

Features

- FULL PORT 3-way T flow pattern, functions as diverter, selector, or mixing valve
- All valve materials comply with FDA and USDA requirements
- Tri-Clamp ends for hygienic connections
- Dyneon® TF-1641 (PTFE) FDA approved ball seats and cavity fillers
- Triple PTFE/Viton® high cycle live loaded stem seal packing
- Highly polished internals and end caps with 8-12 Ra finish
- 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
- Two auxiliary limit switches included with on-off units
- 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

Sanitary 3-way ball valves are typically used for food, beverage, pharmaceutical, personal care, and pet care applications where sanitary construction is required, as well as for utility, process, and hazardous environment applications where quick clamp connections are beneficial. Often used as a diverter, selector, or mixing valve with a variety of flow path options through the valve. 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.

Construction

Valve Body	ASTM 316 stainless steel
Ball/Stem/End Caps	ASTM 316 stainless steel
Ball Seats	Dyneon® PTFE
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 sanitary 3-way T-type flow pattern ball valve has four Dyneon® PTFE ball seats, allowing for full pressure at any port. Adjustable live loaded stem seal packing helps compensate for wear, pressure and 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.

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.

Standards- Valves

- Construction:
 - ANSI B16.02/B18
 - FDA 21 CFR 177.1550
 - ANSI B16.34
- Pressure Testing:
 - API 598
 - Marking
 - MSS-SP-25

Construction Features



* Refer to specifications table for Tri-Clamp size
* Note: Tri-Clamp size is **NOT** determined by the OD of the end cap

Pressure Rating

Shell Pressure Rating (Max): 1000 PSI @ 120°F (1/2" to 2"),
600 PSI (2 1/2")

* 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 356° F (-20 to 180°C)

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

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

(**Not included**)



Visual Valve
Position Indicator

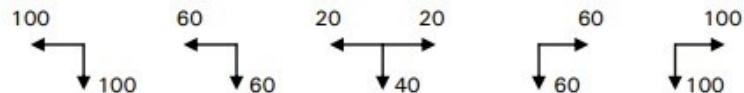
Flow Path Features

L-Port Diverter

Position 1 (0°) Position 2 (90°)



Orifice Size %



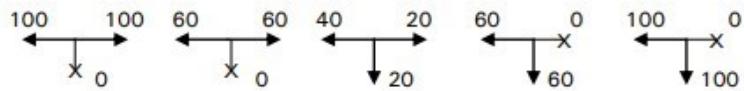
Manual Operation	0°	22.5°	45°	67.5°	90°
4-20 mA Input	4mA	8mA	12mA	16mA	20mA
0-10 volt Input	0V	2.5V	5V	7.5V	10V

T-Port Diverter

Position 1 (0°) Position 2 (90°)



Orifice Size %



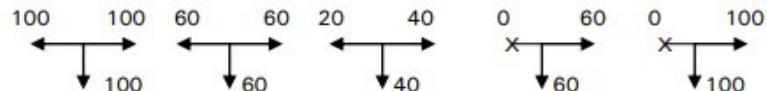
Manual Operation	0°	22.5°	45°	67.5°	90°
4-20 mA Input	4mA	8mA	12mA	16mA	20mA
0-10 volt Input	0V	2.5V	5V	7.5V	10V

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)	Tri-Clamp Size (inch)	Cv Flow Factor*	Shell Pressure Max.(PSI)*	Cycle Time/90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
120 VAC ELECTRIC ACTUATED 3-WAY T-PORT SANITARY STAINLESS BALL VALVE									
582500A	1/2	3/4	4.3	1000	20	110 VAC, 50/60Hz	0.27	70%	B
582501A	3/4	3/4	10.4	1000	20	110 VAC, 50/60Hz	0.27	70%	B
582502A	1	1-1/2	17.3	1000	20	110 VAC, 50/60Hz	0.27	70%	B
582503A	1-1/2	1-1/2	43.3	1000	20	110 VAC, 50/60Hz	0.27	70%	B
582504A	2	2	77.9	1000	20	110 VAC, 50/60Hz	0.27	70%	B
582505A	2-1/2	2-1/2	115.9	600	30	110 VAC, 50/60Hz	0.63	70%	B
24 VDC ELECTRIC ACTUATED 3-WAY T-PORT SANITARY STAINLESS BALL VALVE									
582700A	1/2	3/4	4.3	1000	20	DC24	1.8	70%	G
582701A	3/4	3/4	10.4	1000	20	DC24	1.8	70%	G
582702A	1	1-1/2	17.3	1000	20	DC24	1.8	70%	G
582703A	1-1/2	1-1/2	43.3	1000	20	DC24	1.8	70%	G
582704A	2	2	77.9	1000	20	DC24	1.8	70%	G
582705A	2-1/2	2-1/2	115.9	600	30	DC24	2.4	70%	G

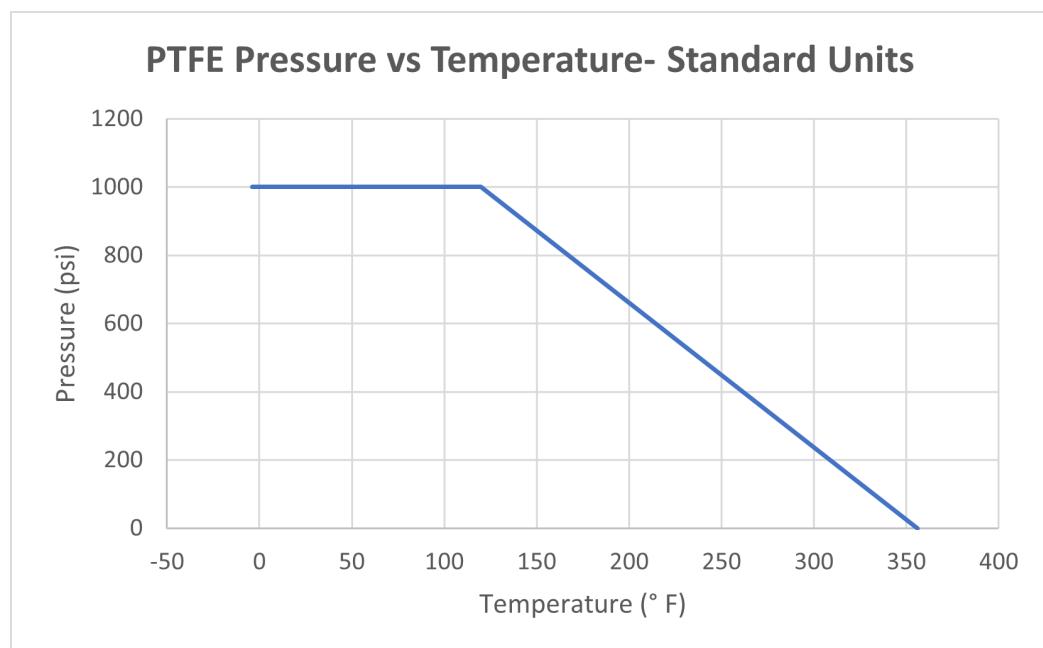
Cv = The GPM of water at 60° F that will pass through the valve with 1 PSI pressure drop

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

• Torque at 0 PSI and 75°F

**Pressure/Temperature
Chart (PSI/°F)**

P/T Chart (PSI/°F)			
PSI	1000	1000	356
°F	-4	120	0



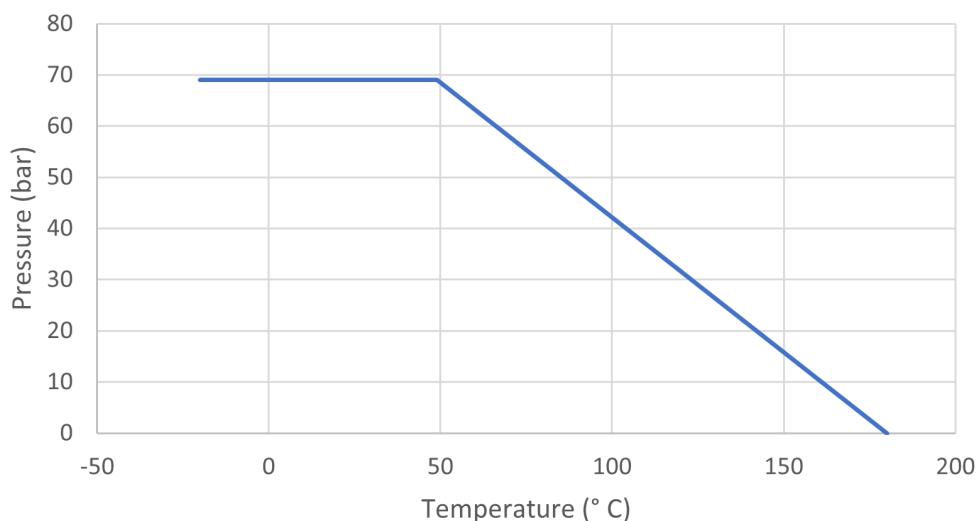
Specifications (Metric units)

Stock Number	Pipe Size (NPT)	Tri-Clamp Size (inch)	K _v Flow Factor	Shell Pressure Max.(Bar)*	Cycle Time/90° (seconds)	Voltage	Current (amps)	Duty Cycle	Electrical Dwg.
120 VAC ELECTRIC ACTUATED 3-WAY T-PORT SANITARY STAINLESS BALL VALVE									
582500A	12.7	3/4	5.0	69	20	110 VAC, 50/60Hz	0.27	70%	B
582501A	19.1	3/4	12.0	69	20	110 VAC, 50/60Hz	0.27	70%	B
582502A	25.4	1-1/2	20.0	69	20	110 VAC, 50/60Hz	0.27	70%	B
582503A	38.1	1-1/2	50.0	69	20	110 VAC, 50/60Hz	0.27	70%	B
582504A	50.8	2	90.0	69	20	110 VAC, 50/60Hz	0.27	70%	B
582505A	63.5	2-1/2	134.0	41	30	110 VAC, 50/60Hz	0.63	70%	B
24 VDC ELECTRIC ACTUATED 3-WAY T-PORT SANITARY STAINLESS BALL VALVE									
582700A	12.7	3/4	5.0	69	20	DC24	1.8	70%	G
582701A	19.1	3/4	12.0	69	20	DC24	1.8	70%	G
582702A	25.4	1-1/2	20.0	69	20	DC24	1.8	70%	G
582703A	38.1	1-1/2	50.0	69	20	DC24	1.8	70%	G
582704A	50.8	2	90.0	69	20	DC24	1.8	70%	G
582705A	63.5	2-1/2	134.0	41	30	DC24	2.4	70%	G

* 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	0
°C	-20	49	180

PTFE Pressure vs Temperature- Metric Units


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.

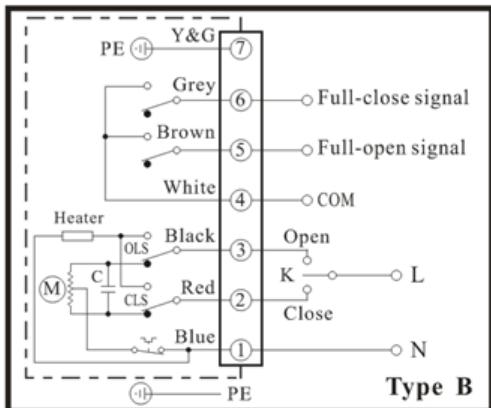
User/installer to supply a three way switch, control relay, PLC outputs, or other suitable switching device to control the actuator position. Actuator should have its own fused and isolated circuit. Do not connect actuators in parallel.

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.



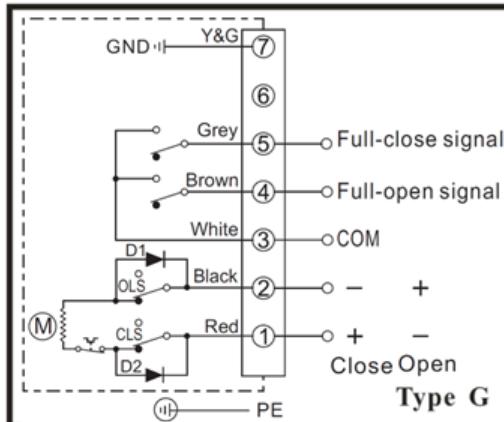
Before connecting power, confirm correct VOLTAGE is being applied. Incorrect voltage may damage actuator and void the warranty.

AC Voltage Wiring Diagram



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

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

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:

[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

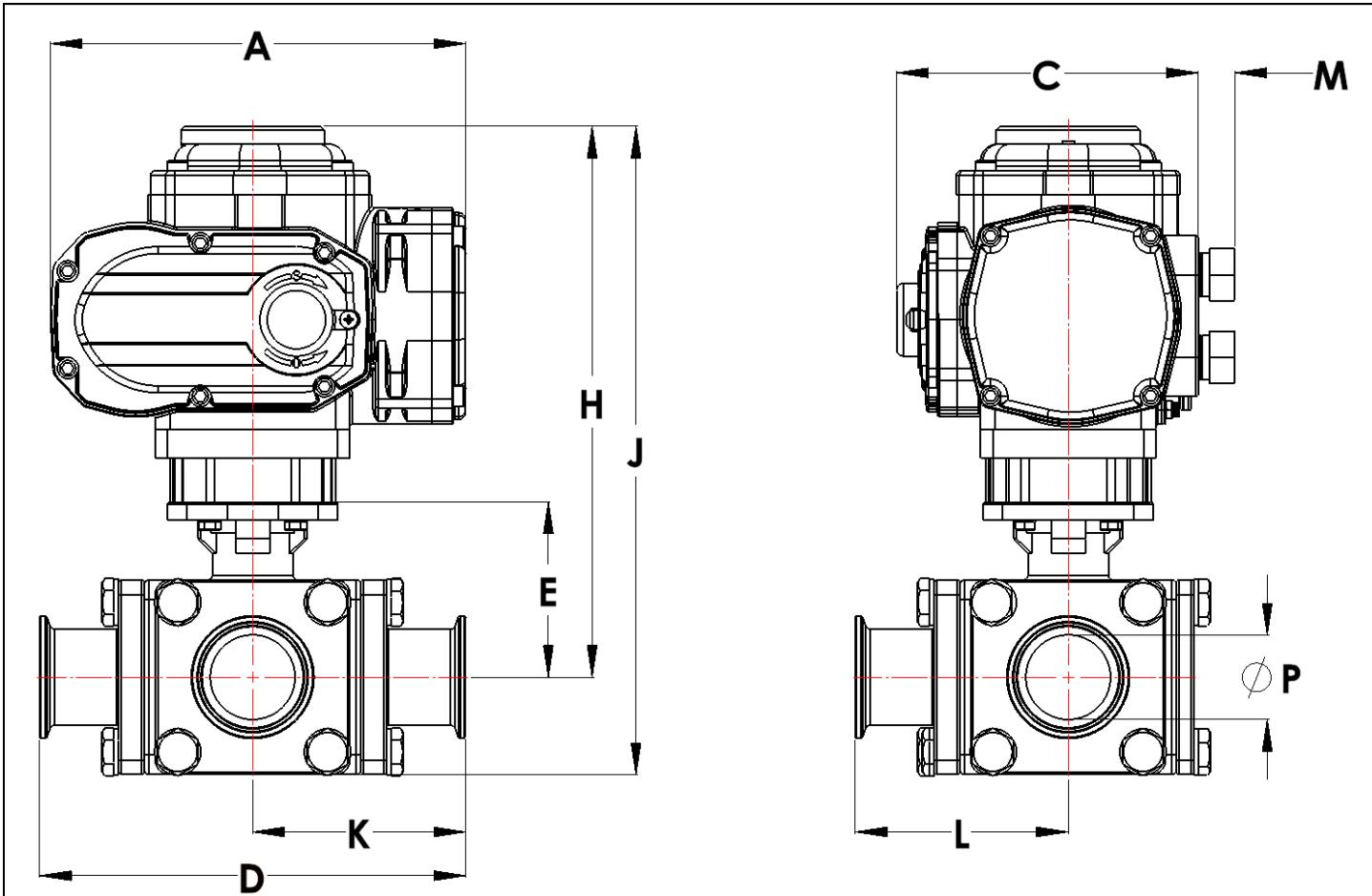
Terminal 4: Open status confirmation signal

Terminal 5: Closed status confirmation signal

Ground PE

Terminal 7: Earth Ground

Dimensions:



Pipe Size (NPT)		A	C	D	E	H	J	K	L	M	P	Weight
1/2	inch	6.7	4.7	4.6	1.8	7.9	8.9	2.3	2.3	0.6	0.4	10.9 lb
	mm	170.5	120.5	118.0	44.5	200.1	225.5	59.0	59.0	15.0	9.4	24.0 kg
3/4	inch	6.7	4.7	5.0	1.9	8.0	9.0	2.5	2.6	0.6	0.6	11.5 lb
	mm	170.5	120.5	127.0	48.0	202.6	228.0	63.5	64.9	15.0	15.8	25.4 kg
1	inch	6.7	4.7	6.0	2.3	8.4	9.6	3.1	3.0	0.6	0.9	13.8 lb
	mm	170.5	120.5	152.4	59.0	212.8	243.3	77.5	76.2	15.0	22.2	30.4 kg
1-1/2	inch	6.7	4.7	6.9	2.8	8.9	10.5	3.4	3.5	0.6	1.4	19.6 lb
	mm	170.5	120.5	175.0	72.0	225.5	266.1	87.5	88.8	15.0	35.0	43.2 kg
2	inch	6.7	4.7	7.5	3.2	9.3	11.3	3.7	3.8	0.6	1.9	26.8 lb
	mm	170.5	120.5	190.0	82.0	235.7	286.5	95.0	96.3	15.0	47.6	59.1 kg
2-1/2	inch	8.6	5.5	9.0	4.0	11.2	13.6	4.5	4.2	0.6	2.4	36.0 lb
	mm	217.5	139.0	228.0	102.5	283.5	344.4	114.0	107.0	15.0	60.2	79.4 kg