

### Features

- Industrial grade PVC ball valve with PTFE/EPDM seals
- IP67 weatherproof polyamide enclosure with UV protection
- Multi-voltage with auto-voltage sensing
- Long life brushless motor with electronic torque limiter
- Anti-condensation heater
- Manual override and highly visual valve position indicator
- DIN plug type electrical connections
- External LED diagnostic light
- Auxiliary limit switches to confirm open/closed valve position
- Energized PTFE ball seats for lower torque and longer life
- Union nut locking device prevents back-off
- BSR Failsafe option available
- Certified safe per NSF61 for potable/drinking water

### Applications

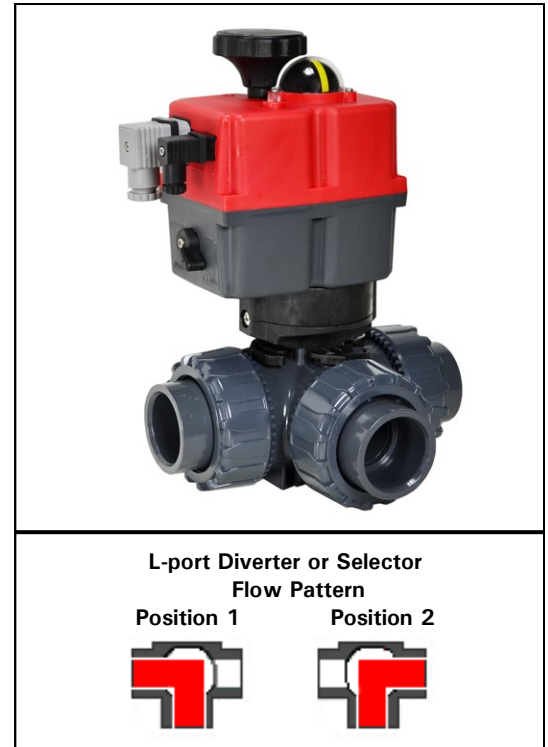
Electric actuated 3-way full port PVC ball valves are typically used to control the flow of water and other media compatible with the materials of construction (not suitable for compressed air or gas). Ideal for industrial applications and where NSF approved construction is required for potable drinking water. Actuator designed for 75% duty cycle.

### Operation

Electric actuated valve uses power-to-open (pos 2) and power-to-close (pos 1), stays in the last known position with loss of power. On receipt of a continuous voltage signal, the motor runs and through a flat 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.

### Construction

<b>Valve Body</b>	PVC cell class 12454 per ASTM D1784 (dark gray)
<b>Ball and 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>Actuator Enclosure</b>	Anti-corrosive polyamide, IP67 weatherproof
<b>Position Indicator/Manual Override</b>	Dome style indicator/manual polyamide knob
<b>Fasteners</b>	Stainless Steel
<b>Auxiliary Limit Switches</b>	2 x SPST 3A@125/250VAC, 30VDC resistive load



### Description

Electric actuated 3-way PVC ball valve is used as a diverter or selector function. Energized PTFE ball seats are used to extended cycle life, compensate for wear and lower the operating torque. Union nut locking device prevents back off due to vibration or thermal cycling. Dual stem seals and adjustable ball seat carrier contribute to a leak free design. Corrosion resistant actuator includes a manual override, valve position confirmation switches, thermostatically controlled anti-condensation heater, over-torque protection and a LED diagnostic light.

### Approvals

#### Actuators

- CE mark conforming to:  
Machinery, Low Voltage & EMC directives



#### Valves

- NSF International certified to:  
- NSF/ANSI 61G & NSF372  
Drinking Water
- ANSI B1.20.1, ASTM D1784



### Construction Features

Auxiliary Limit Switches for confirming open/closed valve position

Electrical wiring by DIN style plug connectors

Heavy duty brushless motor

Auto/Manual selector lever

Leak free dual stem seal design with fully machined ball and stem connection

Energized PTFE ball seats for reduced torque and extended cycle life

Manual override

Highly visual valve position indicator

Anti-Condensation Heater

Anti-corrosive polyamide enclosure with UV protection

Union nut locking devices prevent back-off from vibration or thermal cycling



Full Port design for unrestricted flow and NSF certified for use with potable/drinking water



### Pressure-Temperature

Valve Pressure Rating\*: 232 PSI (16 Bar) at 73°F (23°C) 1/2 to 1-1/2" sizes  
150 PSI (10 Bar) 2" size  
Vacuum 29inHg

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

Actuator Temperature Rating: -4 to +158° F (-20 to 70° C)

\*See P/T chart

### Optional Functions

- **BSR:** Battery Spring Return - actuator fails to a safe position with loss of external power

## Specifications (English units)

Stock Number	Pipe Size* (inches)	Pipe O.D. (inch)	Cv Flow Factor	Pressure Max. (PSI)**	Cycle Time/90° (seconds) +/- 10%	Enclosure Rating	Max. Current Draw (Amps)			
							110VAC	240VAC	24VAC	24VDC
<b>24v-240v AC or DC ELECTRIC 3-WAY PVC BALL VALVE TEFLON/EPDM: L-PORT</b>										
561404E	1/2	0.84	4.6	232	9	IP67	0.30	0.16	1.28	0.97
561406E	3/4	1.05	10	232	9	IP67	0.30	0.16	1.28	0.97
561408E	1	1.32	17	232	9	IP67	0.30	0.16	1.28	0.97
561410E	1-1/4	1.66	32	232	9	IP67	0.30	0.16	1.28	0.97
561412E	1-1/2	1.90	42	232	9	IP67	0.30	0.16	1.28	0.97
561416E	2	2.38	84	150	9	IP67	0.30	0.16	1.28	0.97

These unique multi-voltage valves will operate within a voltage range of 24v to 240v AC or DC, 1ph, -0/+ 5%

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

\*Valves include both IPS glue sockets and NPT female end connectors

\*\* See Pressure/Temperature charts, maximum allowable pressure decreases as temperature increases

### Pressure/Temperature Chart 232 PSI Valves

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

### Pressure/Temperature Chart 150 PSI Valves

P/T Chart (PSI/°F)							
PSI	150	150	150	150	150	100	35
°F	32	50	70	90	110	120	140

## Specifications (Metric units)

Stock Number	Pipe Size* (inches)	Pipe O.D. (mm)	Kv Flow Factor	Pressure Max. (BAR)**	Cycle Time/90° (seconds) +/- 10%	Enclosure Rating	Max. Current Draw (Amps)			
							110VAC	240VAC	24VAC	24VDC
<b>24v-240v AC or DC ELECTRIC 3-WAY PVC BALL VALVE TEFLON/EPDM: L-PORT</b>										
561404E	1/2	21.34	4	16	9	IP67	0.30	0.16	1.28	0.97
561406E	3/4	26.67	8.6	16	9	IP67	0.30	0.16	1.28	0.97
561408E	1	33.53	15	16	9	IP67	0.30	0.16	1.28	0.97
561410E	1-1/4	42.16	27.5	16	9	IP67	0.30	0.16	1.28	0.97
561412E	1-1/2	48.26	36	16	9	IP67	0.30	0.16	1.28	0.97
561416E	2	60.45	72	10	9	IP67	0.30	0.16	1.28	0.97

These unique multi-voltage valves will operate within a voltage range of 24v to 240v AC or DC, 1ph, -0/+ 5%

\*Valves include both IPS glue sockets and NPT female end connectors

\*\* See Pressure/Temperature charts, maximum allowable pressure decreases as temperature increases

### Pressure/Temperature Chart 16 Bar Valves

P/T Chart (Bar/°C)							
Bar	16	16	16	12	10	7	2.4
°C	0	10	21	32	43	49	60

### Pressure/Temperature Chart 10 Bar Valves

P/T Chart (Bar/°C)							
Bar	10	10	10	10	10	7	2.4
°C	0	10	21	32	43	49	60

## Optional BSR - Battery Spring Return

The BSR– Battery Spring Return kit is available as a factory installed option for Valworx 5610 series electric actuators. The BSR kit will work with both on-off models and actuators with DPS positioners. The battery failsafe system provides an alternative source of power to drive the actuator to a preset failsafe position in the event of an external power failure. The industrial quality battery is constantly trickle charged during normal operation to assure maximum charge when required. The battery kit is installed under the actuator cover. No separate modules or boxes are required.

In many applications, the BSR battery spring return function tends to be a very economical option when compared to the alternate true mechanical spring return actuator. Valworx actuators with the BSR option are much smaller, lighter and less expensive.



The installed BSR kit will provide enough power to move the actuator/valve to a failsafe position with loss of external power. The kit can be ordered as fail closed or fail open as required.

The actuator operates in the normal power open and power close mode while external power is available. Internal circuitry monitors the incoming main power and automatically switches within a few seconds to the battery backup with loss of external power. The battery will then provide enough power to move the actuator to a failsafe position. Under normal operation the external control power will trickle charge the battery and maintain a full charge.

In the normal mode of operation, an LED status light located on top of the actuator cover will be continuously lit. With a loss of power, the LED status light will blink slowly. On resumption of external power, conditional that the actuator control signal remained unchanged, the actuator will reset to the position it saw at the time of the main power failure.

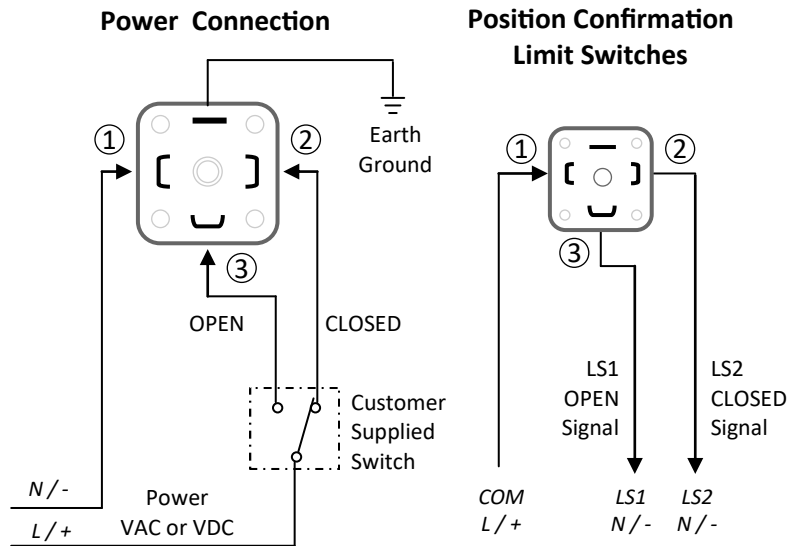
Valworx Actuator with BSR Option	Specifications
Working operations without recharge, with 100% initial battery charge	10
Recharge time per working operation	15 min
Full Charge Time 100%	28 h

Kit Stock Number	Description
<b>561104E</b>	5610 BSR Battery Spring Return Kit, Fail Closed (pos 1)
<b>561105E</b>	5610 BSR Battery Spring Return Kit, Fail Open (pos 2)

## Electrical Wiring: On/Off and BSR Battery Spring Return Versions

Voltage: 24-240 Volts AC or DC, 1ph, -0/+ 5%

Auto-voltage sensing



### Function: ON-OFF version

#### Power Connections

Power to PIN 1 and 2  
- actuator CLOSED (pos 1)

Power to PIN 1 and 3  
- actuator OPEN (pos 2)

Stays in last known position with loss of power.

### Function: ON-OFF version with BSR option

Wiring is the same as standard ON-OFF version.

Power to open, power to close - maintain power to trickle charge the battery system in either open or closed position.

Actuator sent by battery power to failsafe position with power failure.

Actuator returns to pre-failure position on power resumption.

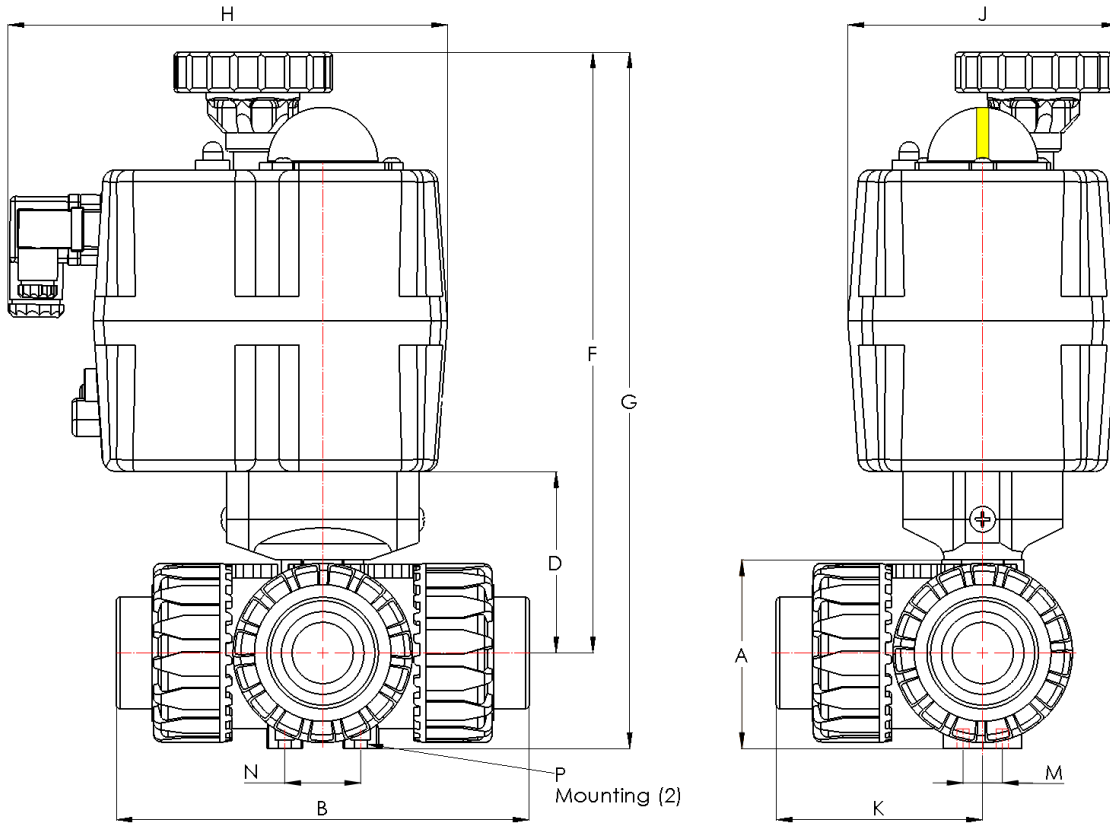
### Function: Position confirmation limit switches

Dry contact 3A @ 125/250 VAC, 30VDC resistive load

PIN 1 (COM) and 2 to confirm actuator is closed

PIN 1 (COM) and 3 to confirm actuator is open

**Dimensions:**



Pipe Size (inches)		A	B	D	F	G	H	J	K	M	N	P	Weight
1/2	inch	2.13	5.20	2.28	9.01	10.15	7.0	3.32	2.60	0.79	1.22	M5	4.5 lbs
	mm	54	132	58	228.9	257.9	178	84	66	20	31	M5	2 kg
3/4	inch	2.56	6.27	2.74	9.47	10.82	7.0	3.32	3.14	0.79	1.22	M5	5 lbs
	mm	65	159	69.5	240.5	274.8	178	84	80	20	31	M5	2.3 kg
1	inch	2.87	6.85	2.91	9.65	11.18	7.0	3.32	3.31	.079	1.22	M5	5.5 lbs
	mm	73	174	74	245	284	178	84	84.2	20	31	M5	2.5 kg
1-1/4	Inch	3.54	8.07	3.58	10.31	12.13	7.0	3.32	4	1.18	1.97	M6	7.2 lbs
	mm	90	205	91	262	308	178	84	102	30	50	M6	3.3 kg
1-1/2	inch	3.94	8.96	3.83	10.55	12.60	7.0	3.32	4.48	1.18	1.97	M6	7.5 lbs
	mm	102	228	97.2	268	320	178	84	114	30	50	M6	3.4 kg
2	inch	4.8	10.51	4.49	11.18	13.62	7.0	3.32	5.26	1.18	1.97	M6	10 lbs
	mm	122	267	114	284	346	178	84	134	30	50	M6	4.5 kg