

**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. 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**

<b>Valve Body</b>	316 stainless steel ASTM A351 CF8M
<b>Ball/Stem</b>	316 stainless steel
<b>Ball Seats</b>	RTFE (reinforced Teflon)
<b>Stem Seals</b>	PTFE, Viton
<b>Anti-static Device</b>	Ball to Stem (1/4" - 4") + Stem to Body (1-1/2" - 4")
<b>Actuator Seals</b>	NBR (Buna-N)
<b>Actuator Body</b>	Anodized aluminium, epoxy-polyester coated end covers
<b>Position Indicator</b>	Glass filled Polyamide
<b>Fasteners</b>	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

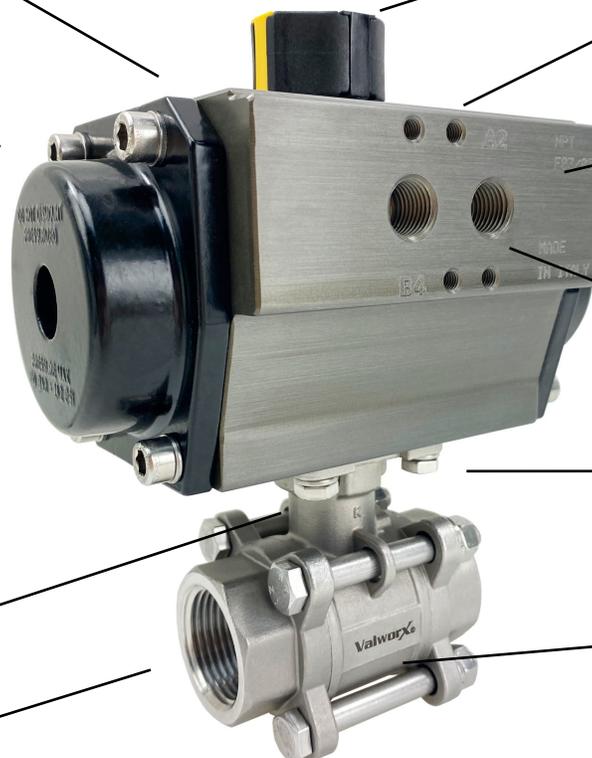
Standard Namur top mounting for optional switches and positioners

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 4" sizes  
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)

\*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
- 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)
<b>STAINLESS 3pc VALVE WITH SPRING RETURN ACTUATOR</b>							
522502C	1/4	0.5	6.9	1000	36.6	1-1	1/8
522503C	3/8	0.5	6.9	1000	36.6	1-1	1/8
522504C	1/2	0.6	9.7	1000	36.6	1-1	1/8
522506C	3/4	0.8	18.4	1000	79.3	1-1	1/4
522508E	1	1.0	55.4	1000	103.7	1-1	1/4
522510C	1-1/4	1.3	89.7	1000	103.7	1-1	1/4
522512C	1-1/2	1.5	144.2	1000	305.1	1-1	1/4
522516C	2	2.0	226.0	1000	476.0	2-1	1/4
522520C	2-1/2	2.6	289.0	800	476.0	2-1	1/4
522524C	3	3.2	454.0	800	836.0	2-1	1/4
<b>STAINLESS 3pc VALVE WITH DOUBLE ACTING ACTUATOR</b>							
522402C	1/4	0.5	6.9	1000	97.6	1-1	1/8
522403C	3/8	0.5	6.9	1000	97.6	1-1	1/8
522404C	1/2	0.6	9.7	1000	97.6	1-1	1/8
522406C	3/4	0.8	18.4	1000	97.6	1-1	1/8
522408C	1	1.0	55.4	1000	195.3	1-1	1/4
522410C	1-1/4	1.3	89.7	1000	195.3	1-1	1/4
522412C	1-1/2	1.5	144.2	1000	262.4	1-1	1/4
522416C	2	2.0	226.0	1000	262.4	1-1	1/4
522420C	2-1/2	2.6	289.0	800	421.1	1-1	1/4
522424C	3	3.2	454.0	800	768.9	1-1	1/4
522432C	4	3.9	1364.7	800	1196.1	1-1	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)

## Specifications (Metric units)

Stock Number	Pipe Size (NPT)	Orifice Size (mm)	Kv Flow Factor	Pressure Max.(Bar)*	Air Volume/90° (cubic liters)	Cycle Time/90° (seconds)	Pilot Air Port (NPT)
<b>STAINLESS 3pc VALVE WITH SPRING RETURN ACTUATOR</b>							
522502C	1/4	11.5	5.9	69	0.6	1-1	1/8
522503C	3/8	12.5	5.9	69	0.6	1-1	1/8
522504C	1/2	15	8.4	69	0.6	1-1	1/8
522506C	3/4	20	15.9	69	1.3	1-1	1/4
522508E	1	25	47.9	69	1.7	1-1	1/4
522510C	1-1/4	32	77.6	69	1.7	1-1	1/4
522512C	1-1/2	38	124.7	69	5.0	1-1	1/4
522516C	2	50	195.5	69	7.8	2-1	1/4
522520C	2-1/2	65	249.7	55	7.8	2-1	1/4
522524C	3	80	392.3	55	13.7	2-1	1/4
<b>STAINLESS 3pc VALVE WITH DOUBLE ACTING ACTUATOR</b>							
522402C	1/4	11.5	5.9	69	1.6	1-1	1/8
522403C	3/8	12.5	5.9	69	1.6	1-1	1/8
522404C	1/2	15	8.4	69	1.6	1-1	1/8
522406C	3/4	20	15.9	69	1.6	1-1	1/8
522408C	1	25	47.9	69	3.2	1-1	1/4
522410C	1-1/4	32	77.6	69	3.2	1-1	1/4
522412C	1-1/2	38	124.7	69	4.3	1-1	1/4
522416C	2	50	195.5	69	4.3	1-1	1/4
522420C	2-1/2	65	249.7	55	6.9	1-1	1/4
522424C	3	80	392.3	55	12.6	1-1	1/4
522432C	4	100	1179.1	55	19.6	1-1	1/4

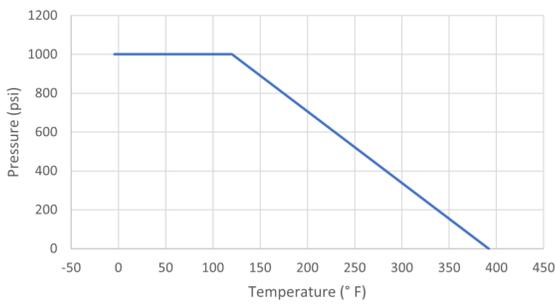
\* Pressure @ 70° C (see P/T chart)

**Dimensions: Spring Return (inches (mm))**

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

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

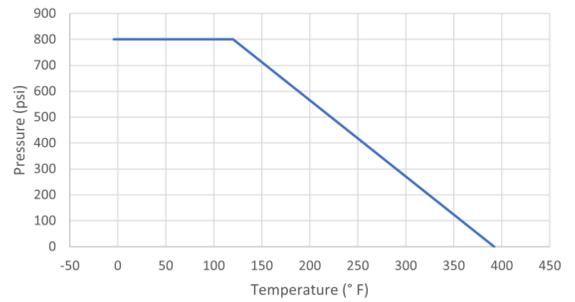
PTFE Pressure vs Temperature- Standard Units



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

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

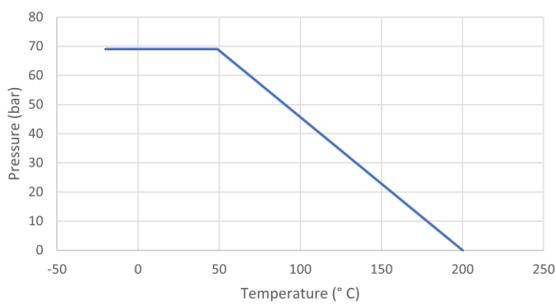
PTFE Pressure vs Temperature- Standard Units



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

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

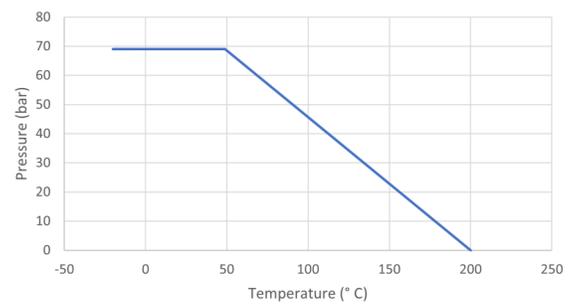
PTFE Pressure vs Temperature- Metric Units



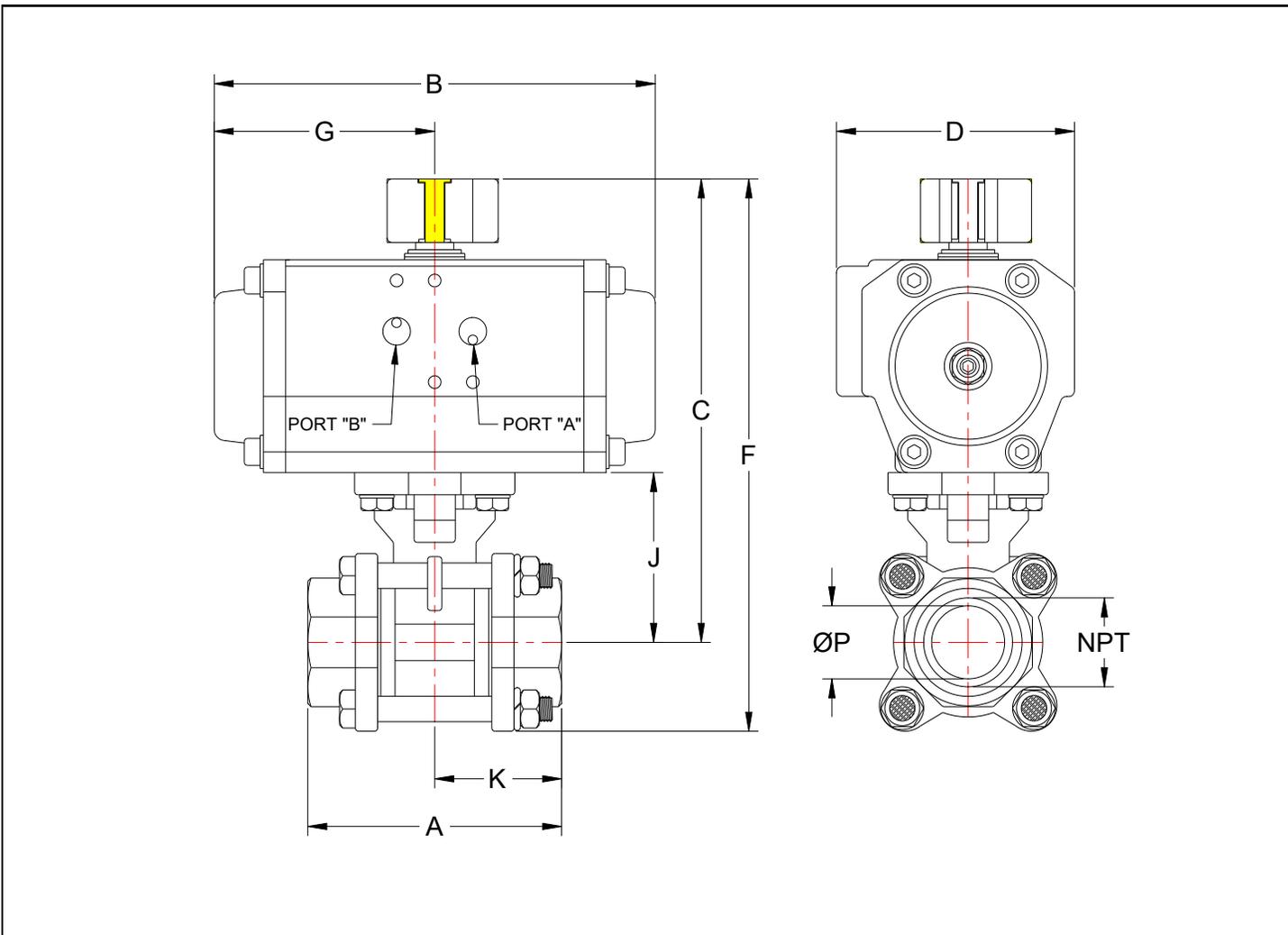
**Pressure/Temp. Chart - 55 Bar (800 PSI)**

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

PTFE Pressure vs Temperature- Metric Units

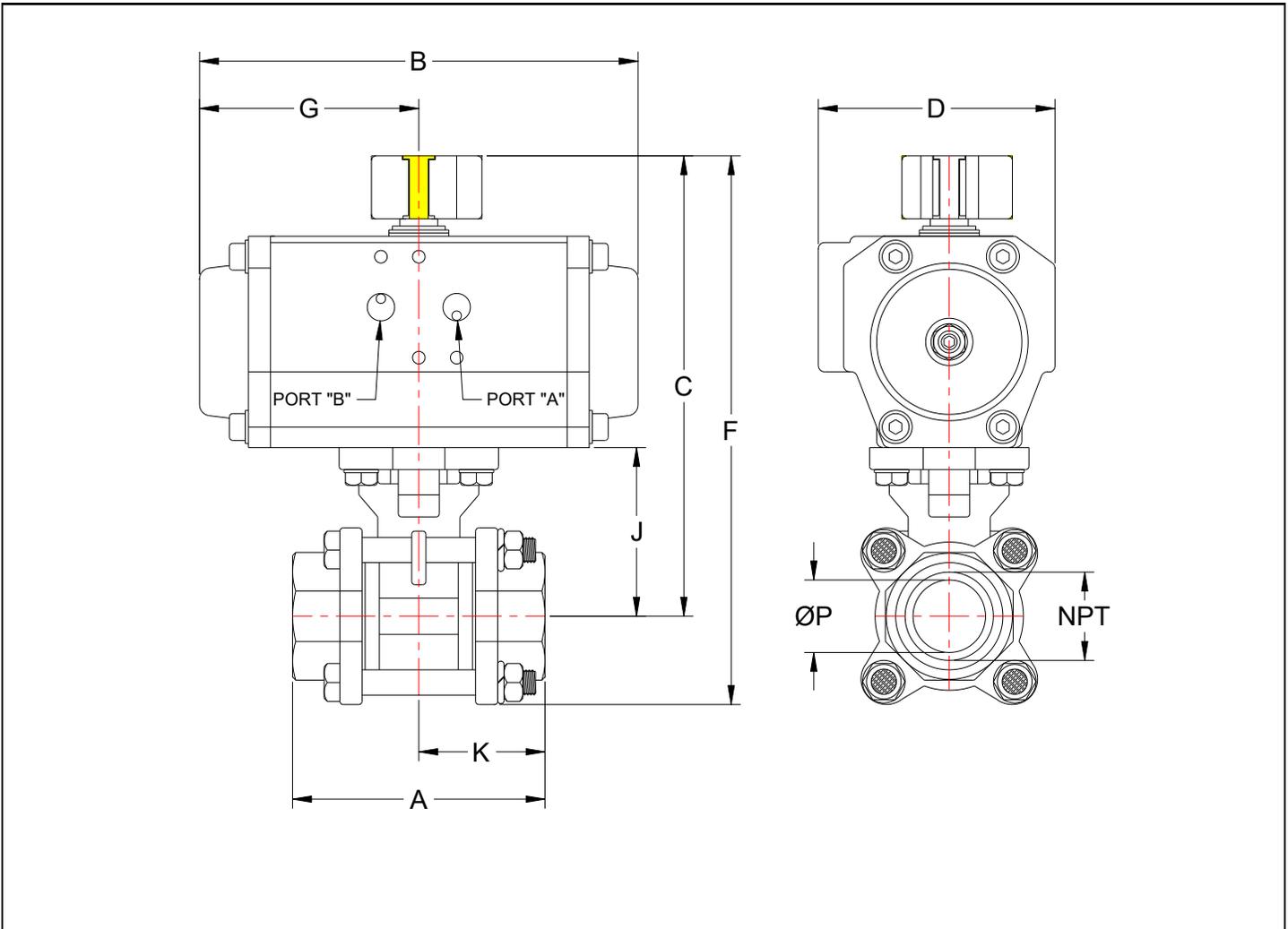


**Dimensions: Spring Return (inches (mm))**



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)	12.2 (309.9)	10.1 (256.5)	5.3 (134.6)	11.9 (302.3)	6.1 (154.9)	3.3 (83.5)	2.4 (60.8)	2.0 (50.0)	1/4	30.1 (13.7)
2-1/2	6.2 (157.5)	12.2 (309.9)	11.1 (281.9)	5.3 (134.6)	13.3 (337.8)	6.1 (154.9)	4.3 (108.8)	3.1 (78.9)	2.6 (65.0)	1/4	39.0 (17.7)
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)
4	8.9 (225.0)	12.2 (309.9)	12.9 (327.7)	5.5 (139.7)	16.2 (411.5)	6.1 (154.9)	6.1 (154.9)	4.4 (117.8)	3.9 (100.0)	1/4	65.5 (29.7)