Electric Actuated Ball Valves

2-way Lead Free Brass, Full Port
1/4" to 3" NPT– Explosion Proof

SERIES
5830
5831
5832
5833

Features

- Full Port lead free brass ball valve
- Valve certified NSF372 & NSF/ANSI/CAN 61-2020 for potable/drinking water
- High strength glass lens valve position indicator
- Rugged aluminum Type 4X weatherproof enclosure
- Heavy duty motor with overload protection
- Manual override with end of travel mechanical stops
- Two auxiliary limit switches included with on-off units
- EPS - Electronic Positioning System models available
- Actuators CSA Listed per UL429 and CSA C22.2 and Explosion ratings per Approvals section
- Electrical interface: Two 1/2" NPT threaded ports with temporary plugs. Remove and replace with corresponding explosion proof cable connectors, pipe or plugs (Not Included)

Applications

On-off control of water, air, oil and other media compatible with the materials of construction. Ideal where lead free and NSF approved construction are required for potable drinking water as well as general industrial applications in hazardous environments. Vacuum service up to 29"Hg. Actuators designed for 70% duty cycle.

Operation

On-Off 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-Electronic Positioning System provide 0-100% control of flow via a 4-20mA input control signal.

Construction

Valve Body	Lead free brass C69300
Ball/Stem	316 stainless steel
Ball Seats	PTFE (Teflon) energized with FKM (Viton)
Stem Seals	PTFE (Teflon) with (2) additional FKM (Viton) seals
Gear Drive	Heavy duty alloy steel /aluminium bronze, self locking
Actuator Enclosure	Anti-corrosive durable painted aluminum alloy, Type 4X/ IP67
Visual Valve Position Indicator	High strength glass lens
Fasteners	Stainless Steel
Auxiliary Limit Switches	2 x SPDT (5A/125VAC), on-off actuators only

Description

Electric actuated full port lead free ball valves provide unrestricted flow and minimum pressure loss. Energized PTFE ball seats are designed for low torque and extended cycle life. Triple PTFE/FKM leak free stem seal design. Rugged Type 4X explosion proof electric actuator includes a manual override, valve position confirmation switches (on-off models), over-torque protection. EPS positioner models allow positioning of the ball with a 4-20mA input control signal.

Approvals

Actuators

ANTI EXPLOSION GRADE

The anti-explosion grade of these actuators is
- ♦ Class 1, Division 1, Groups C & D T5
- ♦ Ex db IIC T5 Gb Class 1 Zone 1
- ♦ AEx db IIC T5 Gb

Where:
Class I – Hazard Class
Division I/ Zone 1 – Area Classification
db – Explosion Proof Type
II – Electrical Equipment design for explosive atmospheres (except colliery)
C – Magnitude of the explosion
T5 - Highest allowed surface temperature of the actuator (+55C)
Gb – Protection Grade
The grades of combustible gas, steam and temperature group are listed in CSA 22.2 No 60079-0-2019, CSA 22.2 No 60079-1-2016, CSA 22.2 No 30-M1986(R2016), CSA 22.2 No 145-11(R2015), ANSI/UL 60079-2:2020, ANSI/UL 1203-2013, ANSI/UL 674 Fifth Edition. It is the user's responsibility to ensure compatibility with the applicable regulations.
CE- EN 60204-1:2006

Valves

LEAD FREE

- IAPMO RT certified to:
  - NSF/ANSI 372 - 2011 Drinking Water
  - NSF/ANSI/CAN 61-2020
  - Weighted average lead content < =0.25%
- Meets design MSS-SP-110

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2-way Lead Free Brass, Full Port
1/4" to 3" NPT-Explosion Proof

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Construction Features

- Auxiliary Limit Switches(2) for confirming valve position, on-off versions
- Heavy duty integral motor design significantly reduces physical size of actuator
- Rugged durable painted aluminum Type 4X/ IP67 weatherproof enclosure.
- 316 stainless steel stem with PTFE and dual FKM (Viton) seals
- 316 stainless steel ball with energized PTFE seats for reduced torque and extended cycle life
- High strength glass position indicator
- Circular field joints for superior explosion-proof reliability
- Manual Override with protective cover
- Self-locking all metal gear drive, no additional brake required
- Direct mount ISO5211, no brackets required
- Full Port lead free brass ball valve, certified for use with potable/drinking water

Visual Valve Position Indicator

Pressure-Temperature*

Pressure Rating: 600 PSI CWP (41 Bar) non-shock

29" Hg vacuum, 25 PSI steam with high temp. kit

Ball Valve Temperature Rating: -4 to 366° F (-20 to 186° C)

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

*See P/T chart

Installation Requires-Two 1/2" NPT threaded explosion-proof connectors or pipe for electrical interface (Not included**)**

Heavy duty alloy steel /aluminium bronze, self locking

Pressure/Temperature Chart (PSI/°F)

P/T Chart						
PSI	600	600	600	600	550	400
°F	0	50	100	176	200	266

Pressure/Temperature Chart (Bar/°C)

P/T Chart						
Bar	41	41	41	41	38	27
°C	-18	10	38	80	93	130

Specifications: On-Off Valves (English units)

Stock Number	Pipe Size (NPT)	Orifice Size (inch)	Cv Flow Factor	Pressure Max.(PSI)*	Cycle Time/90° (seconds)	Voltage	Current (amps)	Electrical Drawing
120 VAC ELECTRIC ACTUATED LF BRASS BALL VALVES: ON-OFF version								
583002	1/4	0.4	8	600	20	110 VAC, 50/60Hz	0.27	B
583003	3/8	0.5	10	600	20	110 VAC, 50/60Hz	0.27	B
583004	1/2	0.6	15	600	20	110 VAC, 50/60Hz	0.27	B
583006	3/4	0.8	35	600	20	110 VAC, 50/60Hz	0.27	B
583008	1	1.0	60	600	20	110 VAC, 50/60Hz	0.27	B
583010	1-1/4	1.2	89	600	20	110 VAC, 50/60Hz	0.27	B
583012	1-1/2	1.5	125	600	20	110 VAC, 50/60Hz	0.27	B
583016	2	2.0	240	600	20	110 VAC, 50/60Hz	0.27	B
583017	2-1/2	2.5	320	600	20	110 VAC, 50/60Hz	0.27	B
583018	3	3.0	551	600	30	110 VAC, 50/60Hz	0.63	B
24 VDC ELECTRIC ACTUATED LF BRASS BALL VALVES: ON-OFF version								
583102	1/4	0.4	8	600	20	DC24	1.8	G
583103	3/8	0.5	10	600	20	DC24	1.8	G
583104	1/2	0.6	15	600	20	DC24	1.8	G
583106	3/4	0.8	35	600	20	DC24	1.8	G
583108	1	1.0	60	600	20	DC24	1.8	G
583110	1-1/4	1.2	89	600	20	DC24	1.8	G
583112	1-1/2	1.5	125	600	20	DC24	1.8	G
583116	2	2.0	240	600	20	DC24	1.8	G
583117	2-1/2	2.5	320	600	20	DC24	1.8	G
583118	3	3.0	551	600	30	DC24	2.4	G

* Pressure at 176° F (see P/T chart for maximum pressure at higher temperatures)

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 cable connectors (included) or optional 1/2" NPT conduit adapters.

Specifications: Valves with EPS Positioners (English units)

Stock Number	Pipe Size (NPT)	Orifice Size (inch)	Cv Flow Factor	Pressure Max.(PSI)*	Cycle Time/90° (seconds)	Voltage	Current (amps)	Electrical Drawing
120 VAC ELECTRIC ACTUATED LF BRASS BALL VALVES: EPS POSITIONER 4-20mA input								
583202	1/4	0.4	8	600	20	110 VAC, 50/60Hz	0.27	E
583203	3/8	0.5	10	600	20	110 VAC, 50/60Hz	0.27	E
583204	1/2	0.6	15	600	20	110 VAC, 50/60Hz	0.27	E
583206	3/4	0.8	35	600	20	110 VAC, 50/60Hz	0.27	E
583208	1	1.0	60	600	20	110 VAC, 50/60Hz	0.27	E
583210	1-1/4	1.2	89	600	20	110 VAC, 50/60Hz	0.27	E
583212	1-1/2	1.5	125	600	20	110 VAC, 50/60Hz	0.27	E
583216	2	2.0	240	600	20	110 VAC, 50/60Hz	0.27	E
583217	2-1/2	2.5	320	600	20	110 VAC, 50/60Hz	0.27	E
583218	3	3.0	551	600	30	110 VAC, 50/60Hz	0.63	E
24 VDC ELECTRIC ACTUATED LF BRASS BALL VALVES: EPS POSITIONER 4-20mA input								
583302	1/4	0.4	8	600	20	DC24	1.8	GEY
583303	3/8	0.5	10	600	20	DC24	1.8	GEY
583304	1/2	0.6	15	600	20	DC24	1.8	GEY
583306	3/4	0.8	35	600	20	DC24	1.8	GEY
583308	1	1.0	60	600	20	DC24	1.8	GEY
583310	1-1/4	1.2	89	600	20	DC24	1.8	GEY
583312	1-1/2	1.5	125	600	20	DC24	1.8	GEY
583316	2	2.0	240	600	20	DC24	1.8	GEY
583317	2-1/2	2.5	320	600	20	DC24	1.8	GEY
583318	3	3.0	551	600	30	DC24	2.4	GEY

* Pressure @ 176° F (see P/T chart for maximum pressure at higher temperatures)

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 (for loss of input command signal).
- Electric manual control with onboard selector switches
- Fault LED lights indicate valve jam or signal loss
- Electronic brake function

Specifications: On-Off Valves (Metric units)

Stock Number	Pipe Size (NPT)	Orifice Size (mm)	Kv Flow Factor	Pressure Max.(Bar)*	Cycle Time/90° (seconds)	Voltage	Current (amps)	Electrical Drawing
120 VAC ELECTRIC ACTUATED LF BRASS BALL VALVE: ON-OFF Version								
583002	1/4	10.0	5.0	40	20	110 VAC, 50/60Hz	0.27	B
583003	3/8	12.7	8.6	40	20	110 VAC, 50/60Hz	0.27	B
583004	1/2	15.0	13.0	40	20	110 VAC, 50/60Hz	0.27	B
583006	3/4	19.0	26.0	40	20	110 VAC, 50/60Hz	0.27	B
583008	1	25.0	52.0	40	20	110 VAC, 50/60Hz	0.27	B
583010	1-1/4	31.0	76.0	40	20	110 VAC, 50/60Hz	0.27	B
583012	1-1/2	38.0	107.0	40	20	110 VAC, 50/60Hz	0.27	B
583016	2	50.0	206.0	40	20	110 VAC, 50/60Hz	0.27	B
583017	2-1/2	63.0	275.0	40	20	110 VAC, 50/60Hz	0.27	B
583018	3	76.0	474.0	40	30	110 VAC, 50/60Hz	0.63	B
24 VDC ELECTRIC ACTUATED LF BRASS BALL VALVE: ON-OFF Version								
583102	1/4	10.0	5.0	40	20	DC24	1.8	G
583103	3/8	12.7	8.6	40	20	DC24	1.8	G
583104	1/2	15.0	13.0	40	20	DC24	1.8	G
583106	3/4	19.0	26.0	40	20	DC24	1.8	G
583108	1	25.0	52.0	40	20	DC24	1.8	G
583110	1-1/4	31.0	76.0	40	20	DC24	1.8	G
583112	1-1/2	38.0	107.0	40	20	DC24	1.8	G
583116	2	50.0	206.0	40	20	DC24	1.8	G
583117	2-1/2	63.0	275.0	40	20	DC24	1.8	G
583118	3	76.0	474.0	40	30	DC24	2.4	G

* Pressure at 80° C (see P/T chart for maximum pressure at higher temperatures)

Specifications: Valves with EPS Positioners (Metric units)

Stock Number	Pipe Size (NPT)	Orifice Size (mm)	Kv Flow Factor	Pressure Max.(Bar)*	Cycle Time/90° (seconds)	Voltage	Current (amps)	Electrical Drawing
120 VAC ELECTRIC ACTUATED LF BRASS BALL VALVES: EPS POSITIONER 4-20mA input								
583202	1/4	10.0	5.0	40	20	110 VAC, 50/60Hz	0.27	E
583203	3/8	12.7	8.6	40	20	110 VAC, 50/60Hz	0.27	E
583204	1/2	15.0	13.0	40	20	110 VAC, 50/60Hz	0.27	E
583206	3/4	19.0	26.0	40	20	110 VAC, 50/60Hz	0.27	E
583208	1	25.0	52.0	40	20	110 VAC, 50/60Hz	0.27	E
583210	1-1/4	31.0	76.0	40	20	110 VAC, 50/60Hz	0.27	E
583212	1-1/2	38.0	107.0	40	20	110 VAC, 50/60Hz	0.27	E
583216	2	50.0	206.0	40	20	110 VAC, 50/60Hz	0.27	E
583217	2-1/2	63.0	275.0	40	20	110 VAC, 50/60Hz	0.27	E
583218	3	76.0	474.0	40	30	110 VAC, 50/60Hz	0.63	E
24 VDC ELECTRIC ACTUATED LF BRASS BALL VALVE: EPS POSITIONER 4-20mA input								
583302	1/4	10.0	5.0	40	20	DC24	1.8	GEY
583303	3/8	12.7	8.6	40	20	DC24	1.8	GEY
583304	1/2	15.0	13.0	40	20	DC24	1.8	GEY
583306	3/4	19.0	26.0	40	20	DC24	1.8	GEY
583308	1	25.0	52.0	40	20	DC24	1.8	GEY
583310	1-1/4	31.0	76.0	40	20	DC24	1.8	GEY
583312	1-1/2	38.0	107.0	40	20	DC24	1.8	GEY
583316	2	50.0	206.0	40	20	DC24	1.8	GEY
583317	2-1/2	63.0	275.0	40	20	DC24	1.8	GEY
583317	3	76.0	474.0	40	30	DC24	2.4	GEY

* Pressure at 80° C (see P/T chart for maximum pressure at higher temperatures)

Electrical Wiring– On/ Off

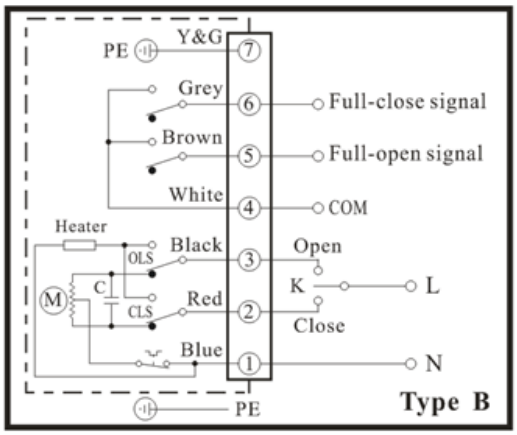
Confirm the actuator VOLTAGE is correct, then remove the terminal box cover and connect wiring to terminal strip according to appropriate wiring diagram.

Wiring diagrams for each actuator are attached to the inside of the terminal box cover.

Input control signal type is 4-20mA. Actuator should have its own fused and isolated circuit. Do not connect actuators in parallel. Power to actuator should be maintained to activate the internal heater. This heater will help prevent condensation build-up inside the actuator.

Before connecting power, confirm correct VOLTAGE is being applied.
Incorrect voltage may damage actuator and void the warranty.

AC Voltage Wiring Diagram



FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Conviennent Pour Au Moins 90°C

AC Voltage Wiring:

[User/Installer to Supply Relay or 3-way Switch (K)]

Terminal 1: Power Neutral (N)

Terminal 2: Power (L) to terminal 2 - Actuator OFF or CLOSED

Terminal 3: Power (L) to terminal 3 - Actuator ON or OPEN

Auxiliary Position Confirmation Limit Switches

Terminal 4: Common

Terminal 5: Open status confirmation signal

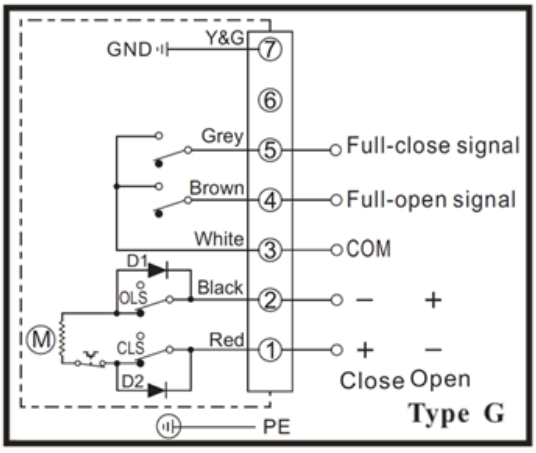
Terminal 6: Closed status confirmation signal

Ground PE

Terminal 7: Earth Ground

NOTES: 1. Auxiliary limit switches are rated 3A@125/250VAC, 30VDC resistive load. *2.* Actuator should have its own fused and isolated circuit. Do not wire actuators in parallel.

DC Voltage Wiring Diagram



FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Conviennent Pour Au Moins 90°C

DC Voltage Wiring:

[User/Installer to Supply Reversing Relay or Switch]

Terminal 1: Power Positive (+) to close, power Negative (-) to open

Terminal 2: Power Negative (-) to close, power Positive (+) to open

Auxiliary Position Confirmation Limit Switches

Terminal 3: Common

Terminal 4: Open status confirmation signal

Terminal 5: Closed status confirmation signal

Ground PE

Terminal 7: Earth Ground

Electrical Wiring– EPS Positioner

Confirm the actuator VOLTAGE is correct, then remove the terminal box cover and connect wiring to terminal strip according to appropriate wiring diagram.

Wiring diagrams for each actuator are attached to the inside of the terminal box cover.

Input control signal type is 4-20mA. Actuator should have its own fused and isolated circuit. Do not connect actuators in parallel. Power to actuator should be maintained to activate the internal heater. This heater will help prevent condensation build-up inside the actuator.

Before connecting power, confirm correct VOLTAGE is being applied.
Incorrect voltage may damage actuator and void the warranty.

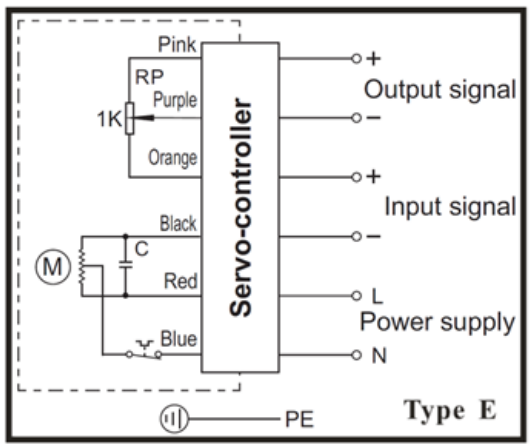
OPERATION (EPS ONLY)

Valworx 5818 series 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 drive output..

This is achieved with a unique built in electronic positioning module. The module is fully potted to help protect the electronics from vibration and moisture.

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 drive output as required to balance the signals

AC Voltage Wiring Diagram

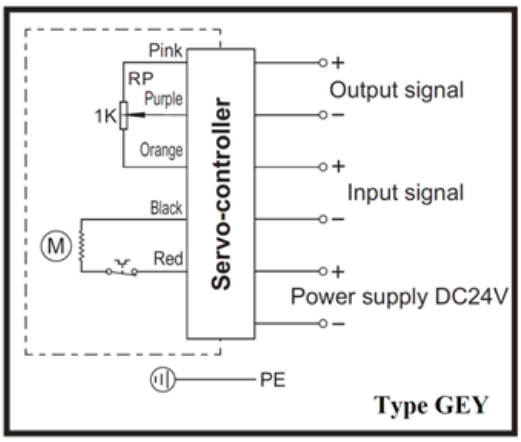


FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Conviennent Pour Au Moins 90°C

AC Voltage Wiring:

1. AC power - Neutral
2. AC power - Line/Hot
3. Input control signal - Negative (-)
4. Input control signal - Positive (+)
5. Output monitoring signal - Negative (-)
6. Output monitoring signal - Positive (+)

DC Voltage Wiring Diagram



FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Conviennent Pour Au Moins 90°C

DC Voltage Wiring:

1. DC power - Negative (-)
2. DC power - Positive (+)
3. Input control signal - Negative (-)
4. Input control signal - Positive (+)
5. Output monitoring signal - Negative (-)
6. Output monitoring signal - Positive (+)

EPS POSITIONER TECHNICAL DATA

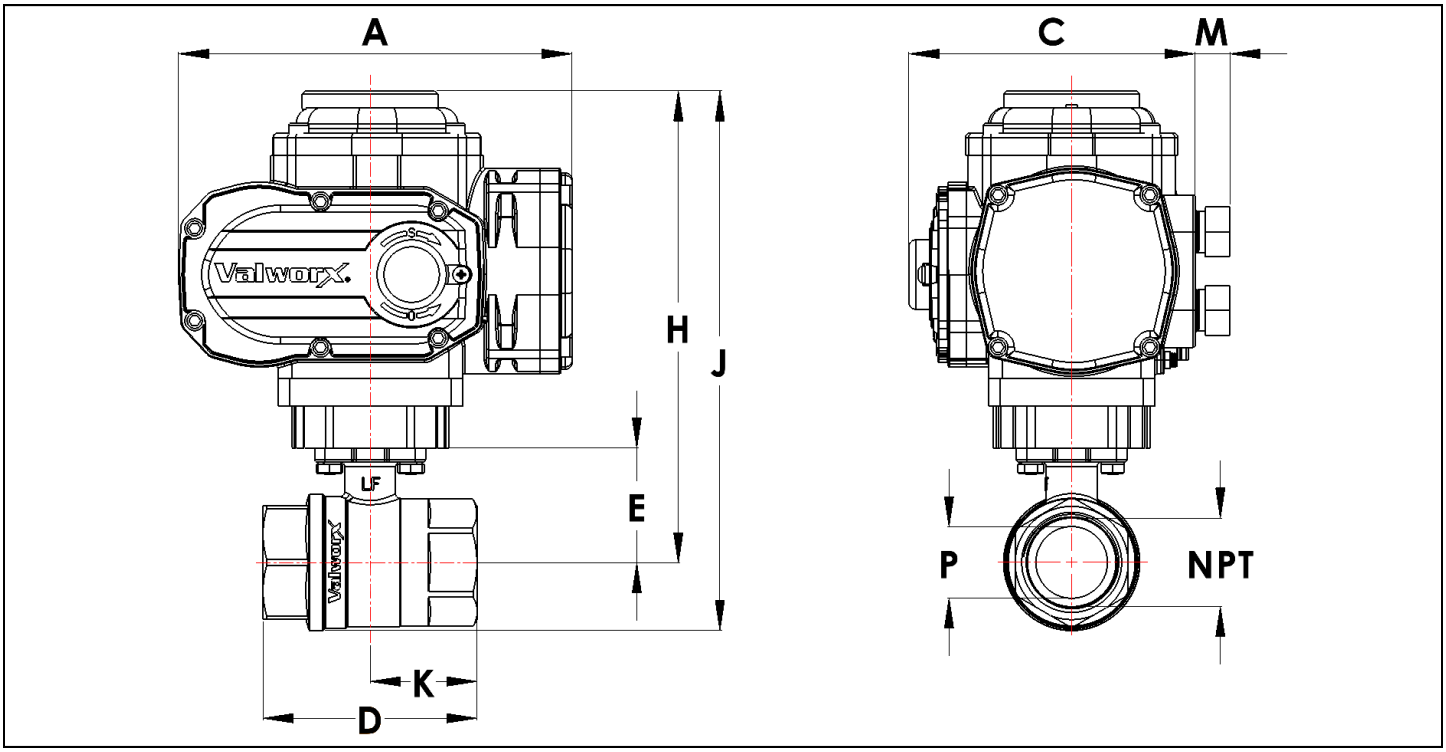
Input Signal: 4-20mA

Output Signal: 4-20mA

Deadband: 0.5% to 5.0%

NOTES: 1. Actuator should have its own fused and isolated circuit. 2. Do not wire actuators in parallel. 3. Output signal is 4-20mA. Use of the output is optional.

Dimensions:



Pipe Size (NPT)		A	C	D	E	H	J	K	M	P	Weight
1/4	inch	6.7	4.7	1.9	0.9	5.6	6.1	0.9	0.6	0.4	8.0 lb
	mm	170.5	120.5	47.6	22.0	142.2	154.9	23.8	15.0	10.0	3.6 kg
3/8	inch	6.7	4.7	2.0	1.0	5.7	6.3	1.0	0.6	0.5	8.0 lb
	mm	170.5	120.5	51.4	26.5	144.8	160.0	25.7	15.0	12.7	3.6 kg
1/2	inch	6.7	4.7	2.5	1.3	6.0	6.6	1.3	0.6	0.6	8.2 lb
	mm	170.5	120.5	63.6	32.0	152.4	167.6	31.8	15.0	15.0	3.7 kg
3/4	inch	6.7	4.7	2.7	1.4	6.1	6.9	1.4	0.6	0.8	8.5 lb
	mm	170.5	120.5	69.0	34.8	154.9	175.3	34.5	15.0	19.0	3.9 kg
1	inch	6.7	4.7	3.3	1.8	6.5	7.4	1.7	0.6	1.0	9.1 lb
	mm	170.5	120.5	84.4	44.5	165.1	188.0	42.2	15.0	25.0	4.1 kg
1-1/4	inch	6.7	4.7	3.7	2.0	6.7	7.8	1.8	0.6	1.2	9.5 lb
	mm	170.5	120.5	92.7	49.5	170.2	198.1	46.3	15.0	31.0	4.3 kg
1-1/2	inch	6.7	4.7	4.1	2.4	7.1	8.5	2.1	0.6	1.5	10.8 lb
	mm	170.5	120.5	104.0	60.5	180.3	215.9	52.1	15.0	38.0	4.9 kg
2	inch	6.7	4.7	4.8	2.8	7.5	9.3	2.4	0.6	2.0	12.5 lb
	mm	170.5	120.5	121.0	72.0	190.5	236.	60.6	15.0	50.0	5.7 kg
2-1/2	inch	6.7	4.7	6.1	3.4	8.1	10.3	3.0	0.6	2.5	16.3 lb
	mm	170.5	120.5	154.0	86.0	205.7	261.6	77.1	15.0	63.0	7.4 kg
3	inch	8.6	4.5	6.9	3.8	9.7	12.4	3.4	0.6	3.0	25.1 lb
	mm	217.5	114.0	175.0	97.0	246.4	315.0	87.6	15.0	76.0	11.4 kg