Air Actuated Ball Valves

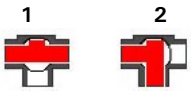
3-Way T-Port Stainless Steel, Full Bore
1/4" to 2" NPT

SERIES
5239
5240

Features

- Functions as diverter, selector or mixing valve
- 316 stainless steel body, ball, & stem
- RTFE (reinforced Teflon) ball seats
- Triple PTFE/Viton live loaded stem seals, adjustable
- Valves are tested per API 598
- Valve Anti-static device
- Spring Return or Double Acting Actuators
- Actuators designed for minimum 1 million cycles
- Quarter turn rack and pinion design
- Highly visible valve position indicator
- Actuator factory lubricated for normal lifetime

T- Flow Path



Position 1 - Shipped position

Applications

Stainless steel 3-way ball valves are typically used to control water, air, oil, vacuum and other media compatible with the materials of construction. Typically used as a diverter or selector valve. Unique four ball seat design allows for full pressure at any port. Cycle times approx. 1 second per 90° rotation. Steam service up to 25 PSI with optional high temperature mounting bracket. Suitable for vacuum service to 29"Hg.

Operation

Double acting actuators use air pressure to open and air pressure to close (change position) of the ball valve (4-way pilot). Spring return actuators use air pressure to open and springs to close the ball valve (3-way pilot). Actuator will work with filtered dry or lubricated compressed air. Air supply pilot pressure should be between 80 and 120 PSI. Easy to read visual valve position indicator located on top of actuator.

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" - 1-1/2") + Stem to Body (1-1/4" - 2")
Actuator Seals	NBR (Buna-N)
Actuator Body	Anodized aluminium, epoxy-polyester coated end covers
Position Indicator	Glass filled Polyamide
Fasteners	Stainless Steel

Description

Heavy duty quarter turn air actuators designed for long life and tested for a minimum 1 million operations. Three port valve has a T-port flow path for diverter or selector applications. Adjustable live loaded stem seal packing helps compensate for wear, pressure or temperature fluctuations, extending the cycle life of the valve. Blow-out proof stem. Standard Namur mounting pads for optional accessories, including position confirmation switches and pilot solenoid valves.

Approvals– Actuators

- CE Conformance– MD 2006/42/CE
- ISO5211/ DIN3337 valve mounting
- Namur VDI/VDE 3845 accessory mounting
- ATEX-94-9-CEE standard for explosive environment II 2GD c Tmax = 95°C

Standards– Valves

- Design: API 608
- Testing: API 598
- Threaded Connection:

ASME B1.20.1 (NPT)/ ISO 228-1/ BS21

- Pressure/Temperature Rating:

ASME B16.34

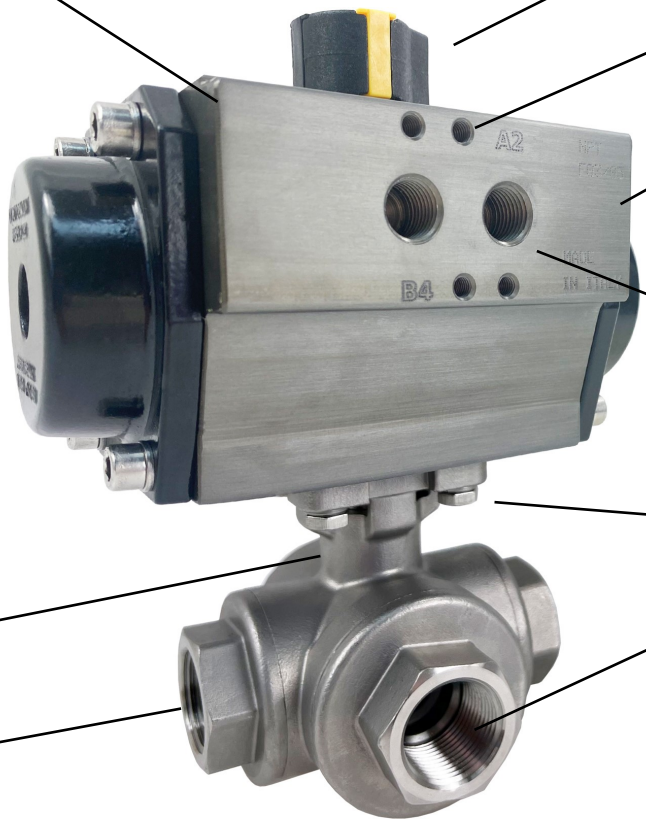
- Marking: MSS SP-25
- CE Conformance– PED 2014/68/UE

Specifications (English units)

Heavy duty rugged rack and pinion design

Aluminum alloy covers with 60-80 micron polyester powder coating

Spring return models use multiple pre-compressed spring cartridges with polyester coating



Visual valve position indicator

Standard Namur top mounting for optional switches and positioners

Extruded aluminum body with 50 micron hard anodizing

NPT pilot air ports and additional Namur VDI/VDE-3845 solenoid mounting pad

Direct mount ISO5211 flange, no brackets required

Full port 316 stainless steel ball valve

Triple PTFE/Viton live loaded stem seal design, adjustable

316SS ball and stem, RTFE ball seats

Pressure-Temperature

Pressure Rating: 1000 PSI* (69 Bar), 25 PSI saturated steam with high temp kit, Vacuum 29in Hg

Air Pilot Pressure Required: 80-120 PSI (5.5-8.3 Bar)

Ball Valve Temperature Rating: -4 to 392° F (-20 to 180° C)

Actuator Temperature Rating: -4 to 176° F (-20 to 80° C)

*See P/T chart

Optional Accessories

DMS: Direct Mount Solenoid
- pilot to electrically operate the ball valve
VPS: Valve Position Switches
- limit switches to confirm valve position
HTB: High Temperature Bracket

Specifications (English units)

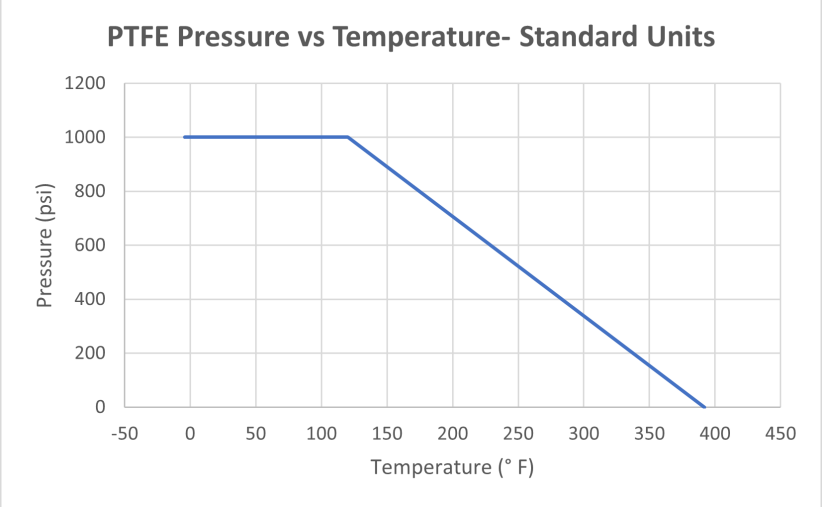
Stock Number	Pipe Size (NPT)	Orifice Size (inch)	Cv Flow Factor	Pressure Max.(PSI)*	Cycle Time /90° (seconds)	Pilot Air Port (NPT)
VALVE WITH SPRING RETURN ACTUATOR						
524002E	1/4	0.4	5.0	1000	1	1/4
524003E	3/8	0.4	7.3	1000	1	1/4
524004E	1/2	0.6	8.9	1000	1	1/4
524006E	3/4	0.8	18.9	1000	1	1/4
524008E	1	1.0	32.0	1000	1	1/4
524010E	1-1/4	1.3	41.2	1000	1	1/4
524012E	1-1/2	1.5	52.1	1000	1	1/4
524016E	2	2.00	79.3	1000	1	1/4
VALVE WITH DOUBLE ACTING ACTUATOR						
523902E	1/4	0.4	5.0	1000	1	1/8
523903E	3/8	0.4	7.3	1000	1	1/8
523904E	1/2	0.6	8.9	1000	1	1/8
523906E	3/4	0.8	18.9	1000	1	1/4
523908E	1	1.0	32.0	1000	1	1/4
523910E	1-1/4	1.3	41.2	1000	1	1/4
523912E	1-1/2	1.5	52.1	1000	1	1/4
523916E	2	2.00	79.3	1000	1	1/4

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

* Pressure @ 100° F (see P/T chart)

Pressure/Temperature Chart (PSI/°F)

P/T Chart (PSI/°F)					
PSI	1000	1000	900	700	0
°F	-4	104	167	212	392



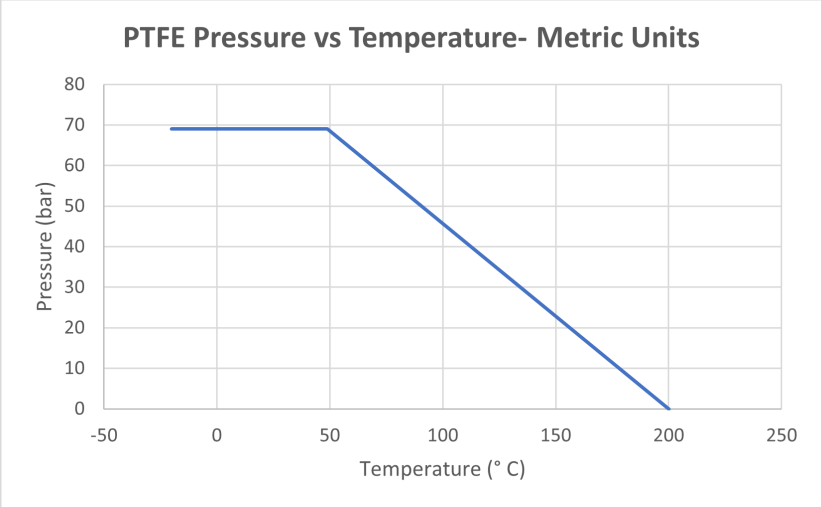
Specifications (Metric units)

Stock Number	Pipe Size (NPT)	Orifice Size (mm)	Kv Flow Factor	Pressure Max.(Bar)*	Cycle Time/90° (seconds)	Pilot Air Port (NPT)
VALVE WITH SPRING RETURN ACTUATOR						
524002E	1/4	11	4.3	69	1	1/4
524003E	3/8	11	6.3	69	1	1/4
524004E	1/2	16	7.7	69	1	1/4
524006E	3/4	20	16.3	69	1	1/4
524008E	1	25	27.7	69	1	1/4
524010E	1-1/4	32	35.6	69	1	1/4
524012E	1-1/2	38	45.1	69	1	1/4
524016E	2	50	68.6	69	1	1/4
VALVE WITH DOUBLE ACTING ACTUATOR						
523902E	1/4	11	4.3	69	1	1/8
523903E	3/8	11	6.3	69	1	1/8
523904E	1/2	16	7.7	69	1	1/8
523906E	3/4	20	16.3	69	1	1/4
523908E	1	25	27.7	69	1	1/4
523910E	1-1/4	32	35.6	69	1	1/4
523912E	1-1/2	38	45.1	69	1	1/4
523916E	2	50	68.6	69	1	1/4

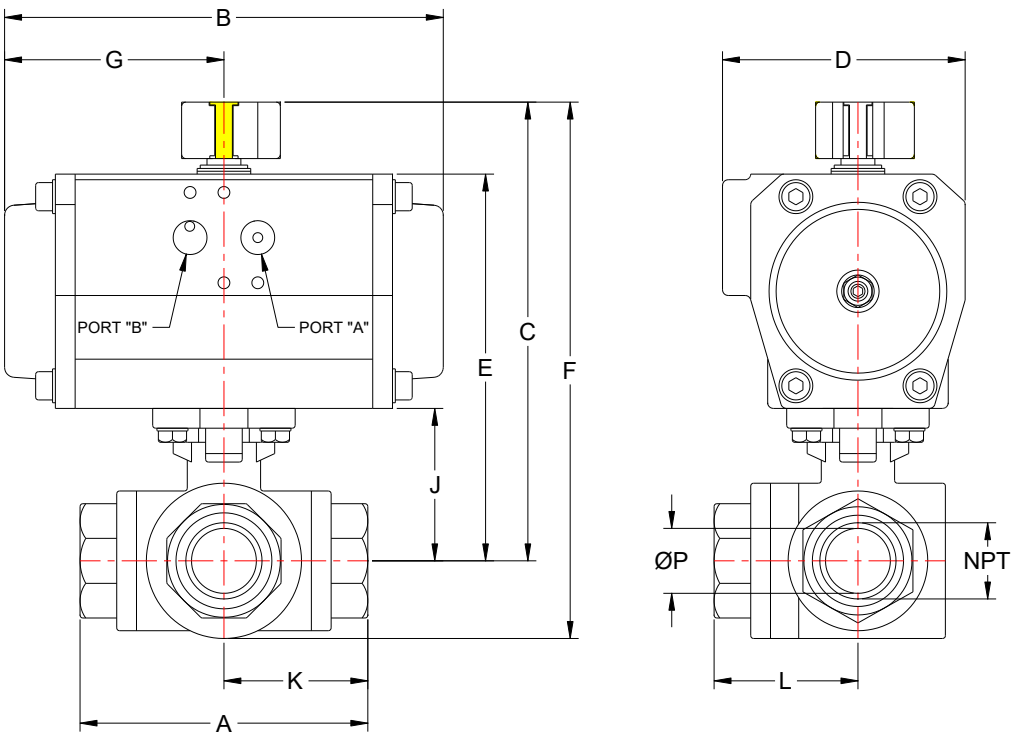
* Pressure @ 70° C (see P/T chart)

Pressure/Temperature Chart (Bar/°C)

P/T Chart (BAR/°C)					
BAR	69	69	62	48	0
°C	-20	40	75	100	200

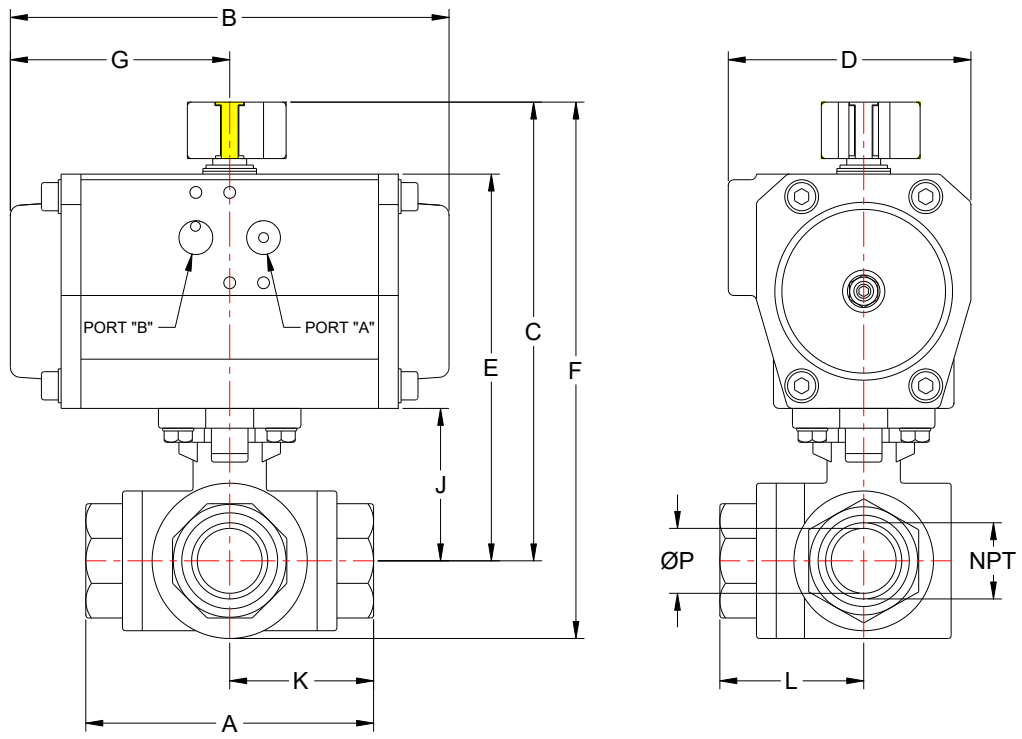


Dimensions: Spring Return



Pipe Size (NPT)		A	B	C	D	E	F	G	J	K	L	P	Ports (NPT)	Weight
1/4	inch	2.9	6.1	5.6	3.4	4.8	6.4	3.1	1.5	1.5	1.5	0.4	1/4	5.6 lb
	mm	76.0	154.9	142.2	86.4	121.9	162.6	78.7	38.2	38.0	38.5	11.0	-	2.5 kg
3/8	inch	2.9	6.1	5.6	3.4	4.8	6.4	3.1	1.5	1.5	1.5	0.4	1/4	5.6 lb
	mm	76.0	154.9	142.2	86.4	121.9	162.6	78.7	38.2	38.0	38.5	11.0	-	2.5 kg
1/2	inch	3.3	6.1	5.9	3.4	5.1	6.8	3.1	1.8	1.7	1.8	0.6	1/4	6.3 lb
	mm	85.0	154.9	149.9	86.4	129.5	172.7	78.7	45.2	42.5	45.0	16.0	-	2.9 kg
3/4	inch	3.9	6.1	6.3	3.4	5.5	7.4	3.1	2.2	1.9	2.0	0.8	1/4	7.5 lb
	mm	98.0	154.9	160.0	86.4	139.7	188.0	78.7	56.5	49.0	51.5	20.0	-	3.4 kg
1	inch	4.4	8.3	7.1	3.7	6.3	8.5	4.2	2.4	2.2	2.3	1.0	1/4	12.2 lb
	mm	112.5	210.8	180.3	94.0	160.0	215.9	106.7	61.9	56.3	58.0	25.0	-	5.5 kg
1-1/4	inch	4.9	9.1	8.2	4.1	7.4	9.7	4.6	3.1	2.5	2.5	1.3	1/4	17.9 lb
	mm	125.0	231.1	208.3	104.1	188.0	246.4	116.8	78.3	62.5	63.0	32.0	-	8.2 kg
1-1/2	inch	5.6	11.0	9.1	4.7	8.3	11.1	5.5	3.4	2.8	2.9	1.5	1/4	26.9 lb
	mm	141.0	279.4	231.1	119.4	210.8	281.9	139.7	87.4	70.5	74.5	38.0	-	12.2 kg
2	inch	6.7	12.2	11.0	5.3	9.8	13.1	6.1	4.2	3.4	3.4	2.0	1/4	39.3 lb
	mm	171.0	309.9	279.4	134.6	248.9	332.7	154.9	105.8	85.5	85.5	50.0	-	17.8 kg

Dimensions: Double Acting



Pipe Size (NPT)		A	B	C	D	E	F	G	J	K	L	P	Ports (NPT)	Weight
1/4	inch	2.9	5.5	4.1	3.0	4.9	5.7	2.8	1.5	1.5	1.5	0.4	1/8	3.9 lb
	mm	76.0	139.7	104.1	76.2	124.5	144.8	71.1	38.2	38.0	38.5	11.0	-	1.8 kg
3/8	inch	2.9	5.5	4.1	3.0	4.9	5.7	2.8	1.5	1.5	1.5	0.4	1/8	3.9 lb
	mm	76.0	139.7	104.1	76.2	124.5	144.8	71.1	38.2	38.0	38.5	11.0	-	1.8 kg
1/2	inch	3.3	5.5	4.4	3.0	5.2	6.1	2.8	1.8	1.7	1.8	0.6	1/8	4.6 lb
	mm	85.0	139.7	111.8	76.2	132.1	154.9	71.1	45.2	42.5	45.0	16.0	-	2.1 kg
3/4	inch	3.9	6.1	5.5	3.4	6.3	7.4	3.1	2.2	1.9	2.0	0.8	1/4	6.9 lb
	mm	98.0	154.9	139.7	86.4	160.0	188.0	78.7	56.5	49.0	51.5	20.0	-	3.1 kg
1	inch	4.4	6.1	5.7	3.4	6.5	7.9	3.1	2.4	2.2	2.3	1.0	1/4	8.5 lb
	mm	112.5	154.9	144.8	86.4	165.1	200.7	78.7	61.9	56.3	58.0	25.0	-	3.9 kg
1-1/4	inch	4.9	8.3	7.0	3.7	7.8	9.3	4.2	3.1	2.5	2.5	1.3	1/4	13.9 lb
	mm	125.0	210.8	177.8	94.0	198.1	236.2	106.7	78.3	62.5	63.0	32.0	-	6.3 kg
1-1/2	inch	5.6	8.3	7.3	3.7	8.1	10.1	4.2	3.4	2.8	2.9	1.5	1/4	18.6 lb
	mm	141.0	210.8	185.4	94.0	205.7	256.5	106.7	87.4	70.5	74.5	38.0	-	8.5 kg
2	inch	6.7	9.1	8.5	4.1	9.3	11.4	4.6	4.2	3.4	3.4	2.0	1/4	26.3 lb
	mm	171.0	231.1	215.9	104.1	236.2	289.6	116.8	105.8	85.5	85.5	50.0	-	11.9 kg