Electric Actuated 3-Way Ball Valves- EPS Positioner

T-Port, PVC Body, PTFE/EPDM Seals
1/2 to 2 inch Pipe

SERIES
5557
5558

Features

- Full Port PVC diverter, selector, or mixing valve
- Industrial grade PVC ball valve with PTFE/EPDM seals
- Energized PTFE ball seats for lower torque and longer life
- Union nut locking device prevents back-off
- Certified safe per NSF61 for potable/drinking water
- Electronic Positioning System with 4-20mA input
- Visual valve position indicator
- Rugged aluminum Type 4X weatherproof enclosure
- Heavy duty motors with overload protection
- Anti-condensation heater, thermostatically controlled
- Manual override with end of travel mechanical stops

T-port Diverter Valve
Flow Pattern

Position 1 **Position 2**

Applications

Electric actuated 3-way full port PVC ball valves are typically used as a diverter valve to control the flow of water and other media compatible with the materials of construction (not suitable for air or gas). Ideal for industrial applications and where NSF approved construction is required for potable drinking water. Actuator designed for 70% duty cycle.

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

Operation

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 (valve disc). 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	PVC cell class 12454 per ASTM D1784 (dark gray)
Ball/Stem	PVC cell class 12454 per ASTM D1784
Ball Seats	PTFE (Teflon) energized with EPDM
Stem Seals	Dual EPDM seals
Gear Drive	Heavy duty alloy steel and aluminium bronze worm
Actuator Enclosure	Aluminum polyester powder coated, Type 4X, IP67
Visual Valve Position Indicator	Clear polycarbonate cover, red/yellow open-closed
Fasteners	Stainless Steel

Description

Electric actuated 3-way PVC ball valve is typically used as a flow diverter function. Energized PTFE ball seats are used to extended cycle life, compensate for wear and lower the operating torque. Rugged corrosion resistant electric actuator includes a manual override, 4-20mA servo controller, thermo-statically controlled anti-condensation heater, and over-torque protection.

Approvals

Actuators

- CSA Listed to:
  - UL429 and CSA C22.2 no 139
  - Type 4X, IP67 weatherproof enclosure
- CE conformance-EN 60204-1:2006
  - ISO5211 Mounting

Valves

- NSF International certified to:
  - NSF/ANSI 61 G
  - NSF/ANSI 372 Drinking Water
- ANSI B1.20.1
- ASTM D1784, cell class 12454
- CE conformance– PED 2014/68/UE

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Construction Features

4-20mA servo controller

Heavy duty integral motor design significantly reduces physical size of actuator

Rugged polyester powder coated aluminum Type 4X weatherproof enclosure

Leak free dual stem seal design with fully machined ball and stem connection

Full Port design for unrestricted flow, and NSF certified for use with potable/drinking water

Certified to NSF/ANSI/CAN 61 & NSF/ANSI 372

Anti-Condensation Heater

Terminal Box, wire directly to terminal strip via included cable connector, or optional 1/2" NPT conduit adapters

Manual Override with protective cover

Self-locking all metal gear drive, no additional brake required

Union nut locking devices prevent back-off from vibration or thermal cycling

Four Energized PTFE ball seats for reduced torque and extended cycle life; allows for full pressure at any port

Pressure-Temperature

Valve Pressure Rating*: 232 PSI (16 Bar) at 73°F (23°C)

Vacuum 29inHg

Valve Temperature Rating: 32 to 140° F (0 to 60° C)

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

*See P/T chart

Visual Valve Position Indicator

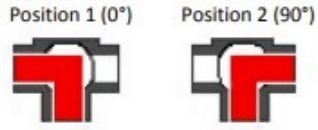
Pressure/Temperature Charts

P/T Chart (PSI/°F)							
PSI	232	232	232	180	150	100	35
°F	32	50	70	90	110	120	140

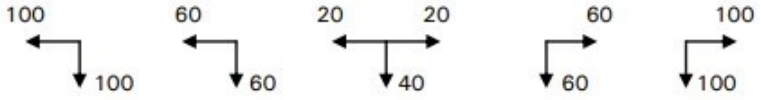
P/T Chart (Bar/°C)							
Bar	16	16	16	12	10	7	2.4
°C	0	10	21	32	43	49	60

Flow Path Features

L-Port Diverter

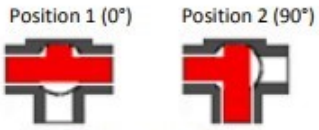


Orifice Size %

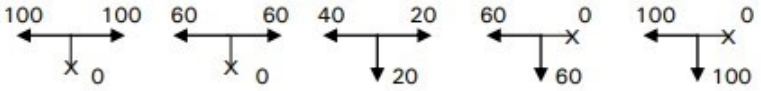


Manual Operation	0°	22.5°	45°	67.5°	90°
4-20 mA Input	4mA	8mA	12mA	16mA	20mA
0-10 volt Input	0V	2.5V	5V	7.5V	10V

T-Port Diverter

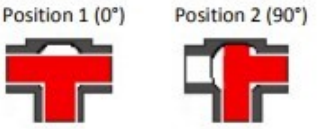


Orifice Size %

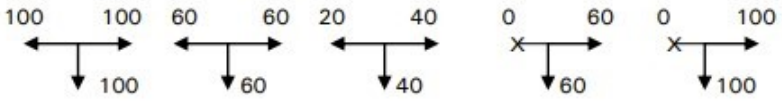


Manual Operation	0°	22.5°	45°	67.5°	90°
4-20 mA Input	4mA	8mA	12mA	16mA	20mA
0-10 volt Input	0V	2.5V	5V	7.5V	10V

T-Port Mixing



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 (inch)*	Pipe O.D. (inch)	Cv Flow Factor	Pressure Max.(PSI)**	Cycle Time /90° (sec) +/-10%	Voltage	Current F.L. Amps	Duty Cycle	Electrical Wiring Drawing
120 VAC ELECTRIC 3-WAY T-PORT PVC BALL VALVE PTFE/EPDM with EPS POSITIONER 4-20mA input									
555704	1/2	0.8	4.6	232	20/17	110 VAC, 50/60Hz	0.27	70%	E
555706	3/4	1.1	10.0	232	20/17	110 VAC, 50/60Hz	0.27	70%	E
555708	1	1.3	17.0	232	20/17	110 VAC, 50/60Hz	0.27	70%	E
555710	1-1/4	1.7	32.0	232	20/17	110 VAC, 50/60Hz	0.27	70%	E
555712	1-1/2	1.9	42.0	232	20/17	110 VAC, 50/60Hz	0.27	70%	E
555716	2	2.4	84.0	232	20/17	110 VAC, 50/60Hz	0.27	70%	E
24 VDC ELECTRIC 3-WAY T-PORT PVC BALL VALVE PTFE/EPDM with EPS POSITIONER 4-20mA input									
555804	1/2	0.8	4.6	232	20	DC24	1.28	70%	GEY
555806	3/4	1.1	10.0	232	20	DC24	1.28	70%	GEY
555808	1	1.3	17.0	232	20	DC24	1.28	70%	GEY
555810	1-1/4	1.7	32.0	232	20	DC24	1.28	70%	GEY
555812	1-1/2	1.9	42.0	232	20	DC24	1.28	70%	GEY
555816	2	2.4	84.0	232	20	DC24	1.28	70%	GEY

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

*Valves include both IPS glue sockets and NPT end connectors

** See Pressure/Temperature charts, maximum allowable pressure decreases as temperature increases

Specifications (Metric units)

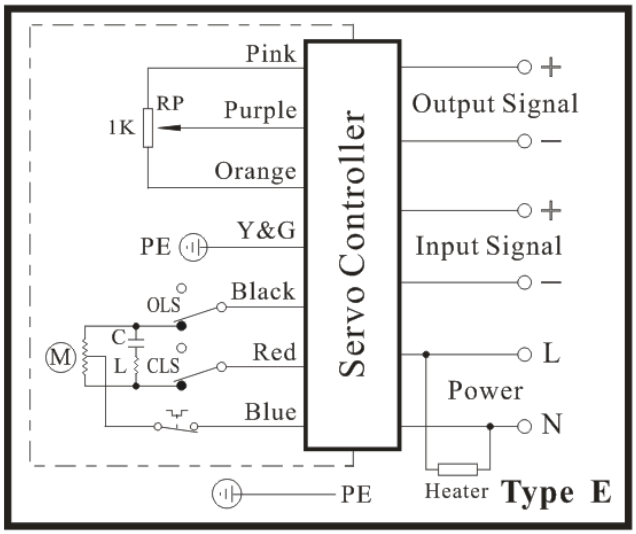
Stock Number	Pipe Size (inch)*	Pipe O.D. (mm)	Kv Flow Factor	Pressure Max.(Bar)**	Cycle Time /90° (sec) +/-10%	Voltage	Current F.L. Amps	Duty Cycle	Electrical Wiring Drawing
120 VAC ELECTRIC 3-WAY T-PORT PVC BALL VALVE PTFE/EPDM with EPS POSITIONER 4-20mA input									
555704	1/2	21.3	4.0	16	20/17	110 VAC, 50/60Hz	0.27	70%	E
555706	3/4	26.7	8.6	16	20/17	110 VAC, 50/60Hz	0.27	70%	E
555708	1	33.5	15.0	16	20/17	110 VAC, 50/60Hz	0.27	70%	E
555710	1-1/4	42.2	27.5	16	20/17	110 VAC, 50/60Hz	0.27	70%	E
555712	1-1/2	48.3	36.0	16	20/17	110 VAC, 50/60Hz	0.27	70%	E
555716	2	60.5	72.0	16	20/17	110 VAC, 50/60Hz	0.27	70%	E
24 VDC ELECTRIC 3-WAY T-PORT PVC BALL VALVE PTFE/EPDM: T-PORT with EPS POSITIONER 4-20mA input									
555804	1/2	21.3	4.0	16	20	DC24	1.28	70%	GEY
555806	3/4	26.7	8.6	16	20	DC24	1.28	70%	GEY
555808	1	33.5	15.0	16	20	DC24	1.28	70%	GEY
555810	1-1/4	42.2	27.5	16	20	DC24	1.28	70%	GEY
555812	1-1/2	48.3	36.0	16	20	DC24	1.28	70%	GEY
555816	2	60.5	72.0	16	20	DC24	1.28	70%	GEY

*Valves include both IPS glue sockets and NPT end connectors

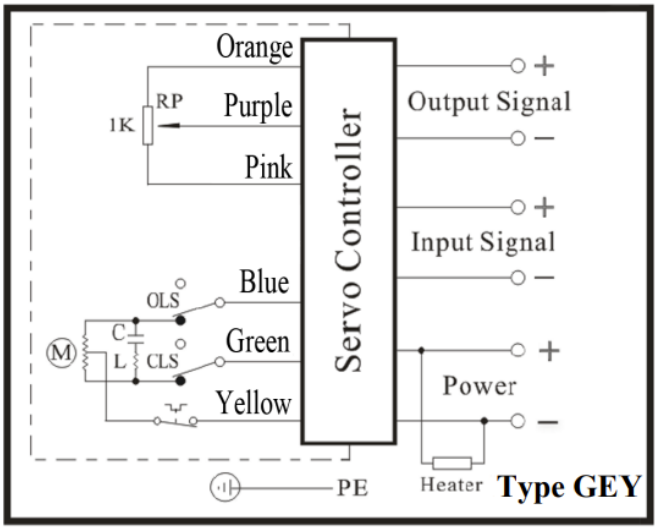
** See Pressure/Temperature charts, maximum allowable pressure decreases as temperature increases

Electrical Wiring Diagram

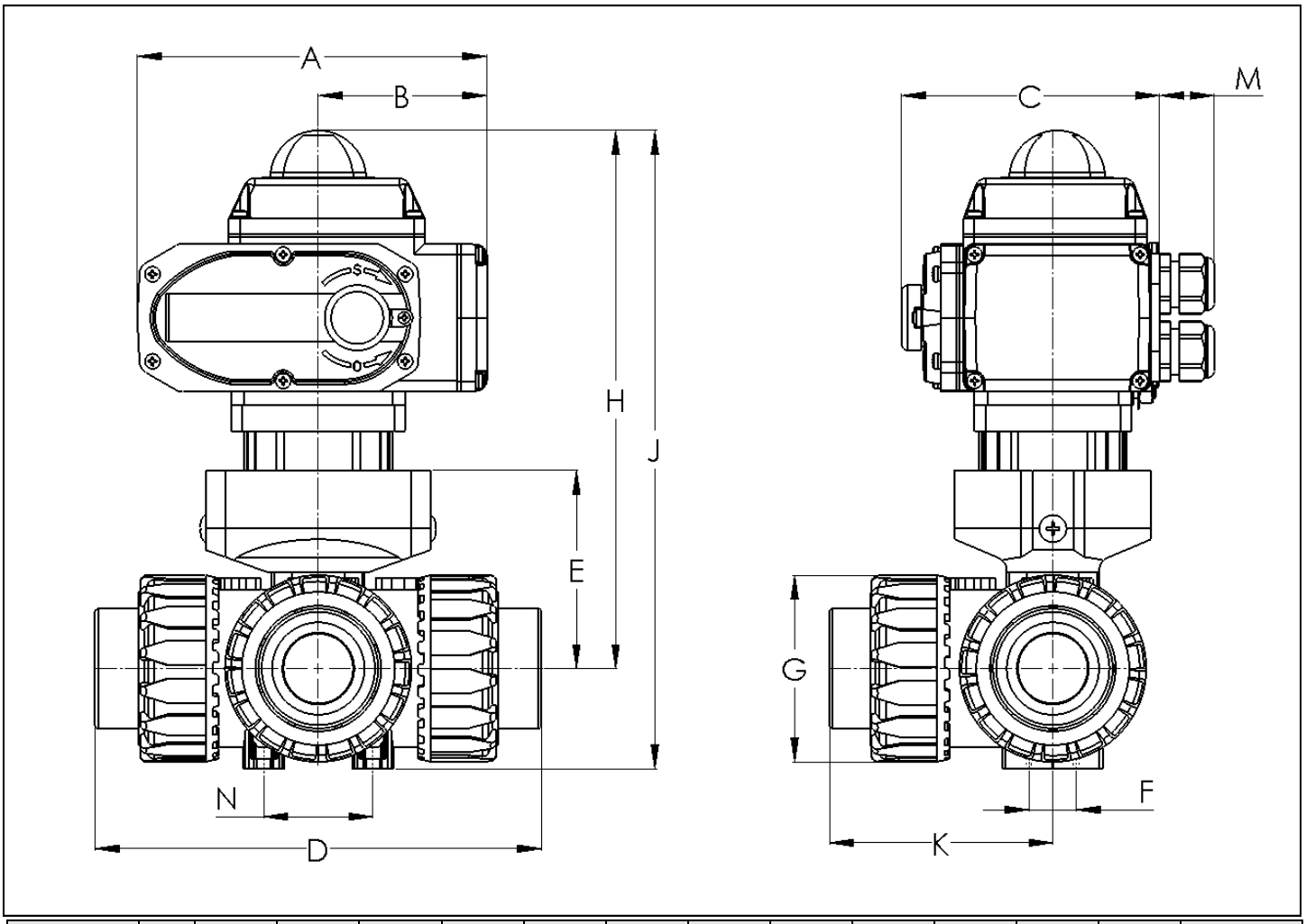
AC Voltages



DC Voltages



Dimensions:



Pipe Size (NPT)		A	B	C	D	E	F	G	H	J	K	M	N	Weight AC/DC
1/2	inch	6.4	3.2	4.7	5.2	2.3	0.8	2.1	8.5	9.5	2.6	0.9	1.2	6.9 lb
	mm	162.0	82.0	118.5	132.3	57.9	20.0	53.9	214.9	241.8	66.0	23.0	31.0	3.1 kg
3/4	inch	6.4	3.2	4.7	6.3	2.7	0.8	2.6	8.9	10.2	3.1	0.9	1.2	7.6 lb
	mm	162.0	82.0	118.5	159.2	69.5	20.0	65.0	226.5	259.0	80.0	23.0	31.0	3.5 kg
1	inch	6.4	3.2	4.7	6.6	2.9	0.8	2.9	9.1	10.5	3.3	0.9	1.2	8.0 lb
	mm	162.0	82.0	118.5	168.4	74.0	20.0	73.0	231.0	267.5	84.2	23.0	31.0	3.6 kg
1-1/4	Inch	6.4	3.2	4.7	8.1	3.6	1.2	3.4	9.8	11.5	4.0	0.9	2.0	9.3 lb
	mm	162.0	82.0	118.5	205.0	91.0	30.0	85.7	248.0	290.9	102.0	23.0	50.0	4.2 kg
1-1/2	inch	6.4	3.2	4.7	9.0	3.8	1.2	3.9	10.0	11.9	4.5	0.9	2.0	10.3 lb
	mm	162.0	82.0	118.5	227.6	97.2	30.0	98.2	254.2	303.3	114.0	23.0	50.0	4.7 kg
2	inch	6.4	3.2	4.7	10.5	4.5	1.2	4.8	10.6	13.0	5.3	0.9	2.0	13.0 lb
	mm	162.0	82.0	118.5	267.0	113.0	30.0	121.4	270.0	330.7	134.0	23.0	50.0	5.9 kg