Electric Actuated Sanitary Ball Valve

2 Way Stainless Steel, Full Port
1/2 to 4 inch Tri-Clamp– Explosion Proof

SERIES
5805
5806
5807
5808

Features

- All valve materials comply with FDA and USDA requirements
- Tri-Clamp ends for hygienic connections
- Dyneon® TF-1641 (PTFE) FDA approved ball seats and cavity fillers
- Triple PTFE/Viton® high cycle live loaded stem seal packing
- Highly polished internals and end caps with 8-12 Ra finish
- Rugged aluminum Type 4X weatherproof enclosure
- Heavy duty motor with overload protection
- Thermostatically controlled anti-condensation heater
- 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

Sanitary ball valves are typically used for food, beverage, pharmaceutical, personal care, and pet care applications as well as for utility, process, and hazardous environment applications where quick clamp connections are beneficial.

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 90º. 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	ASTM 316 Stainless Steel
Ball/Stem/End Caps	ASTM 316 Stainless Steel
Ball Seats/ Cavity Filler	Dyneon® PTFE
Stem Seals	PTFE/ Viton®
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

Explosion Proof sanitary ball valves are used for on/off applications requiring a high degree of sanitation and easy cleaning. Investment cast 3-piece full port stainless steel body and end caps allow for unrestricted flow and minimum pressure loss. Valve seals are cavity filled with Dyneon® PTFE. 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 C SP® US

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

Standards– Valves

- Construction:
  - ANSI B16/B2/B18
  - FDA 21 CFR 177.1550
  - ANSI B16.34
- Pressure Testing:
  - API 598
- Marking
  - MSS-SP-25
- CE: PED 2014/68/UE

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.

Live-loaded triple PTFE stem seal

Dyneon® TF-1641 PTFE encapsulated cavity filler

Internals polished to Ra 8-12

Standard Tri-Clamp end caps for sanitary connections*

* Refer to specifications table for Tri-Clamp size

* Note: Tri-Clamp size is **NOT** determined by the OD of the end cap

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

Dyneon® PTFE encapsulated ball seats

ASTM 316 (CF8M) investment grade casting (body & end caps)

ASTM 304 Stainless steel fasteners

Visual Valve
Position Indicator

Pressure Rating

Shell Pressure Rating*: 1000 PSI @ 120°F (1/2" to 2"), 800 PSI (2 1/2" to 4")

* See P/T chart (pages 3 & 5)

Temperature Rating

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

Valve Temperature Rating: -4° to 356° F (-20 to 180°C)

* See P/T chart (pages 3 & 5)

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

Specifications (English units)

Stock Number	Pipe Size (inch)	Tri-Clamp Size (inch)	Cv Flow Factor*	Shell Pressure (PSI)	Cycle Time/ 90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
110 VAC ELECTRIC ACTUATED SANITARY VALVE, TRI-CLAMP: ON-OFF version									
580500A	1/2	3/4	13.0	1000	20	110 VAC, 50/60Hz	0.27	70%	B
580501A	3/4	3/4	18.0	1000	20	110 VAC, 50/60Hz	0.27	70%	B
580502A	1	1-1/2	48.0	1000	20	110 VAC, 50/60Hz	0.27	70%	B
580503A	1-1/2	1-1/2	165.0	1000	20	110 VAC, 50/60Hz	0.27	70%	B
580504A	2	2	207.0	1000	20	110 VAC, 50/60Hz	0.27	70%	B
580505A	2-1/2	2-1/2	450.0	800	30	110 VAC, 50/60Hz	0.63	70%	B
580506A	3	3	780.0	800	30	110 VAC, 50/60Hz	0.63	70%	B
580507A	4	4	1050.0	800	30	110 VAC, 50/60Hz	0.63	70%	B
24 VDC ELECTRIC ACTUATED SANITARY VALVE, TRI-CLAMP: ON-OFF version									
580700A	1/2	3/4	13.0	1000	20	DC24	1.8	70%	G
580701A	3/4	3/4	18.0	1000	20	DC24	1.8	70%	G
580702A	1	1-1/2	48.0	1000	20	DC24	1.8	70%	G
580703A	1-1/2	1-1/2	165.0	1000	20	DC24	1.8	70%	G
580704A	2	2	207.0	1000	20	DC24	1.8	70%	G
580705A	2-1/2	2-1/2	450.0	800	30	DC24	2.4	70%	G
580706A	3	3	780.0	800	30	DC24	2.4	70%	G
580707A	4	4	1050.0	800	30	DC24	2.4	70%	G

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

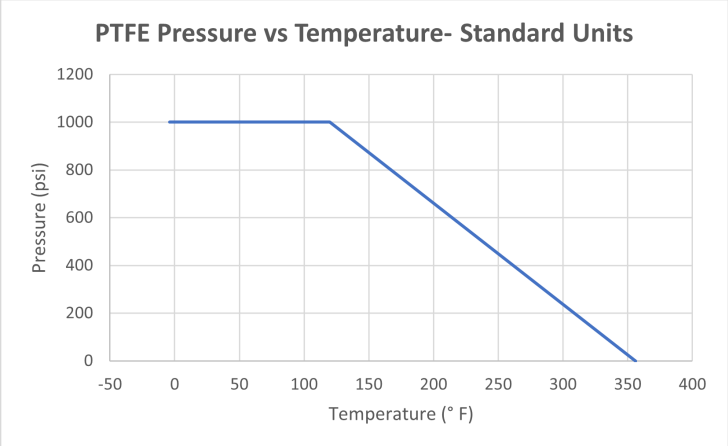
* Pressure @ -4°to 356° F (reduced pressure at higher temperatures—see P/T chart)

• Torque at 1000 PSI and 72°F

Pressure Temperature Chart

Standard Units

Temp °F	-4	120	356
Pressure	1000	1000	0



Specifications (English units)

Stock Number	Pipe Size (inch)	Tri-Clamp Size (inch)	Cv Flow Factor*	Shell Pressure (PSI)	Cycle Time/ 90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
110 VAC ELECTRIC ACTUATED SANITARY VALVE, TRI-CLAMP: EPS POSITIONER 4-20mA input									
580600A	1/2	3/4	13.0	1000	20	110 VAC, 50/60Hz	0.27	70%	E
580601A	3/4	3/4	18.0	1000	20	110 VAC, 50/60Hz	0.27	70%	E
580602A	1	1-1/2	48.0	1000	20	110 VAC, 50/60Hz	0.27	70%	E
580603A	1-1/2	1-1/2	165.0	1000	20	110 VAC, 50/60Hz	0.27	70%	E
580604A	2	2	207.0	1000	20	110 VAC, 50/60Hz	0.27	70%	E
580605A	2-1/2	2-1/2	450.0	800	30	110 VAC, 50/60Hz	0.63	70%	E
580606A	3	3	780.0	800	30	110 VAC, 50/60Hz	0.63	70%	E
580607A	4	4	1050.0	800	30	110 VAC, 50/60Hz	0.63	70%	E
24 VDC ELECTRIC ACTUATED SANITARY VALVE, TRI-CLAMP: EPS POSITIONER 4-20mA input									
580800A	1/2	3/4	13.0	1000	20	DC24	1.8	70%	GEY
580801A	3/4	3/4	18.0	1000	20	DC24	1.8	70%	GEY
580802A	1	1-1/2	48.0	1000	20	DC24	1.8	70%	GEY
580803A	1-1/2	1-1/2	165.0	1000	20	DC24	1.8	70%	GEY
580804A	2	2	207.0	1000	20	DC24	1.8	70%	GEY
580805A	2-1/2	2-1/2	450.0	800	30	DC24	2.4	70%	GEY
580806A	3	3	780.0	800	30	DC24	2.4	70%	GEY
580807A	4	4	1050.0	800	30	DC24	2.4	70%	GEY

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

* Pressure @ -4°to 356° F (reduced pressure at higher temperatures—see P/T chart)

• Torque at 1000 PSI and 72°F

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

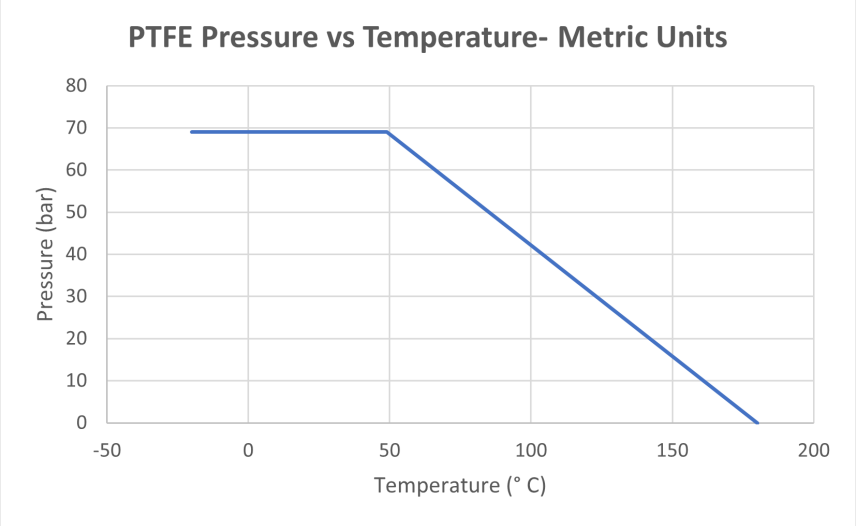
Specifications (Metric units)

Stock Number	Pipe Size (mm)	Tri-Clamp Size (inch)	Kv Flow Factor*	Shell Pressure (Bar)	Cycle Time/90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
110 VAC ELECTRIC ACTUATED SANITARY VALVE, TRI-CLAMP: ON-OFF version									
580500A	12.7	3/4	11.2	69	20	110 VAC, 50/60Hz	0.27	70%	B
580501A	19.1	3/4	15.6	69	20	110 VAC, 50/60Hz	0.27	70%	B
580502A	25.4	1-1/2	41.5	69	20	110 VAC, 50/60Hz	0.27	70%	B
580503A	38.1	1-1/2	142.7	69	20	110 VAC, 50/60Hz	0.27	70%	B
580504A	50.8	2	179.1	69	20	110 VAC, 50/60Hz	0.27	70%	B
580505A	63.5	2-1/2	389.3	55	30	110 VAC, 50/60Hz	0.63	70%	B
580506A	76.2	3	674.7	55	30	110 VAC, 50/60Hz	0.63	70%	B
580507A	101.6	4	908.3	55	30	110 VAC, 50/60Hz	0.63	70%	B
24 VDC ELECTRIC ACTUATED SANITARY VALVE, TRI-CLAMP: ON-OFF version									
580700A	12.7	3/4	11.2	69	20	DC24	1.8	70%	G
580701A	19.1	3/4	15.6	69	20	DC24	1.8	70%	G
580702A	25.4	1-1/2	41.5	69	20	DC24	1.8	70%	G
580703A	38.1	1-1/2	142.7	69	20	DC24	1.8	70%	G
580704A	50.8	2	179.1	69	20	DC24	1.8	70%	G
580705A	63.5	2-1/2	389.3	55	30	DC24	2.4	70%	G
580706A	76.2	3	674.7	55	30	DC24	2.4	70%	G
580707A	101.6	4	908.3	55	30	DC24	2.4	70%	G

* Pressure range @ -20° to 180° C (reduced pressure for higher temperatures—see P/T chart)

Pressure Temperature Chart

Temp °C	-20	49	180
Pressure	69	69	0



Specifications (Metric units)

Stock Number	Pipe Size (mm)	Tri-Clamp Size (inch)	Kv Flow Factor*	Shell Pressure (Bar)	Cycle Time/90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
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580600A	12.7	3/4	11.2	69	20	110 VAC, 50/60Hz	0.27	70%	E
580601A	19.1	3/4	15.6	69	20	110 VAC, 50/60Hz	0.27	70%	E
580602A	25.4	1-1/2	41.5	69	20	110 VAC, 50/60Hz	0.27	70%	E
580603A	38.1	1-1/2	142.7	69	20	110 VAC, 50/60Hz	0.27	70%	E
580604A	50.8	2	179.1	69	20	110 VAC, 50/60Hz	0.27	70%	E
580605A	63.5	2-1/2	389.3	55	30	110 VAC, 50/60Hz	0.63	70%	E
580606A	76.2	3	674.7	55	30	110 VAC, 50/60Hz	0.63	70%	E
580607A	101.6	4	908.3	55	30	110 VAC, 50/60Hz	0.63	70%	E
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580802A	25.4	1-1/2	41.5	69	20	DC24	1.8	70%	GEY
580803A	38.1	1-1/2	142.7	69	20	DC24	1.8	70%	GEY
580804A	50.8	2	179.1	69	20	DC24	1.8	70%	GEY
580805A	63.5	2-1/2	389.3	55	30	DC24	2.4	70%	GEY
580806A	76.2	3	674.7	55	30	DC24	2.4	70%	GEY
580807A	101.6	4	908.3	55	30	DC24	2.4	70%	GEY

* Pressure range @ -20° to 180° C (reduced pressure for higher temperatures—see P/T chart)

Electrical Wiring– On/Off

ELECTRICAL WIRING

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

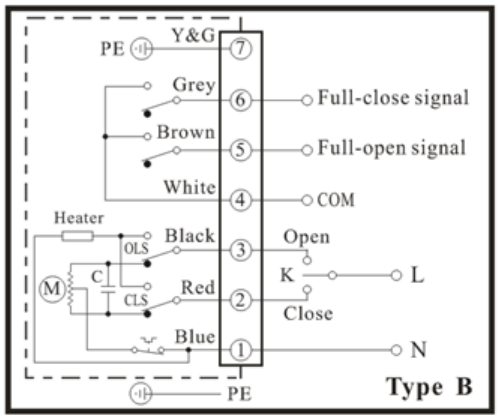
For convenience, wiring diagrams for each actuator are attached to the inside of the terminal box cover.

User/installer to supply a three way switch, control relay, PLC outputs, or other suitable switching device to control the actuator position. Actuator should have its own fused and isolated circuit. Do not connect actuators in parallel.

Power should be maintained either in the open or closed position to activate the internal heater. This heater will help prevent condensation build-up inside the actuator.

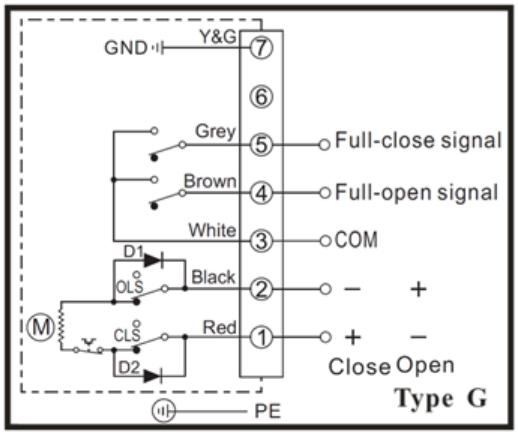
Before connecting power, confirm correct VOLTAGE is being applied. Incorrect voltage may damage actuator and void the warranty.

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

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

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:

[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

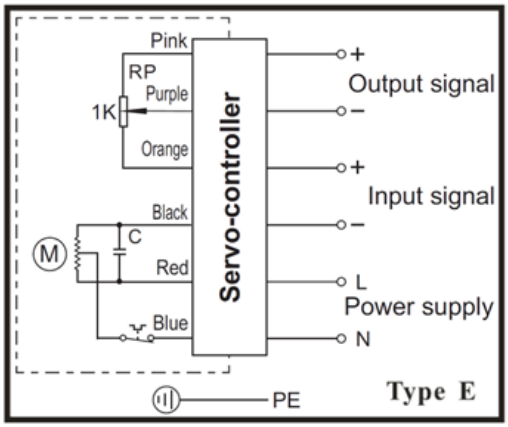
OPERATION (EPS ONLY)

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

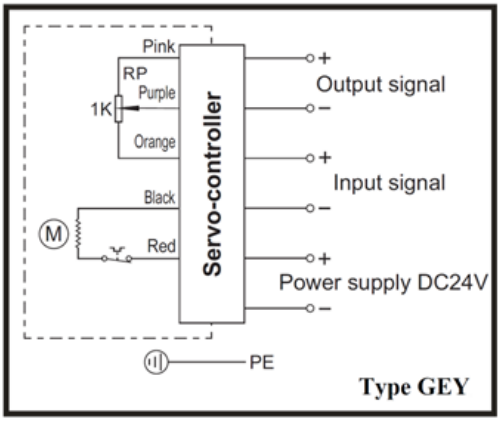


FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Conviennent Pour Au Moins 90°C

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

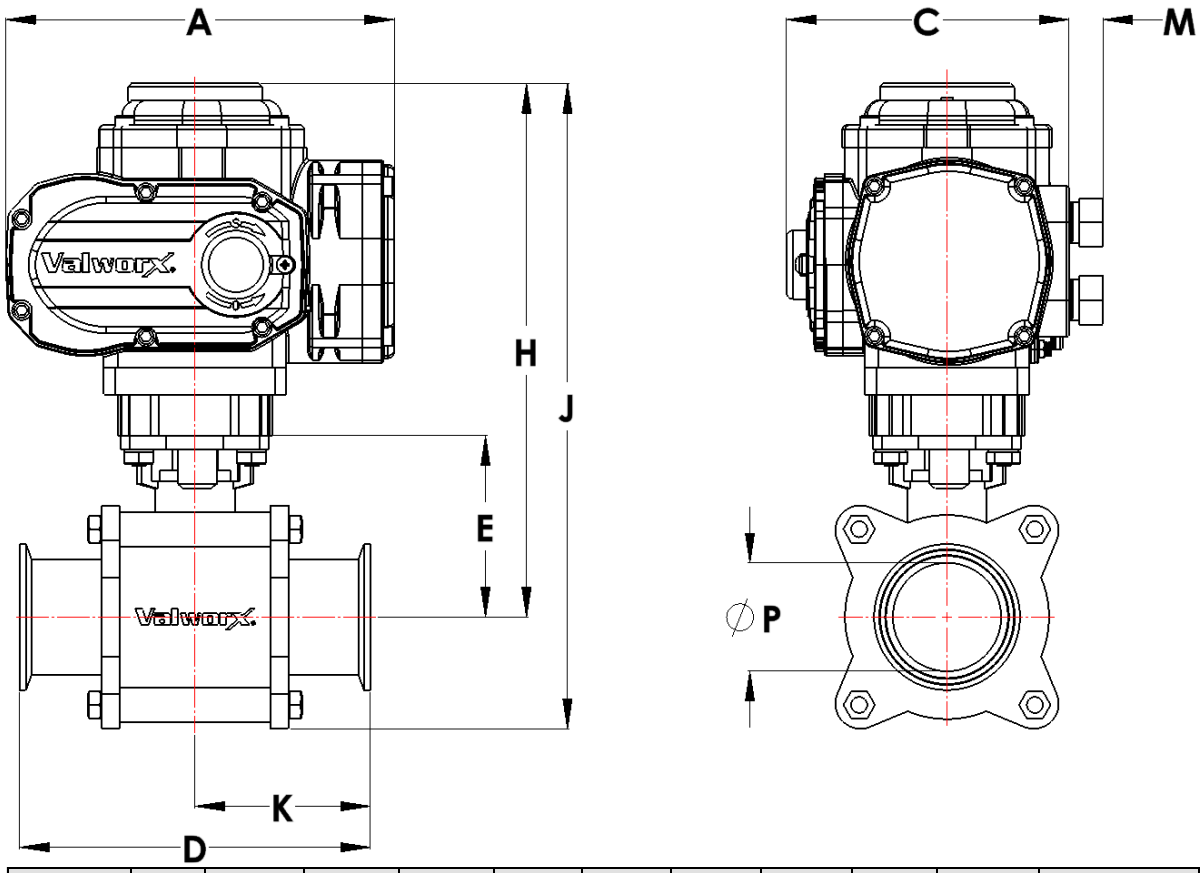
Input Signal: 4-20mA

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		A	C	D	E	H	J	K	M	P	Weight
1/2	inch	6.7	3.9	3.5	1.5	6.2	7.1	1.8	0.6	0.4	8.7 lb
	mm	170.5	99.5	88.9	37.0	157.5	180.3	44.5	15.0	10.2	3.9 kg
3/4	inch	6.7	3.9	4.0	1.8	6.5	7.5	2.0	0.6	0.6	9.0 lb
	mm	170.5	99.5	101.6	45.0	165.1	190.5	50.5	15.0	15.2	4.1 kg
1	inch	6.7	3.9	4.5	2.1	6.8	7.9	2.2	0.6	0.9	9.8 lb
	mm	170.5	99.5	114.3	53.5	172.7	200.7	57.0	15.0	22.9	4.4 kg
1-1/2	inch	6.7	3.9	5.5	2.9	7.6	9.1	2.8	0.6	1.4	12.5 lb
	mm	170.5	99.5	139.7	74.8	193.0	231.1	70.0	15.0	35.6	5.7 kg
2	inch	6.7	3.9	6.2	3.3	8.0	9.8	3.1	0.6	1.9	15.6 lb
	mm	170.5	99.5	157.5	83.5	203.2	248.9	78.0	15.0	48.3	7.1 kg
2-1/2	inch	8.6	5.5	7.0	4.3	10.2	12.4	3.9	0.6	2.4	29.0 lb
	mm	217.5	139.0	177.8	108.8	259.1	315.0	98.5	15.0	61.0	13.2 kg
3	inch	8.6	5.5	9.0	4.7	10.6	13.2	4.5	0.6	2.9	37.4 lb
	mm	217.5	139.0	228.6	118.3	269.2	335.3	114.5	15.0	73.7	17.0 kg
4	inch	8.6	5.5	9.5	6.1	12.6	15.9	4.8	0.6	3.8	60.0 lb
	mm	217.5	139.0	241.3	153.8	320.0	403.9	121.5	15.0	96.5	27.2 kg