

Features

- High pressure (2000 CWP)
- Fire Safe approved (API 607 6th Edition)
- 316 Stainless Steel 3-piece investment cast body
- Swing-out center section
- RTFE (reinforced Teflon) ball seats
- Braided graphite/Viton live loaded and adjustment stem seals
- 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
- 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

Electric actuated stainless steel high pressure ball valves with braided graphite/ viton seals are typically used for on-off control of water, air, oil and other media compatible with the materials of construction. Actuator designed for 70% duty cycle.

Not suitable for potable water, oxygen or high purity fluid applications.

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.

Construction

Valve Body	316 Stainless Steel ASTM A351 CF8M
Ball/Stem	316 Stainless Steel
Ball Seats	RTFE (reinforced Teflon)
Stem Seals	Braided Graphite
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 high pressure 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, over-torque protection.

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 1/ 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

- Fire Safe: API 607 6th Edition
- 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*: 2000 PSI (138 Bar) CWP non-shock

* 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 392° F (-20 to 200°C)

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



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 HIGH PRESSURE STAINLESS BALL VALVES									
588202	1/4	0.45	14.2	2000	20	110 VAC, 50/60Hz	0.27	70%	B
588203	3/8	0.49	16.7	2000	20	110 VAC, 50/60Hz	0.27	70%	B
588204	1/2	0.59	24.1	2000	20	110 VAC, 50/60Hz	0.27	70%	B
588206	3/4	0.79	44.6	2000	20	110 VAC, 50/60Hz	0.27	70%	B
588208	1	1.00	72.7	2000	20	110 VAC, 50/60Hz	0.27	70%	B
588210	1-1/4	1.25	122.0	2000	20	110 VAC, 50/60Hz	0.27	70%	B
588212	1-1/2	1.50	176.3	2000	30	110 VAC, 50/60Hz	0.63	70%	B
588216	2	2.00	313.1	2000	30	110 VAC, 50/60Hz	0.63	70%	B
24 VDC ELECTRIC ACTUATED HIGH PRESSURE STAINLESS BALL VALVES									
588302	1/4	0.45	14.2	2000	20	DC24	1.8	70%	G
588303	3/8	0.49	16.7	2000	20	DC24	1.8	70%	G
588304	1/2	0.59	24.1	2000	20	DC24	1.8	70%	G
588306	3/4	0.79	44.6	2000	20	DC24	1.8	70%	G
588308	1	1.00	72.7	2000	20	DC24	1.8	70%	G
588310	1-1/4	1.25	122.0	2000	20	DC24	1.8	70%	G
588312	1-1/2	1.50	176.3	2000	30	DC24	2.4	70%	G
588316	2	2.00	313.1	2000	30	DC24	2.4	70%	G

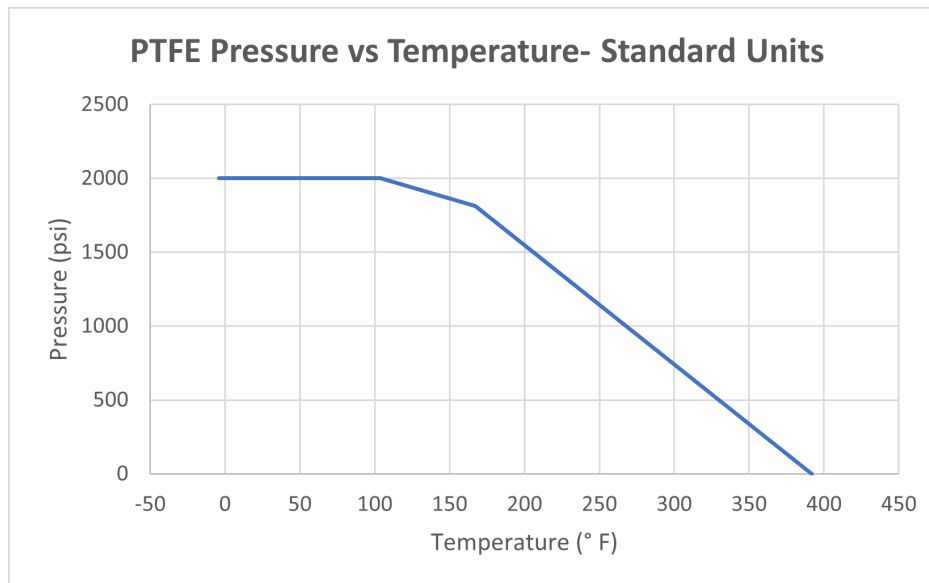
Cv = The GPM of water at 60° F that will pass through the valve with 1 PSI pressure drop

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

• Torque at 0 PSI and 75°F

Pressure/Temperature Chart 2000 PSI (138 Bar)

P/T Chart (PSI/°F)				
°F	-4	104	167	392
PSI	2000	2000	1812	0



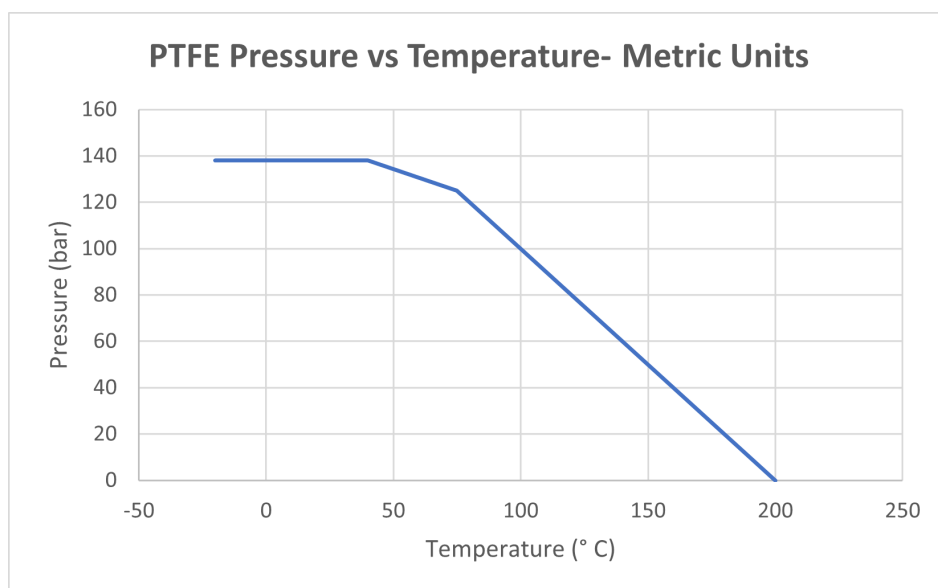
Specifications (Metric units)

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 HIGH PRESSURE STAINLESS BALL VALVES									
588202	1/4	11.5	12.3	138	20	110 VAC, 50/60Hz	0.27	70%	B
588203	3/8	12.5	14.4	138	20	110 VAC, 50/60Hz	0.27	70%	B
588204	1/2	15.0	20.8	138	20	110 VAC, 50/60Hz	0.27	70%	B
588206	3/4	20.0	38.6	138	20	110 VAC, 50/60Hz	0.27	70%	B
588208	1	25.0	62.9	138	20	110 VAC, 50/60Hz	0.27	70%	B
588210	1-1/4	32.0	105.5	138	20	110 VAC, 50/60Hz	0.27	70%	B
588212	1-1/2	38.0	152.5	138	30	110 VAC, 50/60Hz	0.63	70%	B
588216	2	50.0	270.8	138	30	110 VAC, 50/60Hz	0.63	70%	B
24 VDC ELECTRIC ACTUATED HIGH PRESURE STAINLESS BALL VALVES									
588302	1/4	11.5	12.3	138	20	DC24	1.8	70%	G
588303	3/8	12.5	14.4	138	20	DC24	1.8	70%	G
588304	1/2	15.0	20.8	138	20	DC24	1.8	70%	G
588306	3/4	20.0	38.6	138	20	DC24	1.8	70%	G
588308	1	25.0	62.9	138	20	DC24	1.8	70%	G
588310	1-1/4	32.0	105.5	138	20	DC24	1.8	70%	G
588312	1-1/2	38.0	152.5	138	30	DC24	2.4	70%	G
588316	2	50.0	270.8	138	30	DC24	2.4	70%	G

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

Pressure/Temperature Chart 2000 PSI (138 Bar)

P/T Chart (BAR/°C)				
°C	-20	40	75	200
Bar	138	138	125	0



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.

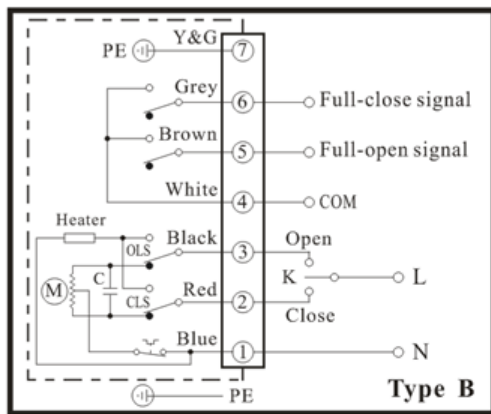
User/installer to supply a three way switch, control relay, PLC outputs, or other suitable switching device to control the actuator position. Actuator should have its own fused and isolated circuit. Do not connect actuators in parallel.

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 Convienent 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

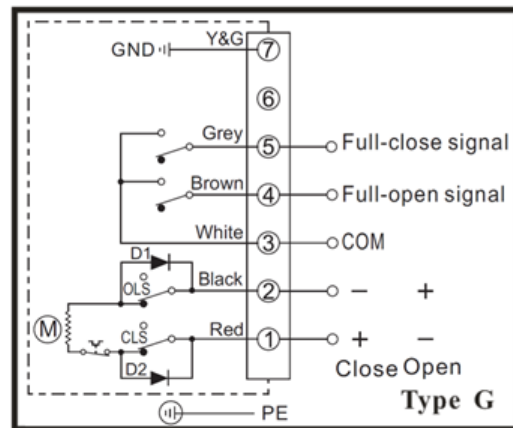
Terminal 6: Closed status confirmation signal

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 Convienent 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

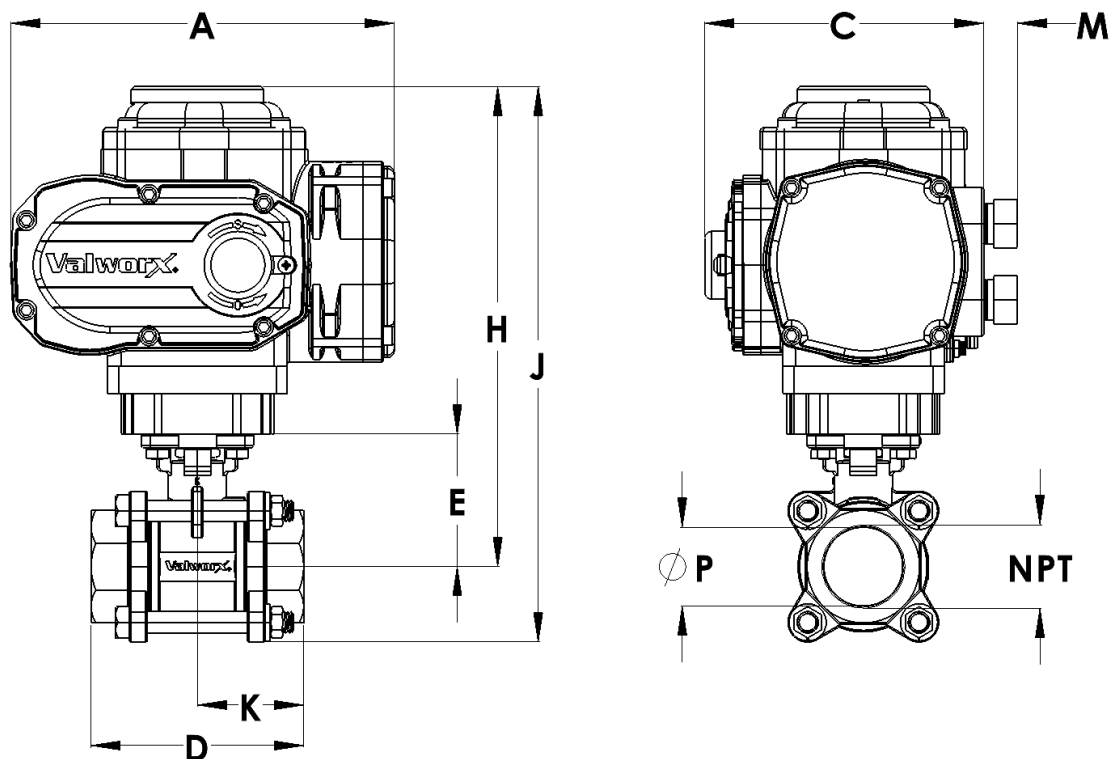
Terminal 4: Open status confirmation signal

Terminal 5: Closed status confirmation signal

Ground PE

Terminal 7: Earth Ground

Dimensions:



Pipe Size (NPT)		A	C	D	E	H	J	K	M	P	Weight
1/4	inch	6.7	4.7	2.6	1.5	7.6	8.9	1.3	0.6	0.5	9.7 lb
	mm	170.5	120.5	65.0	37.5	192.5	225.5	32.5	15.0	11.5	4.4 kg
3/8	inch	6.7	4.7	2.6	1.5	7.6	8.9	1.3	0.6	0.5	9.6 lb
	mm	170.5	120.5	65.0	37.5	192.5	225.5	32.5	15.0	12.5	4.3 kg
1/2	inch	6.7	4.7	3.0	1.5	7.6	8.9	1.5	0.6	0.6	9.7 lb
	mm	170.5	120.5	75.0	37.5	192.5	225.5	37.5	15.0	15.0	4.4 kg
3/4	inch	6.7	4.7	3.1	2.0	7.7	9.3	1.6	0.6	0.8	10.6 lb
	mm	170.5	120.5	80.0	50.0	195.0	235.7	40.0	15.0	20.0	4.8 kg
1	inch	6.7	4.7	3.5	2.4	7.9	9.8	1.8	0.6	1.0	11.8 lb
	mm	170.5	120.5	90.0	60.0	200.1	248.4	45.0	15.0	25.0	5.4 kg
1-1/4	inch	6.7	4.7	4.3	3.0	8.3	10.6	2.2	0.6	1.3	14.2 lb
	mm	170.5	120.5	110.0	75.3	210.3	268.7	55.0	15.0	32.0	6.5 kg
1-1/2	inch	8.6	5.5	4.7	3.1	9.7	12.3	2.4	0.6	1.5	22.5 lb
	mm	217.5	139.0	120.0	79.3	245.8	311.9	60.0	15.0	38.0	10.2 kg
2	inch	8.6	5.5	5.5	3.8	10.0	13.3	2.8	0.6	2.0	28.3 lb
	mm	217.5	139.0	140.0	96.0	253.0	336.8	70.0	15.0	50.0	12.9 kg