

Features

- Full port 3-way T flow pattern, functions as diverter, selector, or mixing valve
- 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
- EPS– Electronic Positioning System with 4-20mA input
- Actuators CSA Listed per UL429 and CSA C22.2 and Explosion ratings per Approvals section
- Rugged aluminum Type 4X weatherproof enclosure
- Heavy duty motor with overload protection
- Manual override with end of travel mechanical stops
- 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 3-way ball valves are typically used for food, beverage, pharmaceutical, personal care, and pet care applications where sanitary construction is required, as well as for utility, process, and hazardous environment applications where quick clamp connections are beneficial. Often used as a diverter or selector valve with a variety of flow path options through the valve. Actuator designed for 70% duty cycle.

Flow pattern is highly non-linear. Refer to page 3 for flow vs position.

Operation

Explosion proof electric actuated valves with EPS- Electronic Positioning System provide an accurate valve positioning function whereby the movement of the actuator is controlled by 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. Flow is adjustable anywhere between 0-100%. Unique electronic positioning module is fully potted to help protect the electronics from vibration/moisture resistance.

Construction

Valve Body	ASTM 316 stainless steel
Ball/Stem/End Caps	ASTM 316 stainless steel
Ball Seats	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



Description

Explosion Proof sanitary 3-way T-port flow pattern ball valve has four Dyneon® PTFE ball seats, allowing for full pressure at any port. Adjustable live loaded stem seal packing helps compensate for wear, pressure and temperature fluctuations, extending the cycle life of the valve. Rugged Type 4X explosion proof electric actuator includes a manual override, 4-20mA servo controller, thermostatically controlled anti-condensation heater, and over-torque protection.

Approvals– Actuators

ANTI EXPLOSION GRADE ^C _{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 Conformance– 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 Conformance– PED 2014/68/UE

Construction Features

4-20mA servo controller

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

Encapsulated Dyneon® PTFE cavity filler

Internals polished to 8-12 Ra

ASTM 304 stainless steel fasteners

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

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

Dyneon® PTFE ball seats

Standard Tri-Clamp end caps for sanitary connections*



Visual Valve Position Indicator

Pressure Rating

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

* See P/T chart (pages 3 & 4)

Temperature Rating

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

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

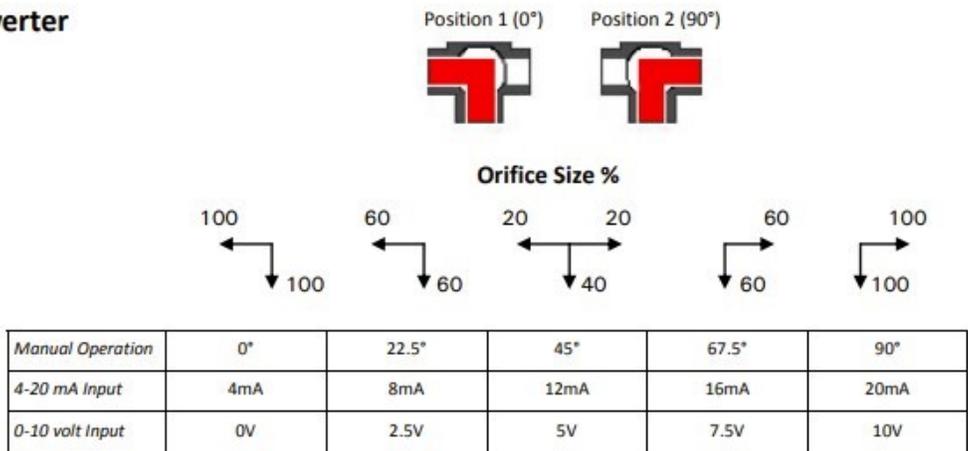
* See P/T chart (pages 3 & 4)

Installation Requires-Two 1/2" NPT threaded explosion-proof connectors or pipe for electrical interface

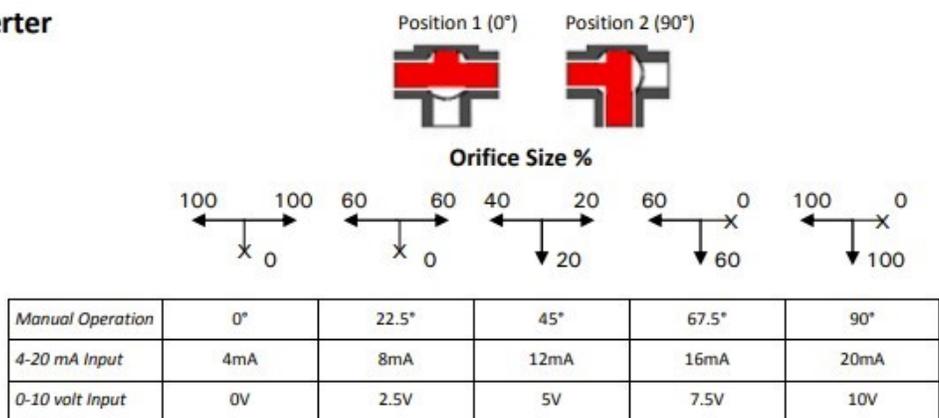
(Not included**)**

Flow Path Features

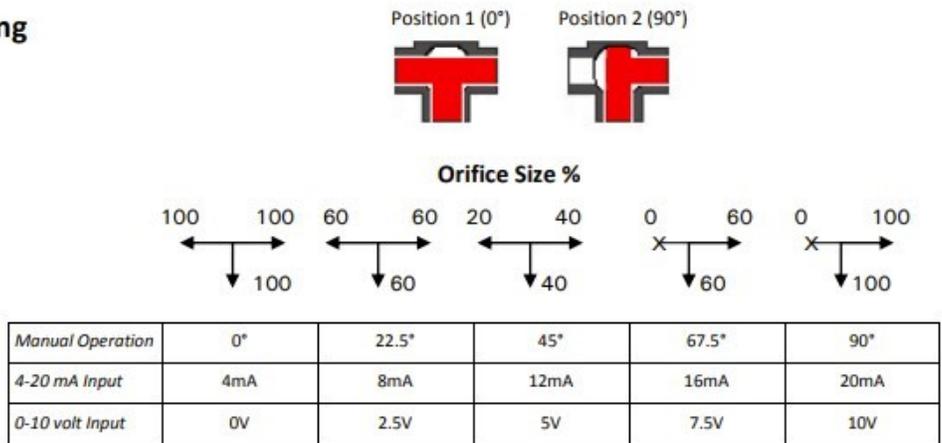
L-Port Diverter



T-Port Diverter



T-Port Mixing



Note: A) Orifice Size % is the approximate orifice size of each port shown as a percent of full open. B) Examples shown are 3-way quarter turn (90°) ball valves with full port design. Actuator at 0° is considered position 1 and 90° position 2.

Specifications (English units)

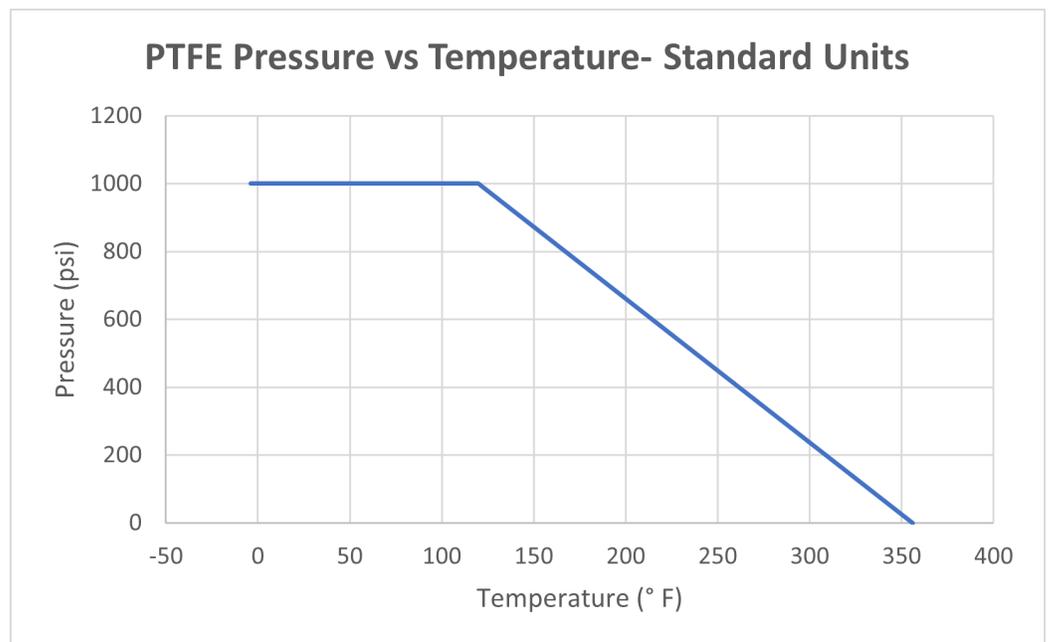
Stock Number	Pipe Size (NPT)	Tri-Clamp Size (inch)	Cv Flow Factor*	Shell Pressure Max.(PSI)*	Cycle Time/ 90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
120 VAC ELECTRIC ACTUATED 3-WAY T-PORT SANITARY STAINLESS BALL VALVE with EPS POSITIONER 4-20mA input									
582400A	1/2	3/4	4.3	1000	20	110 VAC, 50/60Hz	0.27	70%	E
582401A	3/4	3/4	10.4	1000	20	110 VAC, 50/60Hz	0.27	70%	E
582402A	1	1-1/2	17.3	1000	20	110 VAC, 50/60Hz	0.27	70%	E
582403A	1-1/2	1-1/2	43.3	1000	20	110 VAC, 50/60Hz	0.27	70%	E
582404A	2	2	77.9	1000	20	110 VAC, 50/60Hz	0.27	70%	E
582405A	2-1/2	2-1/2	115.9	600	30	110 VAC, 50/60Hz	0.63	70%	E
24 VDC ELECTRIC ACTUATED 3-WAY T-PORT SANITARY STAINLESS BALL VALVE with EPS POSITIONER 4-20mA input									
582600A	1/2	3/4	4.3	1000	20	DC24	1.8	70%	GEY
582601A	3/4	3/4	10.4	1000	20	DC24	1.8	70%	GEY
582602A	1	1-1/2	17.3	1000	20	DC24	1.8	70%	GEY
582603A	1-1/2	1-1/2	43.3	1000	20	DC24	1.8	70%	GEY
582604A	2	2	77.9	1000	20	DC24	1.8	70%	GEY
582605A	2-1/2	2-1/2	115.9	600	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 @ 0-100° F (reduced pressure at higher temperatures—see P/T chart)

Pressure/Temperature Chart (PSI/°F)

P/T Chart (PSI/°F)			
PSI	1000	1000	356
°F	-4	120	0



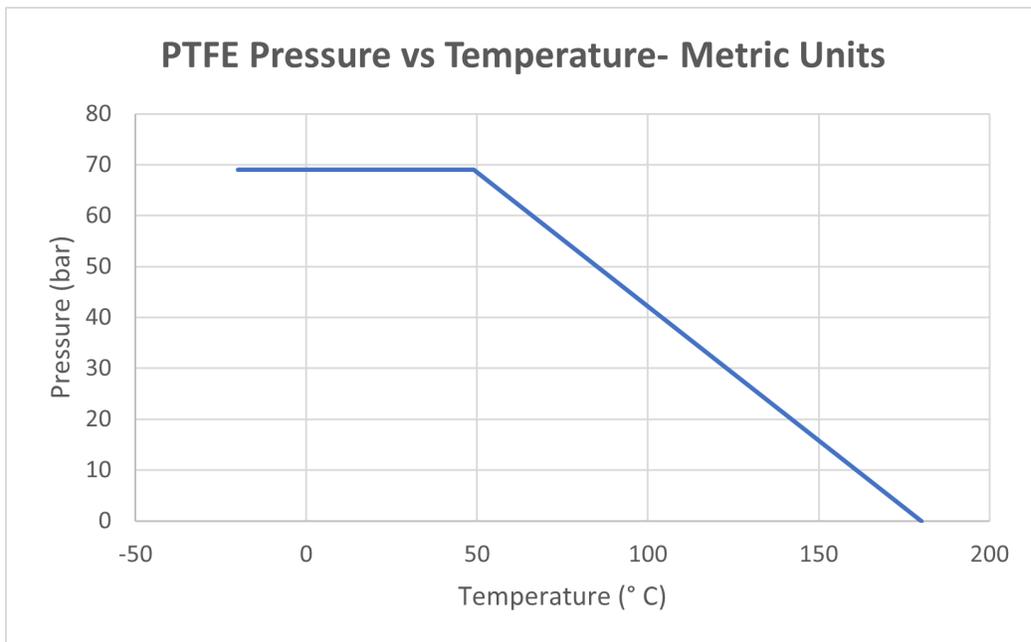
Specifications (Metric units)

Stock Number	Pipe Size (NPT)	Tri-Clamp Size (inch)	Kv Flow Factor	Shell Pressure Max.(Bar)*	Cycle Time/90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
120 VAC ELECTRIC ACTUATED 3-WAY T-PORT SANITARY STAINLESS BALL VALVE with EPS POSITIONER 4-20mA input									
582400A	12.7	3/4	5.0	69	20	110 VAC, 50/60Hz	0.27	70%	E
582401A	19.1	3/4	12.0	69	20	110 VAC, 50/60Hz	0.27	70%	E
582402A	25.4	1-1/2	20.0	69	20	110 VAC, 50/60Hz	0.27	70%	E
582403A	38.1	1-1/2	50.0	69	20	110 VAC, 50/60Hz	0.27	70%	E
582404A	50.8	2	90.0	69	20	110 VAC, 50/60Hz	0.27	70%	E
582405A	63.5	2-1/2	134.0	41	30	110 VAC, 50/60Hz	0.63	70%	E
24 VDC ELECTRIC ACTUATED 3-WAY T-PORT SANITARY STAINLESS BALL VALVE with EPS POSITIONER 4-20mA input									
582600A	12.7	3/4	5.0	69	20	DC24	1.8	70%	GEY
582601A	19.1	3/4	12.0	69	20	DC24	1.8	70%	GEY
582602A	25.4	1-1/2	20.0	69	20	DC24	1.8	70%	GEY
582603A	38.1	1-1/2	50.0	69	20	DC24	1.8	70%	GEY
582604A	50.8	2	90.0	69	20	DC24	1.8	70%	GEY
582605A	63.5	2-1/2	134.0	41	30	DC24	2.4	70%	GEY

* Pressure range @ -18 to 38° C (reduced pressure for higher temperatures—see P/T chart)

Pressure/Temperature Chart (Bar/°C)

P/T Chart (BAR/°C)			
Bar	69	69	0
°C	-20	49	180



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.

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.

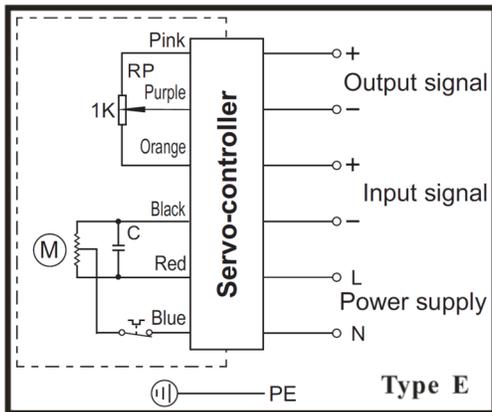
OPERATION (EPS ONLY)

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



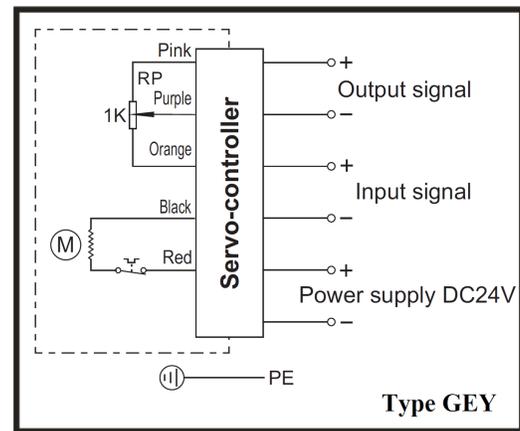
AC Voltage Wiring:

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 (+)

EPS POSITIONER TECHNICAL DATA

Input Signal: 4-20mA
Output Signal: 4-20mA
Deadband: 0.5% to 5.0%

DC Voltage Wiring Diagram

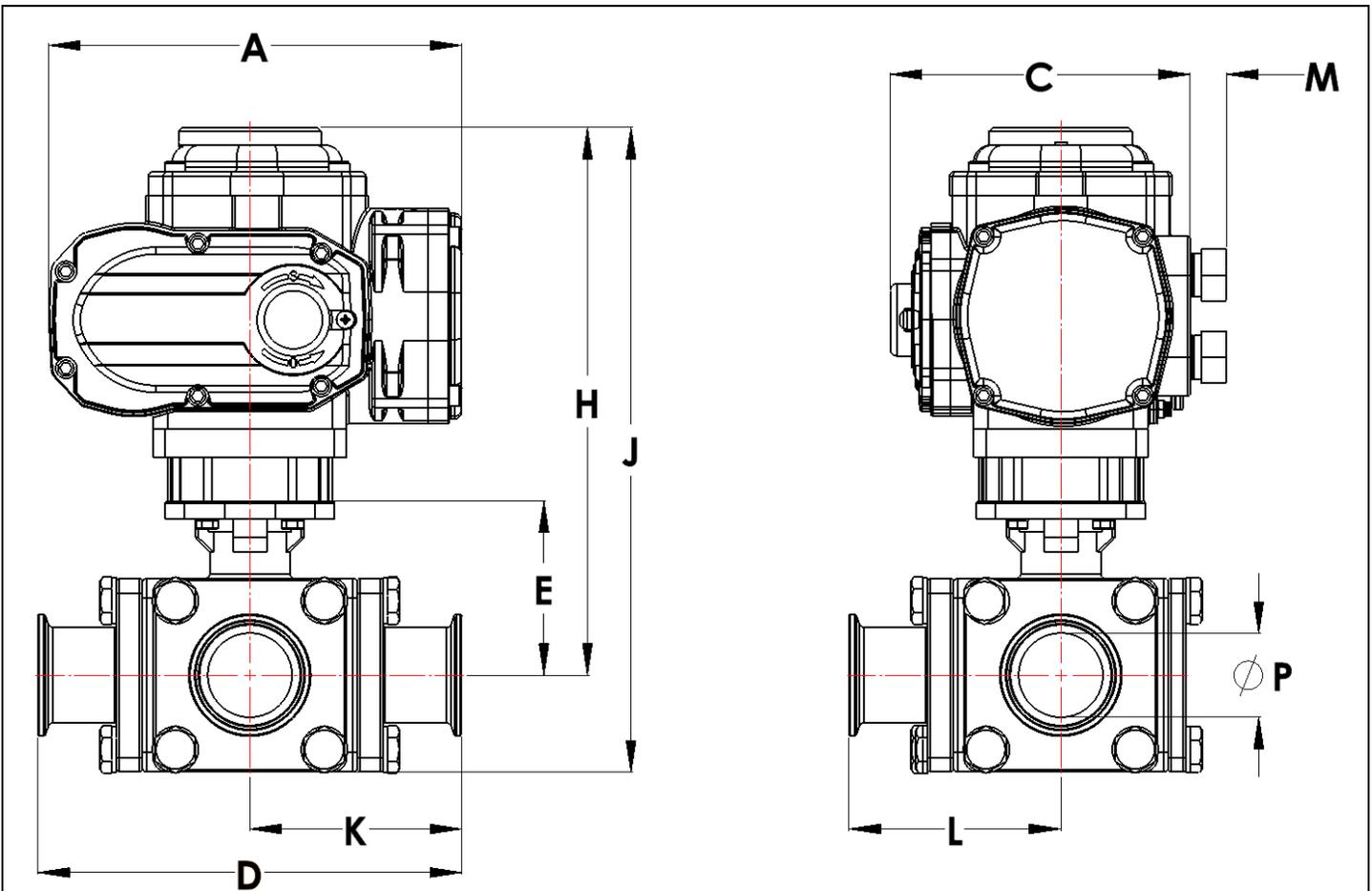


DC Voltage Wiring:

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 (+)

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	L	M	P	Weight
1/2	inch	6.7	3.9	4.6	1.8	6.5	7.5	2.3	2.3	0.6	0.4	10.9 lb
	mm	170.5	99.5	118.0	44.5	165.1	190.5	59.0	59.0	15.0	9.4	24.0 kg
3/4	inch	6.7	3.9	5.0	1.9	6.6	7.6	2.5	2.6	0.6	0.6	11.5 lb
	mm	170.5	99.5	127.0	48.0	167.6	193.0	63.5	64.9	15.0	15.8	25.4 kg
1	inch	6.7	3.9	6.0	2.3	7.0	8.2	3.1	3.0	0.6	0.9	13.8 lb
	mm	170.5	99.5	152.4	59.0	177.8	208.3	77.5	76.2	15.0	22.2	30.4 kg
1-1/2	inch	6.7	3.9	6.9	2.8	7.5	9.1	3.4	3.5	0.6	1.4	19.6 lb
	mm	170.5	99.5	175.0	72.0	190.5	231.1	87.5	88.8	15.0	35.0	43.2 kg
2	inch	6.7	3.9	7.5	3.2	7.9	9.9	3.7	3.8	0.6	1.9	26.8 lb
	mm	170.5	99.5	190.0	82.0	200.7	251.5	95.0	96.3	15.0	47.6	59.1 kg
2-1/2	inch	8.6	4.5	9.0	4.0	9.9	12.3	4.5	4.2	0.6	2.4	36.0 lb
	mm	217.5	114.0	228.0	102.5	251.5	312.4	114.0	107.0	15.0	60.2	79.4 kg