T   | Tandem D-140, D-210 and D-280   |
| WS-B-310     | DC-310                          |
| WS-B-310-T   | Tandem DC-310                   |

| Specifications   |   |
|------------------|---|
| Top Cover        | Polypropylene with added UV inhibitor.  |
| Base             | Talc filled Polypropylene (20%), color black, color ratio 1%.   |
| Enclosure Rating | NEMA 4, IP55<br>IP55: Protected from limited dust ingress. Protected from low pressure water jets from any direction.   |
| Temperature      | For the Polypropylene used in your top and bottom parts, the recommended operating temperature range is a minimum of -50 °F to a maximum 180 °F. The ASTM D648 thermal deflection test rating is 160 °F, which is the temperature at which a test sample, under a load of 66 PSI, deflects by 0.25mm. |
| Dimensions       | (H x W x D) 8.04 x 14.50 x 7.17 in. (204.22 x 368.3 x 182.12 mm) - See Below  |
| Weight           | 4.0 lb (1.8 kg)   |
| Warranty         | 5 Years limited from time of shipment.  |



- A = Mounting hole for D-140/210/280  
B = Mounting hole for DS-180/DC310 & Tandem Actuator Bracket  
C = Drive Pin Opening
- Liquid Tight Connector Location:  
1 for Single Mount  
2 for Tandem Mount



## Small Weather Shield – Submittal/Technical Data

For ST2 Ball Valves with VA Series Actuators

### Description

The Bray Small Weather Shield is an industrial grade, convenient, and cost-effective method of protecting actuators from the harsh elements and washdowns, not just weather.

### Features

- Enclosure - constructed of impact-grade plastic that provides excellent impact resistance.
- Fully Enclosed Design - Protects the electric actuator from corrosion, rain, freezing rain, sleet, and snow.
- Strain Relief Conduit Fittings - Protect the electric actuator from damage by preventing tension on the electrical connection.

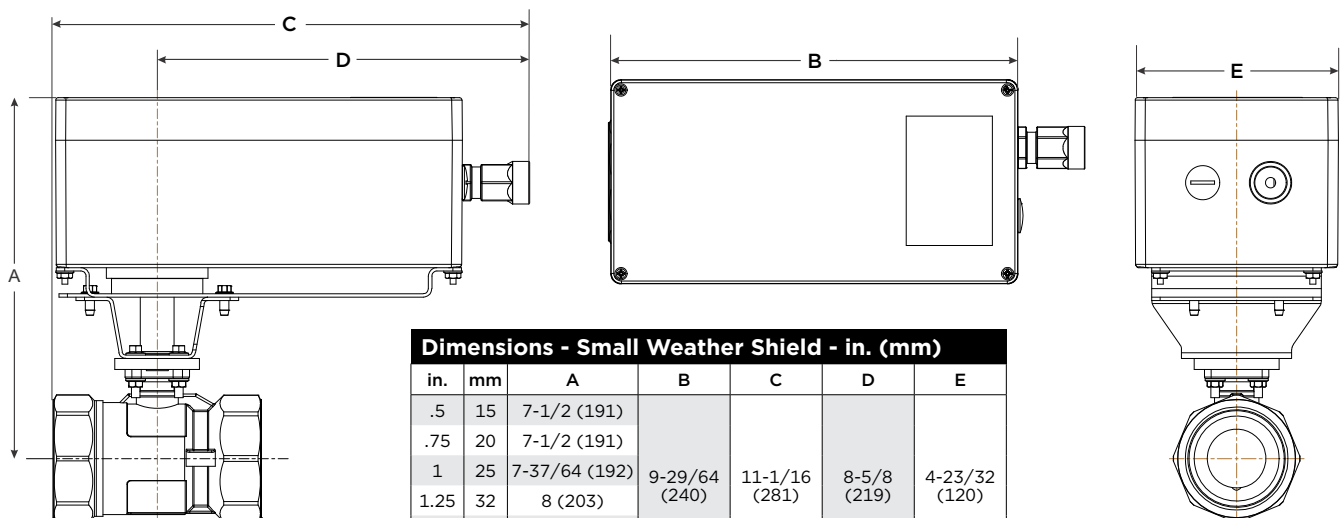
### Benefits

- UV inhibitors prevent cover from becoming brittle or damaged by the sun or other environmental elements.
- Translucent Cover provides an unobstructed view of the electric actuator without having to disassemble the enclosure.



| Specifications         |   |
|------------------------|---|
| Top Cover              | Transparent UV resistant polycarbonate plastic  |
| Enclosure Seal         | Nitrile   |
| Body                   | UV resistant polycarbonate plastic  |
| Cover Gasket           | Polyurethane  |
| Electrical Connections | Strain relief conduit fittings with 1/2 in. (13 mm) National Pipe Straight Mechanical (NPSM) exit |
| Ambient Temp. Limits   | -40 to 176°F (-40 to 80°C)  |
| Dimensions             | See Below   |
| Protection Rating      | NEMA 4X, IP66   |
| Weight                 | 4.2 lb (1.9 kg)   |
| Warranty               | 5 Years limited from time of shipment   |

| Model Number | Description - Actuators Covered        |
|--------------|--|
| M9000-342    | ST2 Direct Mount (VA Series) Actuators |



| Dimensions - Small Weather Shield - in. (mm) |    |               |               |               |             |               |
|--|----|---------------|---------------|---------------|-------------|---------------|
| in.  | mm | A             | B             | C             | D           | E             |
| .5   | 15 | 7-1/2 (191)   | 9-29/64 (240) | 11-1/16 (281) | 8-5/8 (219) | 4-23/32 (120) |
| .75  | 20 | 7-1/2 (191)   |               |               |             |               |
| 1  | 25 | 7-37/64 (192) | 9-29/64 (240) | 11-1/16 (281) | 8-5/8 (219) | 4-23/32 (120) |
| 1.25   | 32 | 8 (203)       |               |               |             |               |
| 1.50   | 40 | 8-11/64 (208) |               |               |             |               |
| 2  | 50 | 8-11/32 (212) |               |               |             |               |

## Weather Cover – Submittal/Technical Data

### For PIC and Globe Valve Actuators

#### Description

The Bray Weather Cover is an industrial grade, convenient, and cost-effective method of protecting GA/PA Series actuators from the harsh elements and washdowns, not just weather.

#### Application

The Bray Weather Cover comes in a variety of standard sizes for all PA models that might be in an environment that exceeds their NEMA Type 2/3R ratings or for added protection to GA series actuators, namely UV exposure.

#### Features

- Industrial grade backed by a 5-year warranty waterproof cloth
- Chemical, mold, mildew, salt, oil and dust resistant
- Flame retardant
- Unaffected by UV light (no plastic components)
- Grey color minimizes solar gains
- Installed and removed in seconds

#### Benefits

- Reduced operation and maintenance costs
- Extended life of components

| Model Number | Description - Actuators Covered |
|--------------|---------------------------------|
| WS-PA27      | PA27                            |
| WS-PA100     | PA100/PA112                     |
| WS-GA450/562 | GA450/562                       |


| Specifications |  |
|----------------|--|
| Temperature    | -20° to 500° F (260° C)  |
| Cover Material | 17oz fiberglass cloth, both sides silicone impregnated                                     |
| Thread         | Kevlar 92 Aramid   |
| Fasteners      | Stainless Steel D-Rings with heavy-duty 1" Nylon strap<br>Velcro seal flaps on some models |
| Warranty       | 5 Years limited from time of shipment  |



This Page Intentionally Left Blank

## Series 92/93 & 98 Pneumatic Actuators

• Non-Spring Return - Series 92 • Spring Return - Series 93

| DOCUMENT                                    |   |
|---|---|
| CONTENTS                                    | Features  |
|   | Specifications  |
|   | Cv Chart  |
|   | Cut-Away View   |
|   | Dimensions  |
| LOOKING FOR MORE                            | Close-Off Charts  |
|   |  |
| © 2022 Bray International, Inc.<br>04/19/25 |   |

### Application

The Bray Series 92/93 high pressure pneumatic actuators are ideally suited to a wide range of quarter turn applications including butterfly valves, ball valves and dampers. These rack and pinion actuators are available in Series 92 double acting (air to open, air to close) and Series 93 single acting (spring return) models.

The compact and robust design of the Series 92/93 actuators feature an extruded aluminum housing, polyester-coated die cast aluminum end caps, die cast aluminum opposed pistons, and a carbon steel zinc plated output pinion. Conforming to the ISO 5211 top flange standard, all Series 92/93 actuators are directly mounted to the valve top plate or saddle without the need for adapters or brackets.

Series 92/93 actuators are available with a wide range of factory mounted Bray line accessories including pneumatic positioners, electro pneumatic positioners, solenoid valves, position indicators and manual declutchable gear override assemblies.

Series 98 scotch-yoke actuators features a modular design with a wide range of modules to suit the required process application. The heart of the Series 98 is the yoke, available in symmetrically or canted, that converts linear motion into rotational motion.



### Features and Benefits (Series 92/93)

- **Bi-Directional Travel Stops**

*Allows for precise open/close points.*

- **IP 65 Enclosure**

*Suitable for outdoor use, subject to ambient temperature limits.*

- **Optional Spring Cartridges**

*Provides easy conversion from double-acting to spring return.*

- **Direct-Mount Design**

*No special hardware or mounting kits required.*

- **Varied Control Options**

*On/Off, 3 - 15 psi pneumatic, and 4 - 20 mA electro-pneumatic.*

## Series 92/93 & 98 Pneumatic Actuators - Specifications

| Technical Specifications - Series 92/93 Pneumatic Actuators |  |  |                               |
|---|--|--|-------------------------------|
| Model Number  |  | Series 92  | Series 93                     |
| Media   | Dry Compressed Air/Inert Gas   |  |                               |
| Torque  | Double Acting  | Up to 44,130 lb-in (4,986 Nm)  | N/A                           |
|   | Spring Return  | N/A  | Up to 14,169 lb-in (1,601 Nm) |
| Pressure Range  | 40 - 140 psi (2.8 - 10 bar)  |  |                               |
| Spring Return Rotation                                      | N/A  |  | 90°                           |
| Double Acting Rotation                                      | 90°, 135°, 180°  |  | N/A                           |
| Travel Stop   | Two independently adjustable, 90° +/- 5°   |  |                               |
| Mounting  | EN ISO 5211, VDI/ VDE 3845 (NAMUR)   |  |                               |
| Ambient Operating Temperature Range                         | Standard   | -4°F to 200°F (-20°C to 93°C)  |                               |
|   | Low  | -40°F to 176°F (-40°C to 80°C)   |                               |
|   | High   | 0°F to 300°F (-18°C to 149°C)  |                               |
|   | Extreme  | Up to 482°F (250°C)  |                               |
| Materials of Construction                                   | Body   | Anodized 316 Stainless Steel, Electroless Nickel Plated Body Exterior, Extruded Aluminum Alloy, Hard Anodized Body Exterior, SEACORR® Coated Body Exterior |                               |
|   | End Caps   | Die cast aluminum alloy with corrosion resistant polyester coating   |                               |
|   | Pistons  | Die cast aluminum alloy  |                               |
|   | Output Shaft/ Pinion   | Carbon Steel, zinc plated  |                               |
|   | Travel Stop  | Alloy Steel  |                               |
|   | Shaft Bearings   | Acetal   |                               |
|   | Piston Guides  | Acetal   |                               |
|   | Fasteners  | Stainless Steel  |                               |
|   | Springs  | Spring Steel, protective coating   |                               |
|   | O-Ring Seals   | Buna-N   |                               |
| Options   | Polyester coated body exterior, Electroless Nickel plated body exterior. Hard Anodized body exterior, Stainless Steel pinion |  |                               |
| Approvals & Certifications                                  | PED (2014/68/EU), ATEX (2014/34/EC), SIL 3, Bureau Veritas, ABS, EAC   |  |                               |
| Warranty  | 3 Years limited from time of shipment.   |  |                               |

| Technical Specifications - Series 98 Pneumatic Actuators |   |                                |  |
|--|---|--------------------------------|--|
| Media  | Dry Compressed Air/Inert Gas/Natural Gas                |                                |  |
| Torque Output  | Ranging from 2,038 to 885,100 lb-in (250 to 100,000 Nm) |                                |  |
| Pressure Range   | 40 - 150 psi (2.8 - 10.3 bar)                           |                                |  |
| Travel Stop  | 90° up to +/- 5°  |                                |  |
| Mounting   | Base: EN ISO 5211, Accessories: VDI/ VDE 3845           |                                |  |
| Ambient Operating Temperature Range                      | Standard  | -20°F to 200°F (-29°C to 93°C) |  |
|  | Low   | Down to -50°F (-46°C)          |  |
|  | High  | Up to 300°F (149°C)            |  |
| Materials of Construction                                | Yoke & Housing  | Ductile Iron                   |  |
|  | Guide Rod   | Alloy Steel                    |  |
|  | Piston  | Ductile Iron                   |  |
|  | Barrel  | Carbon Steel                   |  |
|  | Accessory Drive   | Stainless Steel                |  |
|  | Springs   | Carbon Steel                   |  |
|  | O-Ring (Yoke)   | Buna-N                         |  |
| Coating  | Premium epoxy/polyurethane coating as standard          |                                |  |
| Approvals & Certifications                               | PED (2014/68/EU), ATEX, SIL 3, ABS, EAC                 |                                |  |
| Warranty   | 3 Years limited from time of shipment.                  |                                |  |

## Series 92/93 Pneumatic Actuators - Torque Data

### Actuator Torque Data (IN-LB) Spring Return

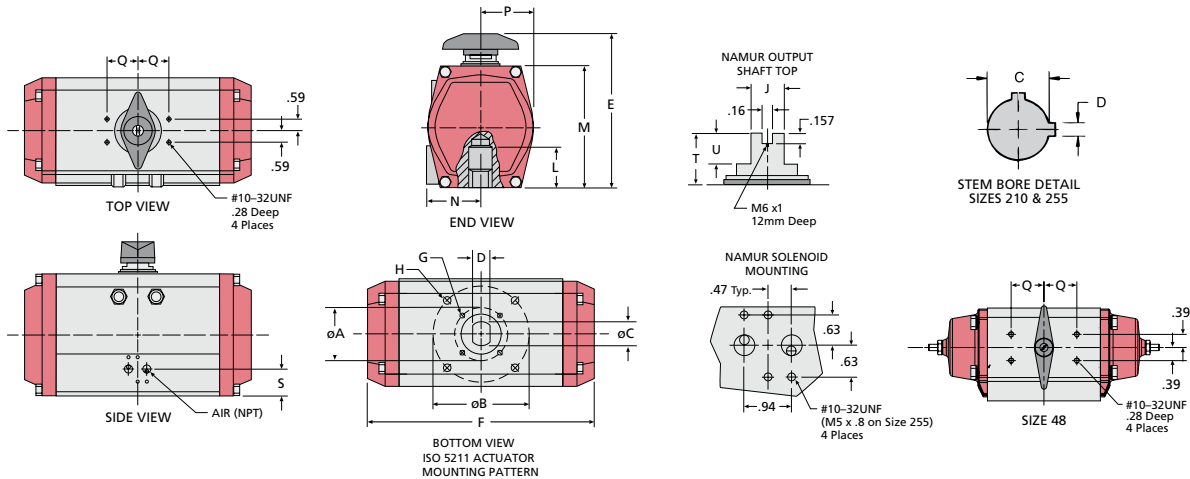
| Model Number | Springs (Pairs) | Air Supply (psi) |      |       |       |       |       |       |       |       |       | Spring       |            |
|--------------|-----------------|------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------------|------------|
|              |                 | 40               |      | 60    |       | 80    |       | 100   |       | 120   |       | Spring Start | Stroke End |
|              |                 | Start            | End  | Start | End   | Start | End   | Start | End   | Start | End   |              |            |
| 93-632       | 2               | 91               | 65   | 167   | 141   | 243   | 217   | 319   | 293   | 395   | 369   | 80           | 54         |
| 93-633       | 3               | 64               | 27   | 140   | 103   | 216   | 179   | 292   | 255   | 368   | 331   | 118          | 81         |
| 93-634       | 4               |                  |      | 113   | 65    | 189   | 141   | 265   | 217   | 341   | 293   | 156          | 108        |
| 93-635       | 5               |                  |      | 86    | 27    | 162   | 103   | 238   | 179   | 314   | 255   | 194          | 135        |
| 93-636       | 6               |                  |      |       |       | 135   | 65    | 211   | 141   | 287   | 217   | 232          | 162        |
| 93-632       | 2               | 210              | 167  | 395   | 352   | 580   | 537   | 765   | 722   | 950   | 907   | 184          | 141        |
| 93-833       | 3               | 156              | 76   | 341   | 261   | 526   | 446   | 711   | 631   | 896   | 816   | 275          | 195        |
| 93-834       | 4               |                  |      | 281   | 176   | 466   | 361   | 651   | 546   | 836   | 731   | 360          | 255        |
| 93-835       | 5               |                  |      | 220   | 97    | 405   | 282   | 590   | 467   | 775   | 652   | 439          | 316        |
| 93-836       | 6               |                  |      |       |       | 369   | 185   | 554   | 370   | 739   | 555   | 536          | 352        |
| 93-932       | 2               | 310              | 232  | 570   | 492   | 830   | 752   | 1089  | 1011  | 1349  | 1271  | 261          | 183        |
| 93-933       | 3               | 218              | 101  | 478   | 361   | 738   | 621   | 997   | 880   | 1257  | 1140  | 392          | 275        |
| 93-934       | 4               |                  |      | 386   | 231   | 646   | 491   | 905   | 750   | 1165  | 1010  | 522          | 367        |
| 93-935       | 5               |                  |      | 294   | 94    | 554   | 354   | 813   | 613   | 1073  | 873   | 659          | 459        |
| 93-936       | 6               |                  |      |       |       | 462   | 229   | 721   | 488   | 981   | 748   | 784          | 551        |
| 93-1192      | 2               | 692              | 469  | 1249  | 1026  | 1805  | 1582  | 2362  | 2139  | 2919  | 2696  | 589          | 366        |
| 93-1193      | 3               | 509              | 174  | 1066  | 731   | 1622  | 1287  | 2179  | 1844  | 2736  | 2401  | 884          | 549        |
| 93-1194      | 4               |                  |      | 883   | 437   | 1439  | 993   | 1996  | 1550  | 2553  | 2107  | 1178         | 732        |
| 93-1195      | 5               |                  |      | 700   | 142   | 1256  | 698   | 1813  | 1255  | 2370  | 1812  | 1473         | 915        |
| 93-1196      | 6               |                  |      |       |       | 1073  | 404   | 1630  | 961   | 2187  | 1518  | 1767         | 1098       |
| 93-1282      | 2               | 880              | 465  | 1622  | 1207  | 2364  | 1949  | 3106  | 2691  | 3848  | 3433  | 945          | 530        |
| 93-1283      | 3               |                  |      | 1357  | 733   | 2099  | 1475  | 2841  | 2217  | 3583  | 2959  | 1419         | 795        |
| 93-1284      | 4               |                  |      | 1094  | 261   | 1836  | 1003  | 2578  | 1745  | 3320  | 2487  | 1891         | 1058       |
| 93-1285      | 5               |                  |      |       |       | 1568  | 529   | 2310  | 1271  | 3052  | 2013  | 2365         | 1326       |
| 93-1286      | 6               |                  |      |       |       | 1302  | 57    | 2044  | 799   | 2786  | 1541  | 2837         | 1592       |
| 93-1602      | 2               | 1819             | 1118 | 3292  | 2591  | 4764  | 4063  | 6236  | 5535  | 7709  | 7008  | 1679         | 978        |
| 93-1603      | 3               | 1399             | 349  | 2872  | 1822  | 4344  | 3294  | 5816  | 4766  | 7289  | 6239  | 2448         | 1398       |
| 93-1604      | 4               |                  |      | 2452  | 1123  | 3924  | 2595  | 5396  | 4067  | 6869  | 5540  | 3147         | 1818       |
| 93-1605      | 5               |                  |      | 2030  | 353   | 3502  | 1825  | 4974  | 3297  | 6447  | 4770  | 3917         | 2240       |
| 93-1606      | 6               |                  |      |       |       | 3154  | 1196  | 4626  | 2668  | 6099  | 4141  | 4546         | 2588       |
| 93-2102      | 2               | 3833             | 2508 | 6876  | 5551  | 9920  | 8595  | 12964 | 11639 | 16007 | 14682 | 3275         | 1950       |
| 93-2103      | 3               | 2859             | 868  | 5902  | 3911  | 8946  | 6955  | 11990 | 9999  | 15033 | 13042 | 4915         | 2924       |
| 93-2104      | 4               |                  |      | 4930  | 2275  | 7974  | 5319  | 11018 | 8363  | 14061 | 11406 | 6551         | 3896       |
| 93-2105      | 5               |                  |      | 3949  | 638   | 6993  | 3682  | 10037 | 6726  | 13080 | 9769  | 8188         | 4877       |
| 93-2106      | 6               |                  |      |       |       | 6022  | 2031  | 9066  | 5075  | 12109 | 8118  | 9839         | 5848       |
| 93-2552      | 2               | 9487             | 6747 | 16967 | 14227 | 24447 | 21707 | 31926 | 29186 | 39406 | 36666 | 7464         | 4724       |
| 93-2553      | 3               | 7125             | 3015 | 14605 | 10495 | 22085 | 17975 | 29564 | 25454 | 37044 | 32934 | 11196        | 7086       |
| 93-2554      | 4               |                  |      | 12243 | 6762  | 19723 | 14242 | 27202 | 21721 | 34682 | 29201 | 14929        | 9448       |
| 93-2555      | 5               |                  |      | 9880  | 3030  | 17360 | 10510 | 24839 | 17989 | 32319 | 25469 | 18661        | 11811      |
| 93-2556      | 6               |                  |      |       |       | 14998 | 6778  | 22477 | 14257 | 29957 | 21737 | 22393        | 14173      |

### Actuator Torque Data (IN-LB) Double Acting

| Model Number | Air Supply (psi) |       |       |       |       |
|--------------|------------------|-------|-------|-------|-------|
|              | 40               | 60    | 80    | 100   | 120   |
| 92-63        | 145              | 221   | 297   | 373   | 449   |
| 92-83        | 351              | 536   | 721   | 906   | 1091  |
| 92-93        | 493              | 753   | 1013  | 1272  | 1532  |
| 92-119       | 1058             | 1615  | 2171  | 2728  | 3285  |
| 92-128       | 1410             | 2152  | 2894  | 3636  | 4378  |
| 92-160       | 2797             | 4270  | 5742  | 7214  | 8687  |
| 92-210       | 5783             | 8826  | 11870 | 14914 | 17957 |
| 93-255       | 14211            | 21691 | 29171 | 36650 | 44130 |

Note: Assemblies are sized at 80 psi.

## Series 92/93 Pneumatic Actuators - Dimensions



### SERIES 92/93 DIMENSIONS in.

| SIZE              | 63            | 83            | 93            | 119           | 128           | 160*         | 210           | 255‡              |
|-------------------|---------------|---------------|---------------|---------------|---------------|--------------|---------------|-------------------|
| Air NPT           | 1/4"          |               |               |               |               |              |               |                   |
| <b>A</b> ISO "F"† | 1.97-F 05     | 1.97 - F 05   | 1.97 - F 05   | 2.76 - F 07   | 2.76 - F 07   | —            | 4.92 - F 12   | 6.50 - F 16       |
| <b>B</b> ISO "F"† | 2.76 - F 07   | 2.76 - F 07   | 2.76 - F 07   | 4.92 - F 12   | 4.92 - F 12   | 4.92 - F 12  | 6.50 - F 16   | 7.87 x 4.72 Rect. |
| <b>C</b>          | 0.55          | 0.75          | 0.75          | 1.18          | 1.18          | 1.18         | 1.97          | 2.50              |
| <b>D</b>          | 0.40          | 0.51          | 0.51          | 0.87          | 0.87          | 0.87         | 0.47          | 0.62              |
| <b>E</b>          | 4.53          | 5.43          | 5.78          | 7.28          | 8.09          | 9.36         | 11.62         | 13.49             |
| <b>F</b>          | 5.58          | 7.40          | 8.59          | 12.40         | 12.31         | 15.54        | 19.57         | 28.78             |
| <b>G</b> (UNC)    | 1/4-20 x .32  | 1/4-20 x .32  | 1/4-20 x .32  | 5/16-18 x .46 | 5/16-18 x .46 | —            | 1/2-13 x .78  | M20 x 2.5 x 30mm  |
| <b>H</b> (UNC)    | 5/16-18 x .40 | 5/16-18 x .40 | 5/16-18 x .40 | 1/2-13 x .69  | 1/2-13 x .69  | 1/2-13 x .75 | 5/8-11 x 1.11 | M20 x 2.5 x 30mm  |
| <b>J</b>          | 0.38          | 0.50          | 0.50          | 1.12          | 1.12          | 1.12         | 1.12          | 1.12              |
| <b>L</b>          | 1.38          | 1.46          | 1.46          | 2.20          | 2.20          | 2.20         | 4.72          | 6.50              |
| <b>M</b>          | 3.46          | 4.27          | 4.61          | 5.52          | 6.32          | 7.80         | 10.16         | 12.06             |
| <b>N</b>          | 1.72          | 2.28          | 2.47          | 2.78          | 2.88          | 3.78         | 4.56          | 5.40              |
| <b>P</b>          | 1.38          | 1.79          | 1.97          | 2.37          | 2.70          | 3.39         | 4.41          | 5.39              |
| <b>Q</b>          | 1.58          | 1.58          | 1.58          | 1.58          | 1.58          | 2.56         | 2.56          | 2.56              |
| <b>R</b>          | 0.89          | 1.26          | 1.32          | 1.64          | 1.64          | 2.26         | 2.45          | 2.48              |
| <b>S</b>          | 0.79          | 0.79          | 0.79          | 0.79          | 0.79          | 1.18         | 1.18          | 1.18              |
| <b>U</b>          | 0.47          | 0.47          | 0.47          | 0.47          | 0.47          | 0.75         | 0.75          | 0.75              |

#### NOTE:

Double Acting and Spring Return actuators have the same overall dimensions.

The double acting unit of the size 48 actuator is optionally available with flat end caps with an F dimension of 4.00 † ISO "F" means mounting flange-drilling pattern.

\* Dimensions for Size 160A in table. Size 160B (keyed stem version) has C dimension of 1.38 and D dimension of .39

‡ Dimensions for Size 255A in table. Size 255B actuator has a C dimension of 3.00 and D dimension of .75

\*\* Size 48 has a T dimension of .79 with use of NAMUR top plate.

### SERIES 92/93 Weights - lbs.

| SIZE          | 63  | 83  | 93   | 119  | 128  | 160  | 210   | 255   |
|---------------|-----|-----|------|------|------|------|-------|-------|
| Double Acting | 3.4 | 6.3 | 8.5  | 16.9 | 21.0 | 38.8 | 77.8  | 167.0 |
| Spring Return | 4.1 | 8.1 | 10.8 | 22.3 | 27.6 | 53.2 | 109.6 | 210.8 |

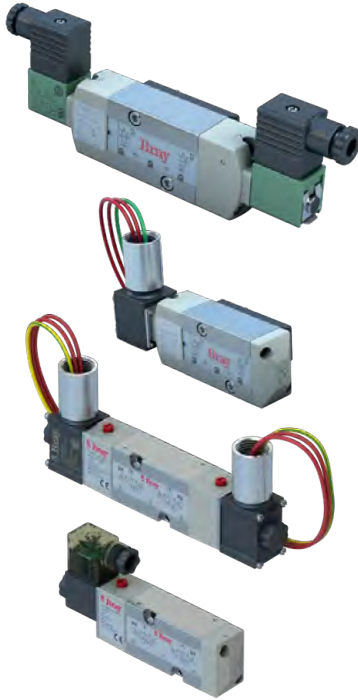
### SERIES 92/93 Actuator Speeds

| SIZE          | 63  | 83  | 93  | 119 | 128 | 160 | 210 | 255   |
|---------------|-----|-----|-----|-----|-----|-----|-----|-------|
| Double Acting | 1/4 | 1/4 | 1/4 | 1/2 | 1/2 | 1   | 2   | 2-3/4 |

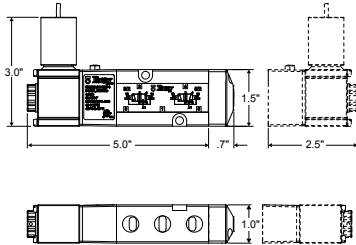
#### NOTE:

Times shown are in seconds at 80 PSIG supply pressure with 6ft. tubing having an internal diameter of approximately 1/4". Bray S92/93 actuation times are very dependent on the flow capacity of their air supply. The use of smaller port solenoids, solenoid manifolds, smaller I.D. air supply tubing and/or extended lengths of tubing can significantly reduce the actuation time and/or initial response to the command signal.

## Series 63 - Pneumatic Solenoid



### DIMENSIONS



### FEATURES

- Compact and modular design
- Convertible from 3-way (3/2) to 4-way (5/2)
- Pilot operated spool control valve
- Mechanical manual override

### TECHNICAL DATA

| Materials of Construction      |  |  |
|--------------------------------|--|--|
| Body                           | Anodized Aluminum  |  |
| Spring                         | Phosphate treated black steel  |  |
| Shading Coil                   | Copper   |  |
| Seals                          | NBR + PUR  |  |
| Core / Tube                    | Stainless / Brass  |  |
| End Covers & Plate             | 6/6 glass filled polyamide (PA/FV)   |  |
| Spool                          | Aluminum   |  |
| Internal Parts                 | Zamak, Steel, Acetal   |  |
| General Specifications         |  |  |
| Mounting                       | NAMUR VDI/VDE 3845, hardware included  |  |
| Pneumatic Ports                | 1/4" NPT   |  |
| Media                          | Filtered Air or Inert Gas  |  |
| Connections                    | NPT flying leads, available with single and dual coils                       |  |
| Electrical Connections         | NEMA Housings: 1/2" NPT connection and flying leads                          |  |
| Coil Temperature Rating        | Insulation Class "F", Max. 311°F [155°C]                                     |  |
| General Purpose (watertight)   | NEMA 4, 4X (Flying Leads)  |  |
| Model Specifications           |  |  |
| Model Specifications           | High-flow  | UL-Recognized  |
| Hazardous Locations (Optional) | --   | NEMA 7, 9<br>Class I, Division 1 (Groups A-D)<br>Class II, Division 1 (Groups E-G) |
| Temperature Range              | -13°F to +140°F [-25°C to +60°C]   | AC: -13°F to +140°F [-25°C to +60°C]<br>DC: -13°F to +77°F [-25°C to +25°C]        |
| Coil Voltage                   | Flying Leads & DIN<br>24, 110, 220 VAC, 50-60 HZ;<br>12, 24 VDC              | Flying Leads:<br>24, 120, 220 VAC, 50-60 HZ;<br>12, 24 VDC                         |
| Nominal Power                  | 4.5VA (24VAC); 6VA (110VAC);<br>7.5VA (220VAC);<br>4.5W (12 VDC); 3W (24VDC) | Flying Leads: 7VA (AC); 6.9W (DC)  |
| Flow Coefficient (1/4" pipe)   | Cv=1.4   | Cv=0.7   |
| Operating Pressure             | Min. 22 psi [1.5 bar]<br>Max. 130 psi [9 bar]                                | Min. 30 psi [2 bar]<br>Max. 130 psi [9 bar]  |
| Operating Speed                | 5 cycles per minute  | 10 cycles per minute   |
| Certifications                 | cCSAus (Flying Leads), CE (DIN coil)   | UL, CSA, CE (DIN coil)   |
| Warranty                       | 3 Years limited from time of shipment.                                       |  |

### Pneumatic Solenoid - Series 63

| Model Number    | Description   |
|-----------------|---|
| 63125A-214105P4 | S63 Single coil solenoid, 24 VAC for electric On/Off control of S92/93 actuators  |
| 63125A-214115P4 | S63 Single coil solenoid, 110 VAC for electric On/Off control of S92/93 actuators |
| 63125A-214205P4 | S63 Double coil solenoid, 24 VAC for electric On/Off control of S92/93 actuators  |
| 63125A-214215P4 | S63 Double coil solenoid, 110 VAC for electric On/Off control of S92/93 actuators |

## V200P - Pneumatic Positioner



### Pneumatic Positioner - V200P

| Model Number | Description  |
|--------------|--|
| V200P        | Pneumatic Positioner, Double or Single Acting            |
| V200M        | Mech Aux Switch for V200P                                |
| V200R        | Reed Aux Switch for V200P                                |
| V200MA       | 4 to 20 mA feedback module for V200P                     |
| V200MMA      | Mech switch aux switch and 4 to 20 mA feedback for V200P |
| V200RMA      | Reed Aux Switch and 4-20 mA feedback for V200P           |
| V200B        | Beacon Indicator for V200P                               |

**Series 6A - Electro-Pneumatic Positioner**

Bray's Series 6A Intelligent Electro-Pneumatic Positioners offer precise flow control, advanced communication and enhanced diagnostics. Utilizing proven technology, the Series 6A features rugged reliability, high quality components and outstanding performance.

Series 6A positioners are microprocessor controlled, delivering all the benefits of digital electronics. The microprocessor constantly compares the command signal to the actual valve position and makes precise, on-line adjustments until the two measurements match. The use of the piezoelectric control element results in near zero air consumption, ultra high resolution and extremely low hysteresis.

Series 6A positioners were designed with ease of installation, simple calibration, efficiency and economy in mind. The modular product line is easily customized for specific applications. Additional positioner functions may be obtained by installing optional circuit boards.



*Shown with optional gauges.*

| Technical Specifications - Series 6A |   |  |
|--------------------------------------|---|--|
| Supply Pressure                      | 20 - 102 psi (1.4 -7 Bar)   |  |
| Air Consumption                      | <0.00035 scfm   |  |
| Input Signal                         | Analog  | 4 -20 mA DC  |
|                                      | Bus   | HART, Foundation Fieldbus, Profibus PA Connections |
|                                      | Supply  | 1/4" NPT (G 1/4")                                  |
|                                      | Signal (2 conduit entries)  | 1/2" NPT (M20x1.5)                                 |
| Resolution                           | <0.05%  |  |
| Repeatability                        | 0.32%   |  |
| Hysteresis                           | <0.2%   |  |
| Temperature Range                    | -22°F(-30°C) to +176°F(+80°C)   |  |
| Weight                               | 2.0 lbs. (0.9 kg)   |  |
| Control Element Type                 | Piezoelectric   |  |
| EMC Requirements                     | EN 61326/A1 Appendix A.1, NAMUR NE21 August 98                                  |  |
| Protection Class                     | NEMA 4,4x and IP66  |  |
| Materials                            | Fiberglass Reinforced Polymer with Metalized Coated interior for EMC protection |  |
|                                      | Housing Fasteners   | Stainless Steel                                    |
|                                      | Position Indicator  | ABS polymer  |
| Positioner Mounting                  | VDI/VDE 3845 (NAMUR)  |  |
| Approvals & Certifications           | FM, CSA, CE, ATEX   |  |
| Warranty                             | 3 Years limited from time of shipment.  |  |

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

| Series 6A Model Numbers |   |
|-------------------------|---|
| Model Number            | Description   |
| 6A6DR5-0200NN005KA0     | S6A Double-Acting Electro-pneumatic positioner 4-20 mA  |
| 6A6DR5-0100NN005KA0     | S6A Single-Acting Electro-pneumatic positioner, 4-20 mA |
| 6A6DR4-0046K            | S6A Optional mechanical switch                          |
| 6A6DR4-0046J            | S6A Optional position feedback module                   |
| 6A0250-22701536         | S6A Single-Acting Optional gauge block assembly         |
| 6A0250-22702536         | S6A Double-Acting Optional gauge block assembly         |
| 6A0630-24610536         | S6A Mounting kit, S92/93 sizes 63-128                   |
| 6A1600-24610536         | S6A Mounting kit, S92/93 sizes 160-255                  |

### Series 5A - Status Monitor

The Bray Series 5A Valve Status Monitors (VSM) provide visual and electrical indication of position on any VDI/VDE 3845 compliant quarter-turn device. Our solutions enable end users to better monitor their process no matter the conditions.



#### Series 5A & (5B Mounting Hardware) Model Numbers

| Model Number    | Description  |
|-----------------|--|
| 5A0000-126A2536 | 5A Status Monitor (Mounting Kit Not Included)                                |
| 5B0000-22600534 | 5A Mounting Kit- Non-Adjustable For S98 & S92/93 Actuators - Sizes 063 - 128 |
| 5B0000-22601534 | 5A Mounting Kit- Adjustable For S98 & S92, 93 Actuators - Sizes 063 - 255    |

#### Features and Benefits

- Low Profile, Weatherproof Enclosure  
Die-cast aluminum with a polyester powder coat for exceptional corrosion, wear, impact and ultraviolet resistance.
- High Visibility Position Indicator  
Impact resistant.  
Flexible Mounting Options - Can be mounted both perpendicular and parallel to the actuator. The visual indication can also be inverted without removing the cover.
- Captive Cover Bolts with Protective Washers - Stainless Steel bolts with clear, nonmetallic corrosion resistant washers are used to ensure coating integrity.
- Adjustable Sensor Cams - No tools Required
- Limit Switches - Multiple Switch options and configurations to meet connectivity requirements.
- Terminals- Clearly Marked and Easily Accessed.
- Conduit Entries - Two available in either imperial or metric threads.
- Grounding- Green color-coded, easy access grounding bolt

#### Flexible Mounting Options

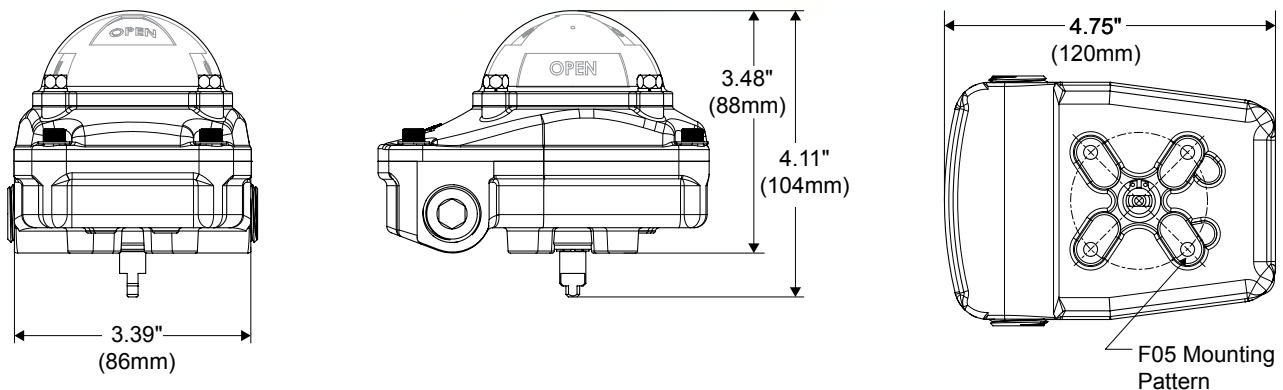
Users have the ability to mount the VSM's in both perpendicular and parallel orientations without changing brackets. The visual indication can also be inverted without removing the cover. This is done by rotating the indicator dome 90 degrees.

#### Certifications

NEMA Type 4X  
IP66/67  
cULus  
CE  
UL50E Salt Spray

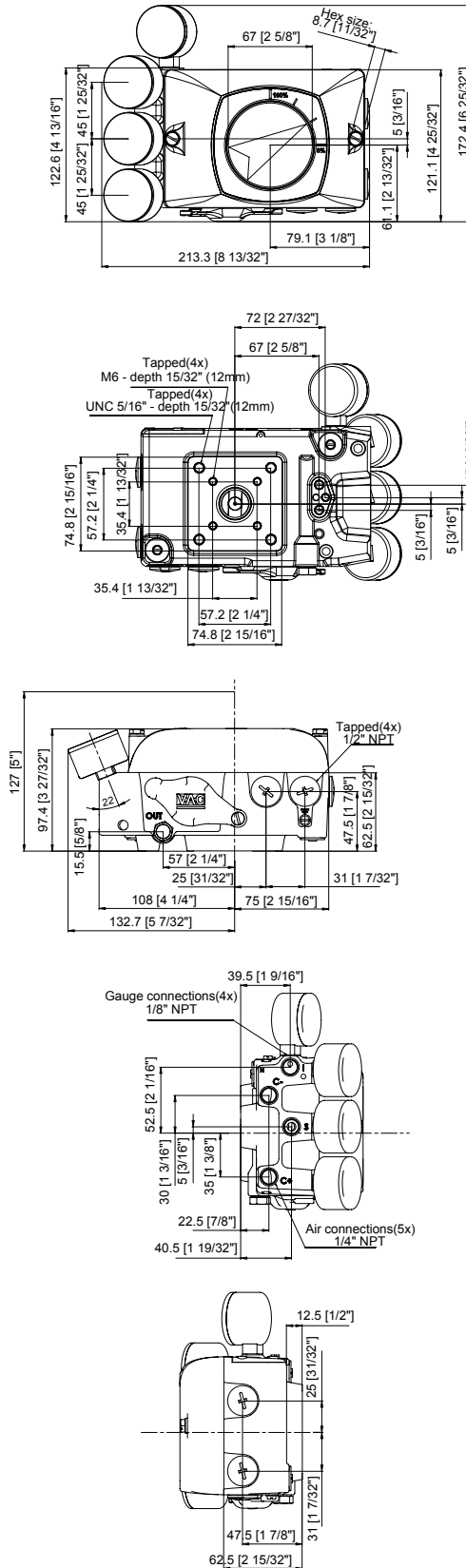


### Series 5A - Dimensions

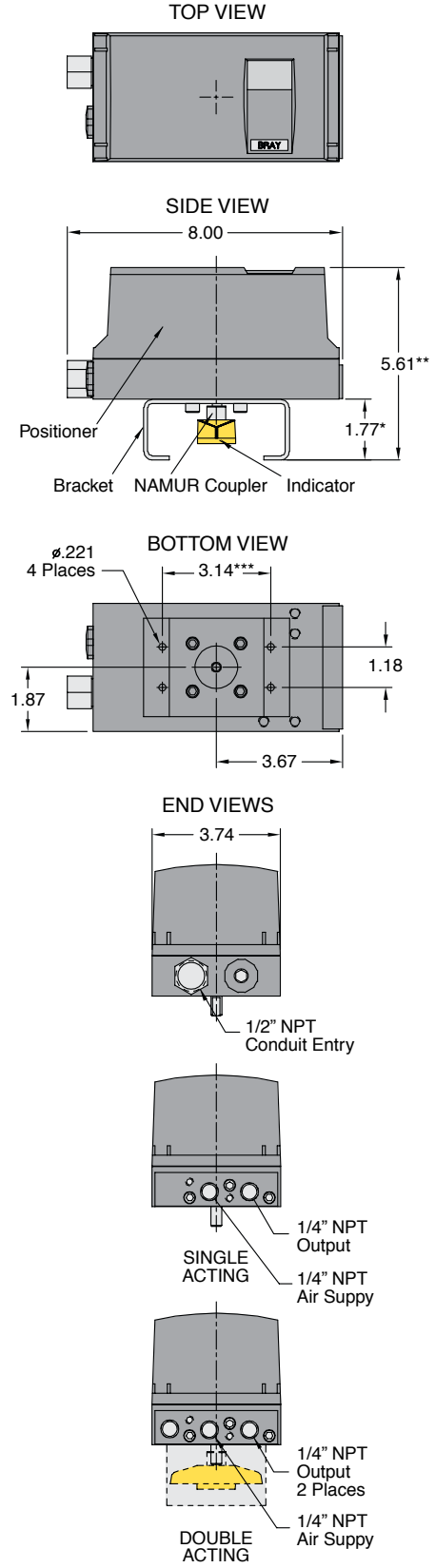


V200 & 6A - Positioner Dimensions

V200



6A



## Series 92/93 Pneumatic Actuators - Dimensions

### Series 05 - Manual Overrides

Available for 2"-36" (50mm-900mm) valves. This operator is excellent for the safe handling of spring return actuators. During pneumatic operation, the worm of the gear unit is disengaged. Should the valve require opening or closing in the event of power loss, manual rotation of the declutch lever will provide a camming action and engage the worm to the segmented worm gear, allowing rotation of the valve using the handwheel. The Series 5 can be installed in the field with existing Bray pneumatic actuators.

| 3L VALVE BODY & SERIES 05 MANUAL OVERRIDE DIMENSIONS in. |          |     |     |     |     |               |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
|--|----------|-----|-----|-----|-----|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| SIZE 20:1 (2,000 lb.in)                                  |          |     |     |     |     | ACTUATOR SIZE |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| Valve Body   |          |     |     |     |     | 63            |      |      | 83   |      |      | 92   |      |      | 118  |      |      | 127  |      |      |      |  |
| Valve Model Number                                       | Size in. | A   | B   | C   | D   | E             | F    | G    | H    | E    | F    | G    | E    | F    | G    | E    | F    | G    | E    | F    | G    |  |
| 3L_E-02S**   | 2        | 3.7 | 1.7 | 2.0 | 5.5 | 2.3           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 3L_E-25S**   | 2.5      | 4.3 | 1.8 | 2.5 | 6.0 | 2.6           | 2.79 | 5.88 | 1.72 |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 3L_E-03S**   | 3        | 4.9 | 1.8 | 3.0 | 6.3 | 2.8           |      |      |      | 3.70 | 6.78 | 2.28 | 4.30 | 7.13 | 2.47 |      |      |      |      |      |      |  |
| 3L_E-04x**   | 4        | 6.1 | 2.1 | 4.1 | 7.0 | 4.1           |      |      |      |      |      |      |      |      |      | 5.95 | 8.63 | 2.78 | 6.16 | 9.44 | 2.88 |  |
| 3L_E-05x**   | 5        | 7.1 | 2.2 | 5.0 | 7.5 | 4.6           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |
| 3L_E-06x**   | 6        | 8.1 | 2.2 | 5.8 | 8.0 | 5.1           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |  |

| H    | I    | J    |
|------|------|------|
| 1.92 | 8.88 | 8.00 |

| 3L VALVE BODY & SERIES 05 MANUAL OVERRIDE DIMENSIONS in. |          |      |     |      |      |               |      |      |      |      |      |      |      |       |      |      |       |      |      |      |       |
|--|----------|------|-----|------|------|---------------|------|------|------|------|------|------|------|-------|------|------|-------|------|------|------|-------|
| SIZE 30:1 (8,000 lb.in)                                  |          |      |     |      |      | ACTUATOR SIZE |      |      |      |      |      |      |      |       |      |      |       |      |      |      |       |
| Valve Body   |          |      |     |      |      | 118           |      |      | 127  |      |      | 160  |      |       | 210  |      |       |      |      |      |       |
| Valve Model Number                                       | Size in. | A    | B   | C    | D    | E             | F    | G    | H    | E    | F    | G    | E    | F     | G    | E    | F     | G    | H    | I    | J     |
| 3L_E-05x**   | 5        | 7.1  | 2.2 | 5.0  | 7.5  | 4.6           |      |      |      |      |      |      |      |       |      |      |       |      | 3.05 | 9.43 | 12.00 |
| 3L_E-06x**   | 6        | 8.1  | 2.2 | 5.8  | 8.0  | 5.1           |      |      |      |      |      |      |      |       |      |      |       |      |      |      |       |
| 3L_E-08x**   | 8        | 10.5 | 2.4 | 7.8  | 9.5  | 6.1           | 5.95 | 8.97 | 2.78 | 6.16 | 9.78 | 2.88 | 7.77 | 11.05 | 3.78 | 9.78 | 13.31 | 4.56 |      |      |       |
| 3L_E-10x**   | 10       | 12.6 | 2.7 | 9.8  | 10.8 | 7.7           |      |      |      |      |      |      |      |       |      |      |       |      |      |      |       |
| 3L_E-12x**   | 12       | 14.9 | 3.1 | 11.8 | 12.3 | 9.0           |      |      |      |      |      |      |      |       |      |      |       |      |      |      |       |

| H    | I    | J     |
|------|------|-------|
| 3.05 | 9.43 | 12.00 |

| 3L VALVE BODY & SERIES 05 MANUAL OVERRIDE DIMENSIONS in. |          |      |     |      |      |               |      |       |      |      |       |      |       |       |      |      |       |       |
|--|----------|------|-----|------|------|---------------|------|-------|------|------|-------|------|-------|-------|------|------|-------|-------|
| SIZE 50:1 (13,000 lb.in)                                 |          |      |     |      |      | ACTUATOR SIZE |      |       |      |      |       |      |       |       |      |      |       |       |
| Valve Body   |          |      |     |      |      | 160           |      |       | 210  |      |       | 255  |       |       |      |      |       |       |
| Valve Model Number                                       | Size in. | A    | B   | C    | D    | E             | F    | G     | H    | E    | F     | G    | E     | F     | G    | H    | I     | J     |
| 3L_E-10x**   | 10       | 12.6 | 2.7 | 9.8  | 10.8 | 7.7           |      |       |      |      |       |      |       |       |      | 3.34 | 11.81 | 12.00 |
| 3L_E-12x**   | 12       | 14.9 | 3.1 | 11.8 | 12.3 | 9.0           | 7.77 | 13.74 | 3.78 | 9.78 | 16.00 | 4.56 |       |       |      |      |       |       |
| 3L_E-14x**   | 14       | 17.1 | 3.1 | 13.3 | 13.6 | 9.9           |      |       |      |      |       |      | 14.39 | 18.99 | 5.40 |      |       |       |
| 3L_E-16x**   | 16       | 19.2 | 4.0 | 15.3 | 14.8 | 11.3          |      |       |      |      |       |      |       |       |      |      |       |       |

| H    | I     | J     |
|------|-------|-------|
| 3.34 | 11.81 | 12.00 |

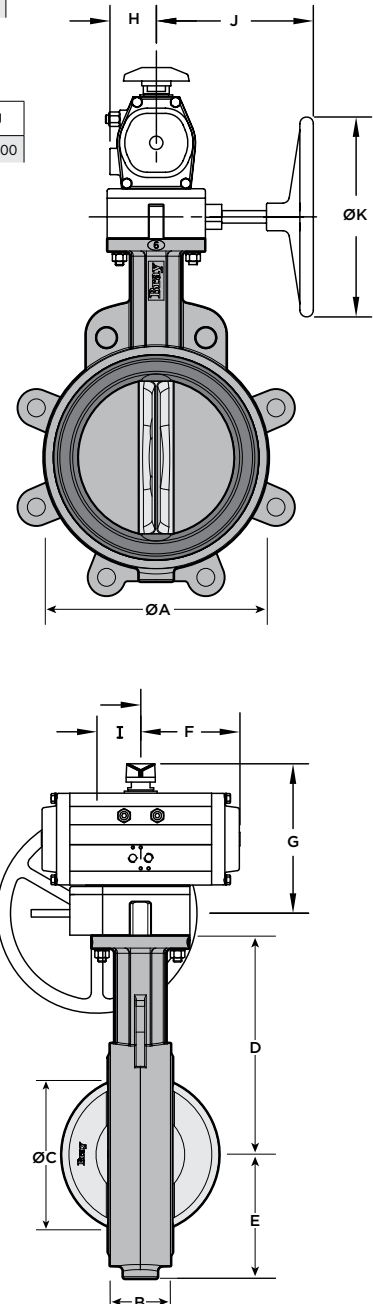
| 3L VALVE BODY & SERIES 05 MANUAL OVERRIDE DIMENSIONS in. |          |      |     |      |      |               |      |       |      |      |       |      |       |       |      |      |       |       |
|--|----------|------|-----|------|------|---------------|------|-------|------|------|-------|------|-------|-------|------|------|-------|-------|
| SIZE 80:1 (24,000 lb.in)                                 |          |      |     |      |      | ACTUATOR SIZE |      |       |      |      |       |      |       |       |      |      |       |       |
| Valve Body   |          |      |     |      |      | 160           |      |       | 210  |      |       | 255  |       |       |      |      |       |       |
| Valve Model Number                                       | Size in. | A    | B   | C    | D    | E             | F    | G     | H    | E    | F     | G    | E     | F     | G    | H    | I     | J     |
| 3L_E-14x**   | 14       | 17.1 | 3.1 | 13.3 | 13.6 | 9.9           |      |       |      |      |       |      |       |       |      | 4.78 | 14.88 | 18.00 |
| 3L_E-16x**   | 16       | 19.2 | 4.0 | 15.3 | 14.8 | 11.3          | 7.77 | 15.61 | 3.78 | 9.78 | 17.12 | 4.56 |       |       |      |      |       |       |
| 3L_E-18x**   | 18       | 21.1 | 4.5 | 17.3 | 16.0 | 12.2          |      |       |      |      |       |      | 14.39 | 18.99 | 5.40 |      |       |       |
| 3L_E-20x**   | 20       | 23.3 | 5.0 | 19.3 | 17.3 | 14.0          |      |       |      |      |       |      |       |       |      |      |       |       |
| 3L_E-24S**   | 24       | 28.2 | 6.1 | 23.3 | 19.5 | 17.6          |      |       |      |      |       |      |       |       |      |      |       |       |

| H    | I     | J     |
|------|-------|-------|
| 4.78 | 14.88 | 18.00 |

| 3L VALVE BODY & SERIES 05 MANUAL OVERRIDE DIMENSIONS in. |          |      |     |      |      |               |       |       |      |      |       |       |  |  |
|--|----------|------|-----|------|------|---------------|-------|-------|------|------|-------|-------|--|--|
| SIZE 64:1 (36,000 lb.in)                                 |          |      |     |      |      | ACTUATOR SIZE |       |       |      |      |       |       |  |  |
| Valve Body   |          |      |     |      |      | 255           |       |       |      |      |       |       |  |  |
| Valve Model Number                                       | Size in. | A    | B   | C    | D    | E             | F     | G     | H    | I    | J     |       |  |  |
| 3L_E-14x**   | 14       | 17.1 | 3.1 | 13.3 | 13.6 | 9.9           |       |       |      | 4.94 | 14.56 | 24.00 |  |  |
| 3L_E-16x**   | 16       | 19.2 | 4.0 | 15.3 | 14.8 | 11.3          |       |       |      |      |       |       |  |  |
| 3L_E-18x**   | 18       | 21.1 | 4.5 | 17.3 | 16.0 | 12.2          | 14.39 | 19.99 | 5.40 |      |       |       |  |  |
| 3L_E-20x**   | 20       | 23.3 | 5.0 | 19.3 | 17.3 | 14.0          |       |       |      |      |       |       |  |  |
| 3L_E-24S**   | 24       | 28.2 | 6.1 | 23.3 | 19.5 | 17.6          |       |       |      |      |       |       |  |  |

| H    | I     | J     |
|------|-------|-------|
| 4.94 | 14.56 | 24.00 |

- \*\* = (2C) 2-Way - Normally Closed  
(2N) 2-Way - Normally Open  
(3) 3-Way + Configuration Number
- X or S = (L) Low Pressure or (S) Standard Pressure
- = (N) Nylon Coated Disc or (S) Stainless Steel Disc



# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Wherever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

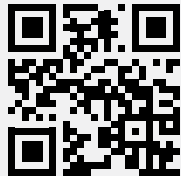
- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

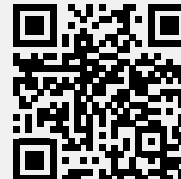
### CORPORATE HEADQUARTERS

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### DIVISION HEADQUARTERS

**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)



All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.



## Damper Actuators

### Non-Spring Return & Spring Return

On/Off • Floating • Modulating

#### Application

Bray's wide variety of damper electric actuator choices increases flexibility when choosing peripheral products for Building Automation Systems.

We offer many different torque outputs and optional features to ensure you have the best actuator for the application. Jumper or DIP switch selectable features allow versatility in the field. The actuators are maintenance-free, which means fewer call backs after installation and start-up. In addition, our actuators are manufactured to ISO 9001 and Six Sigma Standards making them the highest quality on the market today.

All of our damper electric actuators are linkage free when applied to dampers ranging for small VAV box dampers all the way up to large outdoor air and return air dampers.

#### Options include:

- Non-Spring Return or Spring Return operation
- Auxiliary Switches (optional)
- Weather Shields for outdoor use
- 24V and line voltage models
- On/Off, Floating, or Modulating operation
- Analog feedback on all modulating models
- UL, CSA and CE listings
- 5-Year Warranty on selected models
- Flying lead or terminal strip electrical connections



| Quick Link Table of Contents           |    |
|--|----|
| <b>Non-Spring Return</b>               |    |
| D(M)24-35 Series . . . . .             | 2  |
| DC(M)24-44 Series . . . . .            | 4  |
| DC(M)24-88 Series . . . . .            | 6  |
| D24-70, 140, 210, 280 Series . . . . . | 9  |
| DC(M)24-180 Series . . . . .           | 11 |
| DC(M)-310 Series . . . . .             | 13 |
| <b>Spring Return</b>                   |    |
| DC(M)S-20 Series . . . . .             | 15 |
| D(M)S-27 Series . . . . .              | 17 |
| DC(M)S-62 Series . . . . .             | 21 |
| D(M)S-70 Series . . . . .              | 23 |
| DC(M)S-140 Series . . . . .            | 27 |
| D(M)S-180 Series . . . . .             | 29 |



## D(M)24-35 Series – Submittal/Technical Data

### Commercial Electric Actuators – 35 in-lbs (4Nm)

| Technical Specifications - D(M)24-35 Series Actuator |                                     |  |  |   |  |
|--|-------------------------------------|--|--|---|--|
| Type   | Actuator Models                     | D24-35-TP  | D24-35-T-TS  | DM24-35   | DM24-35-TS   |
|  |                                     |  | Non-Spring Return - Floating & On/Off (relay required) |   | Non-Spring Return - Modulating   |
|  | Torque                              | 35 lb-in. (4 Nm)   |  |   |  |
| Electrical   | Operating Voltage                   | 24 VAC +25%/-20% at 50/60 Hz   |  |   |  |
|  | Power Consumption                   | 2.1 VA   |  | 2.9 VA  |  |
|  | Input Signal                        | 24 VAC +25%/-20% at 50/60 Hz   |  | 0(2) to 10 VDC or 0(4) to 20 mA with field-furnished 500 ohm resistor                           |  |
|  | Input Impedance                     | N/A  |  | 200k Ohms   |  |
|  | Equipment Rating                    | Class 2 or Safety Extra-Low Voltage (SELV)   |  |   |  |
|  | Feedback Signal                     | N/A  |  | 0 to 10 VDC or 2 to 10 VDC for 90° (10 VDC at 1 mA), Corresponds to input signal span selection |  |
|  | Electrical Connection               | 36 in. (0.9 m) UL 444 Type CMP Plenum Rated cable with 19 AWG (0.75 mm <sup>2</sup> ) conductors and 1/4 in. (6 mm) ferrule ends   | Exposed Terminal Block - M3 Terminal Screws            |   | 36 in. (0.9 m) UL 444 Type CMP Plenum Rated cable with 19 AWG (0.75 mm <sup>2</sup> ) conductors and 1/4 in. (6 mm) ferrule ends |
| Operation  | Manual Override                     | External Push Button   |  |   |  |
|  | Runtime for 90° of Rotation         | 60 Seconds at 60 Hz / 72 Seconds at 50 Hz for 90° rotation   |  |   |  |
|  | Rotation Range                      | 93° ±3°, CW or CCW   |  |   |  |
|  | Cycle Life                          | 100,000 Full Stroke Cycles; 2,500,000 repetitions at rated running torque  |  |   |  |
|  | Mechanical Connections              | Round Shafts - Up to 1/2 in. (13 mm)<br>Square Shafts - Up to 3/8 in. (10 mm)  |  |   |  |
| Environmental  | Enclosure                           | NEMA 2 (IP42)  | NEMA 2 (IP40)  | NEMA 2 (IP42)   | NEMA 2 (IP40)  |
|  | Ambient Conditions (Non-Condensing) | Operating — -4 to 140°F (-20 to 60°C); 90% RH Max.<br>Storage — -20 to 150°F (-29 to 66°C); 90% RH Max.  |  |   |  |
|  | Audible Noise Rating                | 35 dBA Nominal at 39-13/32 in. (1 meter)   |  |   |  |
|  | Dimensions                          | 5.16 x 2.81 x 2.06 in. (131 x 71 x 52 mm)  |  |   |  |
|  | Weight                              | 1.0 lb (0.5 kg)  |  |   |  |
| Conditions   | Agency Certifications               | <b>United States/Canada</b> – United States UL Listed, File E27734, CCN XAPX (United States) and XAPX7 (Canada) Actuator Housing is Plenum Rated per CSA C22.2 No. 236/UL 1995, Heating and Cooling Equipment<br><b>Europe</b> – CE Mark - Product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC and the Low Voltage Directive 2006/95/EC<br><b>Australia/New Zealand</b> – C-Tick Mark Australia/NZ Emissions Compliant |  |   |  |
|  | Warranty                            | 5 Years limited from time of shipment.   |  |   |  |

Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

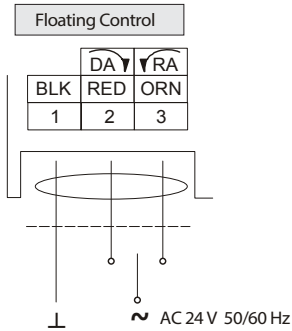
Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

# D(M)24-35 Series – Submittal/Technical Data

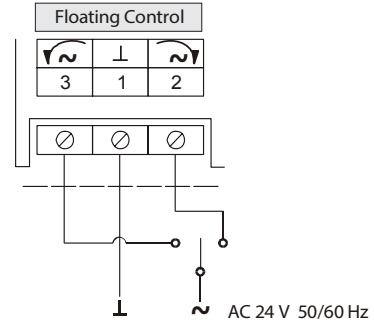
## Commercial Electric Actuators – 35 in-lbs (4Nm)

### Wiring

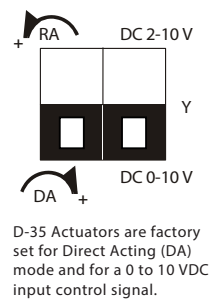
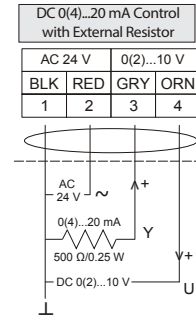
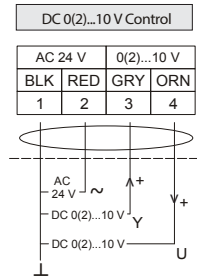
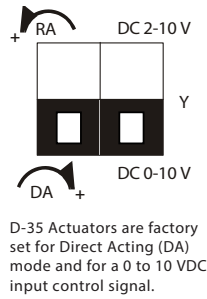
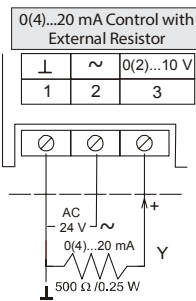
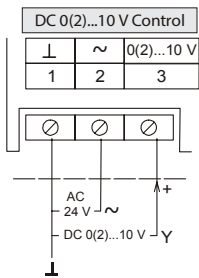
**D24-35-TP**  
PLENUM CABLE



**D24-35-T-TS**  
TERMINAL BLOCK



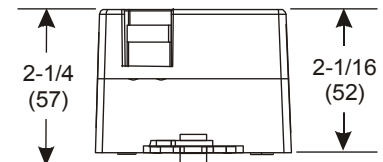
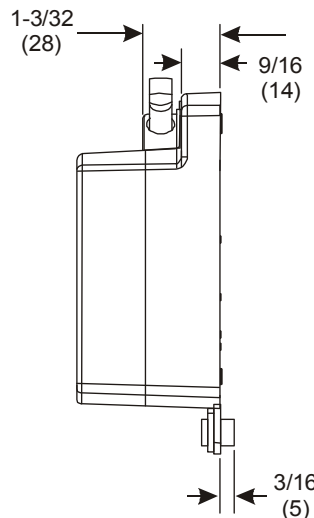
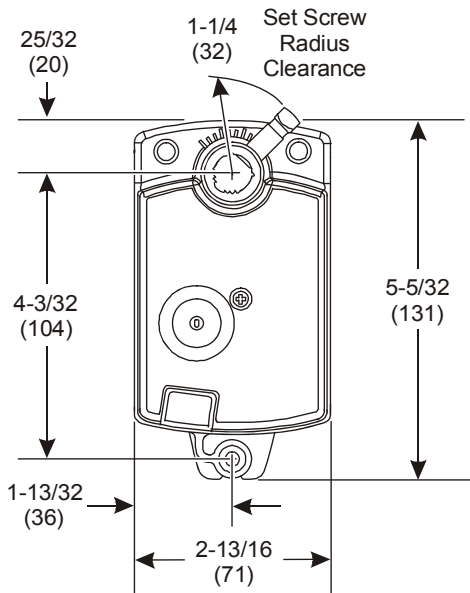
**DM24-35**  
PLENUM CABLE



NOTE - To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

### Dimensions





## DC(M)24-44 Series – Submittal/Technical Data

### 24 VAC - Non-Spring Return - 2-Position, Floating & Modulating

| Technical Specifications - DC(M)-44 Series Actuator |                                     |   |  |  |   |  |
|---|-------------------------------------|---|--|--|---|--|
| Type  | Actuator Models                     | DC24-44-TP  | DC24-44-TAP  | DC24-44-TPTO   | DCM24-44-P                                | DCM24-44-AP  |
|   |                                     | Non-Spring Return Floating* Plenum Cable  | Non-Spring Return Floating* Plenum Cable Auxiliary Switches                        | Non-Spring Return 2-Position/Floating Plenum Cable   | Non-Spring Return Modulating Plenum Cable | Non-Spring Return Modulating Plenum Cable  |
|   | Torque                              | 44 lb-in. (5 Nm)  |  |  |   |  |
|   | Operating Voltage                   | 24 VAC +20%, -15% at 50/60 Hz   |  | 24 VAC/DC +-20%  |   |  |
|   | Power Consumption                   | 2.3 VA  |  | 1.1 VA, 0.7W   | 1.3 VA, 0.9W                              |  |
|   | Operational Protection              | N/A   |  | Timeout/Overload Protection  |   |  |
|   | Control Signal                      | Floating  |  | 2-Position/Floating  | 0(2)-10V                                  |  |
|   | Input Impedance                     | N/A   |  |  | >100k Ohms                                |  |
|   | Feedback Signal                     | N/A   |  |  | 0(2)-10V (Maximum Output Current DC 1mA)  |  |
| Electrical  | Auxiliary Switch Rating             | N/A   | 4A Resistive, 2A Inductive   | N/A  | N/A                                       | 4A Resistive, 2A Inductive   |
|   | Switch Range (Switch A)             | N/A   | 0 to 90° with 5° Intervals (Recommended Range Usage 0 to 45°) Factory Setting 5°   | N/A  | N/A                                       | 0 to 90° with 5° Intervals (Recommended Range Usage 0 to 45°) Factory Setting 5°   |
|   | Switch Range (Switch B)             | N/A   | 0 to 90° with 5° Intervals (Recommended Range Usage 45 to 90°) Factory Setting 85° | N/A  | N/A                                       | 0 to 90° with 5° Intervals (Recommended Range Usage 45 to 90°) Factory Setting 85° |
|   | Switching Hysteresis                | N/A   | 2°   | N/A  |   | 2°   |
|   | Equipment Rating                    | Class 2 per UL/CSA, Class III per EN60730   |  | Class 2 according to UL, cUL; Class III per EN60730  |   |  |
|   | Electrical Connection               | 3 ft. (0.9 m) Pre-cabled - AWG 18 - Plenum Rated Cable  |  |  |   |  |
|   | Manual Override                     | Manual Operation by Selecting Override Knob when Power is off   |  |  |   |  |
| Operation   | Runtime for 90° of Rotation         | 90 sec. at 60 Hz (108 sec. at 50 Hz)  |  | 90 sec.  |   |  |
|   | Rotation Range                      | Nominal Angle of Rotation 90°, mechanically limited to 95°  |  |  |   |  |
|   | Cycle Life                          | 60,000 full strokes/ 1.5 million repositions  |  | 100,000 full strokes/ 5 million repositions  |   |  |
|   | Mechanical Connections              | <b>Round Shafts</b> - 3/8 to 5/8 in. (8 to 16 mm) diameter<br><b>Square Shafts</b> - 1/4 to 1/2 in. (6 to 12.7 mm)<br><b>Hex Shafts</b> - 9/16 in. (15 mm)<br><b>Minimum Shaft Length</b> - 3/4 in. (20 mm)   |  |  |   |  |
|   | Enclosure                           | NEMA 2, IP54 according to EN60529   |  |  |   |  |
| Environmental                                       | Ambient Conditions (Non-Condensing) | <b>Operating</b> — -25 to 130°F (-32 to 55°C); 0 to 95% RH, non-condensing<br><b>Storage</b> — -40 to 158°F (-40 to 70°C); 0 to 95% RH, non-condensing  |  |  |   |  |
|   | Audible Noise Rating                | 35 dBA at 1 m   |  |  |   |  |
|   | Dimensions                          | 5.4" L x 2.8" W x 2.4" D (137mm L x 70mm W x 60mm D)  |  |  |   |  |
|   | Weight                              | 1.06 lb (0.48 kg)   |  | 1.35 lb (0.61 kg)  |   |  |
| Conditions  | Agency Certifications               | UL listed to UL873-cUL certified to Canadian Standard C22.2 No. 24-93, CE In accordance with the directive set forth by the European Union for Electromagnetic Compatibility (EMC) 2004/108/EC Emissions Standards EN61000-6-3 Immunity Standards EN61000-6-2 |  | UL listed to UL60730-cUL certified to Canadian Standard C22.2 No. 24-93. These devices were approved for installation in plenum areas by Underwriters Laboratories, Inc., per UL 1995 CE listed with EN60730-1, EN60730-2-14 |   |  |
|   | Warranty                            | 5 Years limited from time of shipment.  |  |  |   |  |

\* Not eligible for SPST control

Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

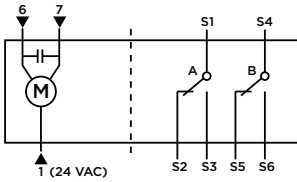
Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

# DC(M)24-44 Series – Submittal/Technical Data

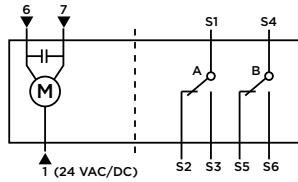
## Commercial Electric Actuators – 44 in-lbs (4Nm)

### Wiring

**DC24-44-TP  
DC24-44-TAP**  
PLENUM CABLE  
Floating Control



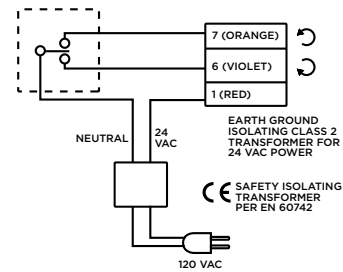
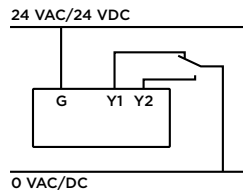
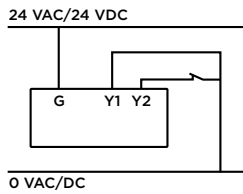
**DC24-44-TPTO**  
PLENUM CABLE  
2-Position/Floating Control



### 2-POSITION/FLOATING CONTROL

| Standard Symbol           | Function                        | Terminal Designation | Color      |
|---------------------------|---------------------------------|----------------------|------------|
| 1                         | Supply (SP)                     | G                    | Red        |
| 6                         | Control Signal clockwise        | Y1                   | Violet     |
| 7                         | Control Signal Counterclockwise | Y2                   | Orange     |
| Factory-Installed Options |                                 |                      |            |
| S1                        | Switch A Common                 | Q11                  | Gray/Red   |
| S2                        | Switch A N.C.                   | Q12                  | Gray/Blue  |
| S3                        | Switch A N.O.                   | Q14                  | Gray/Pink  |
| S4                        | Switch B Common                 | Q21                  | Black/Red  |
| S5                        | Switch B N.C.                   | Q22                  | Black/Blue |
| S6                        | Switch B N.O.                   | Q24                  | Black/Pink |

### CONTROL METHOD

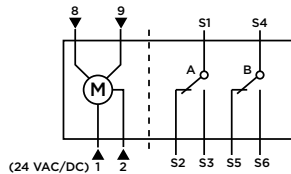


**2-Position, SPST**  
(Single-Pole, Single-Throw)

**2-Position, SPDT**  
(Single-Pole, Double-Throw)

**Floating Control**  
24 VAC/DC

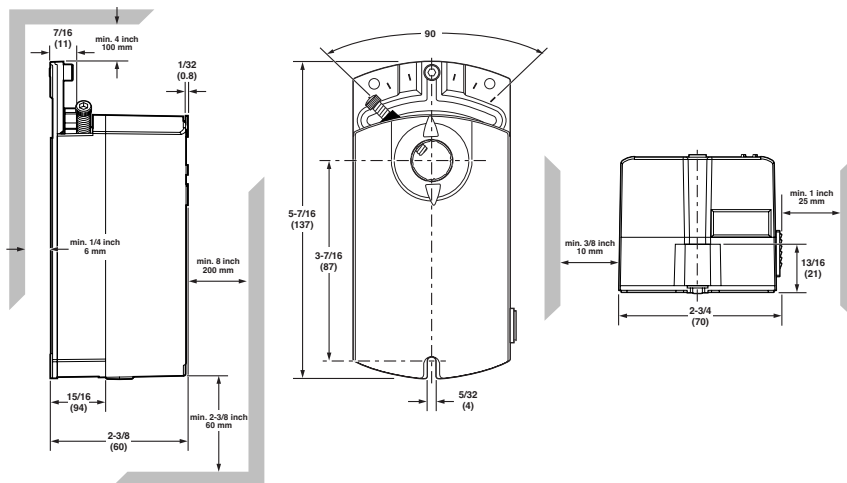
**DCM24-44-(A)P**  
PLENUM CABLE  
Modulating



### MODULATING CONTROL

| Standard Symbol           | Function                                | Terminal Designation | Color      |
|---------------------------|---|----------------------|------------|
| 1                         | Supply (SP)                             | G                    | Red        |
| 2                         | Neutral (SN)                            | G0                   | Black      |
| 8                         | O(2) to 10V input signal                | Y                    | Gray       |
| 9                         | Output for O(2)-10V position indication | U                    | Pink       |
| Factory-Installed Options |   |                      |            |
| S1                        | Switch A - Common                       | Q11                  | Gray/Red   |
| S2                        | Switch A - N.C.                         | Q12                  | Gray/Blue  |
| S3                        | Switch A - N.O.                         | Q14                  | Gray/Pink  |
| S4                        | Switch B - Common                       | Q21                  | Black/Red  |
| S5                        | Switch B - N.C.                         | Q22                  | Black/Blue |
| S6                        | Switch B - N.O.                         | Q24                  | Black/Pink |

### Dimensions - in.(mm)





## DC(M)24-88 Series – Submittal/Technical Data

### 24 VAC - Non-Spring Return - 2-Position, Floating & Modulating

| Technical Specifications - DC(M)-88 Series Actuator |                                     |   |   |   |   |
|---|-------------------------------------|---|---|---|---|
| Type  | Actuator Models                     | DC24-88-TP  | DC24-88-TAP   | DCM24-88-P                                      | DCM24-88-AP   |
|   |                                     | Non-Spring Return<br>Floating<br>Plenum Cable   | Non-Spring Return<br>2-Position/Floating<br>Plenum Cable<br>Auxiliary Switches  | Non-Spring Return<br>Modulating<br>Plenum Cable | Non-Spring Return<br>Modulating<br>Plenum Cable   |
|   | Torque                              | 88 lb-in. (10 Nm)   |   |   |   |
|   | Operating Voltage                   | 24 VAC +-20%  | 24 VAC/DC +-20%   |   |   |
|   | Power Consumption                   | 1.3 VA, 0.8W  |   | 1.5 VA, 1W                                      |   |
|   | Operational Protection              | N/A   | Timeout/Overload Protection   |   |   |
|   | Control Signal                      | Floating  | 2-Position/Floating   | 0(2)-10V  |   |
|   | Input Impedance                     | N/A   |   | >100k Ohms                                      |   |
|   | Feedback Signal                     | N/A   |   | 0(2)-10V (Maximum Output Current DC 1mA)        |   |
| Electrical  | Auxiliary Switch Rating             | N/A   | 4A Resistive,<br>2A Inductive   | N/A   | 4A Resistive,<br>2A Inductive   |
|   | Switch Range (Switch A)             | N/A   | 0 to 90° with 5°<br>Intervals (Recom-<br>mended Range Usage<br>0 to 45°)<br>Factory Setting 5°  | N/A   | 0 to 90° with 5°<br>Intervals (Recom-<br>mended Range Usage<br>0 to 45°)<br>Factory Setting 5°  |
|   | Switch Range (Switch B)             | N/A   | 0 to 90° with 5°<br>Intervals (Recom-<br>mended Rang Usage<br>45 to 90°)<br>Factory Setting 85°   | N/A   | 0 to 90° with 5°<br>Intervals (Recom-<br>mended Rang Usage<br>45 to 90°)<br>Factory Setting 85° |
|   | Switching Hysteresis                | N/A   | 2°  | N/A   | 2°  |
|   | Equipment Rating                    | Class 2 per UL/CSA  | Class 2 per UL/CSA, Class III per EN60730   |   |   |
|   | Electrical Connection               | 3 ft. (0.9 m) Pre-cabled - AWG 18 - Plenum Rated Cable  |   |   |   |
| Operation   | Manual Override                     | Manual Operation by Selecting Override Knob when Power is off   |   |   |   |
|   | Runtime for 90°<br>of Rotation      | 125 seconds   | 150 seconds   |   |   |
|   | Rotation Range                      | Nominal Angle of Rotation 90°, mechanically limited to 95°  |   |   |   |
|   | Cycle Life                          | 60,000 cycles at rated<br>load  | 100,000 full strokes/ 5 million repositions   |   |   |
|   | Mechanical Connections              | <b>Round Shafts</b> - 3/8 to 5/8 in. (8 to 16 mm) diameter<br><b>Square Shafts</b> - 1/4 to 1/2 in. (6 to 12.7 mm)<br><b>Hex Shafts</b> - 9/16 in. (15 mm)<br><b>Minimum Shaft Length</b> - 3/4 in. (20 mm)   |   |   |   |
| Environmental                                       | Enclosure                           | NEMA 2, IP54 according to EN60529   |   |   |   |
|   | Ambient Conditions (Non-Condensing) | <b>Operating</b> — -25 to 130°F (-32 to 55°C); 0 to 95% RH, non-condensing<br><b>Storage</b> — -40 to 158°F (-40 to 70°C); 0 to 95% RH, non-condensing  |   |   |   |
|   | Audible Noise Rating                | 35 dBA at 1 m   |   |   |   |
|   | Dimensions                          | 6.6" L x 2.8" W x 2.4" D<br>(166.7mm L x 71mm W x 61mm D)   |   |   |   |
|   | Weight                              | 1.35 lb (0.61 kg)   |   |   |   |
| Conditions  | Agency Certifications               | UL listed to UL873-cUL certified to Canadian Standard C22.2 No. 24-93, CE<br>In accordance with the directive set forth by the European Union for Electromagnetic Compatibility (EMC) 2004/108/EC - Emissions Standards EN61000-6-3 - Immunity Standards EN61000-6-2 For DC24-88-TP | UL listed to UL60730-cUL certified to Canadian Standard C22.2 No. 24-93,<br>These devices were approved for installation in plenum areas by Underwriters Laboratories, Inc., per UL 1995 CE listed with EN60730-1, EN60730-2-14 |   |   |
|   | Warranty                            | 5 Years limited from time of shipment.  |   |   |   |

Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

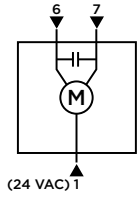
Mixed switch operation is not permitted. To the switching outputs of both auxiliary switches (A and B), only apply: UL/CSA: Class 2 voltage.

# DC(M)24-88 Series – Submittal/Technical Data

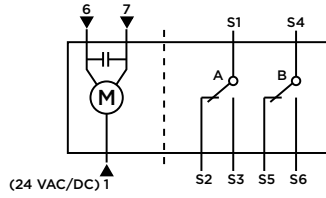
## Commercial Electric Actuators – 88 in-lbs (10Nm)

### Wiring

|                   |
|-------------------|
| <b>DC24-88-TP</b> |
| PLENUM CABLE      |
| Floating Control  |

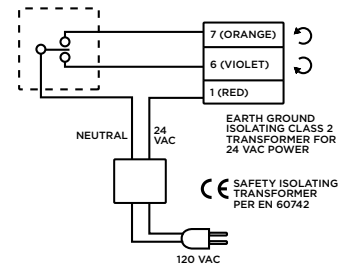
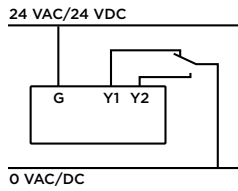
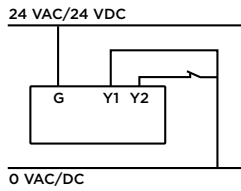


|                             |
|-----------------------------|
| <b>DC24-88-TAP</b>          |
| PLENUM CABLE                |
| 2-Position/Floating Control |



| 2-POSITION/FLOATING CONTROL |                                 |                      |            |
|-----------------------------|---------------------------------|----------------------|------------|
| Standard Symbol             | Function                        | Terminal Designation | Color      |
| 1                           | Supply (SP)                     | G                    | Red        |
| 6                           | Control Signal clockwise        | Y1                   | Violet     |
| 7                           | Control Signal Counterclockwise | Y2                   | Orange     |
| Factory-Installed Options   |                                 |                      |            |
| S1                          | Switch A Common                 | Q11                  | Gray/Red   |
| S2                          | Switch A N.C.                   | Q12                  | Gray/Blue  |
| S3                          | Switch A N.O.                   | Q14                  | Gray/Pink  |
| S4                          | Switch B Common                 | Q21                  | Black/Red  |
| S5                          | Switch B N.C.                   | Q22                  | Black/Blue |
| S6                          | Switch B N.O.                   | Q24                  | Black/Pink |

### CONTROL METHOD

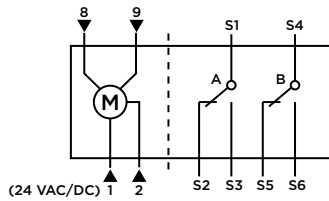


|                             |
|-----------------------------|
| <b>2-Position, SPST</b>     |
| (Single-Pole, Single-Throw) |

|                             |
|-----------------------------|
| <b>2-Position, SPDT</b>     |
| (Single-Pole, Double-Throw) |

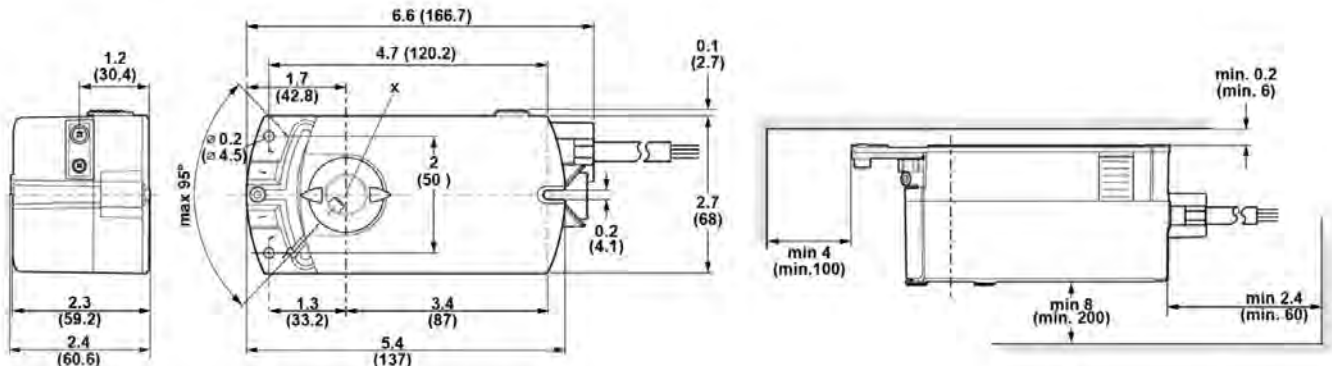
|                         |
|-------------------------|
| <b>Floating Control</b> |
| 24 VAC/DC               |

|                      |
|----------------------|
| <b>DCM24-88-(A)P</b> |
| PLENUM CABLE         |
| Modulating           |



| MODULATING CONTROL        |   |                      |            |
|---------------------------|---|----------------------|------------|
| Standard Symbol           | Function                                | Terminal Designation | Color      |
| 1                         | Supply (SP)                             | G                    | Red        |
| 2                         | Neutral (SN)                            | G0                   | Black      |
| 8                         | 0(2) to 10V input signal                | Y                    | Gray       |
| 9                         | Output for 0(2)-10V position indication | U                    | Pink       |
| Factory-Installed Options |   |                      |            |
| S1                        | Switch A - Common                       | Q11                  | Gray/Red   |
| S2                        | Switch A - N.C.                         | Q12                  | Gray/Blue  |
| S3                        | Switch A - N.O.                         | Q14                  | Gray/Pink  |
| S4                        | Switch B - Common                       | Q21                  | Black/Red  |
| S5                        | Switch B - N.C.                         | Q22                  | Black/Blue |
| S6                        | Switch B - N.O.                         | Q24                  | Black/Pink |

### Dimensions - in.(mm)





## D24-70-280 Series – Submittal/Technical Data

70, 140, 210, 280 lb-in. — Non-Spring Return — On/Off or Floating — Auxiliary Switches

| Technical Specifications - D24-70, 140, 210, 280 Series Actuator |                                     |  |  |  |  |
|--|-------------------------------------|--|--|--|--|
| Type   | Actuator Models                     | D24-70-(A)   | D24-140-(A)  | D24-210-(A)  | D24-280-(A)  |
| Electrical   |                                     | Non-Spring Return - On/Off or Floating with optional Auxiliary Switches (-A)   |  |  |  |
|  | Torque                              | 70 lb-in. (8 Nm)   | 140 lb-in. (16 Nm)   | 210 lb-in. (24 Nm)   | 280 lb-in. (32 Nm)   |
|  | Operating Voltage                   | 24 VAC (20 to 30 V) at 50/60 Hz or VDC 24 V ±10%;  |  | 24 VAC (20 to 30 V) at 50/60 Hz or VDC 24 V ±10%;                                  |  |
|  | Power Consumption                   | 6.5 VA supply minimum  |  | 7.5 VA supply minimum  |  |
|  | Input Signal                        | Auxiliary Switches (-A) - 24 VAC +25%/-20% at 50/60 Hz, or DC 24 V   |  |  |  |
|  | Input Signal Adjustments            | Auxiliary Switches (-A) - Factory Setting, Terminals 1 and 2, CW rotation; Terminals 1 and 3, CCW rotation   |  |  |  |
|  | Auxiliary Switch Rating             | Auxiliary Switches (-A) - Two Single-Pole, Double-Throw (SPDT) switches rated at 24 VAC 1.5 A inductive, 3.0 A resistive, 35 VA maximum per switch, Class 2  |  |  |  |
|  | Equipment Rating                    | Class 2 or Safety Extra-Low Voltage (SELV)   |  |  |  |
| Operation  | Electrical Connection               | Screw terminals for 22 to 14 AWG; maximum of two 18, 20, or 22 AWG per terminal  |  | 1/4 in. spade terminals with pluggable 3-terminal blocks                           |  |
|  | Manual Override                     | External Push Button   |  |  |  |
|  | Time Out Feature                    | Electronic stall detection ensures higher reliability by deactivating the actuator motor when a stall condition is detected  |  |  |  |
|  | Runtime for 90° of Rotation         | 30 seconds at 50% rated load, 25 to 50 seconds for 0 to 70 lb-in (0 to 8 N-m)  | 80 seconds at 50% rated load, 70 to 115 seconds for 0 to 140 lb-in (0 to 16 N-m) | 130 seconds at 50% rated load, 115 to 175 seconds for 0 to 210 lb-in (0 to 24 N-m) | 140 seconds at 50% rated load, 115 to 205 seconds for 0 to 280 lb-in (0 to 32 N-m) |
|  | Rotation Range                      | 0 to 90° in 5-degree increments, mechanically limited to 93°<br>Rotation range is adjusted by repositioning the output hub   |  |  |  |
|  | Cycle Life                          | 60,000 cycles at rated load  |  |  | 30,000 cycles at rated load  |
| Environmental  | Mechanical Connections              | Round Shafts - 3/8 to 3/4 in. (10 to 20 mm) diameter<br>Square Shafts - 3/8 to 5/8 in. (10 to 16 mm), 1 in. (25.4 mm) diameter jackshaft with M9000-154 coupler  |  |  |  |
|  | Enclosure                           | NEMA 2 (IP42)  |  |  |  |
|  | Ambient Conditions (Non-Condensing) | Operating — -4 to 122°F (-20 to 50°C); 95% RH Max.<br>Storage — -20 to 186°F (-29 to 86°C); 95% RH Max.  |  |  |  |
|  | Audible Noise Rating                | 45 dBA at 39-13/32 in. (1 meter)   |  |  |  |
|  | Dimensions                          | 7.09 x 3.94 x 2.54 in. (180 x 100 x 64.5 mm)   |  |  |  |
| Conditions   | Weight                              | 2.9 lb (1.3 kg)  |  |  |  |
|  | Agency Certifications               | United States/Canada - UL 873 Listed, File E27734, CCN XAPX<br>Canada - CSA C22.2 No. 139 Certified, File LR85083, Class 3221 02<br>Europe - CE Mark - Declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC.<br>Australia/New Zealand - C-Tick Mark Australia/NZ Emissions Compliant |  |  |  |
|  | Warranty                            | 5 Years limited from time of shipment.   |  |  |  |

Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.



## DM24-70-280 Series – Submittal/Technical Data

70, 140, 210, 280 lb-in. – Non-Spring Return – Modulating – Auxiliary Switches

| Technical Specifications - DM24-70, 140, 210, 280 Series Actuator |   |   |  |  |  |
|---|---|---|--|--|--|
| Type  | Actuator Models   | DM24-70-(A)   | DM24-140-(A)   | DM24-210-(A)   | DM24-280-(A)   |
| Electrical  |   | Non-Spring Return - Modulating with optional Auxiliary Switches (-A)  |  |  |  |
|   | Torque  | 70 lb-in. (8 Nm)  | 140 lb-in. (16 Nm)   | 210 lb-in. (24 Nm)   | 280 lb-in. (32 Nm)   |
|   | Operating Voltage   | 24 VAC (20 to 30 V) at 50/60 Hz or VDC 24 V ±10%;   |  | 24 VAC (20 to 30 V) at 50/60 Hz or VDC 24 V ±10%;                                  |  |
|   | Power Consumption   | 6.5 VA supply minimum   |  | 7.5 VA supply minimum  |  |
|   | Input Signal  | Auxiliary Switches (-A) - DC 0 (2) to 10 V, DC 0 (4) to 20 V, or DC 0 (4) to 20 mA  |  |  |  |
|   | Input Signal Adjustments  | Factory Setting - 0 to 10 VDC, 0 to 20 mA, CW rotation with signal increase   |  |  |  |
|   |   | Jumper Selectable - 0 (2) to 10 VDC, 0 (4) to 20 VDC, or 0 (4) to 20 mA<br>Action is jumper selectable Direct (CW) or Reverse (CCW) with signal increase.   |  |  |  |
|   | Input Impedance   | Voltage Input - 205,000 ohms for 0 (2) to 10 V and 410,000 ohms for 0 (4) to 20 V<br>Current Input - 500 Ohms   |  |  |  |
|   | Feedback Signal   | 0 to 10 VDC or 2 to 10 VDC for 90° (10 VDC at 1 mA) Corresponds to input signal span selection.   |  |  |  |
|   | Auxiliary Switch Rating   | Auxiliary Switches (-A) - Two Single-Pole, Double-Throw (SPDT) switches rated at 24 VAC 1.5 A inductive, 3.0 A resistive, 35 VA maximum per switch, Class 2   |  |  |  |
| Equipment Rating  | Class 2 or Safety Extra-Low Voltage (SELV)                                      |   |  |  |  |
| Electrical Connection   | Screw terminals for 22 to 14 AWG; maximum of two 18, 20, or 22 AWG per terminal |   | 1/4 in. spade terminals with pluggable 3-terminal blocks                         |  |  |
| Operation   | Manual Override   | External Push Button  |  |  |  |
|   | Time Out Feature  | Electronic stall detection ensures higher reliability by deactivating the actuator motor when a stall condition is detected   |  |  |  |
|   | Runtime for 90° of Rotation   | 30 seconds at 50% rated load, 25 to 50 seconds for 0 to 70 lb-in (0 to 8 N-m)   | 80 seconds at 50% rated load, 70 to 115 seconds for 0 to 140 lb-in (0 to 16 N-m) | 130 seconds at 50% rated load, 115 to 175 seconds for 0 to 210 lb-in (0 to 24 N-m) | 140 seconds at 50% rated load, 115 to 205 seconds for 0 to 280 lb-in (0 to 32 N-m) |
|   | Rotation Range  | 0 to 90° in 5-degree increments, mechanically limited to 93°<br>Rotation range is adjusted by repositioning the output hub  |  |  |  |
|   | Cycle Life  | 60,000 cycles at rated load   |  | 30,000 cycles at rated load  |  |
|   | Mechanical Connections  | Round Shafts - 3/8 to 3/4 in. (10 to 20 mm) diameter<br>Square Shafts - 3/8 to 5/8 in. (10 to 16 mm), 1 in. (25.4 mm) diameter jackshaft with M9000-154 coupler   |  |  |  |
| Environmental   | Enclosure   | NEMA 2 (IP42)   |  |  |  |
|   | Ambient Conditions (Non-Condensing)   | Operating — -4 to 122°F (-20 to 50°C); 95% RH Max.<br>Storage — -20 to 186°F (-29 to 86°C); 95% RH Max.   |  |  |  |
|   | Audible Noise Rating  | 45 dBA at 39-13/32 in. (1 meter)  |  |  |  |
|   | Dimensions  | 7.09 x 3.94 x 2.54 in. (180 x 100 x 64.5 mm)  |  |  |  |
|   | Weight  | 2.9 lb (1.3 kg)   |  |  |  |
| Conditions  | Agency Certifications   | United States/Canada - UL 873 Listed, File E27734, CCN XAPX<br>Canada - CSA C22.2 No. 139 Certified, File LR85083, Class 3221 02<br>Europe - CE Mark -Declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC. |  |  |  |
|   | Warranty  | 5 Years limited from time of shipment.  |  |  |  |

Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

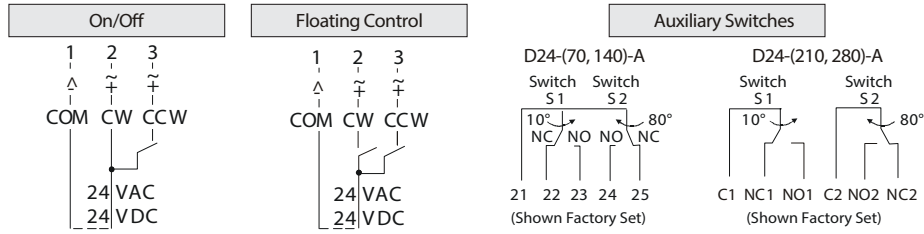
# D(M)24-70-280 Series – Submittal/Technical Data

## Commercial Electric Actuators – 70, 140, 210, 280 lb-in.

### Wiring

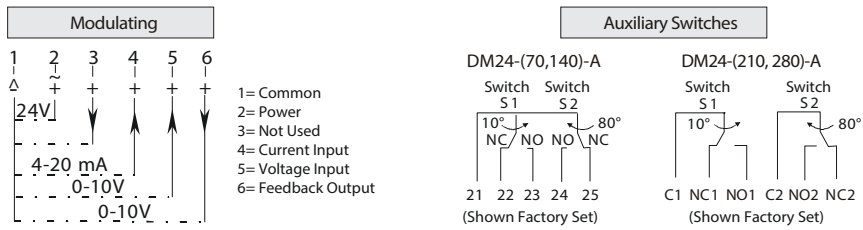
#### D24-70, 140, 210, 280

TERMINAL BLOCK



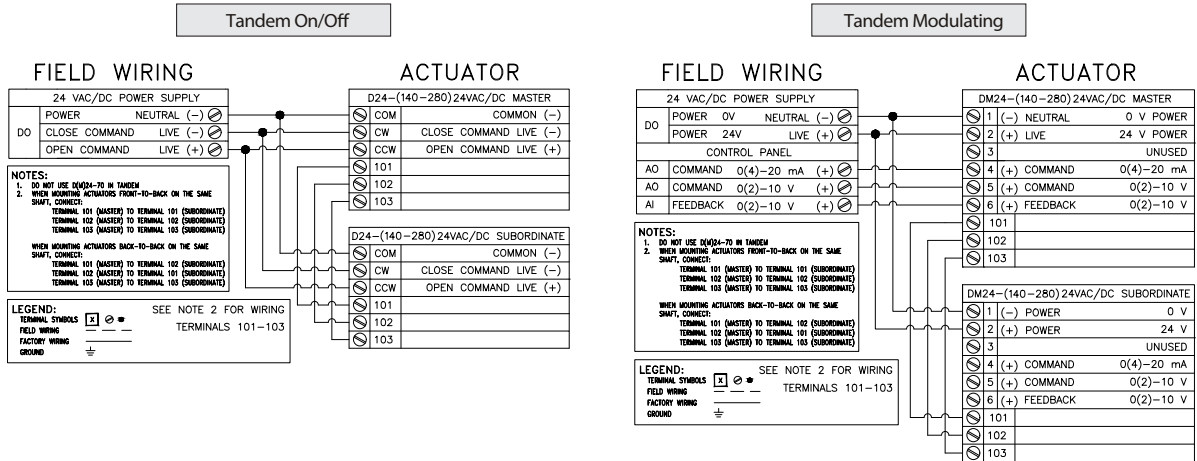
#### DM24-70, 140, 210, 280

TERMINAL BLOCK

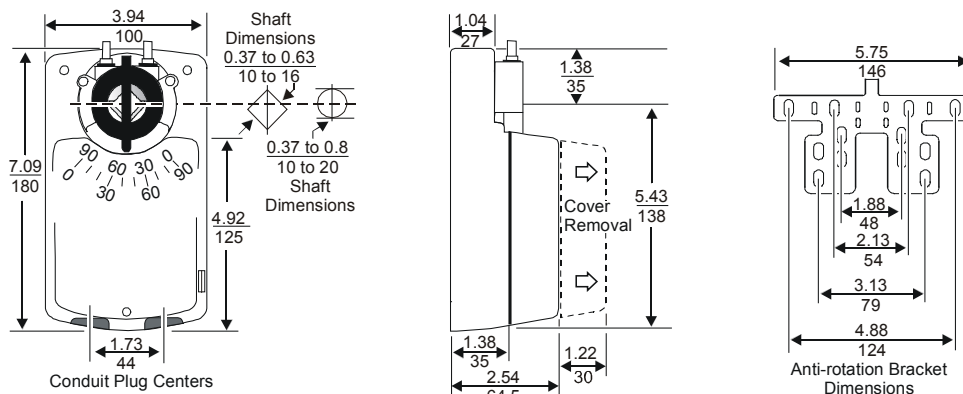


#### D(M)24-140, 210, 280

TANDEM WIRING - TERMINAL BLOCK



### Dimensions





## DC(M)24-180 Series – Submittal/Technical Data

### Commercial Electric Actuators – 177 in-lbs (20Nm)

| Technical Specifications - DC(M)24-180 Series Actuator |  |   |   |
|--|--|---|---|
| Type   | DC24-180-T   | DC24-180-TA   | DCM24-180   |
| Actuator Models  | Non-Spring Return<br>On/Off & Floating<br>Standard Cable   | Non-Spring Return<br>On/Off & Floating<br>Auxillary Switches (-A)                       | Non-Spring Return<br>Modulating<br>Standard Cable |
| Torque   | 177 lb-in. (20 Nm)   |   |   |
| Operating Voltage                                      | 24 VAC/DC +/-20%   |   |   |
| Power Consumption                                      | 1.7 VA, 1.1W (0.4W/0.7VA Holding)  |   | 1.9 VA, 1.2W (0.6W/0.9VA Holding)                 |
| Control Signal   | On/Off & Floating  |   | 0(2)-10V  |
| Input Impedance  | N/A  |   | >100k Ohms  |
| Feedback Signal  | N/A  |   | 0(2)-10V  |
| Auxillary Switch Rating                                | N/A  | AC 6A resistive, AC 2A general<br>purpose; DC 2A resistive                              | N/A   |
| Switch Range (Switch A)                                | N/A  | 0 to 90° with 5° Intervals<br>(Recommended Range Usage 0<br>to 45°) Factory Setting 5°  | N/A   |
| Switch Range (Switch B)                                | N/A  | 0 to 90° with 5° Intervals<br>(Recommended Rang Usage 45<br>to 90°) Factory Setting 85° | N/A   |
| Switching Hysteresis                                   | N/A  | 2°  | N/A   |
| Equipment Rating                                       | Class 2, in accordance with UL/CSA – Class III per EN 60730  |   |   |
| Electrical Connection                                  | 3 ft. (0.9 m) Pre-cabled AWG 18 - Standard Cable   |   |   |
| Manual Override  | Manual Operation by pushing down the Override Button when Power is Off   |   |   |
| Runtime for 90°<br>of Rotation                         | 150 seconds  |   |   |
| Rotation Range   | Nominal Angle of Rotation 90°, Maximum 95° +/- 2°  |   |   |
| Cycle Life   | 100,000 full strokes/ 5 million repositions  |   |   |
| Mechanical<br>Connections                              | Shaft size 1/4" to 3/4" (6.4 to 20.5 mm) dia.<br>1/4" to 1/2" (6.4 to 13 mm) square<br>Minimum shaft length 3/4" (20 mm)   |   |   |
| Enclosure  | NEMA 2, IP54 according to EN60529  |   |   |
| Ambient Conditions<br>(Non-Condensing)                 | <b>Operating</b> -25 to 130°F (-32 to 55°C); 0 to 95% RH, non-condensing<br><b>Storage</b> -40 to 158°F (-40 to 70°C); 0 to 95% RH, non-condensing   |   |   |
| Audible Noise Rating                                   | 35 dBA at 1 meter  |   |   |
| Dimensions   | 7.56" H x 3.23" W x 2.36" D<br>(192mm H x 82mm W x 60mm D)   |   |   |
| Weight   | 2.4 lbs. (1 kg)<br>(-A) Model: 2.9 lbs. (1.3 kg)   |   |   |
| Agency<br>Certifications                               | UL listed to UL60730-cUL listed to CAN/CSA E60730, low voltage directive 2006/95/EC, Product safety:<br>Automatic electrical controls for household and similar use EN 60 730-2-14(Type 1), Electromagnetic<br>compatibility (EMC) 2004/108/EC, Emissions for all models EN61000-6-3 |   |   |
| Warranty   | 5 Years limited from time of shipment.   |   |   |

Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.





## DC(M)-310 Series – Submittal/Technical Data

310 lb-in. – Non-Spring Return – On/Off, Floating & Modulating – Auxiliary Switches

| Technical Specifications - DC(M)24-310 Series Actuator |   |  |   |
|--|---|--|---|
| Type   | Actuator Models   | DC24-310-T(-A)<br>Non-Spring Return - Floating, Time Out Features with optional Auxiliary Switches (-A)  | DCM24-310(-A)<br>Non-Spring Return - Modulating with optional Auxiliary Switches (-A) |
|  |   | Torque   | 310 lb-in. (35 Nm)  |
| Electrical   | Operating Voltage   | 24 VAC/DC ±20% at 50/60 Hz   |   |
|  | Power Consumption   | 7 VA, 7W   | 8 VA, 8W  |
|  | Control Signal  | N/A  | 0 to 10 VDC   |
|  | Control Impedance   | N/A  | 100k Ohm  |
|  | Input Signal  | N/A  | Y (wires 8-2) DC 0...10 V<br>(Max. permissible input voltage DC 35 V)                 |
|  | Feedback  | Contact Bray   | 0 to 10 VDC   |
|  | Positioning Signal  | N/A  | DC 0...35 V at Offset U <sub>0</sub> = 0...5 V and Span ΔU = 2...30 V                 |
|  | Feedback Signal   | N/A  | DC 0 to 10 VDC  |
|  | Dual Auxiliary Switch   | Standard Cable - AC, 6 A Resistive, AC 2 A General Purpose   |   |
|  | Voltage   | Standard Cable - 24 to 250 VAC   |   |
| Switch Range   | Switch A - 0 to 90° with 5° Intervals (Recommended Range Usage 0 to 45°) Factory Setting 5°   |  |   |
|  | Switch B - 0 to 90° with 5° Intervals (Recommended Range Usage 45 to 90°) Factory Setting 85° |  |   |
| Stall Protection                                       | Yes   |  |   |
| Electrical Connection                                  | 3 ft. (0.9 m) Pre-cabled - AWG 18   |  |   |
| Equipment Rating                                       | Class 2 According to UL, CSA - Class III per EN60730  |  |   |
| Manual Override  | External Push Button  |  |   |
| Operation  | Runtime for 90° of Rotation   | 150 sec., constant for all operating conditions  |   |
|  | Rotation Range  | Nominal Angle of Rotation 90°, mechanically limited to 95° ± 2°  |   |
|  | Cycle Life  | Designed for 60,000 full stroke cycles   |   |
|  | Mechanical Connections  | Round Shafts - 3/8 to 1 in. (9.5 to 25.4 mm) diameter<br>Square Shafts - 1/4 to 5/8 in. (6 to 18 mm)<br>Minimum Shaft Length - 3/4 (20 mm)                         |   |
| Environmental  | Enclosure   | IP54 as per EN 60 529  |   |
|  | Ambient Conditions (Non-Condensing)   | Operating — -25 to 130°F (-32 to 55°C); 0 to 95% RH, non-condensing<br>Storage — -40 to 158°F (-40 to 70°C); 0 to 95% RH, non-condensing                           |   |
|  | Audible Noise Rating  | <45 dBA at 1 m   |   |
|  | Dimensions  | (L) 11.8 x (W) 3.9 x (H) 2.9 in. (300 x 100 x 67.5 mm)   |   |
|  | Weight  | 4.4 lb (2 kg)  |   |
| Conditions   | Agency Certifications   | UL listed to UL873-cUL certified to Canadian Standard C22.2 No. 24-93<br>CE conformity: Electromagnetic compatibility 2004/108/EC-Low-voltage directive 2006/95/EC |   |
|  | Warranty  | 5 Years limited from time of shipment.   |   |

Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

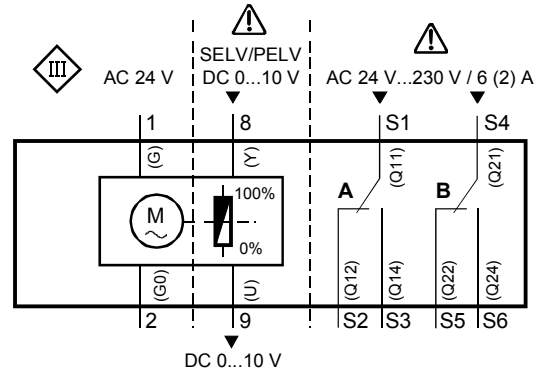
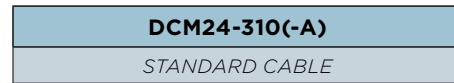
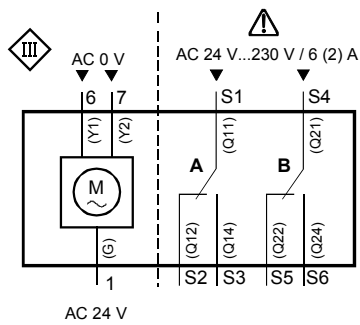
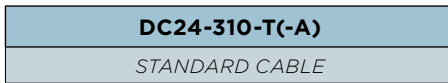
To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

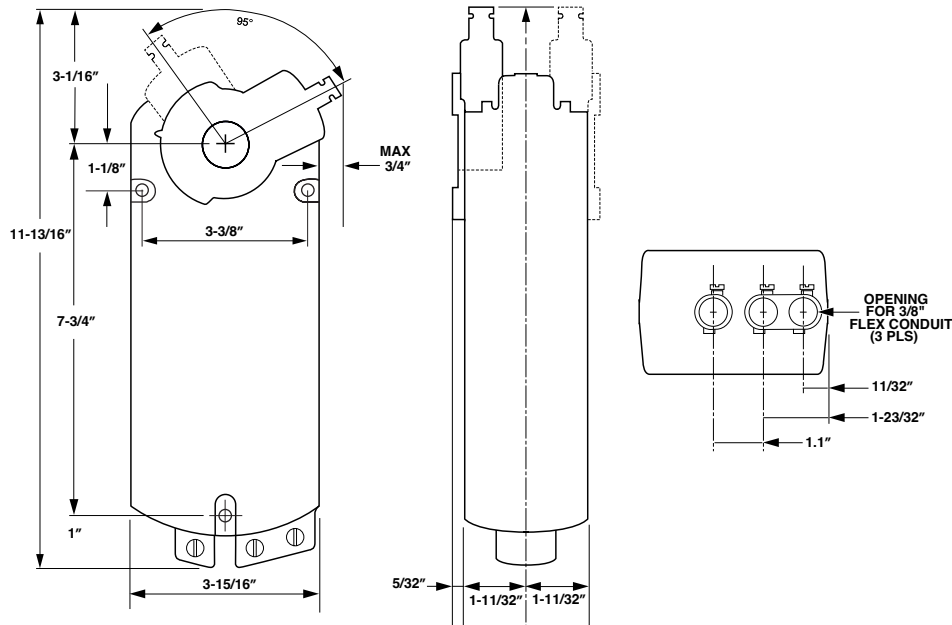
### Wiring

| KEY | Cable |                      | Function                                   |
|-----|-------|----------------------|--|
|     | No.   | Code Color           |  |
|     | 1     | G Red (RD)           | AC 24 V Supply (SP)                        |
|     | 2     | G0 Black (BK)        | Neutral (SN)                               |
|     | 6     | Y1 Violet (VT)       | Control Signal Clockwise                   |
|     | 7     | Y2 Orange (OG)       | Control Signal Counterclockwise            |
|     | 8     | Y Gray (GY)          | 0 to 10 VDC Input Signal                   |
|     | 9     | U Pink (PK)          | Output for 0 to 10 VDC Position Indication |
|     | P1    | a White/Red (WH RD)  | Feedback 0 to 100% P1 - P2                 |
|     | P2    | b White/Blue (WH BU) | Feedback Common                            |
|     | P3    | c White/Pink (WH PK) | Feedback 100 to 0% P3 - P2                 |

| Auxiliary Switch - Factory Installed |     |                    |                 |
|--------------------------------------|-----|--------------------|-----------------|
| S1                                   | Q11 | Gray/Red (GY RD)   | Switch A Common |
| S2                                   | Q12 | Gray/Blue (GY BU)  | Switch A - N.C. |
| S3                                   | Q14 | Gray/Pink (GY PK)  | Switch A - N.O. |
| S4                                   | Q21 | Black/Red (BK RD)  | Switch B Common |
| S5                                   | Q22 | Black/Blue (BK BU) | Switch B - N.C. |
| S6                                   | Q24 | Black/Pink (BK PK) | Switch B - N.O. |



### Dimensions





## DC(M)S-20 Series – Submittal/Technical Data

20 lb-in. – Spring Return – On/Off & Modulating – Auxiliary Switches

| Technical Specifications - DC(M)S-20 Series Actuator |   |  |  |  |  |  |
|--|---|--|--|--|--|--|
| Type   | DCS24-20-P  | DCS24-20-AP  | DCMS24-20-P  | DCMS24-20-AP   | DCS120-20  | DCS120-20-A  |
| Actuator Models                                      | Spring Return On/Off  | Spring Return On/Off w/Auxiliary Switches (-A)                                   | Spring Return Modulating   | Spring Return Modulating w/Auxiliary Switches (-A)                               | Spring Return On/Off   | Spring Return On/Off w/Auxiliary Switches (-A)                                   |
| Torque   | 20 lb-in. (2 Nm)  |  |  |  |  |  |
| Operating Voltage                                    | 24 VAC ±20%; 24 VDC ±15%  |  |  |  | 120 Vac ±15%   |  |
| Frequency  | 50/60 Hz  |  |  |  |  |  |
| Power Consumption                                    | 6.5 VA (4.5W) Running, 4 VA (2.5W) Holding  |  | 4.5 VA (3W) Running, 3.5 VA (2W) Holding   |  | 10 VA Running, 7 VA Running  |  |
| Control Input Signal                                 | N/A   | N/A  | 2 to 10 VDC/Inverse Acting 10 to 2 VDC   |  | N/A  | N/A  |
| Input Impedance                                      | N/A   | N/A  | >100K ohms   |  | N/A  | N/A  |
| Feedback Signal                                      | N/A   | N/A  | Position output signal (wires 9-2) voltage output signal 2 to 10 VDC/ Inverse Acting 10 to 2 VDC maximum output current +1 mA, -0.5 mA |  | N/A  | N/A  |
| Auxiliary Switch Rating                              | N/A   | 24 to 250 VAC/24 VDC 6A resistive/2 FLA/12 LRA Fixed dual end switches AC rating | N/A  | 24 to 250 VAC/24 VDC 6A resistive/2 FLA/12 LRA Fixed dual end switches AC rating | N/A  | 24 to 250 VAC/24 VDC 6A resistive/2 FLA/12 LRA Fixed dual end switches AC rating |
| Equipment Rating                                     | Class 2, in accordance with UL/CSA Class III per IEC 60536  |  |  |  | Double Insulation  |  |
| Electrical Connection                                | Plenum Rated 18 AWG (0.75 mm <sup>2</sup> ), Cable length: 3 feet (0.9 m) length  |  |  |  | Appliance Cable  |  |
| Runtime for 90° of Rotation                          | Operating with motor 30 seconds<br>Closing (on power loss) with spring return 15 seconds typical  |  |  |  |  |  |
| Mounting   | Nominal angle of rotation 90° and maximum angular rotation 95°  |  |  |  |  |  |
| Cycle Life   | Designed for minimum of 60,000 full stroke cycles and a minimum of 1.5 million repositions at rated torque and temperature  |  |  |  |  |  |
| Mechanical Connections                               | <b>Round Shafts</b> - 3/8 to 1/2-inch (8 to 13 mm) diameter<br><b>Square Shafts</b> - 1/4 to 7/16-inch (6 to 11 mm)<br><b>Minimum shaft length</b> - 3/4-inch (20 mm)   |  |  |  |  |  |
| Enclosure  | NEMA 1 (IP40)   |  |  |  |  |  |
| Material   | Plenum-rated rugged plastic   |  |  |  |  |  |
| Gear Lubrication                                     | Silicone-free   |  |  |  |  |  |
| Ambient Conditions (Non-Condensing)                  | <b>Operating</b> — -25°F to 130°F (-32°C to 55°C).<br><b>Storage</b> — -40°F to 158°F (-40°C to 70°C), 95% RH Max.  |  |  |  |  |  |
| Audible Noise Rating                                 | 45 dBA at 39-13/32 in. (1 meter)  |  |  |  |  |  |
| Dimensions   | 4-23/32" L × 2-22/32" W × 2-15/32" D<br>(120 mm L × 69 mm W × 63 mm D)  |  |  |  | 5-1/2" L × 2-22/32" W × 2-15/32" D<br>(138.5 mm L × 69 mm W × 63 mm D) |  |
| Weight   | 1.06 lbs (0.48 kg)  |  |  |  |  |  |
| Agency Certifications                                | UL listed per UL873<br>cUL to CSA C22.2 No. 24-93 C-Tick conformity per AS/NZS3548<br>NOTE: These devices were approved for installation in plenum areas by Underwriters Laboratories, Inc. (UL) per UL 1995. |  |  |  | EMC and Low Voltage Directives   |  |
| Warranty   | 5 Years limited from time of shipment.  |  |  |  |  |  |

Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

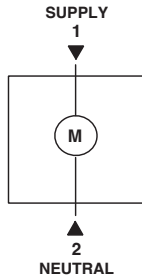
To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

# DC(M)S-20 Series – Submittal/Technical Data

Commercial Electric Actuators – 20 in-lbs (2Nm)

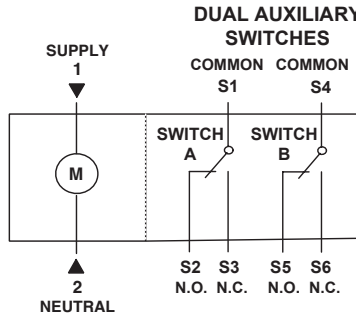
## Wiring



**DCS24-20-P (24VAC/DC)**

PLENUM CABLE

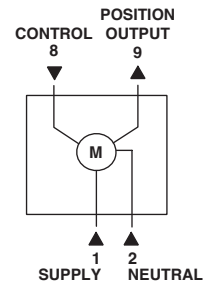
**ON/OFF**



**DCS24-20-AP (24VAC/DC)**

PLENUM CABLE

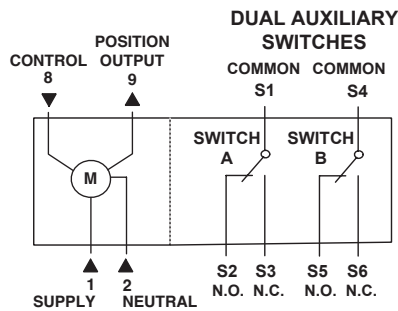
**ON/OFF W/AUX. SWITCHES**



**DCMS24-20-P (24VAC/DC)**

PLENUM CABLE

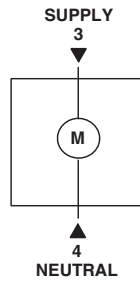
**MODULATING**



**DCMS24-20-AP (24VAC/DC)**

PLENUM CABLE

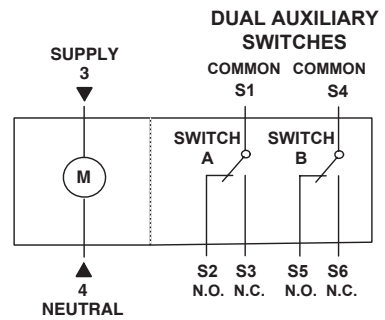
**MODULATING W/AUX. SWITCHES**



**DCS120-20 (120VA)**

STANDARD CABLE

**ON/OFF**

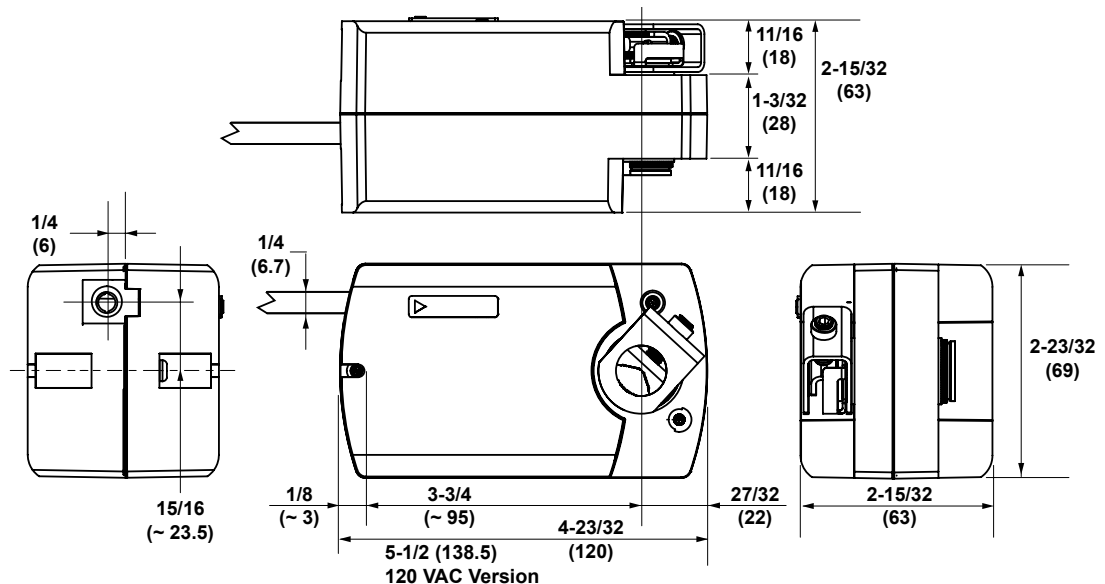


**DCS120-20 (120VA)**

STANDARD CABLE

**ON/OFF W/AUX. SWITCHES**

## Dimensions





## D(M)S-27 Series – Submittal/Technical Data

27 lb-in. – Spring Return – On/Off, Floating & Modulating – Auxiliary Switches

| Technical Specifications - D(M)S-27 Series Actuator |  |   |  |   |   |
|---|--|---|--|---|---|
| Type  | Actuator Models  | DS24-27-(A)   | DS24-27-T  | DMS24-27-(A)  | DSU20-27-(A)  |
|   |  | Spring Return On/Off with optional Auxiliary Switches (-A)  | Spring Return On/Off & Floating  | Spring Return Modulating with optional Auxiliary Switches (-A)  | Spring Return On/Off with optional Auxiliary Switches (-A)  |
|   | Torque   | 27 lb-in. (3 Nm)  |  |   |   |
|   | Operating Voltage                                      | 24 VAC 19.2 to 28.8 V at 50/60 Hz<br>24 VDC (21.6 to 28.8 V)  |  |   | AC 100 to 240 V (85 to 264 V) at 50/60 Hz:  |
|   | Power Consumption                                      | VAC - 5 VA Running, 1.6 VA Holding  | VAC - 4.7 VA Running, 2.7 VA Holding   | 0.06 A Running, 0.02 A Holding  |   |
|   |  | VDC - 2.8 W Running, 0.8 W Holding  | VDC - 1.8 W Running, 1 W Holding   |   |   |
|   | Min. Transformer Size                                  | 6 VA per actuator   |  |   | N/A   |
| Electrical  | Input Signal Adjustments                               | N/A   | AC 19.2 to 28.8 V at 50/60 Hz or DC 24 V +20%/-10% Class 2 or SELV. Minimum Pulse Width: 500 m sec.  | <b>Factory Setting</b> - DC 0 to 10 V, CW Rotation with Signal Increase Selectable DC 0 (2) to 10 V or 0 (4) to 20 mA with Field-Furnished 500 ohm 0.25 W Min. Resistor<br><b>Switch Selectable</b> - Direct or Reverse Action with Signal Increase | N/A   |
|   | Control Input Impedance                                | N/A   | 4,700 Ohms   | 100k Ohms, Current Input: 500 Ohms with Field Furnished 500 Ohm Resistor  | N/A   |
|   | Feedback Signal  | N/A   |  | DC 0 (2) to 10 V for Desired Rotation Range up to 95°. Corresponds to Rotation Limits, 0.5 mA at 10 V Maximum   | N/A   |
|   | Auxiliary Switch Rating                                | (-A) Models) One Single -Pole, Double-Throw (SPDT), double-insulated switch with silver contacts: AC 24 V, 50 VA pilot duty AC 120 V, 5.8 A Resistive, 1/4 hp, 275 VA pilot duty AC 240 V, 5.0 A Resistive, 1/4 hp, 275 VA pilot duty | N/A  |   | (-A) Models) One Single -Pole, Double-Throw (SPDT), double-insulated switch with silver contacts: AC 24 V, 50 VA pilot duty AC 120 V, 5.8 A Resistive, 1/4 hp, 275 VA pilot duty AC 240 V, 5.0 A Resistive, 1/4 hp, 275 VA Pilot Duty |
|   | Equipment Rating                                       | Class 2 or Safety Extra-Low Voltage (SELV)  |  |   | N/A   |
|   | Electrical Connection                                  | 48 in. UL 758 Type AWM Halogen-Free Cable with 18 AWG (0.85 mm <sup>2</sup> ) Conductors & 0.25 in. (6 mm) Ferrule Ends   | <b>Without Aux Switches</b><br>120 in. UL 444 Type CMP Plenum Rated Cable w/ 19 AWG (0.75 mm <sup>2</sup> ) Conductors & 0.25 in. (6 mm) Ferrule Ends<br><b>With Aux Switches</b><br>48 in. UL 758 Type AWM Halogen-Free Cable w/ 18 AWG (0.85 mm <sup>2</sup> ) Conductors & 0.25 in. (6 mm) Ferrule Ends |   | 48 in. UL 758 Type AWM Halogen-Free Cable with 18 AWG (0.85 mm <sup>2</sup> ) Conductors & 0.25 in. (6 mm) Ferrule Ends   |
| Conduit Connections                                 | Integral 1/2 in. (13 mm) Threaded Conduit Connector(s) |   |  |   |   |

# D(M)S-27 Series – Submittal/Technical Data

## Commercial Electric Actuators – 27 in-lbs (3Nm)

| Technical Specifications - D(M)S-27 Series Actuator - Continued |                                     |  |   |  |  |
|---|-------------------------------------|--|---|--|--|
| Type  | Actuator Models                     | DS24-27-(A)  | DS24-27-T   | DMS24-27-(A)   | DSU20-27-(A)   |
|   |                                     |  | Spring Return On/Off with optional Auxiliary Switches (-A)  | Spring Return On/Off & Floating  | Spring Return Modulating with optional Auxiliary Switches (-A) |
|   | Spring Return                       | Direction is Selectable with Mounting Position of Actuator:<br>Actuator Side A is away from damper or valve: CCW Spring Return<br>Actuator Side B is away from damper or valve: CW Spring Return   |   |  |  |
|   | Rotation Range                      | Maximum Full Stroke: 95° - (Adjustable Stop: 35 to 95° Maximum Position (Modulating Only))   |   |  |  |
|   | Electric Stall Detection            | Protects from overload at all angles of rotation   |   |  |  |
| Operation   | Runtime for 90° of Rotation         | Power On (Running) 53 to 71 Seconds for 0 to 27 lb-in. (3 N-m) Load, at Room Temperature<br>60 Seconds Nominal at Full Rated Load (0.25 rpm)<br>Power Off (Returning) 19 to 23 Seconds for 0 to 27 lb-in. (3 N-m) Load, at Room Temperature<br>22 Seconds Nominal at Full Rated Load<br>28 Seconds Maximum with 27 lb-in. (3 N-m) Load at -22°F (-30°C)  | Power On (Running) 150 Seconds Constant for 0 to 27 lb-in. (3 N-m) Load, at All Operating Conditions<br>Power Off (Returning) 12 to 17 Seconds for 0 to 27 lb-in. (3 N-m) Load, at Room Temperature<br>16 Seconds Nominal at Full Rated Load<br>22 Seconds Maximum with 27 lb-in. (3 N-m) Load at -22°F (-30°C) | Power On (Running) 24 to 28 Seconds for 0 to 27 lb-in. (3 N-m) Load, at Room Temperature<br>27 Seconds Nominal at Full Rated Load (0.5 rpm)<br>Power Off (Returning) 19 to 23 Seconds for 0 to 27 lb-in. (3 N-m) Load, at Room Temperature<br>22 Seconds Nominal at Full Rated Load<br>28 Seconds Maximum with 27 lb-in. (3 N-m) Load at -22°F (-30°C) |  |
|   | Cycle Life                          | 60,000 Full Stroke Cycles with 27 lb-in. (3 N-m) Load, 1,500,000 Repositions with 27 lb-in. (3 N-m) Load   |   |  |  |
|   | Mechanical Connections              | Round Shafts - 1/4 in. to 1/2 in. (6 to 12 mm)<br>Square Shafts - 1/4 in. to 5/16 in. (6 to 8 mm)  |   |  |  |
| Environmental   | Enclosure                           | NEMA 2 (IP54) for all mounting orientations  |   |  |  |
|   | Ambient Conditions (Non-Condensing) | Operating — -22 to 140°F (-30 to 60°C); 90% RH Maximum, Noncondensing<br>Storage — -40 to 185°F (-40 to 85°C); 95% RH Maximum, Noncondensing   |   |  |  |
|   | Audible Noise Rating                | Running — <36 dBA at 27 lb-in. (3 N-m) Load, at a Distance of 39-13/32 in. (1 m)<br>Holding — <20 dBA at a Distance of 39-13/32 in. (1 m)<br>Returning — <51 dBA at 27 lb-in. (3 N-m) Load, at a Distance of 39-13/32 in. (1 m)  | Running — <28 dBA at 27 lb-in. (3 N-m) Load, at a Distance of 39-13/32 in. (1 m)<br>Holding — <20 dBA at a Distance of 39-13/32 in. (1 m)<br>Returning — <56 dBA at 27 lb-in. (3 N-m) Load, at a Distance of 39-13/32 in. (1 m)   | Running — <45 dBA at 27 lb-in. (3 N-m) Load, at a Distance of 39-13/32 in. (1 m)<br>Holding — <20 dBA at a Distance of 39-13/32 in. (1 m)<br>Returning — <51 dBA at 27 lb-in. (3 N-m) Load, at a Distance of 39-13/32 in. (1 m)  |  |
|   | Dimensions                          | 6.38 in. x 3.23 in. x 2.26 in. (162 mm x 82 mm x 57.5 mm)  |   |  |  |
|   | Weight                              | 2.0 lb. (2.4 lb w/ Aux. Switches)  |   |  |  |
| Conditions  | Agency Certifications               | UL Listed, CCN XAPX, File E27734; to UL 60730-1A: 2003-08, Ed. 3.1, Automatic Electrical Controls for Household and Similar Use; and UL 60730-2-14: Ed. 1, Part 2, Particular Requirements for Electric Actuators.<br><br>UL Listed, CCN XAPX7, File E27734; to UL 60730-1:02-CAN/CSA: July 2002, 3rd Ed., Automatic Electrical Controls for Household and Similar Use; and CSA C22.2 No. 24-93 Temperature Indicating and Regulating Equipment<br><br>CE Mark - This product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC.<br><br>C-Tick Mark, Australia/NZ Emissions Compliant |   |  |  |
|   | Warranty                            | 5 Years limited from time of shipment.   |   |  |  |

Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

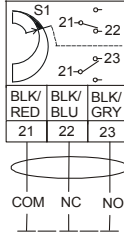
To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

### Wiring

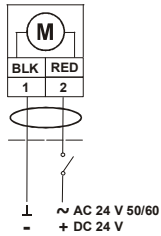
#### - (A) AUXILIARY SWITCH WIRING

##### (-A) Auxiliary Switches



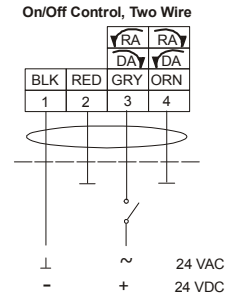
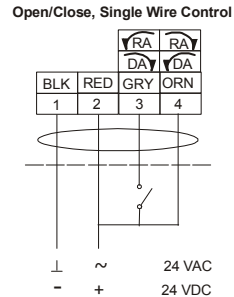
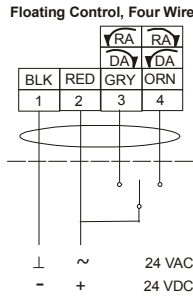
#### DS24-27-(A) CABLE

##### On/Off



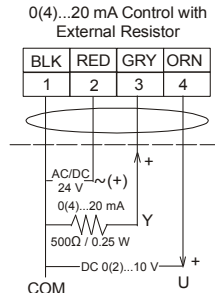
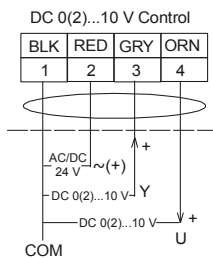
#### DS24-27-T CABLE

##### On/Off and Floating



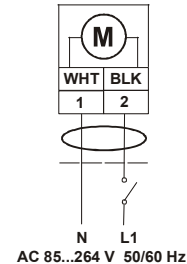
#### DMS24-27-(A) CABLE

##### Modulating



#### DSU20-27-(A) CABLE

##### On/Off



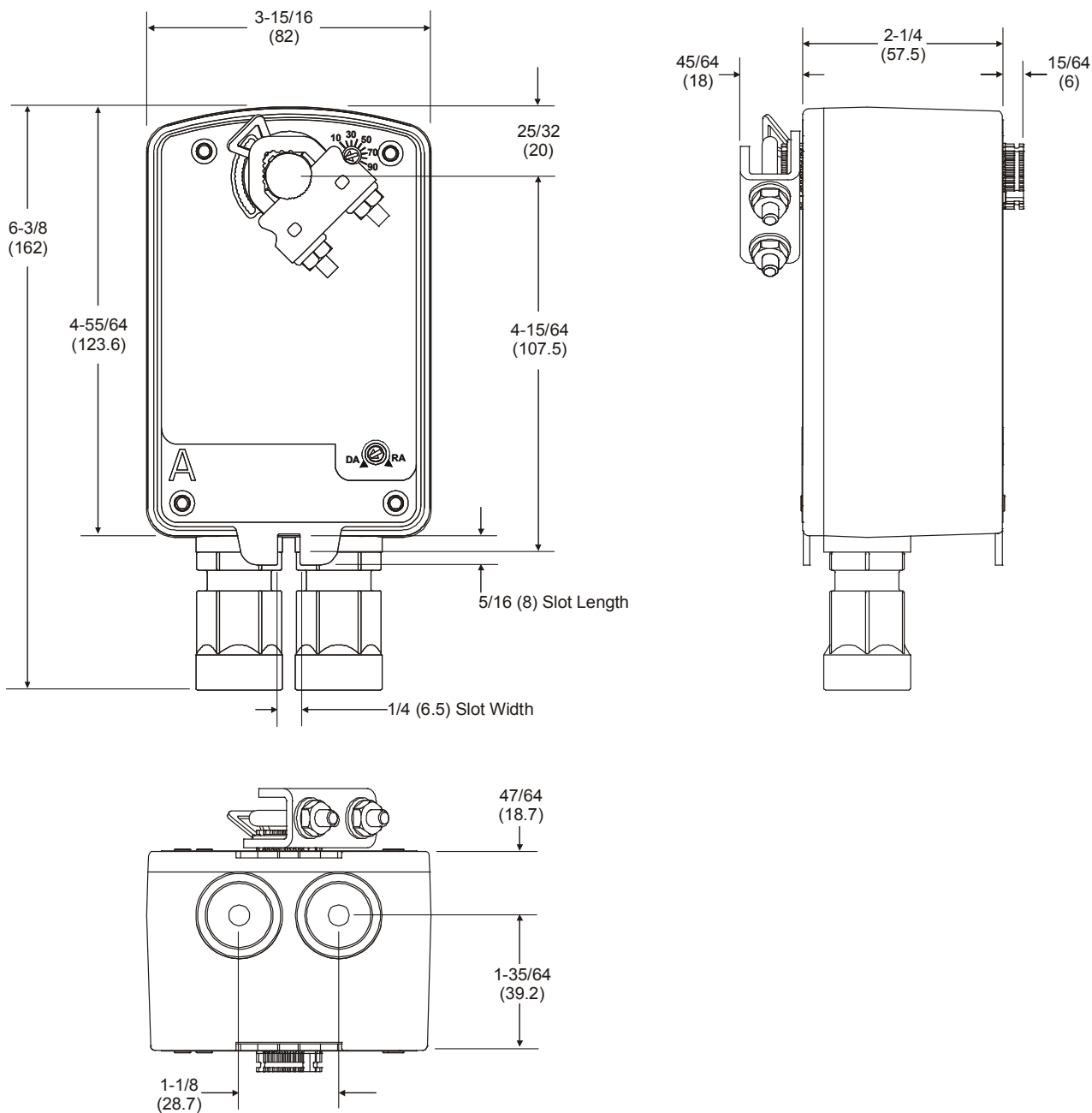
Important - Do not install multiple DS-27 Series actuators connected to the same mechanical load. Master-Slave application of DS-27 Series Actuators requires that each actuator be connected to independent loads.

Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

### Dimensions





## DC(M)S-62 Series – Submittal/Technical Data

62 lb-in. – Spring Return – On/Off & Modulating – Auxiliary Switches

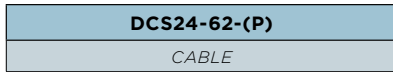
| Technical Specifications - DC(M)S-62 Series Actuator |   |  |  |  |
|--|---|--|--|--|
| Type   | Actuator Models   | DCS24-62-P<br>DCS24-62-AP  | DCMS24-62-P<br>DCMS24-62-A   | DCS120-62<br>DCS120-62-A   |
|  |   | Spring Return<br>On/Off<br>Plenum Cable (-P)<br>Plenum Cable & Auxiliary<br>Switches (-AP)   | Spring Return<br>Modulating<br>Plenum Cable (-P)<br>Auxiliary Switches (-A)    | Spring Return<br>On/Off<br>Standard Cable Only<br>Auxiliary Switches (-A)                  |
|  | Torque  | 62 lb-in. (7 Nm)   |  |  |
| Electrical   | Operating Voltage   | 24 VAC ±20%<br>24 VDC ±15% at 50/60 Hz   |  | 120 VAC ±10% at 50/60 Hz   |
|  | Power Consumption   | VAC - 5 VA Running, 3.5 VA Holding<br>VDC - 4 W Running, 3 W Holding   |  | ≤7 VA/5W   |
|  | Control Input Signal  | N/A  | 0 to 10 VDC (max. 35 VDC)  | N/A  |
|  | Control Input Impedance   | N/A  | >100k Ohms   | N/A  |
|  | Feedback Signal   | N/A  | Voltage output signal 0 to 10 VDC;<br>Maximum output current<br>+1 mA, -0.5 mA | N/A  |
|  | Auxiliary Switch Rating (-A Models Only)  | (-A) Models Only<br>Control signal adjustment - Offset (start point) Between 0 to 5 VDC; Span Between 2 to 30 VDC<br>AC Rating (standard cable) 24 to 250 VAC, AC 6A resistive, AC 2A general purpose<br>DC Rating (Standard/Plenum cable) 12 to 30 VDC, DC 2A |  |  |
|  | Switch Range (-A Models Only)   | (-A) Models Only<br>Switch A - 0° to 90° with 5° intervals; Recommended range usage 0° to 45°; Factory setting 5°<br>Switch B - 0° to 90° with 5° intervals; Recommended range usage 45° to 90°; Factory setting 85°   |  |  |
|  | Switching Hysteresis (-A Models Only)   | (-A) Models Only<br>2°   |  |  |
|  | Equipment Rating  | Class 2, in accordance with UL/CSA, Class III per EN 60730   |  | N/A  |
|  | Electrical Connection   | (-P or -AP) Models Only - 36 in. (.9 m) Plenum Cable with 18 AWG (0.75 mm <sup>2</sup> ) Wire Leads<br>(-A) Models Only - 36 in. (.9 m) Standard Cable with 18 AWG (0.75 mm <sup>2</sup> ) Wire Leads  |  |  |
| Conduit Connections                                  | Integral Connectors for 1/2 in. NPT   |  |  |  |
| Operation  | Manual Override   | 3mm Hex Wrench   |  |  |
|  | Spring Return   | Direction is Selectable with Mounting Position of Actuator   |  |  |
|  | Rotation Range  | Nominal angle of rotation 90°; Maximum angular rotation 95°  |  |  |
|  | Runtime for 90° of Rotation   | Power On (Running) 90 Seconds for 62 lb-in (7 Nm) at (60 seconds max. at -25°F (-32°C))<br>Power Off (Returning) 15 Seconds Typical for 62 lb-in (7 Nm) at (60 seconds max. at -25°F (-32°C))  |  |  |
|  | Cycle Life  | 60,000 Full stroke cycles (1,500,000 repositions)  |  |  |
| Mechanical Connections                               | Round Shafts - 1/4 to 3/4-inch (6.4 to 20.5 mm)<br>Square Shafts - 1/4 to 1/2-inch (6.4 to 13 mm) |  |  |  |
| Environmental  | Enclosure   | NEMA 1 (IP54) limited mounting orientations  |  |  |
|  | Ambient Conditions (Non-Condensing)   | Operating — -25°F to 130°F (-32°C to 55°C); 95% RH Maximum, Noncondensing<br>Storage — -40°F to 158°F (-40°C to 70°C); 95% RH Maximum, Noncondensing   |  |  |
|  | Audible Noise Rating  | 40 dBA   |  |  |
|  | Dimensions  | 8-3/8" (L) x 3-1/4" (W) x 2-2/3" (H)   |  |  |
| Conditions   | Weight  | 2.9 lb (1.3 kg)  |  |  |
|  | Agency Certifications   | UL listed to UL60730 (to replace UL873) cUL certified to Canadian Standard C22.2 No. 24-93<br>Low voltage directive (LVD) 2006/95/EC - EN 60 730-2-14 (Type 1)   |  | UL listed to UL60730 (to replace UL873) cUL certified to Canadian Standard C22.2 No. 24-93 |
|  | Warranty  | 5 Years limited from time of shipment.   |  |  |

Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

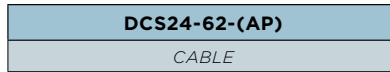
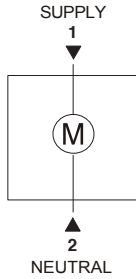
To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

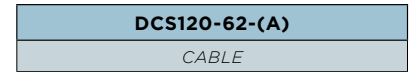
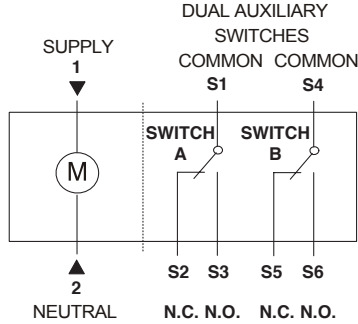
### Wiring



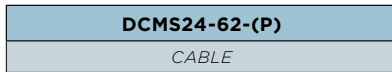
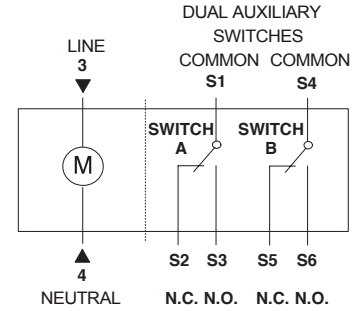
On/Off



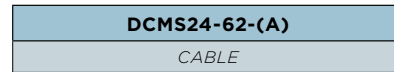
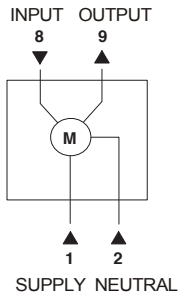
On/Off with AUX Switches



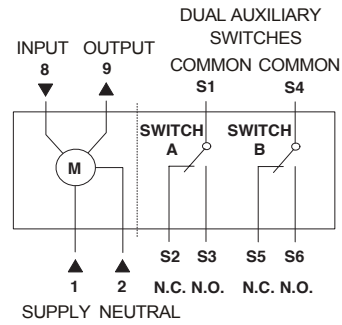
120 V On/Off with AUX Switches



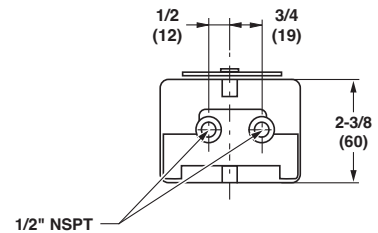
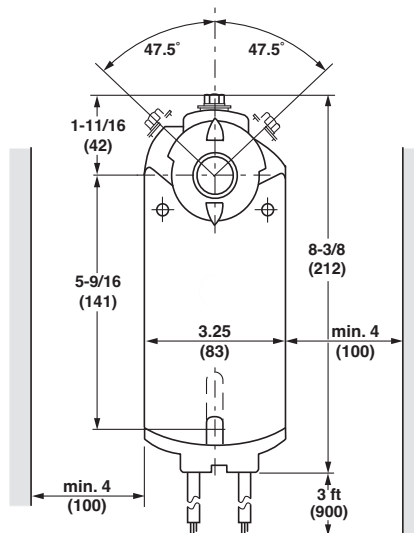
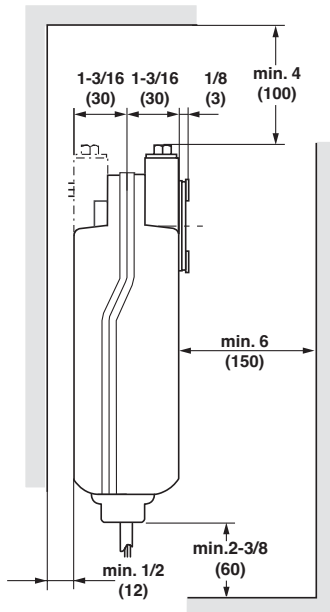
Modulating



Modulating with AUX Switches



### Dimensions





## D(M)S-70 Series – Submittal/Technical Data

70 lb-in. – Spring Return – On/Off, Floating & Modulating – Auxiliary Switches

| Technical Specifications - D(M)S-70 Series Actuator |                          |  |  |   |   |
|---|--------------------------|--|--|---|---|
| Type  | Actuator Models          | DS24-70-(A)  | DS24-70-T-(A)  | DMS24-70-(A)  | DS120-70-(A)  |
|   |                          |  | Spring Return On/Off with optional Auxiliary Switches (-A)                 | Spring Return On/Off & Floating with optional Auxiliary Switches (-A)   | Spring Return Modulating with optional Auxiliary Switches (-A)  |
|   | Torque                   | 70 lb-in. (8 Nm)   |  |   |   |
| Electrical  | Operating Voltage        | 24 VAC (18 to 30 V) at 50/60 Hz<br>24 VDC (21.6 to 28.8 V)   | 24 VAC (19.2 to 28.8 V) at 50/60 Hz<br>24 VDC (21.6 to 28.8 V)             |   | AC 120 V (102 to 132 V) at 60 Hz  |
|   | Power Consumption        | VAC - 6.1 VA Running, 1.2 VA Holding<br>VDC - 3.5 W Running, 0.5 W Holding   | VAC - 7.9 VA Running, 5.5 VA Holding<br>VDC - 3.5 W Running, 1.9 W Holding |   | 0.05 A Running, 0.03 A Holding  |
|   | Input Signal             | N/A  | N/A  | 0(2) to 10 VDC<br>0(4) to 20 mA (with 500-ohm Resistor)   | N/A   |
|   | Min. Transformer Size    | 7 VA per Actuator  | 8 VA per Actuator  |   | N/A   |
|   | Control Input Impedance  | N/A  | 3000 Ohms  | 100k Ohms, Current Input: 500 Ohms with Field Furnished 500 Ohm Resistor                                      | N/A   |
|   | Feedback Signal          | N/A  |  | DC 0 (2) to 10 V for Desired Rotation Range up to 95°. Corresponds to Rotation Limits, 0.5 mA at 10 V Maximum | N/A   |
|   | Auxiliary Switch Rating  | (-A) Models) Two Single-Pole, Double-Throw (SPDT), Double-Insulated Switches with Gold over Silver Contacts: AC 24 V, 50 VA Pilot Duty   |  |   | (-A) Models) Two Single-Pole, Double-Throw (SPDT), Double-Insulated Switches with Gold over Silver Contacts: AC 120 V, 5.8 A Resistive, 1/4 hp, 275 VA Pilot Duty |
|   | Equipment Rating         | Class 2 or Safety Extra-Low Voltage (SELV)   |  |   | N/A   |
|   | Electrical Connection    | 48 in. UL 758 Type AWM Halogen-Free Cable w/ 18 AWG (0.85 mm <sup>2</sup> ) Conductors & 0.25 in. (6 mm) Ferrule Ends  |  |   |   |
|   | Conduit Connections      | Integral Connectors for 3/8 in. (10 mm) Flexible Metal Conduit   |  |   |   |
| Operation   | Manual Override          | Manual Override Crank  |  |   |   |
|   | Spring Return            | Direction is Selectable with Mounting Position of Actuator:<br>Actuator Side A is away from damper or valve: CCW Spring Return<br>Actuator Side B is away from damper or valve: CW Spring Return |  |   |   |
|   | Rotation Range           | Maximum Full Stroke: 95° - (Adjustable Stop: 35 to 95° Maximum Position (Modulating Only))   |  |   |   |
|   | Electric Stall Detection | Protects from overload at all angles of rotation   |  |   |   |

# D(M)S-70 Series – Submittal/Technical Data

## Commercial Electric Actuators – 70 in-lbs (8Nm)

| Technical Specifications - D(M)S-70 Series Actuator - Continued |                                     |  |  |   |   |
|---|-------------------------------------|--|--|---|---|
| Type  | Actuator Models                     | DS24-70-(A)  | DS24-70-T-(A)  | DMS24-70-(A)  | DS120-70-(A)  |
|   |                                     |  | Spring Return On/Off with optional Auxiliary Switches (-A)   | Spring Return On/Off & Floating with optional Auxiliary Switches (-A) | Spring Return Modulating with optional Auxiliary Switches (-A)  |
| Operation   | Runtime for 90° of Rotation         | Power On (Running) 55 to 71 Seconds for 0 to 70 lb-in (8 N-m) Load, at All Operating Conditions<br><br>60 Seconds Nominal at Full Rated Load (0.25 rpm)<br><br>Power Off (Spring Returning) 13 to 26 Seconds for 0 to 70 lb-in (8 N-m) Load, at Room Temperature<br><br>21 Seconds Nominal at Full Rated Load, 39 Seconds Maximum with 70 lb-in (8 N-m) Load at -4°F (-20°C)<br><br>108 Seconds Maximum with 53 lb-in (6 N-m) Load at -40°F (-40°C)  | Power On (Running) 150 Seconds Constant for 0 to 70 lb-in (8 N-m) Load, At All Operating Conditions<br><br>Power Off (Spring Running) 17 to 25 Seconds for 0 to 70 lb-in (8 N-m) Load, at Room Temperature<br><br>22 Seconds Nominal at Full Rated Load, 94 Seconds Maximum with 70 lb-in (8 N-m) Load, at -40°F (-40°C) |   | Power On (Running) 55 to 71 Seconds for 0 to 70 lb-in (8 N-m) Load, at All Operating Conditions<br><br>60 Seconds Nominal at Full Rated Load (0.25 rpm)<br><br>Power Off (Spring Returning) 13 to 26 Seconds for 0 to 70 lb-in (8 N-m) Load, at Room Temperature<br><br>21 Seconds Nominal at Full Rated Load, 39 Seconds Maximum with 70 lb-in (8 N-m) Load at -4°F (-20°C)<br><br>108 Seconds Maximum with 53 lb-in (6 N-m) Load at -40°F (-40°C) |
|   | Cycle Life                          | 60,000 Full Stroke Cycles with 70 lb-in. (8 N-m) Load, 1,500,000 Repositions with 70 lb-in. (8 N-m) Load   |  |   |   |
|   | Mechanical Connections              | <b>Round Shafts</b> - 5/16 to 5/8 in. (8 to 16 mm)<br><b>Square Shafts</b> - 1/4 to 1/2 in. (6 to 12 mm)   |  |   |   |
|   | Enclosure                           | NEMA 2 (IP54) for all mounting orientations  |  |   | N/A   |
| Environmental   | Ambient Conditions (Non-Condensing) | <b>Operating</b> – -40° to 140°F (-40° to 60°C); 90% RH Maximum, Non-condensing<br><b>Storage</b> – -40° to 185°F (-40° to 85°C); 95% RH Maximum, Non-condensing   |  |   |   |
|   | Audible Noise Rating                | <b>Running</b> – < 47 dBA at 70 lb-in (8 N-m) Load, at a Distance of 39-13/32 in. (1 m)<br><br><b>Holding</b> – < 20 dBA at a Distance of 39-13/32 in. (1 m)<br><br><b>Returning</b> – <52 dBA at 70 lb-in. (8 N-m) Load - (All at a Distance of 39-13/32 in. (1 m))   | <b>Running</b> – 35 dBA at 70 lb-in (8 N-m) Load, at a Distance of 39-13/32 in. (1 m)<br><br><b>Holding</b> – < 20 dBA at a Distance of 39-13/32 in. (1 m)<br><br><b>Returning</b> – <52 dBA at 70 lb-in. (8 N-m) Load - (All at a Distance of 39-13/32 in. (1 m))   |   | <b>Running</b> – < 47 dBA at 70 lb-in (8 N-m) Load, at a Distance of 39-13/32 in. (1 m)<br><br><b>Holding</b> – < 20 dBA at a Distance of 39-13/32 in. (1 m)<br><br><b>Returning</b> – <52 dBA at 70 lb-in. (8 N-m) Load - (All at a Distance of 39-13/32 in. (1 m))  |
|   | Dimensions                          | 6.33" (L) x 3.90" (W) x 2.26" (H)  |  |   |   |
|   | Weight                              | 3.5 lb. (3.9 lb w/ Aux. Switches)  |  |   | 4.2 lb.   |
| Conditions  | Agency Certifications               | UL Listed, CCN XAPX, File E27734; to UL 60730-1A: 2003-08, Ed. 3.1, Automatic Electrical Controls for Household and Similar Use; and UL 60730-2-14: Ed. 1, Part 2, Particular Requirements for Electric Actuators.<br><br>UL Listed, CCN XAPX7, File E27734; to UL 60730-1:02-CAN/CSA: July 2002, 3rd Ed., Automatic Electrical Controls for Household and Similar Use; and CSA C22.2 No. 24-93 Temperature Indicating and Regulating Equipment<br><br>CE Mark - This product is in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC.<br><br>RCM Mark, Australia/NZ Emissions Compliant. |  |   |   |
|   | Warranty                            | 5 Years limited from time of shipment.   |  |   |   |

IMPORTANT: Do not install multiple DMS series actuators connected to the same mechanical load. Master-slave application of DMS or VAMS series actuators requires that each actuator be connected to independent loads.

Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

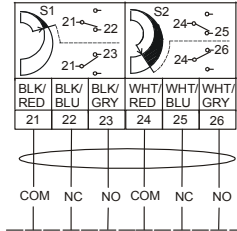
# D(M)S-70 Series — Submittal/Technical Data

## Commercial Electric Actuators — 70 in-lbs (8Nm)

### Wiring

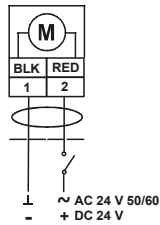
#### - (A) AUXILIARY SWITCH WIRING

##### (-A) Auxiliary Switches



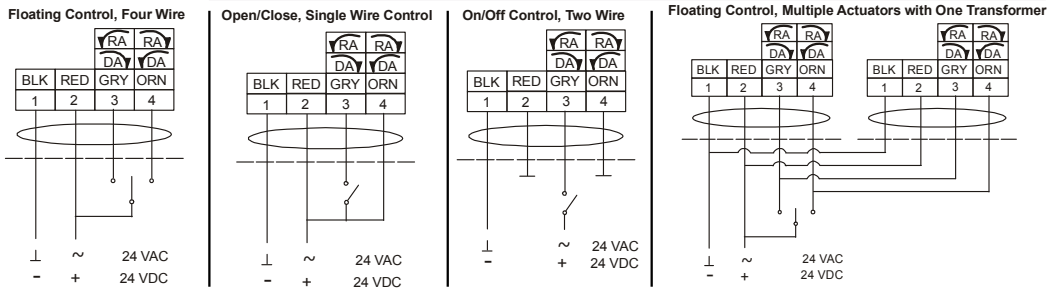
#### DS24-70-(A) STANDARD CABLE

##### On/Off



#### DS24-70-T(A) STANDARD CABLE

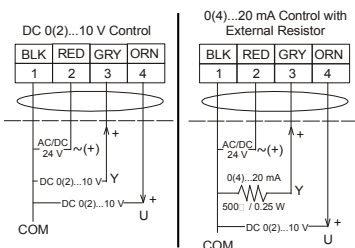
##### On/Off and Floating



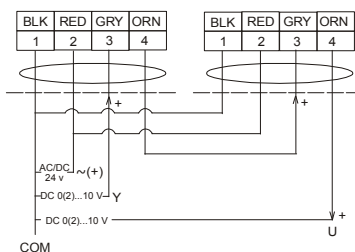
#### DMS24-70-(A) STANDARD CABLE

#### DS120-70-(A) STANDARD CABLE

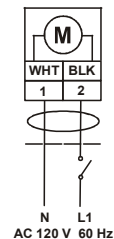
##### Modulating



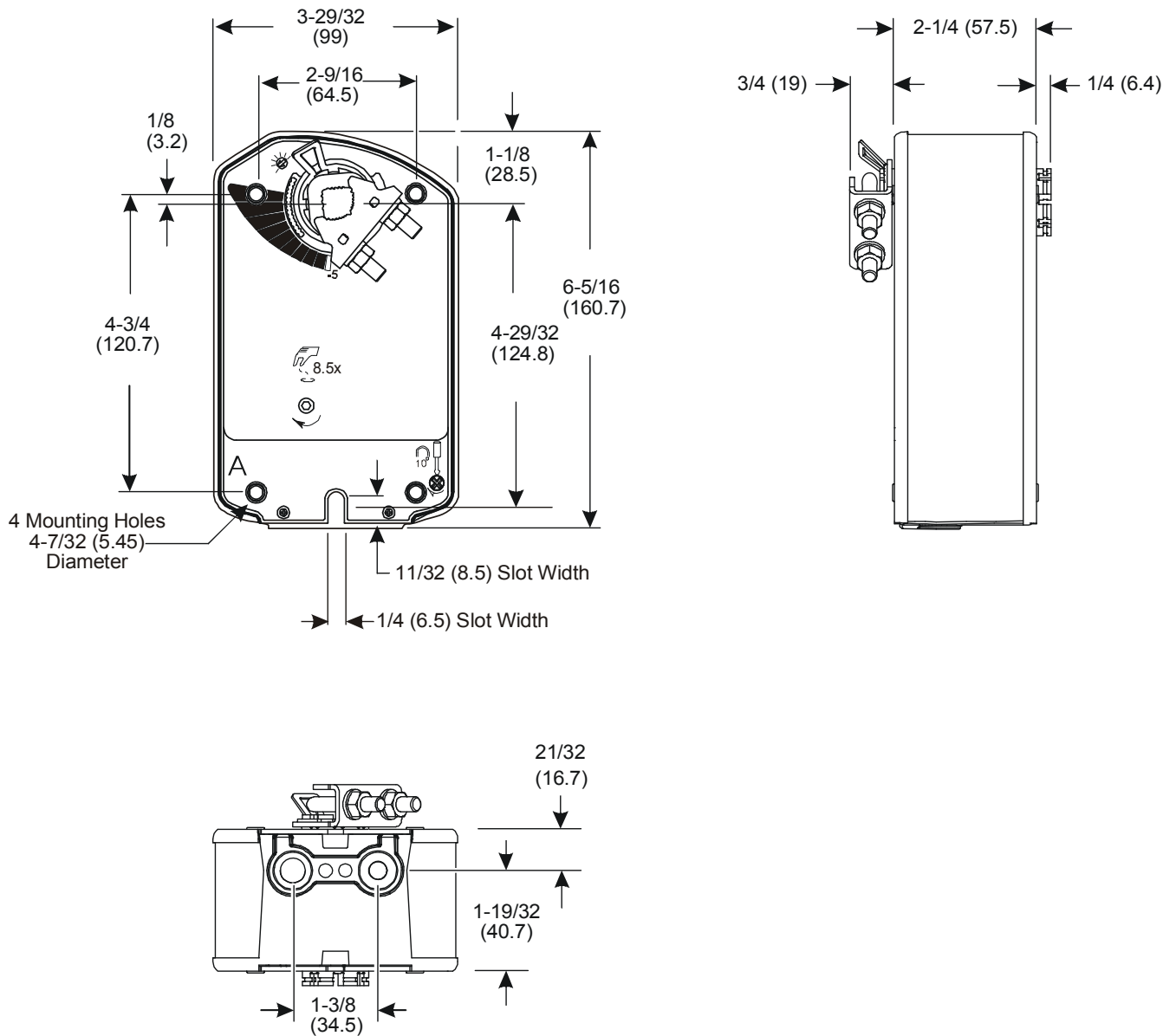
##### Master-Slave Application



##### On/Off



### Dimensions





## DC(M)S-140 Series – Submittal/Technical Data

160 lb-in. – Spring Return – On/Off, Floating & Modulating – Auxiliary Switches

| Technical Specifications - DC(M)S-140 Series Actuator |  |  |   |   |
|---|--|--|---|---|
| Type  | Actuator Models                          | DCS24-140-(A)  | DCMS24-140-(A)  | DCS120-140-(A)  |
|   |  | Spring Return<br>On/Off<br>Opt. Auxiliary Switches (-A)  | Spring Return<br>Modulating<br>Opt. Auxiliary Switches (-A) | Spring Return<br>On/Off<br>Opt. Auxiliary Switches (-A) |
|   | Torque                                   | 160 lb-in. (18 Nm)   |   |   |
| Electrical  | Operating Voltage                        | 24 VAC ±20%; 24...48<br>24 VDC ±10% at 50/60 Hz  |   | 120 VAC ±10% at 50/60 Hz                                |
|   | Power Consumption                        | Running: 7 VA/5W<br>Holding: 5 VA/3W   |   | Running: 8 VA<br>Holding: 6 VA                          |
|   | Control Input Signal                     | N/A  | 0 to 10 VDC or<br>2 to 10 VDC<br>(max. 35 VDC)              | N/A   |
|   | Control Input Impedance                  | N/A  | >100K Ohms  | N/A   |
|   | Feedback Signal                          | N/A  | 0 to 10 VDC<br>Max. output current +1 mA,<br>-5 mA          | N/A   |
|   | Auxiliary Switch Rating (-A Models Only) | <b>AC Rating</b> 24 VAC to 250 VAC; AC 6 A Resistive, AC 2A FLA, 12 LRA<br><b>DC Rating</b> 12 VDC to 30 VDC; DC 2A  |   | <b>AC Rating</b> AC 6 A Resistive, AC 2A FLA, 12 LRA    |
|   | Switching Hysteresis (-A Models Only)    | 2°   |   |   |
|   | Equipment Rating                         | Class 2 per UL/CSA   |   | N/A   |
|   | Electrical Connection                    | 36 in. (.9 m) Standard Cable with 18 AWG (0.75 mm <sup>2</sup> ) Wire Leads  |   |   |
|   | Conduit Connections                      | Integral Connectors for 3/8 in. Flex   |   |   |
| Operation   | Manual Override                          | Hex Head Screw   |   |   |
|   | Spring Return                            | Direction is Selectable with Mounting Position of Actuator   |   |   |
|   | Rotation Range                           | Nominal angle of rotation 90°; Maximum angular rotation 95°  |   |   |
|   | Runtime for 90° of Rotation              | Power On (Running) 90 Seconds<br>Power Off (Returning) 15 Seconds  |   |   |
|   | Cycle Life                               | 60,000 Full stroke cycles (1,500,000 repositions)  |   |   |
|   | Mechanical Connections                   | <b>Round Shafts</b> - 3/8-in to 1-in (8 to 25.6 mm)<br><b>Square Shafts</b> - 1/4-in to 3/4-in (6 to 18 mm)  |   |   |
| Environmental   | Enclosure                                | NEMA 2, IP54 per EN 60 529 - in vertical to horizontal 90°   |   |   |
|   | Ambient Conditions (Non-Condensing)      | <b>Operating</b> — -25°F to 130°F (-32°C to 55°C); 95% RH Maximum, Noncondensing<br><b>Storage</b> — -40°F to 158°F (-40°C to 70°C); 95% RH Maximum, Noncondensing |   |   |
|   | Audible Noise Rating                     | 45 dBA   |   |   |
|   | Dimensions                               | 11-13/16" (L) x 4-3/4" (W) x 2-7/8" (H)  |   |   |
|   | Weight                                   | 4.85 lb (2.2 kg)   |   |   |
| Conditions  | Agency Certifications                    | UL listed to UL60730 (to replace UL873)<br>cUL certified to Canadian Standard C22.2 No. 24-93  |   |   |
|   | Warranty                                 | 5 Years limited from time of shipment.   |   |   |

Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

# DC(M)S-140 Series – Submittal/Technical Data

Commercial Electric Actuators – 160 in-lbs (18Nm)

## Wiring

### KEY

| No. | Cable Color | Function   |
|-----|-------------|--|
| 1   | Red (RD)    | System potential AC 24 V / DC 24...48 V              |
| 2   | Black (BK)  | System neutral                                       |
| 6   | Violet (VT) | Pos. signal AC 0 V / AC 24 V / DC 24...48 V, "open"  |
| 7   | Orange (OG) | Pos. signal AC 0 V / AC 24 V / DC 24...48 V, "close" |
| 8   | Gray (GY)   | Pos. signal DC 0...10 V, 0...35 V                    |
| 9   | Pink (PK)   | Position indication DC 0...10 V                      |
| 3   | Brown (BN)  | Phase AC 120/230 V                                   |
| 4   | Blue (BU)   | Neutral conductor                                    |

| Auxiliary Switch - Factory Installed |    |                    |                 |
|--------------------------------------|----|--------------------|-----------------|
| S1                                   | S1 | Gray/Red (GY RD)   | Switch A Input  |
| S2                                   | S2 | Gray/Blue (GY BU)  | Switch A - N.C. |
| S3                                   | S3 | Gray/Pink (GY PK)  | Switch A - N.O. |
| S4                                   | S4 | Black/Red (BK RD)  | Switch B Input  |
| S5                                   | S5 | Black/Blue (BK BU) | Switch B - N.C. |
| S6                                   | S6 | Black/Pink (BK PK) | Switch B - N.O. |

### DCS24-140-(A)

STANDARD CABLE

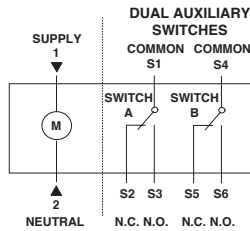
### DCMS24-140-(A)

STANDARD CABLE

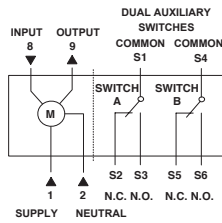
### DCS120-140-(A)

STANDARD CABLE

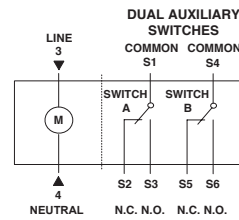
On/Off with Optional AUX Switches



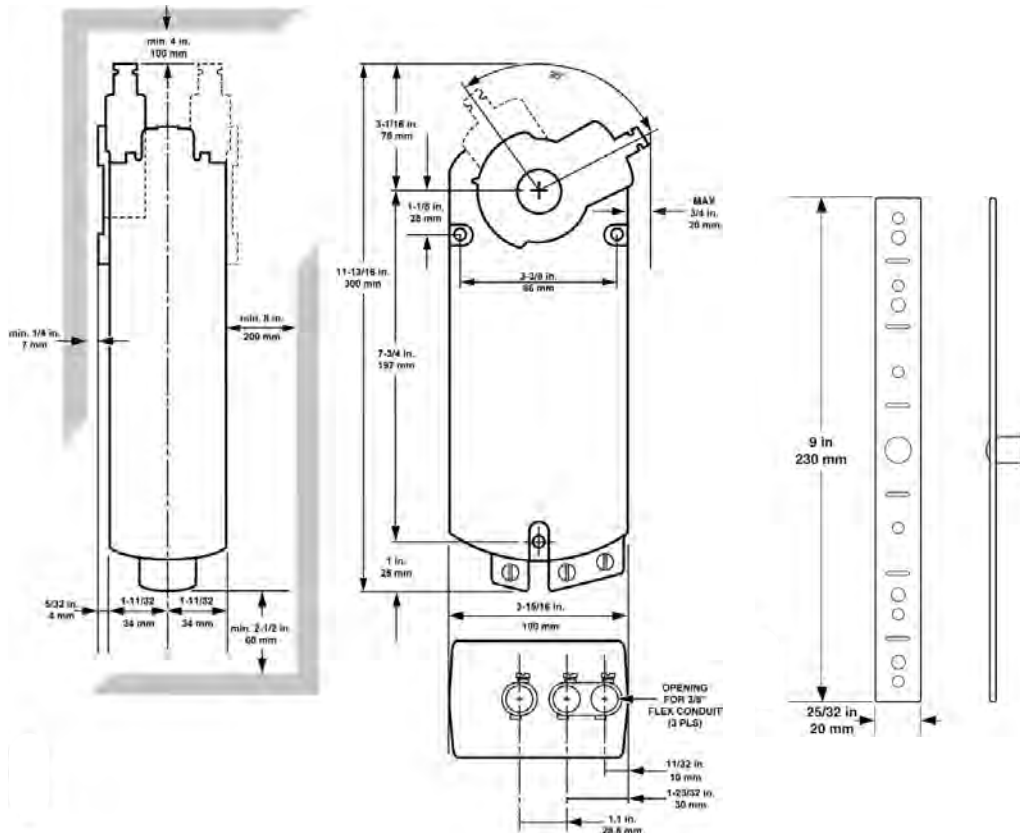
Modulating with Optional AUX Switches



120 V On/Off with Optional AUX Switches



## Dimensions





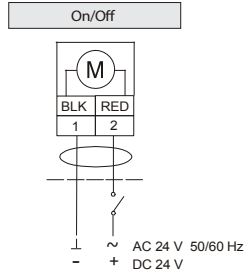
## D(M)S-180 Series – Submittal/Technical Data

177 lb-in. – Spring Return – On/Off, Floating & Modulating – Auxiliary Switches

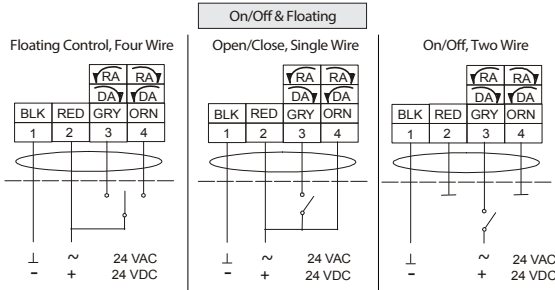
| Technical Specifications - D(M)S-180 Series Actuator |   |   |   |   |  |   |
|--|---|---|---|---|--|---|
| Type   | Actuator Models   | DS24-180-(A)  | DS24-180-T-(A)  | DMS24-180-(A)   | DS120-180-(A)  |   |
|  |   | Spring Return<br>On/Off<br>Opt. Auxiliary Switches (-A)   | Spring Return<br>On/Off & Floating<br>Opt. Auxiliary Switches (-A)  | Spring Return<br>Modulating<br>Opt. Auxiliary Switches (-A)   | Spring Return<br>On/Off<br>Opt. Auxiliary Switches (-A)  |   |
|  | Torque  | 177 lb-in. (20 Nm)  |   |   |  |   |
|  | Operating Voltage   | 24 VAC (19.2 to 30 V) at 50/60 Hz<br>24 VDC (21.6 to 26.4 V)  |   |   | AC 120 V (102 to 132 V)<br>at 60 Hz  |   |
|  | Power Consumption   | AC 24 V (19.2 to 30 V) at 50/60 Hz:<br>Class 2, 24.6 VA running,<br>7.7 VA holding position;<br>DC 24 V (21.6 to 26.4 V): Class 2, 17.6<br>W running, 2.8 W holding position  | AC 24 V (19.2 to 30 V) at 50/60 Hz: Class 2, 15.5 VA running,<br>7.7 VA holding position;<br>DC 24 V (21.6 to 26.4 V): Class 2, 6.7 W Running, 2.9 W holding position |   | AC 120 V (AC 102 to 132 V) at 60 Hz:<br>0.25 A running, 0.13 A holding<br>position   |   |
|  | Input Signal Adjustments  | N/A   | AC 19.2 to 30 V at 50/60 Hz or DC<br>24 V ±10%, Class 2;<br>Switch selectable direct or reverse<br>action with signal increase  | Factory Set DC 0 to 10 V, CW<br>Rotation with signal increase;<br>Selectable DC 0 (2) to 10 V or 0<br>(4) to 20 mA with field furnished<br>500 Ohm,<br>0.25 W minimum resistor; switch<br>selectable direct or reverse action<br>with signal increase | N/A  |   |
| Electrical   | Min. Transformer Size   | 25 VA per Actuator  |   | 20 VA per Actuator  |  |   |
|  | Control Input Impedance   | N/A   |   | Voltage Input: 100,000 Ohms;<br>Current Input: 500 Ohms with field<br>furnished 500 ohm resistor  |  |   |
|  | Feedback Signal   | N/A   |   | 0 (2) to 10 VDC for desired rotation<br>range up to 90°; Corresponds to<br>rotation limits, 1 mA maximum  |  |   |
|  | Auxiliary Switch Rating (-A Models Only)  | Two Single-Pole, Double-Throw (SPDT),<br>Double-Insulated Switches with Gold Flash Contacts:  |   |   |  | AC 120 V, 5.8 A Resistive,<br>1/4 hp, 275 VA Pilot Duty |
|  | Equipment Rating  | AC 24 V, 50 VA Pilot Duty   |   |   |  | N/A   |
|  | Transformer Sizing  | 25 VA Minimum<br>per Actuator   | 20 VA Minimum<br>per Actuator   |   | 25 VA Minimum<br>per Actuator  |   |
| Electrical Connection                                | 48 in. (1.2 m) Halogen-Free Cable with 18 AWG (0.75 mm <sup>2</sup> ) Wire Leads  |   |   |   |  |   |
| Conduit Connections                                  | Integral Connectors for 3/8 in. Flexible Metal Conduit  |   |   |   |  |   |
| Manual Override                                      | Manual override crank   |   |   |   |  |   |
| Spring Return  | Direction is Selectable with Mounting Position of Actuator<br>Side A - Actuator Face Away for CCW Spring Return<br>Side B - Actuator Face Away for CW Spring Return   |   |   |   |  |   |
| Rotation Range                                       | Adjustable from 30 to 90° CW or CCW with Optional<br>Adjustable Stop Kit; Mechanically Limited to 90°   |   |   |   |  |   |
| Runtime for 90° of Rotation                          | <b>Power On (Running)</b> 24 to 57 Sec.<br>for 0 to 177 lb-in (0 to 20 N-m) at All<br>Operating Conditions;<br>35 Sec. Nominal at Full Rated Load<br><br><b>Power Off (Returning)</b> 11 to 15 Sec.<br>for 0 to 177 lb-in (0 to 20 N-m) at<br>Room Temperature;<br>35 Sec. Maximum for 0 to 177 lb-in (0<br>to 20 N-m) at -22°F (-30°C)<br>130 Seconds Maximum for 0 to 177<br>lb-in (0 to 20 N-m) at -40°F (-40°C) | <b>Power On (Running)</b> 150 Sec. for 0 to 177 lb-in (0 to 20 N-m) at All Operat-<br>ing Conditions; Independent of Load<br><br><b>Power Off (Returning)</b> 20 Sec. for 0 to 177 lb-in (0 to 20 N-m) at Room<br>Temperature   |   |   | <b>Power On (Running)</b> 24 to 57 Sec.<br>for 0 to 177 lb-in (0 to 20 N-m) at All<br>Operating Conditions;<br>35 Sec. Nominal at Full Rated Load<br><br><b>Power Off (Returning)</b> 11 to 15 Sec.<br>for 0 to 177 lb-in (0 to 20 N-m) at<br>Room Temperature;<br>35 Sec. Maximum for 0 to 177 lb-in (0<br>to 20 N-m) at -22°F (-30°C)<br>130 Sec. Maximum for 0 to 177 lb-in<br>(0 to 20 N-m) at -40°F (-40°C) |   |
| Electric Stall Detection                             | Protects from overload at all angles of rotation  |   |   |   |  |   |
| Cycle Life   | 60,000 Full stroke cycles (1,500,000 repositions)   |   |   |   |  |   |
| Mechanical Connections                               | <b>Round Shafts</b> - 1/2 to 3/4 in. or 12 to 19 mm<br><b>Square Shafts</b> - 3/8 and 1/2 in. or 10, 12, and 14 mm  |   |   |   |  |   |
| Ambient Conditions (Non-Condensing)                  | <b>Operating</b> — 40 to 131°F (-40 to 55°C); 90% RH Maximum, Noncondensing<br><b>Storage</b> — 85 to 185°F (-65 to 85°C); 95% RH Maximum, Noncondensing  |   |   |   |  |   |
| Environmental  | Audible Noise Rating  | <b>Running</b> < 66 dBA at 39-13/32 in.<br>(1 m)<br><b>Holding</b> < 18 dBA at 39-13/32 in.<br>(1 m)<br><b>Returning</b> < 66 dBA at 39-13/32<br>in. (1 m)  | <b>Running</b> < 40 dBA at 39-13/32 in. (1 m)<br><b>Holding</b> < 20 dBA at 39-13/32 in. (1 m)<br><b>Returning</b> < 55 dBA at 39-13/32 in. (1 m)                     |   | <b>Running</b> < 66 dBA at 39-13/32 in.<br>(1 m)<br><b>Holding</b> < 18 dBA at 39-13/32 in.<br>(1 m)<br><b>Returning</b> < 66 dBA at 39-13/32<br>in. (1 m)   |   |
|  | Dimensions  | 10" (L) x 4" (W) x 3-3/16" (H)  |   |   |  |   |
|  | Weight  | 6.4 lb (2.9 kg)   |   |   | 7.6 lb (3.5 kg)  |   |
| Conditions   | Agency Certifications   | UL Listed, CCN XAPX, File E27734; to UL 60730-1, Automatic Controls for Household and Similar Use:<br>and UL 60730-2-14 Part 2, Particular Requirements for Electric Actuators.<br>UL Listed, CCN XAPX7, File E27734; to CAN/CSA E60730-1, Automatic Controls for Household and Similar Use:<br>and CAN/CSA E60730-2-14 Part 2, Particular Requirements for Electric Actuators<br>CE Mark - Johnson Controls, Inc. declares that this product is in compliance with the essential requirements<br>and other relevant provisions of the EMC Directive and Low Voltage Directive.<br>RCM Mark, Australia/NZ Emissions Compliant |   |   |  |   |
|  | Warranty  | 5 Years limited from time of shipment.  |   |   |  |   |

### Wiring

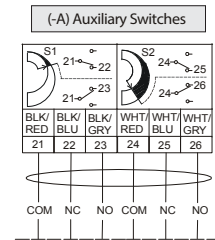
**DS24-180-(A)**  
STANDARD CABLE



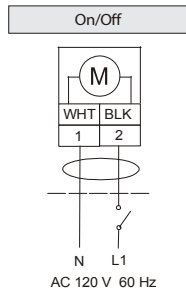
**DS24-180-T(A)**  
STANDARD CABLE



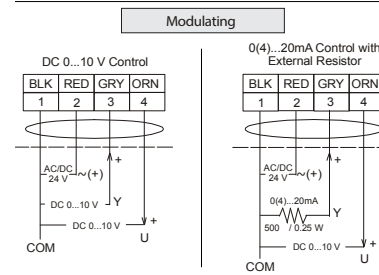
**-(A)**  
AUXILIARY SWITCH WIRING



**DS120-180-(A)**  
STANDARD CABLE



**DMS24-180-(A)**  
STANDARD CABLE

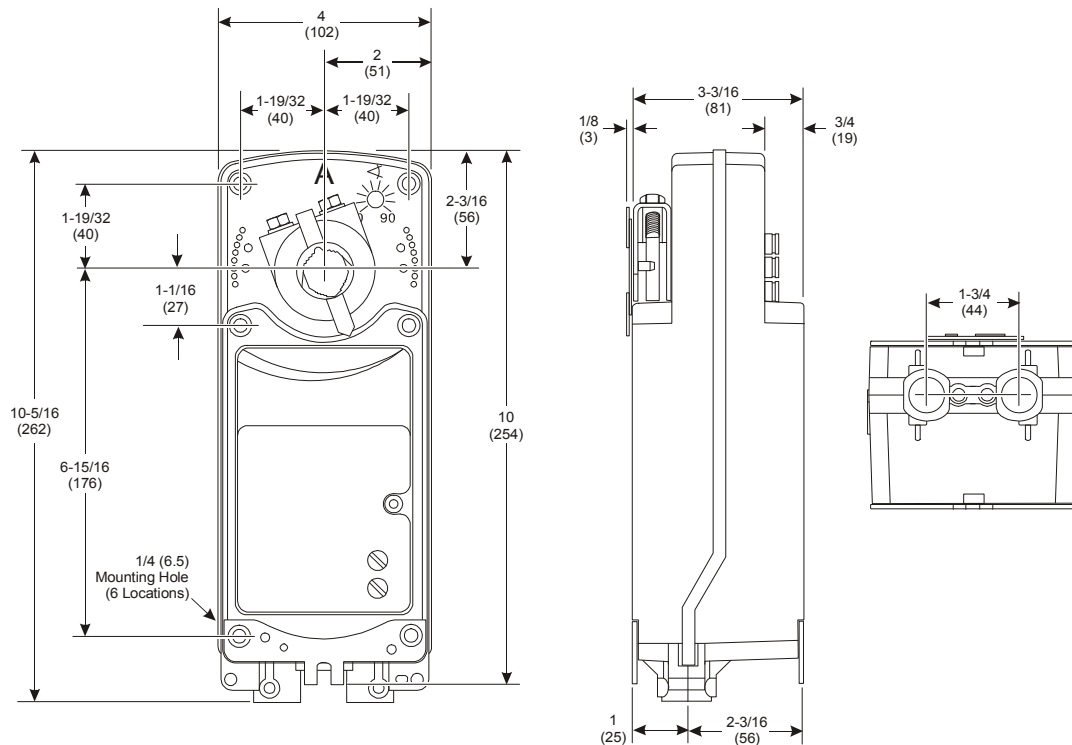


Warning - These actuators are designed for use only in conjunction with operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add safety devices or alarm systems that protect against, and/or warn of, control failure.

To avoid excessive wear or drive time on the motor, use a controller and/or software that provides a time-out function to remove the signal at the end of rotation (stall).

Disclaimer - The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the nearest Bray office. Bray controls shall not be liable for damages resulting from misapplication or misuse of its products.

### Dimensions



# **Bray** COMMERCIAL

**Bray Commercial** provides automated Butterfly, Ball, Globe and Pressure Independent Control Valves to the commercial building HVAC market throughout the world. Where ever valve performance is required to maintain climate controlled environments, Bray can provide the required automated valves to meet the demanding flow applications of chiller/boiler isolation, air handlers and terminal units for new construction, retrofit and/or LEED certification applications in buildings.

## Building Types

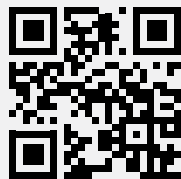
- Healthcare
- Data Centers
- Government and Municipal
- Sports/Entertainment/Convention Centers
- K-12 and University Education
- Transportation
- Hotels
- Office Buildings
- Retail

SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT [BRAYCOMMERCIALDIVISION.COM](http://BRAYCOMMERCIALDIVISION.COM) TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

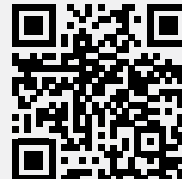
### CORPORATE HEADQUARTERS

**Bray International, Inc.**  
13333 Westland East Blvd.  
Houston, Texas 77041  
1-281-894-5454



### DIVISION HEADQUARTERS

**Bray Commercial**  
13788 West Road, Suite 200A  
Houston, Texas 77041  
1-888-412-Bray (2729)



All statements, technical information, and recommendations in this bulletin are for general use only. Consult Bray representatives or factory for the specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Patents issued and applied for worldwide. Bray® is a registered trademark of Bray International, Inc.

© 2022 BRAY INTERNATIONAL, INC. ALL RIGHTS RESERVED.

This page is intentionally left blank for notes.