

Features

- Positioning control via 4-20mA, 1-5V or 2-10V input signal
- Full Port 316 stainless steel ball valve
- RTFE (reinforced Teflon) ball seats
- Triple PTFE/Viton live loaded stem seals, adjustable
- Highly visible multi-color LED indicator
- 100% duty cycle per IEC 60034-1
- Heavy duty brushless DC motor with over temp/over current/motor stall protection
- Precision non-contact position sensors for precise control and zero wear
- Three programmable relays with OPEN/CLOSE/FAULT and 14 additional output signals
- Valve position and fault codes via LED display
- Remote operation (normal) or local operation via keypad
- Non-intrusive wiring installation includes two 1 meter long shielded multi-conductor cables
- Separate motor and control circuits
- Thermostatically controlled anti-condensation heater
- Manual override
- CSA listed per UL 429 and CSA 22.2
- Type IP 67 weatherproof enclosure
- Corrosion protection per ISO 12944 C3-02

Applications

Surpass positioner used for throttling control of water, air, oil and other media compatible with the materials of construction. Suitable for vacuum service up to 29"Hg. Actuator designed for 100% duty cycle.

Operation

Electric actuator with EPS- Electronic Positioning System uses an analog input signal to control the drive to the input position. Changing the input control signal results in a corresponding and proportional change in the position of the actuator output drive. Position feedback is via a corresponding output signal. Upon loss of power the actuator stays in last position. Upon restoration of power, the actuator will cycle to the commanded position. Normal operation is via remote signal, but the actuator can also be operated locally using the push button controls on the digital display. End-of-stroke speed can be slowed to reduce water hammer. Contact Valworx technical support for more details.

Default input signal is 4-20mA. Actuator can be programmed to accept 1-5v or 2-10v. Contact Valworx technical support for more details

Construction

Valve Body	316 stainless steel ASTM A351 CF8M
Ball/Stem	316 stainless steel
Ball Seats	RTFE (reinforced Teflon)
Stem Seals	PTFE/ Viton
Anti-static Device	Ball to Stem (1/4" - 4") + Stem to Body (1-1/2" - 4")
Gear Drive	Heat treated steel. Self locking, additional brake not required
Actuator Enclosure	Triple layer epoxy polyester powder coated aluminum alloy, Type 4X/ IP67
Visual Valve Position Indicator	High visible multi-color LED indicator
Fasteners	Stainless Steel
Output Relays	3 Programmable Relays, 0.8A/ 110 VAC, 0.5A/ 250VAC, 1.0A/ 30VDC
Analog Output Confirmation	4-20mA, 1-5v or 2-10v option



Description

Electric actuated 2-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 corrosion resistant electric actuator includes a manual override and over-torque protection.

Self-locking gear drive eliminates the need for an external brake. Thermostatically controlled anti-condensation heater is standard and will help protect against condensation build-up inside the actuator.

Approvals

Actuators

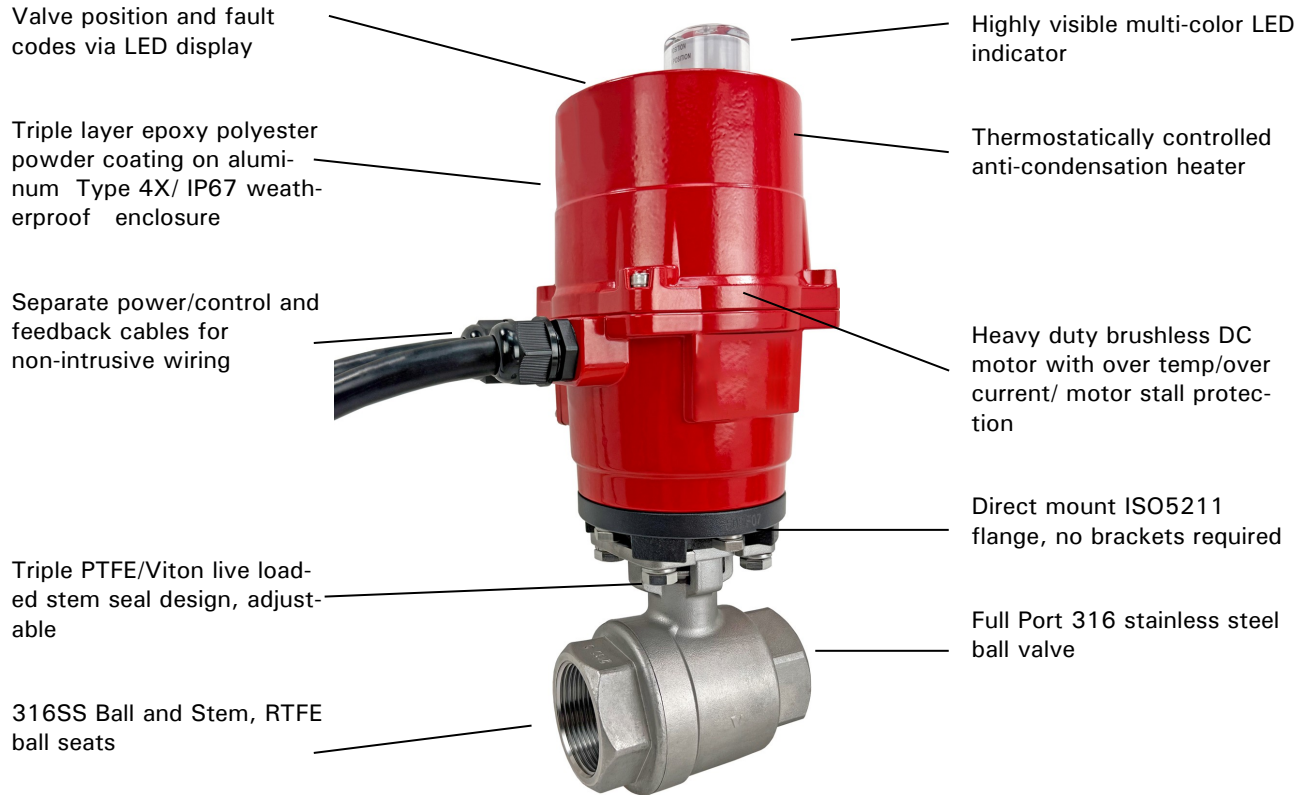
- CE- EN 60730-1:2016; EN IEX 60730-2-14:2019
- CSA Listed per UL429 and CSA C22.2 No. 139-13
- RoHS Directive (EU) 2015/863- 2011/65/EU



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



Pressure Rating

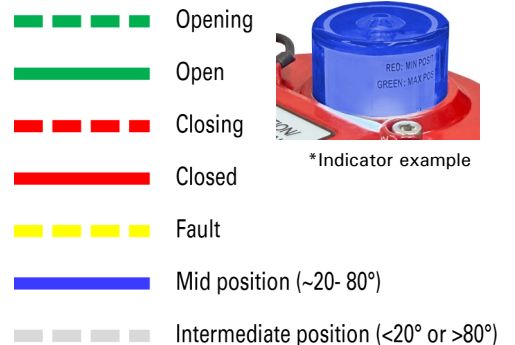
Pressure Rating: 1000 PSI (69 Bar) (1/4"-2")
800 PSI (55 Bar) (2-1/2"-4") CWP non-shock,
Vacuum 29inHg

Temperature Rating

Ball Valve Temperature Rating: -4 to 392° F (-20 to 200° C)
Actuator Temperature Rating: -13°F to 149°F (-25°C to 65°C)

*See P/T chart

LED Position Indicator



Specifications: (English units)

Stock Number	Pipe Size (NPT)	Orifice Size (inch)	Cv Flow Factor	Pressure Max.(PSI)*	Cycle Time/90° (seconds)	Voltage	Current (amps)
120 VAC ELECTRIC ACTUATED STAINLESS BALL VALVES							
591202	1/4	0.5	6.9	1000	11	110 VAC, 50/60Hz	0.32
591203	3/8	0.5	6.9	1000	11	110 VAC, 50/60Hz	0.32
591204	1/2	0.6	9.7	1000	11	110 VAC, 50/60Hz	0.32
591206	3/4	0.8	18.4	1000	11	110 VAC, 50/60Hz	0.32
591208	1	1.0	55.4	1000	11	110 VAC, 50/60Hz	0.32
591210	1-1/4	1.3	89.7	1000	11	110 VAC, 50/60Hz	0.32
591212	1-1/2	1.5	144.2	1000	12	110 VAC, 50/60Hz	0.65
591216	2	2.0	226.0	1000	18	110 VAC, 50/60Hz	0.65
591220	2-1/2	2.6	289.0	800	15	110 VAC, 50/60Hz	2.2
591224	3	3.1	454.0	800	15	110 VAC, 50/60Hz	2.2
591232	4	3.9	710.0	800	15	110 VAC, 50/60Hz	2.2
24 VDC ELECTRIC ACTUATED STAINLESS BALL VALVES							
591302	1/4	0.5	6.9	1000	11	DC24	0.7
591303	3/8	0.5	6.9	1000	11	DC24	0.7
591304	1/2	0.6	9.7	1000	11	DC24	0.7
591306	3/4	0.8	18.4	1000	11	DC24	0.7
591308	1	1.0	55.4	1000	11	DC24	0.7
591310	1-1/4	1.3	89.7	1000	11	DC24	0.7
591312	1-1/2	1.5	144.2	1000	12	DC24	1.4
591316	2	2.0	226.0	1000	18	DC24	1.4
591320	2-1/2	2.6	289.0	800	15	DC24	4.0
591324	3	3.1	454.0	800	15	DC24	4.0
591332	4	3.9	710.0	800	15	DC24	4.0

* Pressure @ 100° F (see P/T chart for maximum pressure at higher temperatures)

Specifications: (Metric units)

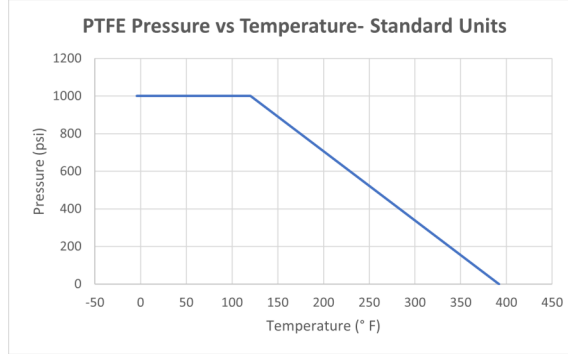
Stock Number	Pipe Size	Orifice Size	Kv Flow	Pressure	Cycle Time/90°	Voltage	Current
120 VAC ELECTRIC ACTUATED STAINLESS BALL VALVE							
591202	1/4	11.5	5.9	69	11	110 VAC, 50/60Hz	0.32
591203	3/8	12.5	5.9	69	11	110 VAC, 50/60Hz	0.32
591204	1/2	15.0	8.4	69	11	110 VAC, 50/60Hz	0.32
591206	3/4	20.0	15.9	69	11	110 VAC, 50/60Hz	0.32
591208	1	25.0	47.9	69	11	110 VAC, 50/60Hz	0.32
591210	1-1/4	32.0	77.6	69	11	110 VAC, 50/60Hz	0.32
591212	1-1/2	38.0	124.7	69	12	110 VAC, 50/60Hz	0.65
591216	2	50.0	195.5	69	18	110 VAC, 50/60Hz	0.65
591220	2-1/2	65.0	250.0	55	15	110 VAC, 50/60Hz	2.2
591224	3	80.0	392.7	55	15	110 VAC, 50/60Hz	2.2
591232	4	100.0	614.2	55	15	110 VAC, 50/60Hz	2.2
24 VDC ELECTRIC ACTUATED STAINLESS BALL VALVE							
591302	1/4	11.5	5.9	69	11	DC24	0.7
591303	3/8	12.5	5.9	69	11	DC24	0.7
591304	1/2	15.0	8.4	69	11	DC24	0.7
591306	3/4	20.0	15.9	69	11	DC24	0.7
591308	1	25.0	47.9	69	11	DC24	0.7
591310	1-1/4	32.0	77.6	69	11	DC24	0.7
591312	1-1/2	38.0	124.7	69	12	DC24	1.4
591316	2	50.0	195.5	69	18	DC24	1.4
591320	2-1/2	65.0	250.0	55	15	DC24	4.0
591324	3	80.0	392.7	55	15	DC24	4.0
591332	4	100.0	614.2	55	15	DC24	4.0

* Pressure @ 38° C (see P/T chart for maximum pressure at higher temperatures)

Pressure/Temperature Chart:

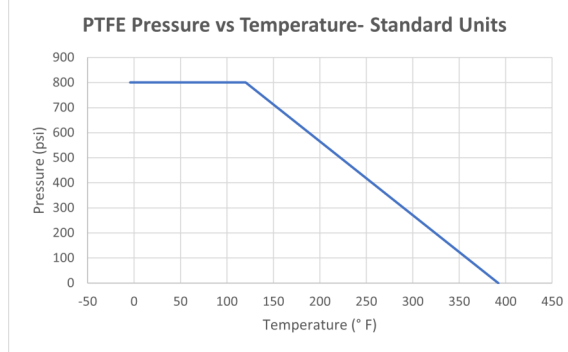
Pressure/Temp. Chart - 1000 PSI (69 Bar)

P/T Chart (PSI/°F)				
PSI	1000	1000	100	0
°F	-4	50	330	392



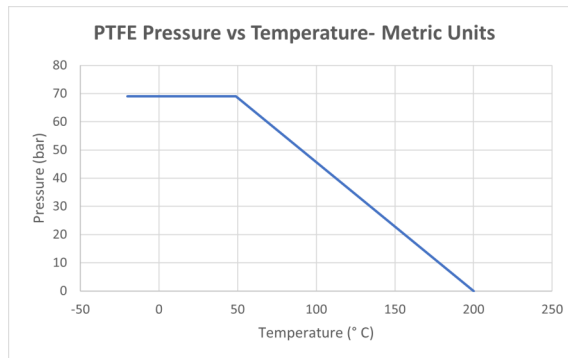
Pressure/Temp. Chart - 800 PSI (55 Bar)

P/T Chart (PSI/°F)				
PSI	800	800	100	0
°F	-4	50	330	392



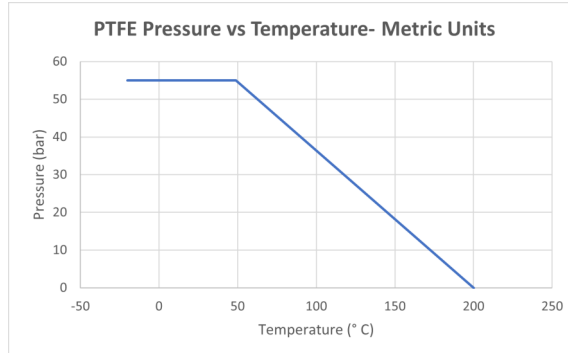
Pressure/Temp. Chart - 69 Bar (1000 PSI)

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



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

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



Electrical Wiring

Power should be maintained to activate the internal heater. The internal heater will help prevent condensation build-up inside the actuator. The feedback cable may be replaced with a plug (P/N 591890) if it is not used.

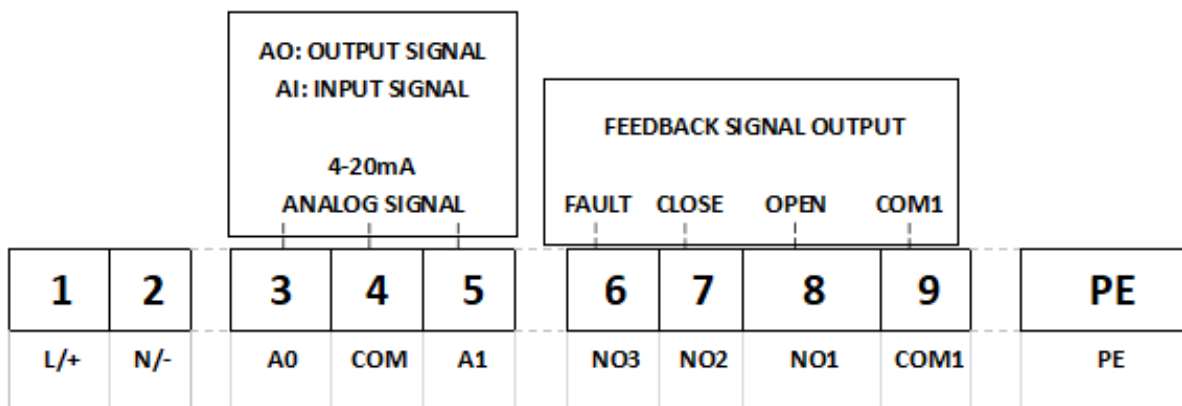


PRIOR TO WIRING, CONFIRM THE ACTUATOR VOLTAGE IS CORRECT. APPLYING THE WRONG VOLTAGE WILL DAMAGE THE ACTUATOR AND VOID THE WARRANTY.

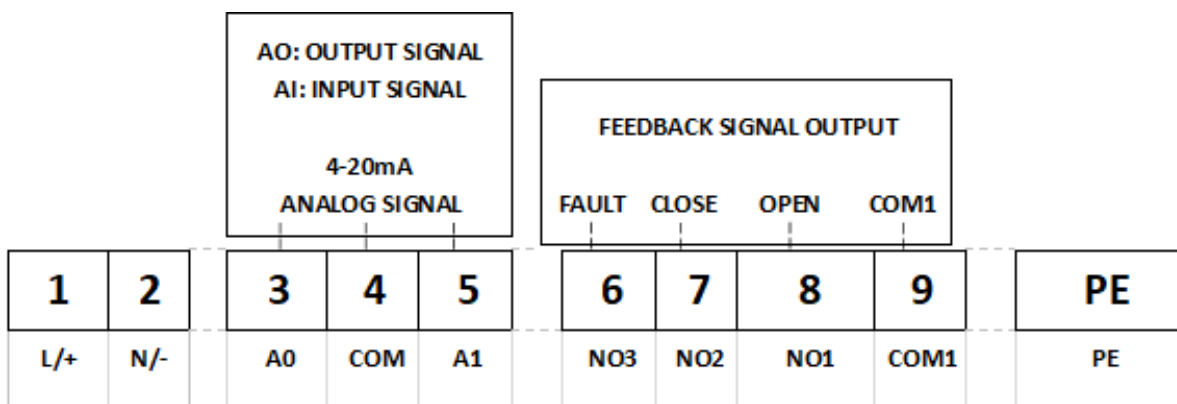
Positioner Specifications

Accuracy	0.63%
Linearity	2%
Deadband	0.8° (minimum, available to set)
Resolution	1%

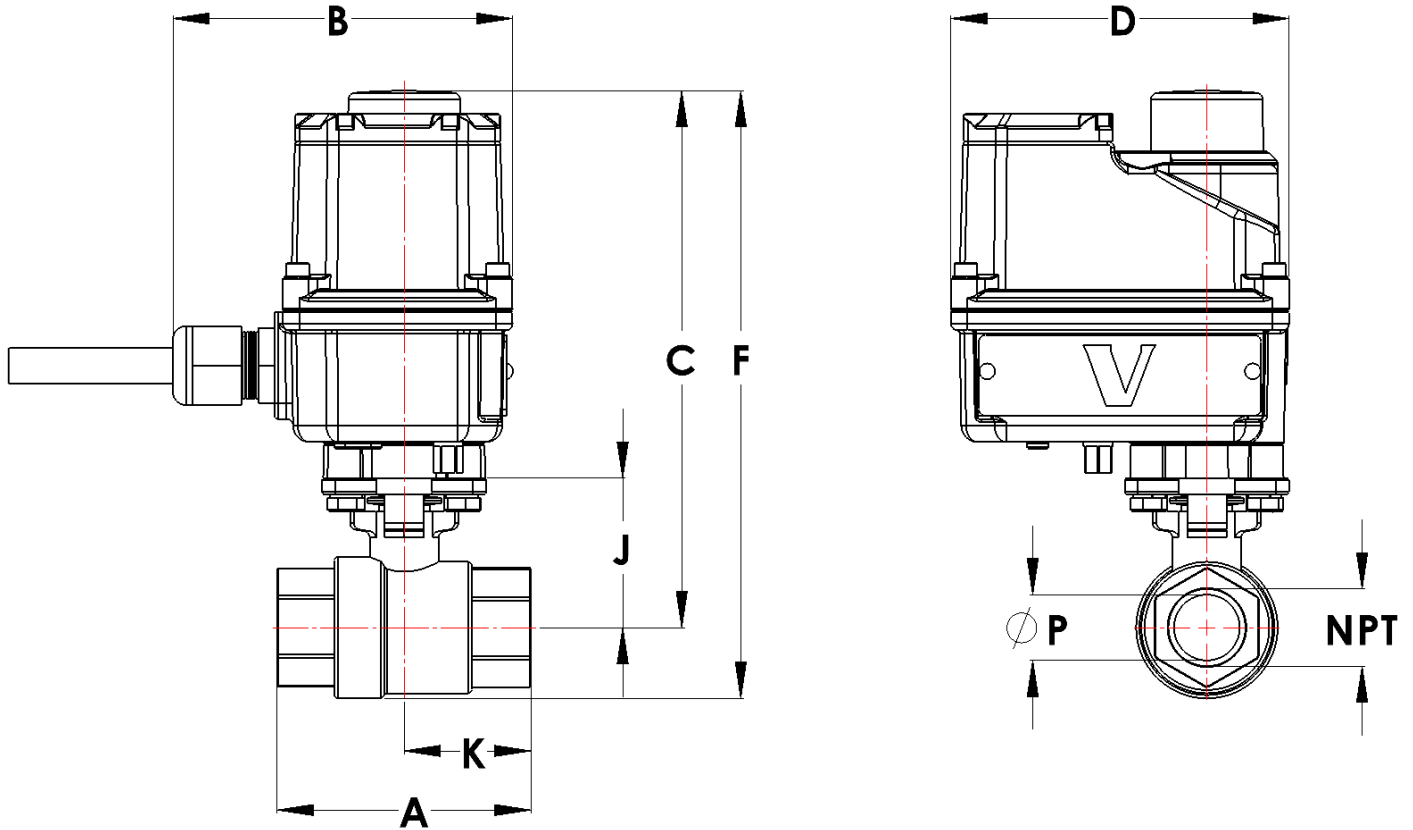
EPS Valves AC Voltages



EPS Valves DC Voltages

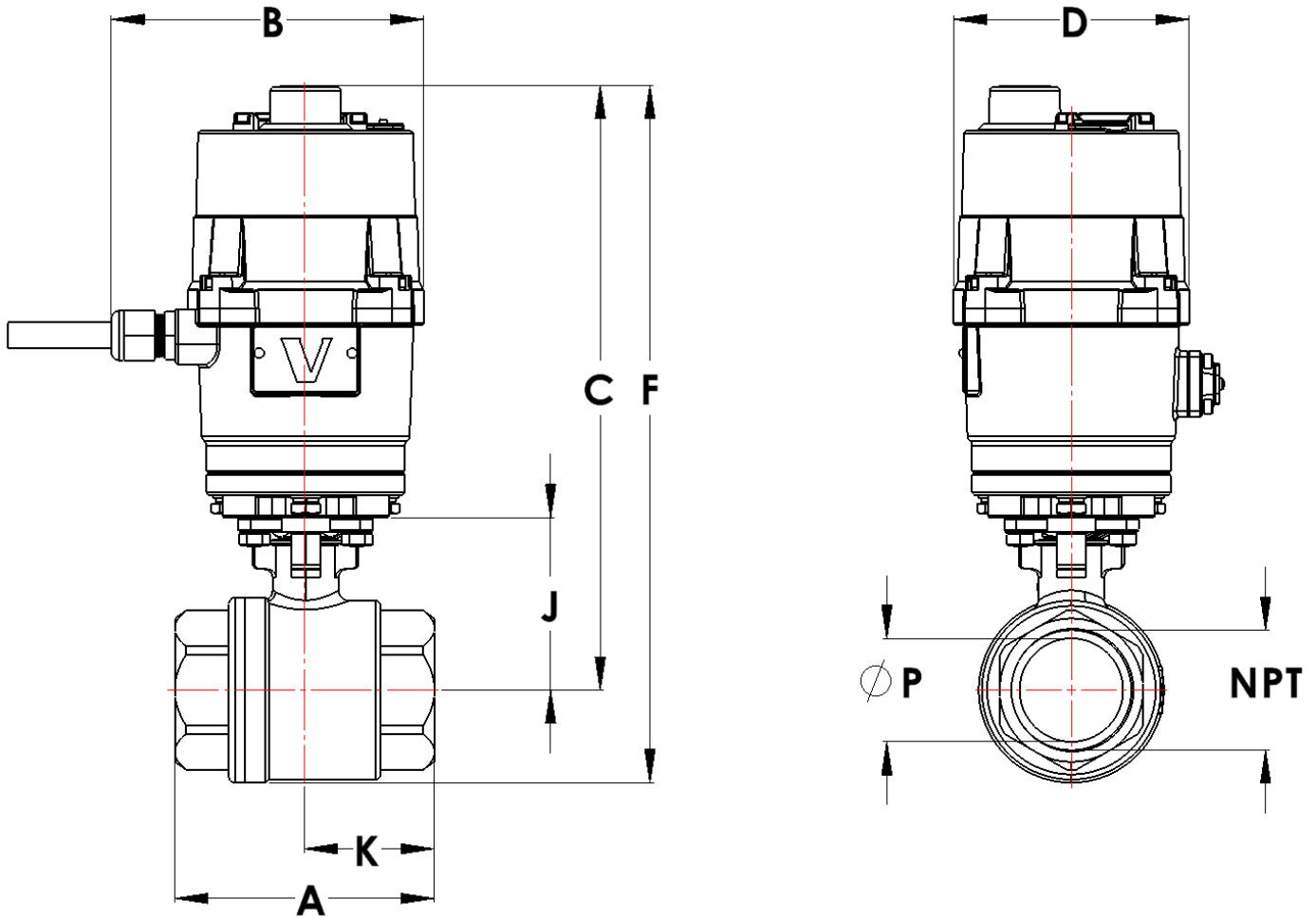


Dimensions: 1/4" - 1-1/4"



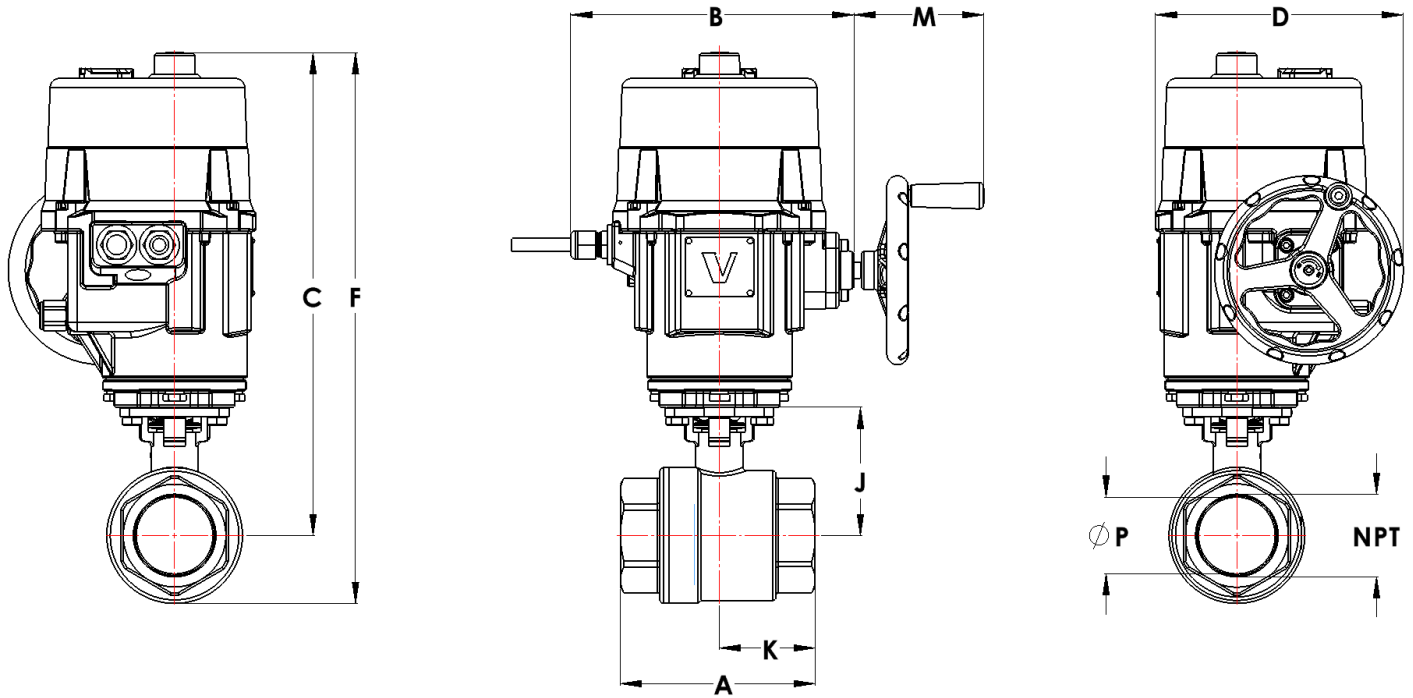
Pipe Size (NPT)		A	B	C	D	F	J	K	P	Weight
1/4	inch	2.6	3.3	6.1	4.1	6.7	1.5	1.2	0.5	3.9 lb
	mm	65.3	83.8	154.9	103.0	170.2	37.0	31.0	11.5	1.8 kg
3/8	inch	2.6	3.3	6.1	4.1	6.7	1.5	1.2	0.5	3.9 lb
	mm	65.3	83.8	154.9	103.0	170.2	37.0	31.0	12.5	1.8 kg
1/2	inch	2.6	3.3	6.1	4.1	6.7	1.5	1.2	0.6	3.8 lb
	mm	65.3	83.8	154.9	103.0	170.2	37.0	31.0	15.0	1.7 kg
3/4	inch	3.0	3.3	6.4	4.1	7.2	1.8	1.5	0.8	4.2 lb
	mm	77.3	83.8	162.6	103.0	182.9	45.0	38.7	20.0	1.9 kg
1	inch	3.5	3.3	6.7	4.1	7.7	2.1	1.7	1.0	4.9 lb
	mm	88.7	83.8	170.2	103.0	195.6	53.5	43.8	25.0	2.2 kg
1-1/4	inch	4.0	3.3	6.9	4.1	8.2	2.3	2.0	1.3	5.9 lb
	mm	102.4	83.8	175.3	103.0	208.3	59.0	50.7	32.0	2.7 kg

Dimensions: 1-1/2" - 2"



Pipe Size (NPT)		A	B	C	D	F	J	K	P	Weight
1-1/2	inch	4.3	5.7	9.0	4.5	10.5	2.9	2.2	1.5	9.3 lb
	mm	109.0	144.7	228.6	114.0	266.7	74.8	55.0	38.0	4.2 kg
2	inch	4.9	5.7	11.5	4.5	13.3	3.3	2.4	2.0	15.4 lb
	mm	125.3	144.7	292.1	114.0	337.8	83.5	62.2	50.0	7.0 kg

Dimensions: 2-1/2" - 4"



Pipe Size (NPT)		A	B	C	D	F	J	K	M	P	Weight
2 -1/2	inch	6.5	8.3	16.1	8.3	18.1	4.3	3.2	5.3	2.6	45.9 lb
	mm	165.0	210.8	408.9	210.8	459.7	108.8	82.5	135.0	65.0	20.9 kg
3	inch	7.5	8.3	16.5	8.3	19.1	4.7	3.7	5.3	3.1	51.4 lb
	mm	189.5	210.8	419.1	210.8	485.1	118.3	94.8	135.0	80.0	23.4 kg
4	inch	9.4	8.3	17.9	8.3	21.1	6.1	4.7	5.3	3.9	66.2 lb
	mm	238.0	210.8	454.7	210.8	535.9	153.8	119.0	135.0	100.0	30.1 kg