Valworx®

Air Actuated Ball Valves

3-Piece Stainless Steel, Full Port
1/4" to 3" NPT

SERIES
5224
5225

Features

- Full port design for unrestricted flow
- 316SS 3-piece investment cast body
- Swing-out center section
- RTFE (reinforced Teflon) ball seats
- Triple PTFE/Viton live loaded stem seals, adjustable
- Valves tested accordance with API 598
- 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

Applications

On-off control of water, air, oil and other media compatible with the materials of construction. Cycle times approx. 1 to 1.5 seconds 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 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" - 3") + Stem to Body (1-1/2" - 3")
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. Unique 3-piece investment cast bolted body design offers the advantage of a swing-out body for easy inline maintenance. 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 accessory confirmation switches, pilot valves and valve positioners.

Approvals– Actuators

- CE– MD 2006-42/CE
- ISO5211/ DIN3337 valve mounting
- Namur VDI/VDE 3845 accessory mounting

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– PED 2014/68/UE

Construction Features

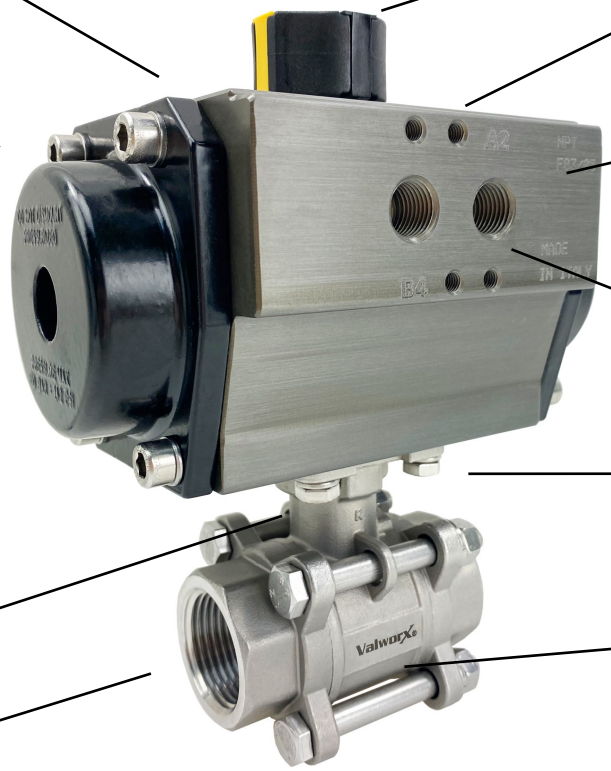
Heavy duty rugged rack and pinion design

Aluminum alloy covers with 60-80 micron polyester powder coating

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

Triple PTFE/Viton live loaded stem seal design, adjustable

316SS ball and stem, RTFE ball seats



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, no brackets required

Full port 316 stainless steel ball valve, repairable and easily removed from pipe line

Pressure-Temperature

Pressure Rating: 1000 PSI* (69 Bar*) CWP non-shock 1/4"to 2" sizes
800 PSI* (55 Bar*) CWP non shock 2-1/2" to 3" sizes
25 PSI saturated steam with high temp kit
Vacuum to 29inHg

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

Ball Valve Temperature Rating: -4 to 392° F (-20 to 200° C)

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

Optional Accessories

DMS: Direct Mount Solenoid
- pilot to electrically operate the ball valve

VPS: Valve Position Switches
- limit switches to confirm valve position

PVP: Pneumatic Valve Positioner
- position the ball with 4-20mA or 0-10v

HTB: High Temperature Bracket
- increases media working temperature

Specifications (English units)

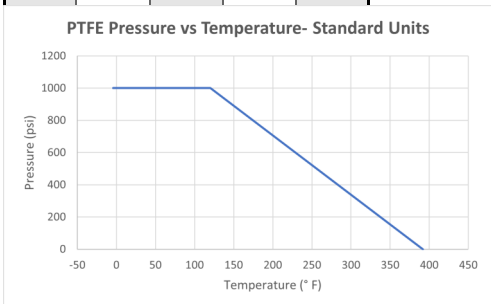
Stock Number	Pipe Size (NPT)	Orifice Size (inch)	Cv Flow Factor	Pressure Max.(PSI)*	Air Volume/90° (cubic inches)	Cycle Time /90° (seconds)	Pilot Air Port (NPT)
STAINLESS 3pc VALVE WITH SPRING RETURN ACTUATOR							
522502C	1/4	0.5	6.9	1000	36.6	1	1/8
522503C	3/8	0.5	6.9	1000	36.6	1	1/8
522504C	1/2	0.6	9.7	1000	36.6	1	1/8
522506C	3/4	0.8	18.4	1000	79.3	1	1/4
522508E	1	1.0	55.4	1000	103.7	1	1/4
522510C	1-1/4	1.3	89.7	1000	103.7	1	1/4
522512C	1-1/2	1.5	144.2	1000	305.1	1	1/4
522516C	2	2.0	226.0	1000	305.1	1	1/4
522520C	2-1/2	2.6	289.0	800	305.1	1.5	1/4
522524C	3	3.2	454.0	800	836.0	1.5	1/4
STAINLESS 3pc VALVE WITH DOUBLE ACTING ACTUATOR							
522402C	1/4	0.5	6.9	1000	97.6	1	1/8
522403C	3/8	0.5	6.9	1000	97.6	1	1/8
522404C	1/2	0.6	9.7	1000	97.6	1	1/8
522406C	3/4	0.8	18.4	1000	97.6	1	1/8
522408C	1	1.0	55.4	1000	195.3	1	1/4
522410C	1-1/4	1.3	89.7	1000	195.3	1	1/4
522412C	1-1/2	1.5	144.2	1000	262.4	1	1/4
522416C	2	2.0	226.0	1000	262.4	1	1/4
522420C	2-1/2	2.6	289.0	800	421.1	1.5	1/4
522424C	3	3.2	454.0	800	768.9	1.5	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)

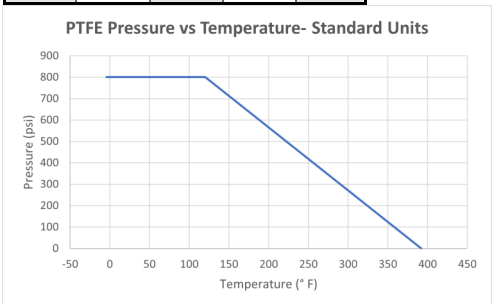
Pressure/Temp. Chart - 1000 PSI (69 Bar)

P/T Chart (PSI/°F)				
PSI	1000	1000	100	0
°F	-4	50	330	392



Pressure/Temp. Chart - 800 PSI (55 Bar)

P/T Chart (PSI/°F)				
PSI	800	800	100	0
°F	-4	50	330	392



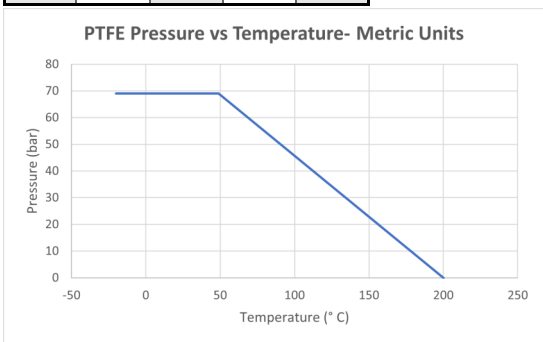
Specifications (Metric units)

Stock Number	Pipe Size (NPT)	Orifice Size	Kv Flow Factor	Pressure	Air Volume/90°	Cycle Time/90°	Pilot Air Port
STAINLESS 3pc VALVE WITH SPRING RETURN ACTUATOR							
522502C	1/4	11.5	5.9	69	0.6	1	1/8
522503C	3/8	12.5	5.9	69	0.6	1	1/8
522504C	1/2	15	8.4	69	0.6	1	1/8
522506C	3/4	20	15.9	69	1.3	1	1/4
522508E	1	25	47.9	69	1.7	1	1/4
522510C	1-1/4	32	77.6	69	1.7	1	1/4
522512C	1-1/2	38	124.7	69	5.0	1	1/4
522516C	2	50	195.5	69	5.0	1	1/4
522520C	2-1/2	65	249.7	55	5.0	1.5	1/4
522524C	3	80	392.3	55	13.7	1.5	1/4
STAINLESS 3pc VALVE WITH DOUBLE ACTING ACTUATOR							
522402C	1/4	11.5	5.9	69	1.6	1	1/8
522403C	3/8	12.5	5.9	69	1.6	1	1/8
522404C	1/2	15	8.4	69	1.6	1	1/8
522406C	3/4	20	15.9	69	1.6	1	1/8
522408C	1	25	47.9	69	3.2	1	1/4
522410C	1-1/4	32	77.6	69	3.2	1	1/4
522412C	1-1/2	38	124.7	69	4.3	1	1/4
522416C	2	50	195.5	69	4.3	1	1/4
522420C	2-1/2	65	249.7	55	6.9	1.5	1/4
522424C	3	80	392.3	55	12.6	1.5	1/4

* Pressure @ 70° C (see P/T chart)

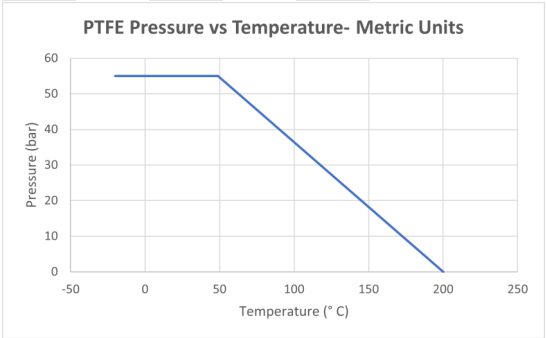
Pressure/Temp. Chart - 1000 PSI (69

P/T Chart (BAR/°C)				
Bar	69	69	7	0
°C	-20	10	166	200

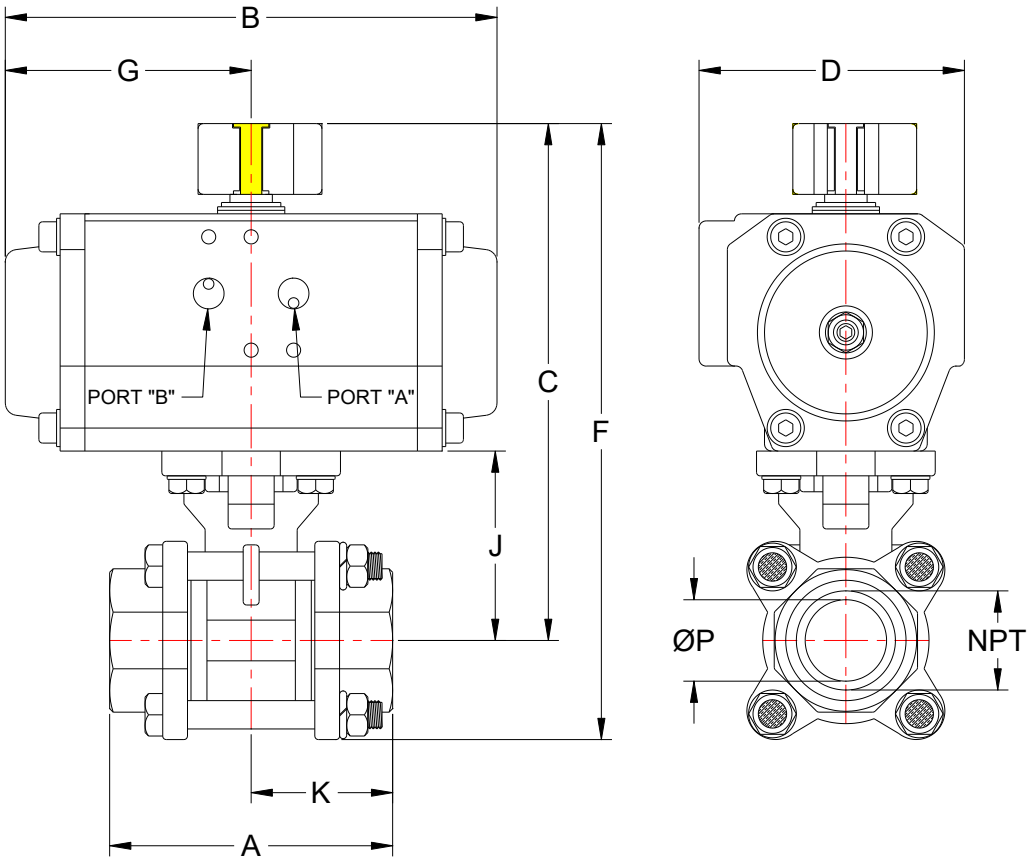


Pressure/Temp. Chart - 800 PSI (55 Bar)

P/T Chart (BAR/°C)				
Bar	55	55	7	0
°C	-20	10	166	200

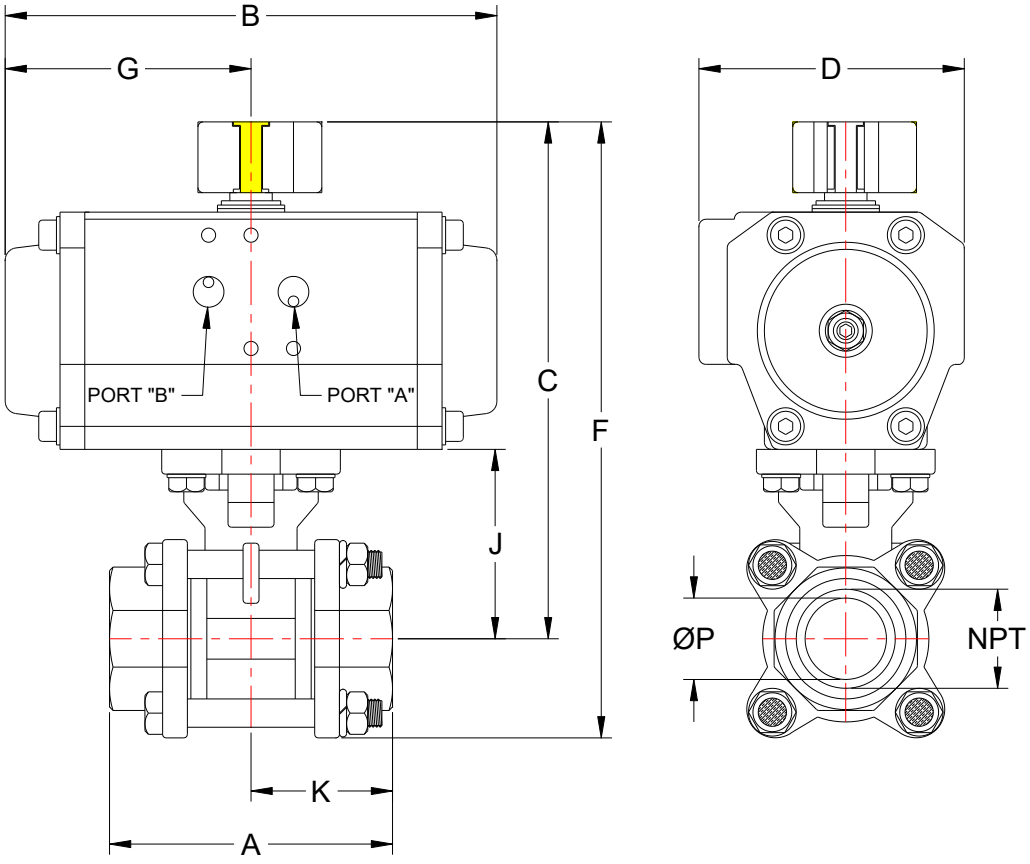


Dimensions: Spring Return (inches (mm))



Pipe Size	A	B	C	D	F	G	J	K	P	Ports	Weight
1/4	2.5 (63.5)	5.5 (139.0)	4.9 (124.5)	3.0 (75.0)	5.8 (147.3)	2.7 (69.5)	1.5 (37.0)	1.4 (35.0)	0.5 (11.5)	1/8	4.0 (1.8)
3/8	2.5 (63.5)	5.5 (139.0)	4.9 (124.5)	3.0 (75.0)	5.8 (147.3)	2.7 (69.5)	1.5 (37.0)	1.3 (32.4)	0.5 (12.5)	1/8	4.2 (1.9)
1/2	2.5 (63.5)	5.5 (139.0)	4.9 (124.5)	3.0 (75.0)	5.8 (147.3)	2.7 (69.5)	1.5 (37.0)	1.3 (32.4)	0.6 (15.0)	1/8	4.0 (1.8)
3/4	2.9 (72.5)	6.1 (156.0)	5.9 (149.9)	3.4 (86.0)	6.7 (170.2)	3.1 (78.0)	1.8 (45.0)	1.4 (36.3)	0.8 (20.0)	1/4	5.8 (2.6)
1	3.2 (81.0)	8.3 (210.0)	6.8 (172.7)	3.7 (94.0)	7.9 (200.7)	4.1 (105.0)	2.1 (53.5)	1.6 (40.5)	1.0 (25.0)	1/4	9.6 (4.4)
1-1/4	3.7 (94.5)	8.3 (210.0)	7.0 (177.8)	3.7 (94.0)	8.3 (210.8)	4.1 (105.0)	2.3 (59.0)	1.9 (47.3)	1.3 (32.0)	1/4	10.8 (4.9)
1-1/2	4.3 (108.0)	11.0 (280.0)	8.6 (218.4)	4.7 (120.0)	10.1 (256.5)	5.5 (140.0)	2.9 (74.8)	2.1 (54.0)	1.5 (38.0)	1/4	20.1 (9.1)
2	4.8 (121.5)	11.0 (280.0)	9.0 (228.6)	4.7 (120.0)	10.8 (274.3)	5.5 (140.0)	3.3 (83.5)	2.4 (60.8)	2.0 (50.0)	1/4	22.5 (10.2)
2-1/2	6.2 (157.5)	11.0 (280.0)	10.0 (254.0)	4.7 (120.0)	12.2 (309.9)	5.5 (140.0)	4.3 (108.8)	3.1 (78.9)	2.6 (65.0)	1/4	31.4 (14.2)
3	7.5 (190.0)	15.4 (390.0)	12.8 (325.1)	6.4 (163.0)	15.4 (391.2)	7.7 (195.0)	4.7 (118.3)	3.7 (95.0)	3.2 (80.0)	1/4	65.8 (29.8)

Dimensions: Double Acting (inches (mm))



Pipe Size (NPT)	A	B	C	D	F	G	J	K	P	Ports (NPT)	Weight lbs (kg)
1/4	2.5 (63.5)	5.5 (139.0)	4.9 (124.5)	3.0 (75.0)	5.8 (147.3)	2.7 (69.5)	1.5 (37.0)	1.4 (35.0)	0.5 (11.5)	1/8	3.7 (1.7)
3/8	2.5 (63.5)	5.5 (139.0)	4.9 (124.5)	3.0 (75.0)	5.8 (147.3)	2.7 (69.5)	1.5 (37.0)	1.3 (32.4)	0.5 (12.5)	1/8	3.9 (1.8)
1/2	2.5 (63.5)	5.5 (139.0)	4.9 (124.5)	3.0 (75.0)	5.8 (147.3)	2.7 (69.5)	1.5 (37.0)	1.3 (32.4)	0.6 (15.0)	1/8	3.7 (1.7)
3/4	2.9 (72.5)	5.5 (139.0)	5.2 (132.1)	3.0 (75.0)	6.0 (152.4)	2.7 (69.5)	1.8 (45.0)	1.4 (36.3)	0.8 (20.0)	1/8	4.1 (1.9)
1	3.2 (81.0)	6.1 (156.0)	6.2 (157.5)	3.4 (86.0)	7.3 (185.4)	3.1 (78.0)	2.1 (53.5)	1.6 (40.5)	1.0 (25.0)	1/4	5.9 (2.7)
1-1/4	3.7 (94.5)	6.1 (156.0)	6.4 (162.6)	3.4 (86.0)	7.7 (195.6)	3.1 (78.0)	2.3 (59.0)	1.9 (47.3)	1.3 (32.0)	1/4	7.1 (3.2)
1-1/2	4.3 (108.0)	8.3 (210.0)	7.6 (193.0)	3.7 (94.0)	9.1 (231.1)	4.1 (105.0)	2.9 (74.8)	2.1 (54.0)	1.5 (38.0)	1/4	11.8 (5.4)
2	4.8 (121.5)	8.3 (210.0)	8.0 (203.2)	3.7 (94.0)	9.8 (248.9)	4.1 (105.0)	3.3 (83.5)	2.4 (60.8)	2.0 (50.0)	1/4	14.2 (6.4)
2-1/2	6.2 (157.5)	9.1 (230.0)	9.4 (238.8)	4.1 (104.0)	11.6 (294.6)	4.5 (115.0)	4.3 (108.8)	3.1 (78.9)	2.6 (65.0)	1/4	26.0 (11.8)
3	7.5 (190.0)	11.0 (280.0)	10.4 (264.2)	4.7 (120.0)	13.0 (330.2)	5.5 (140.0)	4.7 (118.3)	3.7 (95.0)	3.2 (80.0)	1/4	37.5 (17.0)