Electric Actuated Sanitary Ball Valve

2 Way Stainless Steel, Full Port
1/2 to 4 inch Tri-Clamp

SERIES
5704

Features

- 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
- Multi-voltage brushless motor with auto-voltage sensing
- IP67 polyamide weatherproof enclosure with UV protection
- Electronic torque limiter– protects against valve jams
- Anti-condensation heater
- Manual override with dome style visual valve position indicator
- Electrical connections via external DIN plugs
- Auxiliary limit switches to confirm open/closed valve position

Description

Electric operated sanitary ball valves are used for on/off applications requiring a high degree of sanitation and easy cleaning. Investment cast 3-piece full port stainless steel body and end caps allow for unrestricted flow and minimum pressure loss. Valve seals are cavity filled with Dyneon® PTFE. Rugged, long-life brushless motor actuator includes a manual override, thermostatically controlled heater and over-torque protection.

Applications

Sanitary 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 corrosive environment applications where quick clamp connections are beneficial.

Operation

Electric actuated valve uses power-to-open and power-to-close, stays in the last known position with power failure (accessory failsafe battery backup option available). On receipt of a continuous voltage signal, the motor runs and via a flat gear system rotates the disc 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.

Approvals-Actuators

- CE mark conforming to:
  - Machinery directive
  - Low voltage directive
  - EMC Compatibility directive
- ISO5211 valve mounting

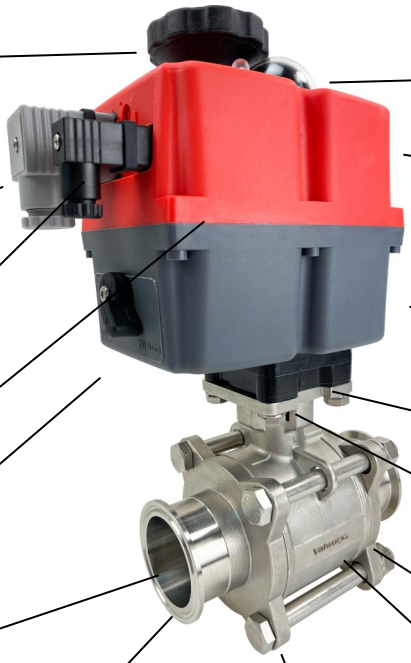
Construction

Valve Body	ASTM 316 Stainless Steel
Ball/ Stem/End Caps	ASTM 316 Stainless Steel
Ball Seats/ Cavity Filler	Dyneon® PTFE
Stem Seals	PTFE/ Viton®
Fasteners	ASTM 304 Stainless Steel
Actuator Enclosure	Anti-corrosive Polyamide, UV protection
Manual Override/Position Indicator	Glass-filled Polyamide / Clear Polyamide Dome
Auxiliary Limit Switches	2 x SPST 3A@125/250VAC, 30VDC resistive load

Standards-Valves

- Construction:
  - ANSI B16/B2/B18
  - FDA 21 CFR 177.1550
  - ANSI B16.34
- Pressure Testing:
  - API 598
- Marking
  - MSS-SP-25

Construction Features



Manual Override Knob

Electrical wiring using Industry standard ISO DIN style plug connectors

Auxiliary Limit Switches used to confirm valve open/closed position

Heavy duty brushless motor

Auto/Manual selector lever

Internals polished to Ra 8-12

Standard Tri-Clamp end caps for sanitary connections*

ASTM 304 Stainless steel fasteners

Highly visual valve position indicator

Anti-Condensation Heater

Anti-corrosive polyamide enclosure with UV protection

Direct mount valve with standard ISO5211 mount

Live Loaded triple PTFE stem seal

Dyneon® TF-1641 PTFE encapsulated cavity filler

ASTM 316 (CF8M investment grade casting (body & end caps)

* 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"),

800 PSI (2 1/2" to 4")

* See P/T chart (page 3)

Optional Functions

BSR: Battery Spring Return Kit
- actuator fails to a safe position with loss of power

DPS: Digital Positioning System
- valve position controlled by 4-20mA or 0-10V control signal

Temperature Rating

Actuator Temperature Rating: -4 to +158° F (-20 to 70° C)

Valve Temperature Rating: -4° to 356° F (-20 to 180°C)

* See P/T chart (page 3)

Specifications (English units)

Stock Number	Pipe Size (inch)	Tri-Clamp Size	Cv Flow Factor*	Shell Pressure Max. (PSI)	Cycle Time /90° (sec)	Max. Current Draw (Amps)			
						110VAC	240VAC	24VAC	24VDC
Sanitary Tri-Clamp: 24-240V AC or 24-135V DC									
570400A	1/2	3/4	13.0	1000	9	0.3	0.2	1.3	1.0
570401A	3/4	3/4	18.0	1000	9	0.3	0.2	1.3	1.0
570402A	1	1-1/2	48.0	1000	9	0.3	0.2	1.3	1.0
570403A	1-1/2	1-1/2	165.0	1000	13	0.4	0.2	2.0	1.6
570404A	2	2	207.0	1000	13	0.4	0.2	2.0	1.6
570405A	2-1/2	2-1/2	450.0	800	58	0.8	0.5	3.3	2.7
570406A	3	3	780.0	800	58	0.8	0.5	3.3	2.7
570407A	4	4	1050.0	800	58	0.8	0.5	3.3	2.7

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

* Pressure @ -4°to 356° F (reduced pressure at higher temperatures—see P/T chart)

• Torque at 1000 PSI and 72°F

Specifications (Metric units)

Stock Number	Pipe Size (mm)	Tri-Clamp Size (inches)	Kv Flow Factor*	Shell Pressure Max. (Bar)	Cycle Time /90° (sec) +/-10%	Max. Current Draw (Amps)			
						110VAC	240VAC	24VAC	24VDC
Sanitary Tri-Clamp: 24-240V AC or 24-135V DC									
570400A	12.7	3/4	7	69	9	0.3	0.2	1.3	1.0
570401A	19.1	3/4	25	69	9	0.3	0.2	1.3	1.0
570402A	25.4	1-1/2	57	69	9	0.3	0.2	1.3	1.0
570403A	38.1	1-1/2	107	69	13	0.4	0.2	2.0	1.6
570404A	50.8	2	165	69	13	0.4	0.2	2.0	1.6
570405A	63.5	2-1/2	374	55	58	0.8	0.5	3.3	2.7
570406A	76.2	3	623	55	58	0.8	0.5	3.3	2.7
570407A	101.6	4	1810	55	58	0.8	0.5	3.3	2.7

* Pressure range @ -20° to 180° C (reduced pressure for higher temperatures—see P/T chart)

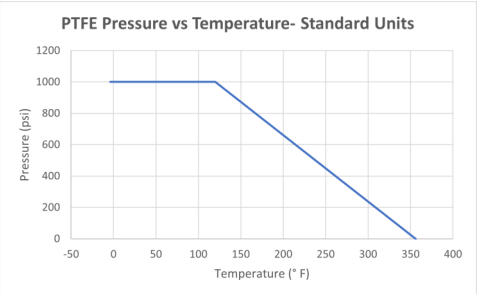
Pressure Temperature Chart

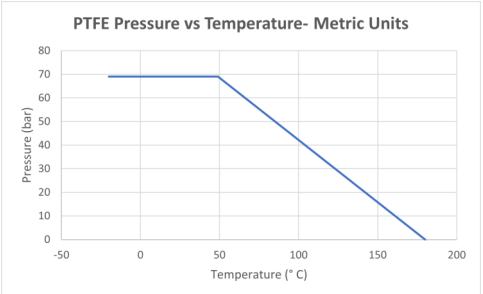
Standard Units

Temp °F	-4	120	356
Pressure	1000	1000	0

Metric Units

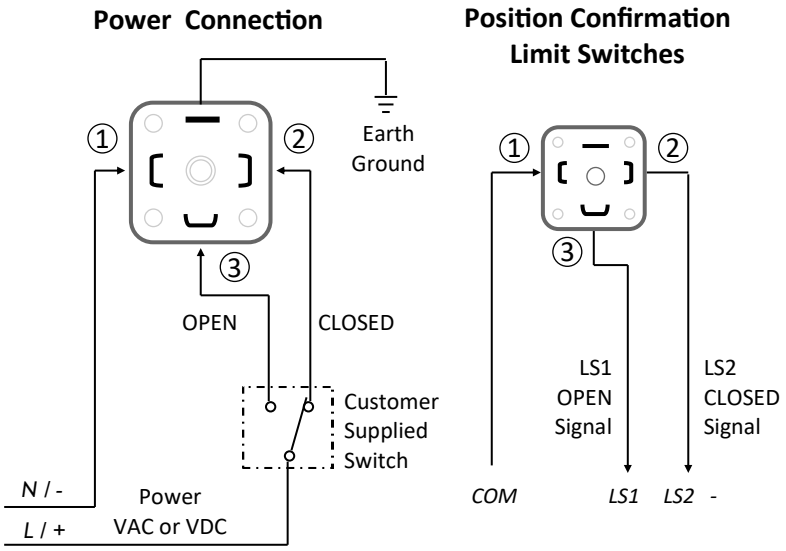
Temp °C	-20	49	180
Pressure	69	69	0





Electrical Wiring: On/Off and BSR Battery Spring Return Versions

Voltage: 24-240 Volts AC or 24-135 Volts DC, 1ph, -0/+5% (Auto-voltage sensing)



Function: ON-OFF version

Power Connections

Power to PIN 1 and 2
- actuator CLOSED (pos 1)

Power to PIN 1 and 3
- actuator OPEN (pos 2)

Stays in last known position with loss of power.

Function: ON-OFF version with BSR option

Wiring is the same as standard ON-OFF version.

Power to open, power to close - maintain power to trickle charge the battery system in either open or closed position.

Actuator sent by battery power to failsafe position with power failure.

Actuator returns to pre-failure position on power resumption.

Function: Position confirmation limit switches

Dry contact 3A @ 125/250 VAC, 30VDC resistive load

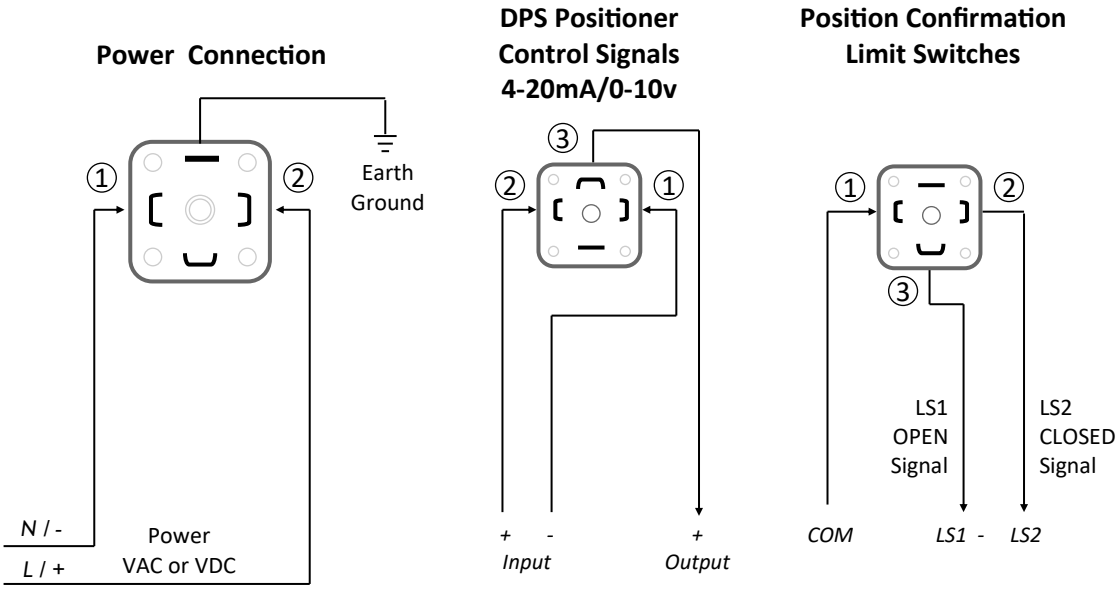
PIN 1 (COM) and 2 to confirm actuator is closed

PIN 1 (COM) and 3 to confirm actuator is open

Electrical Wiring: Actuators with DPS Digital Positioner Option

Voltage: 24-240 Volts AC or 24-135 Volts DC, 1 ph, -0/+5% (Auto-voltage sensing)

Control Signal: 4-20mA or 0-10 VDC



Function: Actuators with DPS—Digital Positioner Option

Power open, power close - actuator movement controlled by 4-20mA or 0-10VDC input signal.

Standard operation: 4mA or 0V = actuator closed, 20mA or 10V = actuator open (can be set-up reverse acting).

Actuator closes with loss of control signal, stays in last known position with loss of main power.

Output monitoring signal (in same format as supply signal) provided as standard.

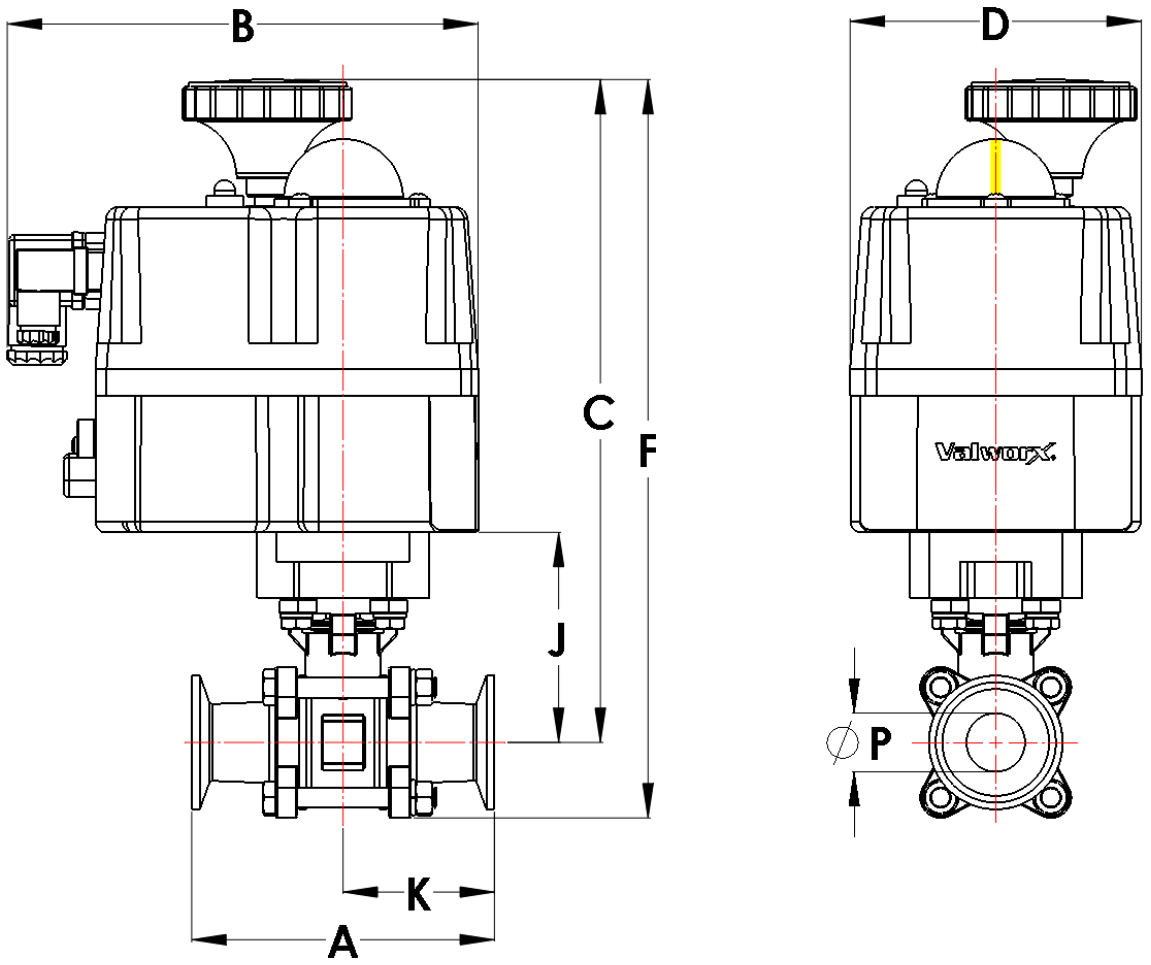
Function: Position confirmation limit switches

Dry contact 3A @ 125/250 VAC, 30VDC resistive load

PIN 1 (COM) and 2 to confirm actuator is closed

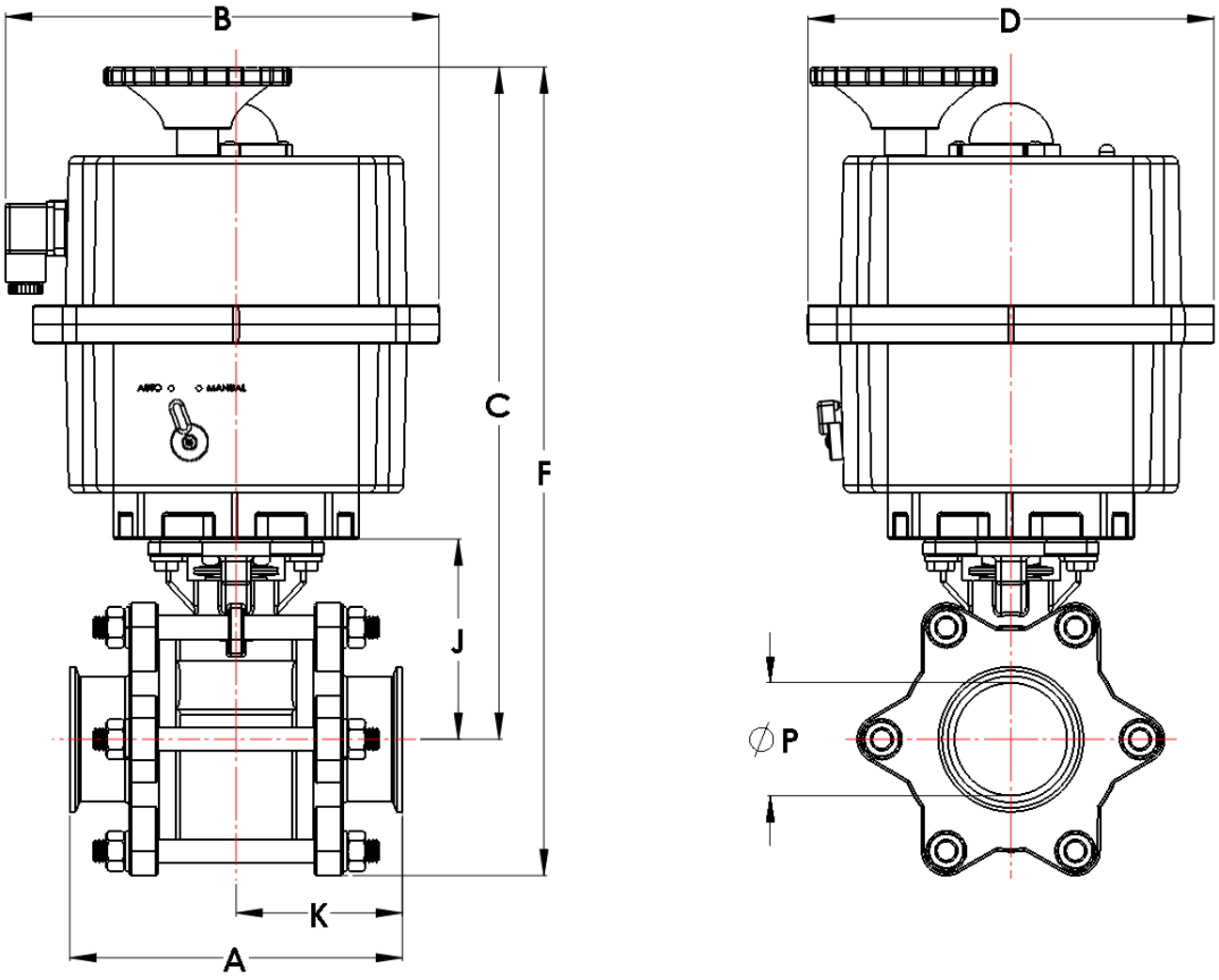
PIN 1 (COM) and 3 to confirm actuator is open

Dimensions:



Stock Number	Pipe Size		A	B	C	D	F	J	K	P	Valve ISO	Weight
570400A	1/2	inch	3.5	7.1	8.2	4.3	9.1	1.5	1.8	0.4	F03/F04	5.1 lb
		mm	88.9	179.0	208.3	110.0	231.1	37.0	44.5	10.2		2.3 kg
570401A	3/4	inch	4.0	7.1	8.5	4.3	9.5	1.8	2.0	0.6	F03/F04	5.4 lb
		mm	101.6	179.0	215.9	110.0	241.3	45.0	50.5	15.2		2.4 kg
570402A	1	inch	4.5	7.1	8.8	4.3	9.9	2.1	2.2	0.9	F04/F05	6.2 lb
		mm	114.3	179.0	223.5	110.0	251.5	53.5	57.0	22.9		2.8 kg
570403A	1-1/2	inch	5.5	7.0	10.6	4.3	12.1	2.9	2.8	1.4	F05/F07	10.2 lb
		mm	139.7	177.0	269.2	110.0	307.3	74.8	70.0	35.6		4.6 kg
570404A	2	inch	6.2	7.0	11.0	4.3	12.8	3.3	3.1	1.9	F05/F07	13.2 lb
		mm	157.5	177.0	279.4	110.0	325.1	83.5	78.0	48.3		6.0 kg

Dimensions:



Stock Number	Pipe Size		A	B	C	D	F	J	K	P	Valve ISO	Weight
570405A	2-1/2	inch	7.0	9.1	14.3	8.5	16.5	4.3	3.9	2.4	F07/F10	26.7 lb
		mm	177.8	232.0	363.2	217.0	419.1	108.8	98.5	61.0		12.1 kg
570406A	3	inch	9.0	9.1	14.7	8.5	17.3	4.7	4.5	2.9	F07/F10	35.1 lb
		mm	228.6	232.0	373.4	217.0	439.4	118.3	114.5	73.7		15.9 kg
570407A	4	inch	9.5	9.1	16.1	8.5	20.0	6.1	4.8	3.8	F07/F10	57.8 lb
		mm	241.3	232.0	408.9	217.0	508.0	153.8	121.5	96.5		26.2 kg