Air Actuated Ball Valves

2-Way, Lead Free Brass, Full Port
1/4" to 3" NPT

SERIES
5214

Features

- Spring Return or Double Acting Actuators
- Lead Free Brass Ball Valve with ISO5211 direct mounting
- Full port design for unrestricted flow
- Ball and stem 316 stainless steel
- Actuators designed for minimum 1 million cycles
- Quarter turn rack and pinion design
- Highly visible valve position indicator
- Actuator factory lubricated for normal lifetime
- Energized PTFE ball seats for lower torque and longer life
- Triple PTFE/FKM stem seal packing design
- Valve Certified NSF372 & NSF61 for potable/drinking water

Applications

Air actuated On-Off control of water, air, oil and other media compatible with the materials of construction. Ideal where lead free and NSF approved construction are required for potable drinking water as well as general industrial applications. Cycle times approximately 1 to 1.5 seconds per 90° rotation. Valves can be mounted in any orientation. Suitable for steam service up to 25 PSI with optional high temperature mounting kit and 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 is located on top of the actuator. Standard valves are setup normally closed (valves can be setup normally open by request or easily changed in the field).

Construction

Valve Body	Lead Free Brass C69300
Ball/Stem	316 stainless steel
Ball Seats	PTFE (Teflon) energized with FKM (Viton)
Stem Seals	PTFE (Teflon) with dual FKM (Viton) seals
Actuator Seals	NBR (Buna-N)
Actuator Body	Anodized aluminum, polyester powder coated end covers
Position Indicator	Glass filled Polyamide
Fasteners	Stainless Steel

Description

Heavy duty quarter turn air actuators are designed for long life and tested for a minimum 1 million operations. Available in spring return or double acting. Full port lead free brass ball valve direct mounts to the actuator and has unrestricted flow. These automated ball valves incorporate a 316 stainless steel ball and stem rather than your typical plated brass. Ball seats are energized PTFE for low torque and extended life. Unique leak free triple stem seal design with PTFE and dual Viton seals for the perfect stem seal design. Standard Namur/ISO mounting pads for easy mounting of optional solenoid valve, limit switch or positioner accessories.

Approvals

Actuators

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

Valves

- IAPMO RT certified to:
  - NSF/ANSI 372 - 2011 Drinking Water
  - NSF/ANSI 61 - 2015
  - Weighted average lead content <=0.25%
- Meets design MSS-SP-110

LEAD FREE

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
- Stainless steel fasteners
- 316 stainless steel stem with triple PTFE/FKM leak free stem seal design
- 316 stainless steel ball with energized PTFE seats for reduced torque and extended cycle life
- Visual valve position indicator
- Namur standard top mounting for accessories
- Extruded aluminum body with 15 micron hard anodizing
- NPT threaded ports with Namur VDI/VDE-3845 solenoid mounting pad
- Ball valve direct mounted to actuator, no brackets required
- Full Port lead free brass ball valve, certified for use with potable/drinking water

Pressure-Temperature

Valve Pressure Rating: 600 PSI (41 Bar)* non-shock, 1-4" to 2" NPT sizes
300 PSI (21 Bar)* non-shock, 2-1/2" & 3" NPT sizes
25 PSI saturated steam with high temp kit
29" Hg vacuum

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

Ball Valve Temperature Rating: -4 to 366° F (-20 to 186° C)

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

*See P/T chart

Optional Accessories

- Direct Mount Solenoid Valves - pilot valve for electrically operating the ball valve
- Valve Monitor/Limit Switches - limit switches used to confirm valve position
- Pneumatic Valve Positioners - position the ball with 4-20mA or 3-15 PSI
- High Temperature Mounting Kit - increases allowable media temperature

Pressure/Temperature Chart (PSI/°F)

P/T Chart						
PSI	600	600	600	600	550	400
°F	0	50	100	176	200	266

Pressure/Temperature Chart (Bar/°C)

P/T Chart						
Bar	41	41	41	41	38	27
°C	-18	10	38	80	93	130

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)
LEAD FREE BRASS BALL VALVE: SPRING RETURN ACTUATOR						
521440	1/4	0.39	6	600	1	1/8
521441	3/8	0.50	10	600	1	1/8
521442	1/2	0.59	15	600	1	1/8
521443	3/4	0.75	30	600	1	1/4
521444	1	1.00	60	600	1	1/4
521445	1-1/4	1.22	89	600	1	1/4
521446	1-1/2	1.50	125	600	1	1/4
521447	2	2.00	240	600	1	1/4
521448	2-1/2	2.50	320	300	1.5	1/4
521449	3	3.00	551	300	1.5	1/4
LEAD FREE BRASS BALL VALVE: DOUBLE ACTING ACTUATOR						
521402	1/4	0.39	6	600	1	1/8
521403	3/8	0.50	10	600	1	1/8
521404	1/2	0.59	15	600	1	1/8
521406	3/4	0.75	30	600	1	1/8
521408	1	1.00	60	600	1	1/8
521410	1-1/4	1.22	89	600	1	1/8
521412	1-1/2	1.50	125	600	1	1/4
521416	2	2.00	240	600	1	1/4
521420	2-1/2	2.50	320	300	1.5	1/4
521424	3	3.00	551	300	1.5	1/4
COMPACT LEAD FREE BRASS BALL VALVE: DOUBLE ACTING ACTUATOR						
521430	1/4	0.39	6	150	1	1/8
521431	3/8	0.50	10	150	1	1/8
521432	1/2	0.59	15	150	1	1/8
521433	3/4	0.75	30	150	1	1/8

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

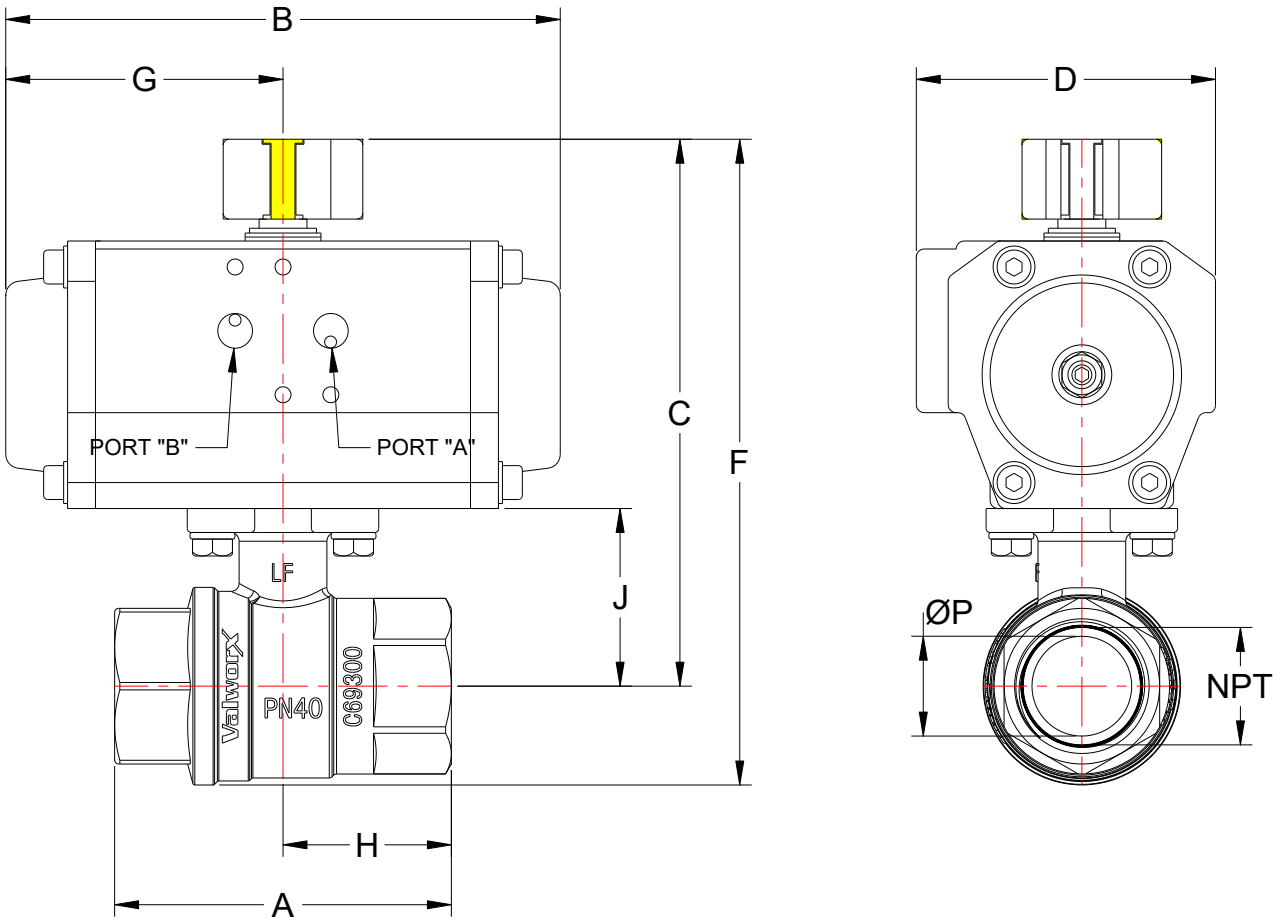
* Pressure at 176° F (reduced pressure with higher temperatures- see P/T chart)

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)
LEAD FREE BRASS BALL VALVE: SPRING RETURN ACTUATOR						
521440	1/4	10	5	40	1	1/8
521441	3/8	12.7	8.6	40	1	1/8
521442	1/2	15	13	40	1	1/8
521443	3/4	19	26	40	1	1/4
521444	1	25	52	40	1	1/4
521445	1-1/4	31	76	40	1	1/4
521446	1-1/2	38	107	40	1	1/4
521447	2	50	206	40	1	1/4
521448	2-1/2	63	275	21	1.5	1/4
521449	3	76	474	21	1.5	1/4
LEAD FREE BRASS BALL VALVE: DOUBLE ACTING ACTUATOR						
521402	1/4	10	5	40	1	1/8
521403	3/8	12.7	8.6	40	1	1/8
521404	1/2	15	13	40	1	1/8
521406	3/4	19	26	40	1	1/8
521408	1	25	52	40	1	1/8
521410	1-1/4	31	76	40	1	1/8
521412	1-1/2	38	107	40	1	1/4
521416	2	50	206	40	1	1/4
521420	2-1/2	63	275	21	1.5	1/4
521424	3	76	474	21	1.5	1/4
COMPACT LEAD FREE BRASS BALL VALVE: DOUBLE ACTING ACTUATOR						
521430	1/4	10	5	10	1	1/8
521431	3/8	12.7	8.6	10	1	1/8
521432	1/2	15	13	10	1	1/8
521433	3/4	19	26	10	1	1/8

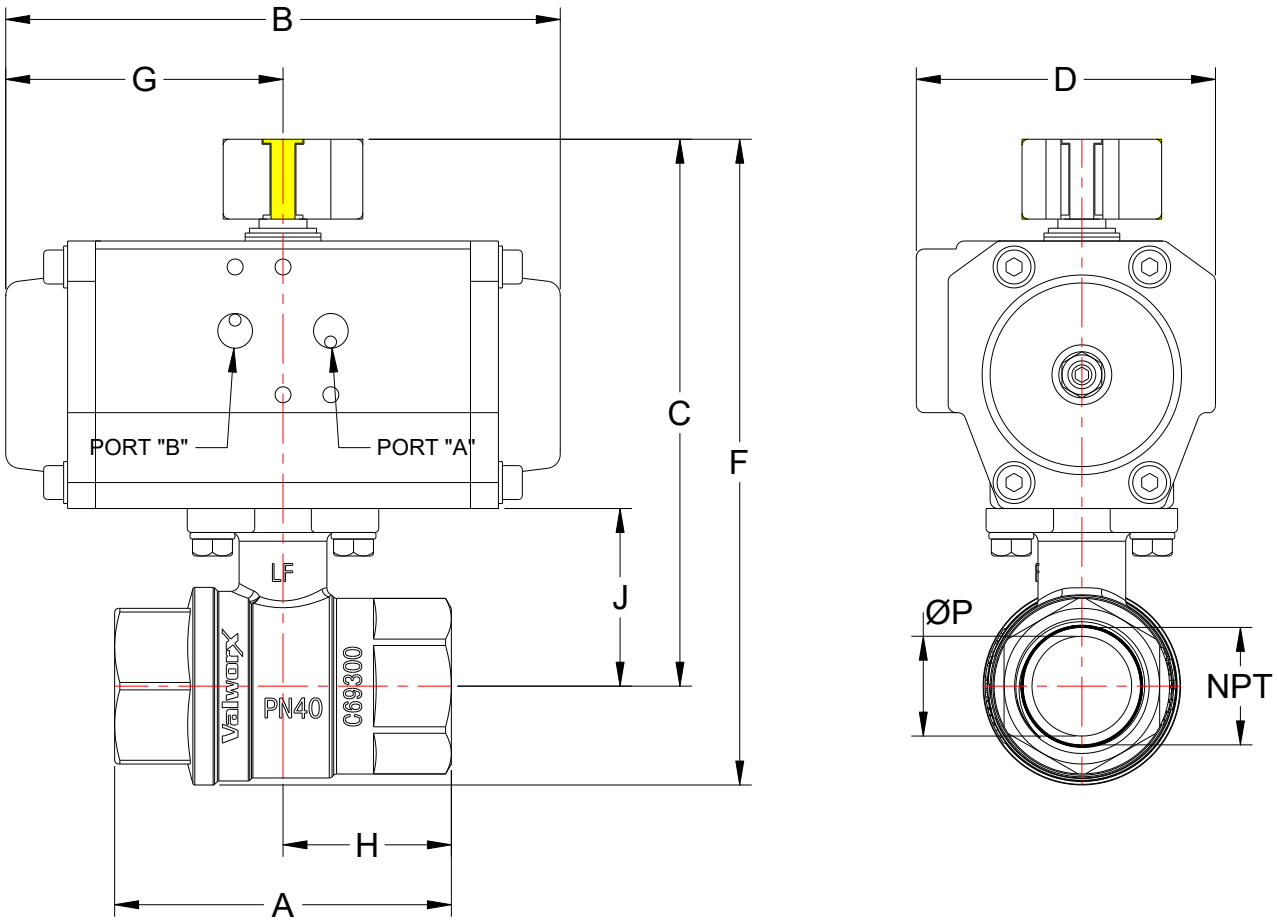
* Pressure at 80° C (reduced pressure at higher temperatures - see P/T chart)

Dimensions: Spring Return (inches (mm))



Pipe Size (NPT)	A	B	C	D	F	G	H	J	P	Port A/B (NPT)	Weight lbs (kg)
1/4	1.9 (47.6)	5.5 (139)	4.3 (109)	2.9 (75)	4.8 (121)	2.7 (69.5)	0.9(23.8)	0.9 (22)	0.39 (10)	1/8	3.3 (1.5)
3/8	2.0 (51.4)	5.5 (139)	4.5 (114)	2.9 (75)	5.0 (128)	2.7 (69.5)	1.0 (25.7)	1.0 (26.5)	0.50 (12.7)	1/8	3.4 (1.5)
1/2	2.5 (63.6)	5.5 (139)	4.7 (119)	2.9 (75)	5.4 (136)	2.7 (69.5)	1.3 (31.8)	1.3 (32)	0.59 (15)	1/8	3.6 (1.6)
3/4	2.7 (69.0)	6.1 (155.5)	5.4 (138)	3.4 (86)	6.2 (158)	3.1 (77.8)	1.4 (34.5)	1.4 (34.8)	0.75 (19)	1/4	5.2 (2.4)
1	3.3 (84.4)	6.1 (155.5)	5.8 (148)	3.4 (86)	6.8 (172)	3.1 (77.8)	1.7 (42.2)	1.8 (44.5)	1.00 (25)	1/4	5.8 (2.6)
1-1/4	3.7 (92.7)	6.1 (155.5)	6.0 (153)	3.4 (86)	7.2 (182)	3.1 (77.8)	1.8 (46.3)	1.9 (49.5)	1.22 (31)	1/4	6.4 (2.9)
1-1/2	4.1 (104)	8.3 (210)	7.1 (181)	3.7 (94)	8.5 (216)	4.1 (105)	2.1 (52.1)	2.4 (60.5)	1.50 (38)	1/4	10.6 (4.8)
2	4.8 (121)	8.3 (210)	7.6 (192)	3.7 (94)	9.3 (237)	4.1 (105)	2.4 (60.6)	2.8 (72)	2.00 (50)	1/4	12.5 (5.7)
2-1/2	6.1 (154)	11.0 (280)	9.1 (231)	4.7 (120)	11.3 (288)	5.5 (140)	3.0 (77.1)	3.4 (86)	2.50 (63)	1/4	23.8 (10.8)
3	6.9 (175)	11.0 (280)	9.5 (242)	4.7 (120)	12.2 (309)	5.5 (140)	3.5 (87.6)	3.8 (97)	3.00 (76)	1/4	27.7 (12.6)

Dimensions: Standard Double Acting (inches (mm))



Pipe Size (NPT)	A	B	C	D	F	G	H	J	P	Port A/B (NPT)	Weight lbs (kg)
1/4	1.9 (47.6)	5.5 (139)	4.3 (109)	2.9 (75)	4.8 (121)	2.7 (69.5)	0.9 (23.8)	0.9 (22)	0.39 (10)	1/8	3.0 (1.4)
3/8	2.0 (51.4)	5.5 (139)	4.5 (114)	2.9 (75)	5.0 (128)	2.7 (69.5)	1.0 (25.7)	1.0 (26.5)	0.50 (12.7)	1/8	3.1 (1.4)
1/2	2.5 (63.6)	5.5 (139)	4.7 (119)	2.9 (75)	5.4 (136)	2.7 (69.5)	1.3 (31.8)	1.3 (32)	0.59 (15)	1/8	3.3 (1.5)
3/4	2.7 (69)	5.5 (139)	4.8 (122)	2.9 (75)	5.6 (142)	2.7 (69.5)	1.4 (34.5)	1.4 (34.8)	0.75 (19)	1/8	3.5 (1.6)
1	3.3 (84.4)	5.5 (139)	5.2 (132)	2.9 (75)	6.1 (156)	2.7 (69.5)	1.7 (42.2)	1.8 (44.5)	0.98 (25)	1/8	4.1 (1.9)
1-1/4	3.7 (92.7)	5.5 (139)	5.4 (137)	2.9 (75)	6.5 (166)	2.7 (69.5)	1.8 (46.3)	1.9 (49.5)	1.22 (31)	1/8	4.7 (2.1)
1-1/2	4.1 (104)	6.1 (155.5)	6.7 (164)	3.4 (86)	7.8 (199)	3.1 (77.8)	2.1 (52.1)	2.4 (60.5)	1.50 (38)	1/4	6.9 (3.1)
2	4.8 (121)	6.1 (155.5)	6.9 (175)	3.4 (86)	8.7 (220)	3.1 (77.8)	2.4 (60.6)	2.8 (72)	2.00 (50)	1/4	8.8 (4.0)
2-1/2	6.1 (154)	8.3 (210)	8.1 (206)	3.7 (94)	10.4 (263)	4.1 (105)	3.0 (77.1)	3.4 (86)	2.50 (63)	1/4	15.5 (7.0)
3	6.9 (175)	8.3 (210)	8.5 (217)	3.7 (94)	11.2 (284)	4.1 (105)	3.5 (87.6)	3.8 (97)	3.00 (76)	1/4	19.4 (8.8)