

### 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 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

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

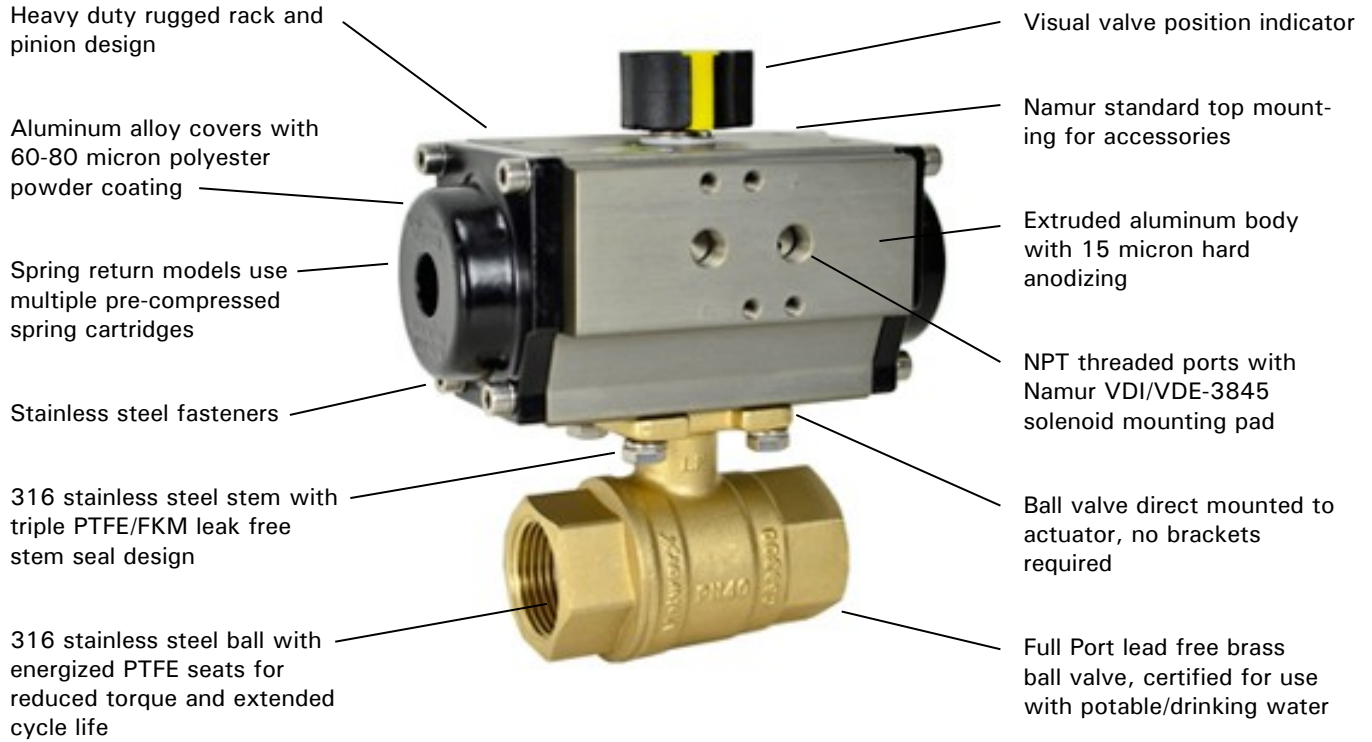
#### Actuators

- 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

### Construction Features



### 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  
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)
<b>LEAD FREE BRASS BALL VALVE: SPRING RETURN ACTUATOR</b>						
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
<b>LEAD FREE BRASS BALL VALVE: DOUBLE ACTING ACTUATOR</b>						
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
<b>COMPACT LEAD FREE BRASS BALL VALVE: DOUBLE ACTING ACTUATOR</b>						
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

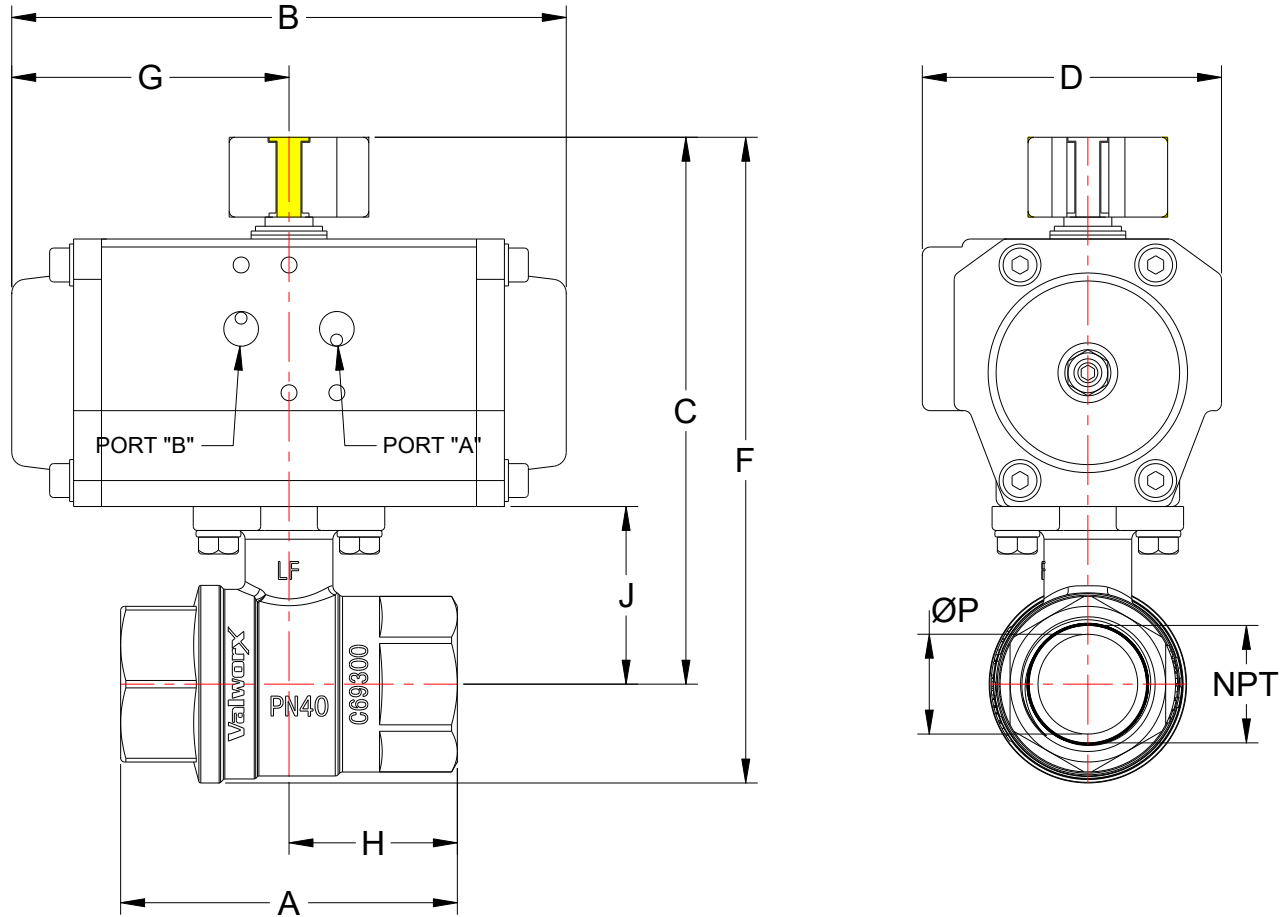
\* Pressure at 176° F (reduced pressure with higher temperatures- see P/T chart)

**Specifications (Metric units)**

Stock Number	Pipe Size	Orifice Size	Kv Flow Factor	Pressure	Cycle Time /90°	Pilot Air Port
<b>LEAD FREE BRASS BALL VALVE: SPRING RETURN ACTUATOR</b>						
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
<b>LEAD FREE BRASS BALL VALVE: DOUBLE ACTING ACTUATOR</b>						
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
<b>COMPACT LEAD FREE BRASS BALL VALVE: DOUBLE ACTING ACTUATOR</b>						
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

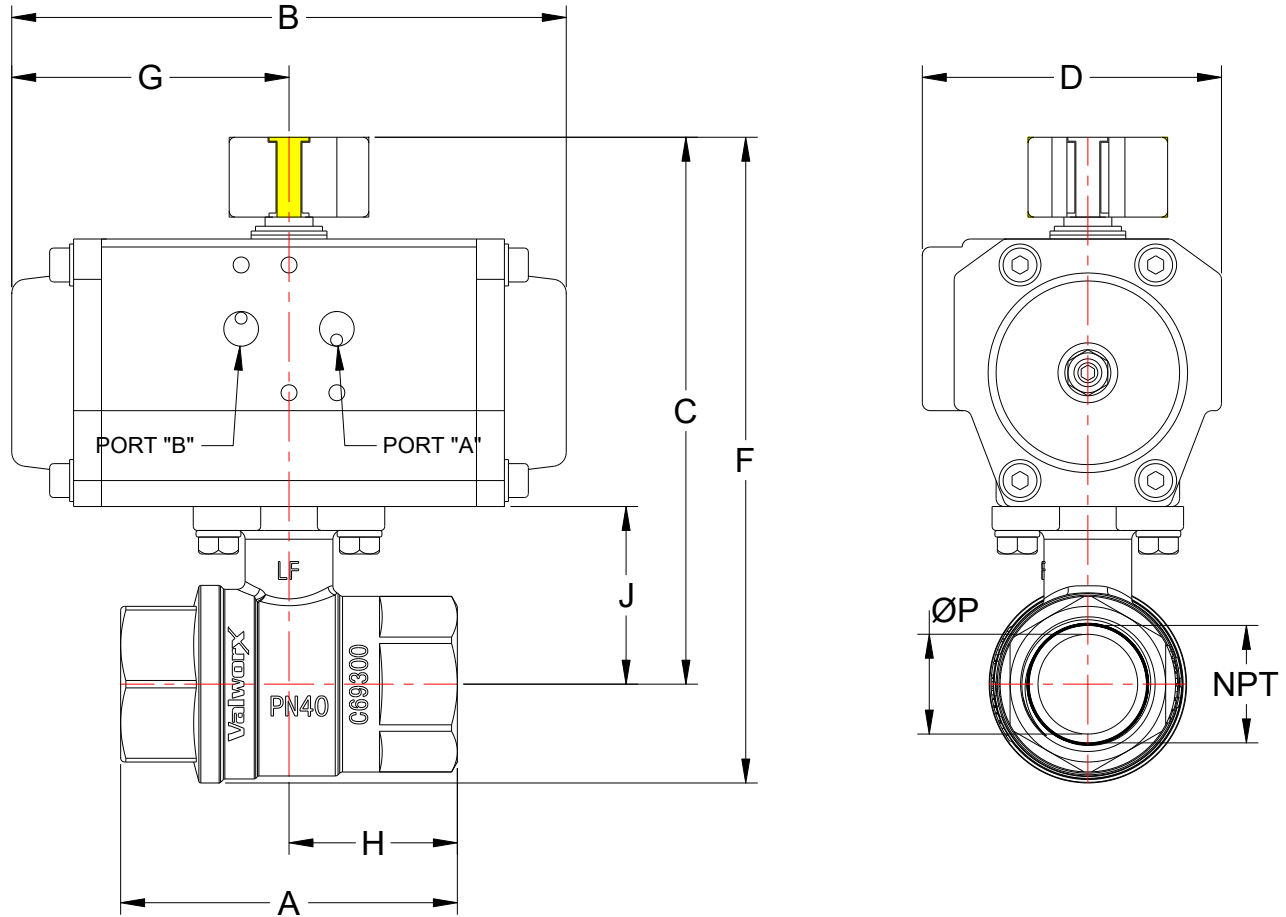
\* Pressure at 80° C (reduced pressure at higher temperatures - see P/T chart)

**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)