

### Features

- Industrial grade True Union full port ball valve
- Visual valve position indicator
- Rugged aluminum Type 4X weatherproof enclosure
- Anti-condensation heater
- Manual override with end of travel mechanical stops
- Two auxiliary limit switches (on-off models)
- Union nut locking device prevents back-off
- Energized PTFE ball seats for lower torque and longer life
- Leak free dual stem seal design
- EPS - Electronic Positioner System models available
- Actuator CSA listed per UL429 and CSA C22.2
- Valve certified per NSF372/ NSF61 for potable/drinking water

### Applications

Industrial quality full port electric actuated PVC ball valves are typically used for control of water and other media compatible with the materials of construction (not suitable for compressed air or gas). Ideal for industrial applications and where NSF approved construction is required for potable drinking water. Optional EPS positioner is available for controlling flow using an analog input control signal. Rugged actuator designed for 70% duty cycle.

### Operation

Electric actuated valve uses power-to-open and power-to-close, stays in the last known position with loss of power. On receipt of a continuous voltage signal, the motor runs and via a rugged all metal gear system rotates the ball 90°. The motor is automatically stopped by internal cams striking limit switches. On receipt of a reversing continuous signal, the motor turns in the opposite direction reversing the valve position. Valves with EPS positioners use an analog input signal to control the position of the ball (flow). Wiring is directly to a terminal strip via supplied cable connector, or optional 1/2 inch NPT conduit adapters.

### Construction

|   |   |
|---|---|
| <b>Valve Body</b>                             | PVC cell class 12454 per ASTM D1784 (dark gray)   |
| <b>Ball/Stem</b>                              | PVC cell class 12454 per ASTM D1784               |
| <b>Ball Seats</b>                             | PTFE (Teflon) energized with EPDM                 |
| <b>Stem Seals</b>                             | Dual EPDM seals                                   |
| <b>Gear Drive</b>                             | Heavy duty alloy steel and aluminium bronze worm  |
| <b>Actuator Enclosure</b>                     | Aluminum polyester powder coated, Type 4X, IP67   |
| <b>Visual Valve Position Indicator</b>        | Clear polycarbonate cover, red/yellow open-closed |
| <b>Fasteners</b>                              | Stainless Steel                                   |
| <b>Auxiliary Limit Switches</b> on-off models | 2 x SPDT 3A@125/250VAC, 30VDC resistive load      |



### Description

Electric actuated PVC ball valves offer a variety of advanced features in a wide range of pipe sizes. Energized PTFE ball seats are designed for low torque and extended cycle life. Dual stem seals and adjustable ball seat carrier contribute to a leak free design. Union nut locking device prevents back off due to vibration or thermal cycling. Rugged Type 4X corrosion resistant actuator includes a manual override, valve position confirmation switches (on-off models), thermostatically controlled anti-condensation heater and over-torque protection.

### Approvals

#### Actuators

- CSA Listed to:
  - UL429 and CSA C22.2 no 139
  - Type 4X, IP67 weatherproof enclosure
- CE conformance
  - ISO5211 Mounting



#### Valves

- NSF International certified to:
  - NSF/ANSI 61 G
  - NSF/ANSI 372 Drinking Water
- ANSI B1.20.1
- ASTM D1784, cell class 12454



### Construction Features



Certified per NSF61G and NSF372 for potable/ drinking water



### Pressure-Temperature

Pressure Rating\*: 232 PSI (16 Bar) at 73°F (23°C)

Vacuum 29inHg

Valve Temperature Rating\*: 32 to 140°F (0 to 60°C)

Actuator Temperature Rating: -13 to 131° F (-25 to 55° C)

\*See P/T chart



Visual Valve Position Indicator

### Pressure/Temperature Chart

| P/T Chart (PSI/°F) |     |     |     |     |     |     |     |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| <b>PSI</b>         | 232 | 232 | 232 | 180 | 150 | 100 | 35  |
| <b>°F</b>          | 32  | 50  | 70  | 90  | 110 | 120 | 140 |

| P/T Chart (BAR/°C) |    |    |    |    |    |    |     |
|--------------------|----|----|----|----|----|----|-----|
| <b>Bar</b>         | 16 | 16 | 16 | 12 | 10 | 7  | 2.4 |
| <b>°C</b>          | 0  | 10 | 21 | 32 | 43 | 49 | 60  |

**Specifications: Electric PVC Valves On-Off Version (English units)**

| Stock Number   | Pipe Size (inch)* | Pipe O.D. (inch) | Cv Flow Factor | Pressure Max. (PSI)** | Cycle Time/90° (seconds) +/-10% | Voltage          | Current F.L. Amps | Electrical Wiring Drawing |
|--|-------------------|------------------|----------------|-----------------------|---------------------------------|------------------|-------------------|---------------------------|
| <b>120 VAC ELECTRIC PVC BALL VALVE TEFLON/EPDM: ON-OFF version</b> |                   |                  |                |                       |                                 |                  |                   |                           |
| 565404C  | 1/2               | 0.8              | 14             | 232                   | 25/21                           | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565406C  | 3/4               | 1.1              | 27             | 232                   | 25/21                           | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565408C  | 1                 | 1.3              | 54             | 232                   | 25/21                           | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565410C  | 1-1/4             | 1.7              | 77             | 232                   | 25/21                           | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565412C  | 1-1/2             | 1.9              | 123            | 232                   | 25/21                           | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565416C  | 2                 | 2.4              | 238            | 232                   | 25/21                           | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565417C  | 2-1/2             | 2.9              | 368            | 232                   | 25/21                           | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565418A  | 3                 | 3.5              | 497            | 232                   | 30/25                           | 110 VAC, 50/60Hz | 0.64              | B                         |
| 565419A  | 4                 | 4.5              | 665            | 232                   | 30/25                           | 110 VAC, 50/60Hz | 0.73              | B                         |
| <b>24 VDC ELECTRIC PVC BALL VALVE TEFLON/EPDM: ON-OFF version</b>  |                   |                  |                |                       |                                 |                  |                   |                           |
| 565446C  | 1/2               | 0.8              | 14             | 232                   | 20                              | DC24             | 1.28              | G                         |
| 565447C  | 3/4               | 1.1              | 27             | 232                   | 20                              | DC24             | 1.28              | G                         |
| 565449C  | 1                 | 1.3              | 54             | 232                   | 20                              | DC24             | 1.28              | G                         |
| 565450C  | 1-1/4             | 1.7              | 77             | 232                   | 20                              | DC24             | 1.28              | G                         |
| 565451C  | 1-1/2             | 1.9              | 123            | 232                   | 20                              | DC24             | 1.28              | G                         |
| 565452C  | 2                 | 2.4              | 238            | 232                   | 20                              | DC24             | 1.28              | G                         |
| 565453C  | 2-1/2             | 2.9              | 368            | 232                   | 20                              | DC24             | 1.28              | G                         |
| 565454A  | 3                 | 3.5              | 497            | 232                   | 30                              | DC24             | 2.03              | G                         |
| 565455A  | 4                 | 4.5              | 665            | 232                   | 30                              | DC24             | 3.57              | G                         |

Cv is the GPM of water at 60° F that will pass through the valve with 1 PSI pressure drop

\*Valve sizes 1/2 to 2 inch include both IPS glue sockets and NPT end connectors, sizes 2-1/2 to 4 inch include IPS glue sockets only

\*\* Maximum pressure at 73° F, pressure decreases as temperature increases (see P/T chart)

**On-Off Electric Actuated Valves**

Valworx electric actuated valves use power-to-open and power-to-close, stays in the last known position with loss of power. The actuator will rotate the output drive 90° to open or close the ball valve. Limit switches automatically stop the motor drive in either the open or closed position as required. Two auxiliary limit switches are provided as standard with on-off actuators to confirm valve open or closed position.

Rugged primary gear drive system is made of heat treated alloy steel for high strength, excellent wear resistance and high torque. Final stage aluminium bronze worm gear drive is self-locking, no motor brake required. A manual override is provided for use in setup or power failure situations.

The override is operated with a standard hex wrench (included). The standard 4 watt thermostatically controlled anti-condensation heater will help prevent failures due to condensation buildup inside the actuator.

Robust aluminium alloy housing is corrosion-resistant, polyester powder coated, and weatherproof. The housing is rated Type 4X (IP67) and certified by CSA. Heavy duty motor is integral to the actuator housing providing the smallest physical size to power ratio of typical actuators on the market.

Electrical wiring is directly to a terminal strip via included cable connectors, or optional 1/2" NPT conduit adapters.

**Specifications: Electric PVC Valves with EPS Positioner (English units)**

| Stock Number  | Pipe Size (inch)* | Pipe O.D. (inch) | Cv Flow Factor | Pressure Max. (PSI)** | Cycle Time/90° (seconds) | Voltage          | Current F.L. Amps | Electrical Wiring Draw- |
|---|-------------------|------------------|----------------|-----------------------|--------------------------|------------------|-------------------|-------------------------|
| <b>120 VAC ELECTRIC PVC BALL VALVE TEFLON/EPDM: EPS POSITIONER 4-20mA INPUT</b> |                   |                  |                |                       |                          |                  |                   |                         |
| 565457C   | 1/2               | 0.8              | 14             | 232                   | 25/21                    | 110 VAC, 50/60Hz | 0.27              | E                       |
| 565458C   | 3/4               | 1.1              | 27             | 232                   | 25/21                    | 110 VAC, 50/60Hz | 0.27              | E                       |
| 565459C   | 1                 | 1.3              | 54             | 232                   | 25/21                    | 110 VAC, 50/60Hz | 0.27              | E                       |
| 565460C   | 1-1/4             | 1.7              | 77             | 232                   | 25/21                    | 110 VAC, 50/60Hz | 0.27              | E                       |
| 565461C   | 1-1/2             | 1.9              | 123            | 232                   | 25/21                    | 110 VAC, 50/60Hz | 0.27              | E                       |
| 565462C   | 2                 | 2.4              | 238            | 232                   | 25/21                    | 110 VAC, 50/60Hz | 0.27              | E                       |
| 565463C   | 2-1/2             | 2.9              | 368            | 232                   | 25/21                    | 110 VAC, 50/60Hz | 0.27              | E                       |
| 565464A   | 3                 | 3.5              | 497            | 232                   | 30/25                    | 110 VAC, 50/60Hz | 0.73              | E                       |
| 565465A   | 4                 | 4.5              | 665            | 232                   | 30/25                    | 110 VAC, 50/60Hz | 0.73              | E                       |
| <b>24 VDC ELECTRIC PVC BALL VALVE TEFLON/EPDM: EPS POSITIONER 4-20mA INPUT</b>  |                   |                  |                |                       |                          |                  |                   |                         |
| 565467C   | 1/2               | 0.8              | 14             | 232                   | 30                       | DC24             | 1.00              | GEY                     |
| 565468C   | 3/4               | 1.1              | 27             | 232                   | 30                       | DC24             | 1.00              | GEY                     |
| 565469C   | 1                 | 1.3              | 54             | 232                   | 30                       | DC24             | 1.00              | GEY                     |
| 565470C   | 1-1/4             | 1.7              | 77             | 232                   | 30                       | DC24             | 1.00              | GEY                     |
| 565471C   | 1-1/2             | 1.9              | 123            | 232                   | 30                       | DC24             | 1.00              | GEY                     |
| 565472C   | 2                 | 2.4              | 238            | 232                   | 30                       | DC24             | 1.00              | GEY                     |
| 565473C   | 2-1/2             | 2.9              | 368            | 232                   | 30                       | DC24             | 1.00              | GEY                     |
| 565474C   | 3                 | 3.5              | 497            | 232                   | 30                       | DC24             | 3.57              | GEY                     |
| 565475C   | 4                 | 4.5              | 665            | 232                   | 30                       | DC24             | 3.57              | GEY                     |

Cv is the GPM of water at 60° F that will pass through the valve with 1 PSI pressure drop

\*Valve sizes 1/2 to 2 inch include both IPS glue sockets and NPT end connectors, sizes 2-1/2 to 4 inch include IPS glue sockets only

\*\* Maximum pressure at 73° F, pressure decreases as temperature increases (see P/T chart)

**EPS - Electronic Positioning System**

Valworx electric actuators with EPS- Electronic Positioning System provide an accurate valve positioning function whereby the movement of the actuator is controlled by a 4-20mA input control signal. Any change in the control input signal results in a corresponding and proportional change in the position of the actuator (valve). The EPS module is fully potted to help protect the electronics from vibration and moisture resistance. An internal microprocessor on the EPS circuit board continuously monitors the analog input and output signals and compares them to the physical position via a precision potentiometer feedback system, moving the actuator as required to balance the signals.

The EPS system is self-calibrating which virtually eliminates “hunting”. The following functions are standard:

- Position monitoring output signal in same format as input. Ex: 4-20mA input, 4-20mA output
- Adjustable forward or reversing action
- Sensitivity, Zero and Span adjustments
- Selectable fail mode: fail closed, fail open or stop in place (with loss of 4-20mA input command signal).
- Electric manual control with onboard selector switches
- Fault LED lights indicate valve jam or signal loss
- Electronic brake function

**Specifications: Electric PVC Valves On-Off Version (Metric units)**

| Stock Number   | Pipe Size (inch)* | Pipe O.D. (mm) | Kv Flow Factor | Pressure Max. (Bar)** | Cycle Time/90° (seconds) +/- 10% | Voltage          | Current F.L. Amps | Electrical Wiring Drawing |
|--|-------------------|----------------|----------------|-----------------------|----------------------------------|------------------|-------------------|---------------------------|
| <b>120 VAC ELECTRIC PVC BALL VALVE TEFLON/EPDM: ON-OFF version</b> |                   |                |                |                       |                                  |                  |                   |                           |
| 565404C  | 1/2               | 21.3           | 12             | 16                    | 25/21                            | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565406C  | 3/4               | 26.7           | 23             | 16                    | 25/21                            | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565408C  | 1                 | 33.5           | 46             | 16                    | 25/21                            | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565410C  | 1-1/4             | 42.2           | 66             | 16                    | 25/21                            | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565412C  | 1-1/2             | 48.3           | 106            | 16                    | 25/21                            | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565416C  | 2                 | 60.5           | 205            | 16                    | 25/21                            | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565417C  | 2-1/2             | 73.2           | 317            | 16                    | 25/21                            | 110 VAC, 50/60Hz | 0.27              | B                         |
| 565418A  | 3                 | 88.9           | 427            | 16                    | 30/25                            | 110 VAC, 50/60Hz | 0.64              | B                         |
| 565419A  | 4                 | 114.3          | 572            | 16                    | 30/25                            | 110 VAC, 50/60Hz | 0.73              | B                         |
| <b>24 VDC ELECTRIC PVC BALL VALVE TEFLON/EPDM: ON-OFF version</b>  |                   |                |                |                       |                                  |                  |                   |                           |
| 565446C  | 1/2               | 21.3           | 12             | 16                    | 20                               | DC24             | 1.28              | G                         |
| 565447C  | 3/4               | 26.7           | 23             | 16                    | 20                               | DC24             | 1.28              | G                         |
| 565449C  | 1                 | 33.5           | 46             | 16                    | 20                               | DC24             | 1.28              | G                         |
| 565450C  | 1-1/4             | 42.2           | 66             | 16                    | 20                               | DC24             | 1.28              | G                         |
| 565451C  | 1-1/2             | 48.3           | 106            | 16                    | 20                               | DC24             | 1.28              | G                         |
| 565452C  | 2                 | 60.5           | 205            | 16                    | 20                               | DC24             | 1.28              | G                         |
| 565453C  | 2-1/2             | 73.2           | 317            | 16                    | 20                               | DC24             | 1.28              | G                         |
| 565454A  | 3                 | 88.9           | 427            | 16                    | 30                               | DC24             | 2.03              | G                         |
| 565455A  | 4                 | 114.3          | 572            | 16                    | 30                               | DC24             | 3.57              | G                         |

\*Valve sizes 1/2 to 2 inch include both IPS glue sockets and NPT end connectors, sizes 2-1/2 to 4 inch include IPS glue sockets only

\*\* Maximum pressure at 23° C, pressure decreases as temperature increases (see P/T chart)

**Specifications: Electric PVC Valves with EPS Positioner (Metric units)**

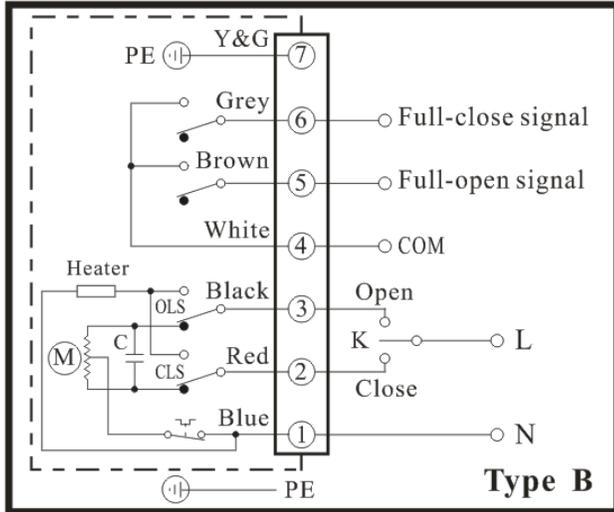
| Stock Number  | Pipe Size (inch)* | Pipe O.D. (mm) | Kv Flow Factor | Pressure Max. (Bar)** | Cycle Time/90° (seconds) | Voltage          | Current F.L. | Electrical Wiring |
|---|-------------------|----------------|----------------|-----------------------|--------------------------|------------------|--------------|-------------------|
| <b>120 VAC ELECTRIC PVC BALL VALVE TEFLON/EPDM: EPS POSITIONER 4-20mA INPUT</b> |                   |                |                |                       |                          |                  |              |                   |
| 565457C   | 1/2               | 21.3           | 12             | 16                    | 25/21                    | 110 VAC, 50/60Hz | 0.27         | E                 |
| 565458C   | 3/4               | 26.7           | 23             | 16                    | 25/21                    | 110 VAC, 50/60Hz | 0.27         | E                 |
| 565459C   | 1                 | 33.5           | 46             | 16                    | 25/21                    | 110 VAC, 50/60Hz | 0.27         | E                 |
| 565460C   | 1-1/4             | 42.2           | 66             | 16                    | 25/21                    | 110 VAC, 50/60Hz | 0.27         | E                 |
| 565461C   | 1-1/2             | 48.3           | 106            | 16                    | 25/21                    | 110 VAC, 50/60Hz | 0.27         | E                 |
| 565462C   | 2                 | 60.5           | 205            | 16                    | 25/21                    | 110 VAC, 50/60Hz | 0.27         | E                 |
| 565463C   | 2-1/2             | 73.2           | 317            | 16                    | 25/21                    | 110 VAC, 50/60Hz | 0.27         | E                 |
| 565464A   | 3                 | 88.9           | 427            | 16                    | 30/25                    | 110 VAC, 50/60Hz | 0.73         | E                 |
| 565465A   | 4                 | 114.3          | 572            | 16                    | 30/25                    | 110 VAC, 50/60Hz | 0.73         | E                 |
| <b>24 VDC ELECTRIC PVC BALL VALVE TEFLON/EPDM: EPS POSITIONER 4-20mA INPUT</b>  |                   |                |                |                       |                          |                  |              |                   |
| 565467C   | 1/2               | 21.3           | 12             | 16                    | 30                       | DC24             | 1.00         | GEY               |
| 565468C   | 3/4               | 26.7           | 23             | 16                    | 30                       | DC24             | 1.00         | GEY               |
| 565469C   | 1                 | 33.5           | 46             | 16                    | 30                       | DC24             | 1.00         | GEY               |
| 565470C   | 1-1/4             | 42.2           | 66             | 16                    | 30                       | DC24             | 1.00         | GEY               |
| 565471C   | 1-1/2             | 48.3           | 106            | 16                    | 30                       | DC24             | 1.00         | GEY               |
| 565472C   | 2                 | 60.5           | 205            | 16                    | 30                       | DC24             | 1.00         | GEY               |
| 565473C   | 2-1/2             | 73.2           | 317            | 16                    | 30                       | DC24             | 1.00         | GEY               |
| 565474C   | 3                 | 88.9           | 427            | 16                    | 30                       | DC24             | 3.57         | GEY               |
| 565475C   | 4                 | 114.3          | 572            | 16                    | 30                       | DC24             | 3.57         | GEY               |

\*Valve sizes 1/2 to 2 inch include both IPS glue sockets and NPT end connectors, sizes 2-1/2 to 4 inch include IPS glue sockets only

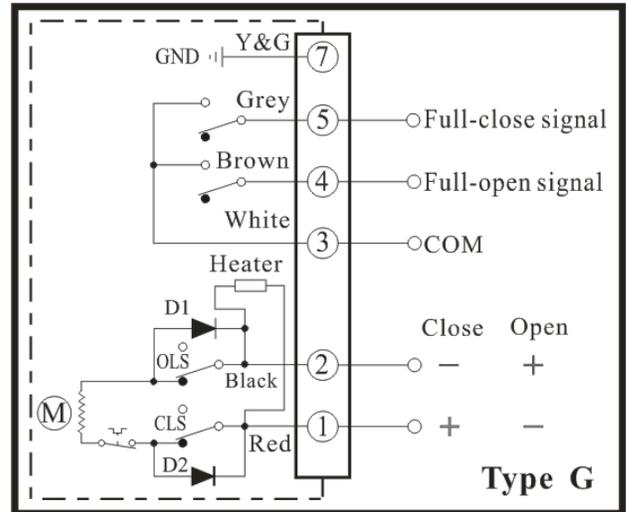
\*\* Maximum pressure at 23° C, pressure decreases as temperature increases (see P/T chart)

## Electrical Wiring Diagrams

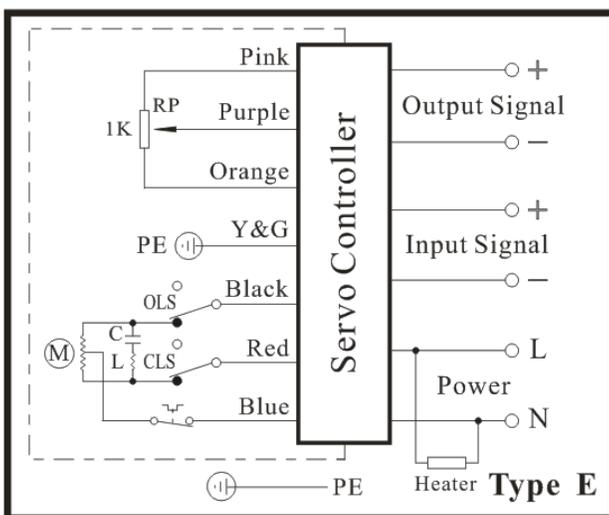
### ON-OFF Valves AC Voltages



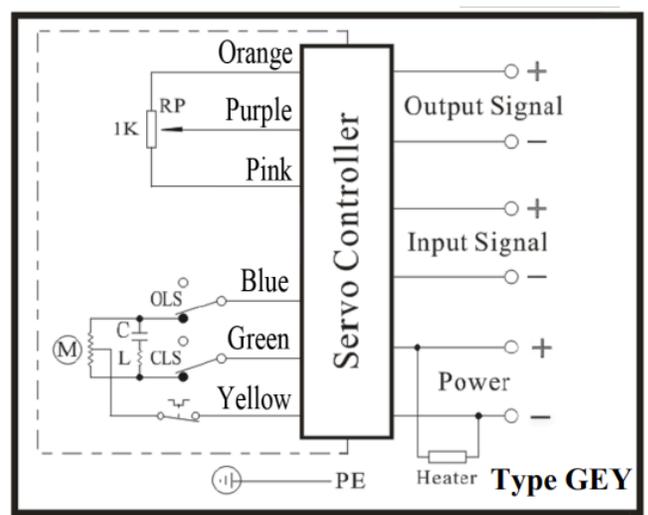
### ON-OFF Valves DC Voltages



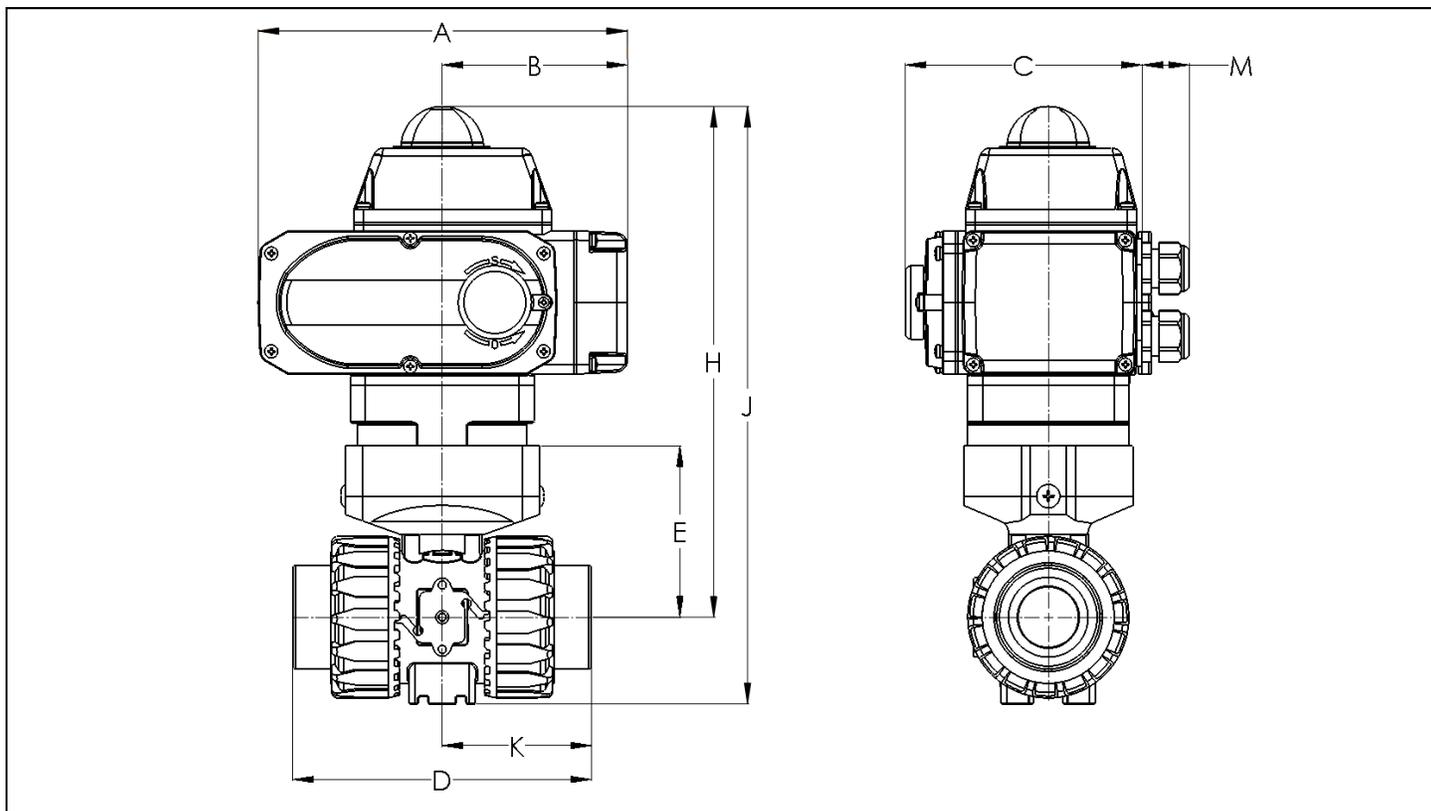
### Valves with EPS Positioners AC Voltages



### Valves with EPS Positioners DC Voltages



**Dimensions:**



| Pipe Size (inch) |      | A            | B           | C           | D     | E     | H            | J            | K     | M    | Weight (AC/DC) |
|------------------|------|--------------|-------------|-------------|-------|-------|--------------|--------------|-------|------|----------------|
| 1/2              | inch | 6.4          | 3.2         | 4.7         | 4.6   | 2.1   | 8.5          | 9.6          | 2.3   | 1.0  | 7.0 lb         |
|                  | mm   | 162.0        | 82.0        | 118.5       | 117.0 | 54.0  | 216.0        | 245.0        | 58.8  | 25.0 | 3.2 kg         |
| 3/4              | inch | 6.4          | 3.2         | 4.7         | 5.1   | 2.6   | 8.9          | 10.3         | 2.6   | 1.0  | 7.3 lb         |
|                  | mm   | 162.0        | 82.0        | 118.5       | 129.0 | 65.0  | 227.0        | 262.0        | 65.2  | 25.0 | 3.3 kg         |
| 1                | inch | 6.4          | 3.2         | 4.7         | 5.6   | 2.8   | 9.1          | 10.7         | 2.8   | 1.0  | 7.5 lb         |
|                  | mm   | 162.0        | 82.0        | 118.5       | 142.0 | 70.0  | 232.0        | 271.0        | 71.0  | 25.0 | 3.4 kg         |
| 1-1/4            | inch | 6.4          | 3.2         | 4.7         | 6.4   | 3.3   | 9.6          | 11.5         | 3.1   | 1.0  | 8.1 lb         |
|                  | mm   | 162.0        | 82.0        | 118.5       | 162.0 | 83.0  | 245.0        | 291.0        | 79.5  | 25.0 | 3.7 kg         |
| 1-1/2            | inch | 6.4          | 3.2         | 4.7         | 6.8   | 3.5   | 9.9          | 11.9         | 3.4   | 1.0  | 9.0 lb         |
|                  | mm   | 162.0        | 82.0        | 118.5       | 172.0 | 89.0  | 251.0        | 303.0        | 86.0  | 25.0 | 4.1 kg         |
| 2                | inch | 6.4          | 3.2         | 4.7         | 7.8   | 4.3   | 10.6         | 10.1         | 3.5   | 1.0  | 10.6 lb        |
|                  | mm   | 162.0        | 82.0        | 118.5       | 199.0 | 108.0 | 270.0        | 332.0        | 99.5  | 25.0 | 4.8 kg         |
| 2-1/2            | inch | 6.4          | 3.2         | 4.7         | 9.3   | 6.5   | 12.8         | 16.3         | 4.6   | 1.0  | 16.2 lb        |
|                  | mm   | 162.0        | 82.0        | 118.5       | 235.0 | 164.0 | 326.0        | 413.0        | 117.5 | 25.0 | 7.3 kg         |
| 3 (On, Off/ EPS) | inch | 7.7/ 10.1    | 3.9/ 4.8    | 5.0/ 6.4    | 10.6  | 8.0   | 15.7/18.1    | 18.8/ 21.2   | 5.3   | 1.0  | 25.0 lb        |
|                  | mm   | 196.5/ 256.0 | 98.0/ 121.0 | 126.0/161.5 | 270.0 | 203.0 | 399.5/ 459.0 | 478.5/ 538.0 | 135.0 | 25.0 | 11.3 kg        |
| 4 (On, Off/ EPS) | inch | 7.7/ 10.1    | 3.9/ 4.8    | 5.0/ 6.4    | 12.1  | 9.4   | 17.1/ 19.4   | 20.5/ 22.8   | 6.1   | 1.0  | 33.4/ 44.4 lb  |
|                  | mm   | 196.5/ 256.0 | 98.0/ 121.0 | 126.0/161.5 | 308.0 | 238.0 | 434.5/ 494.0 | 520.5/ 580.0 | 154.0 | 25.0 | 15.0/ 20.0 kg  |