

### Features

- Full port 3-way L flow pattern, functions as diverter or selector valve
- 316SS CF8M investment cast body
- RTFE (reinforced Teflon) ball seats
- Triple PTFE/Viton live loaded stem seals, adjustable
- Silicone free
- Valves tested accordance with API598
- 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

Electric actuated stainless steel flow diverter or selector valve typically used to control water, air, oil and other media compatible with the materials of construction. Suitable for vacuum service up to 29" Hg. 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	316SS ASTM A351, CF8M
Ball/Stem/End Caps	316SS CF8M
Ball Seats	RTFE (reinforced Teflon)
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 electrically actuated 3-way stainless steel L-port ball valves are investment cast with unrestricted flow and minimum pressure loss. Adjustable live loaded stem seal packing helps compensate for wear, pressure and/or 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

The anti-explosion grade of these actuators is

- Class I, 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

- Design: API 608
- Testing: API 598
- Threaded Connection: ASME B1.20.1 (NPT)/ ISO 228-1 / BS21
- Pressure/Temperature Rating: ASME B16.34
- 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.



## Pressure Rating

Pressure Rating\*: 1000 PSI (69 Bar) CWP non-shock 1/4" to 2" sizes

Vacuum 29inHg

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



Visual Valve  
Position Indicator

## Temperature Rating

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

Valve Temperature Rating: -4 to 392° F (-20 to 200°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\*\*)**

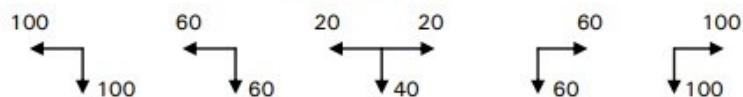
## Flow Path Features

### L-Port Diverter

Position 1 (0°)      Position 2 (90°)



Orifice Size %



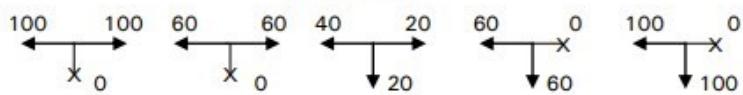
Manual Operation	0°	22.5°	45°	67.5°	90°
4-20 mA Input	4mA	8mA	12mA	16mA	20mA
0-10 volt Input	0V	2.5V	5V	7.5V	10V

### T-Port Diverter

Position 1 (0°)      Position 2 (90°)



Orifice Size %



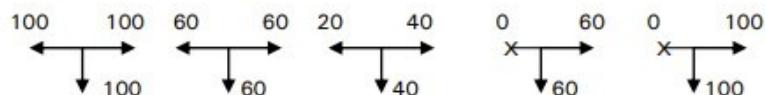
Manual Operation	0°	22.5°	45°	67.5°	90°
4-20 mA Input	4mA	8mA	12mA	16mA	20mA
0-10 volt Input	0V	2.5V	5V	7.5V	10V

### T-Port Mixing

Position 1 (0°)      Position 2 (90°)



Orifice Size %



Manual Operation	0°	22.5°	45°	67.5°	90°
4-20 mA Input	4mA	8mA	12mA	16mA	20mA
0-10 volt Input	0V	2.5V	5V	7.5V	10V

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)**

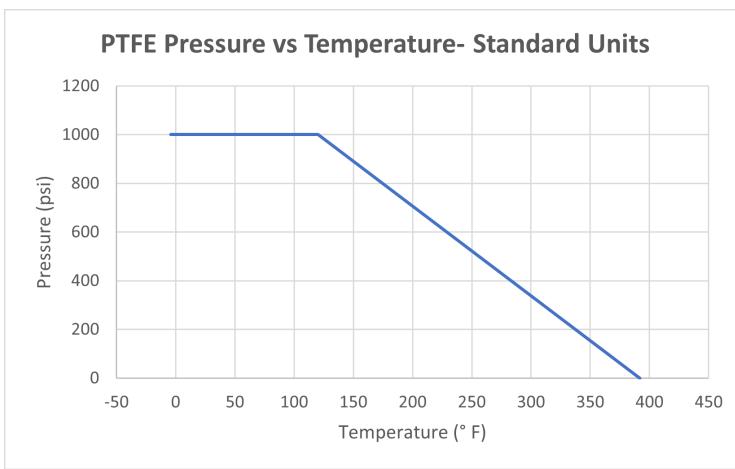
Stock Number	Pipe Size (NPT)	Orifice Diameter	Cv Flow Factor*	Max Pressure (PSI)**	Cycle Time/ 90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
<b>110 VAC ELECTRIC ACTUATED 3-WAY L-PORT STAINLESS BALL VALVES with EPS POSITIONER 4-20mA input</b>									
584602	1/4	0.4	5.0	1000	20	110 VAC, 50/60Hz	0.27	70%	E
584603	3/8	0.4	7.3	1000	20	110 VAC, 50/60Hz	0.27	70%	E
584604	1/2	0.6	8.9	1000	20	110 VAC, 50/60Hz	0.27	70%	E
584606	3/4	0.8	18.9	1000	20	110 VAC, 50/60Hz	0.27	70%	E
584608	1	1.0	32.0	1000	20	110 VAC, 50/60Hz	0.27	70%	E
584610	1-1/4	1.3	41.2	1000	20	110 VAC, 50/60Hz	0.27	70%	E
584612	1-1/2	1.5	52.1	1000	20	110 VAC, 50/60Hz	0.27	70%	E
584616	2	2.0	79.3	1000	30	110 VAC, 50/60Hz	0.63	70%	E
<b>24 VDC ELECTRIC ACTUATED 3-WAY L-PORT STAINLESS BALL VALVES with EPS POSITIONER 4-20mA input</b>									
584702	1/4	0.4	5.0	1000	20	DC24	1.8	70%	GEY
584703	3/8	0.4	7.3	1000	20	DC24	1.8	70%	GEY
584704	1/2	0.6	8.9	1000	20	DC24	1.8	70%	GEY
584706	3/4	0.8	18.9	1000	20	DC24	1.8	70%	GEY
584708	1	1.0	32.0	1000	20	DC24	1.8	70%	GEY
584710	1-1/4	1.3	41.2	1000	20	DC24	1.8	70%	GEY
584712	1-1/2	1.5	52.1	1000	20	DC24	1.8	70%	GEY
584716	2	2.0	79.3	1000	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	900	700	0
°F	-4	104	167	212	392



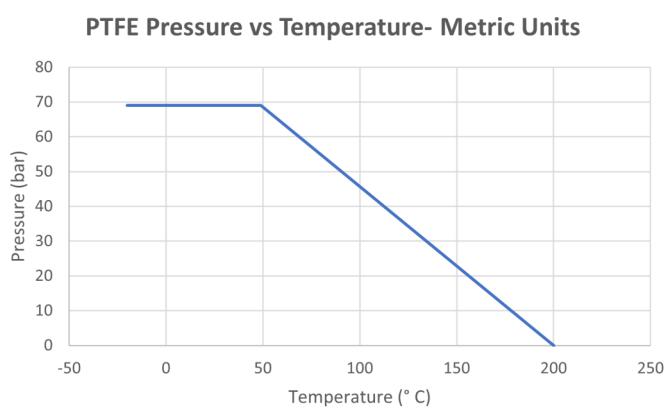
**Specifications (Metric units)**

Stock Number	Pipe Size (NPT)	Orifice Diameter (mm)	K <sub>v</sub> Flow Factor*	Max Pressure (Bar)**	Cycle Time/90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
<b>110 VAC ELECTRIC ACTUATED 3-WAY L-PORT STAINLESS BALL VALVES with EPS POSITIONER 4-20mA input</b>									
584602	1/4	11.0	4.3	69	20	110 VAC, 50/60Hz	0.27	70%	E
584603	3/8	11.0	6.3	69	20	110 VAC, 50/60Hz	0.27	70%	E
584604	1/2	16.0	7.7	69	20	110 VAC, 50/60Hz	0.27	70%	E
584606	3/4	20.0	16.3	69	20	110 VAC, 50/60Hz	0.27	70%	E
584608	1	25.0	27.7	69	20	110 VAC, 50/60Hz	0.27	70%	E
584610	1-1/4	32.0	35.6	69	20	110 VAC, 50/60Hz	0.27	70%	E
584612	1-1/2	38.0	45.1	69	20	110 VAC, 50/60Hz	0.27	70%	E
584616	2	50.0	68.6	69	30	110 VAC, 50/60Hz	0.63	70%	E
<b>24 VDC ELECTRIC ACTUATED 3-WAY L-PORT STAINLESS BALL VALVES with EPS POSITIONER 4-20mA input</b>									
584702	1/4	11.0	4.3	69	20	DC24	1.8	70%	GEY
584703	3/8	11.0	6.3	69	20	DC24	1.8	70%	GEY
584704	1/2	16.0	7.7	69	20	DC24	1.8	70%	GEY
584706	3/4	20.0	16.3	69	20	DC24	1.8	70%	GEY
584708	1	25.0	27.7	69	20	DC24	1.8	70%	GEY
584710	1-1/4	32.0	35.6	69	20	DC24	1.8	70%	GEY
584712	1-1/2	38.0	45.1	69	20	DC24	1.8	70%	GEY
584716	2	50.0	68.6	69	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	62	48	0
°C	-20	40	75	100	200



## 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.



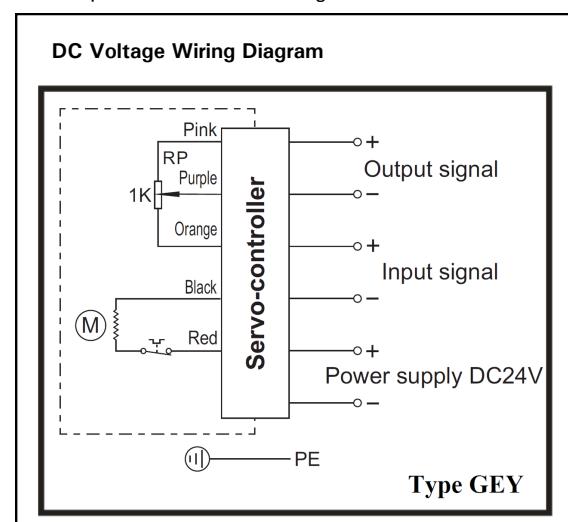
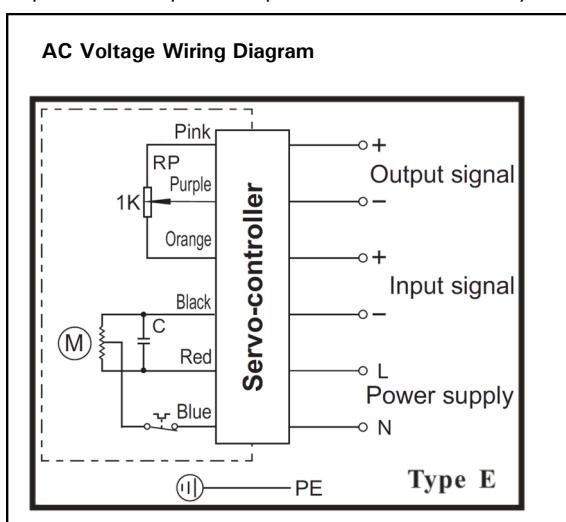
Before connecting power, confirm correct VOLTAGE is being applied. Incorrect voltage may damage actuator and void the warranty.

### 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:

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:

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

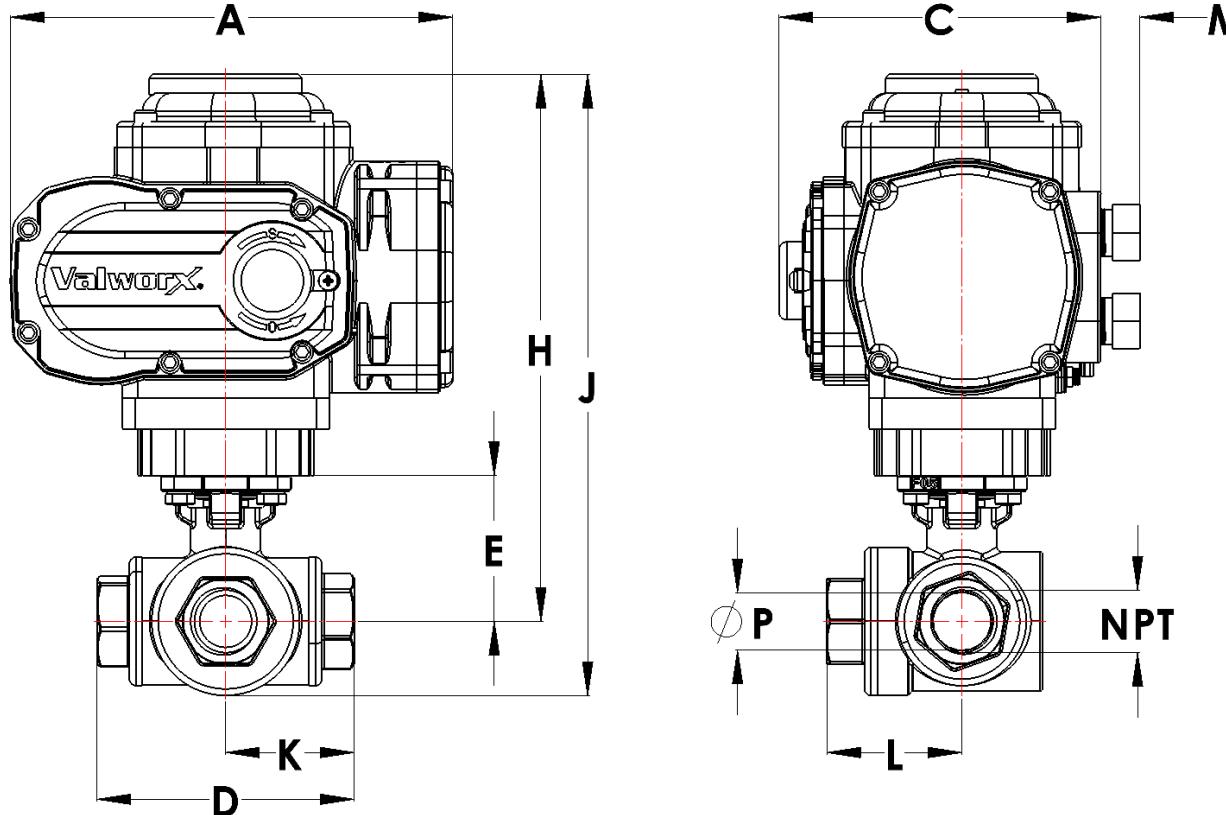
Input Signal: 4-20mA

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	L	M	P	Weight
1/4	inch	6.7	4.7	2.9	1.5	7.6	8.3	1.5	1.5	0.6	0.4	9.1 lbs
	mm	170.5	120.5	76.0	38.2	192.5	210.3	38.0	38.5	15.0	11.0	4.1 kg
3/8	inch	6.7	4.7	2.9	1.5	7.6	8.3	1.5	1.5	0.6	0.4	9.1 lbs
	mm	170.5	120.5	76.0	38.2	192.5	210.3	38.0	38.5	15.0	11.0	4.1 kg
1/2	inch	6.7	4.7	3.3	1.8	7.9	8.8	1.7	1.8	0.6	0.6	9.8 lbs
	mm	170.5	120.5	85.0	45.2	200.1	223.0	42.5	45.0	15.0	16.0	4.4 kg
3/4	inch	6.7	4.7	3.9	2.2	8.3	9.4	1.9	2.0	0.6	0.8	10.9 lbs
	mm	170.5	120.5	98.0	56.5	210.3	238.2	49.0	51.5	15.0	20.0	4.9 kg
1	inch	6.7	4.7	4.4	2.4	8.5	9.8	2.2	2.3	0.6	1.0	12.5 lbs
	mm	170.5	120.5	112.5	61.9	215.3	248.4	56.3	58.0	15.0	25.0	5.7 kg
1-1/4	inch	6.7	4.7	4.9	3.1	9.2	10.6	2.5	2.5	0.6	1.3	15.1 lbs
	mm	170.5	120.5	125.0	78.3	233.1	268.7	62.5	63.0	15.0	32.0	6.8 kg
1-1/2	inch	6.7	4.7	5.6	3.4	9.5	11.3	2.8	2.9	0.6	1.5	18.5 lbs
	mm	170.5	120.5	141.0	87.4	240.7	286.7	70.5	74.5	15.0	38.0	8.4 kg
2	inch	8.6	5.5	6.7	4.2	11.4	13.0	3.4	3.4	0.6	2.0	30.9 lbs
	mm	217.5	139.0	171.0	105.8	288.5	329.2	85.5	85.5	15.0	50.0	14.0 kg