

Features

- Full port design for unrestricted flow
- 316SS 3-piece investment cast body
- Swing-out center section
- RTFE (reinforced Teflon) ball seats
- Triple PTFE/Viton live loaded stem seals, adjustable
- Silicone free
- Valves tested accordance with API 598
- 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 or modulating control (with EPS) of water, air, oil and other media compatible with the materials of construction. Suitable for vacuum service up to 29inchHg. Actuator 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	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
Auxiliary Limit Switches	2 x SPDT (5A/125VAC), on-off actuators only



Description

Explosion Proof 3-piece stainless steel full 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, 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

Standards- Valves

- CE: PED 2014/68/UE
- 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

Construction Features



Pressure Rating

Pressure Rating*: 1000 PSI (69 Bar) CWP non-shock 1/4" to 2" sizes
800 PSI (55 Bar) CWP non-shock 2-1/2" and 3" sizes
Vacuum 29inHg

* 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 392° F (-20 to 200°C)

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



Visual Valve
Position Indicator

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

(Not included**)**

Specifications (English units)

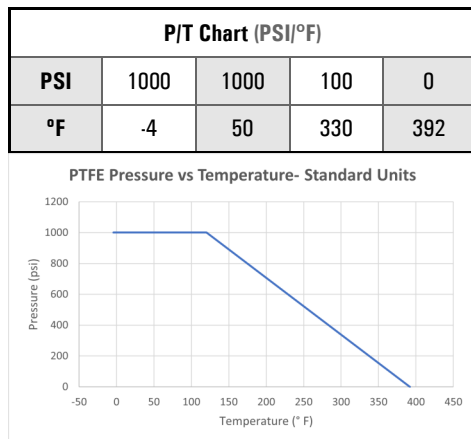
Stock Number	Pipe Size (NPT)	Orifice Diameter (inch)	Cv Flow Factor*	Max Pressure (PSI)**	Cycle Time/ 90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
110 VAC ELECTRIC ACTUATED 3-pc STAINLESS BALL VALVES, ON-OFF version									
585602	1/4	0.5	6.9	1000	20	110 VAC, 50/60Hz	0.27	70%	B
585603	3/8	0.5	6.9	1000	20	110 VAC, 50/60Hz	0.27	70%	B
585604	1/2	0.6	9.7	1000	20	110 VAC, 50/60Hz	0.27	70%	B
585606	3/4	0.8	18.4	1000	20	110 VAC, 50/60Hz	0.27	70%	B
585608	1	1.0	55.4	1000	20	110 VAC, 50/60Hz	0.27	70%	B
585610	1-1/4	1.3	89.7	1000	20	110 VAC, 50/60Hz	0.27	70%	B
585612	1-1/2	1.5	144.2	1000	20	110 VAC, 50/60Hz	0.27	70%	B
585616A	2	2.0	226.0	1000	30	110 VAC, 50/60Hz	0.63	70%	B
585620	2-1/2	2.6	289.0	800	30	110 VAC, 50/60Hz	0.63	70%	B
585624	3	3.2	454.0	800	30	110 VAC, 50/60Hz	0.63	70%	B
24 VDC ELECTRIC ACTUATED 3-pc STAINLESS BALL VALVES, ON-OFF version									
585702	1/4	0.5	6.9	1000	20	DC24	1.8	70%	G
585703	3/8	0.5	6.9	1000	20	DC24	1.8	70%	G
585704	1/2	0.6	9.7	1000	20	DC24	1.8	70%	G
585706	3/4	0.8	18.4	1000	20	DC24	1.8	70%	G
585708	1	1.0	55.4	1000	20	DC24	1.8	70%	G
585710	1-1/4	1.3	89.7	1000	20	DC24	1.8	70%	G
585712	1-1/2	1.5	144.2	1000	20	DC24	1.8	70%	G
585716A	2	2.0	226.0	1000	30	DC24	2.4	70%	G
585720	2-1/2	2.6	289.0	800	30	DC24	2.4	70%	G
585724	3	3.2	454.0	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

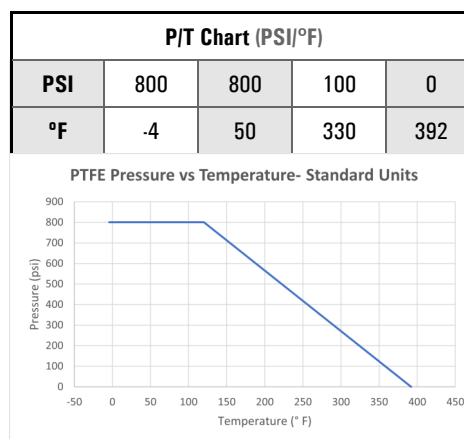
* Pressure @ 0-100° F (reduced pressure at higher temperatures—see P/T chart)

• Torque at 0 PSI and 75°F

Pressure/Temp. Chart - 1000 PSI (69 Bar)



Pressure/Temp. Chart - 800 PSI (55 Bar)



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.
110 VAC ELECTRIC ACTUATED 3-pc STAINLESS BALL VALVES, EPS POSITIONER 4-20mA input									
585802	1/4	0.5	6.9	1000	20	110 VAC, 50/60Hz	0.27	70%	E
585803	3/8	0.5	6.9	1000	20	110 VAC, 50/60Hz	0.27	70%	E
585804	1/2	0.6	9.7	1000	20	110 VAC, 50/60Hz	0.27	70%	E
585806	3/4	0.8	18.4	1000	20	110 VAC, 50/60Hz	0.27	70%	E
585808	1	1.0	55.4	1000	20	110 VAC, 50/60Hz	0.27	70%	E
585810	1-1/4	1.3	89.7	1000	20	110 VAC, 50/60Hz	0.27	70%	E
585812	1-1/2	1.5	144.2	1000	20	110 VAC, 50/60Hz	0.27	70%	E
585816A	2	2.0	226.0	1000	30	110 VAC, 50/60Hz	0.63	70%	E
585820	2-1/2	2.6	289.0	800	30	110 VAC, 50/60Hz	0.63	70%	E
585824	3	3.2	454.0	800	30	110 VAC, 50/60Hz	0.63	70%	E
24 VDC ELECTRIC ACTUATED 3-pc STAINLESS BALL VALVES, EPS POSITIONER 4-20mA input									
585902	1/4	0.5	6.9	1000	20	DC24	1.8	70%	GEY
585903	3/8	0.5	6.9	1000	20	DC24	1.8	70%	GEY
585904	1/2	0.6	9.7	1000	20	DC24	1.8	70%	GEY
585906	3/4	0.8	18.4	1000	20	DC24	1.8	70%	GEY
585908	1	1.0	55.4	1000	20	DC24	1.8	70%	GEY
585910	1-1/4	1.3	89.7	1000	20	DC24	1.8	70%	GEY
585912	1-1/2	1.5	144.2	1000	20	DC24	1.8	70%	GEY
585916A	2	2.0	226.0	1000	30	DC24	2.4	70%	GEY
585920	2-1/2	2.6	289.0	800	30	DC24	2.4	70%	GEY
585924	3	3.2	454.0	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 @ 0-100° F (reduced pressure at higher temperatures—see P/T chart)

• Torque at 0 PSI and 75°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

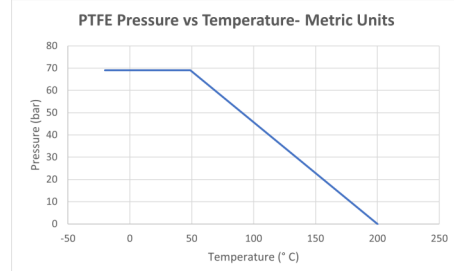
Specifications (Metric units)

Stock Number	Pipe Size (NPT)	Orifice Diameter (mm)	Kv Flow Factor*	Max Pressure (Bar)**	Cycle Time/90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
110 VAC ELECTRIC ACTUATED 3-pc STAINLESS BALL VALVES, ON-OFF version									
585602	1/4	11.5	5.9	69	20	110 VAC, 50/60Hz	0.27	70%	B
585603	3/8	12.5	5.9	69	20	110 VAC, 50/60Hz	0.27	70%	B
585604	1/2	15	8.4	69	20	110 VAC, 50/60Hz	0.27	70%	B
585606	3/4	20	15.9	69	20	110 VAC, 50/60Hz	0.27	70%	B
585608	1	25	47.9	69	20	110 VAC, 50/60Hz	0.27	70%	B
585610	1-1/4	32	77.6	69	20	110 VAC, 50/60Hz	0.27	70%	B
585612	1-1/2	38	124.7	69	20	110 VAC, 50/60Hz	0.27	70%	B
585616A	2	50	195.5	69	30	110 VAC, 50/60Hz	0.63	70%	B
585620	2-1/2	65	249.7	55	30	110 VAC, 50/60Hz	0.63	70%	B
585624	3	80	392.3	55	30	110 VAC, 50/60Hz	0.63	70%	B
24 VDC ELECTRIC ACTUATED 3-pc STAINLESS BALL VALVES, ON-OFF version									
585702	1/4	11.5	5.9	69	20	DC24	1.8	70%	G
585703	3/8	12.5	5.9	69	20	DC24	1.8	70%	G
585704	1/2	15	8.4	69	20	DC24	1.8	70%	G
585706	3/4	20	15.9	69	20	DC24	1.8	70%	G
585708	1	25	47.9	69	20	DC24	1.8	70%	G
585710	1-1/4	32	77.6	69	20	DC24	1.8	70%	G
585712	1-1/2	38	124.7	69	20	DC24	1.8	70%	G
585716A	2	50	195.5	69	30	DC24	2.4	70%	G
585720	2-1/2	65	249.7	55	30	DC24	2.4	70%	G
585724	3	80	392.3	55	30	DC24	2.4	70%	G

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

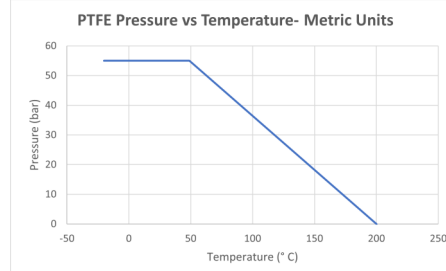
Pressure/Temp. Chart - 1000 PSI (69 Bar)

P/T Chart (BAR/°C)				
Bar	69	69	7	0
°C	-20	10	166	200



Pressure/Temp. Chart - 800 PSI (55 Bar)

P/T Chart (BAR/°C)				
Bar	55	55	7	0
°C	-20	10	166	200



Specifications (Metric units)

Stock Number	Pipe Size (NPT)	Orifice Diameter (mm)	Kv Flow Factor*	Max Pressure (Bar)**	Cycle Time/90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
110 VAC ELECTRIC ACTUATED 3-pc STAINLESS BALL VALVES, EPS POSITIONER 4-20mA input									
585802	1/4	11.5	5.9	69	20	110 VAC, 50/60Hz	0.27	70%	E
585803	3/8	12.5	5.9	69	20	110 VAC, 50/60Hz	0.27	70%	E
585804	1/2	15	8.4	69	20	110 VAC, 50/60Hz	0.27	70%	E
585806	3/4	20	15.9	69	20	110 VAC, 50/60Hz	0.27	70%	E
585808	1	25	47.9	69	20	110 VAC, 50/60Hz	0.27	70%	E
585810	1-1/4	32	77.6	69	20	110 VAC, 50/60Hz	0.27	70%	E
585812	1-1/2	38	124.7	69	20	110 VAC, 50/60Hz	0.27	70%	E
585816A	2	50	195.5	69	30	110 VAC, 50/60Hz	0.63	70%	E
585820	2-1/2	65	249.7	55	30	110 VAC, 50/60Hz	0.63	70%	E
585824	3	80	392.3	55	30	110 VAC, 50/60Hz	0.63	70%	E
24 VDC ELECTRIC ACTUATED 3-pc STAINLESS BALL VALVES, EPS POSITIONER 4-20mA input									
585902	1/4	11.5	5.9	69	20	DC24	1.8	70%	GEY
585903	3/8	12.5	5.9	69	20	DC24	1.8	70%	GEY
585904	1/2	15	8.4	69	20	DC24	1.8	70%	GEY
585906	3/4	20	15.9	69	20	DC24	1.8	70%	GEY
585908	1	25	47.9	69	20	DC24	1.8	70%	GEY
585910	1-1/4	32	77.6	69	20	DC24	1.8	70%	GEY
585912	1-1/2	38	124.7	69	20	DC24	1.8	70%	GEY
585916A	2	50	195.5	69	30	DC24	2.4	70%	GEY
585920	2-1/2	65	249.7	55	30	DC24	2.4	70%	GEY
585924	3	80	392.3	55	30	DC24	2.4	70%	GEY

* Pressure range @ -18 to 38° 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.

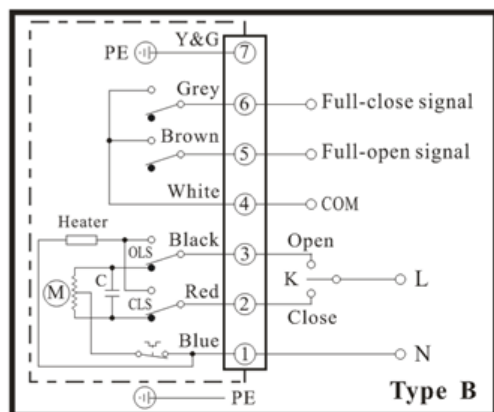
User/installer to supply a three way switch, control relay, PLC outputs, or other suitable switching device to control the actuator position. Actuator should have its own fused and isolated circuit. Do not connect actuators in parallel.

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

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

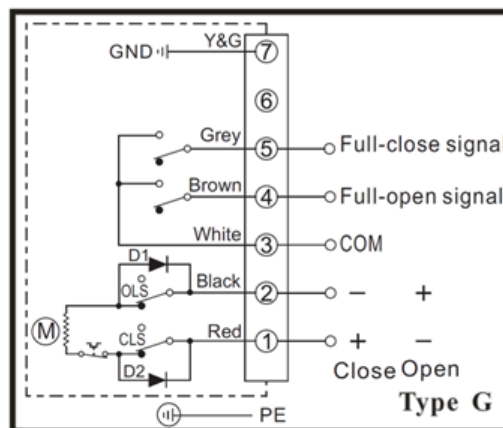
Terminal 6: Closed status confirmation signal

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

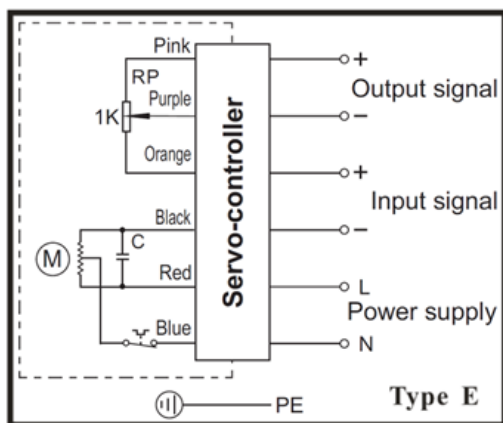
OPERATION (EPS ONLY)

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 Convient Pour Au Moins 90°C

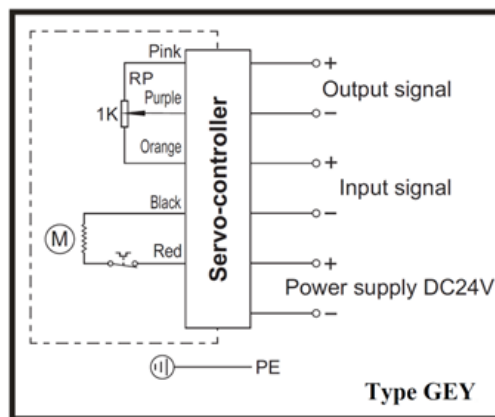
AC Voltage Wiring:

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 (+)

EPS POSITIONER TECHNICAL DATA

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

DC Voltage Wiring Diagram



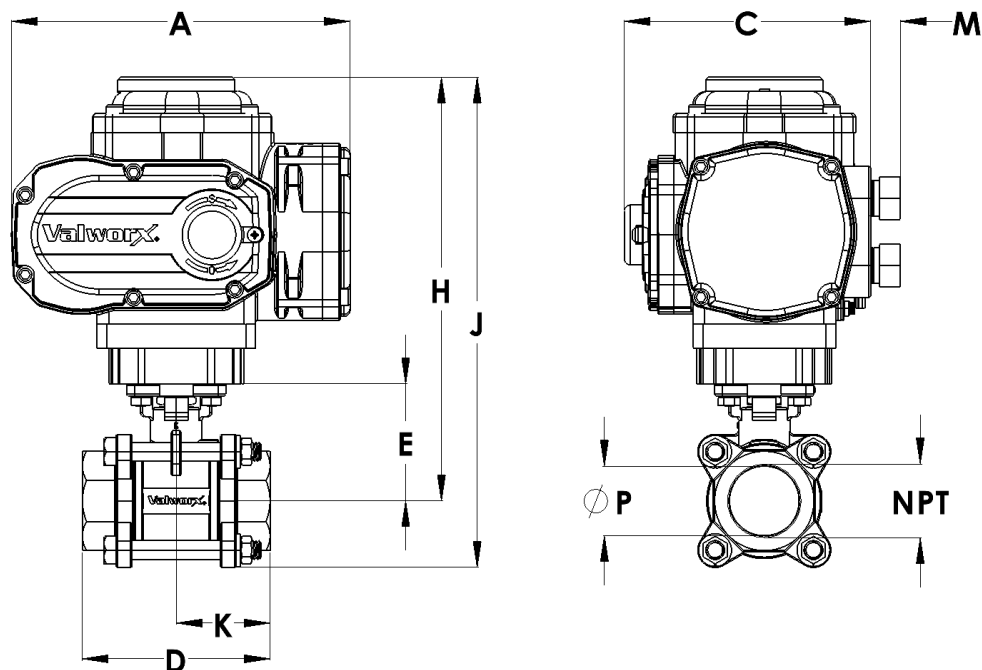
FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Convient Pour Au Moins 90°C

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 (+)

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	2.5	1.5	7.6	8.5	1.4	0.6	0.5	8.8 lb
	mm	170.5	120.5	63.5	37.0	192.5	215.3	36.3	15.0	11.5	4.0 kg
3/8	inch	6.7	4.7	2.5	1.5	7.6	8.5	1.3	0.6	0.5	8.8 lb
	mm	170.5	120.5	63.5	37.0	192.5	215.3	31.8	15.0	12.5	4.0 kg
1/2	inch	6.7	4.7	2.5	1.5	7.6	8.5	1.3	0.6	0.6	8.7 lb
	mm	170.5	120.5	63.5	37.0	192.5	215.3	31.8	15.0	15.0	3.9 kg
3/4	inch	6.7	4.7	2.9	1.8	7.9	8.7	1.4	0.6	0.8	9.0 lb
	mm	170.5	120.5	72.5	45.0	200.1	220.4	36.3	15.0	20.0	4.1 kg
1	inch	6.7	4.7	3.2	2.1	8.2	9.3	1.6	0.6	1.0	9.5 lb
	mm	170.5	120.5	81.0	53.5	207.7	235.7	40.5	15.0	25.0	4.3 kg
1-1/4	inch	6.7	4.7	3.7	2.3	8.4	9.7	1.9	0.6	1.3	10.4 lb
	mm	170.5	120.5	94.5	59.0	212.8	245.8	47.3	15.0	32.0	4.7 kg
1-1/2	inch	6.7	4.7	4.3	2.9	9.0	10.5	2.1	0.6	1.5	12.3 lb
	mm	170.5	120.5	108.0	74.8	228.0	266.1	54.0	15.0	38.0	5.6 kg
2	inch	8.6	5.5	4.9	3.3	10.5	12.3	2.4	0.6	2.0	20.3 lb
	mm	217.5	139.0	125.3	83.5	265.7	311.4	62.2	15.0	50.0	9.2 kg
2-1/2	inch	8.6	5.5	6.2	4.3	11.5	13.7	3.1	0.6	2.6	28.8 lb
	mm	217.5	139.0	158.0	109.0	291.1	347.0	79.0	15.0	65.0	13.1 kg
3	inch	8.6	5.5	7.5	4.7	11.9	14.5	3.7	0.6	3.2	36.2 lb
	mm	217.5	139.0	190.0	118.0	301.2	367.3	95.0	15.0	80.0	16.4 kg