# Air Actuated PVC Ball Valves

## Spring Return or Double Acting
## 1/2 to 4 inch Pipe Sizes

**SERIES**
**5241**
**5242**

## Features

- Spring Return or Double Acting
- Full port with True Union design
- Union nut locking device prevents back-off
- Actuators designed for 1 million cycles
- Rugged quarter turn rack and pinion design
- Highly visible valve position indicator
- Energized ball seats for lower torque and extended cycle life
- Dual leak free stem seals
- Actuator tested to ASTM B117-73, 500 hrs. salt spray
- Valve NSF certified for use with potable/drinking water

## Applications

On-off control of water and other liquid media compatible with the materials of construction (not suitable for compressed air or gas). Cycle times approx. 1 to 1.5 seconds per 90° rotation. Valve can be mounted in any orientation. Typical applications include industrial/process piping systems, pulp and paper, food processing, potable water and irrigation.

## Operation

Double acting actuators use air pressure to open and air pressure to close the ball valve. Spring return actuators use air pressure to open and springs to close the ball valve. 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 the actuator.

## Description

Heavy duty quarter turn air actuators designed for long life and tested for a minimum 1 million operations. Industrial quality PVC ball valve with a unique union nut locking system preventing back-off due to vibration or thermal cycling. Features include a patented seat stop carrier for inline micro-adjustment of the ball seats, high quality machined stem/ball system and energized Teflon ball seats for lower torque and extended life. Valves are NSF certified for potable (drinking) water.

## Construction

| | |
|---|---|
| **Valve Body** | PVC (Grey) |
| **Ball/Stem** | PVC |
| **Ball Seats** | PTFE (Teflon), EPDM |
| **Stem Seals** | Dual EPDM seals |
| **Actuator Seals** | NBR (Buna-N) |
| **Actuator Body** | Anodized aluminium with polyester coated end covers |
| **Position Indicator** | Glass filled polyamide |
| **Fasteners** | Stainless Steel |

## Approvals

**Valves**

- Certified NSF/ANSI 61 G for Potable/Drinking Water
- NSF/ANSI 372

**Actuators**

- CE mark
- Accessory mounting Namur VDI/VDE 3845
- Valve mounting per ISO5211

## Construction Features

Heavy duty rugged rack and pinion actuators, spring return or double acting

Aluminum alloy covers with 60-80 micron polyester powder coating

Spring return models use multiple pre-compressed spring cartridges

Leak free dual stem seal design

Energized Teflon ball seats for lower torque and extended cycle life

Union nut locking device prevents back-off

Visual valve position indicator

Namur standard top mounting for accessories

NPT threaded ports with Namur VDI/VDE-3845 solenoid mounting pad

Extruded aluminum body with 15 micron hard anodizing

Full port True Union PVC ball valve, NSF certified for use with potable/drinking water

1/2 to 2 inch Sizes

2-1/2 to 4 inch

## Pressure-Temperature

**Valve Pressure Rating*:** 232 PSI at 73° F(16 Bar at 23° C)
Vacuum to 29inHg at 73° F(23° C)

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

**Working Temperature of Assembly*:** 32 to 140° F (0 to 60° C)

**Ball Valve Temperature Rating:** 32 to 140° F (0 to 60° C)

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

*See P/T chart

## Optional Accessories

- Direct Mount Solenoid Valves for electrically operating the actuator/ball valve
- Valve Monitor/Limit Switches - limit switches used to confirm valve position
- Pneumatic Valve Positioners - position the ball (control flow) with a 4-20mA or 3-15 PSI control signal

## Pressure/Temperature Chart (PSI/°F)

| P/T Chart | | | | | |
|---|---|---|---|---|---|
| **PSI** | 232 | 232 | 180 | 90 | 40 |
| **°F** | 32 | 73 | 92 | 122 | 140 |

## Pressure/Temperature Chart (Bar/°C)

| P/T Chart | | | | | |
|---|---|---|---|---|---|
| **Bar** | 16 | 16 | 13 | 6.2 | 2.8 |
| **°C** | 0 | 23 | 33 | 50 | 60 |

## Specifications (English units)

| Stock Number | Pipe Size (inch) | End Connections | Cv Flow Factor | Pressure Max.(PSI)* | Seals | Cycle Time /90° (seconds) | Pilot Air Port (NPT) |
|---|---|---|---|---|---|---|---|
| **PVC VALVE WITH SPRING RETURN AIR ACTUATOR** | | | | | | | |
| **524204** | 1/2 | Socket, NPT | 14 | 232 | PTFE, EPDM | 1 | 1/4 |
| **524206** | 3/4 | Socket, NPT | 27 | 232 | PTFE, EPDM | 1 | 1/4 |
| **524208** | 1 | Socket, NPT | 54 | 232 | PTFE, EPDM | 1 | 1/4 |
| **524210** | 1-1/4 | Socket, NPT | 77 | 232 | PTFE, EPDM | 1 | 1/4 |
| **524212** | 1-1/2 | Socket, NPT | 123 | 232 | PTFE, EPDM | 1 | 1/4 |
| **524216A** | 2 | Socket, NPT | 238 | 232 | PTFE, EPDM | 1 | 1/4 |
| **524220** | 2-1/2 | Socket | 368 | 232 | PTFE, EPDM | 1.5 | 1/4 |
| **524224A** | 3 | Socket | 497 | 232 | PTFE, EPDM | 1.5 | 1/4 |
| **524232A** | 4 | Socket | 665 | 232 | PTFE, EPDM | 1.5 | 1/4 |
| **PVC VALVE WITH DOUBLE ACTING AIR ACTUATOR** | | | | | | | |
| **524104** | 1/2 | Socket, NPT | 14 | 232 | PTFE, EPDM | 1 | 1/4 |
| **524106** | 3/4 | Socket, NPT | 27 | 232 | PTFE, EPDM | 1 | 1/4 |
| **524108** | 1 | Socket, NPT | 54 | 232 | PTFE, EPDM | 1 | 1/4 |
| **524110** | 1-1/4 | Socket, NPT | 77 | 232 | PTFE, EPDM | 1 | 1/4 |
| **524112** | 1-1/2 | Socket, NPT | 123 | 232 | PTFE, EPDM | 1 | 1/4 |
| **524116** | 2 | Socket, NPT | 238 | 232 | PTFE, EPDM | 1 | 1/4 |
| **524120** | 2-1/2 | Socket | 368 | 232 | PTFE, EPDM | 1.5 | 1/4 |
| **524124** | 3 | Socket | 497 | 232 | PTFE, EPDM | 1.5 | 1/4 |
| **524132** | 4 | Socket | 665 | 232 | PTFE, EPDM | 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 at 73° F, reduced pressure for higher temperatures (see P/T chart)

Note: Both socket and threaded NPT end connectors included with sizes 1/2″ to 2″, socket only for sizes 2-1/2″, 3″ and 4″

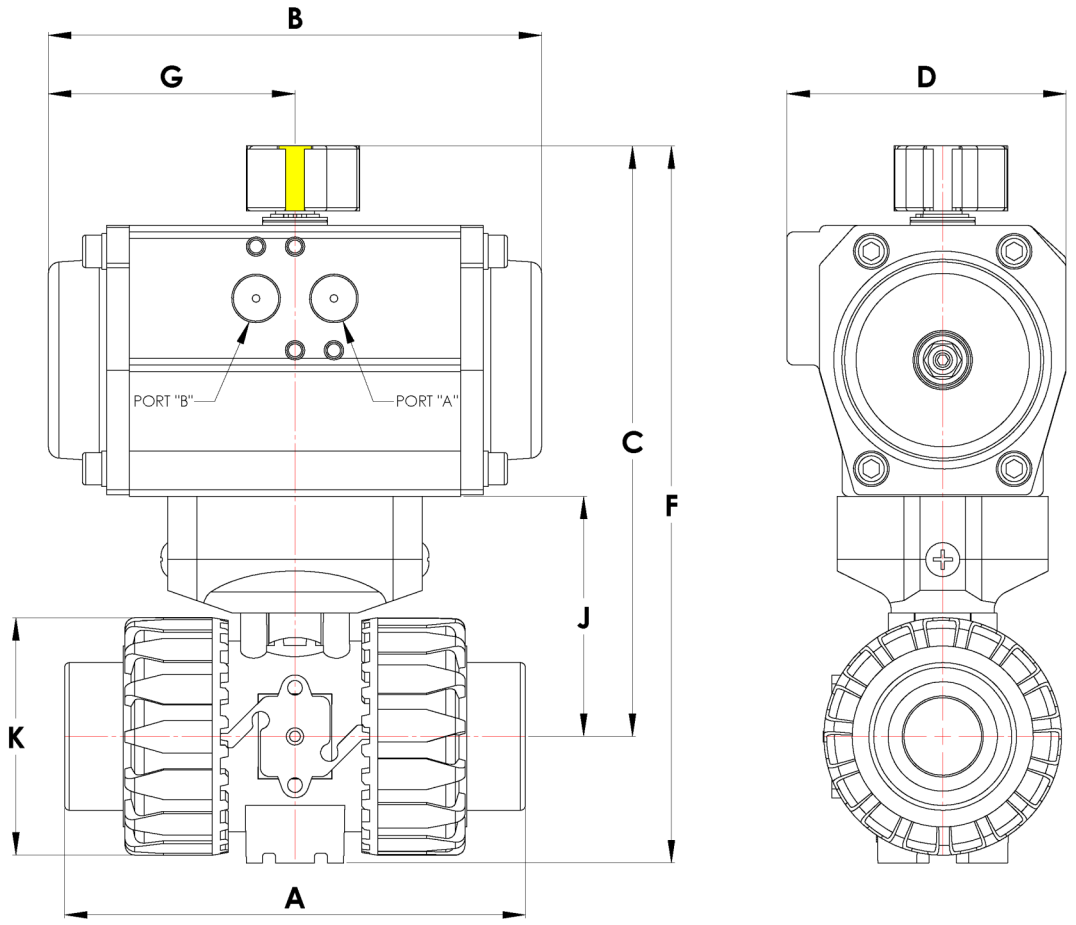
## Specifications (Metric units)

| Stock Number | Pipe Size (inch) | End Connections | Kv Flow Factor | Pressure Max.(Bar)* | Seals | Cycle Time /90° (seconds) | Pilot Air Port (NPT) |
|---|---|---|---|---|---|---|---|
| **PVC VALVE WITH SPRING RETURN AIR ACTUATOR** | | | | | | | |
| **524204** | 1/2 | Socket, NPT | 12 | 16 | PTFE, EPDM | 1 | 1/4 |
| **524206** | 3/4 | Socket, NPT | 23 | 16 | PTFE, EPDM | 1 | 1/4 |
| **524208** | 1 | Socket, NPT | 46 | 16 | PTFE, EPDM | 1 | 1/4 |
| **524210** | 1-1/4 | Socket, NPT | 66 | 16 | PTFE, EPDM | 1 | 1/4 |
| **524212** | 1-1/2 | Socket, NPT | 106 | 16 | PTFE, EPDM | 1 | 1/4 |
| **524216A** | 2 | Socket, NPT | 205 | 16 | PTFE, EPDM | 1 | 1/4 |
| **524220** | 2-1/2 | Socket | 316 | 16 | PTFE, EPDM | 1.5 | 1/4 |
| **524224A** | 3 | Socket | 427 | 16 | PTFE, EPDM | 1.5 | 1/4 |
| **524232A** | 4 | Socket | 572 | 16 | PTFE, EPDM | 1.5 | 1/4 |
| **PVC VALVE WITH DOUBLE ACTING AIR ACTUATOR** | | | | | | | |
| **524104** | 1/2 | Socket, NPT | 12 | 16 | PTFE, EPDM | 1 | 1/4 |
| **524106** | 3/4 | Socket, NPT | 23 | 16 | PTFE, EPDM | 1 | 1/4 |
| **524108** | 1 | Socket, NPT | 46 | 16 | PTFE, EPDM | 1 | 1/4 |
| **524110** | 1-1/4 | Socket, NPT | 66 | 16 | PTFE, EPDM | 1 | 1/4 |
| **524112** | 1-1/2 | Socket, NPT | 106 | 16 | PTFE, EPDM | 1 | 1/4 |
| **524116** | 2 | Socket, NPT | 205 | 16 | PTFE, EPDM | 1 | 1/4 |
| **524120** | 2-1/2 | Socket | 316 | 16 | PTFE, EPDM | 1.5 | 1/4 |
| **524124** | 3 | Socket | 427 | 16 | PTFE, EPDM | 1.5 | 1/4 |
| **524132** | 4 | Socket | 572 | 16 | PTFE, EPDM | 1.5 | 1/4 |

* Pressure at 23° C, reduced pressure for higher temperatures (see P/T chart)

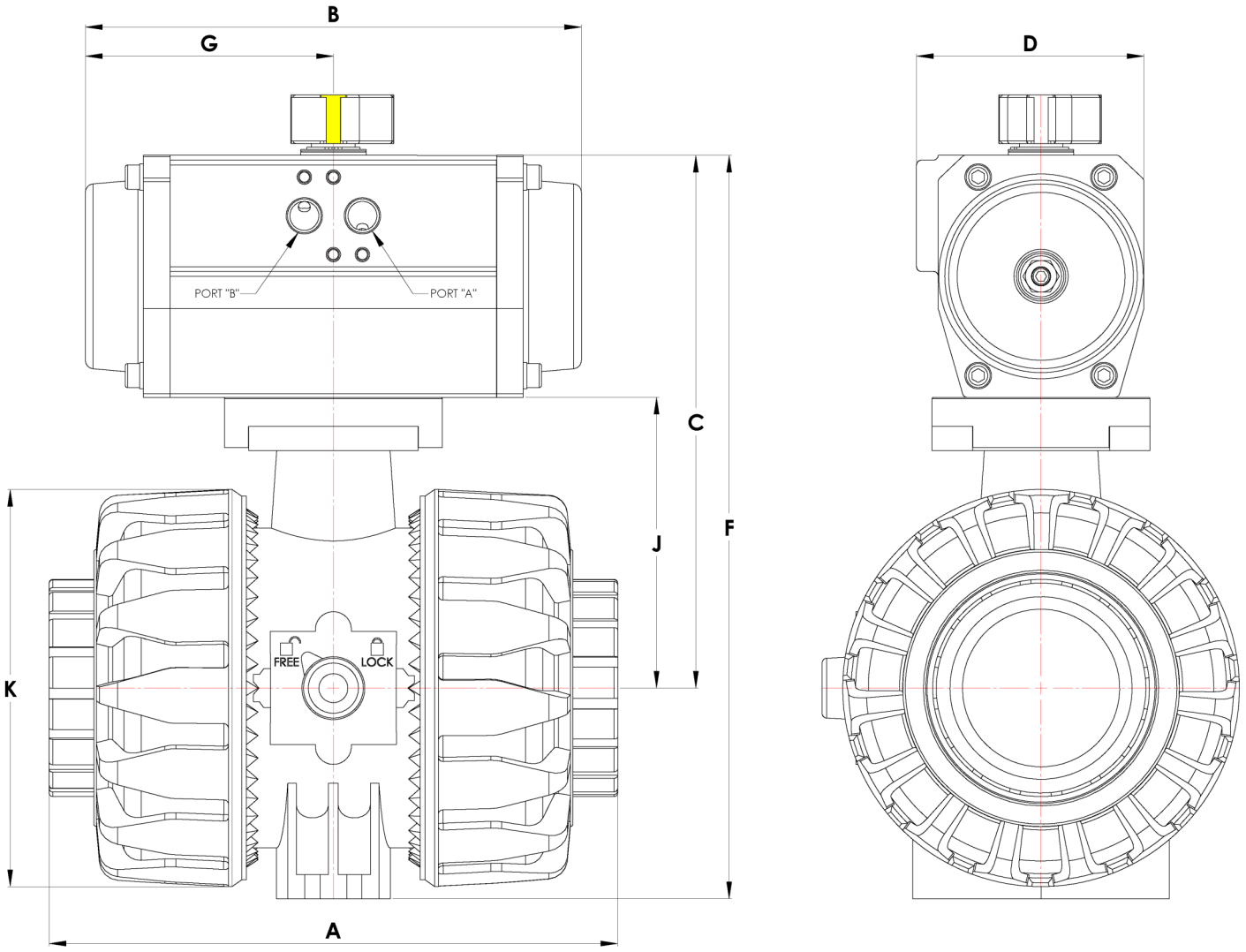
Note: Both socket and threaded NPT end connectors included with sizes 1/2 to 2 inch, socket only for sizes 3 and 4 inch

## Dimensions: Spring Return Sizes 1/2 to 2 inch



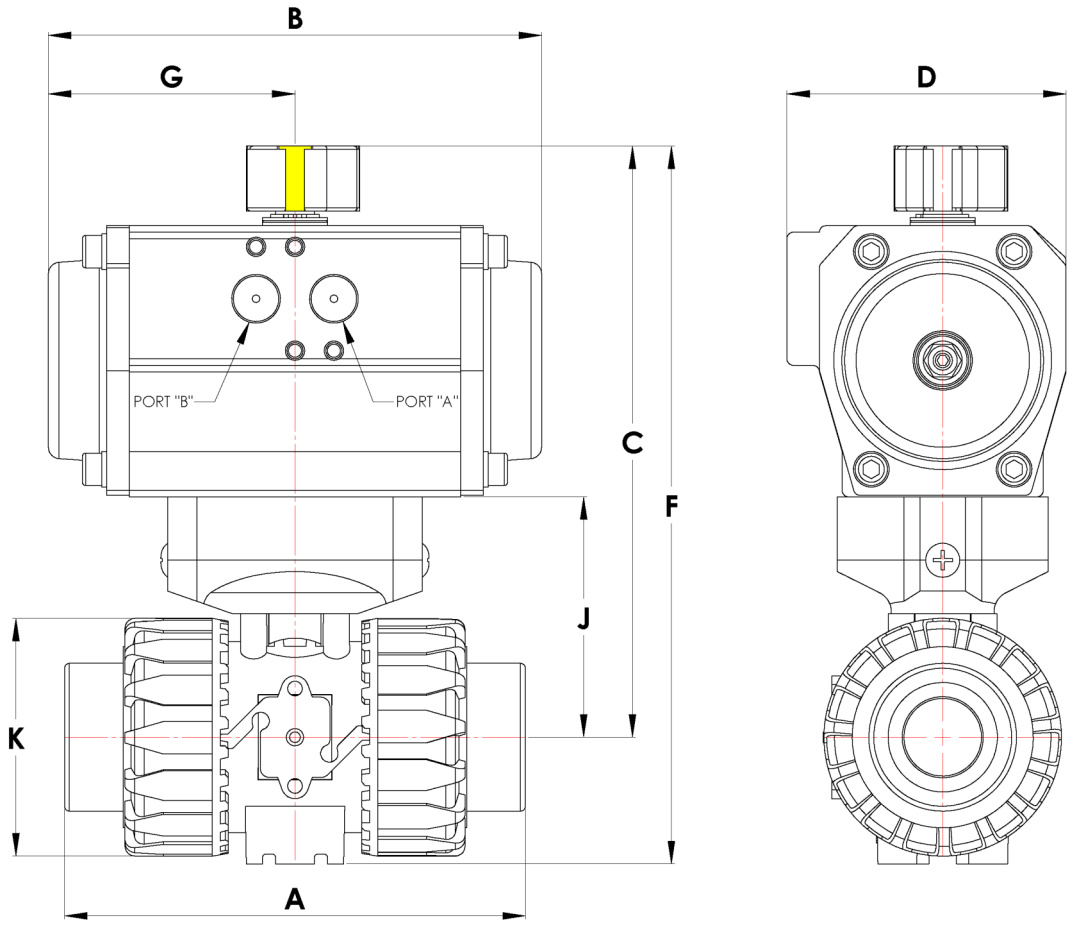

| Pipe Size | | A | B | C | D | F | G | J | K | A/B Ports (NPT) | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/2 | inch | 4.61 | 5.98 | 6.54 | 3.39 | 7.68 | 2.99 | 2.28 | 2.13 | 1/4 | 4.7 lbs |
| | mm | 117 | 152 | 166 | 86 | 195 | 76 | 58 | 54 | - | 2.1 kg |
| 3/4 | inch | 5.08 | 5.98 | 7 | 3.39 | 8.35 | 2.99 | 2.76 | 2.56 | 1/4 | 5.1 lbs |
| | mm | 129 | 152 | 178 | 86 | 212 | 76 | 70 | 65 | - | 2.3 kg |
| 1 | inch | 5.59 | 5.98 | 7.17 | 3.39 | 8.7 | 2.99 | 2.91 | 2.87 | 1/4 | 5.3 lbs |
| | mm | 142 | 152 | 182 | 86 | 221 | 76 | 74 | 73 | - | 2.4 kg |
| 1-1/4 | inch | 6.26 | 5.98 | 7.83 | 3.39 | 9.65 | 2.99 | 3.58 | 3.39 | 1/4 | 6.2 lbs |
| | mm | 159 | 152 | 199 | 86 | 245 | 76 | 91 | 86 | - | 2.8 kg |
| 1-1/2 | inch | 6.77 | 8 | 8.74 | 3.70 | 10.79 | 4 | 4.09 | 3.86 | 1/4 | 10.1 lbs |
| | mm | 172 | 205 | 222 | 94 | 274 | 103 | 104 | 98 | - | 4.58 kg |
| 2 | inch | 7.83 | 9.1 | 9.76 | 4.1 | 12.2 | 4.53 | 4.49 | 4.80 | 1/4 | 14.7 lbs |
| | mm | 199 | 231 | 248 | 104 | 310 | 115 | 114 | 122 | - | 6.67 kg |

## Dimensions: Spring Return Sizes 2-1/2 to 4 inch



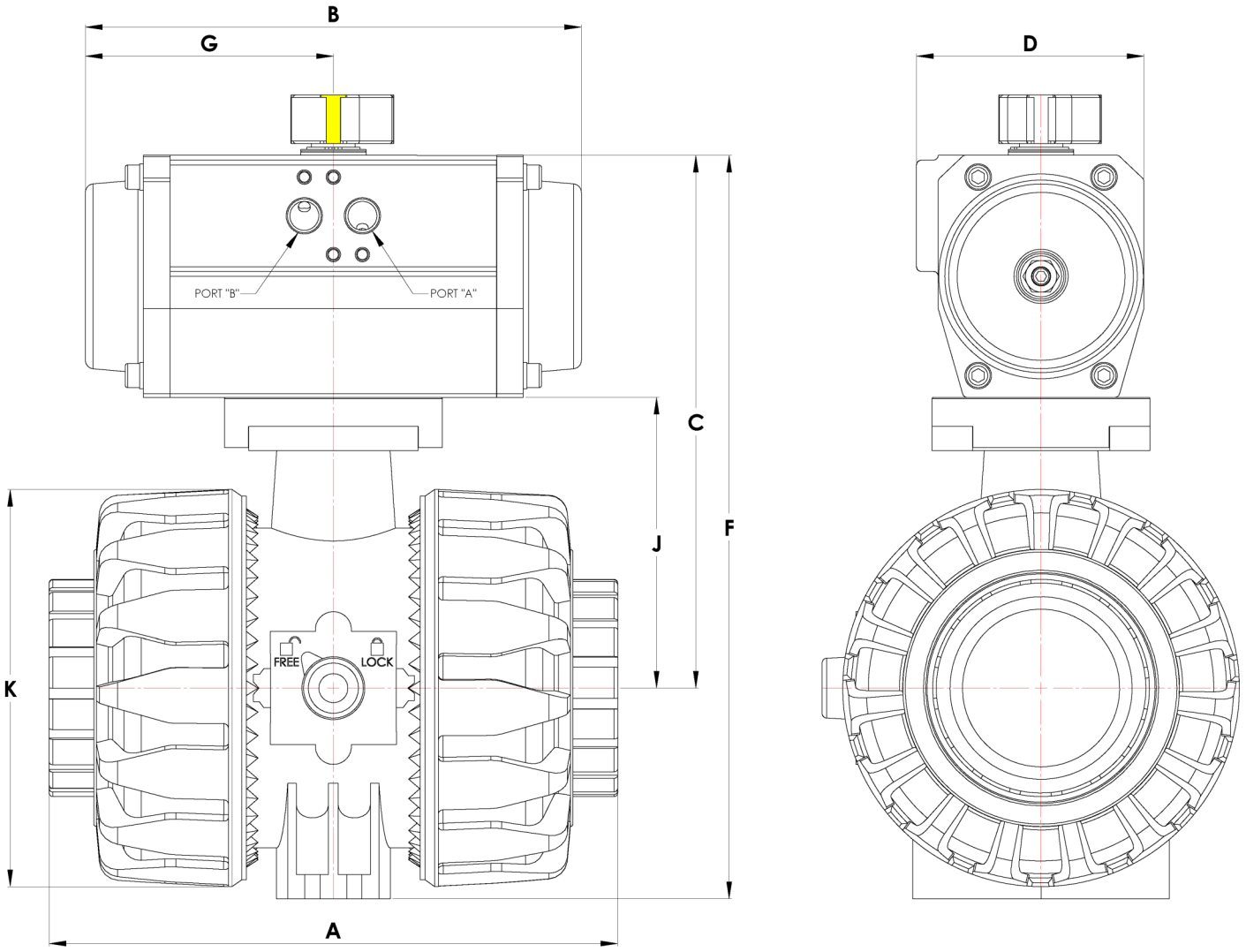

| Pipe Size | | A | B | C | D | F | G | J | K | A/B Ports (NPT) | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-1/2 | inch | 9.25 | 11.0 | 10.5 | 4.7 | 14.0 | 2.3 | 4.8 | 6.46 | 1/4 | 24.7 lbs |
| | mm | 235 | 279 | 267 | 119 | 356 | 135 | 122 | 164 | - | 11.2 kg |
| 3 | inch | 10.63 | 12.2 | 10.9 | 5.3 | 16.0 | 6.1 | 5.12 | 7.99 | 1/4 | 38.6 lbs |
| | mm | 270 | 310 | 276 | 135 | 406 | 155 | 130 | 203 | - | 17.5 kg |
| 4 | inch | 12.13 | 12.2 | 12.6 | 5.3 | 17.6 | 6.1 | 5.87 | 9.37 | 1/4 | 47 lbs |
| | mm | 308 | 310 | 319 | 135 | 448 | 155 | 149 | 238 | - | 21.3 kg |

## Dimensions: Double Acting Sizes 1/2 to 2 inch




| Pipe Size | | A | B | C | D | F | G | J | K | A/B Ports (NPT) | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/2 | inch | 4.61 | 5.98 | 6.54 | 3.39 | 7.68 | 2.99 | 2.28 | 2.13 | 1/4 | 4.3 lbs |
| | mm | 117 | 152 | 166 | 86 | 195 | 76 | 58 | 54 | - | 2.0 kg |
| 3/4 | inch | 5.08 | 5.98 | 7 | 3.39 | 8.35 | 2.99 | 2.76 | 2.56 | 1/4 | 4.65 lbs |
| | mm | 129 | 152 | 178 | 86 | 212 | 76 | 70 | 65 | - | 2.1 kg |
| 1 | inch | 5.59 | 5.98 | 7.17 | 3.39 | 8.7 | 2.99 | 2.91 | 2.87 | 1/4 | 4.9 lbs |
| | mm | 142 | 152 | 182 | 86 | 221 | 76 | 74 | 73 | - | 2.2 kg |
| 1-1/4 | inch | 6.26 | 5.98 | 7.83 | 3.39 | 9.65 | 2.99 | 3.58 | 3.39 | 1/4 | 6.3 lbs |
| | mm | 159 | 152 | 199 | 86 | 245 | 76 | 91 | 86 | - | 5.75 kg |
| 1-1/2 | inch | 6.77 | 5.98 | 8.07 | 3.39 | 10.12 | 2.99 | 3.82 | 3.86 | 1/4 | 6.35 lbs |
| | mm | 172 | 152 | 205 | 86 | 257 | 76 | 97 | 98 | - | 2.88 kg |
| 2 | inch | 7.83 | 5.98 | 8.7 | 3.39 | 9.37 | 2.99 | 4.49 | 4.76 | 1/4 | 7.85 lbs |
| | mm | 199 | 152 | 221 | 86 | 238 | 76 | 114 | 121 | - | 3.56 kg |

## Dimensions: Double Acting Sizes 2-1/2 to 4 inch




| Pipe Size | | A | B | C | D | F | G | J | K | A/B Ports (NPT) | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-1/2 | inch | 9.25 | 8.3 | 9.3 | 3.7 | 12.7 | 4.15 | 4.8 | 6.46 | 1/4 | 16.4 lbs |
| | mm | 235 | 211 | 236 | 94 | 323 | 105 | 122 | 164 | - | 7.4 kg |
| 3 | inch | 10.63 | 8.3 | 9.7 | 3.7 | 13.8 | 4.15 | 5.2 | 7.99 | 1/4 | 22.7 lbs |
| | mm | 270 | 211 | 246 | 94 | 351 | 105 | 130 | 203 | - | 10.3 kg |
| 4 | inch | 12.13 | 9.1 | 10.8 | 4.1 | 15.6 | 4.55 | 5.87 | 9.37 | 1/4 | 34.0 lbs |
| | mm | 308 | 231 | 274 | 104 | 396 | 116 | 149 | 238 | - | 15.4 kg |