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Limited Warranty

Dixon Sanitary, a division of Dixon Valve and Coupling Company, (herein called Dixon Sanitary) warrants the products described herein, and manufactured by Dixon Sanitary to be free from defects in material and workmanship for a period of one (1) year from date of shipment by Dixon Sanitary under normal use and service. It's sole obligation under this warranty being limited to repairing or replacing, as hereinafter provided, at its option any product found to Dixon Sanitary's satisfaction to be defective upon examination by it, provided that such product shall be returned for inspection to Dixon Sanitary within three (3) months after discovery of the defect. The repair or replacement of defective products will be made without charge for parts or labor. This warranty shall not apply to: (a) parts or products not manufactured exclusively for Dixon Sanitary, the warranty of such items being limited to the actual warranty extended to Dixon Sanitary by its supplier; (b) any product that has been subject to abuse, negligence, accident, or misapplication; (c) any product altered or repaired by others than Dixon Sanitary; and (d) to normal maintenance services and the replacement of service items (such as gaskets and seats) made in connection with such services. To the extent permitted by State law, this limited warranty shall extend only to the buyer and any other person reasonably expected to use or consume the goods who is injured in person by any breach of the warranty. No action may be brought against Dixon Sanitary for an alleged breach of warranty unless such action is instituted within one (1) year from the date the cause of action accrues. This limited warranty shall be construed and enforced to the fullest extent allowable by applicable State law.

OTHER THAN THE OBLIGATION OF DIXON SANITARY SET FORTH HEREIN, DIXON SANITARY DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ANY OTHER OBLIGATION OR LIABILITY. THE FOREGOING CONSTITUTES 'S SOLE OBLIGATION WITH RESPECT TO DAMAGES, WHETHER DIRECT, INCIDENTAL OR CONSEQUENTIAL, RESULTING FROM THE USE OR PERFORMANCE OF THE PRODUCT.

Some products and sizes may be discontinued when stock is depleted, or may require a minimum quantity for ordering.

NOTE: Reasonable care has been taken in preparing this catalog. Dixon Sanitary, a division of Dixon Valve & Coupling Company, reserves the right to make corrections and any dimensional changes.



Seat Valves

The SV-series single seat valves offer a true hygienic design to meet your most demanding process applications. The SV-series valves are offered in 316L stainless steel with a variety of body configurations and seat and stem seal materials to fit your specific needs. This valve series is designed to shut off or divert the flow in your process either remotely by using air or locally using a manual operating device. The rugged design of the actuator and valve body allow the valve to stand up to the harsh environments often found in the sanitary industry.



Product Specifications

Sizes:

- 1", 1½", 2", 2½", 3", 4", 6"

Materials:

- | | |
|---------------------------|-----------------------|
| • Body | 316L stainless steel |
| • Actuator | 304 stainless steel |
| • Manual Operating Device | 304 stainless steel |
| • Stem Seal | Buna, EPDM, FKM |
| • Seat Seal | Buna, EPDM, FKM, PTFE |

Options:

- Manual
- Actuated (spring return, double acting)
- Control Tops

Body Types:

- L, T, Y, F, L/L, T/L, L/T, T/T, Tank Bottom

Technical Data:

- | | |
|---------------------|----------------------------|
| • Temperature range | -50°F to 212°F |
| • Surface Finish | <32R _a standard |
| • Air pressure | 80 to 120 PSI |
| • Air connections | 1/8" FNPT |

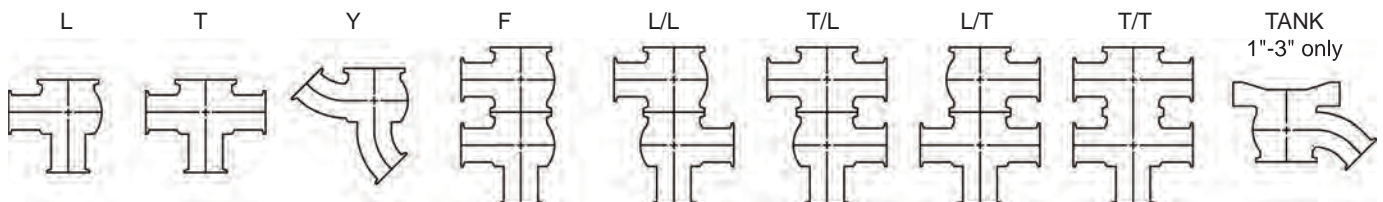


SV-Series I & O Manual can be viewed/downloaded at dixonvalve.com. This manual covers the complete line of valves including videos on assembly and disassembly of all valves.

Ordering Information

| Valve Series (1-2) | Type (3) | Body Config. (4) | Ports (5) | Size (6-7) | Actuator (8) | Seat Material (9) | Control Top (10) | Switches (11) | Solenoid (12) * | Communication (13) | Conduit Connectors (14) | Options (15) |
|--------------------|---------------|------------------|--------------------------|------------|--------------------------------|---------------------------|------------------------|---------------|-----------------------------------|--|----------------------------|---------------------|
| SV Seat Valve | S Shut Off | A T | C Clamp | 10 1" | A Manual | A PTFE seats / FKM seals | N None | N None | N None | N None | N None | N None |
| | D Divert | B L | B Butt weld | 15 1.5" | B Spring Return (Air To Raise) | B Buna | B Basic Control Top | M Mechanical | 1 120V AC Standard | A Device Net | 1 (1) M12 Poly Cable Gland | A Tank, up to open |
| | T Tank Bottom | C Y | F Female I-Line | 20 2" | C Spring Return (Air To Lower) | E EPDM | C Communication Module | P Proximity | 2 24V DC 3W Standard | B Foundation Fieldbus | 2 (2) 1/2" NPT | B Tank, up to close |
| | | D Tank | M Male I-Line | 25 2.5" | D Double Acting | P PTFE seats / EPDM seals | | S Solid State | 3 3-Way Piezo | C Foundation Fieldbus (Externally Powered) | 3 (2) M20 | |
| | | E F | T Threaded Bevel | 30 3" | | V FKM | | R Namur | 4 3-Way Poppet Style 24V DC 1.8W | D Modbus | 4 (2) Cable Glands | |
| | | F L - L | P Plain Bevel | 40 4" | | | | | 5 3-Way Poppet Style 120V AC 7.2W | E As-Interface | 5 (1) 5 Pin Connector | |
| | | G T - L | Q Q-Line | 60 6" | | | | | 6 3-Way Poppet Style 24V DC 0.5W | F As-Interface (W/ Extended Addressing) | 6 (1) 4 Pin Connector | |
| | | H L - T | J John Perry Plain | | | | | | 7 3-Way Intrinsically Safe 12V DC | | 7 (2) 4 Pin Connectors | |
| | | I T - T | H John Perry Threaded | | | | | | | | | |
| | | | E Extended Weld | | | | | | | | | |
| | | | Z Combination (Add Note) | | | | | | | | | |
| | | | A Female NPT | | | | | | | | | |

Body Configurations



Holding Pressure (PSI)

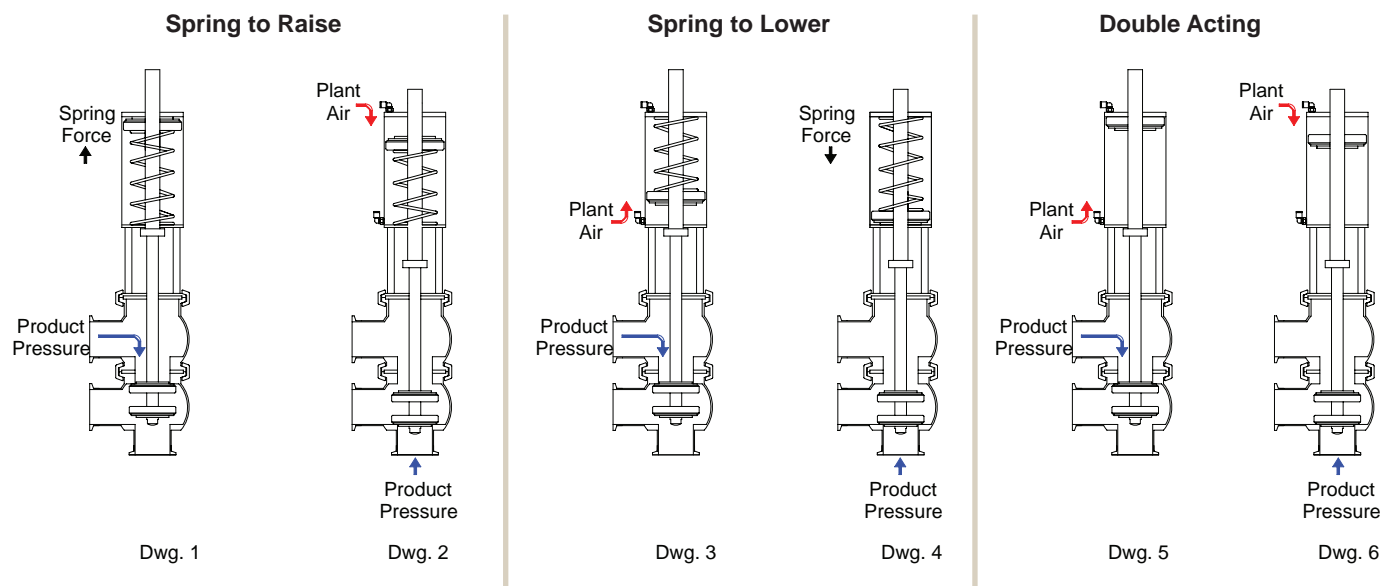


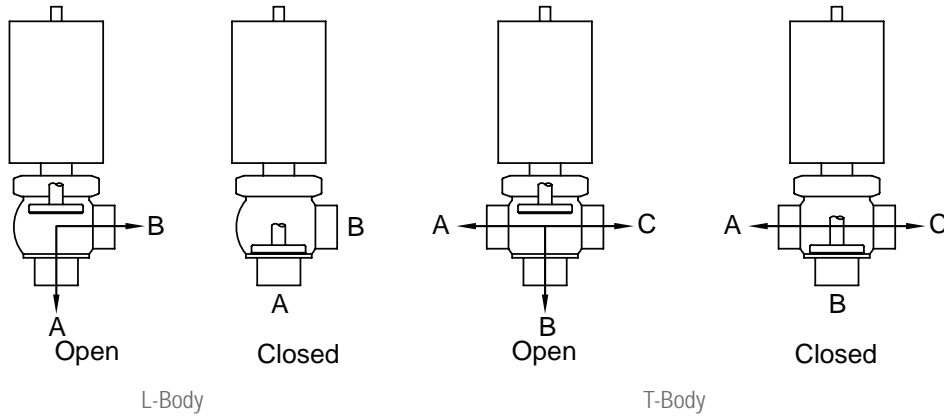
Illustration of seating surface, product pressure direction, air pressure location and direction of spring force.

| | | Drawing 1 | | Drawing 2 | | Drawing 3 | | Drawing 4 | | Drawing 5 | | Drawing 6 | |
|------------------------|-----------|-----------|--|-----------|-----|-----------|-----|-----------|--|-----------|-----|-----------|-----|
| Plant Air Supply (PSI) | | NA | | 80 | 120 | 80 | 120 | NA | | 80 | 120 | 80 | 120 |
| Seating Surface | | Upper | | Lower | | Upper | | Lower | | Upper | | Lower | |
| Actuator Function | | B | | B | | C | | C | | D | | D | |
| 1" | Elastomer | 100 | | 100 | 100 | 100 | 100 | 100 | | 130 | 130 | 130 | 130 |
| | PTFE | 95 | | 95 | 95 | 95 | 95 | 95 | | 125 | 125 | 125 | 125 |
| 1-1/2" | Elastomer | 75 | | 75 | 100 | 75 | 75 | 100 | | 115 | 115 | 115 | 115 |
| | PTFE | 65 | | 65 | 90 | 65 | 65 | 90 | | 110 | 110 | 110 | 110 |
| 2" | Elastomer | 75 | | 68 | 83 | 75 | 75 | 70 | | 115 | 115 | 115 | 115 |
| | PTFE | 65 | | 58 | 73 | 65 | 65 | 60 | | 110 | 110 | 110 | 120 |
| 2-1/2" | Elastomer | 60 | | 55 | 68 | 55 | 55 | 50 | | 125 | 125 | 125 | 125 |
| | PTFE | 50 | | 45 | 58 | 45 | 45 | 45 | | 120 | 120 | 120 | 120 |
| 3" | Elastomer | 60 | | 55 | 68 | 55 | 55 | 50 | | 125 | 125 | 125 | 125 |
| | PTFE | 50 | | 45 | 58 | 45 | 45 | 45 | | 120 | 120 | 120 | 120 |
| 4" | Elastomer | 60 | | 55 | 68 | 55 | 55 | 50 | | 110 | 110 | 110 | 110 |
| | PTFE | 50 | | 45 | 58 | 45 | 45 | 45 | | 100 | 100 | 100 | 100 |

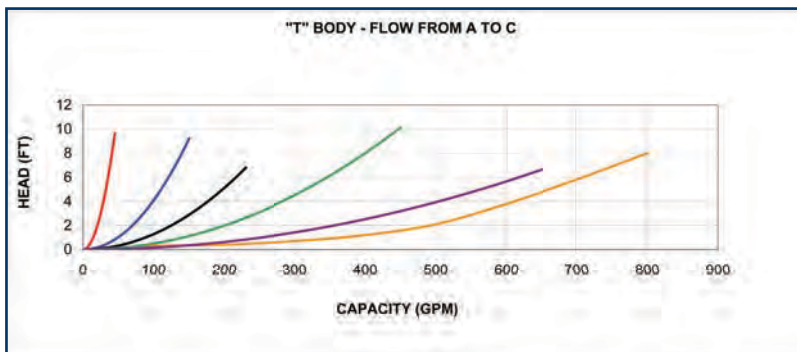
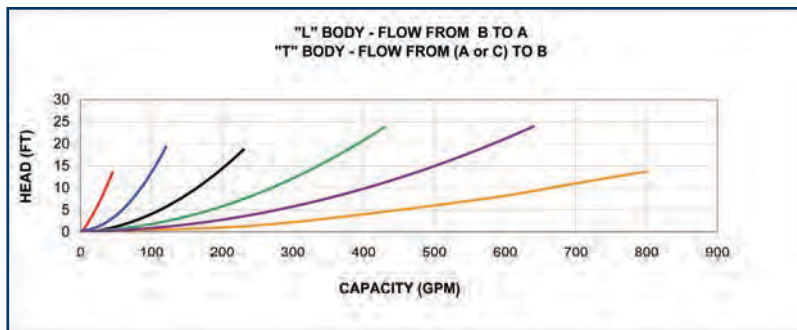
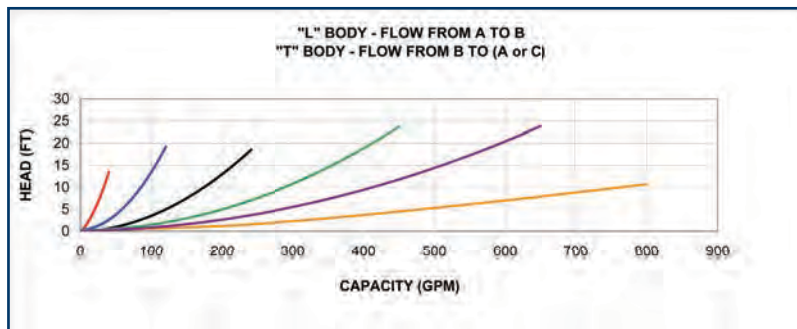
Actuator function codes:

- B - spring to raise
- C - spring to lower
- D - double acting (air to air)

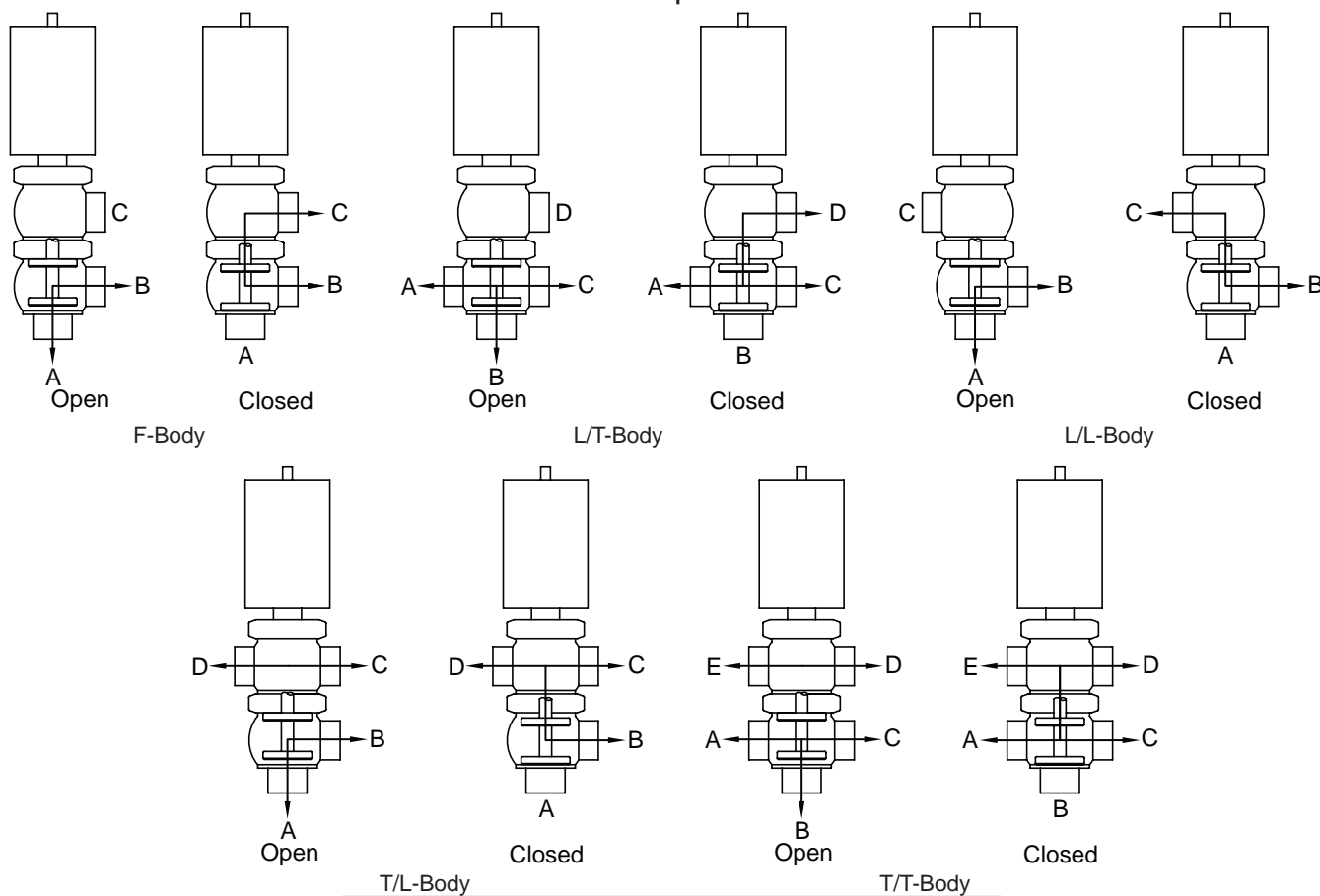
Pressure Drop Flow Paths



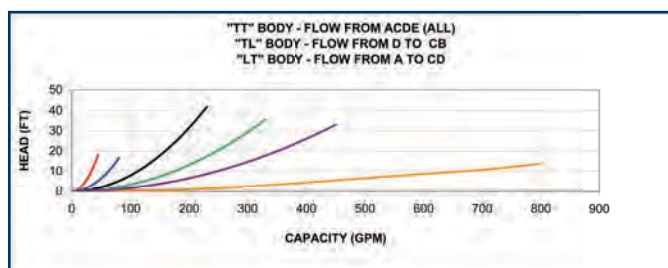
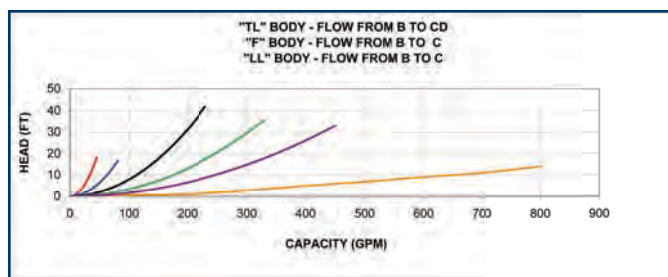
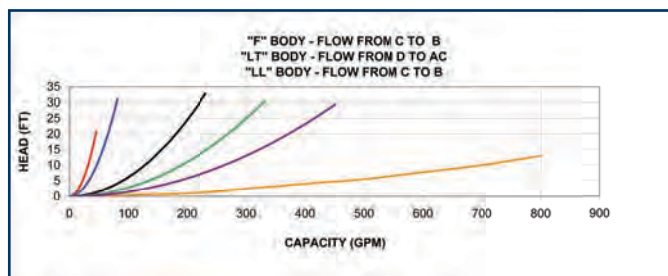
1" = Red, 1½" = Blue, 2" = Black, 2½" = Green, 3" = Purple, 4" = Orange



Pressure Drop Flow Paths

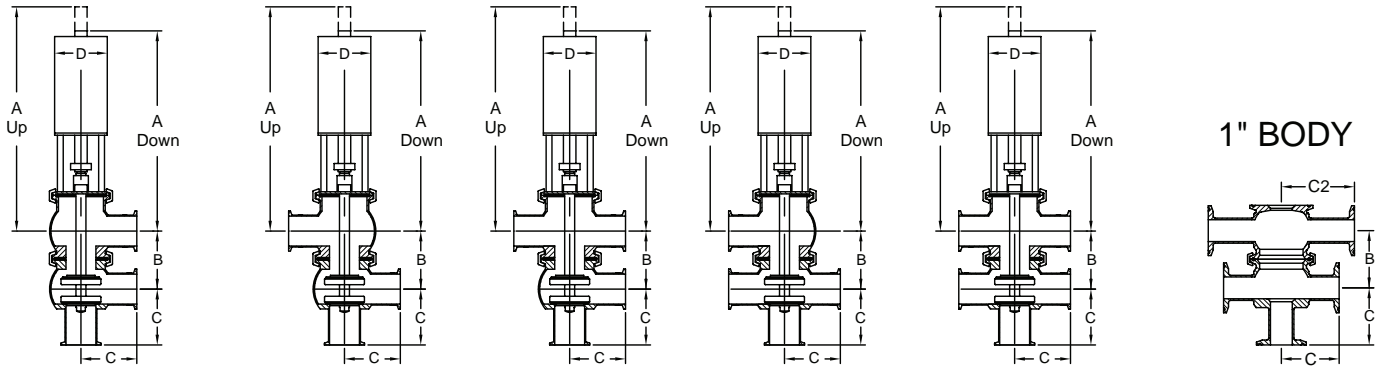


1" = Red, 1½" = Blue, 2" = Black, 2½" = Green, 3" = Purple, 4" = Orange

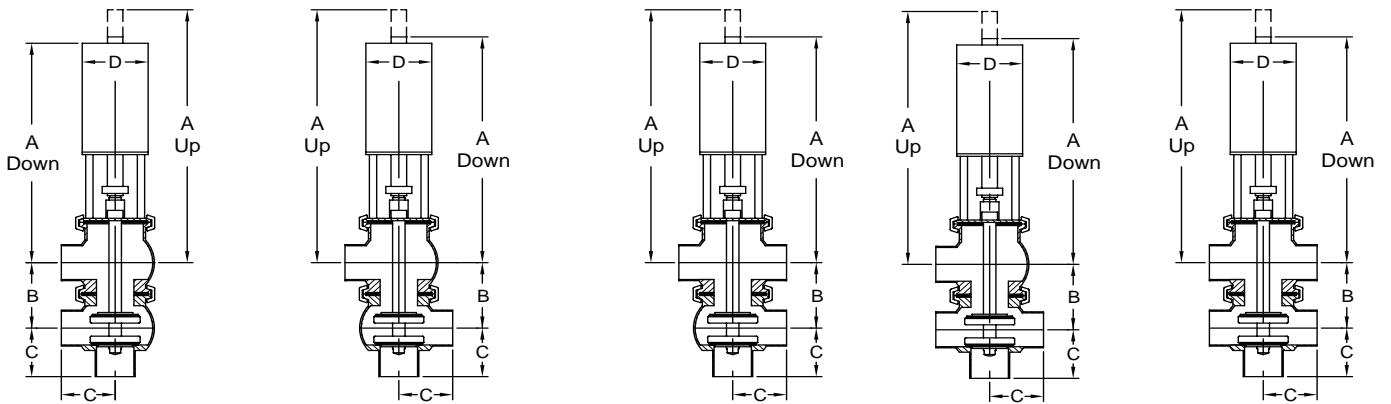


Double Body with Actuator

Clamp



Weld

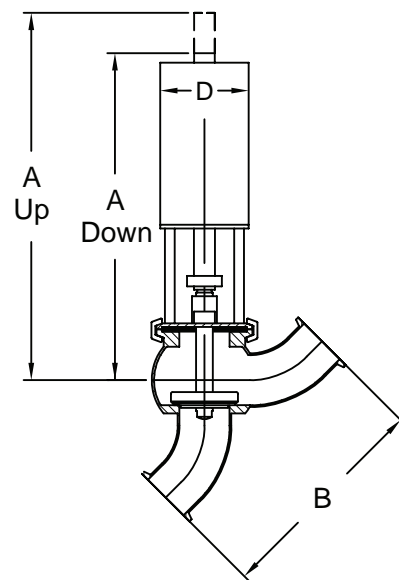
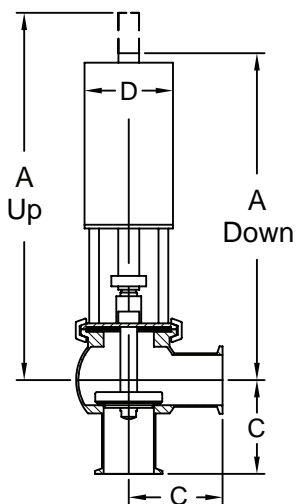
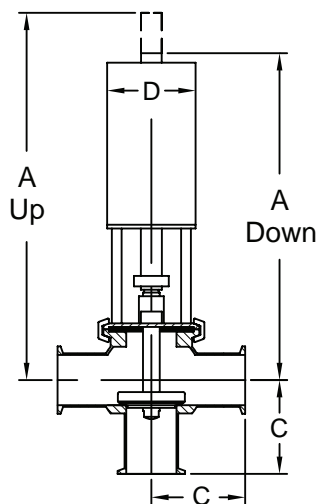


| Size | A (Down) | A (Up) | B | C (Clamp) | C (Weld) | C2 | D |
|--------|----------|--------|------|-----------|----------|-----|------|
| 1" | 6.05 | 6.69 | 2.23 | 2.50 | 2.00 | 3.2 | 2.36 |
| 1-1/2" | 11.41 | 12.40 | 3.15 | 2.75 | 2.25 | -- | 3.35 |
| 2" | 11.67 | 12.65 | 3.64 | 3.50 | 3.00 | -- | 3.35 |
| 2-1/2" | 14.40 | 15.66 | 4.72 | 3.50 | 3.00 | -- | 5.24 |
| 3" | 14.50 | 15.94 | 5.04 | 3.75 | 3.25 | -- | 5.24 |
| 4" | 15.10 | 16.17 | 5.94 | 4.50 | 3.87 | -- | 5.24 |

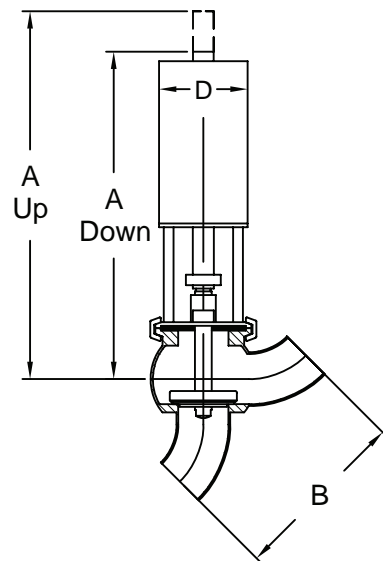
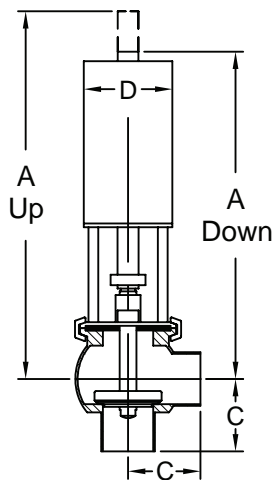
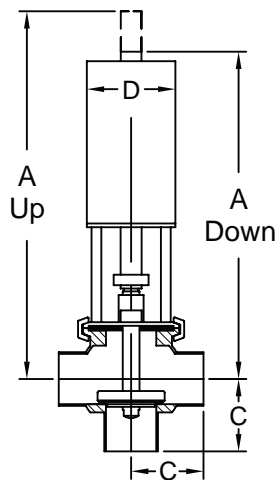


Single Body with Actuator

Clamp



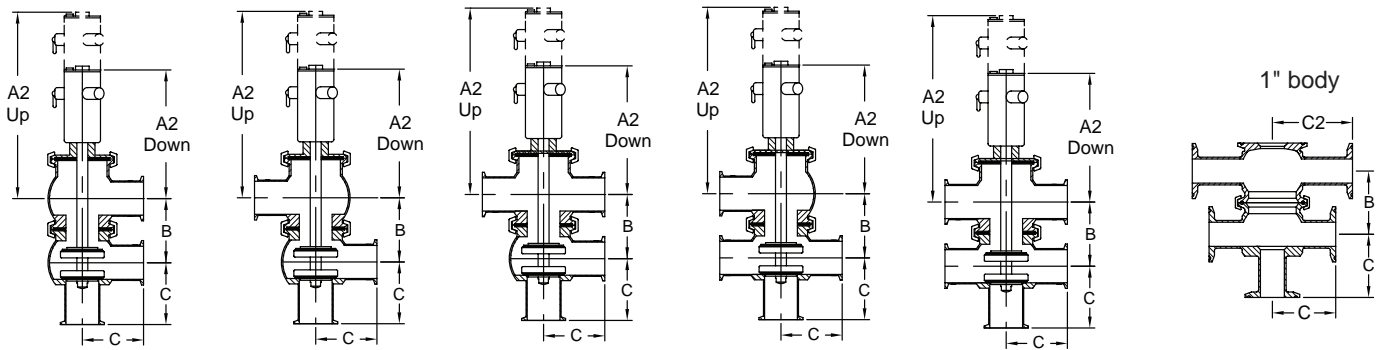
Weld



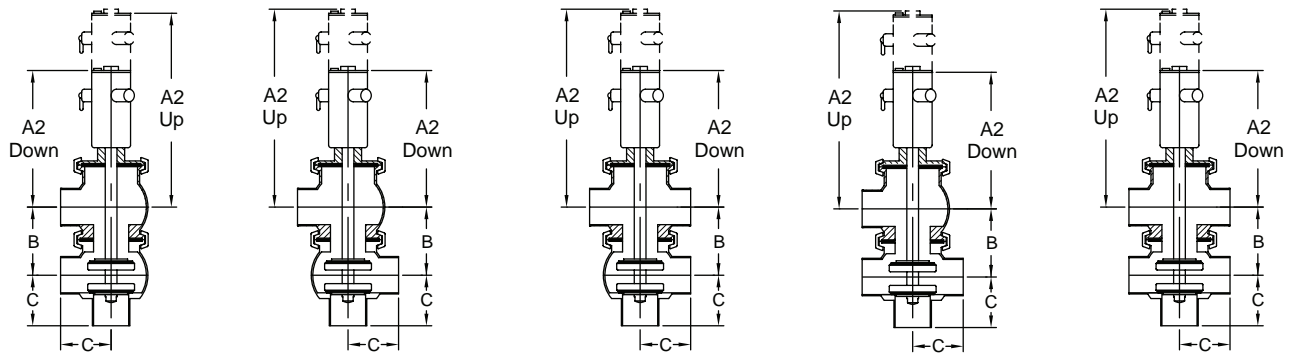
| Size | A (Down) | A (Up) | C (Clamp) | C (Weld) | D | B (Y-Body) Clamp | B (Y-Body) Weld |
|--------|----------|--------|-----------|----------|------|---------------------|--------------------|
| 1" | 6.05 | 6.69 | 2.50 | 2.00 | 2.36 | 4.78 | 3.78 |
| 1-1/2" | 11.41 | 12.40 | 2.75 | 2.25 | 3.35 | 6.60 | 5.60 |
| 2" | 11.67 | 12.65 | 3.50 | 3.00 | 3.35 | 7.64 | 6.64 |
| 2-1/2" | 14.40 | 15.66 | 3.50 | 3.00 | 5.24 | 9.33 | 8.33 |
| 3" | 14.50 | 15.94 | 3.75 | 3.25 | 5.24 | 10.63 | 9.63 |
| 4" | 15.10 | 16.17 | 4.50 | 3.87 | 5.24 | 13.18 | 11.93 |

Double Body with Manual Handle

Clamp



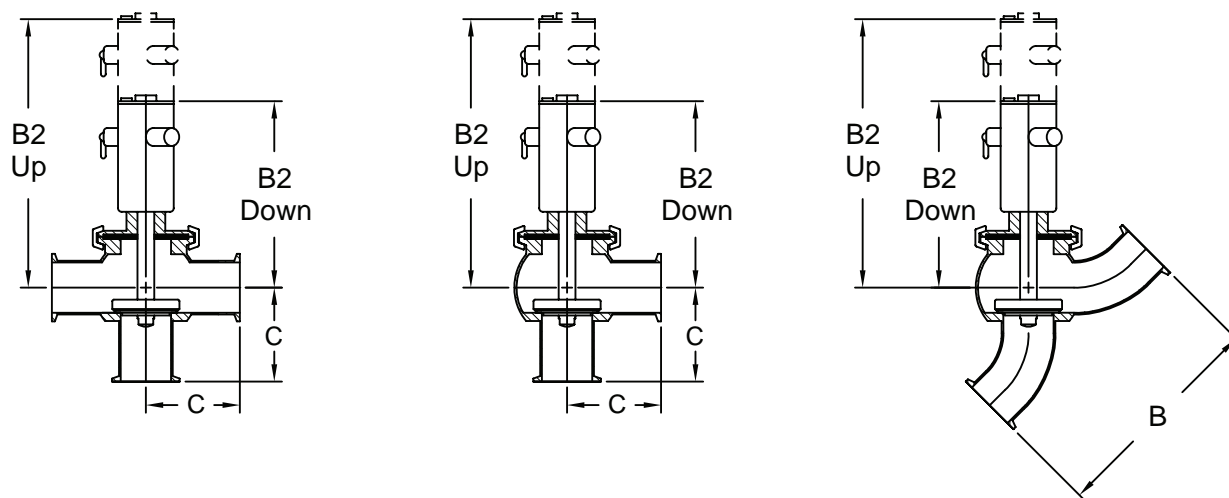
Weld



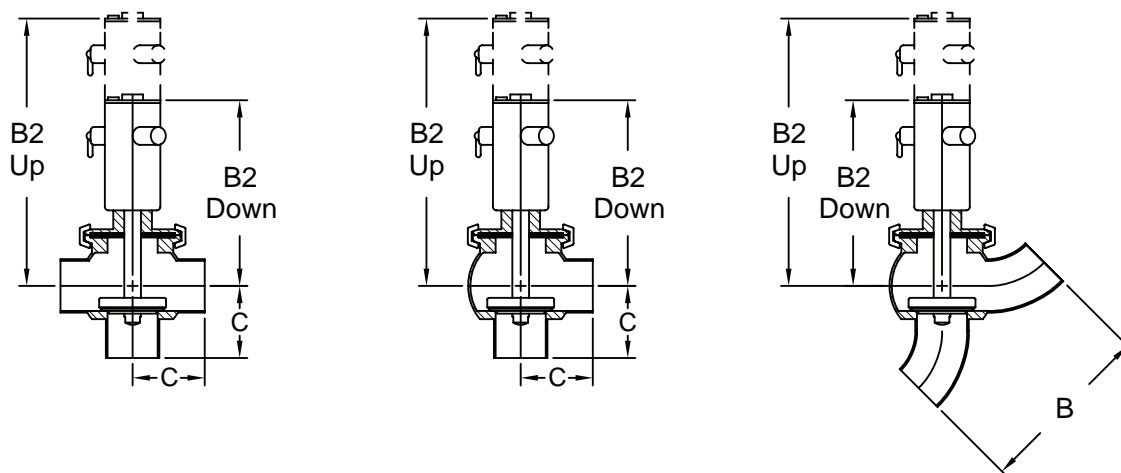
| Size | A2 (Down) | A2 (Up) | B | C (Clamp) | C (Weld) | C2 |
|--------|-----------|---------|------|-----------|----------|------|
| 1" | 3.98 | 4.65 | 2.23 | 2.50 | 2.00 | 3.20 |
| 1-1/2" | 4.96 | 5.94 | 3.15 | 2.75 | 2.25 | -- |
| 2" | 5.31 | 6.30 | 3.64 | 3.50 | 3.00 | -- |
| 2-1/2" | 6.57 | 7.83 | 4.72 | 3.50 | 3.00 | -- |
| 3" | 6.69 | 8.11 | 5.04 | 3.75 | 3.25 | -- |

3 Single Body with Manual Handle

Clamp

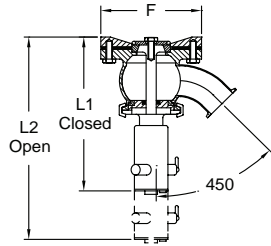


Weld



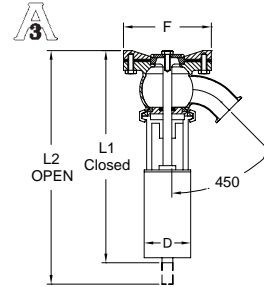
| Size | B2 (Down) | B2 (Up) | C (Clamp) | C (Weld) | B (Y-Body) Clamp | B (Y-Body) Weld |
|--------|-----------|---------|-----------|----------|------------------|-----------------|
| 1" | 3.98 | 4.88 | 2.50 | 2.00 | 4.78 | 3.78 |
| 1-1/2" | 4.96 | 6.34 | 2.75 | 2.25 | 6.60 | 5.60 |
| 2" | 5.31 | 6.69 | 3.50 | 3.00 | 7.64 | 6.64 |
| 2-1/2" | 6.57 | 8.54 | 3.50 | 3.00 | 9.33 | 8.33 |
| 3" | 6.69 | 8.66 | 3.75 | 3.25 | 10.63 | 9.63 |

Dimensions



Tank Body with Manual Handle

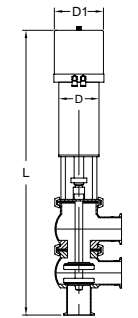
| Size(In) | L1 | L2 | F |
|----------|-------|-------|------|
| 1" | 7.13 | 8.31 | 4.33 |
| 1-1/2" | 9.17 | 10.55 | 5.51 |
| 2" | 9.53 | 10.91 | 5.91 |
| 2-1/2" | 11.34 | 13.11 | 7.09 |
| 3" | 11.81 | 13.58 | 7.87 |
| 4" | N/A | N/A | N/A |



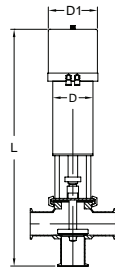
Tank Body With Actuator

| Size(In) | L1 | L2 | F | D |
|----------|-------|-------|------|------|
| 1" | 7.48 | 8.66 | 4.33 | 2.36 |
| 1-1/2" | 13.94 | 15.31 | 5.51 | 3.35 |
| 2" | 14.17 | 15.55 | 5.91 | 3.35 |
| 2-1/2" | 17.56 | 19.33 | 7.09 | 5.24 |
| 3" | 17.72 | 19.49 | 7.87 | 5.24 |
| 4" | N/A | N/A | N/A | N/A |

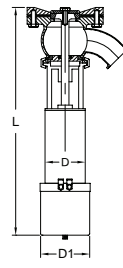
Valves With Actuator And CT Series Control Top



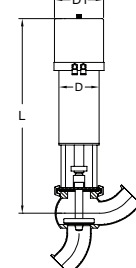
Double Body



Single Body



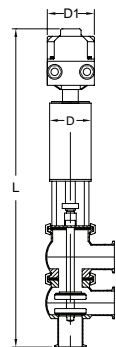
Tank



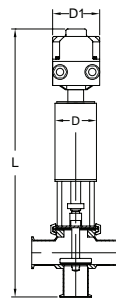
Y-Body

| Size(In) | D1 | D | Double Body | Single Body | Tank | Y-Body |
|----------|------|------|-------------|-------------|-------|--------|
| 1" | 4.09 | 2.36 | 15.15 | 13.00 | 12.60 | 10.34 |
| 1-1/2" | | 3.35 | 21.44 | 18.30 | 18.60 | 15.60 |
| 2" | | 3.35 | 22.91 | 19.30 | 20.17 | 15.85 |
| 2-1/2" | | 5.24 | 27.00 | 22.27 | 20.39 | 18.50 |
| 3" | | 5.24 | 27.65 | 22.60 | 20.39 | 18.60 |
| 4" | | 5.24 | 29.90 | 25.00 | N/A | 19.20 |

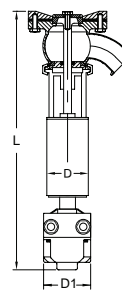
Valves With Actuator And CM Series Control Module



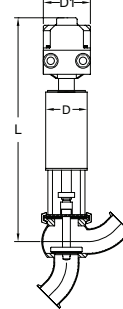
Double Body



Single Body



Tank



Y-Body

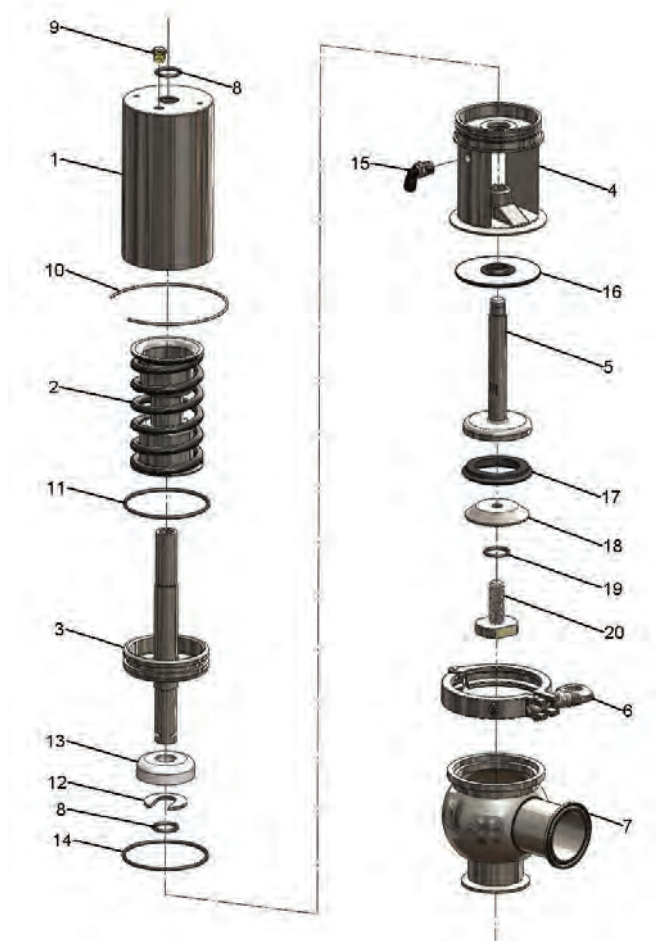
| Size(In) | D1 | D | Double Body | Single Body | Tank | Y-Body |
|----------|------|------|-------------|-------------|-------|--------|
| 1" | 4.09 | 2.36 | 17.55 | 15.34 | 15.00 | 12.75 |
| 1-1/2" | | 3.35 | 24.63 | 21.49 | 21.79 | 18.78 |
| 2" | | 3.35 | 23.41 | 22.49 | 21.94 | 19.04 |
| 2-1/2" | | 5.24 | 26.10 | 25.46 | 23.58 | 21.69 |
| 3" | | 5.24 | 30.84 | 25.79 | 23.58 | 21.79 |
| 4" | | 5.24 | 31.79 | 25.85 | N/A | 22.39 |



Seat Valve Bill of Materials

(Standard Materials)

Single Body



| Item # | Description | Material | Quantity | |
|--------|----------------------------|---------------------|---------------|---------------|
| | | | Spring Return | Double Acting |
| 1 | Actuator Body | 304 SS | 1 | 1 |
| 2 | Spring | 304 SS | 1 | 0 |
| 3 | Actuator Piston | 304 SS | 1 | 1 |
| 4 | Adapter | 304 SS | 1 | 1 |
| 5 | Valve Stem | 316L | 1 | 1 |
| 6 | Single Pin Clamp | 304 SS | 1 | 1 |
| 7 | Valve Body - Lower | 316L | 1 | 1 |
| 8 | Stem O-Ring * | EPDM | 2 | 2 |
| 9 | Filter | Nickel Plated Brass | 1 | 0 |
| 10 | Actuator Adapter Wire Clip | 304 SS | 1 | 1 |
| 11 | Piston O-Ring | EPDM | 1 | 1 |
| 12 | Stem U-Clip | 304 SS | 1 | 1 |
| 13 | Actuator Ring | PTFE | 1 | 1 |
| 14 | Adapter O-Ring | EPDM | 1 | 1 |
| 15 | Air Fitting | Nickel Plated Brass | 1 | 2 |
| 16 | Lip Seal * | 304/EPDM | 1 | 1 |
| 17 | Seat Seal Ring * | EPDM | 1 | 1 |
| 18 | Seat Washer | 316L | 1 | 1 |
| 19 | Seat Bolt O-Ring * | EPDM | 1 | 1 |
| 20 | Seat Bolt | 316L | 1 | 1 |

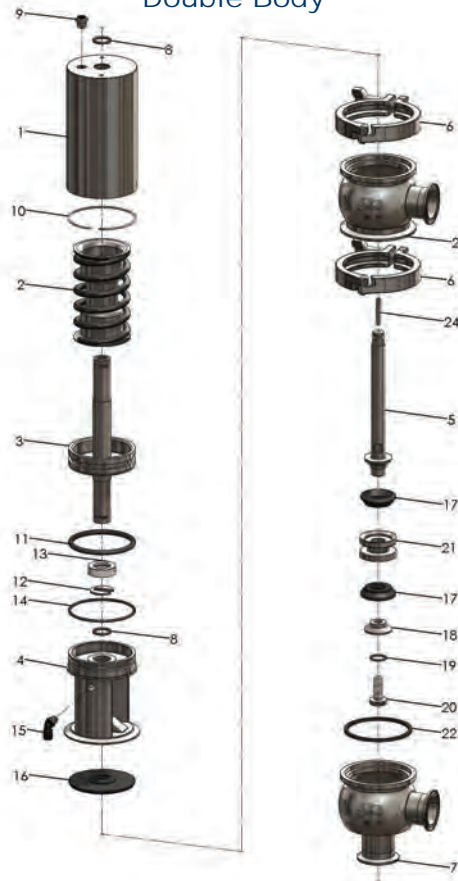
* wetted repair parts

Seat Valve Bill of Materials



(Standard Materials)

Double Body

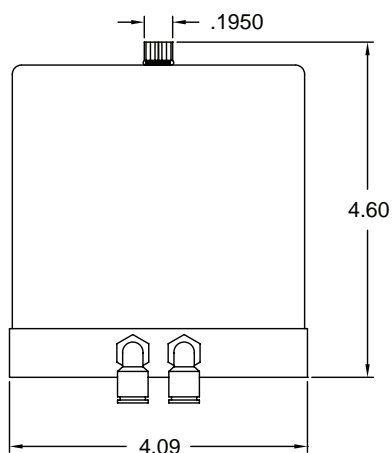


| Item # | Description | Material | Quantity | |
|--------|----------------------------|---------------------|---------------|---------------|
| | | | Spring Return | Double Acting |
| 1 | Actuator Body | 304 SS | 1 | 1 |
| 2 | Spring | 304 SS | 1 | 0 |
| 3 | Actuator Piston | 304 SS | 1 | 1 |
| 4 | Adapter | 304 SS | 1 | 1 |
| 5 | Valve Stem | 316L | 1 | 1 |
| 6 | Single Pin Clamp | 304 SS | 2 | 2 |
| 7 | Valve Body - Lower | 316L | 1 | 1 |
| 8 | Stem O-Ring * | EPDM | 2 | 2 |
| 9 | Filter | Nickel Plated Brass | 1 | 0 |
| 10 | Actuator Adapter Wire Clip | 304 SS | 1 | 1 |
| 11 | Piston O-Ring | EPDM | 1 | 1 |
| 12 | Stem U-Clip | 304 SS | 1 | 1 |
| 13 | Actuator Ring | PTFE | 1 | 1 |
| 14 | Adapter O-Ring | EPDM | 1 | 1 |
| 15 | Air Fitting | Nickel Plated Brass | 1 | 2 |
| 16 | Lip Seal * | 304/EPDM | 1 | 1 |
| 17 | Seat Seal Ring * | EPDM | 2 | 2 |
| 18 | Seat Washer | 316L | 1 | 1 |
| 19 | Seat Bolt O-Ring * | EPDM | 1 | 1 |
| 20 | Seat Bolt | 316L | 1 | 1 |
| 21 | Stem Gland | 316L | 1 | 1 |
| 22 | Valve Body Seal Ring * | EPDM | 1 | 1 |
| 23 | Valve Body - Upper | 316L | 1 | 1 |
| 24 | Set Screw | 304SS | 1 | 1 |

* wetted repair parts

CT-Series Control Top

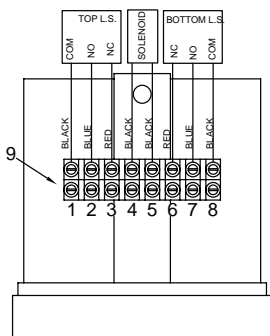
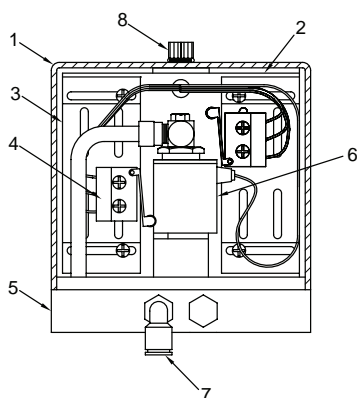
The CT-series control top mounts directly to the SV series spring return actuator offering two position feedback and control



- Nema 4/4X water proof / dust proof, class IP 67 enclosure
- 304SS enclosure
- 110VAC and 24VDC solenoid options
- Mechanical and proximity (PNP, NPN, NO & NC) switching options

| Part Number | Description |
|-------------|-----------------------------------|
| SV-CT1 | Micro Switch 24Vdc, Air To Lower |
| SV-CT2 | Prox Npn Nc 24Vdc, Air To Lower |
| SV-CT3 | Prox Npn No 24Vdc, Air To Lower |
| SV-CT4 | Prox Pnp Nc 24Vdc, Air To Lower |
| SV-CT5 | Prox Pnp No 24Vdc, Air To Lower |
| SV-CT6 | Micro Switch 24Vdc, Air To Rise |
| SV-CT7 | Prox Npn Nc 24Vdc, Air To Rise |
| SV-CT8 | Prox Npn No 24Vdc, Air To Rise |
| SV-CT9 | Prox Pnp Nc 24Vdc, Air To Rise |
| SV-CT10 | Prox Pnp No 24Vdc, Air To Rise |
| SV-CT11 | Micro Switch 110Vac, Air To Lower |
| SV-CT12 | Prox Npn Nc 110Vac, Air To Lower |
| SV-CT13 | Prox Npn No 110Vac, Air To Lower |
| SV-CT14 | Prox Pnp Nc 110Vac, Air To Lower |
| SV-CT15 | Prox Pnp No 110Vac, Air To Lower |
| SV-CT16 | Micro Switch 110Vac, Air To Rise |
| SV-CT17 | Prox Npn Nc 110Vac, Air To Rise |
| SV-CT18 | Prox Npn No 110Vac, Air To Rise |
| SV-CT19 | Prox Pnp Nc 110Vac, Air To Rise |
| SV-CT20 | Prox Pnp No 110Vac, Air To Rise |

Control Top Bill of Materials



| Item # | Description | Qty | Material |
|--------|----------------|-----|------------|
| 1 | Cover | 1 | 304 SS |
| 2 | Switch Plate | 1 | 304 SS |
| 3 | Switch Hanger | 2 | P.O.M. |
| 4 | Limit Switch | 2 | Various * |
| 5 | Manifold | 1 | 304 SS |
| 6 | Solenoid | 1 | AL |
| 7 | Air Fitting | 1 | N.P. Brass |
| 8 | Cover Bolt | 1 | 304 SS |
| 9 | Terminal Strip | 1 | P.O.M. |

* Dependent on switch type

CM-Series Control Module

The CM-Series Control Communication Module, designed for corrosive process environments, attaches directly to the Sanitary Divert Valves. This platform offers a full array of communication and switching options as well as discrete integral pneumatic control for spring return actuator operation.

Features and Benefits:

- The CM-Series may be washed down and temporarily submersed with no adverse affects. It is rated NEMA 4, 4x, and 6. It may be used in Div. 2/Zone 2 areas (Nonincendive) or Div.1/Zones 0 & 1 (Intrinsically Safe) hazardous applications
- Enclosure features high strength polycarbonate with excellent corrosion resistance and exceptional temperature stability.
- Visual electronic and mechanical position indication confirm valve and switch status for added safety.
- Solid state proximity sensors monitor Open/Closed discrete valve position with precision and reliability.
- Integral pneumatic valve is isolated from environmental contamination, offers high tolerance to dirty air and enables rapid valve operation.
- Solenoid options available for 120VAC and 24VDC. Select Piezo option for bus powered Foundation Fieldbus Applications.
- Self Adjusting triggering system provides consistent Open and Closed indication. No resetting is required.
- Manual override enables valve operation without electrically energizing.
- Dual module system seals all position sensing, communication and control electronics in a compact vibration proof package.
- NPT port connections are stainless steel reinforced for long life sealing under high torque stress conditions.
- Water proof quick connectors, compression fittings or conduit connections are available for convenient, reliable attachment to plant electrical systems.



Part Number Key

| Series | Function | Pneumatic Valve | Conduit / Connectors | Visual Indicator | Stroke | Mounting Kit |
|-----------|--|---|--------------------------------------|------------------------------------|-----------------|----------------|
| CM | Sensor Modules | 11 no pneumatic valve | S02 (2) ½" NPT | R red closed/ green open | -L long | N none |
| | 33 (2) SST N.O. switching sensors | 1A 3-way Piezo (use with function option 93) | S05 (2) M20 | G green closed/ red open | -S short | L long |
| | 44 (2) NAMUR sensors (I.S.; EN 60947-5-6) | 1B 3-way 24 VDC 1.8W (use with function options 92, 94, 95 and 96) | S09 (2) cable glands | | | S short |
| | Valve Communication Terminals (VCT) | 1C 3-way 120 VAC 7.2 W (use with function option 33) | S11 (1) 5-pin mini connector | | | |
| | 92 DeviceNet VCT | 1D 3-way 24 VDC 0.5 W (use with function option 97) | S13 (1) 4-pin micro connector | | | |
| | 93 Foundation Fieldbus VCT (bus powered: I.S.) | 1E 3-way (I.S. 12 VDC (use with function option 44) | S14 (2) 4-pin micro connector | | | |
| | 94 Foundation Fieldbus VCT (externally powered) | | S15 (1) 5-pin micro connector | | | |
| | 95 Modbus VCT | | | | | |
| | 96 AS-Interface VCT | | | | | |
| | 97 AS-Interface VCT (with extended addressing) | | | | | |

Part Number Key

SST Switching Sensors (33)

- Configuration (2) SST Switching Sensors (2) Wire Terminations (Solenoid)
- Output Select either NO or NC Models
- Maximum Current
 - Inrush 2.0 Amps
 - Continuous 0.3 Amps
- Minimum On Current 2.0 mA
- Maximum Leakage Current 0.5 mA
- Voltage Range 8 to 125VDC / 24 to 125VAC
- Maximum Voltage Drop 7.0 Volts @ 100 mA

Namur Sensors (44)

- Configuration (2) NAMUR Sensors (2) Wire Terminations (Solenoid)
- Output Conforms to EN 60947-5-6
- Current Ratings Target On I<1.0 mA Target Off I>3.0 mA
- Voltage Range 5 to 25 VDC

AS-Interface VCT (96)

- Configuration (2) Sensor Inputs (2) Auxiliary Inputs (2) Power Outputs (Solenoids)
- Maximum Current 160mA, Both Outputs Combined (Current Limited to 200mA)
- Outputs, Maximum Power 4 Watts, Both Outputs Combined
- Outputs, Voltage 25 to 30 VDC

AS-Interface VCT (97) with Extended Addressing

- Configuration (2) Sensor Inputs (2) Auxiliary Discrete Inputs (1) Power Output (Solenoid)
- Maximum Current 100mA
- Outputs, Maximum Power 2.4 Watts
- Outputs, Voltage 25 to 30 VDC

DeviceNet VCT (92)

- Configuration (2) Discrete Inputs (Open & Closed) (2) Power Outputs (Solenoids) (1) 4-20 mA Auxiliary Input
- Outputs, Maximum Power 4 Watts, Both Outputs Combined
- Outputs, Voltage 24 VDC

Bus Powered Foundation Fieldbus VCT (93)

- Configuration (2) Discrete Inputs, DI (Open & Closed) (2) Discrete Outputs, DO (Piezo Valves)
- Outputs 2mA @ 6.5 VDC each; Current Limited to 2mA (Bus Powered)
- Temperature Range -40° to 80°C (40°F to 176°F)

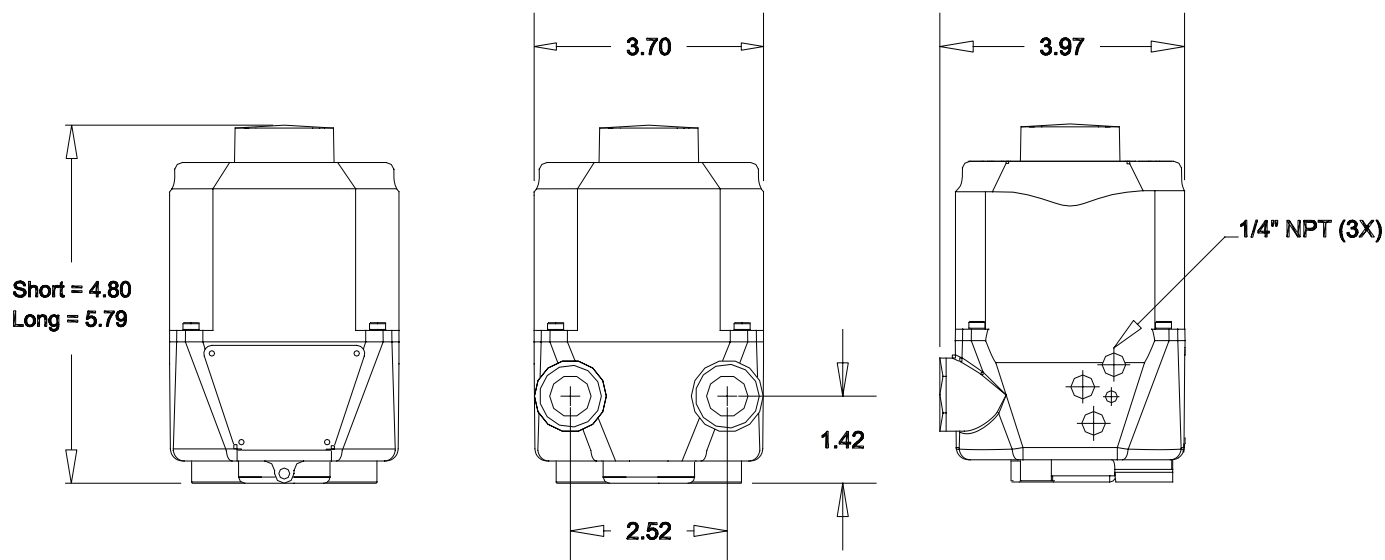
Externally Powered Foundation Fieldbus VCT (94)

- Configuration (2) Discrete Inputs, DI (Open & Closed) (2) Power Outputs, DO (Solenoids)
- Outputs 4 Watts @ 24VDC Both Outputs Combined; Current Limited to 200mA (Externally Powered)
- Temperature Range -40° to 80°C (40°F to 176°F)

Modbus VCT (95)

- Configuration (2) Discrete Inputs (Open & Closed) (2) Power Outputs (Solenoids) (1) 4-20 mA Auxiliary Input
- Outputs 4 Watts @ 24VDC Both Outputs Combined (Current Limited 200mA)
- Temperature Range -40° to 80° C (40°F to 176°F)

Control Top Dimensions



Technical Specifications

Materials of Construction

- Housing and Cover: Polycarbonate
- Fasteners: Stainless Steel
- Triggering Cams: Stainless Steel Banded Polycarbonate
- Shaft: Stainless Steel
- Valve Manifold: Polysulfone with Stainless Steel Reinforced NPT

Temperature Range: -40° C to 80° C (-40° F to 176° F)

- with solenoid: Maximum Ambient 50° C (120° F)

Operating Life: 1 Million Cycles

Nonincendive Ratings

- NEC/CEC: Classes I and II, All Groups, Div. 2

Intrinsically Safe Ratings

- NEC/CEC: Classes I and II, All Groups, Div. 1 & 2

Enclosure Protection

- NEMA: 4/4X water proof / dust proof, class IP 67 Enclosure

Valve Troubleshooting

Dixon Sanitary SV-Series seat valves are engineered and manufactured to meet 3A sanitary standards. Occasional issues may arise during the valves lifecycle. The following chart was developed to determine a possible cause and offer a suggested action. Any additional questions or comments you have that are not covered by this chart can be directed to Dixon Sanitary.

| Problem | Possible Cause | Suggested Action |
|---|--|---|
| Valve is not opening or closing completely | Plant supply air not at specified operating pressure | Set plant supply air properly as specified in the Dixon Sanitary Engineering Products Catalog |
| | An obstruction at the sealing surface | Inspect valve and remove any possible obstruction or blockage |
| Rapid seal wear | Abrasive product running through the valve | Contact Dixon Sanitary (800) 789-1718 |
| | Large pressure surges as produced by water hammer | Correct system by eliminating any sudden starts or stops |
| | Operating temperatures above what is recommended for the seat material | Contact Dixon Sanitary (800) 789-1718 |
| Valve is leaking between the the valve bodies. (Double body only) | Valve body seal ring damaged or worn | Replace damaged or worn seal ring |
| | Valve body clamp is loose | Tighten clamp |
| Internal product leakage | Valve stem is loose | Tighten stem |
| | Actuator loose at adapter | Contact Dixon Sanitary (800) 789-1718 |
| | Worn seat bolt O-ring | Replace O-ring |
| Valve is leaking at valve port | Loose connection at the port (Clamp ends only) | Tighten clamp |
| | Missing or worn union gasket (Clamp ends only) | Install missing union gasket or replace worn gasket |
| External product leakage | Worn tank body flange gasket (Tank bodies only) | Replace flange gasket |
| Material escaping past seating surface | Excessive product pressure | Lower the product pressure as not to exceed specified holding pressure listed in Dixon Sanitary Engineered Products Catalog |
| | Supply air pressure below specified air pressure | Increase plant supply air to correct pressure as specified in Dixon Sanitary Engineering Products Catalog |
| Control Top is not signaling an open or closed position. (CT series only) | Switches may be out of alignment due to excessive vibration | Contact Dixon Sanitary for information on proper alignment (800) 789-1718 |
| Valve is not actuating when control top is energized. (CT series only) | Wrong voltage to the control top | Confirm the input voltage correctly corresponds to the voltage of the control top |
| Any other issue | | Contact Dixon Sanitary (800) 789-1718 |

Seat Valve Check List

Contact Name: _____ Company Name: _____
 Date: _____ Phone: _____ Email: _____
 Customer ID#: _____

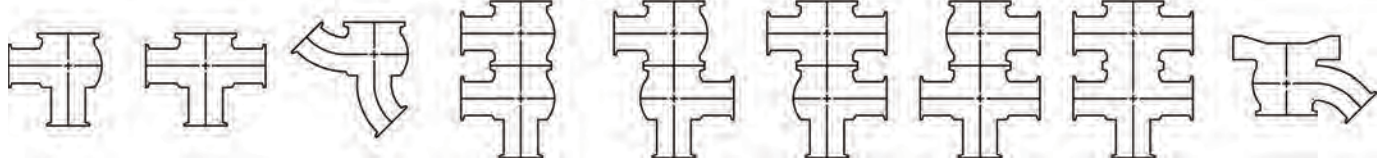
Process Background

Process Temp: _____ CIP Temperature: _____
 Product: _____ Plant Air Supply (PSI): _____
 Product Pressure: _____

Type/Size

Shut Off ☐ Divert ☐ Tank ☐
 1" ☐ 1-1/2" ☐ 2" ☐ 2-1/2" ☐ 3" ☐ 4" ☐ Other: _____

Body

L ☐ T ☐ Y ☐ F ☐ L/L ☐ T/L ☐ L/T ☐ T/T ☐ Tank ☐


Connections

Clamp ☐ Weld ☐ Combination ☐
 Other: _____

Seat Material

EPDM ☐ Buna ☐
 FKM ☐ PTFE w/FKM ☐
 PTFE w/EPDM ☐

Actuator

Manual ☐ Pneumatic Spring Return Air Up ☐
 Pneumatic Double Acting ☐ Pneumatic Spring Return Air Down ☐
 Tank Up Open ☐ Tank Up Close ☐

Controls

None ☐ Communication Module ☐
 Basic Control Top ☐

Switch Type

None ☐ Proximity For Basic Top ☐
 Mechanical For Basic Top ☐ Namur For Communication Top ☐
 Solid State For Communication Top ☐

Solenoid/Communication/Conduit Connection

Solenoid ☐ Conduit ☐
 Communication ☐

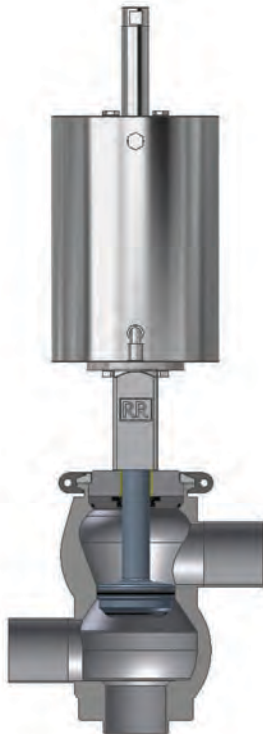
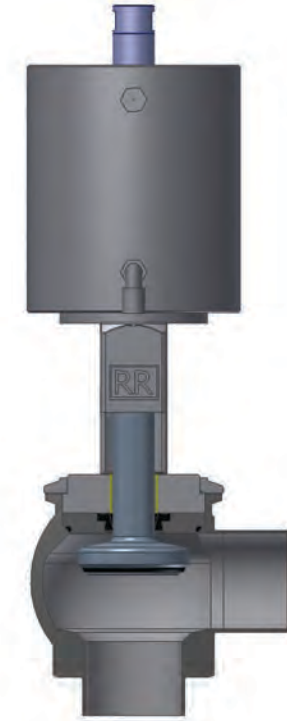
Options

| |
|--|
| |
| |
| |
| |

Special Instructions (Desired Flow Path see page 5-6)

| |
|--|
| |
| |
| |
| |

Long Stroke Valves - Technical Information

**Applications:**

- Used in dairy, beverage and food plants where the product contains particles, has high viscosity or pressure differential is an issue.

Features:

- valve body from solid bar; no dead space; drainable when mounted in various positions
- high-grade inner surfaces; no dome or sump in product space
- change of seals without special tools; optimum cleanliness
- modular assembly; system low spare part costs

Technical Data

Material:

- product wetted: 1.4404/AISI316L
- optional: 1.4435/AISI316L
- non product contact: 1.4301/AISI304

Product contact seals:

- O-rings: EPDM (FDA)

Temperatures:

- maximum standard operating temperature: 130°C (266°F)
- sterilization temperature: 150°C (300°F) short time* (approx. 20 min)

Standard operating pressure:

- standard pressure: max. 6 bar (**87 PSI**)
- actuator air pressure: min. 6 bar (**87 PSI**) - max. 10 bar (**145 PSI**)

Surfaces:

- product wetted surfaces: $R_a \leq 0.8 \mu\text{m}$ (32) mechanically polished optional surfaces available
- non product contact: $R_a \leq 1.6 \mu\text{m}$

Standard connections:

- O.D.-Tube (DIN 11866 C) Weld Optional connections on request

**dependent upon operating conditions*

See Section A for Control Options

See Seat Valve Check List page 19 for all options.

Contact Dixon Sanitary Engineering Department for all inquiries.

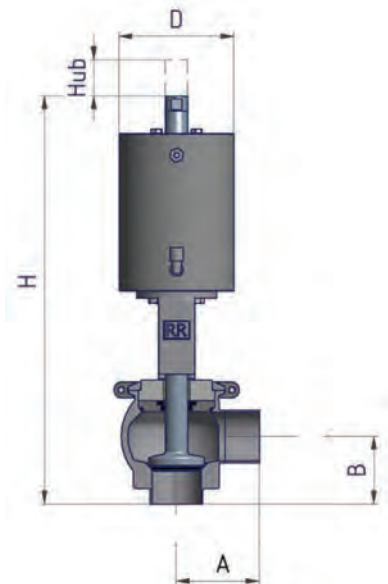
Ordering Information

| Valve Series (1-2) | Type (3) | Body Config. (4) | Ports (5) | Size (6-7) | Actuator (8) | Seat Material (9) | Control Top (10) | Switches (11) | Solenoid (12) * | Communication (13) | Conduit Connectors (14) | Options (15) |
|--------------------|------------------------|------------------|---|------------|--------------------------------|-------------------|------------------------|---------------|-----------------------------------|--|----------------------------|--------------|
| SV Seat Valve | J Long Stroke Shut Off | A T | C Clamp | 10 1" | A Manual | E EPDM | N None | N None | N None | N None | N None | N None |
| | K Long Stroke Divert | B L | B Buttweld Other: _____ | 15 1.5" | B Spring Return (Air To Raise) | V FKM | C Communication Module | S Solid State | 3 3-Way Piezo | A Device Net | 1 (1) M12 Poly Cable Gland | |
| | | E F | Z Combination (Add Note) Specify Ports | 20 2" | C Spring Return (Air To Lower) | | | R Namur | 4 3-Way Poppet Style 24V DC 1.8W | B Foundation Fieldbus | 2 (2) 1/2" NPT | |
| | | F LL | | 25 2.5" | D Double Acting | | | | 5 3-Way Poppet Style 120V AC 7.2W | C Foundation Fieldbus (Externally Powered) | 3 (2) M20 | |
| | | G TL | | 30 3" | | | | | 6 3-Way Poppet Style 24V DC 0.5W | D Modbus | 4 (2) Cable Glands | |
| | | H LT | | 40 4" | | | | | 7 3-Way Intrinsically Safe 12V DC | E As-Interface | 5 (1) 5 Pin Connector | |
| | | I TT | | | | | | | | F As-Interface (W/ Extended Addressing) | 6 (1) 4 Pin Connector | |
| | | J 3 Port | | | | | | | | | 7 (2) 4 Pin Connectors | |
| | | K 4 Port | | | | | | | | | | |
| | | L Tank 30° | | | | | | | | | | |
| | | M Tank 90° | | | | | | | | | | |
| | | N Angle | | | | | | | | | | |

B

Long Stroke Angle Valve L-Type

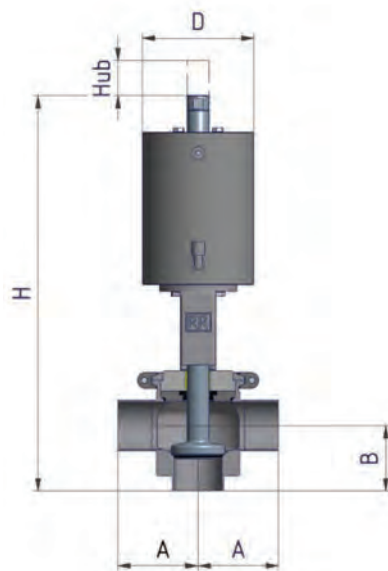
Pneumatic - Air to Open/Spring to Close NC



| Size | Nominal Wall | A | B | D | H | Stroke | lbs. |
|--------|--------------|------|------|------|-------|--------|------|
| 1" | 1 x 0.065 | 1.97 | 1.97 | 3.54 | 11.97 | 0.71 | 11.9 |
| 1-1/2" | 1.5 x 0.065 | 3.15 | 2.16 | 3.54 | 13.35 | 0.98 | 14.6 |
| 2" | 2 x 0.065 | 3.15 | 2.56 | 4.37 | 16.85 | 1.38 | 23.8 |
| 2-1/2" | 2.5 x 0.065 | 3.94 | 2.76 | 5.3 | 19.53 | 1.81 | 34.4 |
| 3" | 3 x 0.065 | 4.72 | 3.15 | 6.77 | 23.03 | 2.28 | 55.3 |
| 4" | 4 x 0.083 | 4.13 | 3.54 | 6.77 | 23.90 | 2.95 | 63.9 |

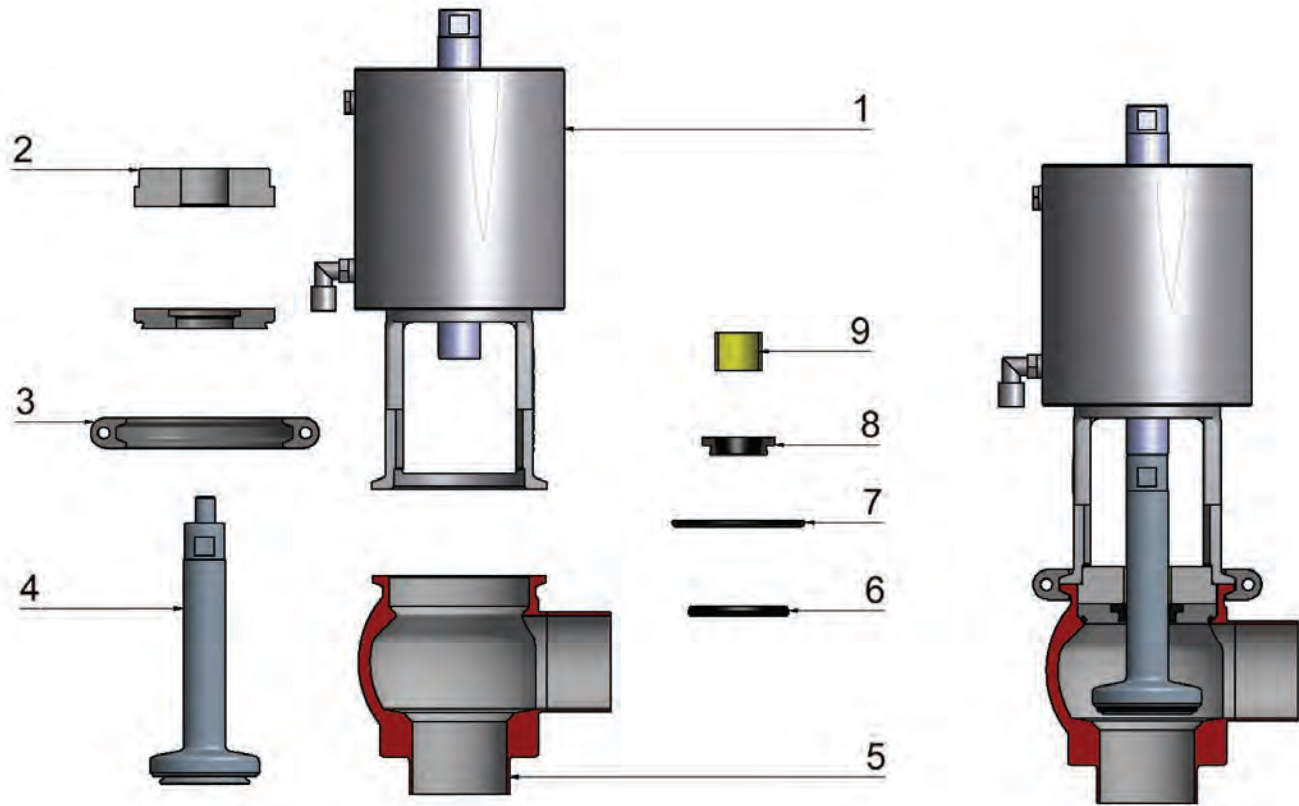
Long Stroke Double Angle Valve T-Type

Pneumatic - Air to Open/Spring to Close NC



| Size | Nominal Wall | A | B | D | H | Stroke (mm) | lbs. |
|--------|--------------|-------|------|------|-------|-------------|------|
| 1" | 1 x 0.065 | 1.97 | 1.97 | 3.54 | 11.97 | 0.71 | 11.9 |
| 1-1/2" | 1.5 x 0.065 | 3.15 | 2.16 | 3.54 | 13.35 | 0.98 | 14.6 |
| 2" | 2 x 0.065 | 3.15 | 2.56 | 4.37 | 16.85 | 1.38 | 23.8 |
| 2-1/2" | 2.5 x 0.065 | 3.94 | 2.76 | 5.32 | 19.53 | 1.81 | 34.4 |
| 3" | 3 x 0.065 | 4.72 | 3.15 | 6.77 | 23.03 | 2.28 | 55.3 |
| 4" | 4 x 0.083 | 4.130 | 3.54 | 6.77 | 23.90 | 2.95 | 63.9 |

Bill of Materials for L-Body Long Stroke - Valves



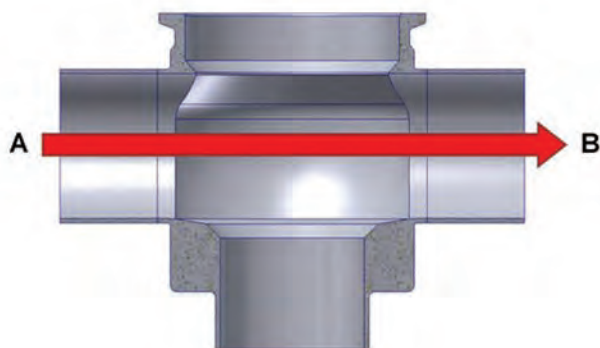
Repair Kit contains:

- #6 (1) EPDM O-ring
 #7 (1) EPDM O-ring
 #8 (1) EPDM gasket
 #9 (1) plastic bushing

| Valve Size | Repair Kit Part # |
|------------|-------------------|
| 1" | SV-100-RKLS-E |
| 1-1/2" | SV-150-RKLS-E |
| 2" | SV-200-RKLS-E |
| 2-1/2" | SV-250-RKLS-E |
| 3" | SV-300-RKLS-E |
| 4" | SV-400-RKLS-E |

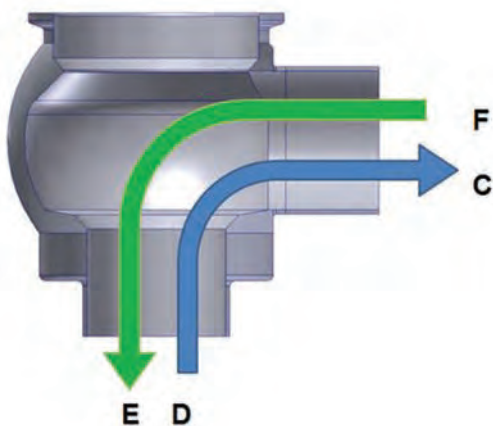
| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | actuator | 1 |
| 2 | mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | spindle | 1 |
| 5 | housing | 1 |
| 6 | EPDM O-ring | 1 |
| 7 | EPDM O-ring | 1 |
| 8 | EPDM gasket | 1 |
| 9 | plastic bushing | 1 |

B

 C_v Values

Flow Direction

| Inch | A-B | C-D | E-F |
|--------|-------|-------|-------|
| 1" | 12.2 | 11.9 | 11.6 |
| 1-1/2" | 30.2 | 29.7 | 28.8 |
| 2" | 56.2 | 55.3 | 53.6 |
| 2-1/2" | 90.3 | 88.8 | 86.1 |
| 3" | 132.4 | 130.2 | 126.2 |
| 4" | 236.2 | 232.4 | 225.2 |



Calculation Formula for Q

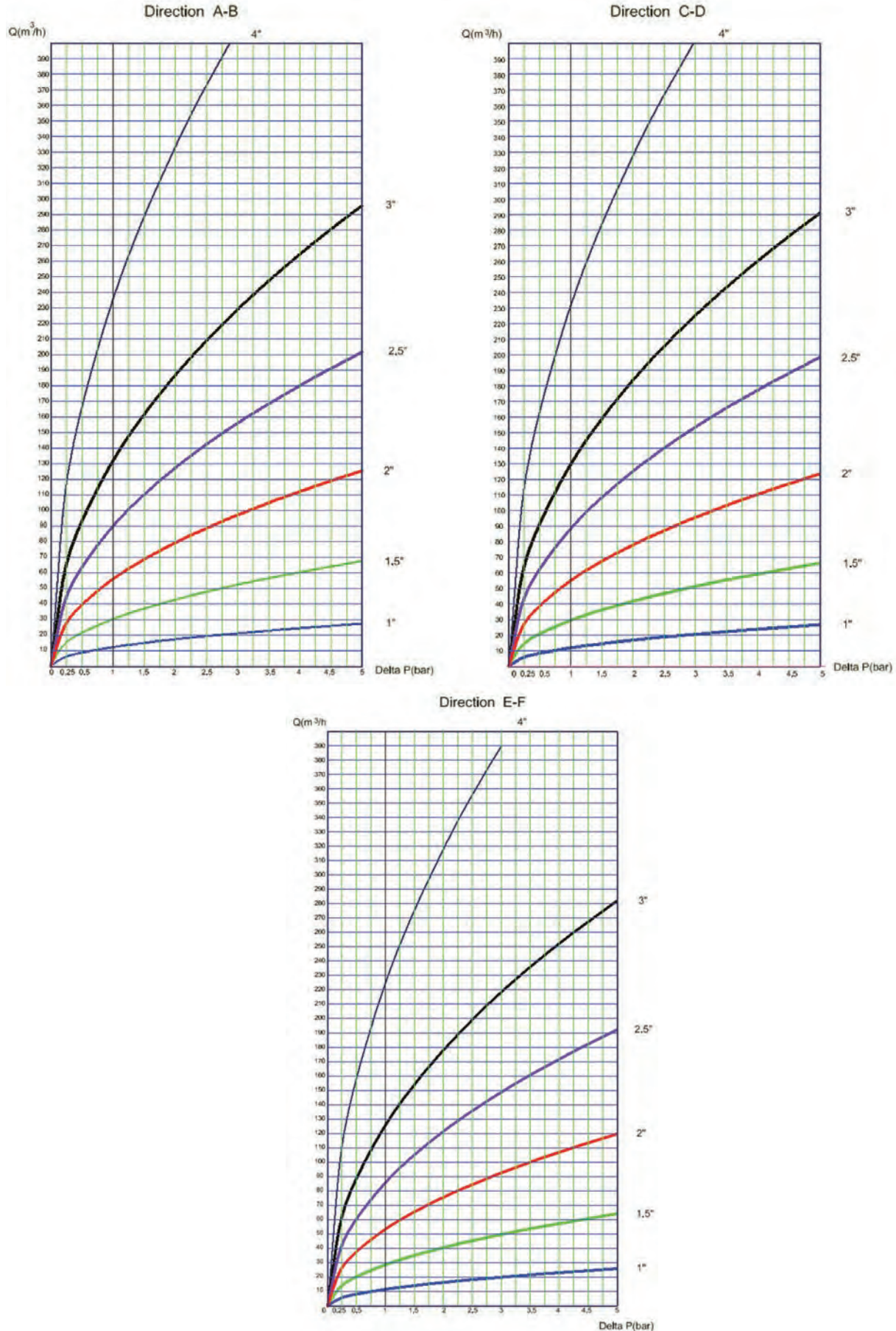
$$Q = C_v \sqrt{\frac{\Delta P}{S.G.}}$$

$$Q = \text{flow (m}^3/\text{h)}$$

ΔP = Pressure
differential (bar)

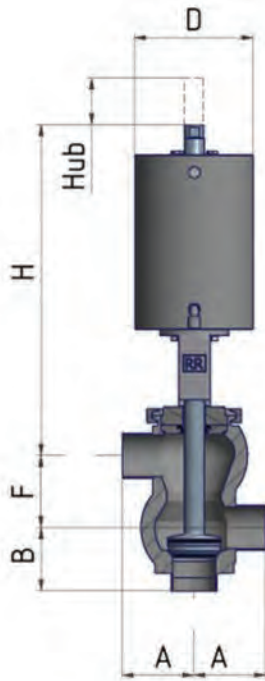
S.G. = Specific Gravity
(1.0 for water)

Pressure Loss Diagrams for Hygienic L-Body Valves



Long Stroke Change - Over Valve – 3/2-Ways

Pneumatic - Air to Open/Spring to Close NC – 3/2-Ways - One-Piece Valve Body

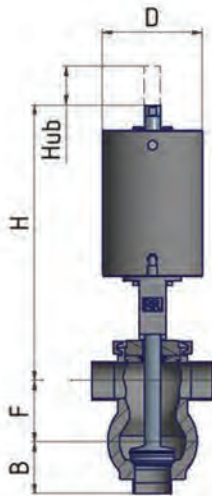


| Size | Nominal Wall | A | B | F | D | H | Stroke (Hub) |
|--------|--------------|------|------|------|------|-------|--------------|
| 1" | 1 x 0.065 | 2.36 | 1.97 | 1.97 | 2.54 | 11.10 | 1.22 |
| 1-1/2" | 1.5 x 0.065 | 3.15 | 2.17 | 2.48 | 3.54 | 13.62 | 1.69 |
| 2" | 2 x 0.065 | 3.94 | 2.56 | 75.5 | 4.37 | 16.97 | 2.20 |
| 2-1/2" | 2.5 x 0.065 | 3.94 | 2.84 | 3.39 | 5.32 | 18.58 | 2.36 |
| 3" | 3 x 0.065 | 4.92 | 3.15 | 3.98 | 6.77 | 19.92 | 2.99 |
| 4" | 4 x 0.083 | 5.91 | 3.74 | 4.86 | 6.77 | 24.09 | 3.94 |

NC = if air fails, lower line is closed

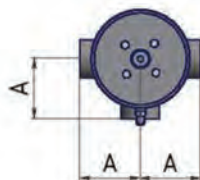
Long Stroke Change - Over Valve – 4/2-Ways

Pneumatic - Air to Open/Spring to Close NC – 4/2-Ways - One-Piece Valve Body

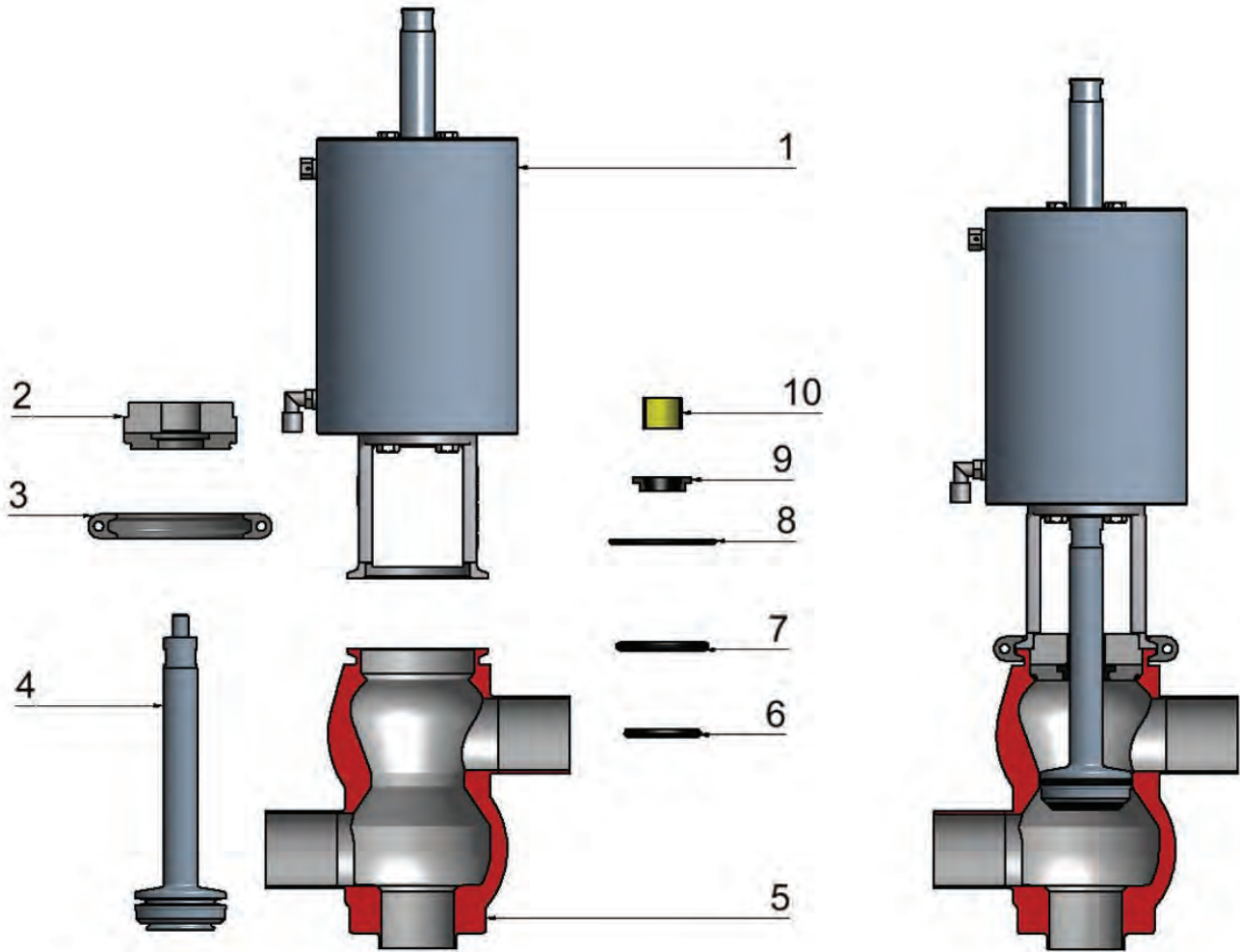


| Size | Nominal Wall | A | B | F | D | H | Stroke mm (Hub) |
|--------|--------------|------|------|------|------|-------|-----------------|
| 1" | 1 x 0.065 | 2.36 | 1.97 | 1.97 | 3.54 | 11.10 | 1.22 |
| 1-1/2" | 1.5 x 0.065 | 3.15 | 2.17 | 2.48 | 3.54 | 13.62 | 1.69 |
| 2" | 2 x 0.065 | 3.94 | 2.56 | 75.5 | 4.37 | 16.97 | 2.20 |
| 2-1/2" | 2.5 x 0.065 | 3.94 | 2.84 | 3.39 | 5.32 | 18.58 | 2.36 |
| 3" | 3 x 0.065 | 4.92 | 3.15 | 3.98 | 6.77 | 19.92 | 2.99 |
| 4" | 4 x 0.083 | 5.91 | 3.74 | 4.86 | 6.77 | 24.09 | 3.94 |

NC = if air fails, lower line is closed



Bill of Materials for Long Stroke Change - Over Valves



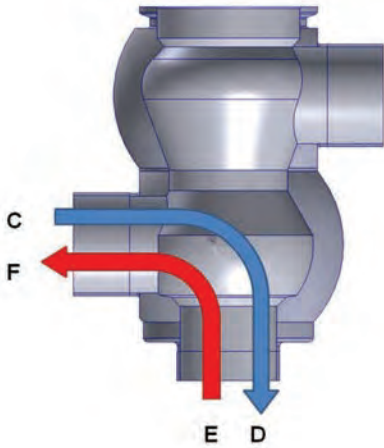
Repair Kit contains:

- #6 (1) O-ring
- #7 (1) O-ring
- #8 (1) O-ring
- #9 (1) gasket
- #10 (1) plastic bushing

| Valve Size | Repair Kit Part # |
|------------|-------------------|
| 1" | SV-100-RKCO-E |
| 1-1/2" | SV-150-RKCO-E |
| 2" | SV-200-RKCO-E |
| 2-1/2" | SV-250-RKCO-E |
| 3" | SV-300-RKCO-E |
| 4" | SV-400-RKCO-E |

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | actuator | 1 |
| 2 | Mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | spindle | 1 |
| 5 | housing | 1 |
| 6 | EPDM O-ring | 1 |
| 7 | EPDM O-ring | 1 |
| 8 | EPDM O-ring | 1 |
| 9 | EPDM gasket | 1 |
| 10 | plastic bushing | 1 |

C_v Values for Change - Over Valves



Flow Direction

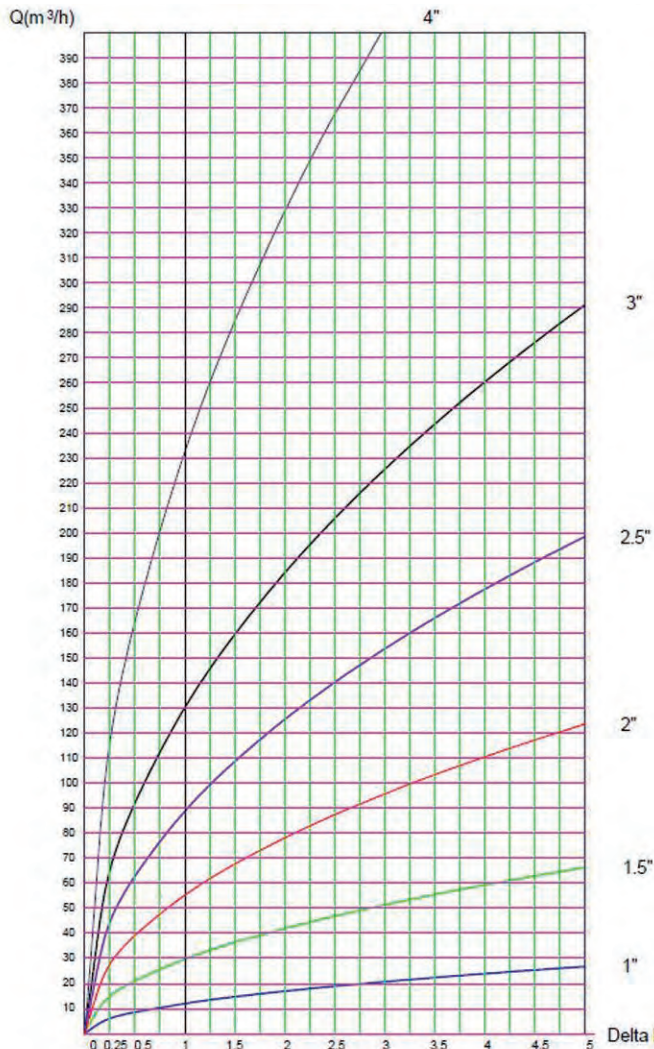
| Size | C-D | E-F |
|--------|-------|-------|
| 1" | 11.9 | 11.6 |
| 1-1/2" | 29.7 | 28.7 |
| 2" | 55.3 | 53.6 |
| 2-1/2" | 88.8 | 86.1 |
| 3" | 130.2 | 126.2 |
| 4" | 232.4 | 225.2 |

Flow Direction C-D = product pressure 6 bar maximum

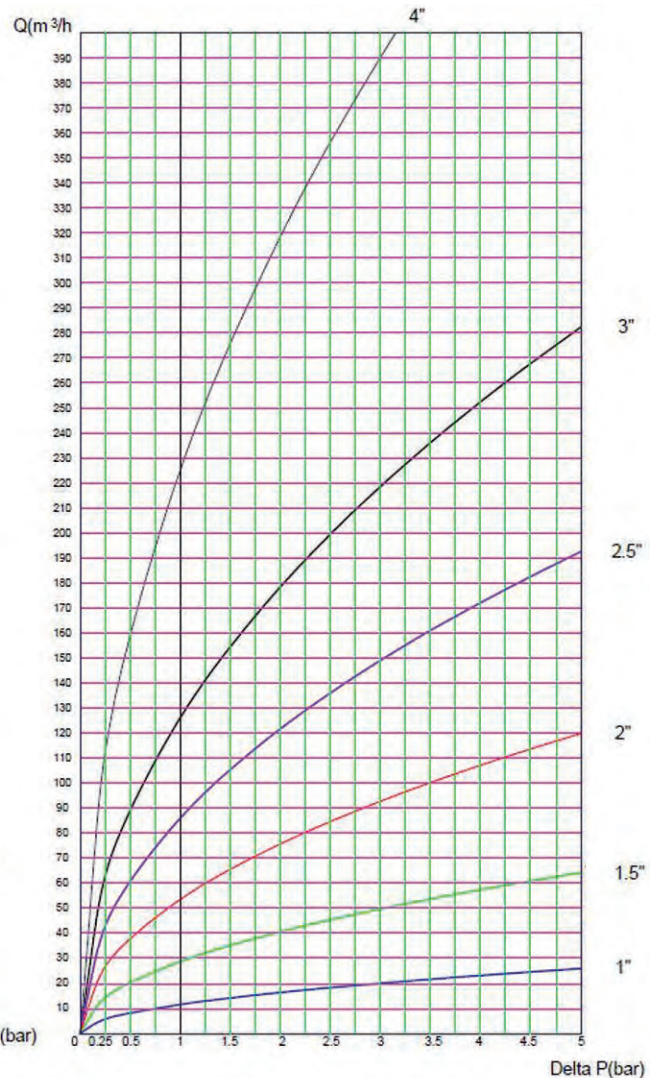
Flow Direction E-F = product pressure upon request

Pressure Loss Diagrams for Change - Over Valves

Directions C-D



Directions E-F



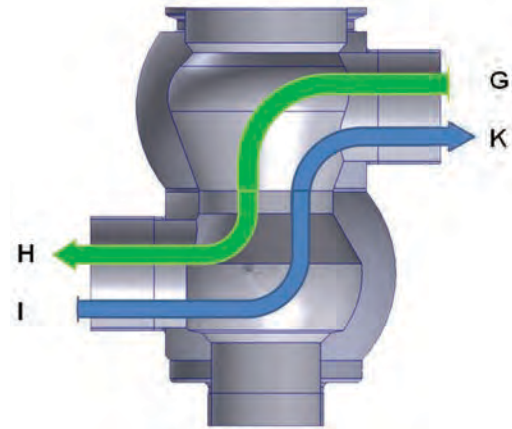
C_v Values for Change - Over Valves

B

Flow Direction

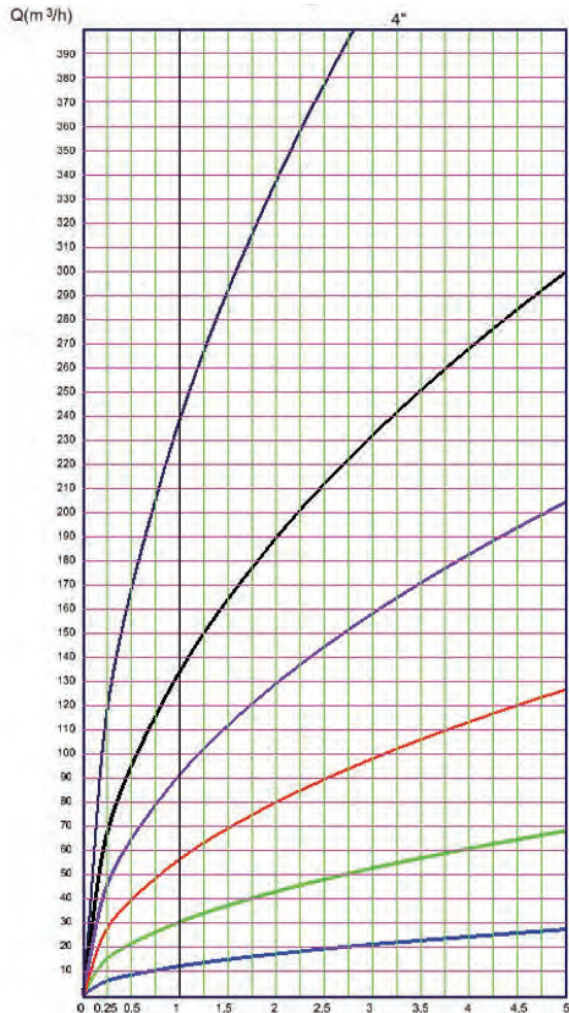
| Size | G-H | I-K |
|--------|-------|-------|
| 1" | 12.3 | 12.2 |
| 1-1/2" | 30.5 | 30.3 |
| 2" | 56.9 | 56.4 |
| 2-1/2" | 91.4 | 90.7 |
| 3" | 134.0 | 133.0 |
| 4" | 239.0 | 237.2 |

Flow Direction I-K = product pressure 6 bar maximum
 Flow Direction G-H = product pressure upon request

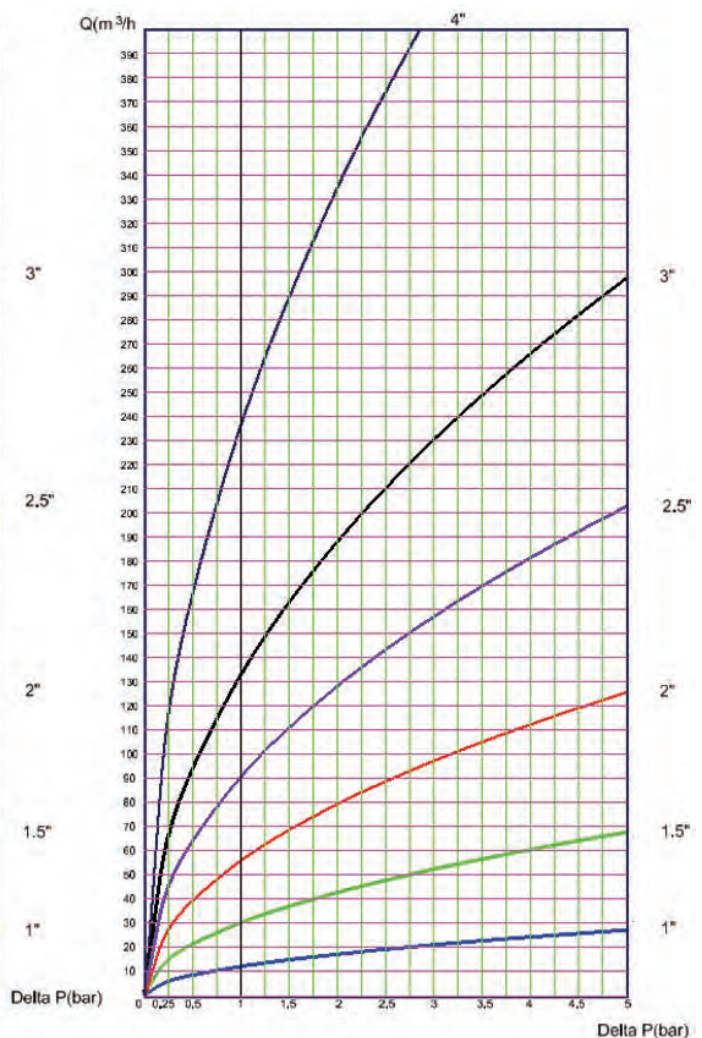


Pressure Loss Diagrams for Change - Over Valves

Directions G-H



Directions I-K





C

A
3
53-06

Aseptic Type Valves - Technical Information



Applications:

- For sterile process engineering the valve body is hermetically sealed against the environment and provides security for your products.

Features:

- solid housing
- no dead spaces
- completely draining
- many built-in positions possible
- complete separation from environment
- no dome or sump in product space
- change of seals without special tools less standing times optimum cleanability
- long life PTFE bellows
- low spare parts costs

Technical Data

Material:

- product wetted: 1.4404/AISI316L
- optional: 1.4435/AISI316L
- non product contact: 1.4301/AISI304

Seals:

- bellows: PTFE

Temperatures:

- maximum standard operating temperature: 121 °C (250 °F)
- sterilization temperature: 135 °C (275 °F) short time* (approx. 20 min)

Operating pressure:

- closure pressure: max. 6 bar (**87 PSI**)
- actuator air pressure: min. 6 bar (**87 PSI**) - max. 10 bar (**145 PSI**)

Surfaces:

- In product contact: $R_a \leq 0.8 \mu\text{m}$ electro polished, other surfaces upon request
- not in contact with product: $R_a \leq 1.6 \mu\text{m}$

Connections:

- O.D.-Tube (DIN 11866 C)

**dependent upon operating conditions*

See Section A for Control Options
See Seat Valve Check List page 19 for all options.
Contact Dixon Sanitary Engineering Department for all inquiries.

Ordering Information

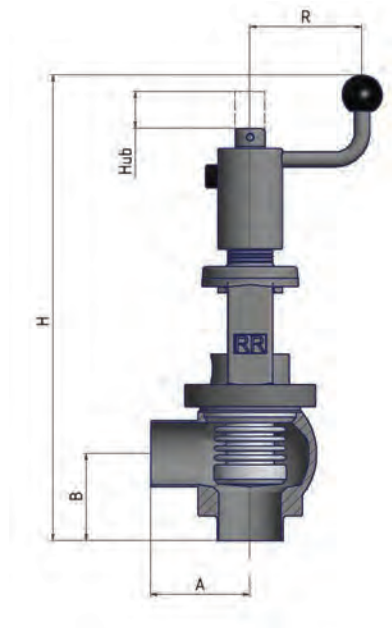
C

| Valve Series (1-2) | Type (3) | Body Config. (4) | Ports (5) | Size (6-7) | Actuator (8) | Seat Material (9) | Control Top (10) | Switches (11) | Solenoid (12) * | Communication (13) | Conduit Connectors (14) | Options (15) |
|--------------------|-----------------------|------------------|-----------------------------------|-----------------------------------|--------------------------------|-------------------|------------------------|---------------|-----------------------------------|--|----------------------------|--------------|
| SV Seat Valve | A Aseptic Shut Off | A T | C Clamp | 1/2" see section G/ Bio check | A Manual | E PTFE/ EPDM | N None | N None | N None | N None | N None | N None |
| | E Aseptic Divert | B L | B Weld | 10 1" | B Spring Return (Air To Raise) | V PTFE/ FKM | C Communication Module | S Solid State | 3 3-Way Piezo | A Device Net | 1 (1) M12 Poly Cable Gland | |
| | I Aseptic Tank Bottom | E F | Z Combination Note: Specify Ports | 15 1.5" | C Spring Return (Air To Lower) | | B Burkert Top | R Namur | 4 3-Way Poppet Style 24V DC 1.8W | B Foundation Fieldbus | 2 (2) 1/2" NPT | |
| | O Aseptic Angle | F LL | Other: _____ | 20 2" | D Double Acting | | | | 5 3-Way Poppet Style 120V AC 7.2W | C Foundation Fieldbus (Externally Powered) | 3 (2) M20 | |
| | | G TL | | 25 2.5" | | | | | 6 3-Way Poppet Style 24V DC 0.5W | D Modbus | 4 (2) Cable Glands | |
| | | H LT | | 30 3" | | | | | 7 3-Way Intrinsically Safe 12V DC | E As-Interface | 5 (1) 5 Pin Connector | |
| | | I TT | | 40 4" | | | | | | F As-Interface (W/ Extended Addressing) | 6 (1) 4 Pin Connector | |
| | | J 3 Port | | Combination Divert, specify sizes | | | | | | | 7 (2) 4 Pin Connectors | |
| | | K 4 Port | | | | | | | | | | |
| | | L Tank 30° | | | | | | | | | | |
| | | M Tank 90° | | | | | | | | | | |
| | | N Angle | | | | | | | | | | |

C

Aseptic L - Body Valve

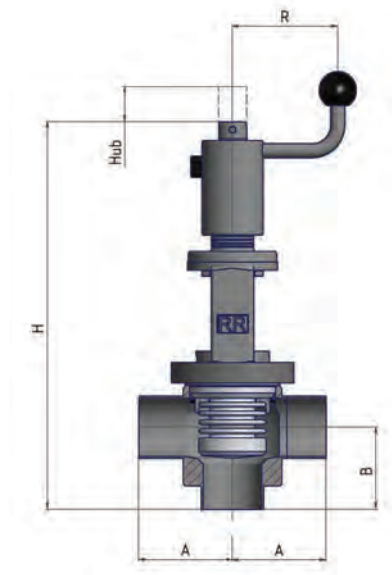
Manual with Crank Handle



| Size | Nominal Wall | A | B | R | H | Stroke | lbs. |
|--------|--------------|------|------|------|-------|--------|------|
| 1" | 1 x 0.065 | 1.97 | 1.97 | 2.87 | 11.81 | 0.28 | 6.8 |
| 1-1/2" | 1.5 x 0.065 | 3.15 | 2.17 | 2.87 | 11.81 | 0.35 | 11.7 |
| 2" | 2 x 0.065 | 3.15 | 2.56 | 3.54 | 14.96 | 0.47 | 12.6 |
| 2-1/2" | 2.5 x 0.065 | 3.94 | 2.76 | 3.54 | 15.55 | 0.59 | 16.8 |
| 3" | 3 x 0.065 | 4.72 | 3.15 | 3.54 | 17.13 | 0.71 | 22.7 |
| 4" | 4 x 0.083 | 5.91 | 3.54 | 3.54 | 17.52 | 0.91 | 31.5 |

Aseptic T - Body Valve

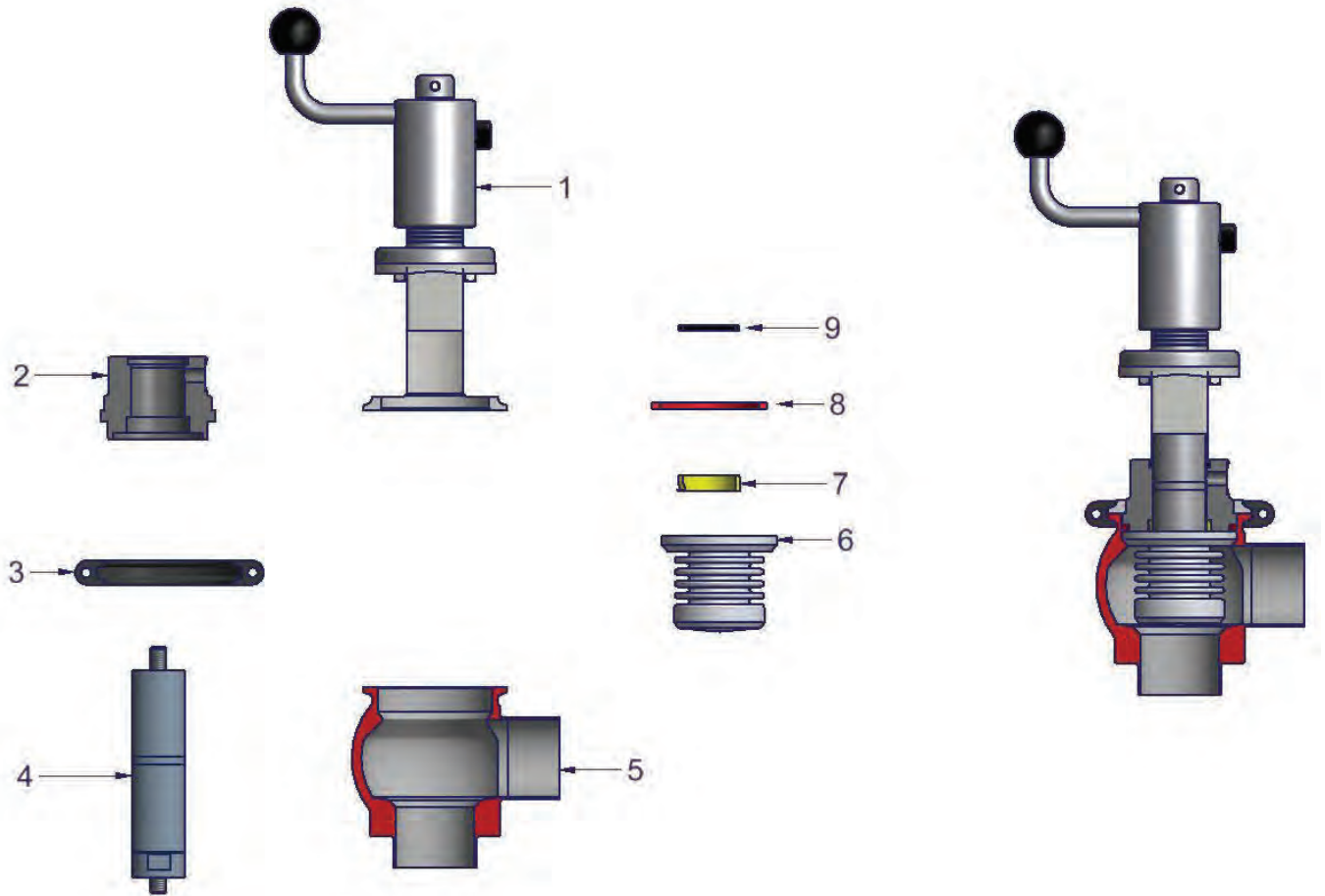
Manual with Crank Handle



| Size | Nominal Wall | A | B | R | L | Stroke | lbs. |
|--------|--------------|------|------|------|-------|--------|------|
| 1" | 1 x 0.065 | 1.97 | 1.97 | 2.87 | 11.81 | 0.28 | 6.8 |
| 1-1/2" | 1.5 x 0.065 | 3.15 | 2.17 | 2.87 | 11.81 | 0.35 | 11.7 |
| 2" | 2 x 0.065 | 3.15 | 2.56 | 3.54 | 14.96 | 0.47 | 12.6 |
| 2-1/2" | 2.5 x 0.065 | 3.94 | 2.76 | 3.54 | 15.55 | 0.59 | 16.8 |
| 3" | 3 x 0.065 | 4.72 | 3.15 | 3.54 | 17.13 | 0.71 | 22.7 |
| 4" | 4 x 0.083 | 5.91 | 3.54 | 3.54 | 17.52 | 0.91 | 31.5 |

Bill of Materials for Aseptic L-Body Valves

C



Repair Kit contains:

#6 (1) PTFE-bellows

#7 (1) guide

#8 (1) O-ring for bellows

#9 (1) O-ring for spindle

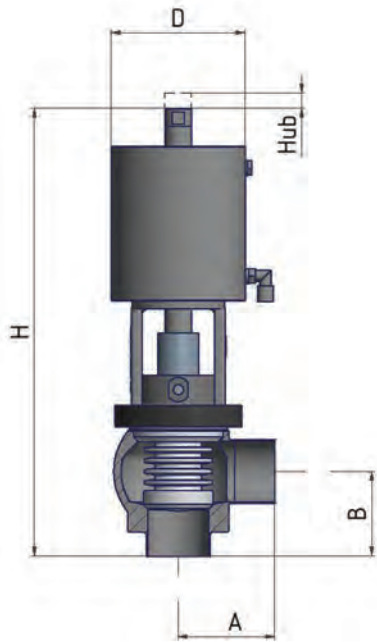
| Valve Size | Repair Kit Part # |
|------------|-------------------|
| 1" | SVAL-100-RK |
| 1-1/2" | SVAL-150-RK |
| 2" | SVAL-200-RK |
| 2-1/2" | SVAL-250-RK |
| 3" | SVAL-300-RK |
| 4" | SVAL-400-RK |

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | crank handle | 1 |
| 2 | Mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | spindle | 1 |
| 5 | housing | 1 |
| 6 | PTFE-bellows | 1 |
| 7 | guide | 1 |
| 8 | O-ring for bellows | 1 |
| 9 | O-ring for spindle | 1 |

C

Aseptic L - Body Valve

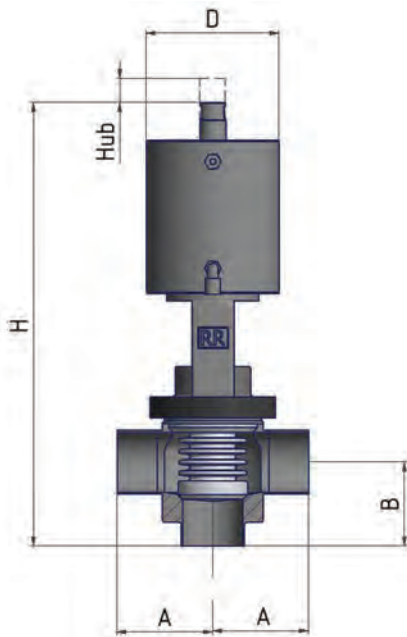
Pneumatic - Spring Closing / Air Opening NC



| Size | Nominal Wall | A | B | D | H | Stroke | lbs. |
|--------|--------------|------|------|------|-------|--------|------|
| 1" | 1 x 0.065 | 1.97 | 1.97 | 3.54 | 12.01 | 0.28 | 11.2 |
| 1-1/2" | 1.5 x 0.065 | 3.15 | 2.17 | 3.54 | 12.40 | 0.35 | 13.7 |
| 2" | 2 x 0.065 | 3.15 | 2.56 | 4.33 | 14.96 | 0.47 | 22.9 |
| 2-1/2" | 2.5 x 0.065 | 3.94 | 2.76 | 5.24 | 16.93 | 0.59 | 33.5 |
| 3" | 3 x 0.065 | 4.72 | 3.15 | 6.77 | 19.88 | 0.71 | 54.5 |
| 4" | 4 x 0.083 | 5.91 | 3.54 | 6.77 | 20.67 | 0.91 | 63.1 |

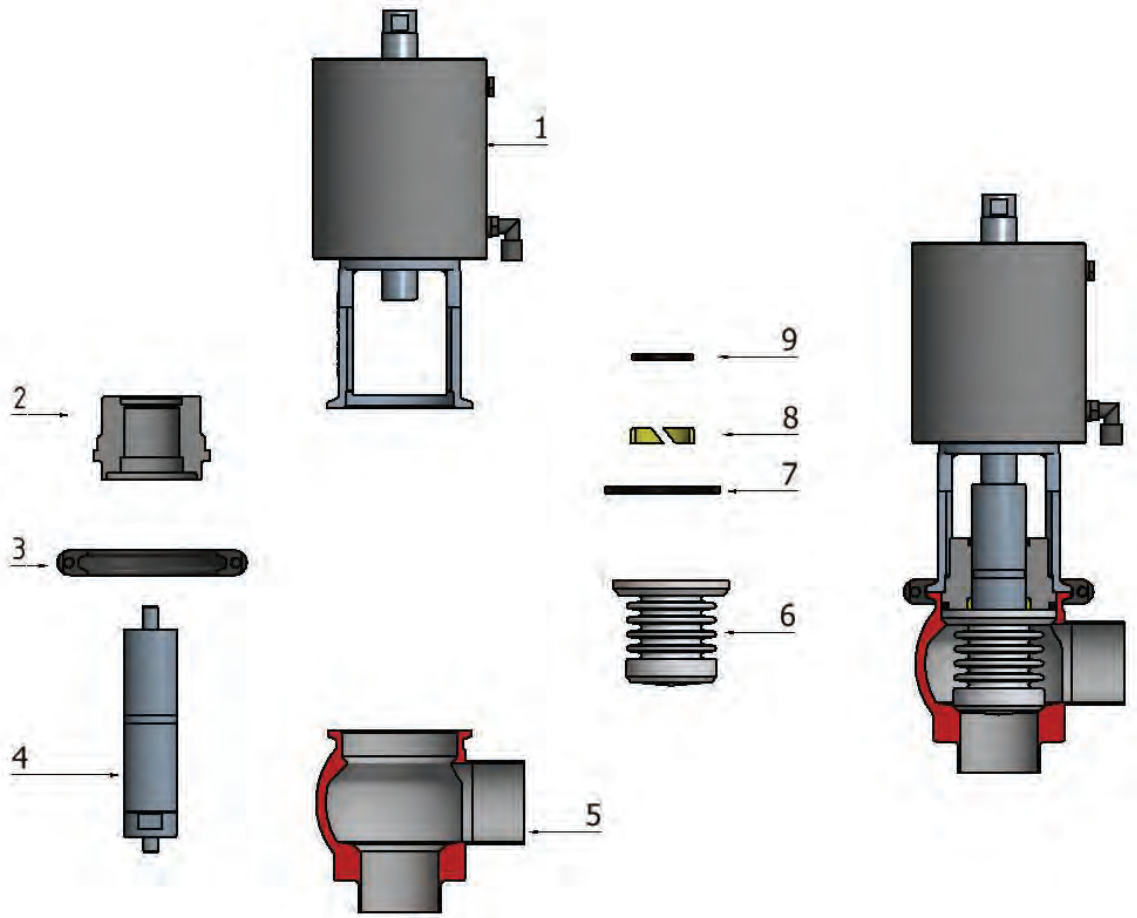
Aseptic T - Body Valve

Pneumatic - Spring Closing / Air Opening NC



| Size | Nominal Wall | A | B | D | H | Stroke | lbs. |
|--------|--------------|------|------|------|-------|--------|------|
| 1" | 1 x 0.065 | 1.97 | 1.97 | 3.54 | 12.01 | 0.28 | 11.2 |
| 1-1/2" | 1.5 x 0.065 | 3.15 | 2.17 | 3.54 | 12.40 | 0.35 | 13.7 |
| 2" | 2 x 0.065 | 3.15 | 2.56 | 4.33 | 14.96 | 0.47 | 22.9 |
| 2-1/2" | 2.5 x 0.065 | 3.94 | 2.76 | 5.24 | 16.93 | 0.59 | 33.5 |
| 3" | 3 x 0.065 | 4.72 | 3.15 | 6.77 | 19.88 | 0.71 | 54.5 |
| 4" | 4 x 0.083 | 5.91 | 3.54 | 6.77 | 20.67 | 0.91 | 63.1 |

Bill of Materials for Aseptic L-Body Valves



Repair Kit contains:

- #6 (1) PTFE-bellows
 #7 (1) O-ring for bellows
 #8 (1) guide
 #9 (1) O-ring for spindle

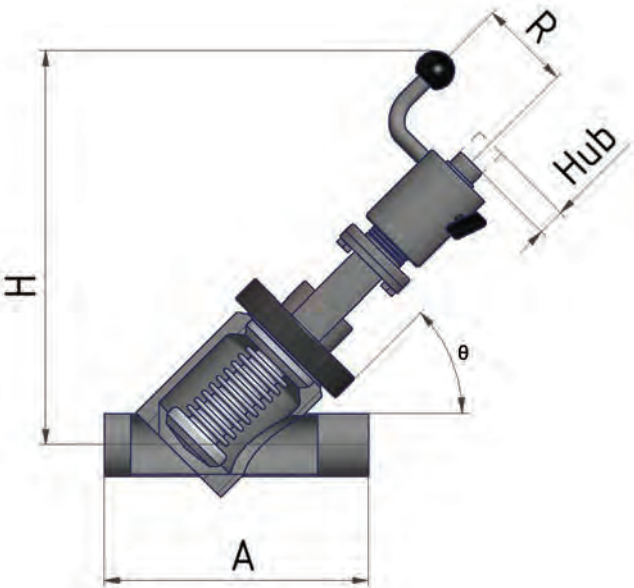
| Valve Size | Repair Kit Part # |
|------------|-------------------|
| 1" | SVAL-100-RK |
| 1-1/2" | SVAL-150-RK |
| 2" | SVAL-200-RK |
| 2-1/2" | SVAL-250-RK |
| 3" | SVAL-300-RK |
| 4" | SVAL-400-RK |

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | actuator | 1 |
| 2 | mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | spindle | 1 |
| 5 | housing | 1 |
| 6 | PTFE-bellows | 1 |
| 7 | O-ring for bellows | 1 |
| 8 | guide | 1 |
| 9 | O-ring for bellows | 1 |

Aseptic Y - Body Angle Valve

C

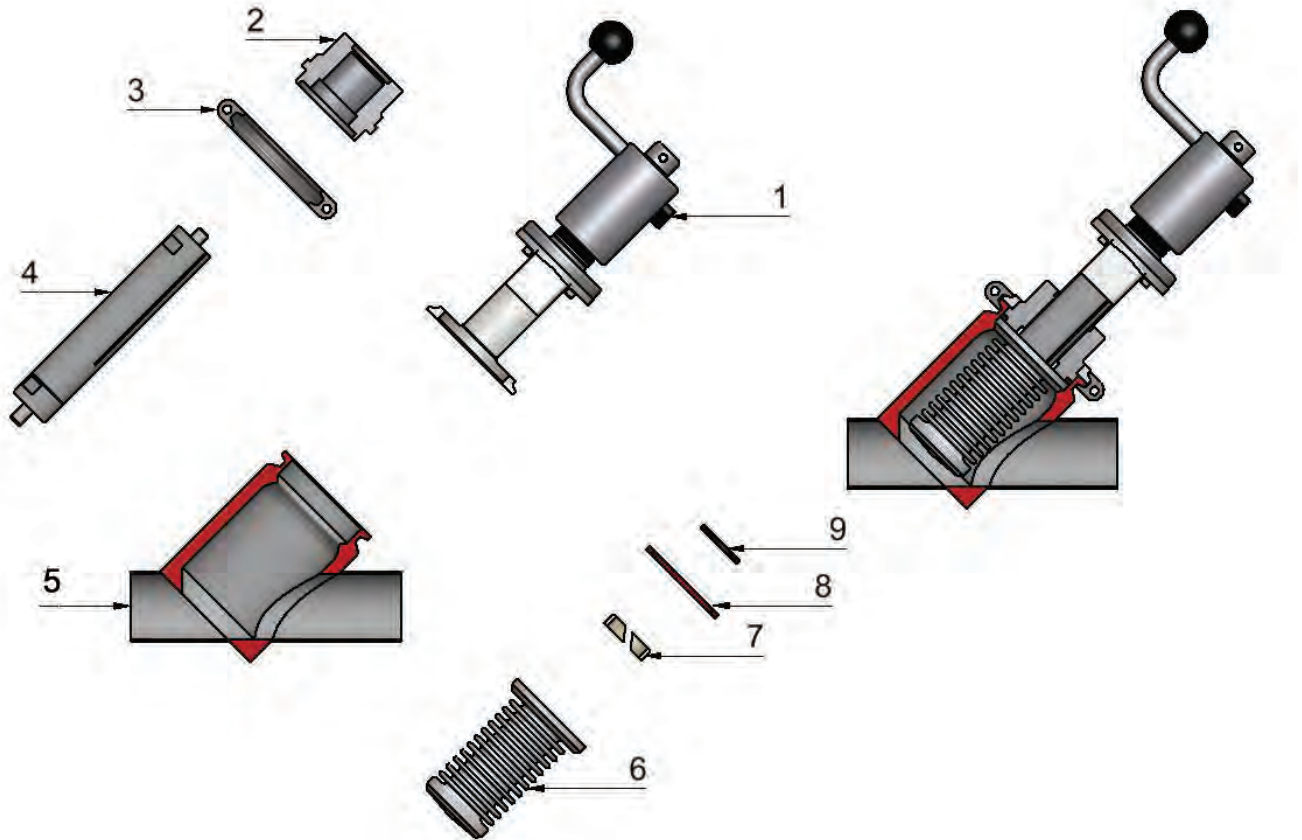
Manual with Crank Handle



| Size | Nominal Wall | A | θ | R | H | Stroke | lbs. |
|--------|--------------|-------|-----|------|-------|--------|------|
| 1" | 1 x 0.065 | 5.51 | 45° | 2.87 | 10.83 | 0.55 | 11.0 |
| 1-1/2" | 1.5 x 0.065 | 6.69 | 45° | 2.87 | 11.02 | 0.55 | 12.1 |
| 2" | 2 x 0.065 | 8.07 | 45° | 3.54 | 13.98 | 0.79 | 23.2 |
| 2-1/2" | 2.5 x 0.065 | 9.84 | 40° | 3.54 | 13.78 | 0.87 | 30.9 |
| 3" | 3 x 0.065 | 11.81 | 40° | 3.54 | 14.37 | 1.18 | 50.7 |
| 4" | 4 x 0.083 | 13.78 | 40° | 3.54 | 15.35 | 1.26 | 57.3 |

Bill of Materials for Aseptic Y- Body Valves

C



Repair Kit contains:

#6 (1) PTFE-bellows

#7 (1) guide

#8 (1) O-ring for bellows

#9 (1) O-ring for spindle

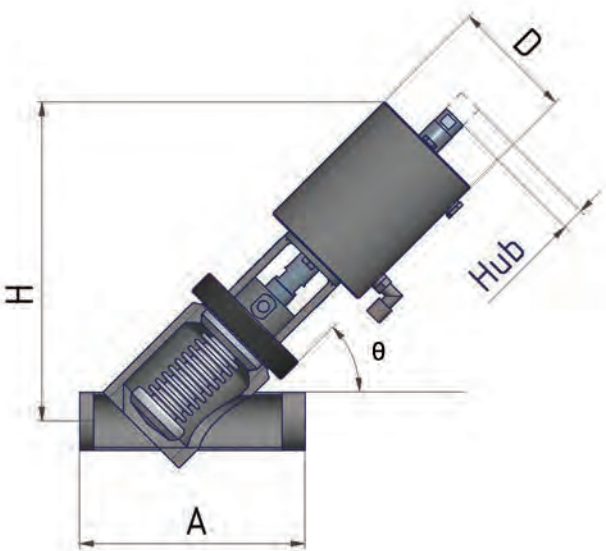
| Valve Size | Repair Kit Part # |
|------------|-------------------|
| 1" | SVAY-100-RK |
| 1-1/2" | SVAY-150-RK |
| 2" | SVAY-200-RK |
| 2-1/2" | SVAY-250-RK |
| 3" | SVAY-300-RK |
| 4" | SVAY-400-RK |

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | crank handle | 1 |
| 2 | mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | spindle | 1 |
| 5 | housing | 1 |
| 6 | PTFE-bellows | 1 |
| 7 | guide | 1 |
| 8 | O-ring for bellows | 1 |
| 9 | O-ring for spindle | 1 |

Aseptic Y- Body Angle Valve

C

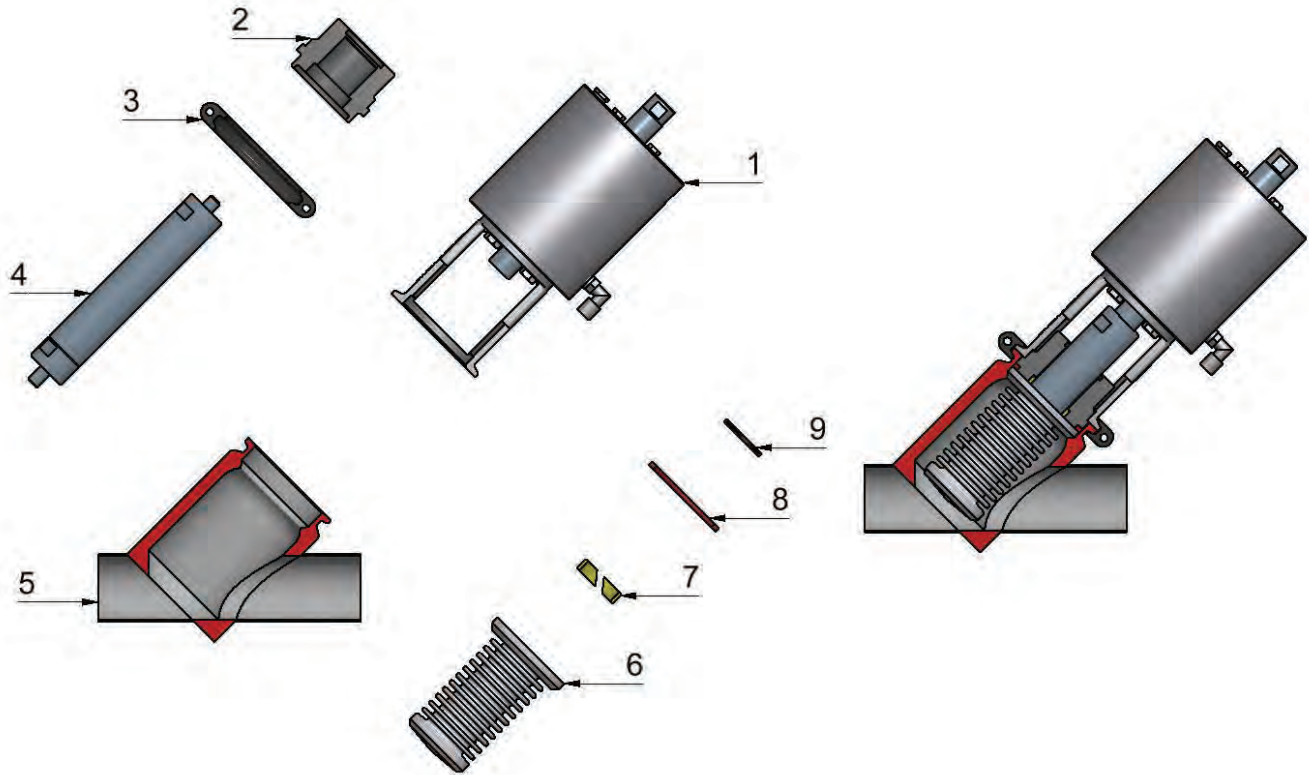
Pneumatic - Spring Opening / Air Closing NC



| Size | Nominal Wall | A | θ | D | H | Stroke | lbs. |
|--------|--------------|-------|-----|------|-------|--------|------|
| 1" | 1 x 0.065 | 5.51 | 45° | 3.54 | 9.25 | 0.55 | 11.9 |
| 1-1/2" | 1.5 x 0.065 | 6.69 | 45° | 3.54 | 9.45 | 0.55 | 13.7 |
| 2" | 2 x 0.065 | 8.07 | 45° | 4.33 | 11.57 | 0.79 | 24.3 |
| 2-1/2" | 2.5 x 0.065 | 9.84 | 40° | 5.24 | 12.80 | 0.87 | 33.1 |
| 3" | 3 x 0.065 | 11.81 | 40° | 6.30 | 15.12 | 1.18 | 54.0 |
| 4" | 4 x 0.083 | 13.78 | 40° | 6.61 | 15.43 | 1.26 | 61.7 |

Bill of Materials for Aseptic Y- Body Valves

C



Repair Kit contains:

- #6 (1) PTFE-bellows
- #7 (1) guide
- #8 (1) O-ring for bellows
- #9 (1) O-ring for spindle

| Valve Size | Repair Kit Part # |
|------------|-------------------|
| 1" | SVAY-100-RK |
| 1-1/2" | SVAY-150-RK |
| 2" | SVAY-200-RK |
| 2-1/2" | SVAY-250-RK |
| 3" | SVAY-300-RK |
| 4" | SVAY-400-RK |

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | actuator | 1 |
| 2 | Mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | spindle | 1 |
| 5 | housing | 1 |
| 6 | PTFE-bellows | 1 |
| 7 | guide | 1 |
| 8 | O-ring for bellows | 1 |
| 9 | O-ring for spindle | 1 |



Mix Proof Valves - Technical Information

D



Applications:

- In food and beverage industries when the need to separate non-compatible liquids is required.

Features:

- vacuum safe
- balanced valve disks
- radial sealing of both valve seats
- no impact between valve disk and body
- no need of impact buffering cylinder
- no soiling behind the O-rings
- waterhammer safe up to 30 bar (**435 PSI**)
- change of seals without special tools
- service without danger (spring in cage)
- service possible without compressed air
- lower requirement for controlled air pressure
- valve insert completely removable
- easy cleaning by lifting of both disks
- standard O-rings
- standard-actuator with lift function
- only 4 seals
- K_v -value cleaning 1,4 m³/h
- low pressure loss: **0,8 PSI**

Technical Data

Material:

- product wetted: 1.4404/AISI316L
- non product contact: 1.4301/AISI304L

Product Contact Seals:

- EPDM – others upon request

Temperatures:

- maximum standard operating temperature: 130 °C (266 °F)
- sterilization temperature: 150 °C (300 °F) short time* (approx. 20 min)

Operating pressure:

- closure: max. 10 bar (**145 PSI**)
- actuator air pressure: min. 6 bar (**87 PSI**) - max. 10 bar (**145 PSI**)

Surfaces:

- wetted product surfaces: $R_a \leq 0.8 \mu\text{m}$ (32) other surfaces available
- non product contact: $R_a \leq 1.6 \mu\text{m}$

**dependent upon operating conditions*

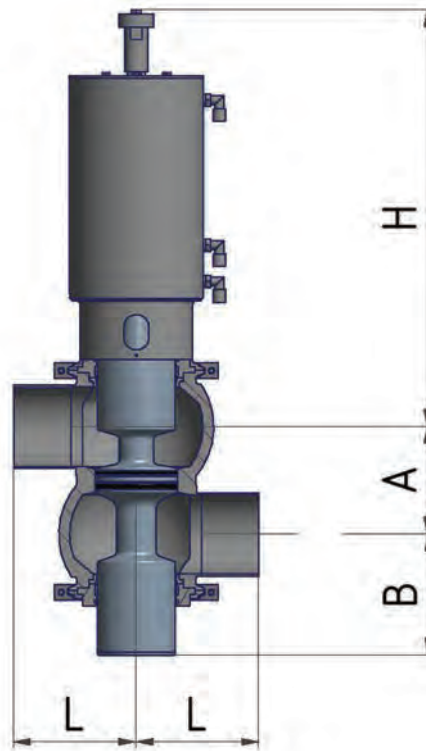
Contact Dixon Sanitary Engineering Department for all inquiries.

Mix Proof Valve

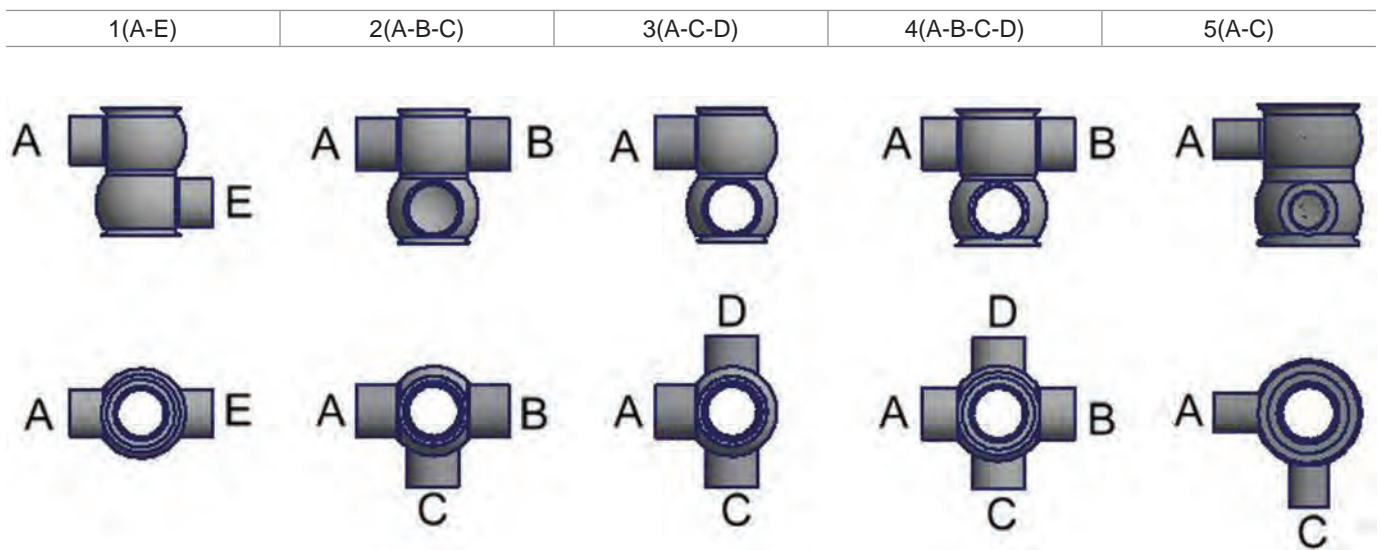
Pneumatic - Air to Open / Spring to Close NC



D



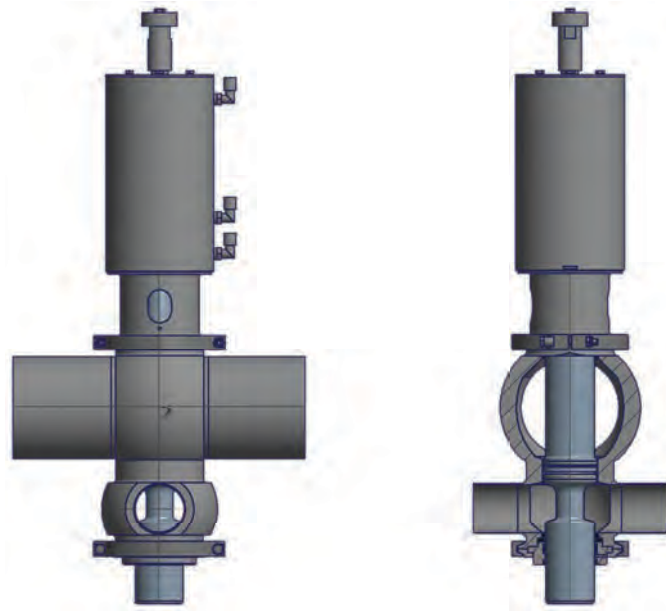
Valve Body Combinations



| Size | Nominal Wall | A | B | L | H | kg | lbs. |
|--------|--------------|------|------|------|-------|----|------|
| 1" | 1 x 0.065 | 3.11 | 2.87 | 2.76 | 13.78 | 12 | 26.5 |
| 1-1/2" | 1.5 x 0.065 | 3.13 | 3.11 | 3.94 | 14.76 | 16 | 35.3 |
| 2" | 2 x 0.065 | 3.21 | 3.78 | 3.94 | 15.75 | 18 | 39.7 |
| 2-1/2" | 2.5 x 0.065 | 3.94 | 3.94 | 3.94 | 16.14 | 19 | 41.9 |
| 3" | 3 x 0.065 | 6.65 | 5.12 | 4.92 | 16.54 | 29 | 63.9 |
| 4" | 4 x 0.083 | 5.08 | 5.43 | 5.91 | 16.73 | 33 | 72.8 |
| 6" | Upon request | | | | | | |

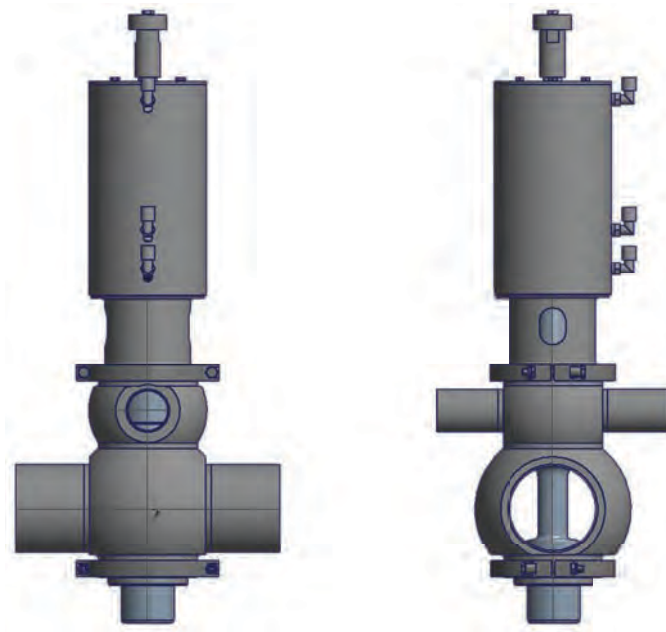
Mix Proof Valve

Pneumatic - Air to Open / Spring to Close NC
Large Upper Body - Small Lower Body

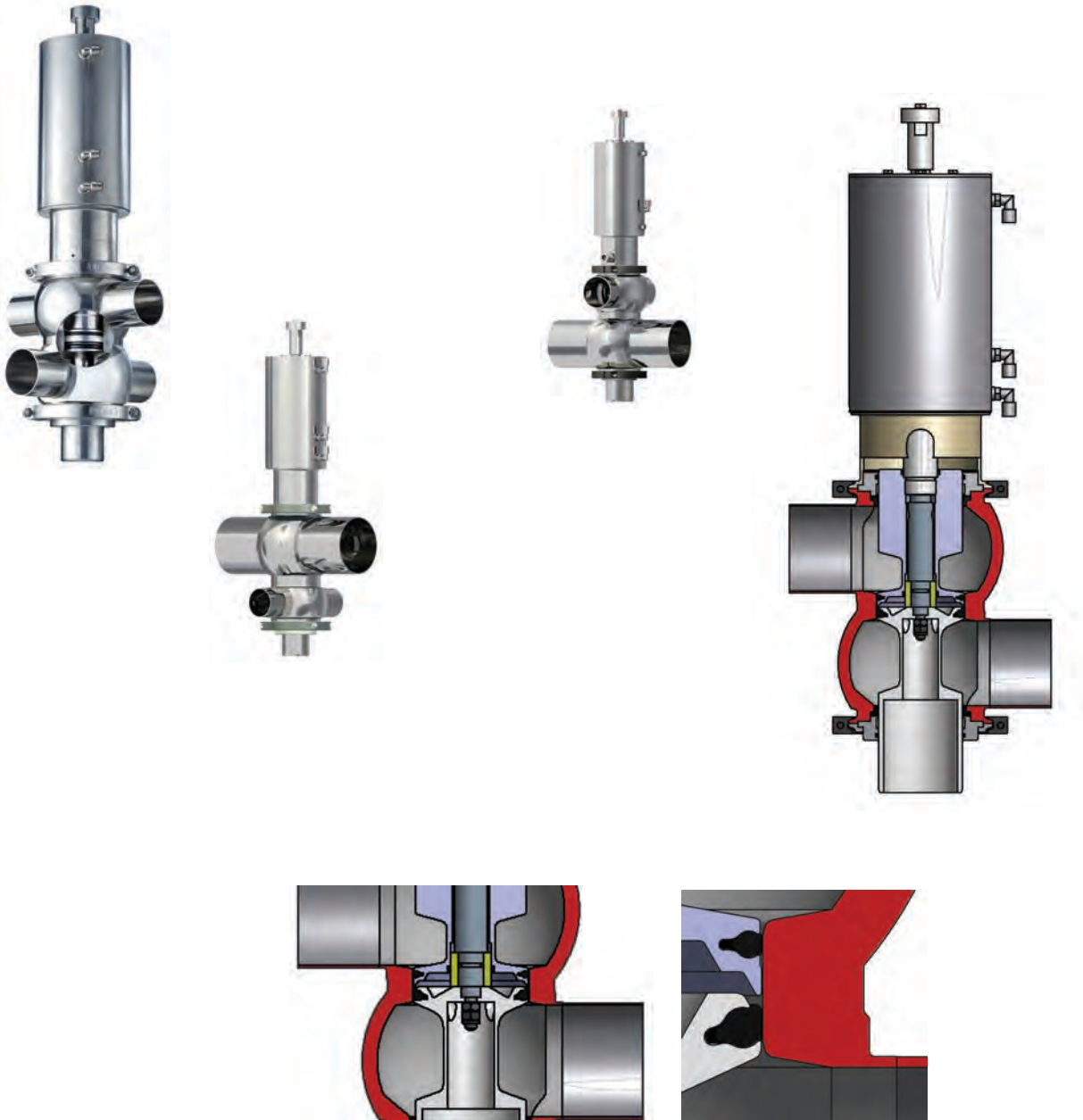


Mix Proof Valve

Pneumatic - Air to Open / Spring to Close NC
Large Lower Body - Small Upper Body



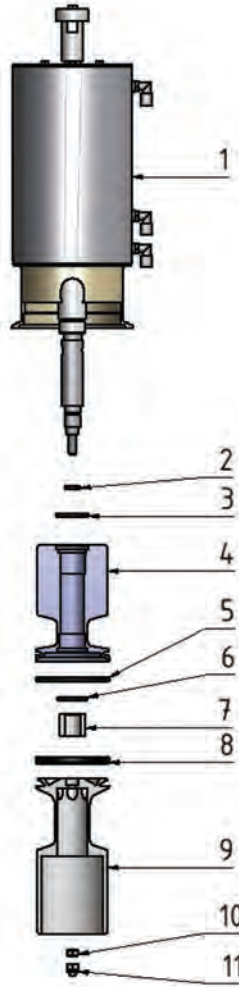
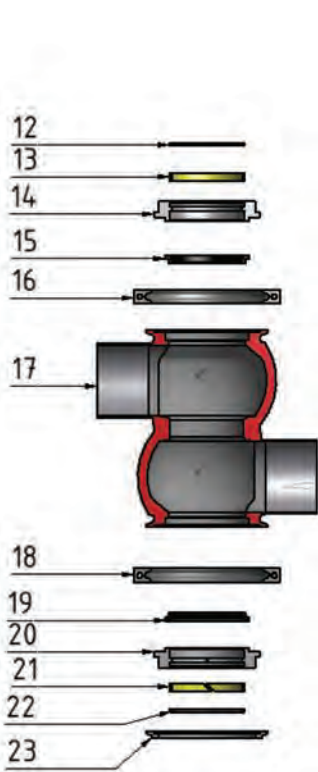
Mix Proof Valve

D

When the valve is closed, the leakage chamber is open. This ensures that, if one of the two O-rings is defective, the leakage is discharged through the downward opening of the lower valve disc in a depressurized manner. The leakage is thus immediately apparent during the ongoing visual inspection of the plant.

Bill of Materials for Mix Proof Valves

D



Repair Kit contains:

- #2 (1) O-ring
- #3 (1) O-ring
- #5 (1) O-ring
- #6 (1) O-ring
- #8 (1) O-ring
- #12 (1) O-ring
- #13 (1) guide
- #15 (1) gasket
- #19 (1) gasket
- #21 (1) guide
- #22 (1) O-ring

| Valve Size | Repair Kit Part # EPDM | Repair Kit Part # Viton® |
|------------|------------------------|--------------------------|
| 1" | MP-100-RKE | MP-100-RKV |
| 1-1/2" | MP-150-RKE | MP-150-RKV |
| 2" | MP-200-RKE | MP-200-RKV |
| 2-1/2" | MP-250-RKE | MP-250-RKV |
| 3" | MP-300-RKE | MP-300-RKV |
| 4" | MP-400-RKE | MP-400-RKV |

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | actuator | 1 |
| 2 | O-ring | 1 |
| 3 | O-ring | 1 |
| 4 | valve disc upper part | 1 |
| 5 | O-ring | 1 |
| 6 | O-ring | 1 |
| 7 | guide | 1 |
| 8 | O-ring | 1 |
| 9 | valve disc lower part | 1 |
| 10 | safety nut | 1 |
| 11 | cap nut | 1 |
| 12 | o-ring | 1 |
| 13 | guide | 1 |
| 14 | mounting for spindle seals | 1 |
| 15 | gasket | 1 |
| 16 | clamp | 1 |
| 17 | housing | 1 |
| 18 | clamp | 1 |
| 19 | gasket | 1 |
| 20 | mounting for spindle seals | 1 |
| 21 | guide | 1 |
| 22 | O-ring | 1 |
| 23 | cover | 1 |

Mix Proof Piggable Double Seal Valves - Technical Information

D

Applications:

- Mix Proof Valve designed to be piggable. Used In food and beverage industries when the need to separate non-compatible liquids is required.

Features:

- one-part valve body made of solid bar
- no weld torsion
- in product space only 3 seals
- safe CIP/SIP cleaning
- exchange of gaskets without special tools
- service without danger (spring in cage)
- service possible without compressed air
- low need of control air pressure
- valve insert completely removable upwards
- standard O-rings
- standard actuator with 2 lift functions
- few gaskets
- minimal maintenance costs

Technical Data

Material:

- in product contact: 1.4404/AISI316L
- optional: 1.4435/AISI316L
- non product contact: 1.4301/AISI304

Product Contact Seals:

- EPDM and PEEK – other materials upon request

Temperatures:

- maximum standard operating temperature: 130 °C (265 °F)
- sterilization temperature: 150 °C (300 °F) short time* (approx. 20 min)

Operating pressure:

- closing pressure: max. 9 bar
- compressed air pressure: min. 6 bar - max. 10 bar
- water-hammer safe: up to 30 bar

Surfaces:

- product contact optional: $R_a \leq 0.8 \mu\text{m}$ electro polished, other surfaces on request
- non product contact: $R_a \leq 1.6 \mu\text{m}$

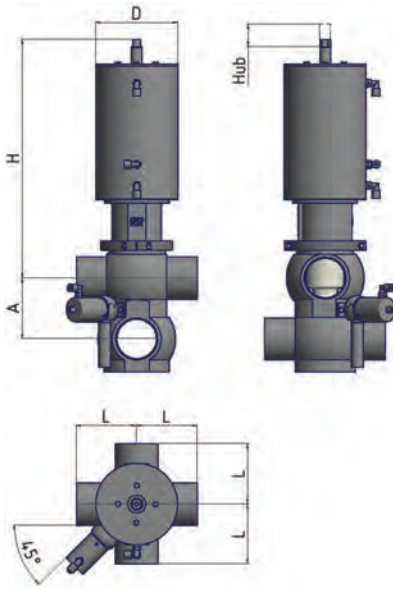
**dependent upon operating conditions*



Hygienic Double Seal Valve Lifiable - Piggable

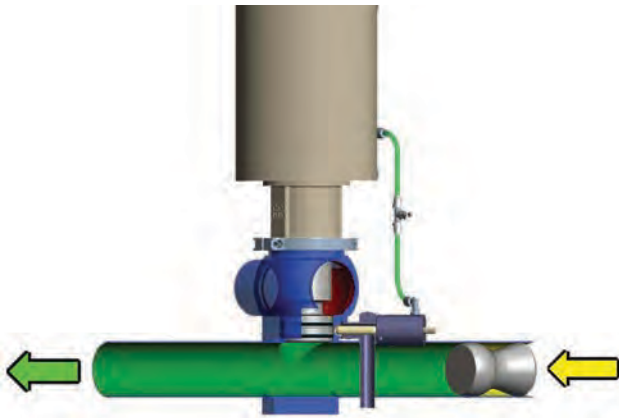
Pneumatic - Air to Open / Spring to Close

D



| Size | Nominal Wall | A | L | H | D | Stroke | Max. Bar |
|--------|--------------|-----|-----|-----|-----|--------|----------|
| 1" | 25.4 x 1.65 | | | | | | |
| 1-1/2" | 38.1 x 1.65 | 69 | 100 | 352 | 110 | 42.0 | 13.0 |
| 2" | 50.8 x 1.65 | 85 | 100 | 357 | 110 | 42.0 | 8.5 |
| 2-1/2" | 63.5 x 1.65 | 93 | 100 | 394 | 136 | 44.5 | 9.0 |
| 3" | 76.2 x 1.65 | 107 | 125 | 436 | 174 | 46.0 | 10.0 |
| 4" | 101.6 x 2.11 | 132 | 150 | 450 | 174 | 46.0 | 7.0 |

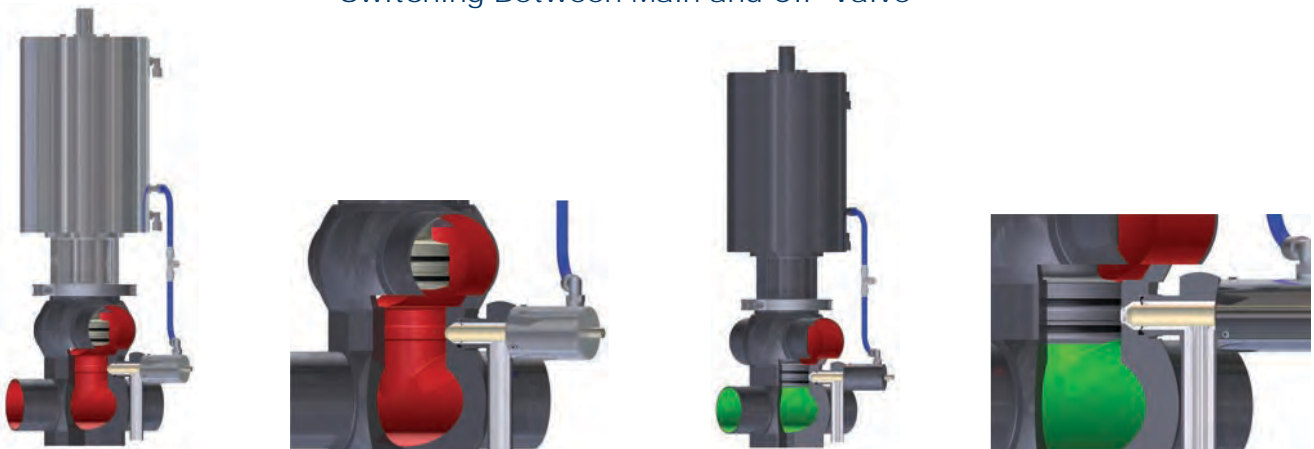
Mix Proof Piggable Double Seal Valves - Technical Information



Features:

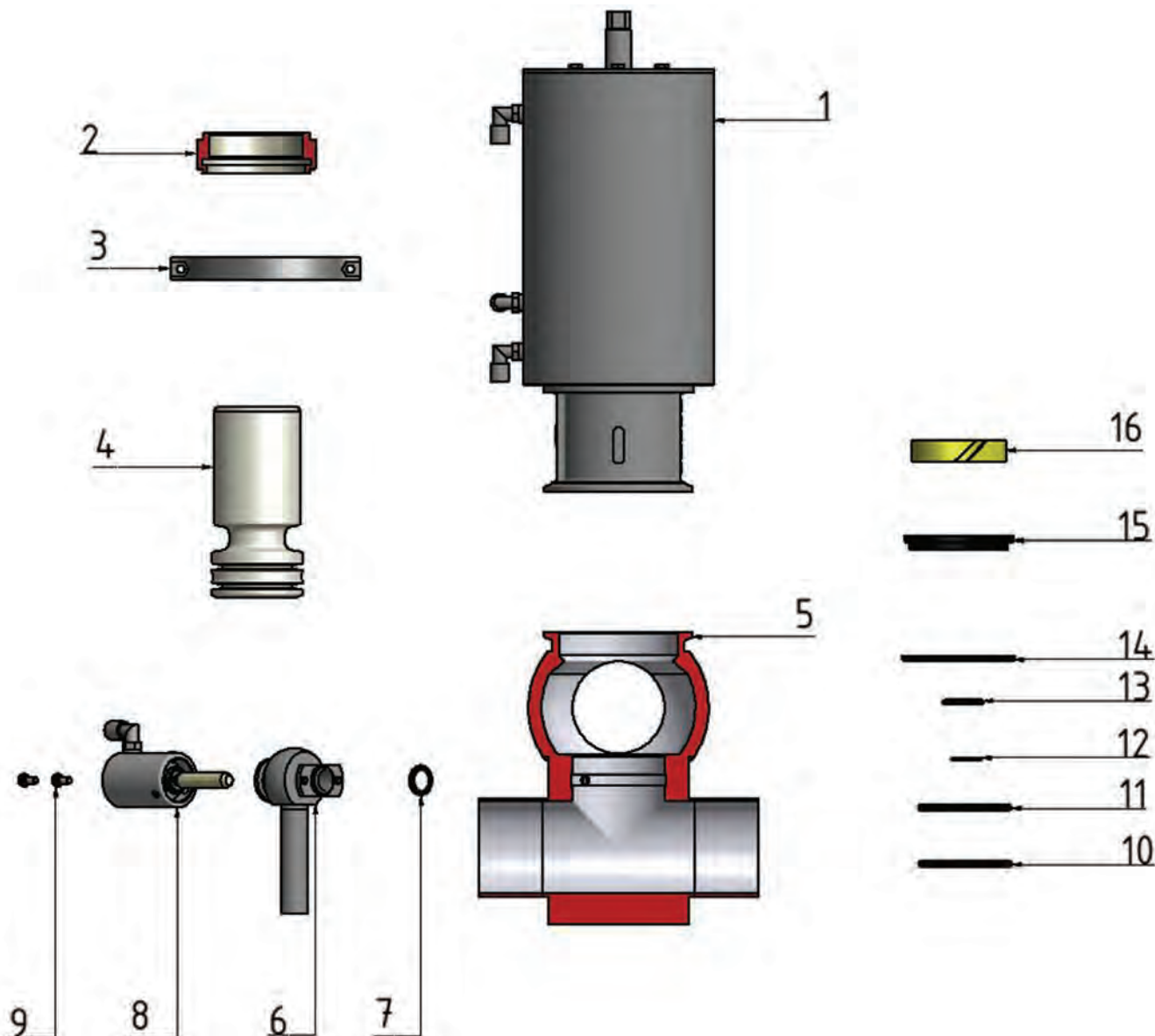
- maximal product efficiency
- lower waste water costs and environmental burden
- reduced cleaning periods and costs
- minimization of cleaning water consumption
- minimization of cleaning agent consumption

Switching Between Main and CIP Valve



Bill of Materials for Hygienic Double Seal Valves - Piggable

D



Repair Kit contains:

- #10 (1) O-ring
- #11 (1) O-ring
- #12 (1) nord lock screw
- #13 (1) O-ring
- #14 (1) O-ring
- #15 (1) gasket
- #16 (1) plastic bushing

| Valve Size | Repair Kit Part # |
|------------|-------------------|
| 1" | MPP-100-RKE |
| 1-1/2" | MPP-150-RKE |
| 2" | MPP-200-RKE |
| 2-1/2" | MPP-250-RKE |
| 3" | MPP-300-RKE |
| 4" | MPP-400-RKE |

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | actuator | 1 |
| 2 | mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | spindle | 1 |
| 5 | housing | 1 |
| 6 | housing CIP valve | 1 |
| 7 | O-ring housing CIP valve | 1 |
| 8 | actuator CIP valve | 1 |
| 9 | hexagonal screw | 2 |
| 10 | O-ring | 1 |
| 11 | O-ring | 1 |
| 12 | nord lock screw | 1 |
| 13 | O-ring | 1 |
| 14 | O-ring | 1 |
| 15 | gasket | 1 |
| 16 | plastic bushing | 1 |



PMO Valves - Technical Information

E



Applications:

- For processes that require a Mix Proof Valve to meet the Pasteurized Milk Ordinance specifications in dairies.

Features:

- vacuum safe
- balanced valve disks
- radial sealing of both valve seats
- no impact between valve disk and body
- no need of impact buffering cylinder
- no soiling behind the O-rings
- waterhammer safe up to 30 bar (**435 PSI**)
- change of seals without special tools
- service without danger (spring in cage)
- service possible without compressed air
- lower requirement for controlled air pressure
- valve insert completely removable
- easy cleaning by lifting of both disks
- standard O-rings
- standard-actuator with lift function
- only 4 seals
- K_v -value cleaning 1,4 m³/h
- low pressure loss: **0,8 PSI**

Technical Data

Material:

- in product contact: 1.4404/AISI316L
- non product contact: 1.4301/AISI304L

Product Contact Seals:

- EPDM – others upon request

Temperatures:

- maximum standard operating temperature: 130 °C (266 °F)
- sterilization temperature: 150 °C (300 °F) short time* (approx. 20 min)

Operating pressure:

- closing: max. 10 bar (**145 PSI**)
- actuator air pressure: min. 6 bar (**87 PSI**) - max. 10 bar (**145 PSI**)

Surfaces:

- wetted product surfaces: $R_a \leq 0.8 \mu\text{m}$ (32) optional surfaces available
- non product contact: $R_a \leq 1.6 \mu\text{m}$

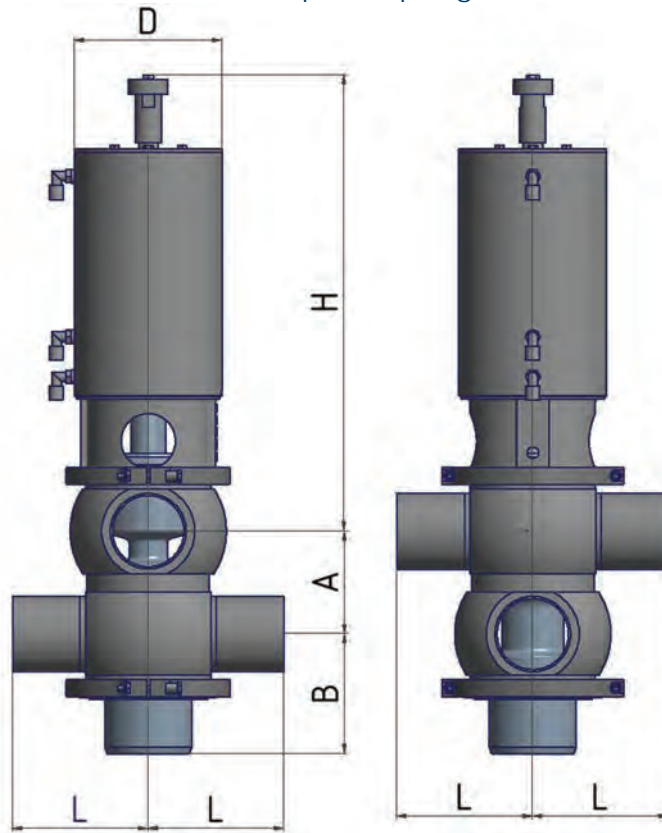
**dependent upon operating conditions*

Contact Dixon Sanitary Engineering Department for all inquiries.

PMO Valve Housing



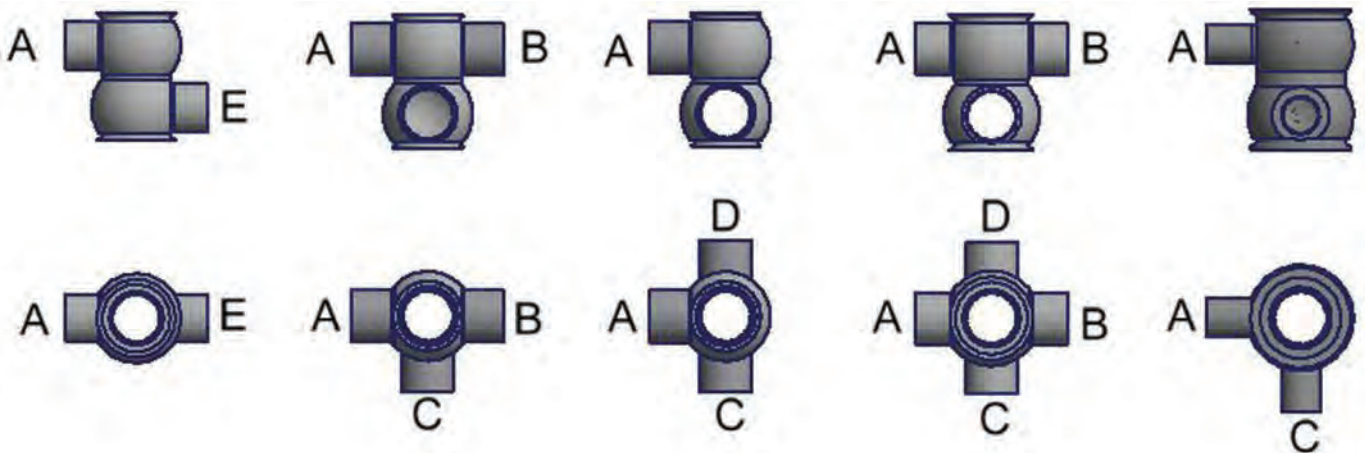
Pneumatic - Air to Open / Spring to Close NC



E

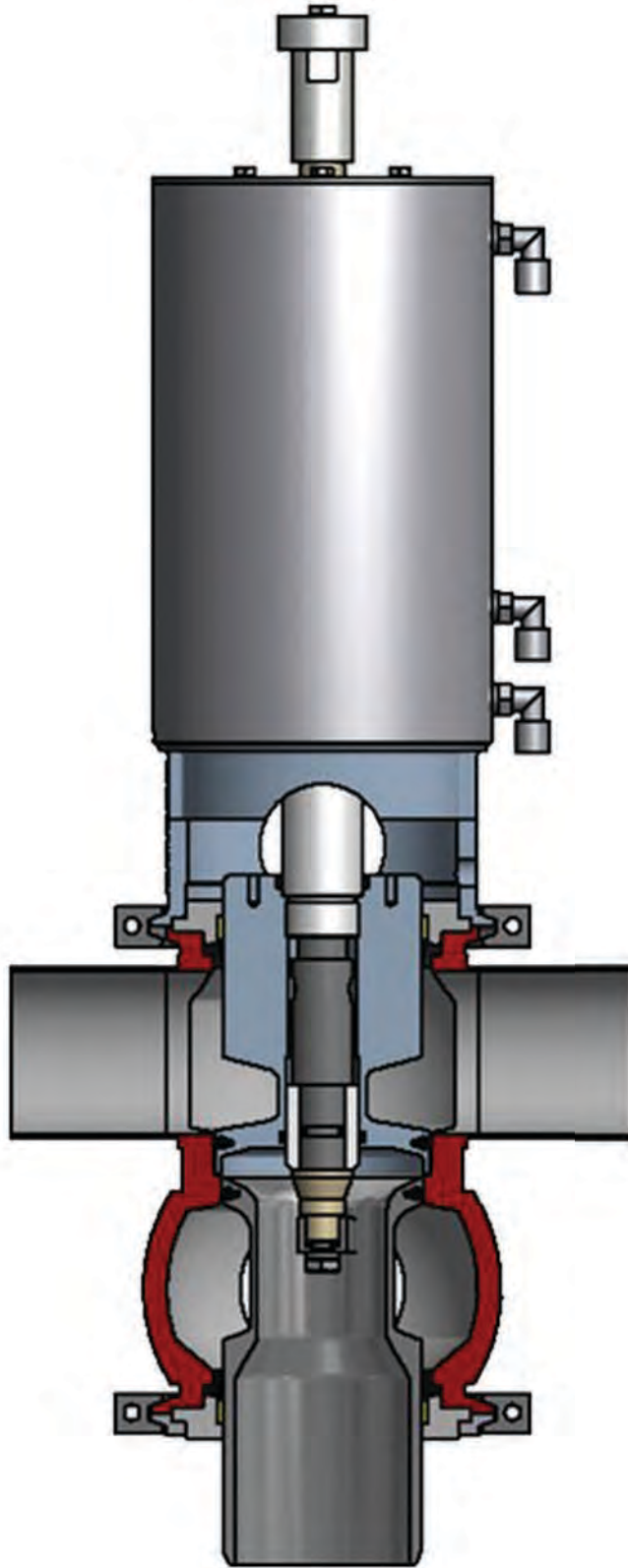
Valve Body Combinations

| 1(A-E) | 2(A-B-C) | 3(A-C-D) | 4(A-B-C-D) | 5(A-C) |
|--------|----------|----------|------------|--------|
|--------|----------|----------|------------|--------|



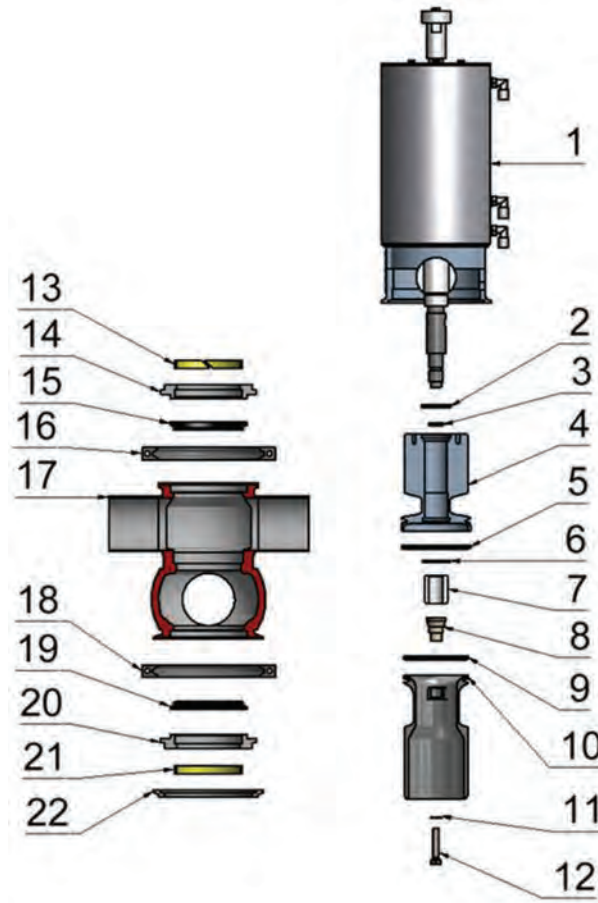
| Size | Nominal Wall | A | B | L | H | Stroke | kg | lbs |
|------|--------------|------|------|------|-------|--------|----|------|
| 1-½" | 1.5 x 0.065 | 3.11 | 3.35 | 3.94 | 15.04 | 1.30 | 16 | 35.3 |
| 2" | 2 x 0.065 | 3.11 | 3.62 | 4.92 | 15.28 | 1.30 | 18 | 39.7 |
| 2-½" | 2.5 x 0.065 | 3.94 | 4.37 | 4.92 | 16.42 | 1.57 | 19 | 41.9 |
| 3" | 3 x 0.065 | 4.65 | 4.41 | 5.91 | 16.73 | 1.73 | 29 | 63.9 |
| 4" | 4 x 0.083 | 5.08 | 5.59 | 6.89 | 20.67 | 2.13 | 33 | 72.8 |

PMO Valves



When the valve is closed, the leakage chamber is open. This ensures that, if one of the two O-rings is defective, the leakage is discharged through the downward opening of the lower valve disc in a depressurized manner. The leakage is thus immediately apparent during the ongoing visual inspection of the plant.

Bill of Materials for PMO Valves



Repair Kit contains:

- #2 (1) O-ring
- #3 (1) O-ring
- #5 (1) O-ring
- #6 (1) O-ring
- #9 (1) O-ring
- #13 (1) guide
- #15 (1) gasket
- #19 (1) gasket
- #21 (1) guide

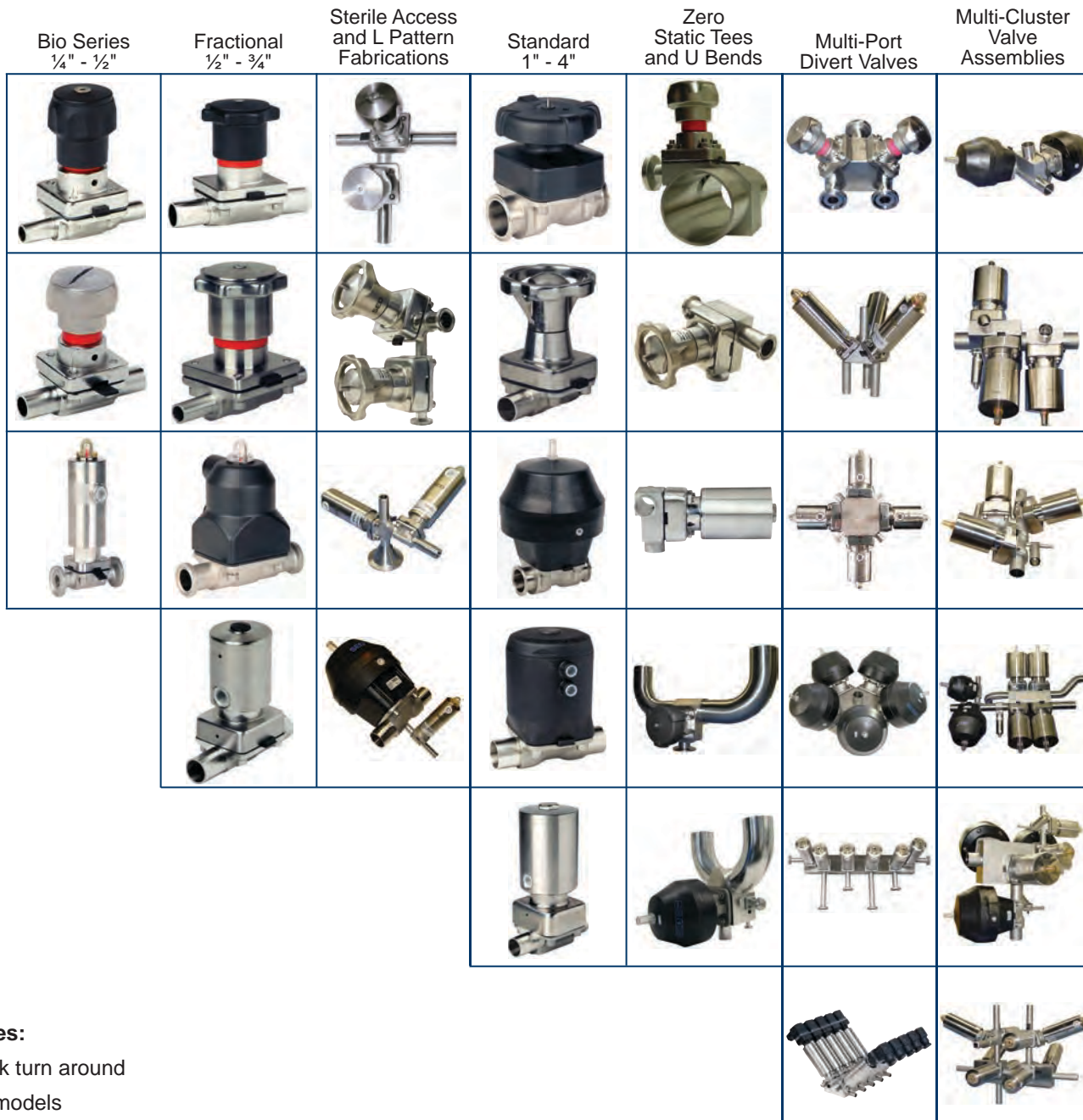
| Valve Size | Repair Kit Part # EPDM |
|------------|---------------------------|
| 1" | PMO-100-RKE |
| 1-1/2" | PMO-150-RKE |
| 2" | PMO-200-RKE |
| 2-1/2" | PMO-250-RKE |
| 3" | PMO-300-RKE |
| 4" | PMO-400-RKE |

| Valve Size | Repair Kit Part # Viton® |
|------------|-----------------------------|
| 1" | PMO-100-RKV |
| 1-1/2" | PMO-150-RKV |
| 2" | PMO-200-RKV |
| 2-1/2" | PMO-250-RKV |
| 3" | PMO-300-RKV |
| 4" | PMO-400-RKV |

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | actuator | 1 |
| 2 | O-ring | 1 |
| 3 | O-ring | 1 |
| 4 | valve disc upper part | 1 |
| 5 | O-ring | 1 |
| 6 | O-ring | 1 |
| 7 | guide | 1 |
| 8 | adaption | 1 |
| 9 | O-ring | 1 |
| 10 | valve disc lower part | 1 |
| 11 | nord lock disc | 1 |
| 12 | hexagonal screw | 1 |
| 13 | guide | 1 |
| 14 | mounting for spindle seals | 1 |
| 15 | gasket | 1 |
| 16 | clamp | 1 |
| 17 | housing | 1 |
| 18 | clamp | 1 |
| 19 | gasket | 1 |
| 20 | mounting for spindle seals | 1 |
| 21 | guide | 1 |
| 22 | cover | 1 |

High Purity BioPharm Aseptic Diaphragm Valve

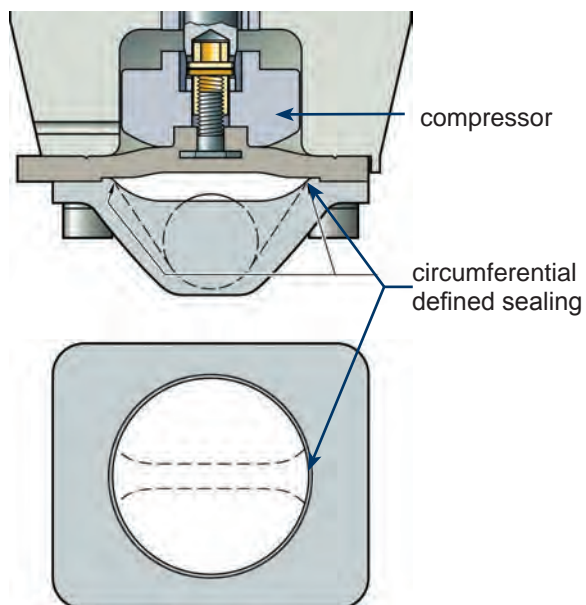
Our product offering of standard 2-way valves, innovative custom fabrications and modular block body designs solve the more demanding process problems.



Innovative Design

Optimized internal cleaning because of Circumferential Defined Sealing Angle (CDSA-Design) between the process diaphragm and valve body.

- Product entrapment reduced or eliminated on the body bonnet flange.
- Better sealing performance and evenly distributed closing force.
- Diaphragm lifetime is extended.



F

Bodies

- 316L – manufactured to ASME BPE Table DT-3
- full material traceability standard
- standard 316L bodies are forged or machined
- cast bodies are available when acceptable

Bonnets

- manual and actuated
- three different styles
 - manual hand wheel
 - piston actuator
 - diaphragm actuator
- available in:
 - stainless steel
 - thermoplastic
 - combination of both



Diaphragms

- EPDM
- Modified PTFE (TFM)/EPDM
- All diaphragms are FDA Compliant and conform to USP Class VI.



Innovative Design

L Pattern



Sterile Access

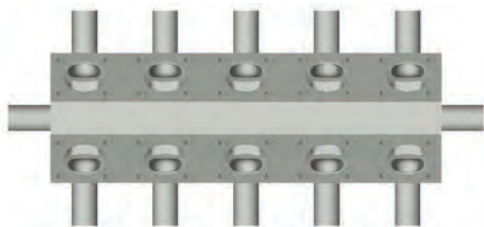


Utilized in a vertical piping system to eliminate dead legs in point of use applications of high purity water systems or any other distribution systems.

Utilized in a horizontal piping system where the main valve is oriented at the self-draining angle and the access port is at the lower drainable point of the water way.

See page 77 for more detailed information.

Multiport Advantages



- customer's specific design
- combination of many different nominal diameters
- optimized drainability
- minimized dead leg
- reduces surface contact, hold up volume and cross contamination of the product
- reduction of fittings, tubing and field welds in the system
- reduces qualification and validation documentation requirement
- all end connections and materials are available according to the customer's specification

Note: many different configurations are available, contact Dixon Sanitary.

Specialty Valves and Process Solutions

Tank Valves

- tank body valves machined from solid bar stock material
- other alloy options available as specified
- minimized dead leg and internal sump
- suitable for mounting with piston and diaphragm actuators
- optional manual operation via an extended crankshaft stem

**F**

See pages 79-81 for more detailed information.

Sterile Sampling Unit

- suitable to take sterile samples from all liquids in aseptic processes
- sample can be taken with pneumatically controlled diaphragm valves or typically as a system with manual valves and a handle
- bring the complete unit in the laboratory for analyzing the sample in sterile conditions



Purified Steam Sampling Unit

- high condensation performance
- time saving sampling
- compact design
- tube end or clamp end connection
- integrated sampling and control valve for cooling circuit
- easy installation due to standardized compact unit
- unit for mobile use



Diaphragms

F

MA8



EPDM

PTFE/EPDM
one-piece

Molded Open

MA10



EPDM

PTFE/EPDM
one-piece

Molded Open

MA25-80

EPDM
Molded OpenPTFE/EPDM
two-piece
Molded Closed

MA100

EPDM
Molded OpenEPDM
Molded Closed

EPDM

Ethylene-propylene elastomer peroxide cured. EPDM is a specifically developed compound reinforced with a vulcanized woven fabric inlay and is always manufactured in the molded open position. This diaphragm construction achieves higher stability for the diaphragm at elevated temperatures and pressures. In addition, the woven fabric inlay is vulcanized over the embedded compressor stud in order to strengthen the elastomer-metal connection. Thus, the EPDM diaphragm is ideal for vacuum applications.

PTFE (TFM)

These PTFE diaphragms have been designed and offer the highest degree of chemical resistance, increased stability, longer flex life, less porosity, reduced cold flow and superior performance through temperature fluctuations between hot and cold and steam sterilization cycles.

MA8 and MA10

The diaphragm dimensions MA8 and MA10 are designed as one-piece diaphragms: This means that the EPDM back is bonded with the PTFE.

The diaphragm is always manufactured in the molded open position. These one-piece diaphragms have less surface area and are subject to shorter linear strokes which explain the excellent performance that has proved itself over time.

MA8 diaphragm incorporates an elastomer button for assembly with the valve operating mechanism. The MA10 utilizes a threaded stud assembly with the valve operating mechanism. Both these features eliminate the potential for point loading at the center of the diaphragm.

MA25 to MA100

The diaphragm dimensions MA25 to MA100 are designed as two-piece diaphragms consisting of a separate EPDM backing cushion and PTFE diaphragm. The diaphragm is always manufactured in the molded closed position. The advantage of this design for the MA25 to MA100 is that the diaphragm is in its molded shape while in the closed position of the valve. This reduces the force to close the valve and increases the life of the diaphragm.

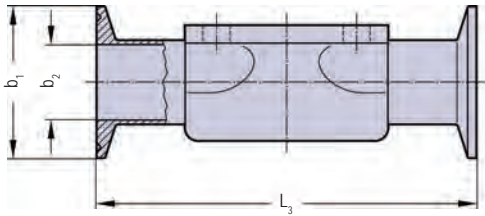
In the two-piece diaphragms the threaded stud connection is embedded in the PTFE of the diaphragm. To eliminate the potential of point loading at the center of the diaphragm, a floating suspension connection to the valve operating mechanism is utilized.

| Code | | 18 | 30 | 51 | 44 |
|----------------------|------|--------------------------|--------------------------|----------------------------|--------|
| MA | | 8-100 | 8, 25, 40, 50 | 10 | 25-100 |
| Material | | EPDM | PTFE/EPDM | PTFE/EPDM | |
| Design | | One-piece Molded open | One-piece Molded open | Two-piece Molded closed | |
| Temperature Range | (°C) | -40 to 150 * | -20 to 150 | -20 to 160 | |
| | (°F) | -40 to 300 * | -20 to 300 | -20 to 320 | |

* The listed temperatures may apply to clean steam sterilization protocols and may not apply to continuous steam service. Upon request, other diaphragms are available with other materials, bigger sizes and for high temperatures up to 350°F (175°C).

Clamp Dimensions and C_v Factors

Clamps



The clamp connection is the most popular connection for easy assembly and breakdown of process lines and valves. The clamp end connection is designed for a face-to-face joint that is leak proof and free of crevices.

The clamp end has a machined beveled seat and is used with specifically formed sealing gaskets made of EPDM or PTFE.

The gasket is inserted between the opposing clamp ends and is compressed tight with a wing nut quick disconnect clamp.

In general, the valve clamp ends are welded to the valve butt weld ends and polished according to the specified interior valve body surface finish.

The welded clamp ends are 100% visually inspected and compression tested. The clamp connections are available for all current pipe standard diameters.

If the connecting clamp ends are not identical and of the same diameter standard, there may result a reduction or step in the process piping system or the ability of self draining ends is not guaranteed.

If assembled correctly, the clamp end process system offers a smooth, crevice-free, self-aligning joint that reduces the hazards of contamination but minimizes turbulence and pressure drop through the system.

| Valve Size | ASME BPE ASME BPE DT-V-1 | | | |
|------------|-----------------------------|-------|-------|---------------------|
| | L_3 | b_2 | b_1 | |
| 1/4" | 2.5 | 0.18 | 0.992 | Bio Series |
| 3/8" | 2.5 | 0.31 | 0.992 | |
| 1/2" | 2.5 | 0.37 | 0.992 | |
| 3/8" | --- | --- | --- | Standard Fractional |
| 1/2" | 3.5 | 0.37 | 0.992 | |
| 3/4" | 4.0 | 0.62 | 0.992 | |
| 1/2" | 4.0 | 0.37 | 0.992 | Standard |
| 3/4" | 4.0 | 0.62 | 0.992 | |
| 1" | 4.5 | 0.87 | 1.984 | |
| 1-1/4" | --- | --- | --- | |
| 1-1/2" | 5.5 | 1.37 | 1.984 | |
| 2" | 6.25 | 1.87 | 2.516 | |
| 2-1/2" | 8.75 * | 2.37 | 3.047 | |
| 3" | 8.75 | 2.87 | 3.579 | |
| 4" | 11.5 | 3.83 | 4.682 | |

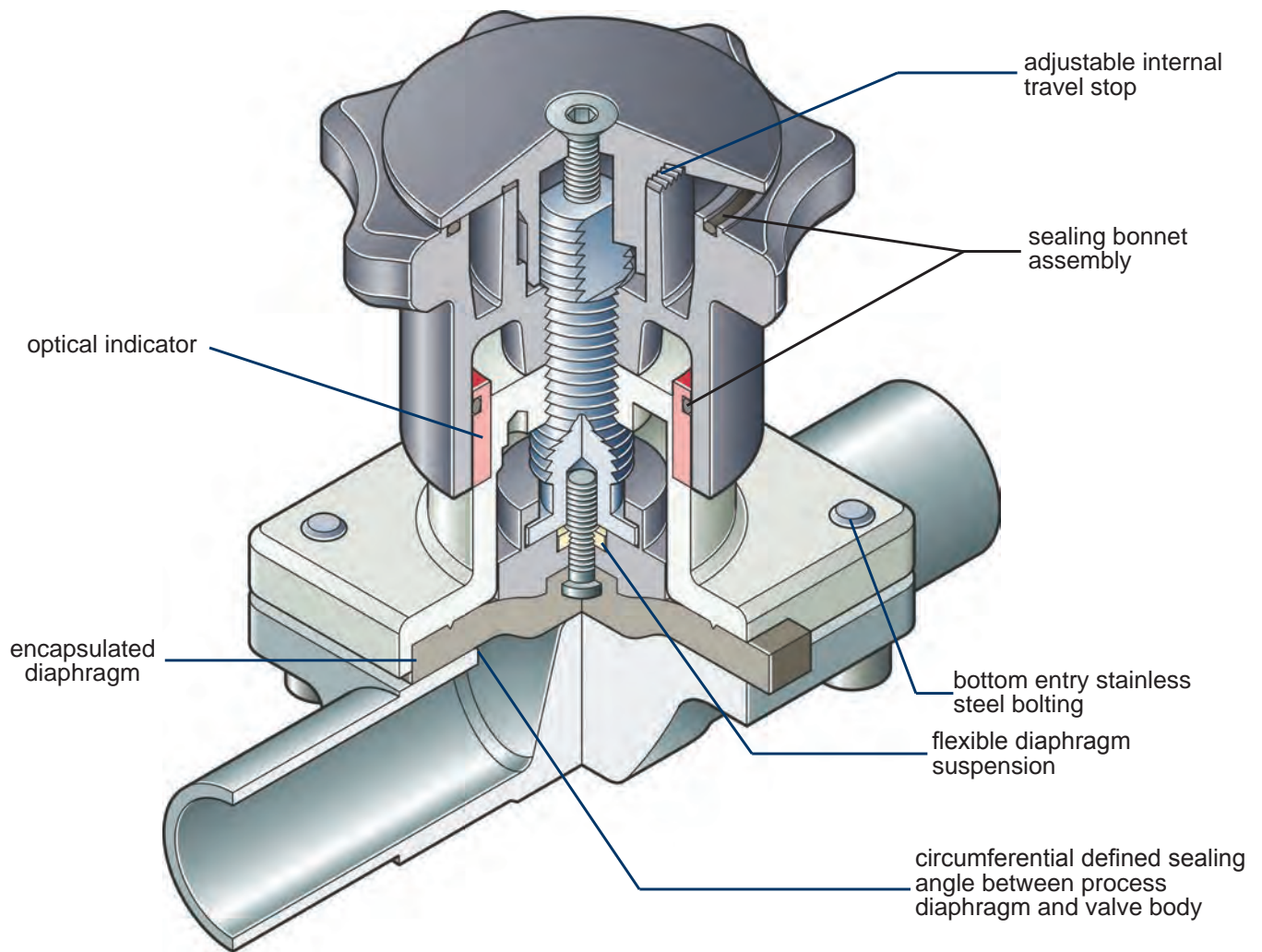
* length differing from standard; other lengths available on request

C_v Factor

In order to design valves for a process system correctly, the valve size is determined by the required flow rate. The C_v value is stated in the following table with regard to the nominal diameter. The C_v value is a parameter defining the flow rate in gallons per minute of water from 41-85°F which flows through the valve at a pressure loss of 1 PSI. This applies when the valve is 100% open.

| Valve Size | C_v Value | Valve Type |
|------------|-------------|---------------------|
| 1/4" | 0.8 | Bio Series |
| 3/8" | 1.6 | |
| 1/2" | 2.3 | |
| 1/2" | 2.6 | Standard Fractional |
| 3/4" | 5.4 | |
| 1" | 14.0 | Standard |
| 1-1/2" | 46.8 | |
| 2" | 56.2 | |
| 2-1/2" | 99.5 | |
| 3" | 128.7 | |
| 4" | 216.5 | |

DV05 / DV04 / DV03
Manual Valve DN 8-20 mm (3/8" - 3/4")

F

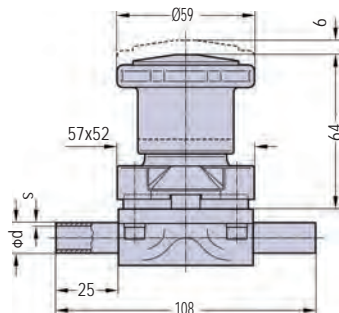
DV05 / DV04 / DV03

Manual Valve DN 8-20 mm (3/8" - 3/4")

F



DV03



Specific Features

Type DV05

- stainless steel bonnet and hand wheel
- autoclavable

Type DV04

- stainless steel bonnet and thermoplastic hand wheel
- autoclavable

Type DV03

- thermoplastic bonnet and hand wheel

General Features

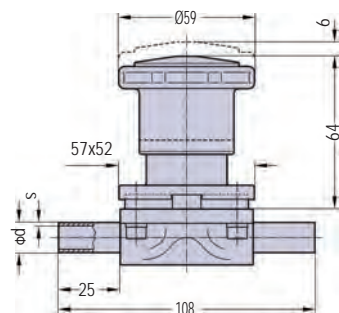
- rising hand wheel
- sealed bonnet with optical indicator
- adjustable internal travel stop
- circumferential defined sealing angle between process diaphragm and valve body
- flexible diaphragm suspension
- encapsulated diaphragm

Technical Data

- control function: manually operated
- maximum working pressure: 145 PSI (10 BAR)
- maximum working temperature: 320°F (160°C) dependent on application
- diaphragm material: EPDM or PTFE
- body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: weld ends, clamps (see page 57), special ends
- bonnets suitable for: two-way bodies, welded configurations, T-bodies, multiport bodies, tank bottom bodies
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA 10 for all body sizes

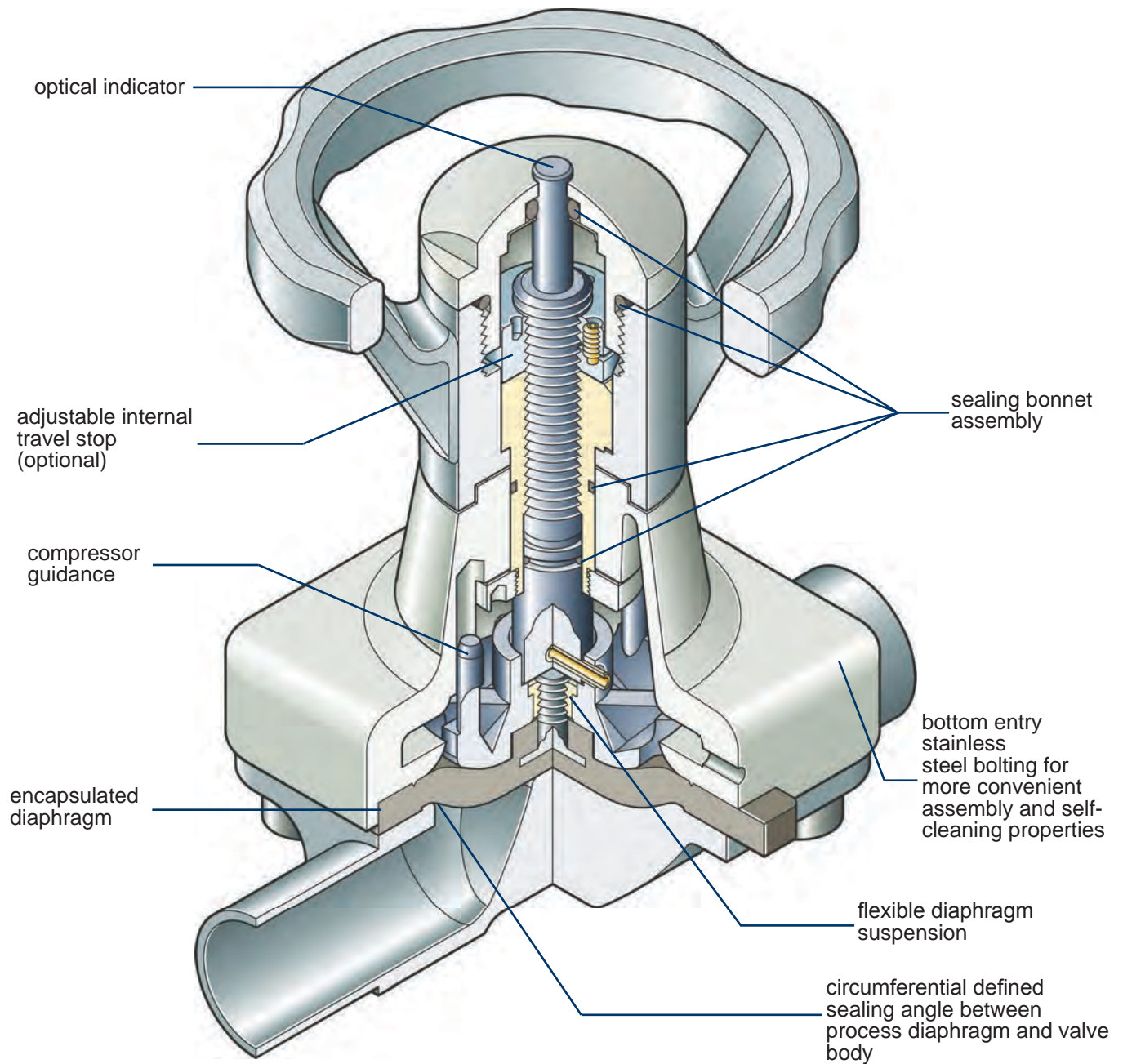


DV05



DV18

Manual Valve DN 15-100 mm (½" - 4")

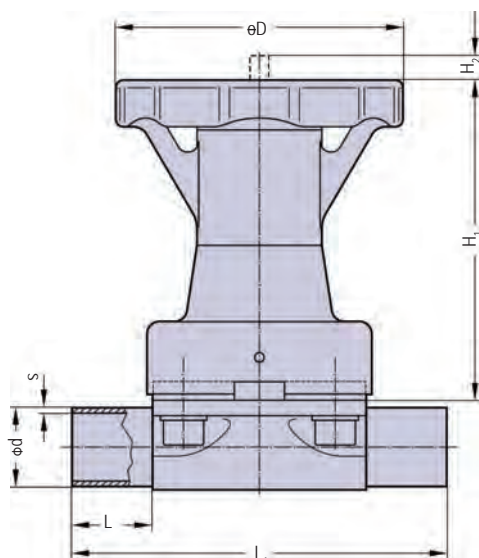


DV18

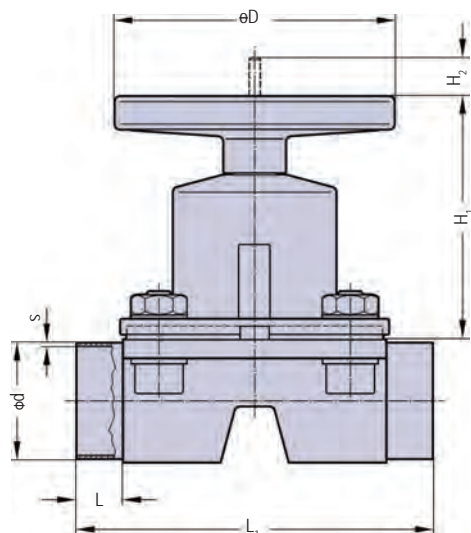
Manual Valve DN 15-100 mm (½" - 4")



DV18



DN 15-50



DN 65-100 (drawing MA 80)

Features

- stainless steel bonnet and hand wheel
- sealed bonnet
- autoclavable
- circumferential defined sealing angle between process diaphragm and valve body
- flexible diaphragm suspension
- encapsulated diaphragm

Optional

- adjustable internal travel stop or stroke limiter

Technical Data

- control function: manually operated
- maximum working pressure: 145 PSI (10 BAR)
DN 65-100 diaphragm PTFE 116 PSI (8 BAR)
- maximum working temperature: 320°F (175°C) dependent on application
- diaphragm material: EPDM or PTFE
- valve body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: weld ends, clamps (see page 57), special ends
- bonnets suitable for: two-way bodies, welded configurations, T-bodies, multiport bodies, tank bottom bodies
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA see table

| DN (mm) | Dimensions (mm) | | | | | |
|------------|-----------------|----|-------|-------|-------|-----|
| | MA | L | L_1 | H_1 | H_2 | D |
| 15-25 | 25 | 25 | 120 | 103 | 10 | 92 |
| 32-40 | 40 | 25 | 153 | 135 | 17 | 135 |
| 50 | 50 | 30 | 173 | 135 | 24 | 135 |
| 65 | 80 | 30 | 216 | 180 | 38 | 198 |
| 80 | 80 | 30 | 254 | 180 | 38 | 198 |
| 100 | 100 | 30 | 305 | 220 | 50 | 252 |

DV08

Manual Valve DN 15-100 mm (½" - 4")

Features

- stainless steel bonnet and thermoplastic hand wheel
- non rising hand wheel with optical indicator
- circumferential defined sealing angle between process diaphragm and valve body up to DN 50
- flexible diaphragm suspension
- encapsulated diaphragm

Optional

- adjustable travel stop or stroke limiter
- sealed bonnet
- autoclavable
- locking device

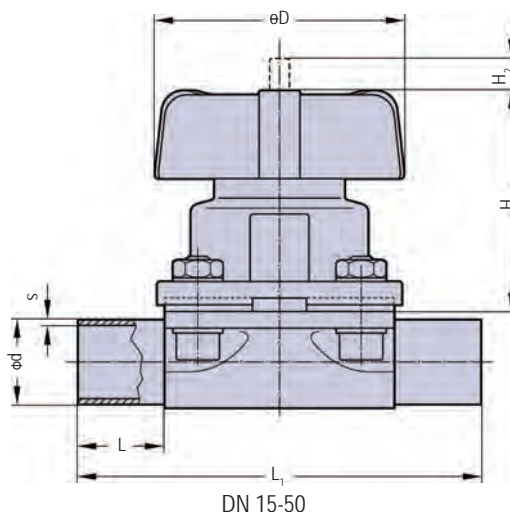
Technical Data

- control function: manually operated
- maximum working pressure: 145 PSI (10 BAR)
DN 65-100 diaphragm PTFE 116 PSI (8 BAR)
- maximum working temperature: 320°F (175°C) dependent on application
- diaphragm material: EPDM or PTFE
- valve body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: weld ends, clamps (see page 57), special ends
- bonnets suitable for: two-way bodies, welded configurations, T-bodies, multiport bodies, tank bottom bodies
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA see table

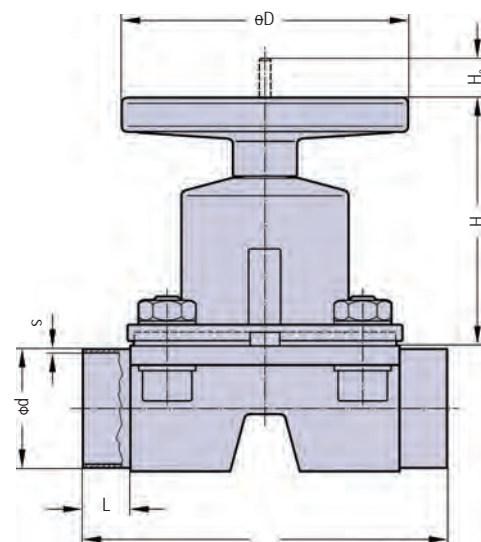
| DN (mm) | Dimensions (mm) | | | | | |
|------------|-----------------|----|----------------|----------------|----------------|-----|
| | MA | L | L ₁ | H ₁ | H ₂ | D |
| 15-25 | 25 | 25 | 120 | 71 | 10 | 90 |
| 32-40 | 40 | 25 | 153 | 91 | 14 | 114 |
| 50 | 50 | 30 | 173 | 110 | 23 | 140 |
| 65 | 80 | 30 | 216 | 180 | 38 | 198 |
| 80 | 80 | 30 | 254 | 180 | 38 | 198 |
| 100 | 100 | 30 | 305 | 220 | 50 | 252 |



DV08



DN 15-50



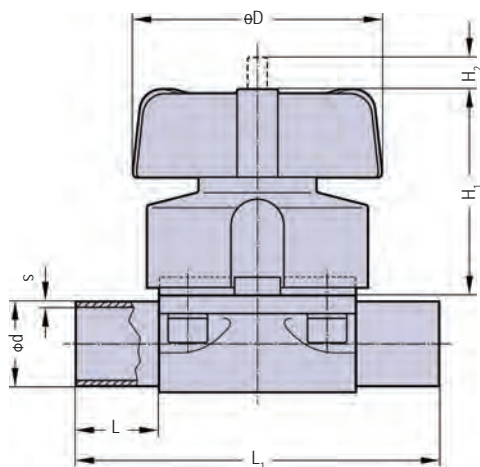
DN 65-100 (drawing MA 80)

DV06

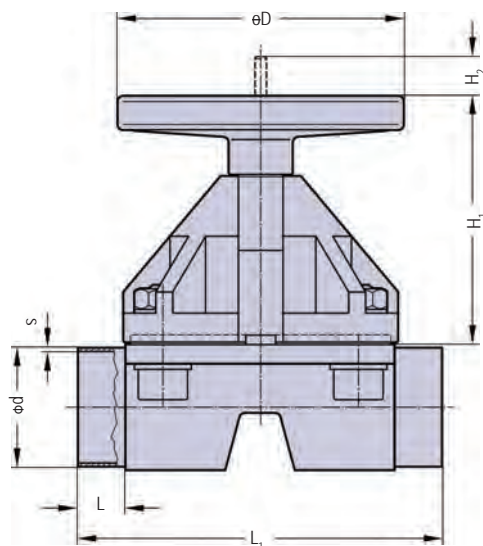
Manual Valve DN 15-100 mm (½" - 4")



DV06



DN 15-50



DN 65-100 (drawing MA 80)

Features

- thermoplastic bonnet and plastic hand wheel
- non rising hand wheel with optical indicator
- flexible diaphragm suspension
- encapsulated diaphragm
- circumferential defined sealing angle between process diaphragm and valve body up to DN 50

Optional

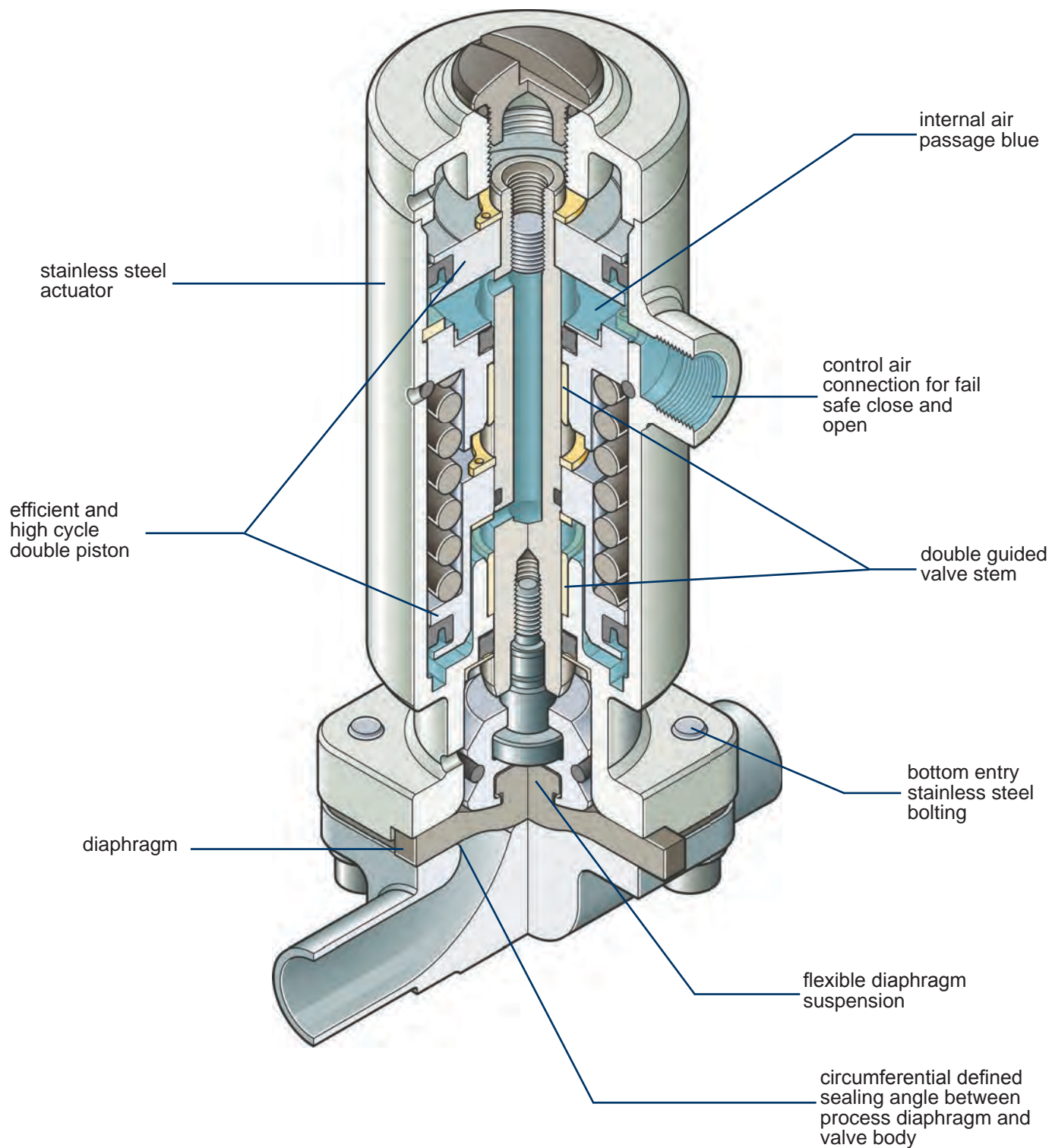
- adjustable travel stop or stroke limiter on top
- sealed bonnet
- locking device

Technical Data

- control function: manually operated
- maximum working pressure: 145 PSI (10 BAR)
DN 65-100 diaphragm PTFE 116 PSI (8 BAR)
- maximum working temperature: standard 176°F (80°C),
HS-version DN ≤ 50 300°F (150°C) dependent on application
- diaphragm material: EPDM or PTFE
- valve body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: weld ends, clamps (see page 57), special ends
- suitable for:
bonnets up to DN 50: two-way bodies
bonnets bigger DN 50: two-way bodies, welded configurations, T-bodies, multiport bodies, tank bottom bodies
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA see table

| DN (mm) | Dimensions (mm) | | | | | |
|------------|-----------------|----|----------------|----------------|----------------|-----|
| | MA | L | L ₁ | H ₁ | H ₂ | D |
| 15-25 | 25 | 25 | 120 | 71 | 10 | 90 |
| 32-40 | 40 | 25 | 153 | 91 | 14 | 114 |
| 50 | 50 | 30 | 173 | 110 | 23 | 140 |
| 65 | 80 | 30 | 216 | 180 | 38 | 198 |
| 80 | 80 | 30 | 254 | 180 | 38 | 198 |
| 100 | 100 | 30 | 305 | 220 | 50 | 252 |

DV13
Pneumatically Operated Valve DN 4-15 mm (1/4" - 1/2")

**F**

DV13

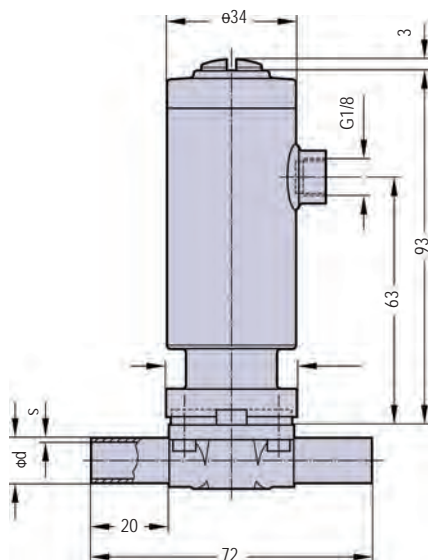
Pneumatically Operated Valve DN 4-15 mm ($\frac{1}{4}$ " - $\frac{1}{2}$ ")

This valve is available in a type DV13A and a type DV13J design. The type DV13A is available in the control function fail safe close and performs at a higher working pressure for standard application. The type DV13J in control function fail safe close is mainly designed for filling applications or all other instances where the working pressure is low. One advantage of this design is a longer diaphragm life due to less spring force. Other advantages include a very high cycle life and a smaller overall dimensional height. Type DV13J is also available in control functions fail safe open and double acting for standard working pressures.

F



DV13A



Features

- high cycle double piston stainless steel actuator
- compact design, the outside diameter of the actuator is the same size as the bonnet flange connecting the diaphragm and body
- advantages in multiport bodies and manifold valve assemblies
- control air connection on the top, away from the process product line
- direction of control air connection is mountable in 90° rotations
- circumferential defined sealing angle between process diaphragm and valve body
- flexible diaphragm suspension
- clean and polished exterior design ideal for sterile washdowns

Optional

- available with a wide range of control equipment and accessories, see pages 82-83
- autoclavable

Technical Data

- control function: pneumatically operated
 - DV13A: fail safe close (NC)
 - DV13J: fail safe close (NC)
 - fail safe open (NO)
 - double acting (DA)
- maximum working pressure: unidirectional ($\Delta p=100\%$)
 - DV13A: fail safe close
 - EPDM diaphragm 116 PSI (8 BAR)
 - PTFE diaphragm 101 PSI (7 BAR)
 - DV13J: fail safe close
 - EPDM diaphragm 65 PSI (4.5 BAR)
 - PTFE diaphragm 60 PSI (4 BAR)
 - fail safe open and double acting
 - EPDM diaphragm 116 PSI (8 BAR)
 - PTFE diaphragm 101 PSI (7 BAR)

Higher working pressures may be achieved with a different actuator.

- maximum working temperature: 320°F (160°C) dependent on application
- control pressure:
 - NC: DV13A: 60-101 PSI (4-7 BAR)
 - NC: DV13J: 80-101 PSI (5.5-7 BAR)
 - NO, DA: 80-101 PSI (5.5-7 BAR)
- diaphragm material: EPDM or PTFE
- valve body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: butt weld ends, clamps (see page 57), special ends
- actuators suitable for: two-way bodies, welded configurations, T-bodies, multiport bodies, tank bottom bodies
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA 8 all sizes

DV20

Pneumatically Operated Valve DN 4-15 mm (¼" - ½")

Features

- efficient thermoplastic piston actuator with stainless steel distance piece
- direction of control air connection is mountable in 90° rotations
- circumferential defined sealing angle between process diaphragm and valve body
- flexible diaphragm suspension
- optical indicator

Optional

- available with a wide range of control equipment and accessories, see pages 82-83

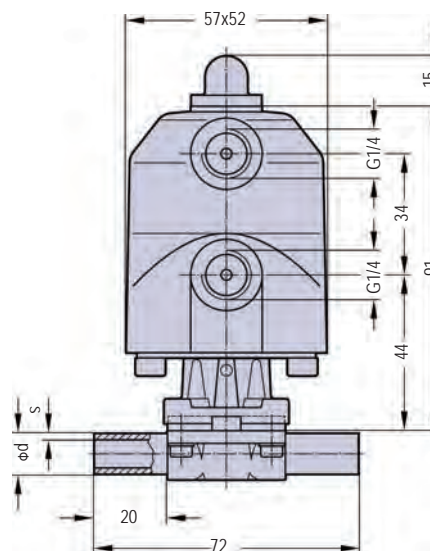
Technical Data

- control function: pneumatically operated
 - fail safe close (NC)
 - fail safe open (NO)
 - double acting (DA)
- direction control connection:
 - 90° to flow direction, standard
- maximum working pressure: unidirectional (delta p=100%)
 - EPDM diaphragm 116 PSI (8 BAR)
 - PTFE diaphragm 101 PSI (7 BAR)

Higher working pressures may be achieved with a different actuator.
- maximum working temperature: 320°F (160°C) dependent on application
- control pressure:
 - NC: 60-101 PSI (4-7 BAR)
 - NO, DA: 50-65 PSI (3.5-4.5 BAR)
- diaphragm material: EPDM or PTFE
- valve body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: butt weld ends, clamps (see page 57), special ends
- actuators suitable for: two-way bodies, welded configurations, T-bodies, multiport bodies, tank bottom bodies
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA 8 all sizes



DV20



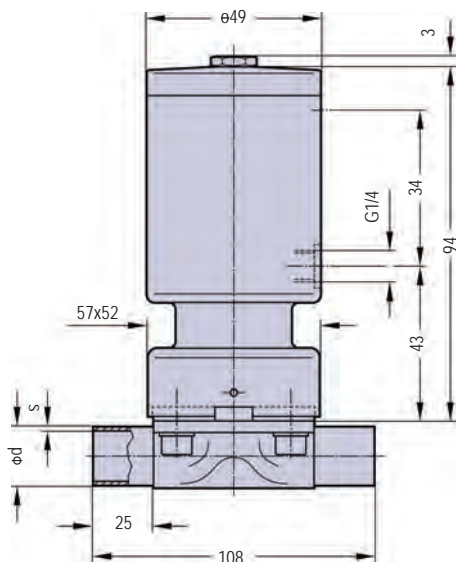
DV23

Pneumatically Operated Valve DN 8-20 mm (3/8"-3/4")

F



DV23



Features

- high cycle piston stainless steel actuator
- compact design, the outside diameter of the actuator is the same size as the bonnet flange
- available in multiport bodies and manifold valve assemblies
- control air connection in flow direction
- circumferential, defined sealing angle between process diaphragm and valve body
- flexible diaphragm suspension
- encapsulated diaphragm
- clean and polished exterior design ideal for sterile washdowns

Optional

- available with a wide range of control equipment and accessories, see pages 82-83, also for retrofitting
- control air connection 90° to flow direction
- autoclavable

Technical Data

- control function: pneumatically operated
 - fail safe close (NC)
 - fail safe open (NO)
 - double acting (DA)
- direction control connection:
 - 90° in flow direction, standard
 - 90° to flow direction, optional
- maximum working pressure: unidirectional ($\Delta p = 100\%$), EPDM diaphragm 116 PSI (8 BAR), PTFE diaphragm 101 PSI (7 BAR), a higher working pressure may be achieved with a different actuator
- maximum working temperature: 320°F (160°C), dependent on application
- control pressure: NC: 60-101 PSI (4-7 BAR), NO, DA: 60-72 PSI (4-5 BAR)
- diaphragm material: EPDM or PTFE
- valve body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: weld ends, clamps (see page 57), special ends
- actuators suitable for: two-way bodies, welded configurations, T-bodies, multiport bodies, tank bottom bodies
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA 10 all sizes

DV12 (3/8" - 3/4") Pneumatically Operated Valve DN 8-20mm

Features

- efficient thermoplastic piston actuator with stainless steel distance piece
- control air connection 90° to flow direction
- flexible diaphragm suspension
- encapsulated diaphragm
- optical indicator
- compact design, the outside diameter of the actuator is the same size as the bonnet flange

Optional

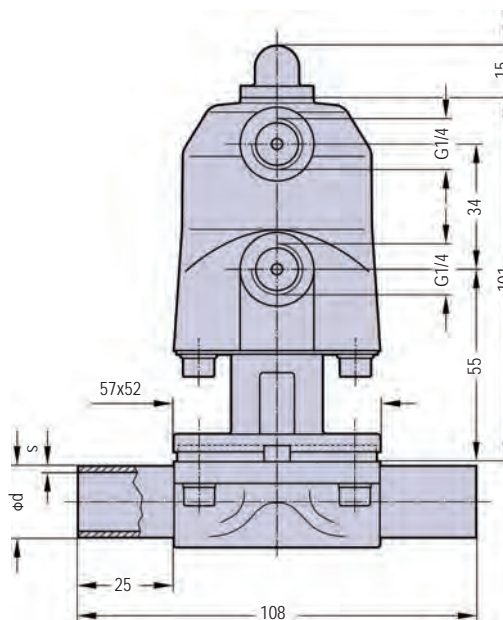
- available with a wide range of control equipment and accessories, see pages 82-83, also for retrofitting
- control air connection in flow direction

Technical Data

- control function: pneumatically operated
 - fail safe close (NC)
 - fail safe open (NO)
 - double acting (DA)
- direction control connection:
 - 90° to flow direction, standard
- maximum working pressure: unidirectional ($\Delta p = 100\%$), EPDM diaphragm 116 PSI (8 BAR), PTFE diaphragm 101 PSI (7 BAR), a higher working pressure may be achieved with a different actuator
- maximum working temperature: 320°F (160°C), dependent on application
- control pressure: NC: 60-101 PSI (4-7 BAR), NO, DA: 60-72 PSI (4-5 BAR)
- diaphragm material: EPDM or PTFE
- valve body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: weld ends, clamps (see page 57), special ends
- actuators suitable for: two-way bodies, welded configurations, T-bodies, multi port bodies, tank bottom bodies
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA 10 all sizes



DV12



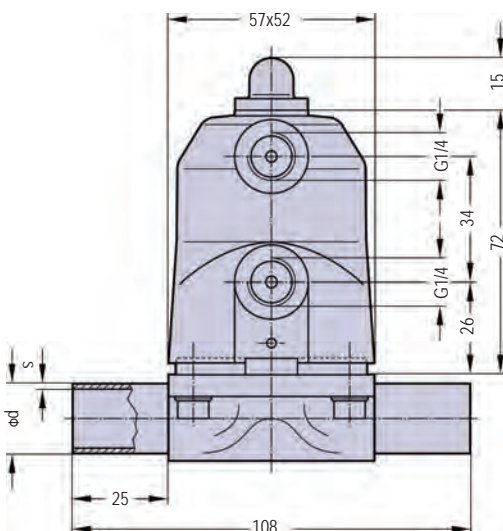
DV14

Pneumatically Operated Valve DN 8-20 mm (3/8"-3/4")

F



DV14



Features

- efficient thermoplastic piston actuator direct assembled with the valve body
- control air connection 90° to flow direction for side by side or other installations saving space
- compact design, the outside diameter of the actuator is the same size as the bonnet flange
- actuator high resistance to heat transfer
- smooth exterior design ideal for washdowns
- encapsulated diaphragm
- optical indicator

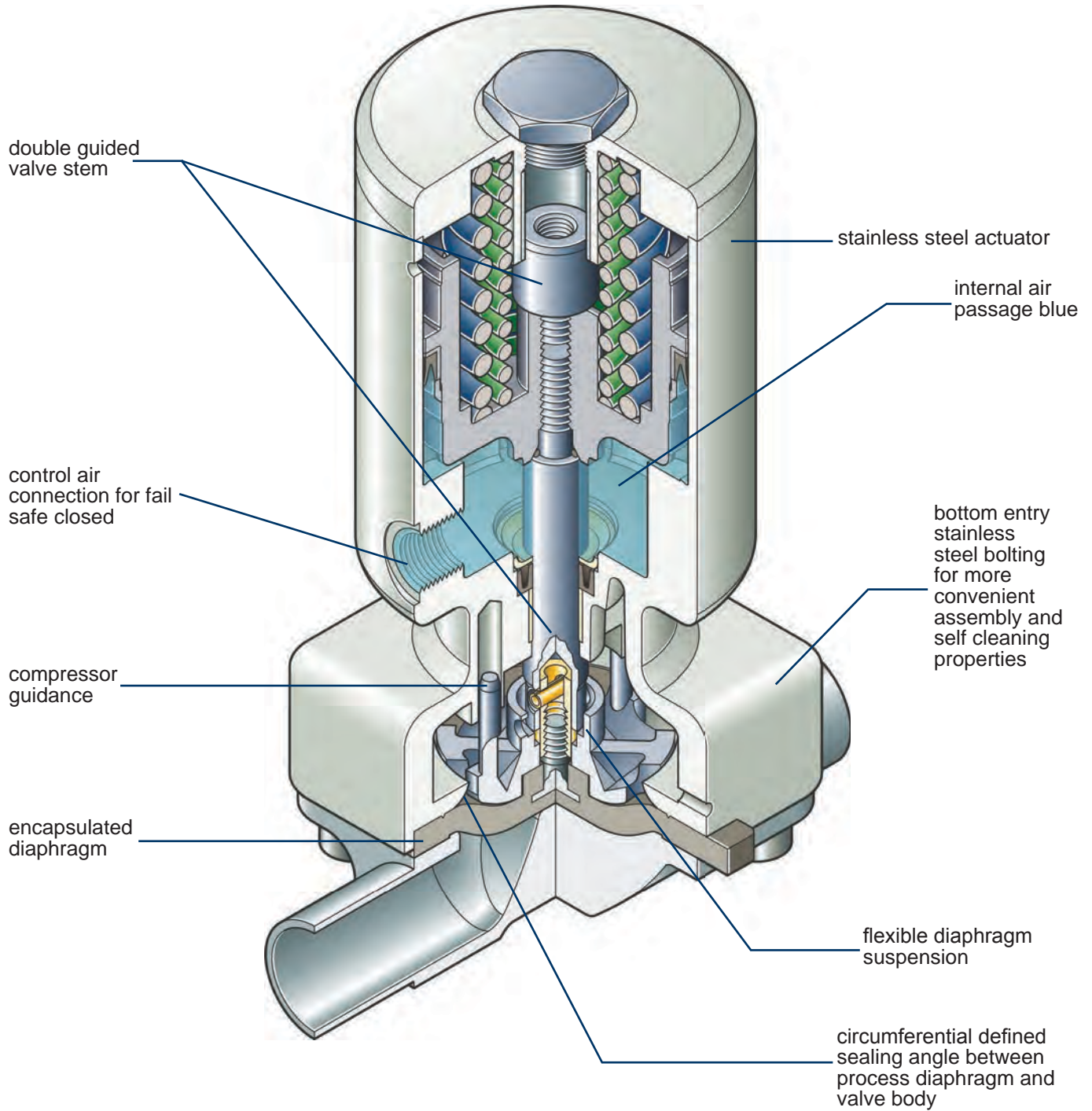
Optional

- available with a wide range of control equipment and accessories, see pages 82-83, also for retrofitting
- control air connection in flow direction

Technical Data

- control function: pneumatically operated
 - fail safe close (NC)
 - fail safe open (NO)
 - double acting (DA)
- direction control connection:
 - 90° to flow direction, standard
- maximum working pressure: unidirectional ($\Delta p = 100\%$), EPDM diaphragm 116 PSI (8 BAR), PTFE diaphragm 101 PSI (7 BAR), a higher working pressure may be achieved with a different actuator
- maximum working temperature: 176°F (80°C) standard, 300°F (150°C) HS-version, dependent on application
- control pressure: NC: 60-101 PSI (4-7 BAR), NO, DA: 60-72 PSI (4-5 BAR)
- diaphragm material: EPDM or PTFE
- valve body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: weld ends, clamps (see page 57), special ends
- actuators suitable for: two-way bodies, welded configurations
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA 10 all sizes

DV21 Pneumatically Operated Valve DN 15-100 mm (½"-4")



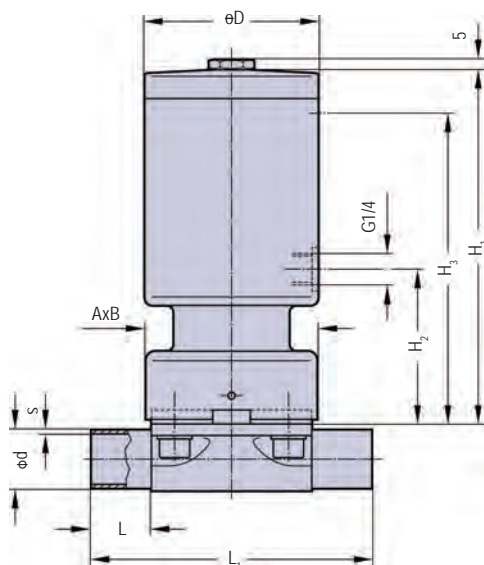
F

DV21

Pneumatically Operated Valve DN 15-100 mm (½"-4")



DV21



Features

- high cycle piston stainless steel actuator
- compact design, the outside diameter of the actuator is the same size as the bonnet flange
- available in multiport bodies and manifold valve assemblies
- control air connection in flow direction
- circumferential defined sealing angle between process diaphragm and valve body
- flexible diaphragm suspension
- encapsulated diaphragm
- clean and polished exterior design ideal for sterile washdowns

Optional

- available with a wide range of control equipment and accessories, see pages 82-83, also for retrofitting
- control air connection 90° to flow direction
- autoclavable

Technical Data

- control function: pneumatically operated
fail safe close (NC)
fail safe open (NO)
double acting (DA)
- direction control connection:
in flow direction, standard
90° to flow direction, optional
- maximum working pressure: unidirectional ($\Delta p = 100\%$), a higher working pressure may be achieved with a different actuator

| Diaphragm | DN 15-50 (2") | DN 65-80 (2.5"-3") | DN100 (4") |
|-----------|------------------|--------------------|----------------|
| EPDM | 145 PSI (10 BAR) | 101 PSI (7 BAR) | 87 PSI (6 BAR) |
| PTFE | 116 PSI (8 BAR) | 87 PSI (6 BAR) | 72 PSI (5 BAR) |

- maximum working temperature: 350°F (175°C), dependent on application
- control pressure:
 - NC: DN 15-80, 72-116 PSI (5-8 BAR)
 - NC: DN100, 87-116 PSI (6-8 BAR)
 - NO, DA DN 15-80, 65-87 PSI (4.5-6 BAR)
 - NO, DA DN 100, 80-101 PSI (5.5-7 BAR)
- diaphragm material: EPDM or PTFE
- valve body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: weld ends, clamps (see page 57), special ends
- actuators suitable for: two-way bodies, welded configurations, T-bodies, multiport bodies and tank bottom bodies
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA see table below

| DN (mm) | Dimensions (mm) | | | | | | | |
|------------|-----------------|----|-------|------------|-------|-------|-------|-----|
| | MA | L | L_1 | A x B | H_1 | H_2 | H_3 | D |
| 15-25 | 25 | 25 | 120 | 73x79 | 146 | 66 | 133 | 75 |
| 32-40 | 40 | 25 | 153 | 96x105 | 180 | 75 | 160 | 105 |
| 50 | 50 | 30 | 173 | 111x130 | 216 | 77 | 180 | 105 |
| 65 | 80 | 30 | 216 | 190x170 | 309 | 135 | 285 | 175 |
| 80 | 80 | 30 | 254 | 190x170 | 309 | 135 | 285 | 175 |
| 100 | 100 | 30 | 305 | $\phi 238$ | 318 | 143 | 295 | 175 |

DV12 (1/2" - 4")

Pneumatically Operated Valve DN 15-100 mm

Features

- thermoplastic diaphragm actuator with stainless steel distance piece
- control air connection 90° to flow direction
- flexible diaphragm suspension
- encapsulated diaphragm

Optional

- available with a wide range of control equipment and accessories, see pages 82-83, also for retrofitting

Technical Data

- control function: pneumatically operated
fail safe close (NC)
fail safe open (NO)
double acting (DA)
- direction control connection:
90° to flow direction, standard
- maximum working pressure: unidirectional ($\Delta p = 100\%$),
a higher working pressure may be achieved with a different actuator

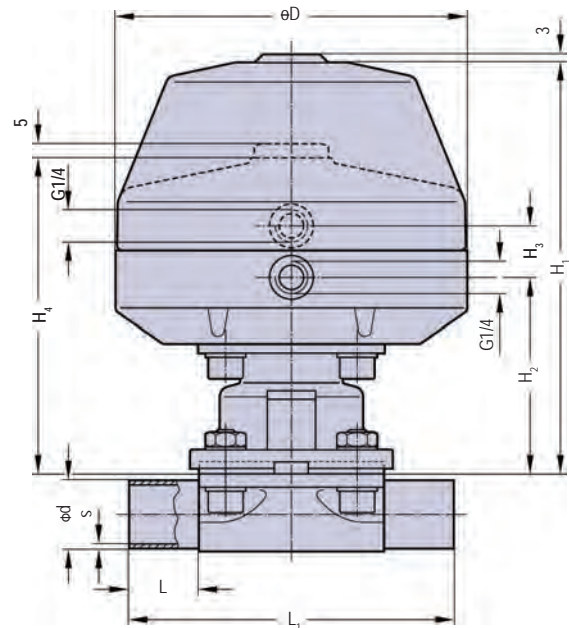
| Diaphragm | DN 15-50 (2") | DN 65-80 (2.5", 3") | DN100 (4") |
|-----------|------------------|---------------------|----------------|
| EPDM | 145 PSI (10 BAR) | 101 PSI (7 BAR) | 87 PSI (6 BAR) |
| PTFE | 116 PSI (8 BAR) | 87 PSI (6 BAR) | 72 PSI (5 BAR) |

- maximum working temperature: 350°F (175°C), dependent on application
- control pressure:
 - NC: DN 15-50, 65-87 PSI (4.5-6 BAR)
 - NC: DN 65-80, 65-101 PSI (4.5-7 BAR)
 - NC: DN 100, 80-101 PSI (5.5-7 BAR)
 - NO, DA: DN 15-80, 60-80 PSI (4-5.5 BAR)
 - NO, DA: DN 100, 72-93 PSI (5-6.5 BAR)
- diaphragm material: EPDM or PTFE
- valve body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: weld ends, clamps (see page 57), special ends
- actuators suitable for: two-way bodies, welded configurations, T bodies, multi port bodies, tank bottom bodies
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA see table below

| DN (mm) | Dimensions (mm) | | | | | | | |
|------------|-----------------|----|----------------|----------------|----------------|----------------|----------------|-----|
| | MA | L | L ₁ | H ₁ | H ₂ | H ₃ | H ₄ | D |
| 15-25 | 25 | 25 | 120 | 148 | 71 | 31 | 120 | 130 |
| 32-40 | 40 | 25 | 153 | 194 | 95 | 31 | 144 | 161 |
| 50 | 50 | 30 | 173 | 233 | 109 | 31 | 177 | 217 |
| 65 | 80 | 30 | 216 | 314 | 166 | 41 | 275 | 265 |
| 80 | 80 | 30 | 254 | 314 | 166 | 41 | 275 | 265 |
| 100 | 100 | 30 | 305 | 314 | 166 | 41 | 284 | 265 |



DV12



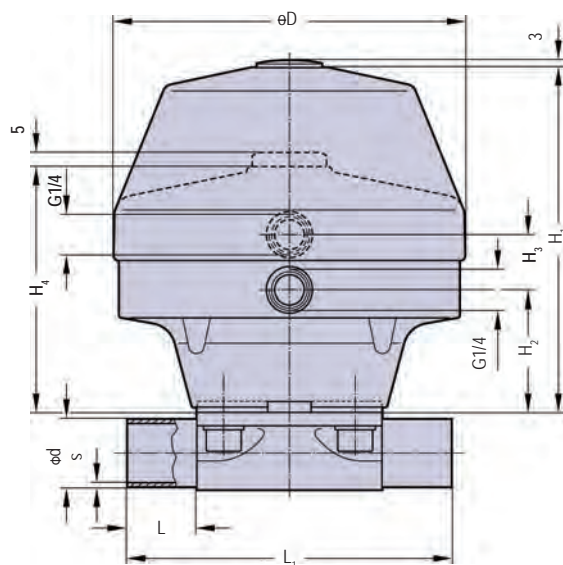
DV15

Pneumatically Operated Valve DN 15-100 mm (½"-3")

F



DV15



Features

- thermoplastic diaphragm actuator direct assembled with the valve body
- actuator high resistance to heat transfer
- smooth exterior design ideal for washdowns
- control air connection 90° to flow direction
- flexible diaphragm suspension
- encapsulated diaphragm

Optional

- available with a wide range of control equipment and accessories, see pages 82-83, also for retrofitting

Technical Data

- control function: pneumatically operated
fail safe close (NC)
fail safe open (NO)
double acting (DA)
- direction control connection:
90° to flow direction, standard
- maximum working pressure: unidirectional ($\Delta p = 100\%$),
a higher working pressure may be achieved with a different actuator

| Diaphragm | DN 15-50 (2") | DN 65-80 (2.5"-3") |
|-----------|------------------|--------------------|
| EPDM | 145 PSI (10 BAR) | 101 PSI (7 BAR) |
| PTFE | 116 PSI (8 BAR) | 87 PSI (6 BAR) |

- maximum working temperature: 176°F (80°C)
- control pressure:
 - NC DN 15-50, 65-87 PSI (4.5-6 BAR)
 - NC DN 65-80, 65-101 PSI (4.5-7 BAR)
 - NO, DA DN 15-80, 60-80 PSI (4-5.5 BAR)
- diaphragm material: EPDM or PTFE
- valve body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: weld ends, clamps (see page 57), special ends
- actuators suitable for: two-way bodies, welded configurations
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA see table below

| DN (mm) | Dimensions (mm) | | | | | | | |
|------------|-----------------|----|----------------|----------------|----------------|----------------|----------------|-----|
| | MA | L | L ₁ | H ₁ | H ₂ | H ₃ | H ₄ | D |
| 15-25 | 25 | 25 | 120 | 153 | 49 | 31 | 97 | 130 |
| 32-40 | 40 | 25 | 153 | 176 | 77 | 31 | 131 | 161 |
| 50 | 50 | 30 | 173 | 214 | 91 | 31 | 161 | 217 |
| 65 | 80 | 30 | 216 | 269 | 121 | 41 | 229 | 265 |
| 80 | 80 | 30 | 216 | 269 | 121 | 41 | 229 | 265 |

DV16

Pneumatically Operated Valve DN 15-50 mm (½"-2")

Features

- thermoplastic piston actuator
- compact design
- actuator high resistance to heat transfer
- control air connection in flow direction
- circumferential defined sealing angle between process diaphragm and valve body
- flexible diaphragm suspension
- encapsulated diaphragm
- smooth exterior design ideal for washdowns

Optional

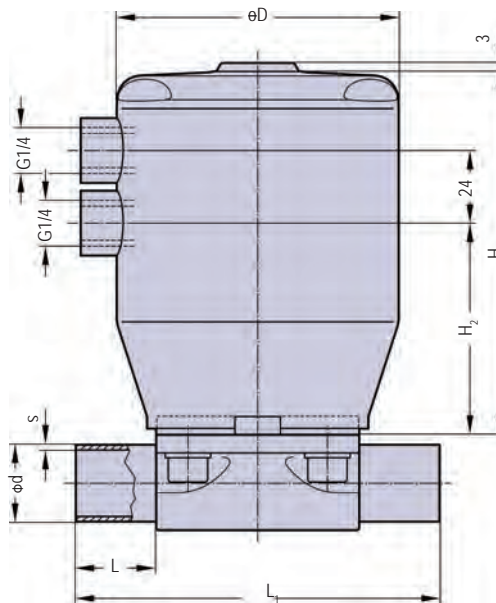
- available with a wide range of control equipment and accessories, see pages 82-83, also for retrofitting
- control air connection 90° to flow direction

Technical Data

- control function: pneumatically operated
 - fail safe close (NC)
 - fail safe open (NO)
 - double acting (DA)
- direction control connection:
 - in flow direction, standard
 - 90° to flow direction, optional
- maximum working pressure: unidirectional ($\Delta p = 100\%$), EPDM diaphragm, 145 PSI (10 BAR), PTFE diaphragm, 116 PSI (8 BAR), a higher working pressure may be achieved with a different actuator.
- maximum working temperature: HS-version 300°F (150°C), dependent on application
- control pressure:
 - NC 65-101 PSI (4.5-7 BAR)
 - NO, DA 60-72 PSI (4-5 BAR)
- diaphragm material: EPDM or PTFE
- valve body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: weld ends, clamps (see page 57), special ends
- actuators suitable for: two-way bodies, welded configurations
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA see table below



DV16



| DN (mm) | Dimensions (mm) | | | | | |
|------------|-----------------|----|----------------|----------------|----------------|-----|
| | MA | L | L ₁ | H ₁ | H ₂ | D |
| 15-25 | 25 | 25 | 120 | 120 | 70 | 92 |
| 32-40 | 40 | 25 | 153 | 133 | 75 | 112 |
| 50 | 50 | 30 | 173 | 173 | 111 | 143 |

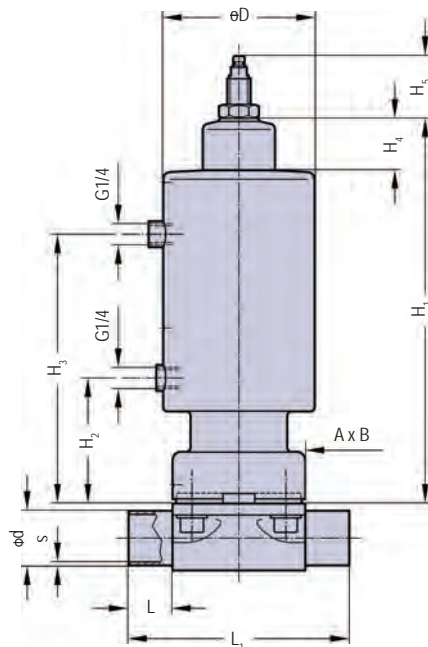
DV24

Pneumatically Operated Valve DN 15-50 mm (½"-2")

F



DV24



Features

- two stage stainless steel actuator
- second position adjustable with reduced flow for filling
- compact design, the outside diameter of the actuator is the same size as the bonnet flange
- available in multi port bodies and manifold valve assemblies
- control air connection in flow direction
- circumferential defined sealing angle between process diaphragm and valve body
- flexible diaphragm suspension
- encapsulated diaphragm
- clean and polished exterior design ideal for sterile washdowns
- optical indicator

Optional

- available with a wide range of control equipment and accessories, see pages 82-83, also for retrofitting
- control air connection 90° to flow direction
- autoclavable

Technical Data

- control function: pneumatically operated
fail safe close (NC)
- direction control connection:
in flow direction, standard
90° to flow direction, optional
- maximum working pressure: unidirectional ($\Delta p = 100\%$), EPDM diaphragm, 145 PSI (10 BAR), PTFE diaphragm, 116 PSI (8 BAR), a higher working pressure may be achieved with a different actuator.
- maximum working temperature: 320°F (160°C), dependent on application
- control pressure:
NC: 72-116 PSI (5-8 BAR)
- diaphragm material: EPDM or PTFE
- valve body material: forged 1.4435/316L ASME/BPE, investment cast 1.4435/316L, other alloys
- end connection: weld ends, clamps (see page 57), special ends
- actuators suitable for: two-way bodies, welded configurations, T-bodies, multiport bodies, tank bottom bodies
- flow rate: C_v in GPM, see page 57
- diaphragm size: MA see table below

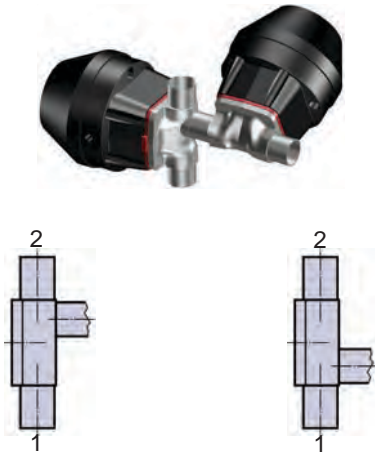
| DN (mm) | Dimensions (mm) | | | | | | | | | |
|------------|-----------------|----|----------------|-----------|----------------|----------------|----------------|----------------|----------------|-----|
| | MA | L | L ₁ | A x B | H ₁ | H ₂ | H ₃ | H ₄ | H ₅ | D |
| 15-25 | 25 | 25 | 120 | 73 x 79 | 220 | 66 | 150 | - | 35 | 75 |
| 32-40 | 40 | 25 | 153 | 96 x 105 | 250 | 75 | 185 | 28 | 40 | 105 |
| 50 | 50 | 30 | 173 | 110 x 130 | 294 | 77 | 221 | 28 | 47 | 105 |

Welded Valve Configurations

The main valve orientation distinguishes between the two different principles:

SL or GMP

The SL Fabrication is utilized in a vertical piping system to eliminate dead legs in point of use applications of high purity water systems or any other distribution systems. This valve design serves as a 90° elbow for the piping system or as a valve by valve configuration. In a valve by valve configuration the horizontal valve is orientated at the self-draining angle. When the vertical main valve is opened it provides a sample untainted by bacterial growth or process contamination. Available in sizes up to DN 100 (4") for both the main valve and the L valve or tube port. Refer to the following illustrations for possible combinations.

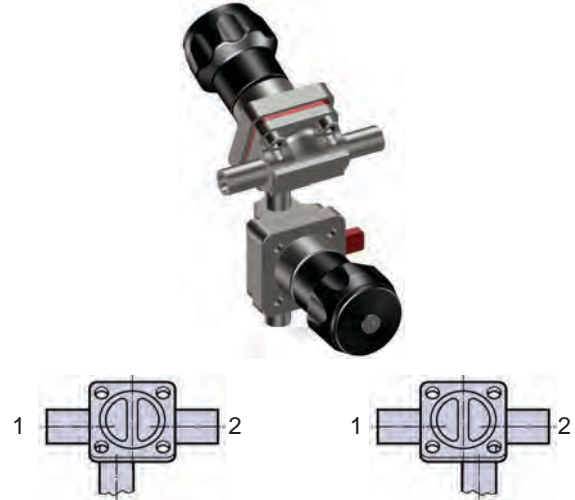


SL - L Pattern Configurations



SA or SAP

The Sterile Access Fabrication is utilized in a horizontal piping system where the main valve is orientated at the self-draining angle and the access port is at the lowest drainable point of the waterway. The sterile access may be used for applications including sampling, steam, condensate or as a divert port. The Sterile Access Fabrication is available with either a tube port or a vertical or horizontal valve port. Available in sizes up to DN 100 (4") for both the main valve and access valve or tube port. Refer to the following illustrations for possible combinations.



SA - Sterile Access Configurations



Multiport Valves

Multiport valves up to size DN100 (4") and larger nominal diameters and nominal diameter combinations are available. Within this range, all tube standards, tube end orientations and other application specific customized blocks can be specified.

Example Drawing Multiport Block Valve with Main Line Open

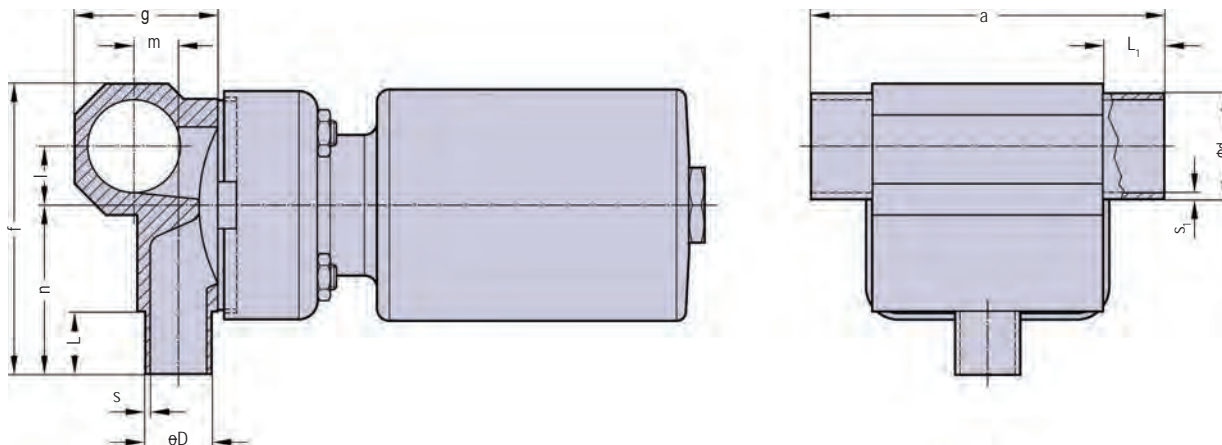


Fig. 1



Fig. 2



Fig. 3



Fig. 4

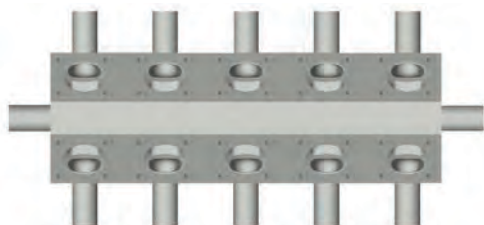


Fig. 5

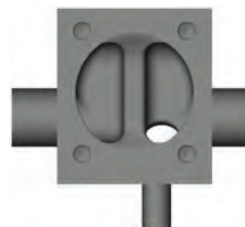


Fig. 6

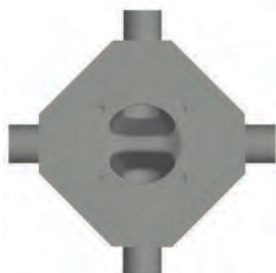


Fig. 7



Fig. 8

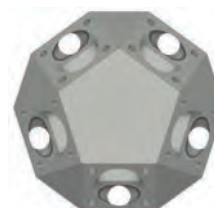


Fig. 9

Tank Bottom Valves

The tank bottom valve is designed for applications in the aseptic process industry offering a pocket-free interior surface, minimized sump, eliminating entrapment areas and minimizing flow resistance thus reducing the potential for process contamination. The tank bottom valve incorporates the same features and performance of a standard diaphragm valve utilizing the same valve components for a flush mounted tank bottom valve or side mounted tank and sample valve.

The tank valve body is machined as standard from solid bar stock material 1.4435/316L ASME BPE and other alloy materials are available according to the specification. The standard design offers one valve port outlet. There are a number of different options available for sampling, sterilization and multi-outlet configurations that are standard in the product range of customized solutions.

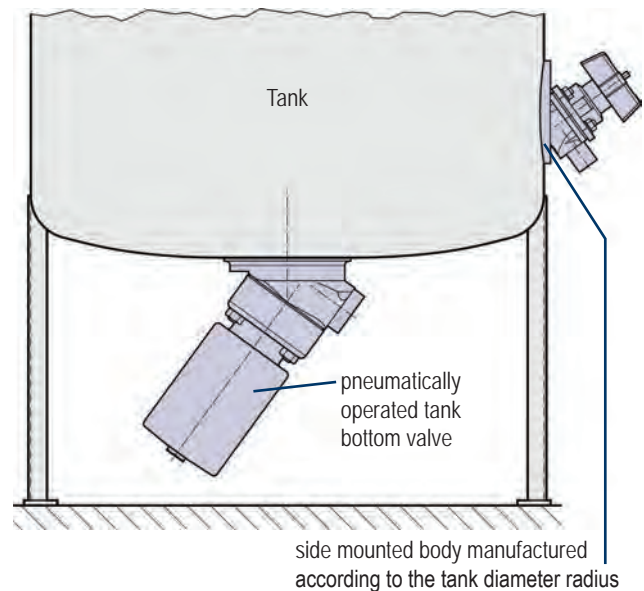
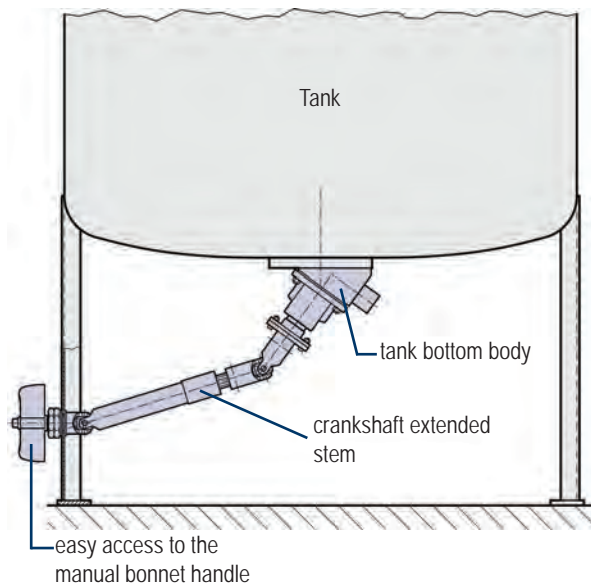
It is preferred to weld in the tank valve directly in the vessel. Mounting the valve directly to the tank minimizes the hold up volume, the most important criteria for this application. If removal of the tank valve from the tank is required, versions are offered with flange or clamp connections.

Tank bottom valves are typically used for tank discharge, draining, sampling, cleaning and/or sterilizing, rinsing and isolation of down stream processing.

The outlet port of the tank valve is available with all weld tube end standards, aseptic clamp (see page 57) or other special ends. The size range available is the same as the two-way valve.

Features

- tank body machined from a solid bar stock material
- material 1.4435/316L ASME BPE
- other alloy options available as specified
- minimized dead leg and internal sump
- optional manual operation via an extended crankshaft stem



manual



pneumatically operated



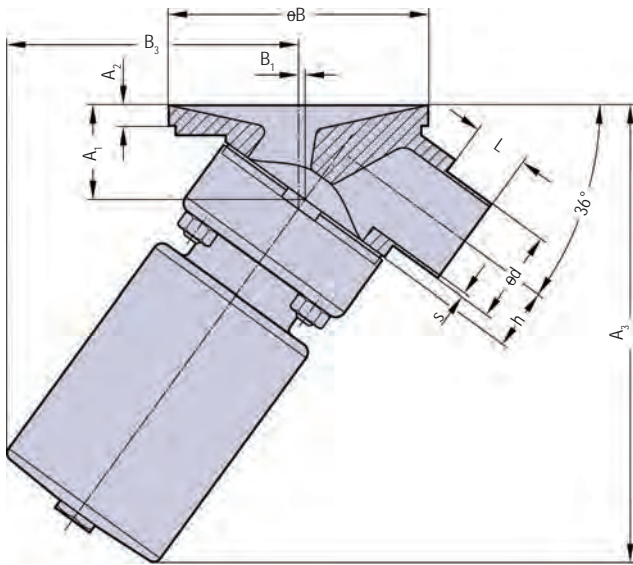
manual



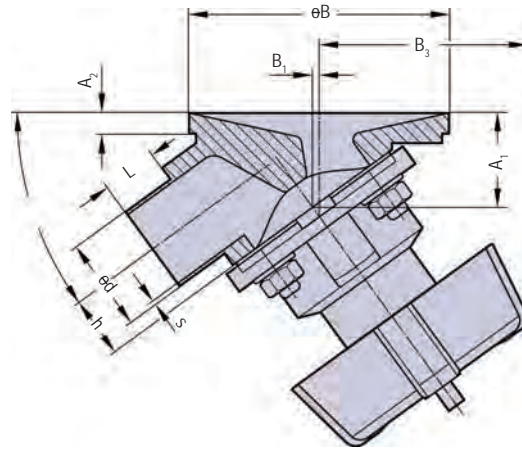
pneumatically operated

Tank Bottom Valves

**Example Drawing:
Pneumatically Operated**



**Example Drawing:
Manually Operated**



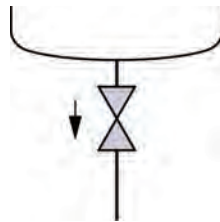
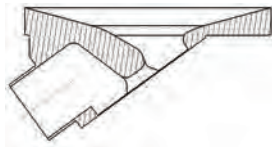
The following two pages show examples of standard and customized designs of tank diaphragm valves. These include options for sampling, sterilization and multi-outlet configurations.

→
flow direction

→
drain direction

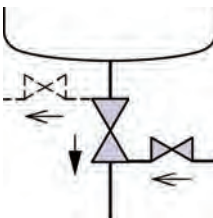


Position One: 1x Valve Port



- standard tank bottom body
- tank body for the tank bottom

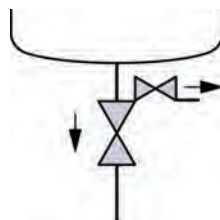
Position Two: 1x Valve Machined From Bar Stock



- 3/1 with one welded valve, tank side left
- 3/1 with one welded valve, tank side right
- 3/1 with one welded valve, outlet left
- 3/1 with one welded valve, outlet right
- 4/1 with one welded valve, tank side left and one welded valve, outlet right

Note: For all options the welded valve is rotated into the self-draining position and extended to eliminate interference with the tank bottom.

Position Three: 3/2



- 1x main valve
- 1x sample valve, tank side right

Note: Like position two but includes an integral sample valve tank side. Right side and left side options are available and are fully drainable.

Tank Bottom Valves

→
flow direction

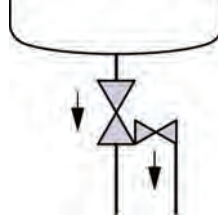
→
drain direction



Position Four: 3/2

- 1x main valve
- 1x sample valve, outlet left

Note: Like position two but includes an integral outlet valve. Right side and left side options are available and are fully drainable.

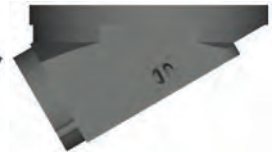
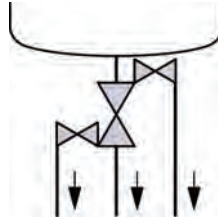


F

Position Five: 4/3

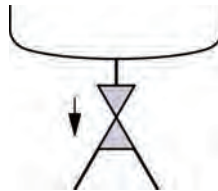
- 1x main valve
- 1x sample valve, tank side right
- 1x CIP / SIP cleaning outlet, valve left

Note: Like position two but includes an integral valves that are fully drainable.



Position Six: 3/1

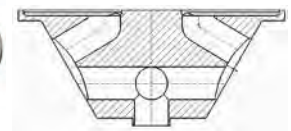
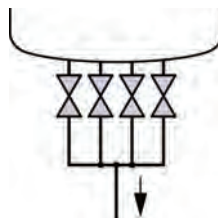
- 1x main valve
- 2x outlet port for loop installation or as two access ports



Position Seven: 5/4

- 4x main valves
- 1x port

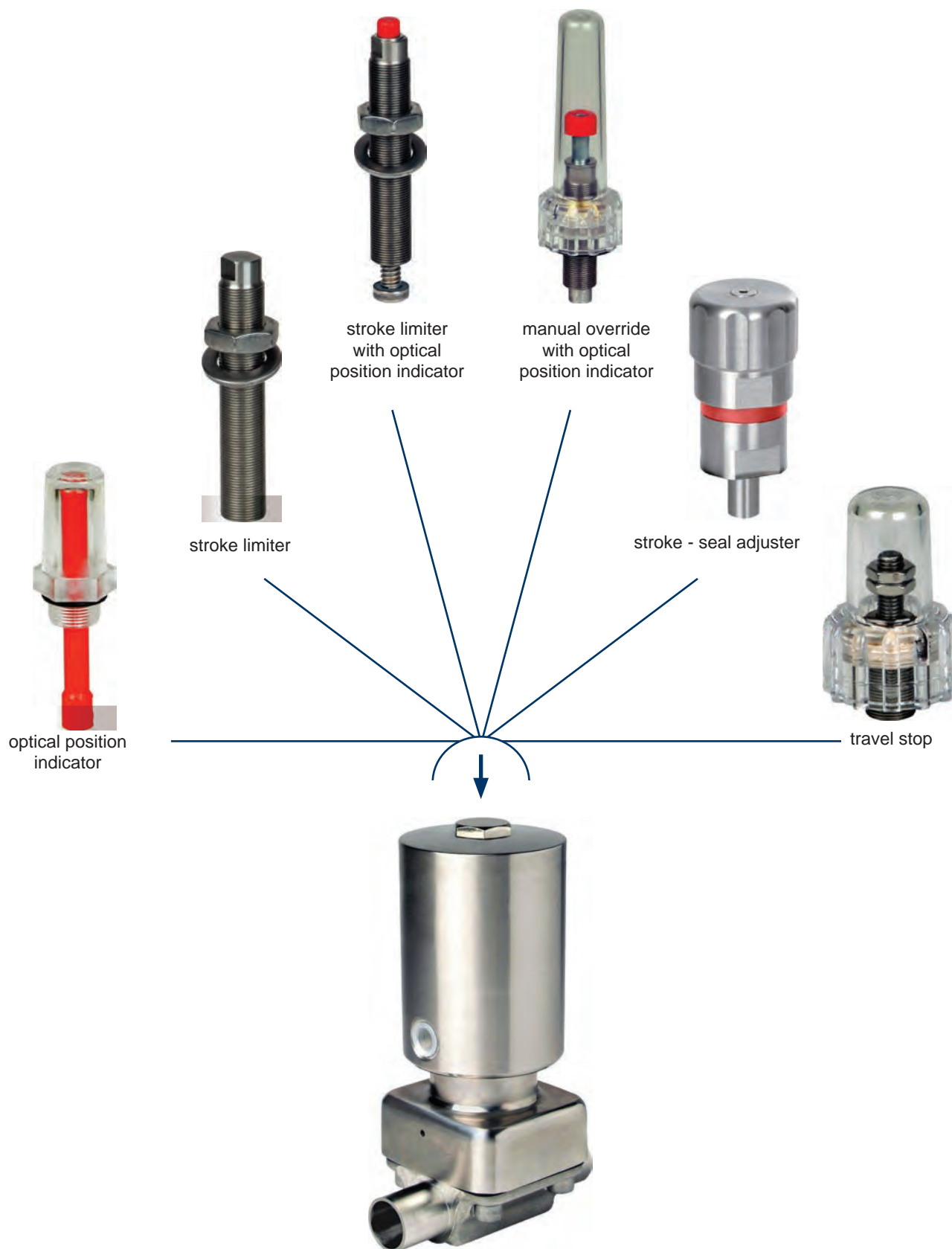
Note: Application with four internal tank partitions.



System Components and Accessories

Manual Adjustment - Optical Indication

F

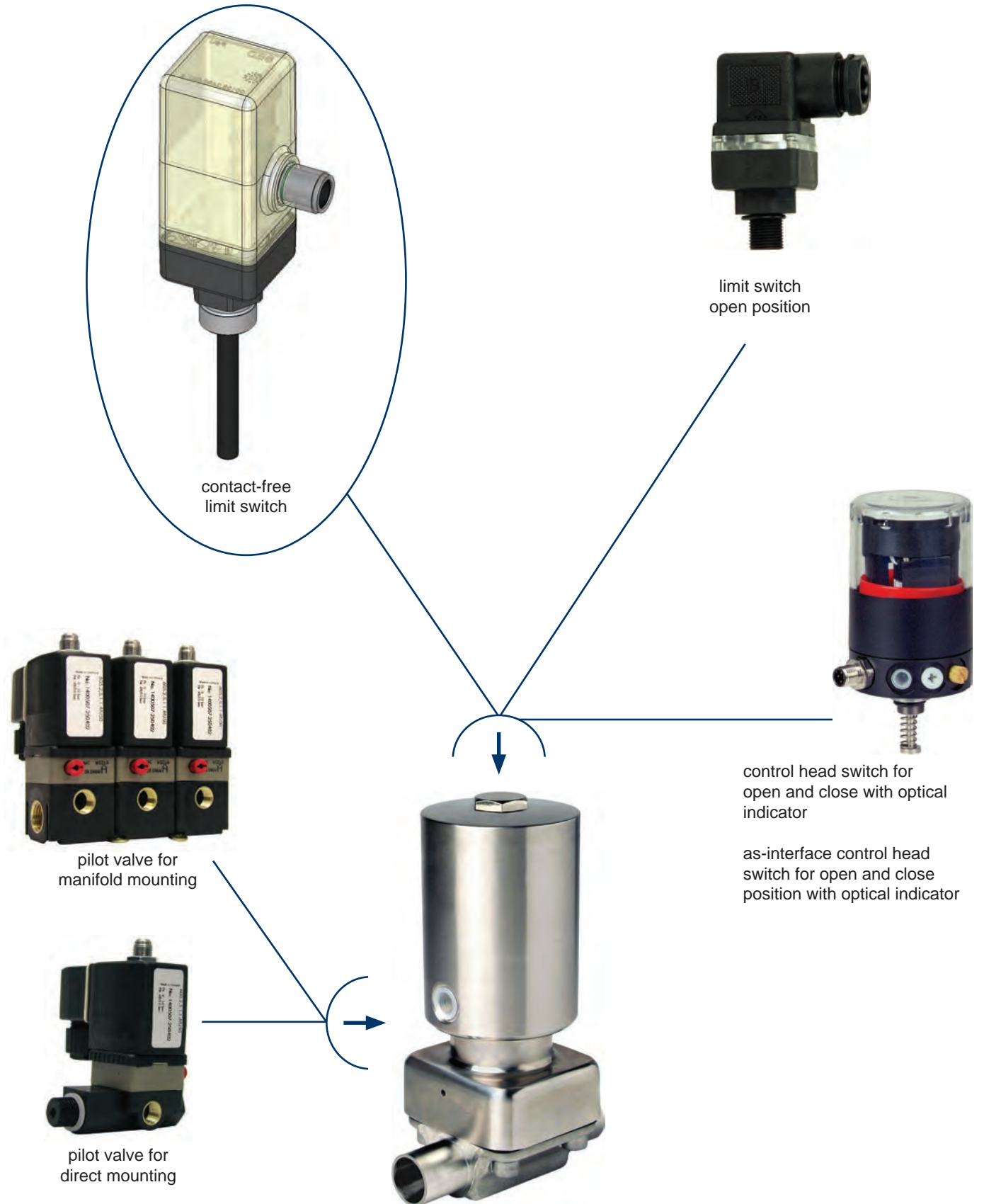


- Combination of manual adjustments with switch boxes are available upon request

System Components and Accessories

Electrical Switch Boxes - Pilot Control

F



- Combination of manual adjustments with switch boxes are available upon request

Diaphragm Valve Check List

Contact Name: _____ Company Name: _____
 Date: _____ Phone: _____ Email: _____
 Customer ID#: _____

Process Background

Process Temp: _____ Plant Air Supply (PSI): _____
 Product: _____ Autoclavable: Yes ☐ No ☐
 Plant Air Supply (PSI): _____

Body

Forged ☐Cast ☐

Other: _____

Bonnet

Thermoplastic ☐Stainless Steel ☐

Actuation

Thermoplastic
 Manual Handwheel ☐
 No ☐

☐
 Pneumatic SR ☐

Stainless Steel
 Pneumatic DA ☐
 NC ☐

Size

1/4" ☐ 3/8" ☐ 1/2" ☐ 3/4" ☐ 1" ☐ 2" ☐ 3" ☐ 4" ☐ 6" ☐ Other ☐

Surface Finish

SF1 ☐ SF2 ☐
 SF3 ☐ SF4 ☐
 SF5 ☐ SF6 ☐

Connection

Clamp x Clamp ☐
 Weld x Weld ☐
 Other: _____

Visual Indication

with 30° V-port ☐
 Other: _____

Options

Special Instructions (Body Configurations)

Sample Valves

BSVA and **BSVI** sample valves come in both angle and in-line styles with clamp ends in 316L stainless steel construction.

**G**

BSVW sample valves are available with NPT, clamp or weld connections in 304 stainless steel construction.



BCSV series of BioCheck Sampling valves allow easy and safe sampling of liquids from closed systems such as vessels and pipelines.



Sample Valves



Product Specifications

Size range:

- 1/2" - 4" OD

Materials:

- G = 304 stainless steel
- N = 316L stainless steel

Finish:

- 3A sanitary finish ID and OD

G

Ordering Information

BSVACV-N100050 - angle valve, 1" clamp x 1/2" barb, 316 SS with PTFE seat

$\frac{1}{B}$ $\frac{2}{S}$ $\frac{3}{V}$ $\frac{4}{A}$ $\frac{5}{C}$ $\frac{6}{V}$ $\frac{7}{-}$ $\frac{8}{N}$ $\frac{9}{1}$ $\frac{10}{0}$ $\frac{11}{0}$ $\frac{12}{0}$ $\frac{13}{5}$ $\frac{14}{0}$

| Valve (1-3) | Type (4) | End (5) | Seat (6) | (7) | Material (8) | Size (9-11) | | Barb Size (12-14) | |
|-------------|-----------|---------|----------|-----|------------------|-------------|--------|-------------------|------|
| BSV | A angle | C clamp | V PTFE | - | N 316L stainless | 050 | 1/2" | 025 | 1/4" |
| | I in-line | | | | | 075 | 3/4" | 375 | 3/8" |
| | | | | | | 100 | 1" | 050 | 1/2" |
| | | | | | | 150 | 1-1/2" | | |
| | | | | | | 200 | 2" | | |
| | | | | | | 250 | 2-1/2" | | |
| | | | | | | 300 | 3" | | |
| | | | | | | 400 | 4" | | |

W series sample valves

BSVWBS-G100 - sample valve, 1" butt-weld, 304 stainless steel

$\frac{1}{B}$ $\frac{2}{S}$ $\frac{3}{V}$ $\frac{4}{W}$ $\frac{5}{B}$ $\frac{6}{S}$ $\frac{7}{-}$ $\frac{8}{G}$ $\frac{9}{1}$ $\frac{10}{0}$ $\frac{11}{0}$ $\frac{12}{0}$ $\frac{13}{0}$ $\frac{14}{0}$

| Valve (1-4) | End (5) | Seat (6) | (7) | Material (8) | Size (9-11) | |
|-------------|-------------|------------|-----|-----------------|-------------|------|
| BSVW | N FNPT | S silicone | - | G 304 stainless | 375 * | 3/8" |
| | C clamp | P PTFE | | | 100 | 1" |
| | B butt-weld | | | | 200 | 2" |

* FNPT only

Sample Valves

Angle and In-line Sample Valves - BSVACV & BSVI

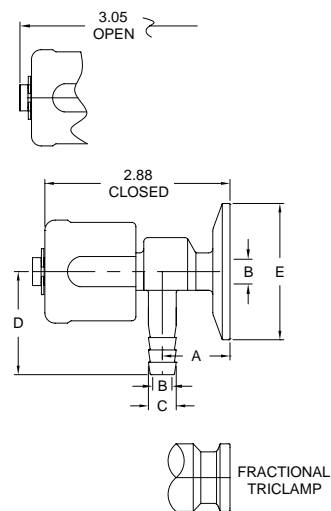
Features:

- all 316L stainless wetted part construction
- standard finish to 20 R_a ID / 32 R_a OD
- FKM O-ring
- fully traceable (material test reports)
- virgin PTFE seat for positive closure
- minimal internal dead-leg area
- sizes available: 1/2" thru 4"
- temperature rating: **300°F at 200 PSI**


G

Angle Sample Valves Dimensions

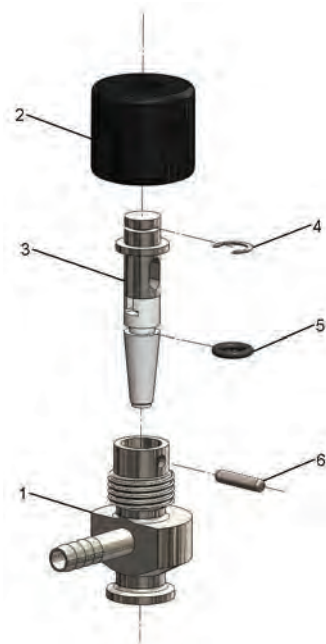
| Valve Size | A | B | BarbØ C | D | FerruleØ E | Part Number |
|------------|------|------|------------|------|---------------|----------------|
| 1/2" | 0.93 | 0.21 | 1/4" | 1.76 | 0.99 | BSVACV-N050025 |
| 1/2" | 0.92 | 0.28 | 3/8" | 1.78 | 0.99 | BSVACV-N050375 |
| 1/2" | 0.85 | 0.37 | 1/2" | 1.76 | 0.99 | BSVACV-N050050 |
| 3/4" | 0.93 | 0.21 | 1/4" | 1.76 | 0.99 | BSVACV-N075025 |
| 3/4" | 0.92 | 0.28 | 3/8" | 1.78 | 0.99 | BSVACV-N075375 |
| 3/4" | 0.85 | 0.37 | 1/2" | 1.76 | 0.99 | BSVACV-N075050 |
| 1" | 0.96 | 0.21 | 1/4" | 2.04 | 1.98 | BSVACV-N100025 |
| 1" | 0.95 | 0.28 | 3/8" | 2.03 | 1.98 | BSVACV-N100375 |
| 1" | 0.88 | 0.37 | 1/2" | 2.03 | 1.98 | BSVACV-N100050 |
| 1-1/2" | 0.96 | 0.21 | 1/4" | 2.04 | 1.98 | BSVACV-N150025 |
| 1-1/2" | 0.95 | 0.28 | 3/8" | 2.03 | 1.98 | BSVACV-N150375 |
| 1-1/2" | 0.88 | 0.37 | 1/2" | 2.03 | 1.98 | BSVACV-N150050 |
| 2" | 0.96 | 0.21 | 1/4" | 2.31 | 2.52 | BSVACV-N200025 |
| 2" | 0.95 | 0.28 | 3/8" | 2.31 | 2.52 | BSVACV-N200375 |
| 2" | 0.88 | 0.37 | 1/2" | 2.29 | 2.52 | BSVACV-N200050 |
| 2-1/2" | 0.96 | 0.21 | 1/4" | 2.57 | 3.05 | BSVACV-N250025 |
| 2-1/2" | 0.95 | 0.28 | 3/8" | 2.57 | 3.05 | BSVACV-N250375 |
| 2-1/2" | 0.88 | 0.37 | 1/2" | 2.56 | 3.05 | BSVACV-N250050 |
| 3" | 0.96 | 0.21 | 1/4" | 2.84 | 3.58 | BSVACV-N300025 |
| 3" | 0.95 | 0.28 | 3/8" | 2.37 | 3.58 | BSVACV-N300375 |
| 3" | 0.88 | 0.37 | 1/2" | 2.83 | 3.58 | BSVACV-N300050 |
| 4" | 0.96 | 0.21 | 1/4" | 3.39 | 4.68 | BSVACV-N400025 |
| 4" | 0.95 | 0.28 | 3/8" | 3.39 | 4.68 | BSVACV-N400375 |
| 4" | 0.88 | 0.37 | 1/2" | 3.38 | 4.68 | BSVACV-N400050 |



Sample Valves

Angle Sample Valves - BSVAC

Bill of Materials



| Item # | Description | Material | Quantity |
|--------|-------------|-----------------------|----------|
| 1 | body | 316L stainless steel | 1 |
| 2 | knob | ULTEM (FDA) | 1 |
| 3 | stem | 316L stainless / PTFE | 1 |
| 4 | E-clip | 18-8 stainless steel | 1 |
| 5 | O-ring | FKM | 1 |
| 6 | body pin | 316L stainless steel | 1 |

repair kits

| Size | Part Number |
|------|--------------|
| 1/4" | BSVA-NRKS025 |
| 3/8" | BSVA-NRKS038 |
| 1/2" | BSVA-NRKS050 |

Repair Kit contains:

- #3 (1) PTFE seat
- #4 (1) 18-8 stainless steel E-clip
- #5 (1) FKM O-ring
- #6 (1) 316 stainless steel stop pin

Sample Valves

Inline Sample Valves - BSVICV

Features:

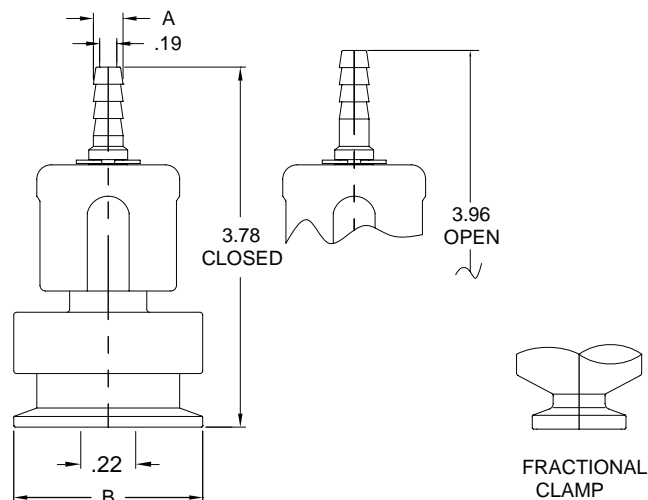
- all 316L stainless wetted part construction
- standard finish to 20 R_a ID / 32 R_a OD
- FKM O-ring
- fully traceable (material test reports)
- virgin PTFE seat for positive closure
- minimal internal dead-leg area
- sizes available: ½" thru 4"
- temperature rating: **300°F at 200 PSI**



G

Inline Sample Valve Dimensions

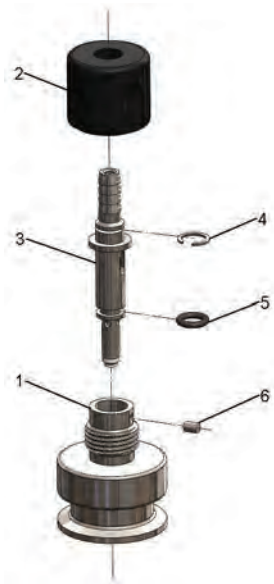
| Valve Size | BarbØ A | FerruleØ B | Part Number |
|------------|---------|------------|----------------|
| 1/2" | 1/4" | 0.99 | BSVICV-N050025 |
| 1/2" | 3/8" | 0.99 | BSVICV-N050375 |
| 1/2" | 1/2" | 0.99 | BSVICV-N050050 |
| 3/4" | 1/4" | 0.99 | BSVICV-N075025 |
| 3/4" | 3/8" | 0.99 | BSVICV-N075375 |
| 3/4" | 1/2" | 0.99 | BSVICV-N075050 |
| 1" | 1/4" | 1.98 | BSVICV-N100025 |
| 1" | 3/8" | 1.98 | BSVICV-N100375 |
| 1" | 1/2" | 1.98 | BSVICV-N100050 |
| 1-1/2" | 1/4" | 1.98 | BSVICV-N150025 |
| 1-1/2" | 3/8" | 1.98 | BSVICV-N150375 |
| 1-1/2" | 1/2" | 1.98 | BSVICV-N150050 |
| 2" | 1/4" | 2.52 | BSVICV-N200025 |
| 2" | 3/8" | 2.52 | BSVICV-N200375 |
| 2" | 1/2" | 2.52 | BSVICV-N200050 |
| 2-1/2" | 1/4" | 3.05 | BSVICV-N250025 |
| 2-1/2" | 3/8" | 3.05 | BSVICV-N250375 |
| 2-1/2" | 1/2" | 3.05 | BSVICV-N250050 |
| 3" | 1/4" | 3.58 | BSVICV-N300025 |
| 3" | 3/8" | 3.58 | BSVICV-N300375 |
| 3" | 1/2" | 3.58 | BSVICV-N300050 |
| 4" | 1/4" | 4.68 | BSVICV-N400025 |
| 4" | 3/8" | 4.68 | BSVICV-N400375 |
| 4" | 1/2" | 4.68 | BSVICV-N400050 |



Sample Valves

Inline Sample Valves - BSVICV Bill of Materials

G



| Item # | Description | Material | Quantity |
|--------|-------------|-----------------------|----------|
| 1 | body | 316L stainless steel | 1 |
| 2 | knob | ULTEM (FDA) | 1 |
| 3 | stem | 316L stainless / PTFE | 1 |
| 4 | E-clip | 18-8 stainless steel | 1 |
| 5 | O-ring | FKM | 1 |
| 6 | body pin | 316L stainless steel | 1 |

repair kits

| Size | Part Number |
|------|---------------------|
| 1/4" | BSVI-NRKS025 |
| 3/8" | BSVI-NRKS03 |
| 1/2" | BSVI-NRKS050 |

Repair Kit contains:
#3 (1) stem assembly
#4 (1) 18-8 stainless steel E-clip
#5 (1) FKM O-ring
#6 (1) 316 stainless steel stop pin

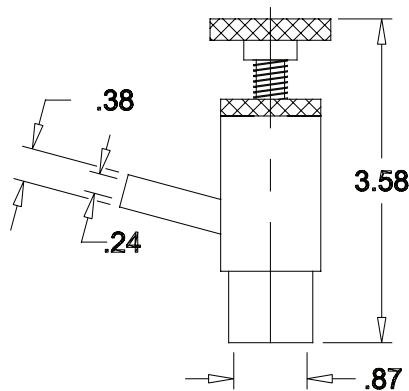
Sample Valves

W Series Sample Valves - BSVW

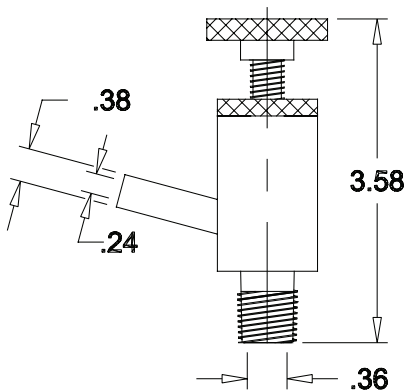
Features:

- 304 stainless steel
- silicone or PTFE seat ensures a leak-proof shut-off
- double silicone O-rings
- silicone or PTFE seat ensures a leak-proof shut-off
- surface finish polished to sanitary standards
- temperature rating: **300°F at 200 PSI**

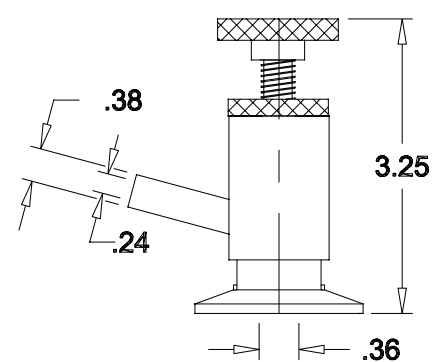
| Size | Style | Seat Material | Weight (lbs) | 304 Stainless Steel Part Number |
|------|-------|---------------|--------------|---------------------------------|
| 3/8" | NPT | silicone | 0.72 | BSVWNS-G375 |
| 3/8" | NPT | PTFE | 0.72 | BSVWNP-G375 |
| 1" | clamp | silicone | 0.88 | BSVWCS-G100 |
| 1" | clamp | PTFE | 0.88 | BSVWCP-G100 |
| 1" | weld | silicone | 0.72 | BSVWBS-G100 |
| 1" | weld | PTFE | 0.72 | BSVWBP-G100 |


G


**BUTTWELD
STYLE**



**NPT
STYLE**



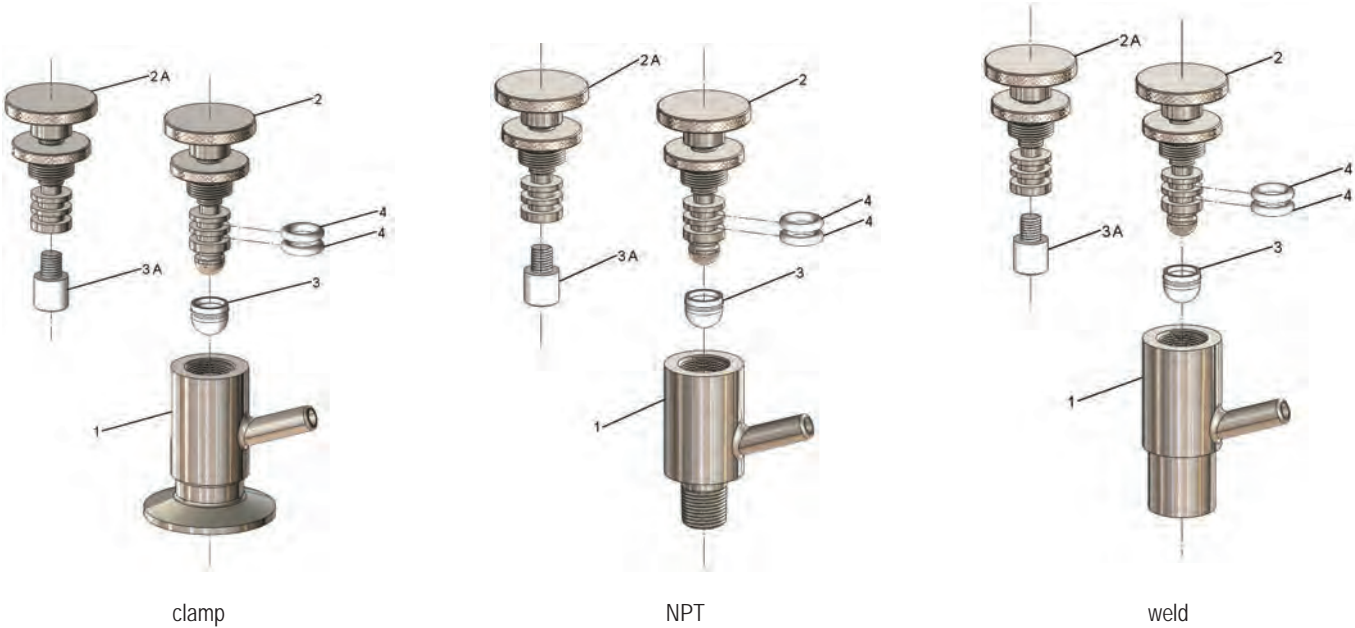
**CLAMP
STYLE**

**ALL VALVES ARE
SHOWN FULLY OPEN**

Sample Valves

W Series Sample Valves - BSVW*S Bill of Materials

G



| Item # | Description | Material | Quantity |
|--------|----------------------|---------------------|----------|
| 1 | body - clamp | 304 stainless steel | 1 |
| 1 | body - NPT | 304 stainless steel | 1 |
| 1 | body - weld | 304 stainless steel | 1 |
| 2 | knob / stem assembly | 304 stainless steel | 1 |
| 2A | knob / stem assembly | 304 stainless steel | 1 |
| 3 | seat | silicone | 1 |
| 3A | seat | PTFE | 1 |
| 4 | O-rings | silicone | 2 |

repair kits

BSVW-RKS Repair Kit contains:
#3 (1) silicone seat
#4 (2) silicone O-rings

BSVW-RKP Repair Kit contains:
#3A (1) PTFE seat
#4 (2) silicone O-rings

BioCheck Sampling Valves - Technical Information


 53-06

Applications:

- The BioCheck sampling valves allow easy and safe sampling of liquids from closed systems such as vessels and pipelines.

Features:

- valve body made from solid bar
- no dead space
- drainable
- connections suitable for orbital welding
- also available with only 1 port - same price -
- hermetically sealed against environment
- optimum cleanability
- change of seals without special tools
- long life of the PTFE-bellows
- low spare part costs
- pharmaceutical, bio-pharmaceutical, biochemical, cosmetic, food and dairy and beverage


G

Technical Data

Material:

- in product contact: 1.4404/AISI316L
- non product contact: 1.4301/AISI304

Product Contact Seals:

- FKM bellows – PTFE

Temperatures:

- maximum standard operating temperature: 121 °C (250 °F)
- sterilization temperature: 135 °C (275 °F) short time*
(approx. 20 min)

Operating pressure:

- closing tension: max. 8 bar (116 PSI)
- version "hand wheel": up to 16 bar (**232 PSI**) min. 6 bar (**87 PSI**)
- controlled air pressure: max. 10 bar (**145 PSI**)

Surfaces:

- wetted product surfaces: $R_a \leq 0.8 \mu\text{m}$ (32), optional surfaces available
- non product contact: $R_a = 1.6 \mu\text{m}$

Versions:

- S = with self-closing lever
- O = lever for open position
- P = without lever
- H = with hand wheel

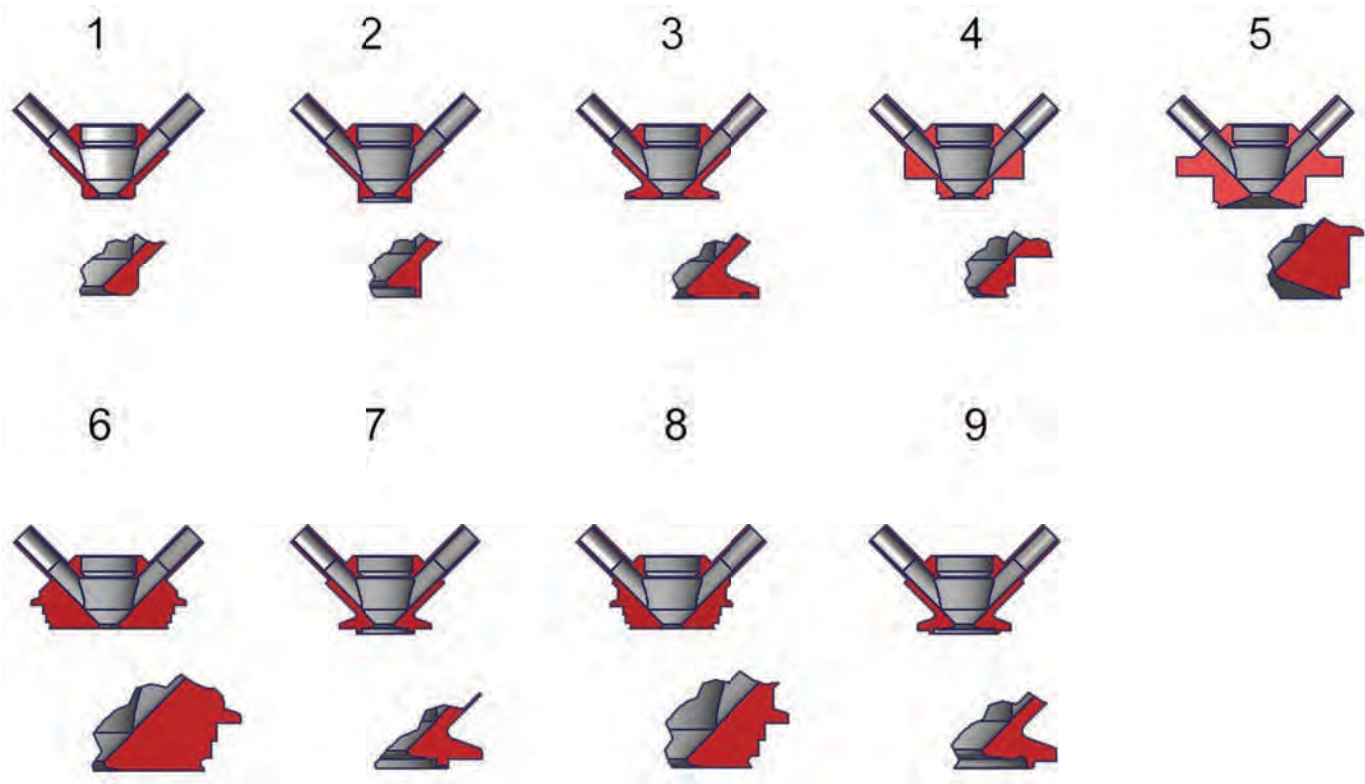
Dimensions:

- Pipe $\varnothing 13\text{mm} \times 1,5\text{mm}$ (1 mm = 0.0394 Inch)

**dependent on operating parameters*

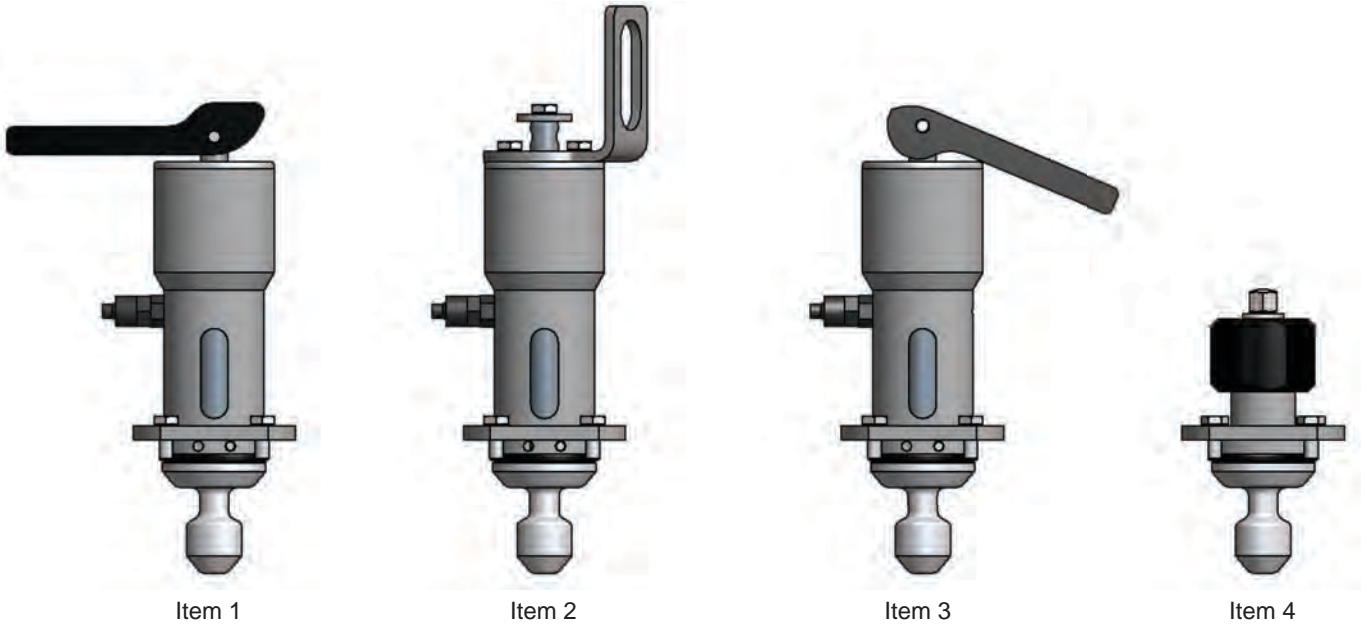
Housing for BioCheck Sampling Valves

G

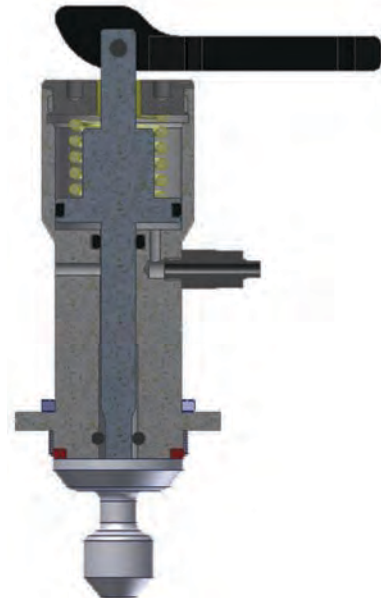
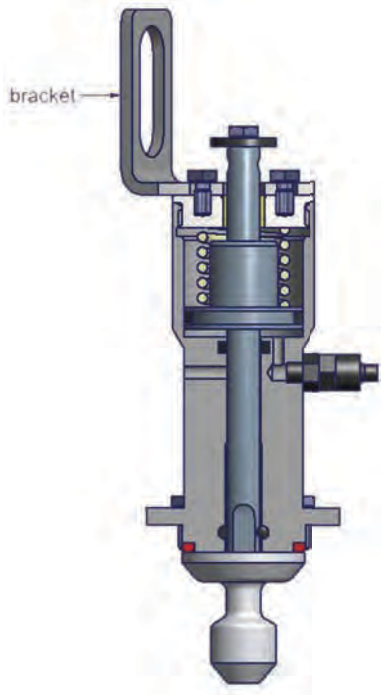


| Item # | Description |
|--------|--|
| 1 | BioCheck housing for tank |
| 2 | BioCheck housing for piping |
| 3 | BioCheck housing for Tri-Clamp |
| 4 | BioCheck housing for connection BioControl |
| 5 | BioCheck housing for connection BioControl |
| 6 | BioCheck housing for Varivent-Inline body |
| 7 | BioCheck housing for clamp BioConnect Form V |
| 8 | BioCheck housing for Varivent-Inline body |
| 9 | BioCheck housing for clamp nut connection |

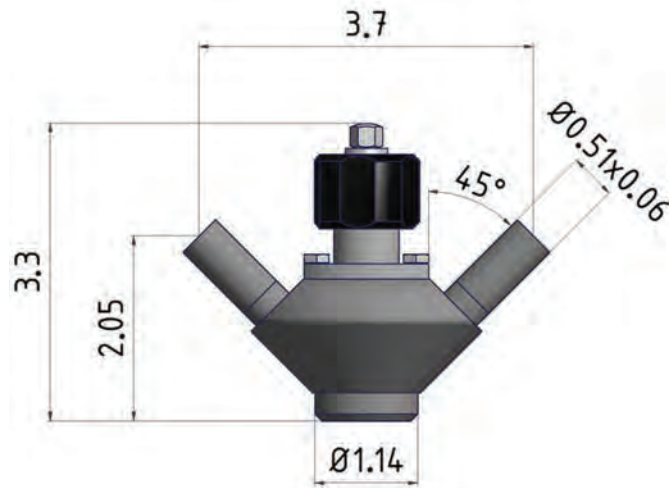
Bill of Materials for Pneumatic BioCheck Sampling Valves



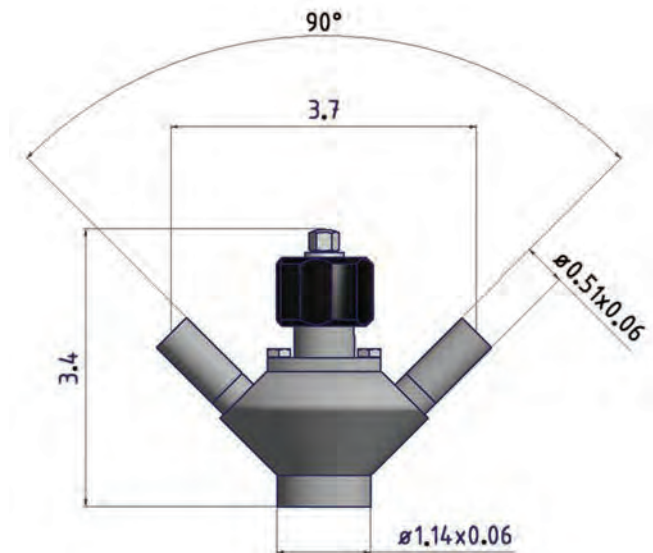
| Item # | Description | Quantity |
|--------|-------------------------|----------|
| 1 | with self-closing lever | 1 |
| 2 | without lever | 1 |
| 3 | lever for open position | 1 |
| 4 | with handwheel | 1 |



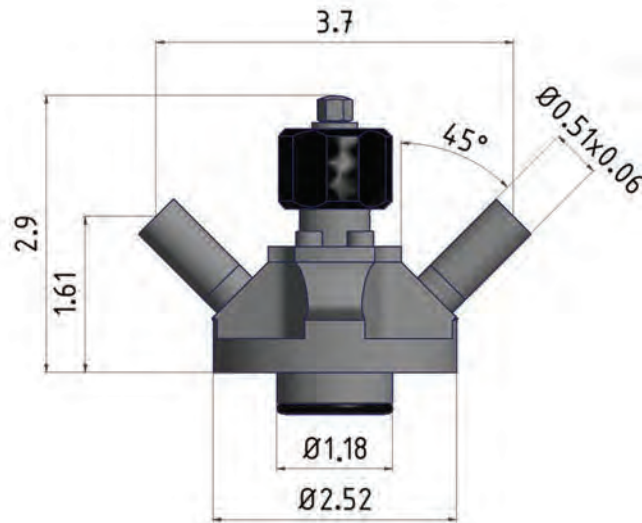
BioCheck Sampling Valves with Handwheel for Tanks



BioCheck Sampling Valves with Handwheel for Piping

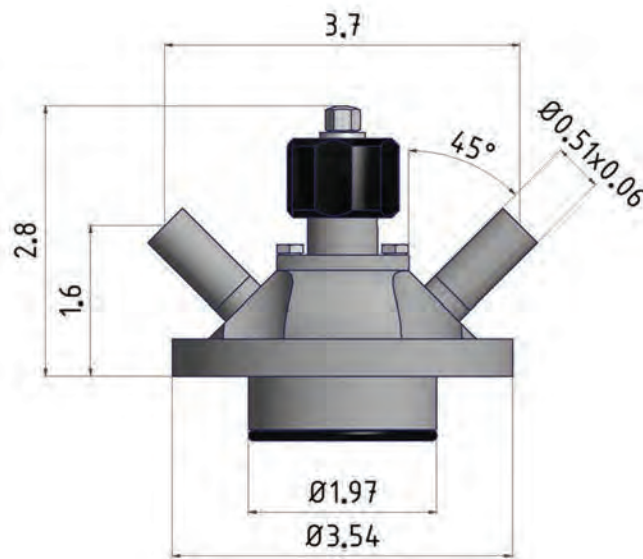


BioCheck Sampling Valves with Handwheel for Connection BioControl

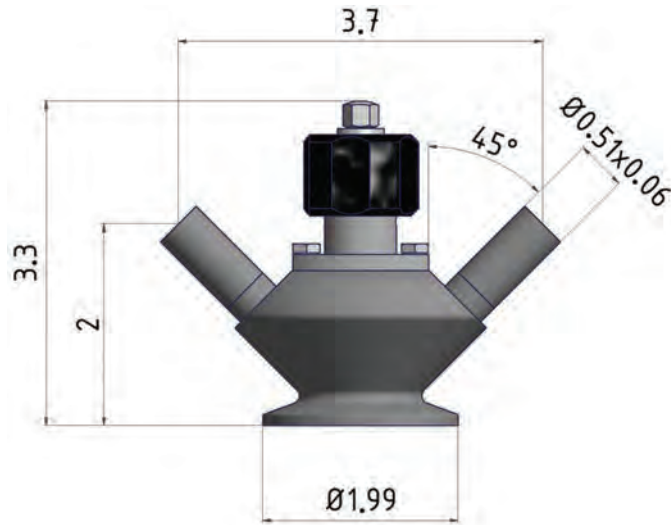


G

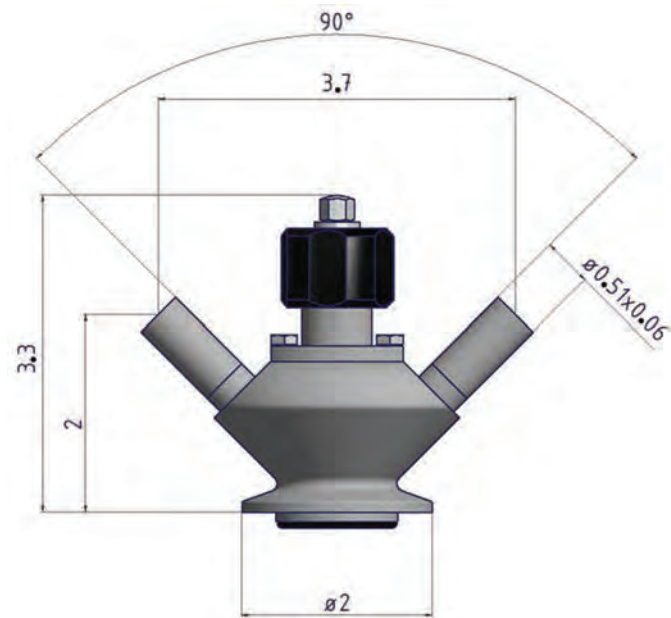
BioCheck Sampling Valves with Handwheel for Connection BioControl



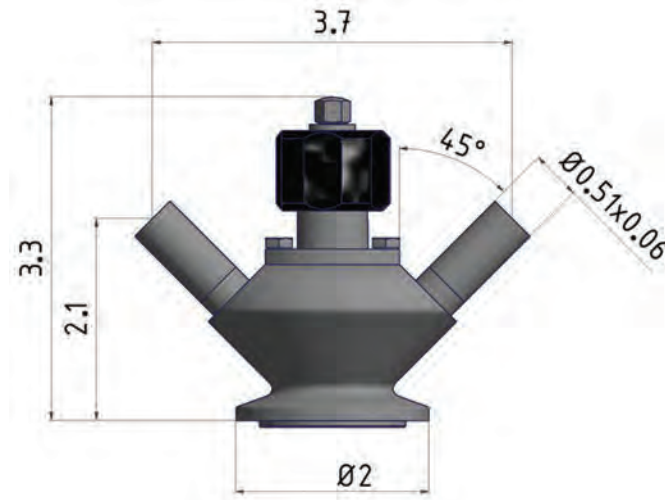
BioCheck Sampling Valves with Handwheel for Tri-Clamp



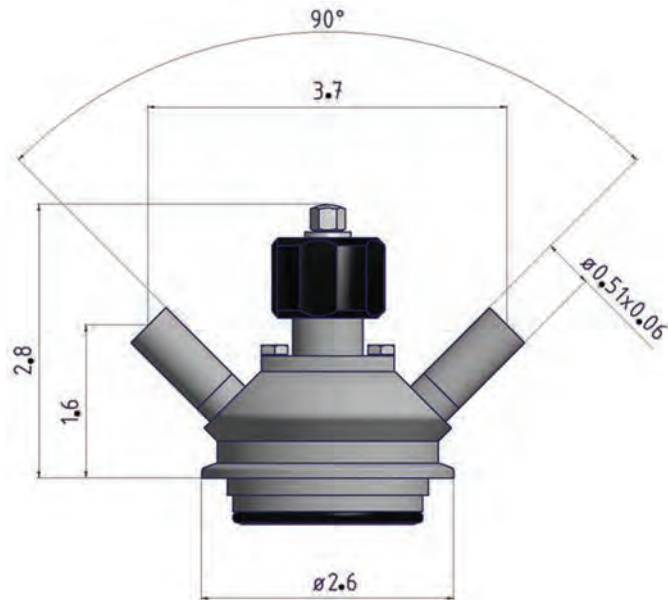
BioCheck Sampling Valves with Handwheel for Connection BioControl



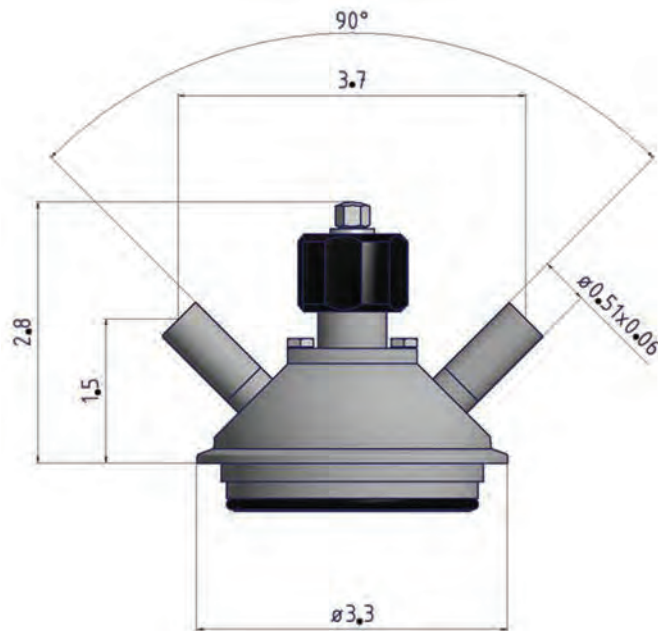
BioCheck Sampling Valves with Handwheel for Clamp Nut Connection

**G**

BioCheck Sampling Valves with Handwheel for Varivent-Inline Body

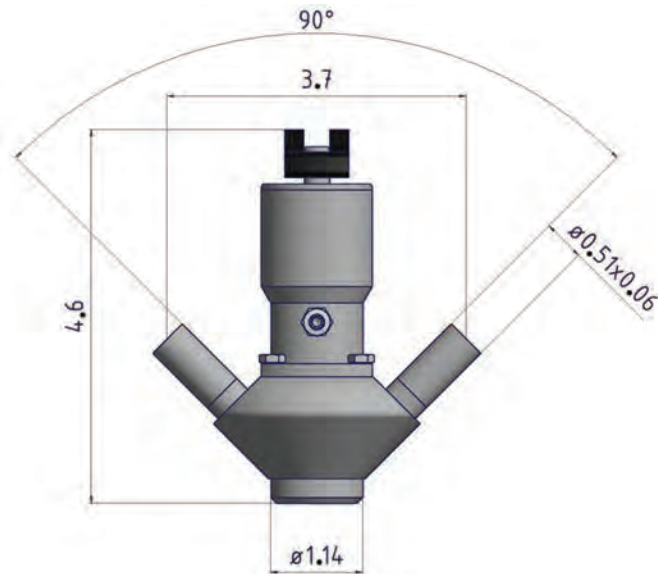


BioCheck Sampling Valves with Handwheel for Varivent-Inline Body



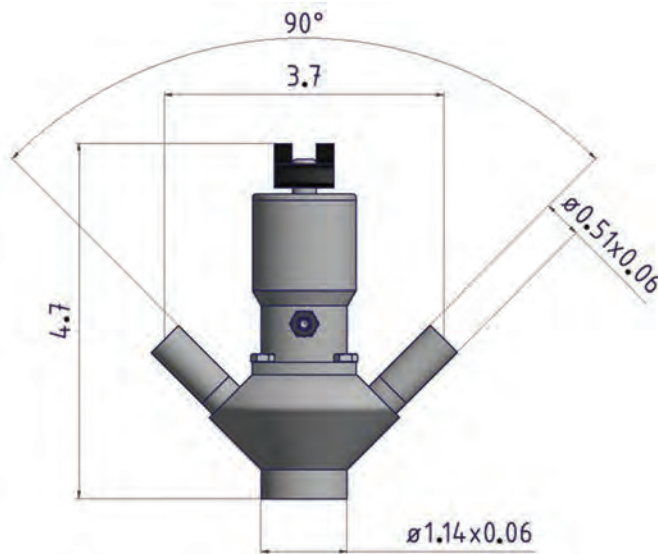
BioCheck Pneumatic Sampling Valves with Lever

Air to Open / Spring to Close NC – for Tank

**G**

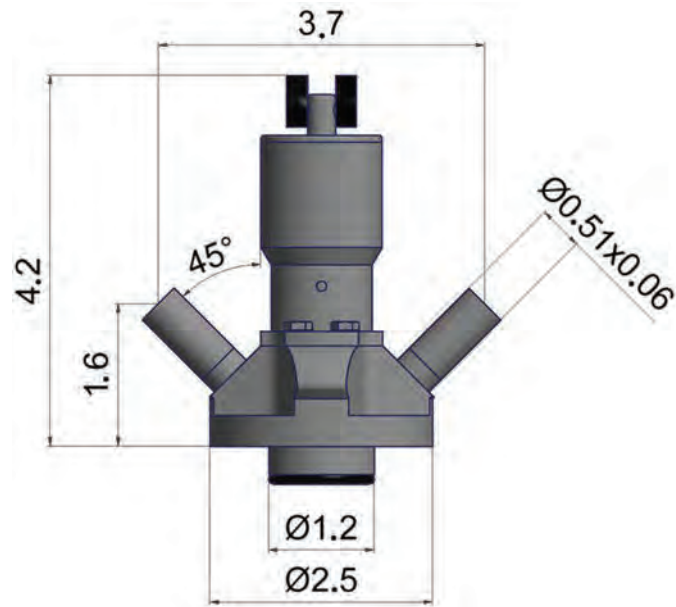
BioCheck Pneumatic Sampling Valves with Lever

Air to Open / Spring to Close NC – for Piping



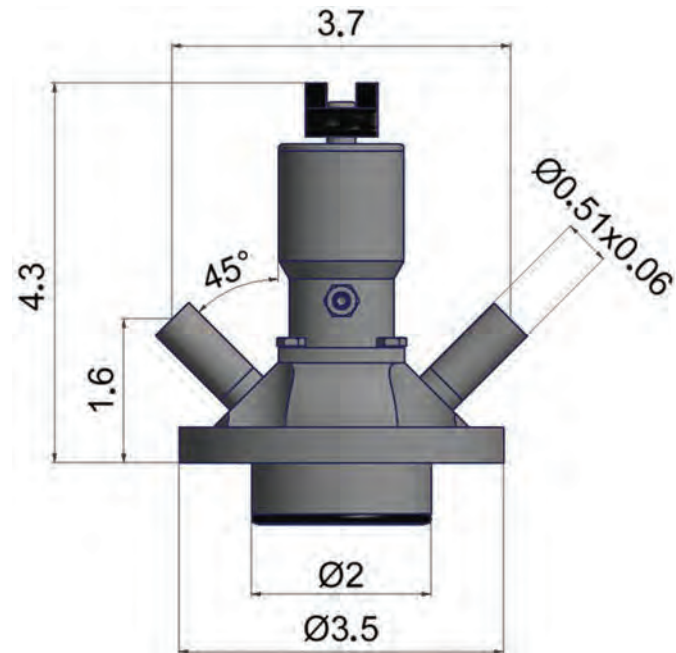
BioCheck Pneumatic Sampling Valves with Lever

Air to Open / Spring to Close NC – for Connection BioControl



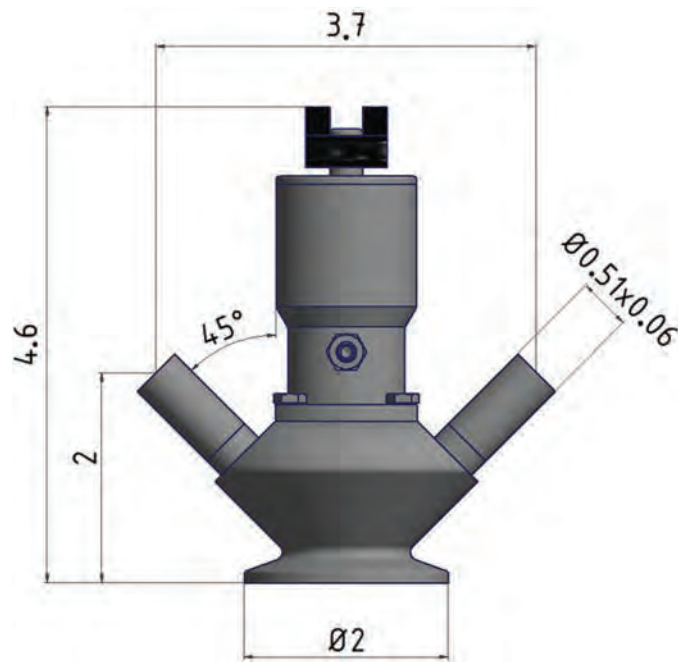
BioCheck Pneumatic Sampling Valves with Lever

Air to Open / Spring to Close NC – for Connection BioControl



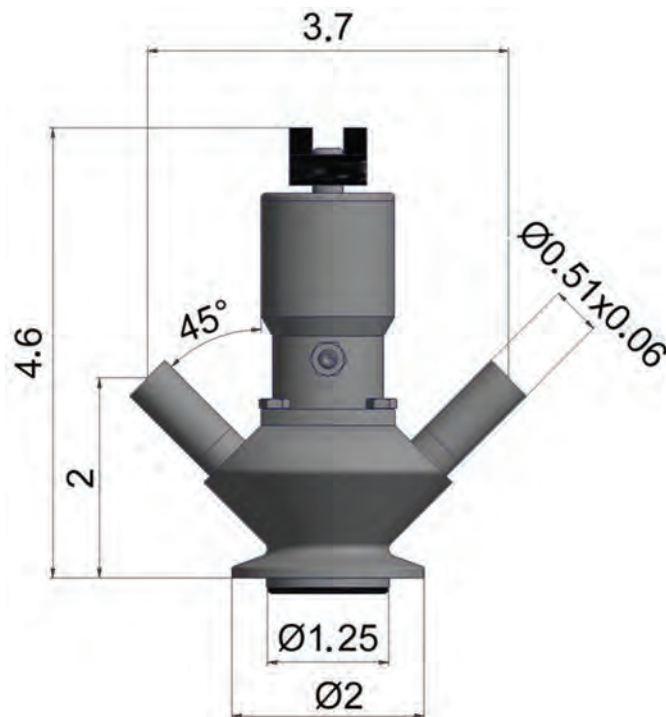
BioCheck Pneumatic Sampling Valves with Lever

Air to Open / Spring to Close NC – for Tri-Clamp

**G**

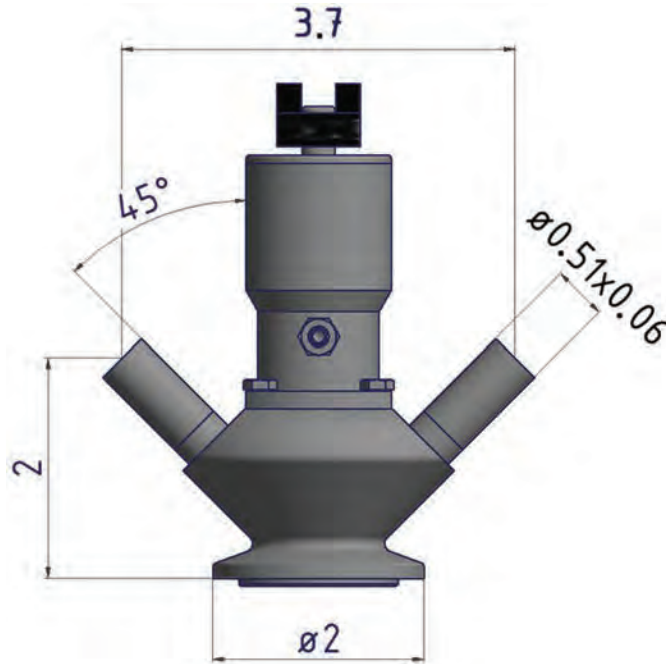
BioCheck Pneumatic Sampling Valves with Lever

Air to Open / Spring to Close NC – for Clamp BioConnect



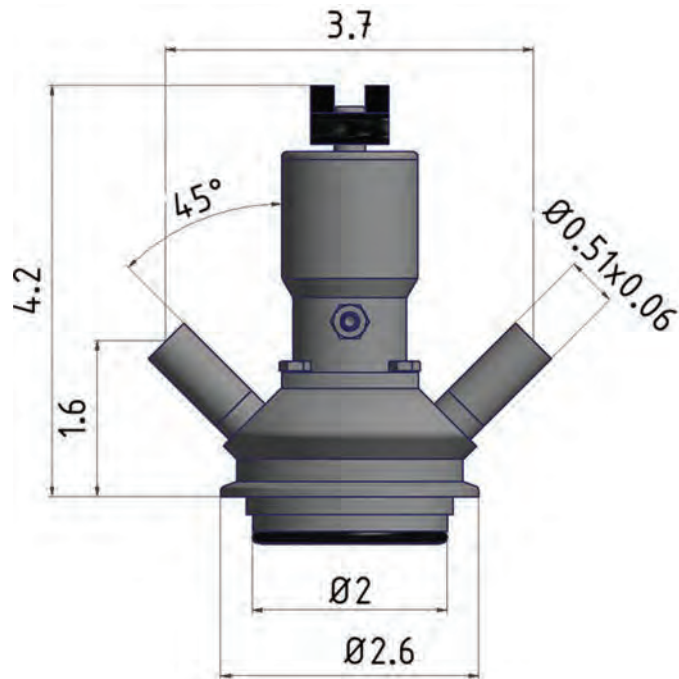
BioCheck Pneumatic Sampling Valves with Lever

Air to Open / Spring to Close NC – for Clamp Nut Connection

**G**

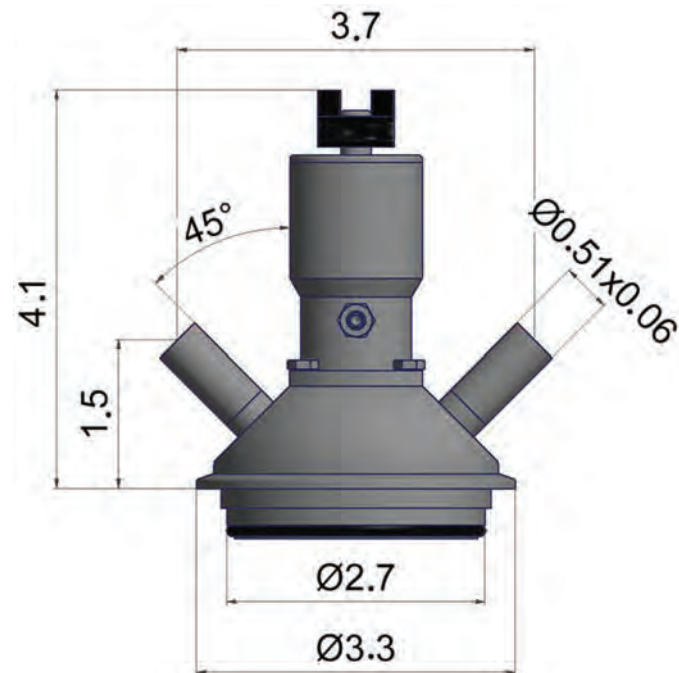
BioCheck Pneumatic Sampling Valves with Lever

Air to Open / Spring to Close NC – for Varivent-Inline Body

**G**

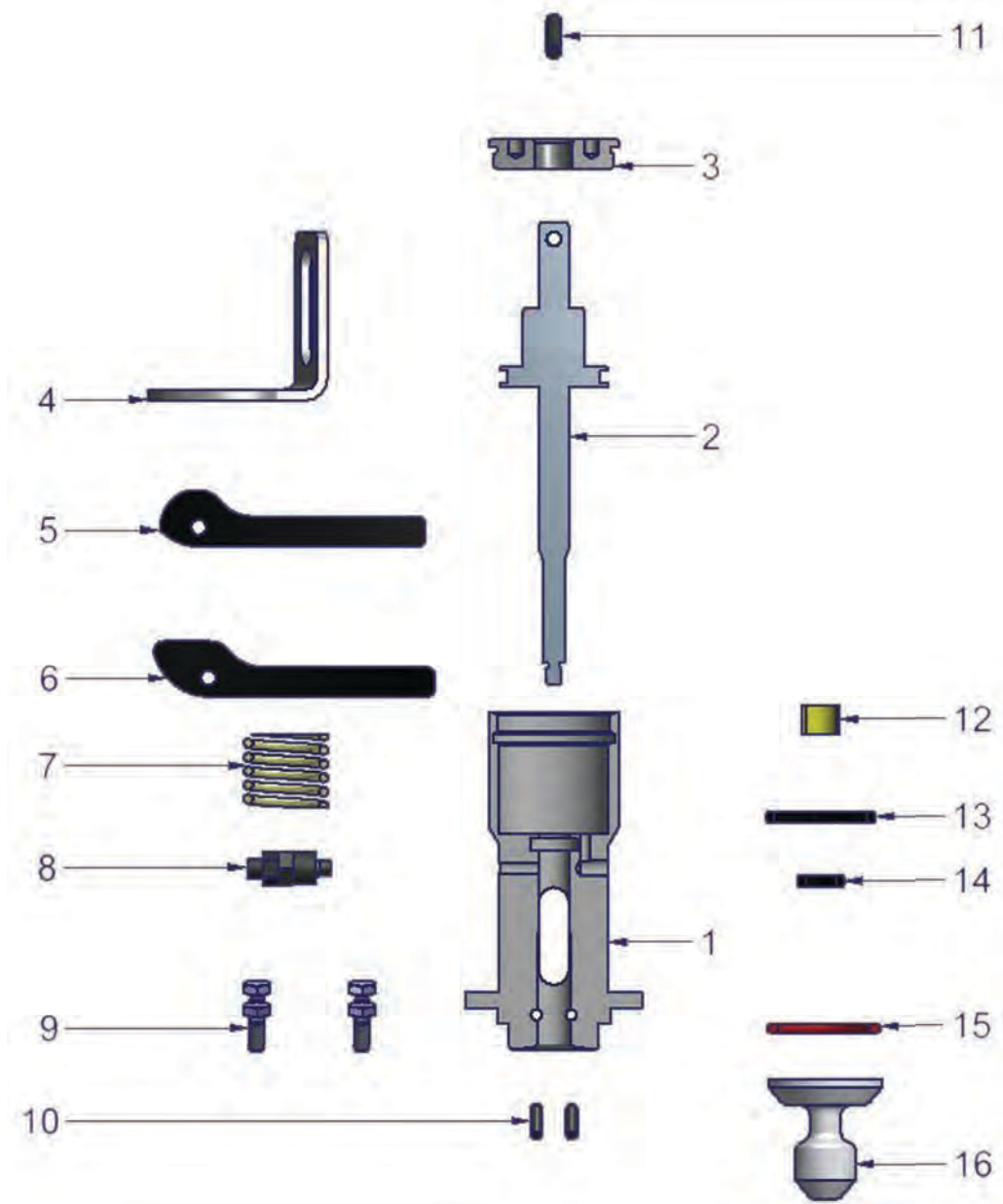
BioCheck Pneumatic Sampling Valves with Lever

Air to Open / Spring to Close NC – for Varivent-Inline Body



Bill of Materials for Pneumatic BioCheck Sampling Valves

G

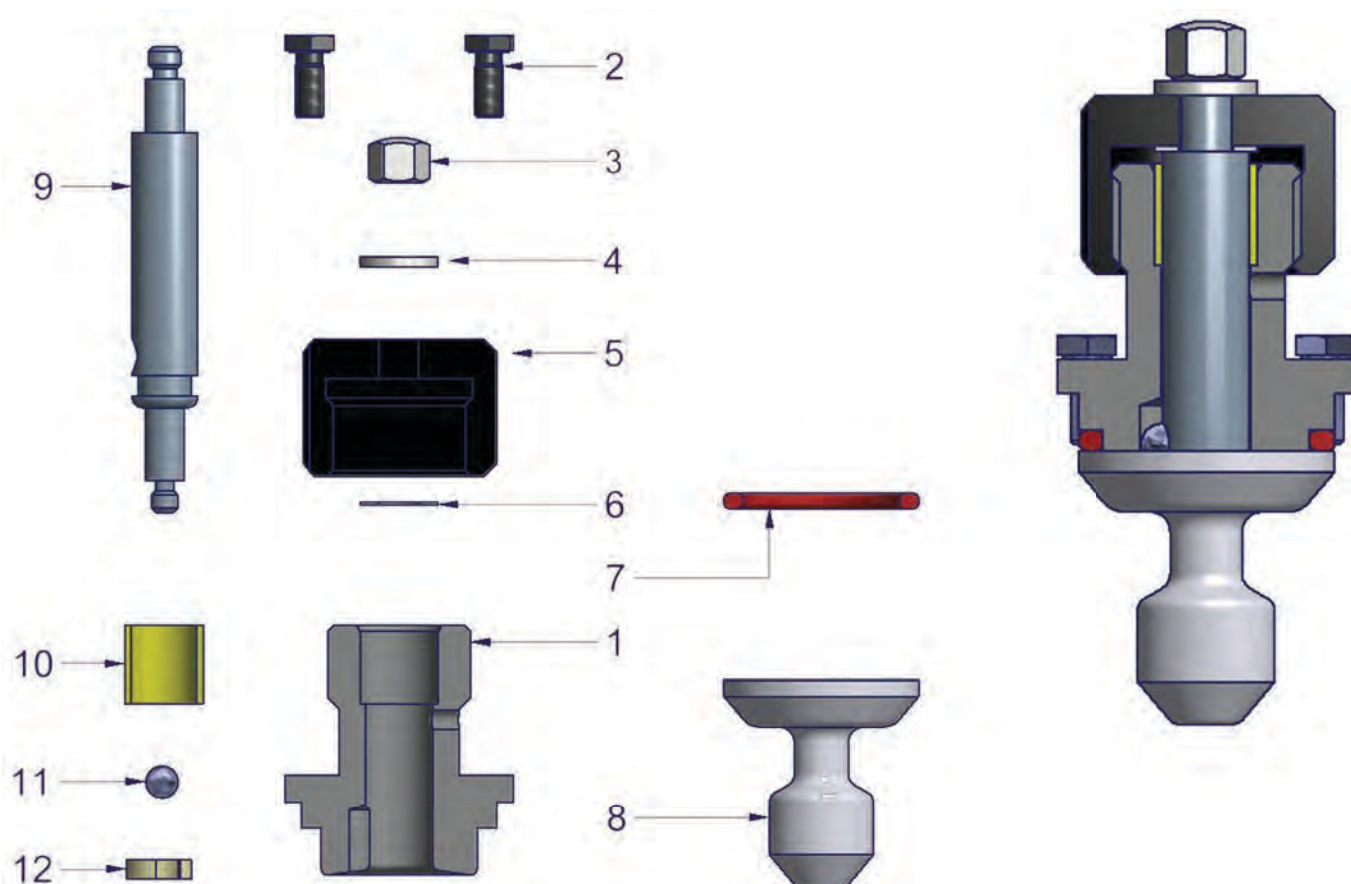


Repair Kit contains:
#15 (1) O-ring (Silicone)
#16 (1) O-ring PTFE-bellows

| Repair Kit |
|------------|
| Part # |
| BCSV-RK |

| Item | Description | Quantity |
|------|---------------------------|----------|
| 1 | housing | 1 |
| 2 | spindle | 1 |
| 3 | cover | 1 |
| 4 | bracket | 1 |
| 5 | Lever | 1 |
| 6 | Lever | 1 |
| 7 | spring | 1 |
| 8 | screwing | 1 |
| 9 | hexagonal screw | 4 |
| 10 | Cylindric pin for spindle | 2 |
| 11 | Cylindric pin for lever | 1 |
| 12 | plastic bushing | 1 |
| 13 | O-Ring | 1 |
| 14 | O-Ring for spindle | 1 |
| 15 | O-Ring for bellows | 1 |

Bill of Materials for BioCheck Sampling Valves with Handwheel



Repair Kit contains:

#7 (1) O-ring (Silicone)

#8 (1) O-ring PTFE-bellows

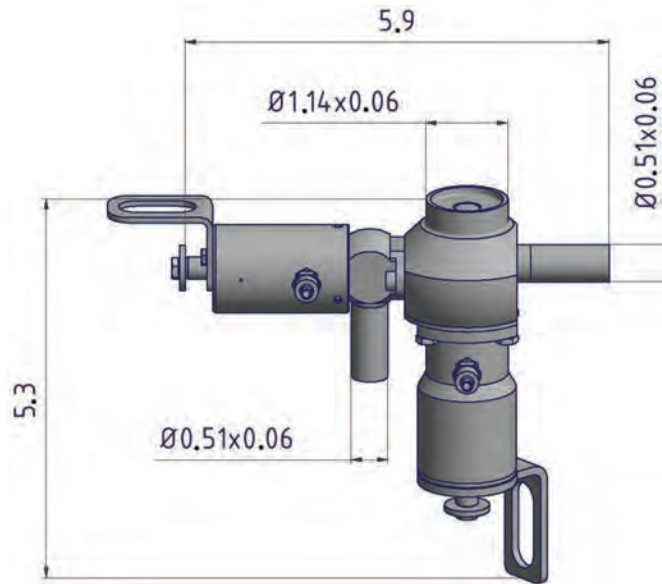
| Repair Kit |
|------------|
| Part # |
| BCSV-RK |

| Item | Description | Quantity |
|------|--------------------|----------|
| 1 | housing | 1 |
| 2 | hexagonal screw | 4 |
| 3 | hex nut | 1 |
| 4 | washer | 1 |
| 5 | handle | 1 |
| 6 | wave spring washer | 1 |
| 7 | O-Ring for bellows | 1 |
| 8 | PTFE-Bellows | 1 |
| 9 | spindle | 1 |
| 10 | plastic bushing | 2 |
| 11 | ball | 1 |
| 12 | guide | 1 |

BioCheck Combi Sampling Valves with Steam Valve



Air to Open / Spring to Close NC – with 1 CIP Valve

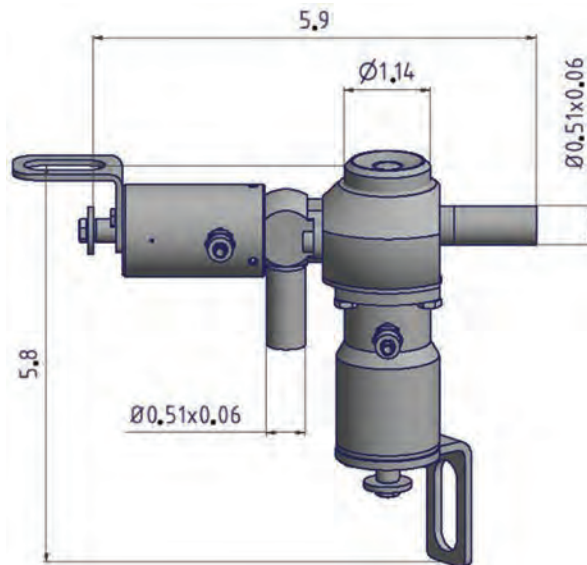


3-A version not available.

BioCheck Combi Sampling Valves with Steam Valve



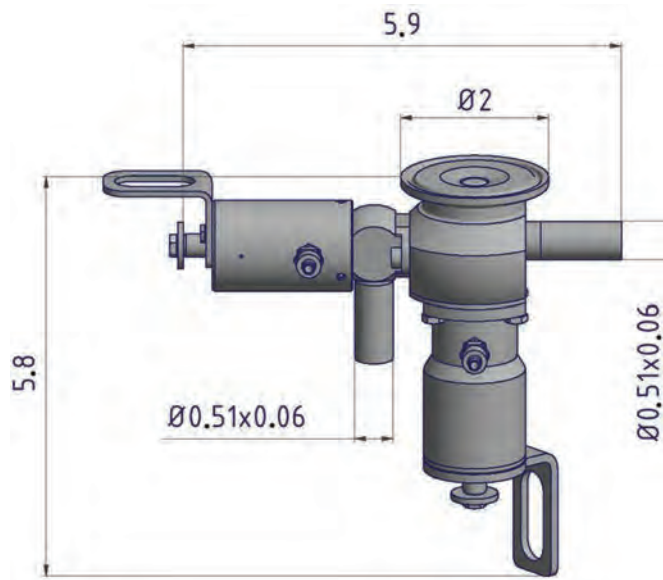
Air to Open / Spring to Close NC – with 1 CIP Valve



3-A version not available.

BioCheck Combi Sampling Valves with Steam Valve

Air to Open / Spring to Close NC – with 1 CIP Valve

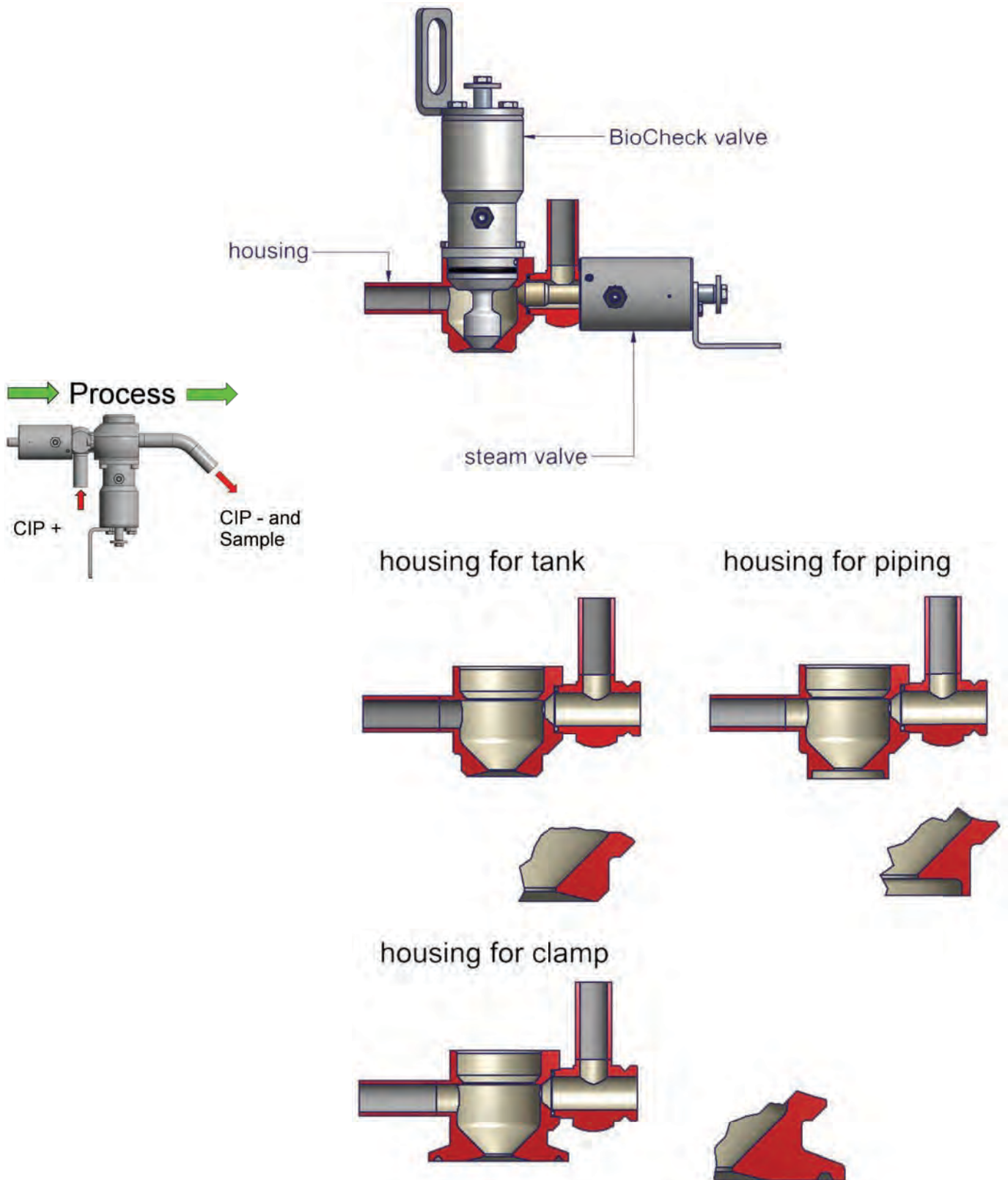


3-A version not available.

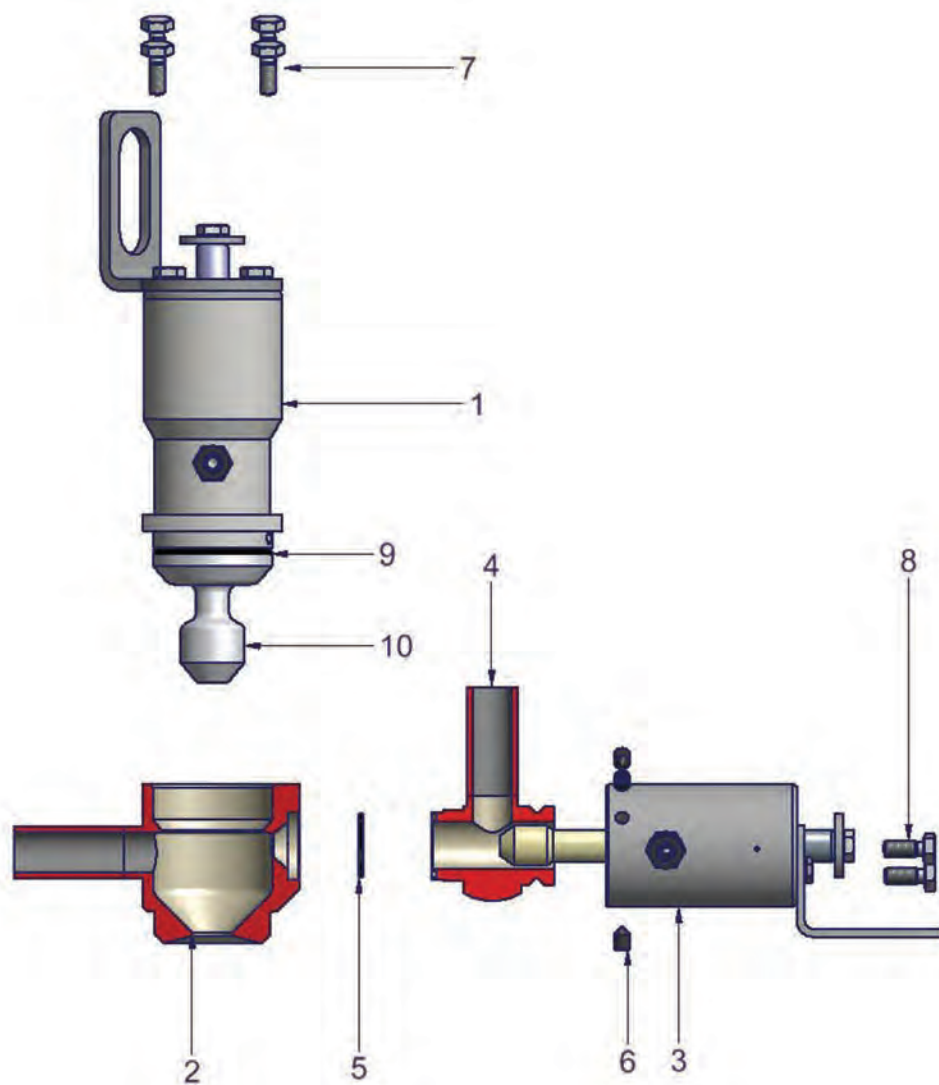
G

BioCheck Combi Sampling Valves with Steam Valve

G



Bill of Materials for BioCheck Combi Sampling Valves with Steam Valves



Repair Kit contains:
 #9 (1) O-ring
 #10 (1) PTFE-bellows

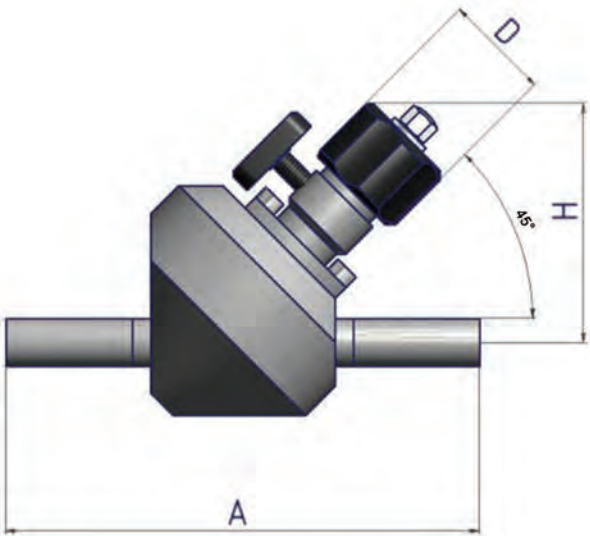
| Repair Kit Part # |
|----------------------|
| BCSV-RK |

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | Actuator BioCheck valve NC | 1 |
| 2 | Housing BioCheck valve | 1 |
| 3 | Actuator steam valve | 1 |
| 4 | Housing steam valve | 1 |
| 5 | O-Ring | 1 |
| 6 | screw | 1 |
| 7 | hexagonal screw | 1 |
| 8 | hexagonal screw | 1 |
| 9 | O-ring | 4 |
| 10 | PTFE-bellows | 2 |

BioCheck Inclined Seat Valve

Manual with Handwheel

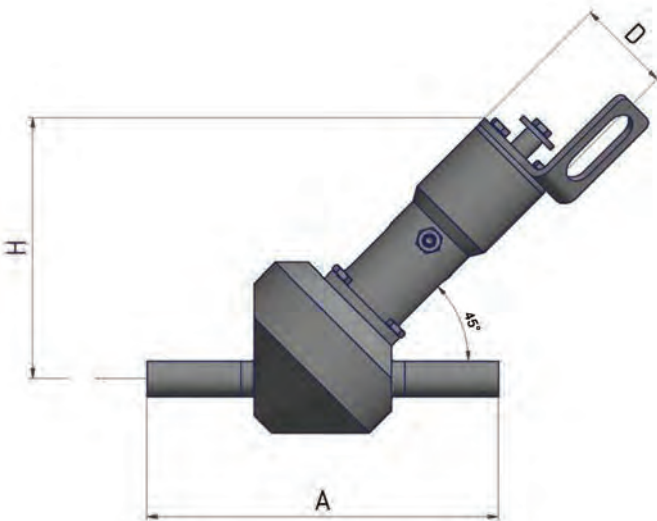
G



| Size | Nominal Wall | A | H | D |
|------|--------------|-----|----|----|
| 1/2" | 13 x 1.5 | 130 | 65 | 30 |

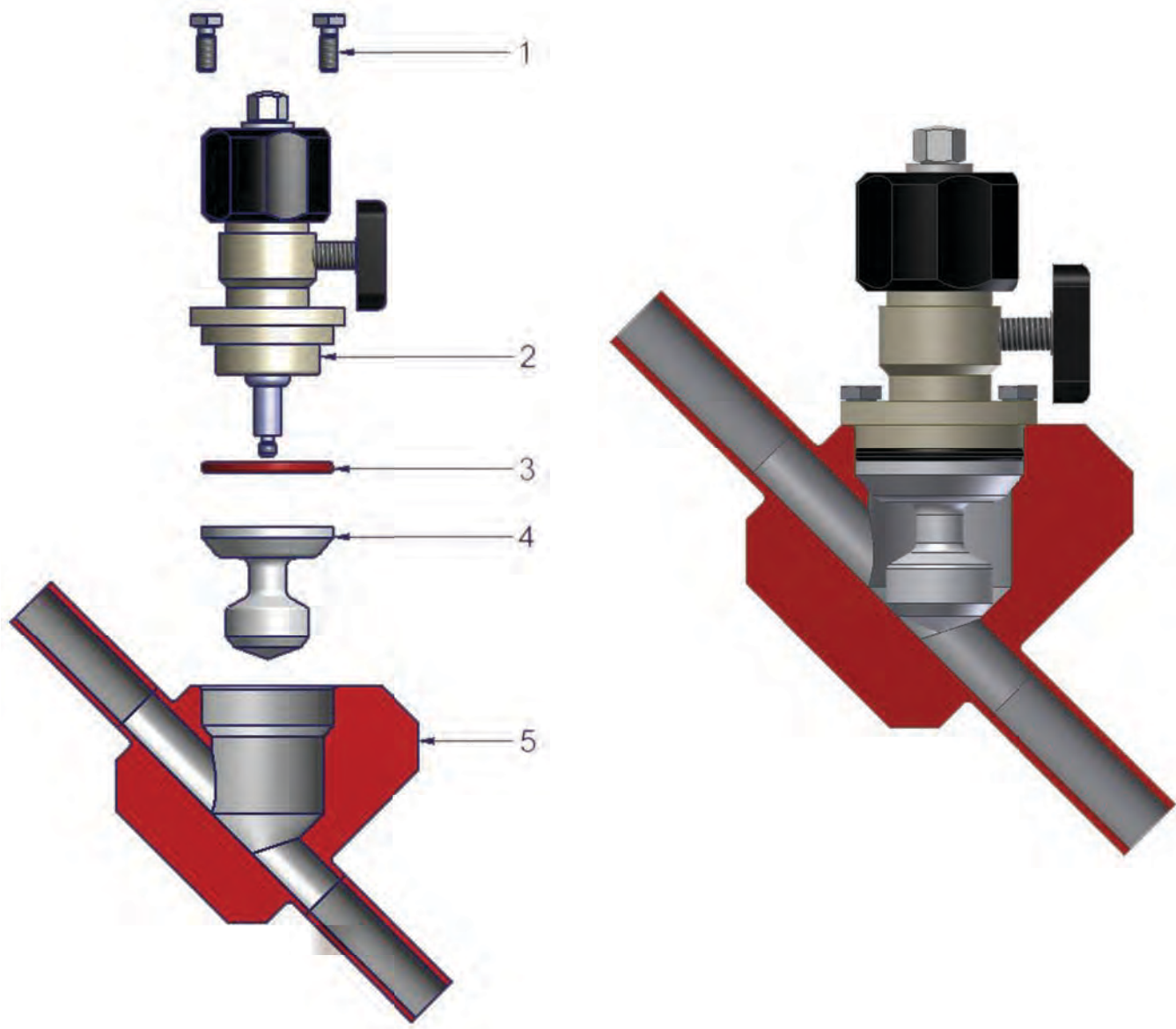
BioCheck Inclined Seat Valve

Pneumatic - Air to Open / Spring to Close NC



| Size | Nominal Wall | A | H | D |
|------|--------------|-----|----|----|
| 1/2" | 13 x 1.5 | 130 | 82 | 35 |

Bill of Materials for BioCheck Inclined Seat Valve Manual with Handwheel



G

Repair Kit contains:

#4 (1) O-ring

#5 (1) PTFE-bellows

| Item | Description | Quantity |
|------|-----------------|----------|
| 1 | hexagonal screw | 1 |
| 2 | handwheel | 1 |
| 3 | O-Ring | 1 |
| 4 | PTFE-bellows | 1 |
| 5 | housing | 1 |

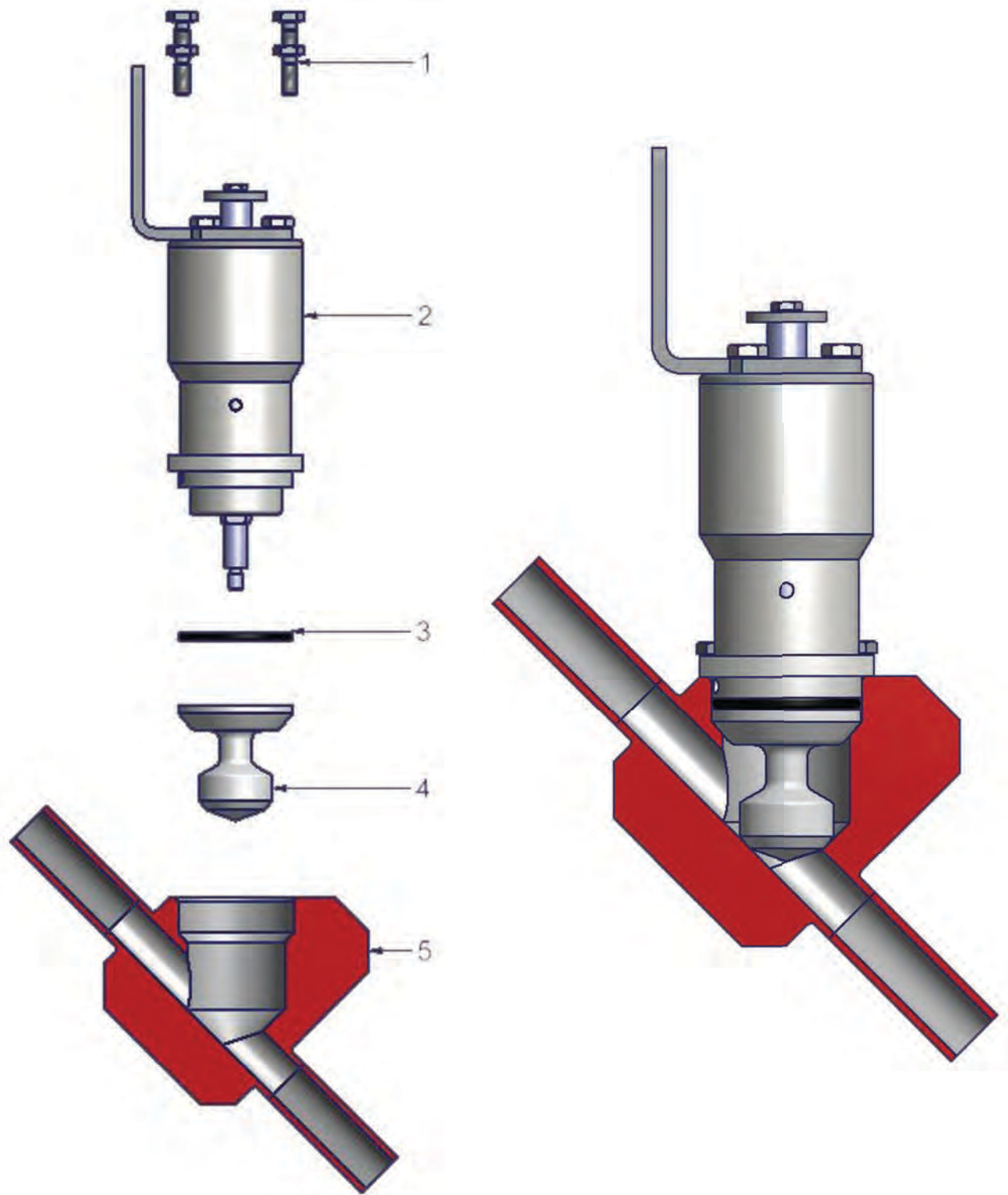
Repair Kit

Part #

BCSV-MIS-RK

Bill of Materials for BioCheck Inclined Seat Valve
Pneumatic Air to Open / Spring to Close NC

G



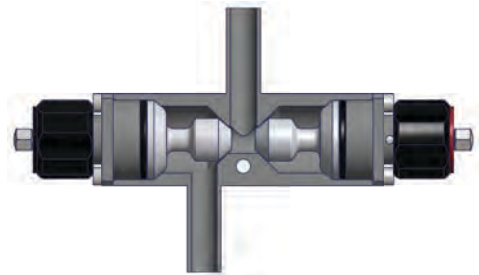
Repair Kit contains:

- #4 (1) O-ring
- #5 (1) PTFE-bellows

| Repair Kit |
|-------------|
| Part # |
| BCSV-MIS-RK |

| Item | Description | Quantity |
|------|-----------------|----------|
| 1 | hexagonal screw | 1 |
| 2 | actuator | 1 |
| 3 | O-Ring | 1 |
| 4 | PTFE-bellows | 1 |
| 5 | housing | 1 |

BioCheck Sampling Into Bottle



G

Features:

- for all usual lab bottles
- connection threading GL45 ISO
- for bottles from 100 ml to 2000 ml
- no contamination by air
- absolutely aseptic system
- with connection thread for lab air filter NPT 1/8"
- weight approx. 1.7 kg = 3.7 lb
- 3A version with hexagonal screws

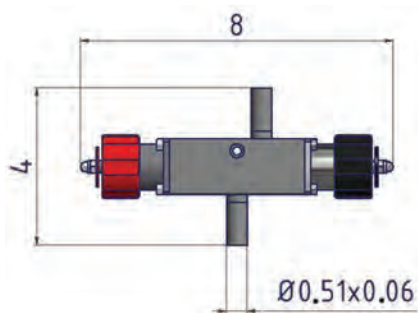
Sampling procedure:

- both valves are closed
- open valve 2 (black handle)
- sterilize or rinse valve 2 (black handle)
- close valve 2 (black handle)
- open valve 1 (red handle) = sample flows into bottle

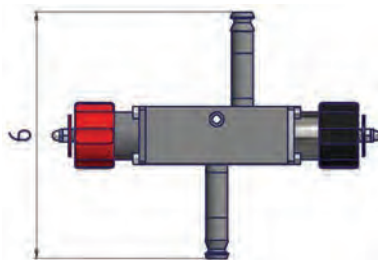
Dismantling from system

- close valve 1
- dismantle sampling head from bypass

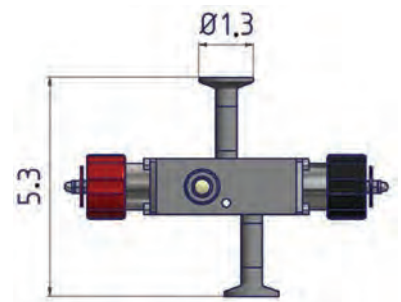
Sampling head with
2 weld on ends $\varnothing 0.51 \times 0.06$



Sampling head with 2 nozzles
for quick coupling

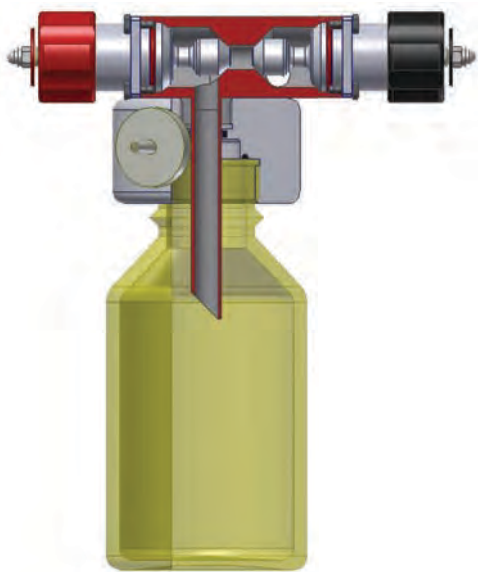


Sampling head with 2 clamps

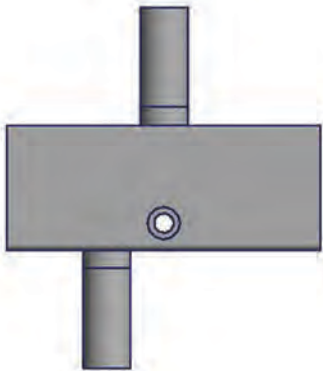


BioCheck Sampling Into Bottle Manually

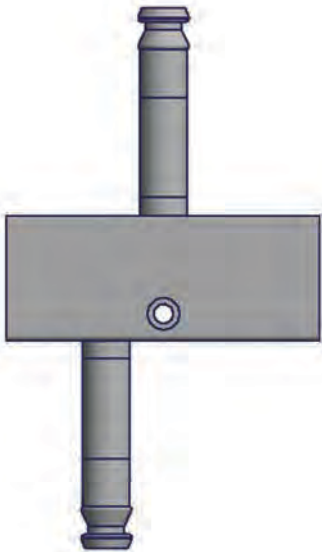
G



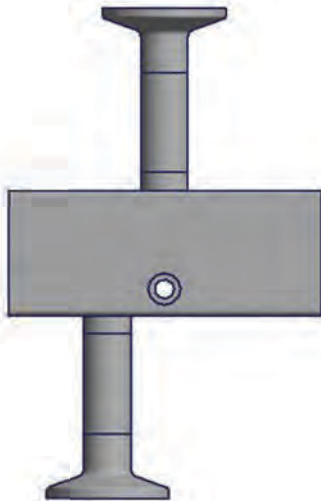
Housing List



#1
2 weld ends 13 x 1.5



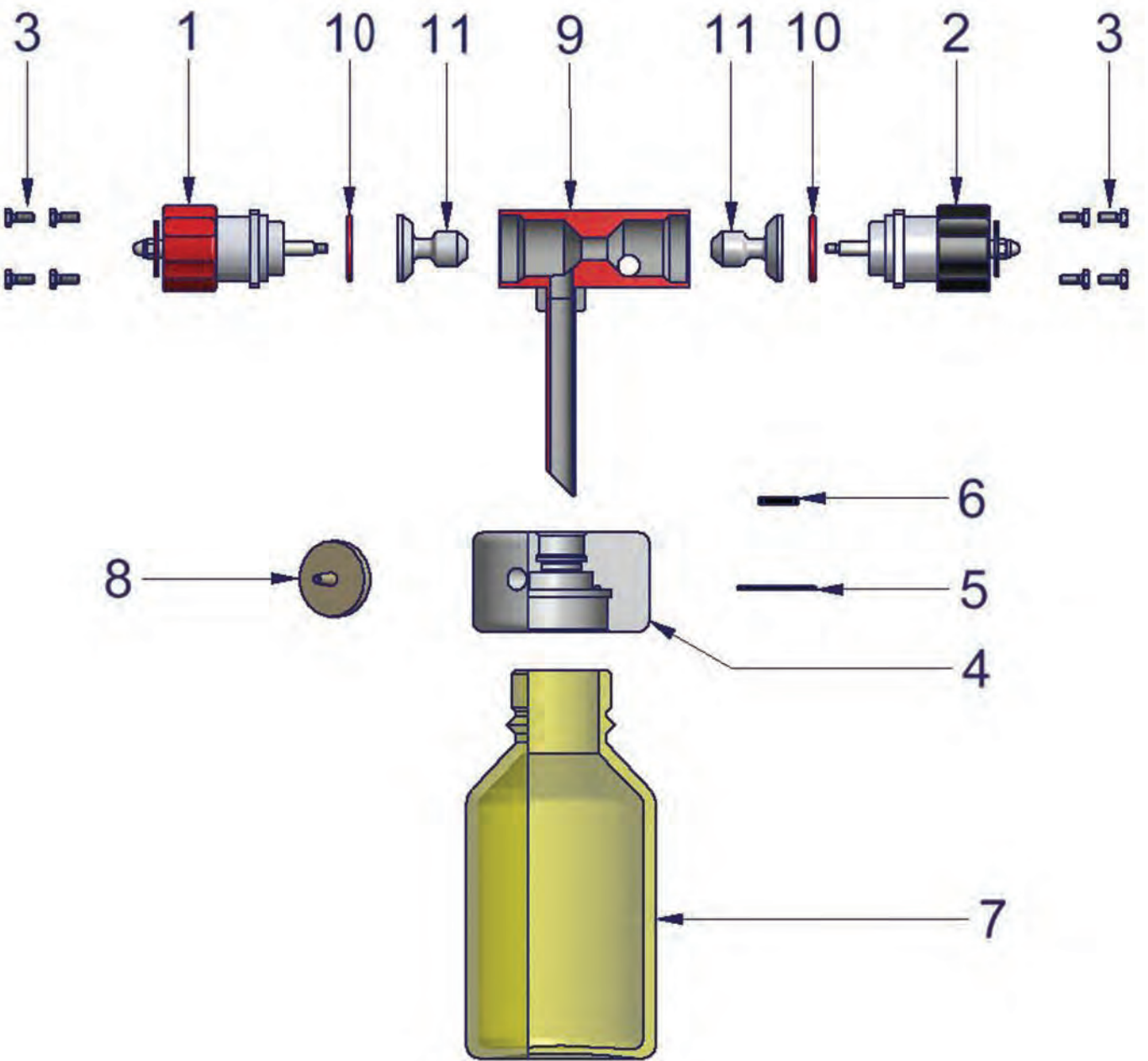
#2
2 nozzles for quick coupling



#3
2 clamp same way

| Item | Description |
|------|------------------------------|
| 1 | 2 weld ends 13 x 1.5 |
| 2 | 2 nozzles for quick coupling |
| 3 | 2 clamp same way |

Bill of Materials for BioCheck Sampling Valves Into Bottle



G

Repair Kit contains:
 #10 (2) O-ring
 #11 (2) PTFE-bellows

Repair Kit
 Part #

BCSV-SB-RK

| Item | Description | Quantity |
|------|---|----------|
| 1 | Actuator red handle 1 (sample flows into bottle) | 1 |
| 2 | Actuator black handle 2 (dismantle sampling head from bypass) | 1 |
| 3 | Hexagonal screw | 8 |
| 4 | Adaptor for bottle | 1 |
| 5 | O-Ring for pipe | 1 |
| 6 | O-Ring for bottle | 1 |
| 7 | Laboratory bottle GL45-500ml | 1 |
| 8 | sterile air filters | 1 |
| 9 | housing | 1 |
| 10 | O-ring | 2 |
| 11 | PTFE-bellows | 2 |

Weld Nozzle

For Quick Coupling



Including: welding and inner surface R_a 0.8 μm mechanically polished.

Quick Coupling

For Nozzle



G

BioShut - Quick Release Cap

For Nozzle

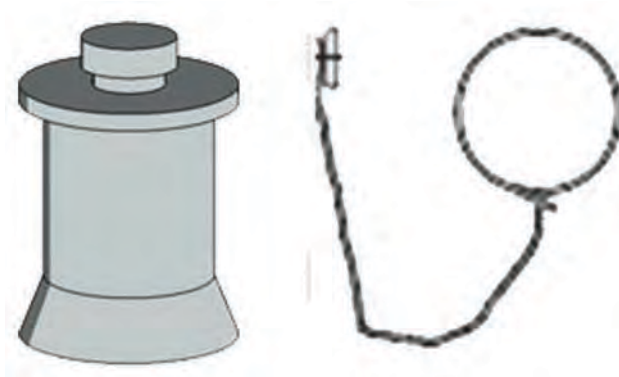


BioCap - Protection Cap Set

For Nozzle for Quick Coupling

Features:

- 2 rubber caps
- 2 hooks for rubber caps
- 2 small chains with loop

**G**

BioCap S - Weld Closure

With Cap

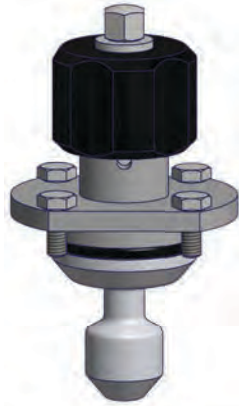
Features:

- 1 Nipple 3/8"
- 1 cap with knob and gasket
- 1 small chain with loop
- including welding and inner surface Ra 0,8 µm mechanically polished



Manual Drive

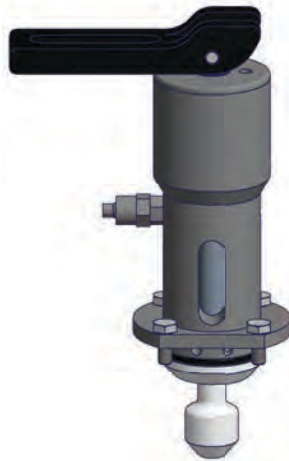
With Handwheel



G

Pneumatic Actuator

With Self Closing Lever



Lever

For Pneumatic Cylinder



Self Closing

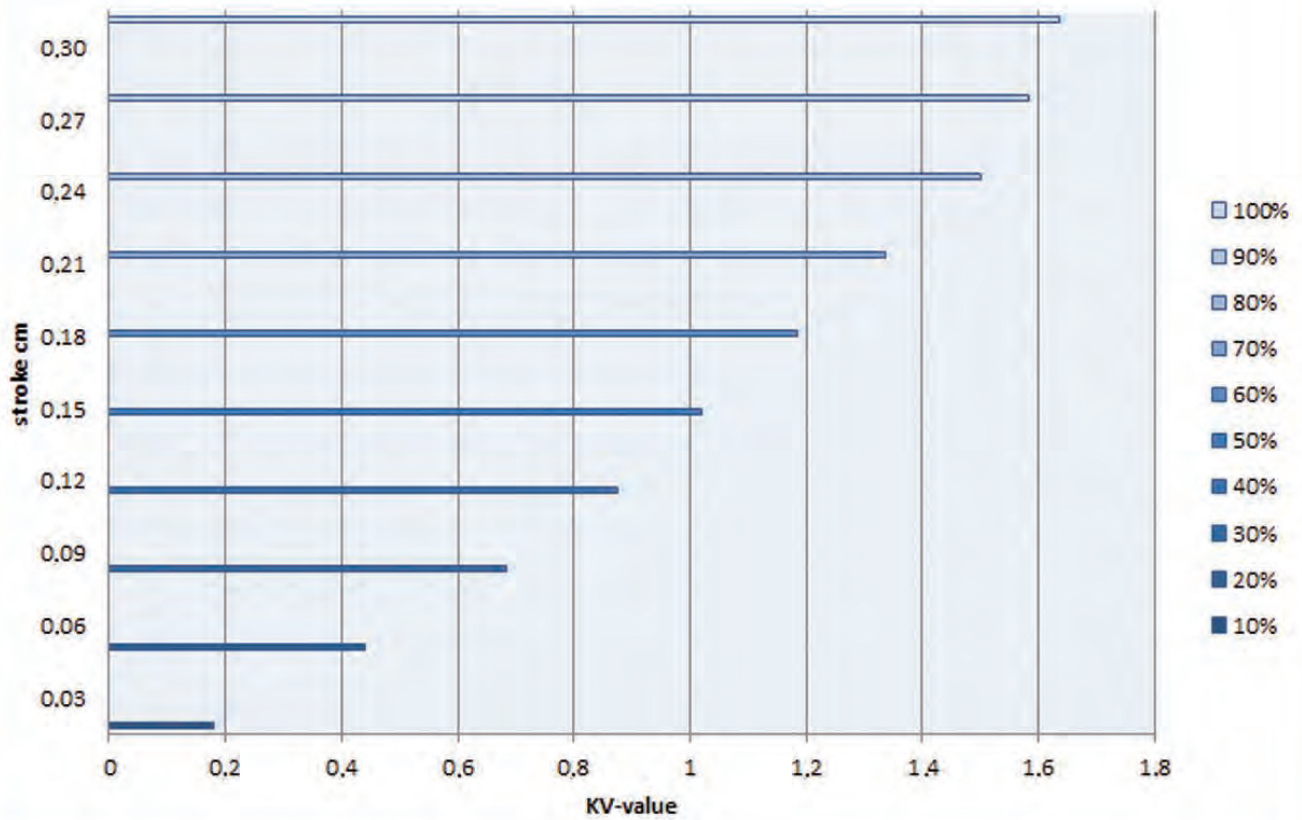


Position Open

KV Value Table

For Standard Sampling Valve

K_V Value table for BioCheck Sampling Valves



$$C_v = K_v / 0.86$$

Control Valves - Technical Information

Applications:

- The process control head is fitted for the controlling of pneumatically operated process valves. Used in dairies, food & beverage, pharmaceutical and chemical industries.

Features:

- valve body from solid bar
- no dead space
- drainable when mounted in various positions
- high-grade inner surfaces
- no dome or sump in product space
- change of seals without special tools
- optimum cleanability
- modular assembly system
- low spare part costs

Technical Data

Material:

- product wetted: 1.4404/AISI316L
- optional: 1.4435/AISI316L
- non product contact: 1.4301/AISI304

Product Contact Seals:

- O-rings and profile washer: EPDM (other materials upon request)

Temperatures:

- maximum standard operating temperature: 130 °C (266 °F)
- sterilization temperature: 150 °C (300 °F) short time* (approx. 20 min)

Standard Operating Pressure:

- standard pressure: max. 6 bar (**87 PSI**)
- actuator air pressure: min. 6 bar (**87 PSI**) - max. 10 bar (**145 PSI**)
- controlled air pressure: max. 10 bar (**145 PSI**)

Surfaces:

- wetted product surfaces: $R_a \leq 0.8 \mu\text{m}$ (32), optional surfaces available
- non product contact: $R_a = 1.6 \mu\text{m}$

Standard Connections:

- O.D.-Tube (DIN 11866 C) weld optional connections on request

**dependent on operating parameters*

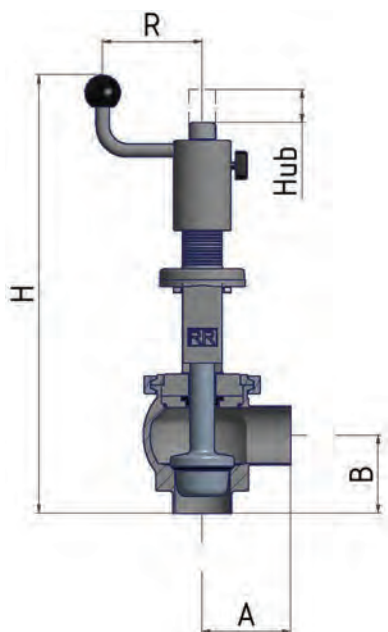

H

Valves can only be quoted when full application data is supplied: product viscosity, temperature, inlet and outlet pressure or process pressure, line **size and desired product flow.**

Contact Dixon Sanitary Engineering Department for all inquiries.

Hygienic Control Angle Valve

Manual with Crank Handle

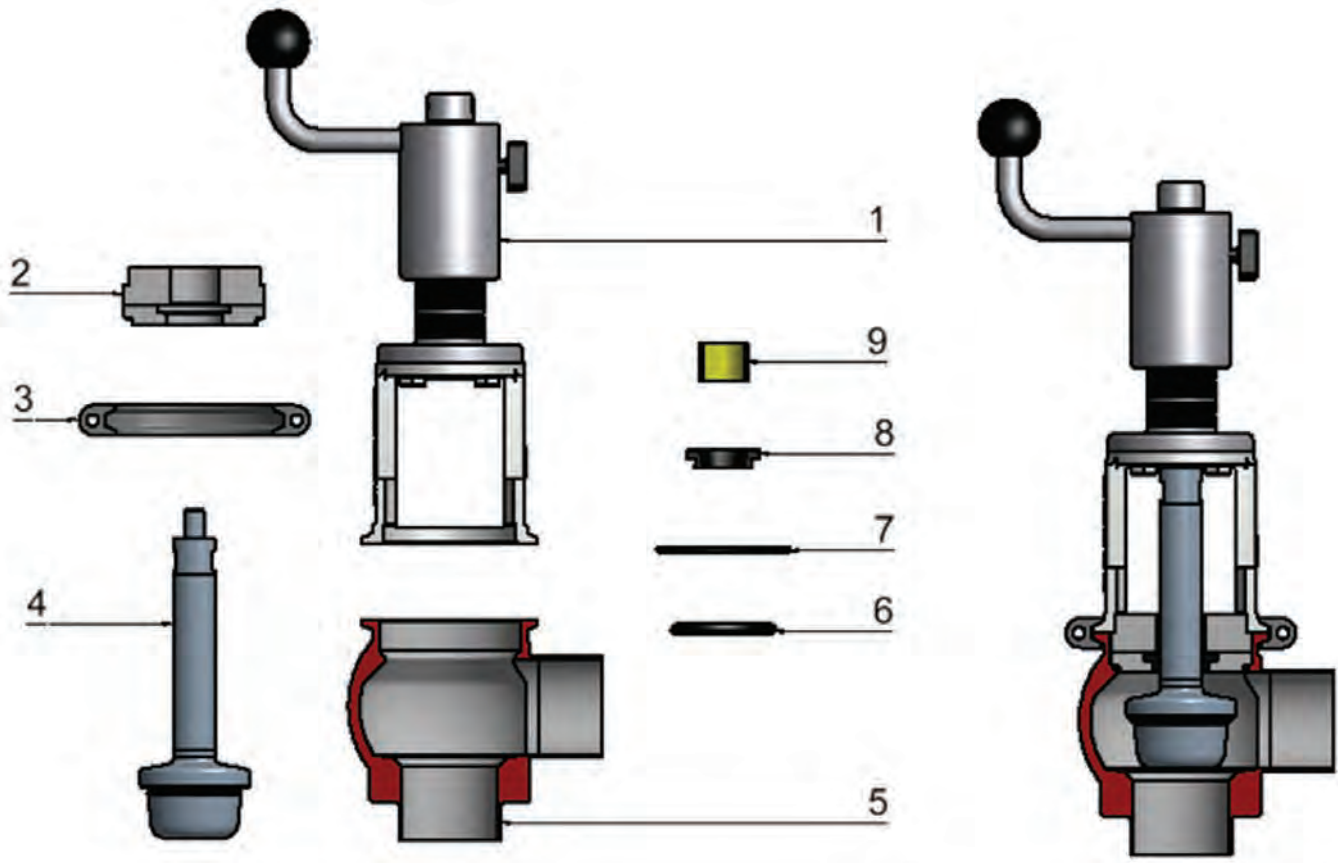


| Size | Nominal Wall | A | B | R | H | Hub | lbs |
|--------|--------------|------|------|------|-------|------|------|
| 1" | 1 x 0.065 | 1.97 | 1.97 | 2.87 | 12.21 | 0.63 | 6.8 |
| 1-1/2" | 1.5 x 0.065 | 2.36 | 2.36 | 2.87 | 12.99 | 0.63 | 11.7 |
| 2" | 2 x 0.065 | 3.15 | 2.76 | 3.54 | 15.75 | 0.81 | 12.6 |
| 2-1/2" | 2.5 x 0.065 | 3.94 | 3.15 | 3.54 | 16.34 | 0.87 | 16.8 |
| 3" | 3 x 0.065 | 4.92 | 3.54 | 3.54 | 17.52 | 1.18 | 22.7 |
| 4" | 4 x 0.083 | 5.91 | 3.94 | 3.54 | 18.31 | 1.30 | 31.5 |

At time of order please provide us with the following information: product viscosity, temperature, inlet and outlet pressure or process pressure and desired product flow.

Bill of Materials for Hygienic Control Angle Valves

H



Repair Kit contains:

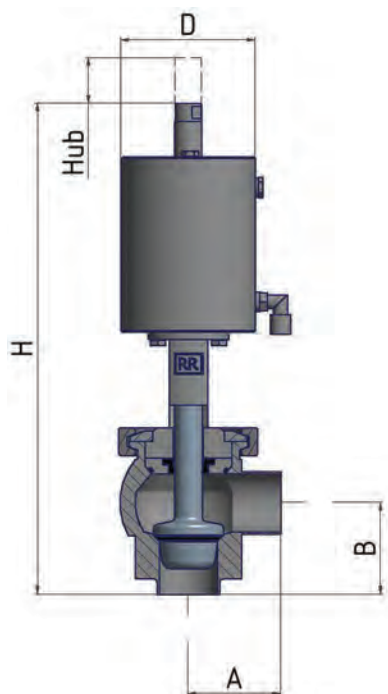
- #6 (1) O-ring
- #7 (1) O-ring
- #8 (1) gasket
- #9 (1) plastic bushing

Repair Kits will be quoted depending upon the application of the valve.

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | crank handle | 1 |
| 2 | mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | spindle | 1 |
| 5 | housing | 1 |
| 6 | O-ring | 1 |
| 7 | O-ring | 1 |
| 8 | gasket | 1 |
| 9 | plastic bushing | 1 |

Hygienic Control Angle Valve

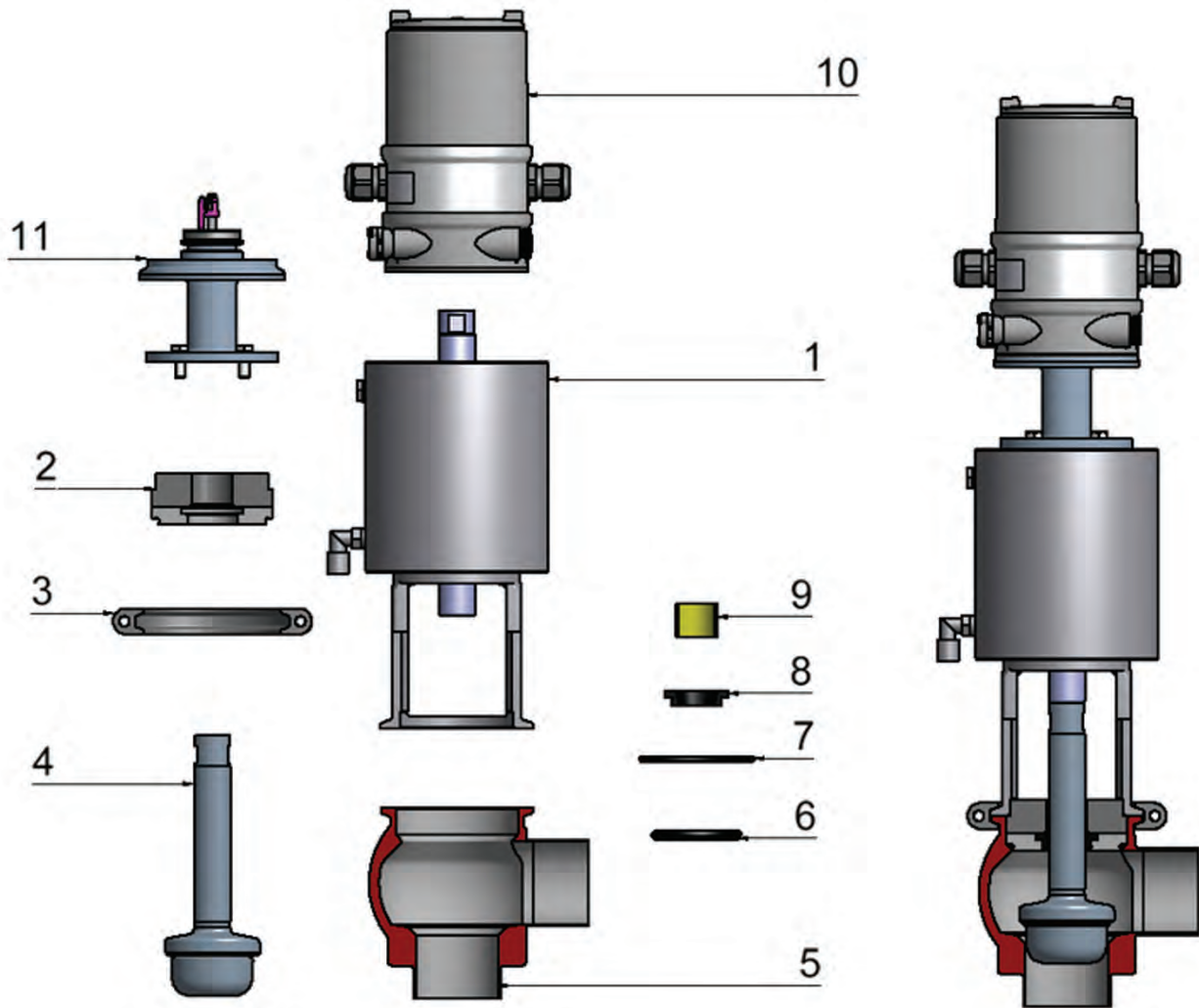
Pneumatic – Air to Open / Spring to Close NC



| Size | Nominal Wall | A | B | R | H | Hub | lbs |
|--------|--------------|------|------|------|-------|------|------|
| 1" | 1 x 0.065 | 1.97 | 1.97 | 3.54 | 12.01 | 0.63 | 11.2 |
| 1-1/2" | 1.5 x 0.065 | 2.36 | 2.36 | 3.54 | 12.40 | 0.63 | 13.7 |
| 2" | 2 x 0.065 | 3.15 | 2.76 | 4.33 | 14.96 | 0.81 | 22.9 |
| 2-1/2" | 2.5 x 0.065 | 3.94 | 3.15 | 5.24 | 16.93 | 0.87 | 33.5 |
| 3" | 3 x 0.065 | 4.92 | 3.54 | 6.77 | 19.88 | 1.18 | 54.5 |
| 4" | 4 x 0.083 | 5.91 | 3.94 | 6.77 | 20.67 | 1.30 | 63.1 |

At time of order please provide us with the following information: product viscosity, temperature, inlet and outlet pressure or process pressure and desired product flow.

Bill of Materials for Hygienic Control Angle Valves



H

Repair Kit contains:

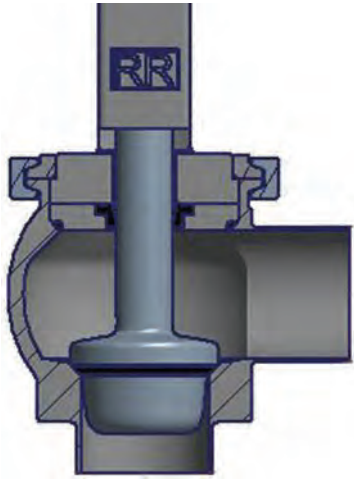
- #6 (1) EPDM O-ring
- #7 (1) EPDM gasket
- #8 (1) guide
- #9 (1) plastic bushing

Repair Kits will be quoted depending upon the application of the valve.

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | actuator | 1 |
| 2 | mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | spindle | 1 |
| 5 | housing | 1 |
| 6 | EPDM O-ring | 1 |
| 7 | EPDM gasket | 1 |
| 8 | guide | 1 |
| 9 | plastic bushing | 1 |
| 10 | positioner | 1 |
| 11 | adapter | 1 |

Control Angle Valve - C_v Table

For Hygienic Control Valve



| Size | Nominal Wall | m^3/h | | gallon/h | |
|--------|--------------|---------|------|----------|-------|
| | | 10% | 100% | 10% | 100% |
| 1" | 1 x 0.065 | 2.2 | 10.6 | 581 | 2800 |
| 1-1/2" | 1.5 x 0.065 | 1.7 | 15.0 | 449 | 3963 |
| 2" | 2 x 0.065 | 3.1 | 43.8 | 819 | 11571 |
| 2-1/2" | 2.5 x 0.065 | 3.5 | 28.3 | 925 | 7476 |
| 3" | 3 x 0.065 | 4.9 | 48.5 | 1294 | 12812 |
| 4" | upon request | | | | |

Standard values are calculated on: water, 20 °C (68 °F) temperature, 1 bar (**14.5 PSI**) pressure loss, +/- 10 % tolerance

With each order a drawing of the K_v table will be submitted for approval.

C_v Values - Hygienic Size 1"

| Opening | m^3/h | Gallon/h |
|---------|---------|----------|
| 10% | 2.2 | 581 |
| 20% | 3.4 | 898 |
| 30% | 5.1 | 1347 |
| 40% | 5.4 | 1427 |
| 50% | 5.9 | 1559 |
| 60% | 6.5 | 1717 |
| 70% | 7.3 | 1928 |
| 80% | 8.5 | 2245 |
| 90% | 9.7 | 2562 |
| 100% | 10.6 | 2800 |

1 m^3/h = 264.17 gallon

The above mentioned C_v values are not binding, they are examples for possible control modes. Depending upon customer's operating conditions requested in place the regulating cone will be adapted and thus the control modes.

Control Angle Valve - C_v Table C_v Values - Hygienic
Size 1-1/2"

| Opening | m ³ /h | Gallon/h |
|---------|-------------------|----------|
| 10% | 1.7 | 449 |
| 20% | 3.6 | 951 |
| 30% | 5.0 | 1321 |
| 40% | 5.9 | 1559 |
| 50% | 6.6 | 1744 |
| 60% | 7.4 | 1955 |
| 70% | 8.1 | 2140 |
| 80% | 8.6 | 2272 |
| 90% | 8.9 | 2351 |
| 100% | 10.1 | 2668 |

1 m³/h = 264.17 gallon C_v Values - Hygienic
Size 2"

| Opening | m ³ /h | Gallon/h |
|---------|-------------------|----------|
| 10% | 3.1 | 819 |
| 20% | 6.7 | 1770 |
| 30% | 10.1 | 2668 |
| 40% | 12.7 | 3355 |
| 50% | 16.3 | 4306 |
| 60% | 21.8 | 5759 |
| 70% | 28.2 | 7450 |
| 80% | 35.2 | 9299 |
| 90% | 39.8 | 10514 |
| 100% | 43.8 | 11571 |

1 m³/h = 264.17 gallon

The above mentioned C_v values are not binding, they are examples for possible control modes. Depending upon customer's operating conditions requested in place the regulating cone will be adapted and thus the control modes.

Control Angle Valve - C_v TableC_v Values - Hygienic
Size 2-1/2"

| Opening | m³/h | Gallon/h |
|---------|------|----------|
| 10% | 3.5 | 925 |
| 20% | 6.6 | 1744 |
| 30% | 9.5 | 2510 |
| 40% | 11.6 | 3064 |
| 50% | 13.3 | 3513 |
| 60% | 15.1 | 3989 |
| 70% | 16.7 | 4412 |
| 80% | 19.8 | 5231 |
| 90% | 23.8 | 6287 |
| 100% | 28.3 | 7476 |

1 m³/h = 264.17 gallon

C_v Values - Hygienic
Size 3"

| Opening | m³/h | Gallon/h |
|---------|------|----------|
| 10% | 4.9 | 1294 |
| 20% | 9.8 | 2589 |
| 30% | 14.4 | 3804 |
| 40% | 17.9 | 4729 |
| 50% | 20.5 | 5416 |
| 60% | 23.2 | 6129 |
| 70% | 26.2 | 6921 |
| 80% | 32.2 | 8506 |
| 90% | 40.0 | 10567 |
| 100% | 48.5 | 12812 |

1 m³/h = 264.17 gallon

The above mentioned C_v values are not binding, they are examples for possible control modes. Depending upon customer's operating conditions requested in place the regulating cone will be adapted and thus the control modes.

Control Valves in Aseptic Version - Technical Information


 53-06
Applications:

- The process control head is fitted for the controlling of pneumatically operated process valves. The design of the valve body eliminates dead space, a prerequisite for sterile process engineering. When working with high sterilization temperatures this valve fulfills demands for operational security and reliable function.

Features:

- valve body made from solid bar
- no dead spaces
- drainable when mounted in various positions
- complete separation from environment
- no dome or sump in product space
- change of seals without special tools
- minimum 500,000 strokes
- optimum cleanability
- long life of the PTFE bellows
- low spare part costs

Technical Data

Material:

- in product contact: 1.4404/AISI316L
- optional: 1.4435/AISI316L
- non product contact: 1.4301/AISI304

Product Contact Seals:

- bellows: PTFE

Temperatures:

- maximum standard operating temperature: 121 °C (250 °F)
- sterilization temperature: 135 °C (275 °F) short time*
(approx. 20 min)

Standard Operating Pressure:

- standard pressure: max. 6 bar (**87 PSI**)
- actuator air pressure: min. 6 bar (**87 PSI**) - max. 10 bar (**145 PSI**)

Surfaces:

- wetted product surfaces: $R_a \leq 0.8 \mu\text{m}$ (32), optional surfaces available
- non product contact: $R_a = 1.6 \mu\text{m}$

Standard Connections:

- O.D.-Tube (DIN 11866 C) weld optional connections on request

**dependent on operating parameters*

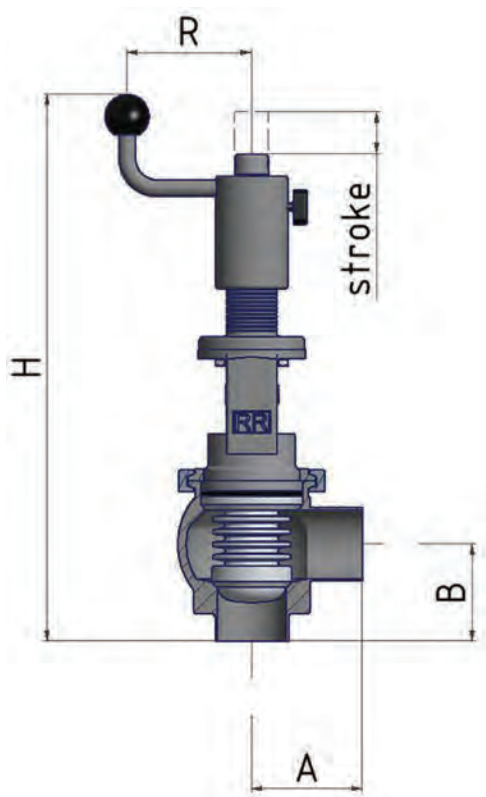


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Valves can only be quoted when full application data is supplied: product viscosity, temperature, inlet and outlet pressure or process pressure, line size and desired product flow.
Contact Dixon Sanitary Engineering Department for all inquiries.

Aseptic Control Angle Valve

Manual with Crank Handle

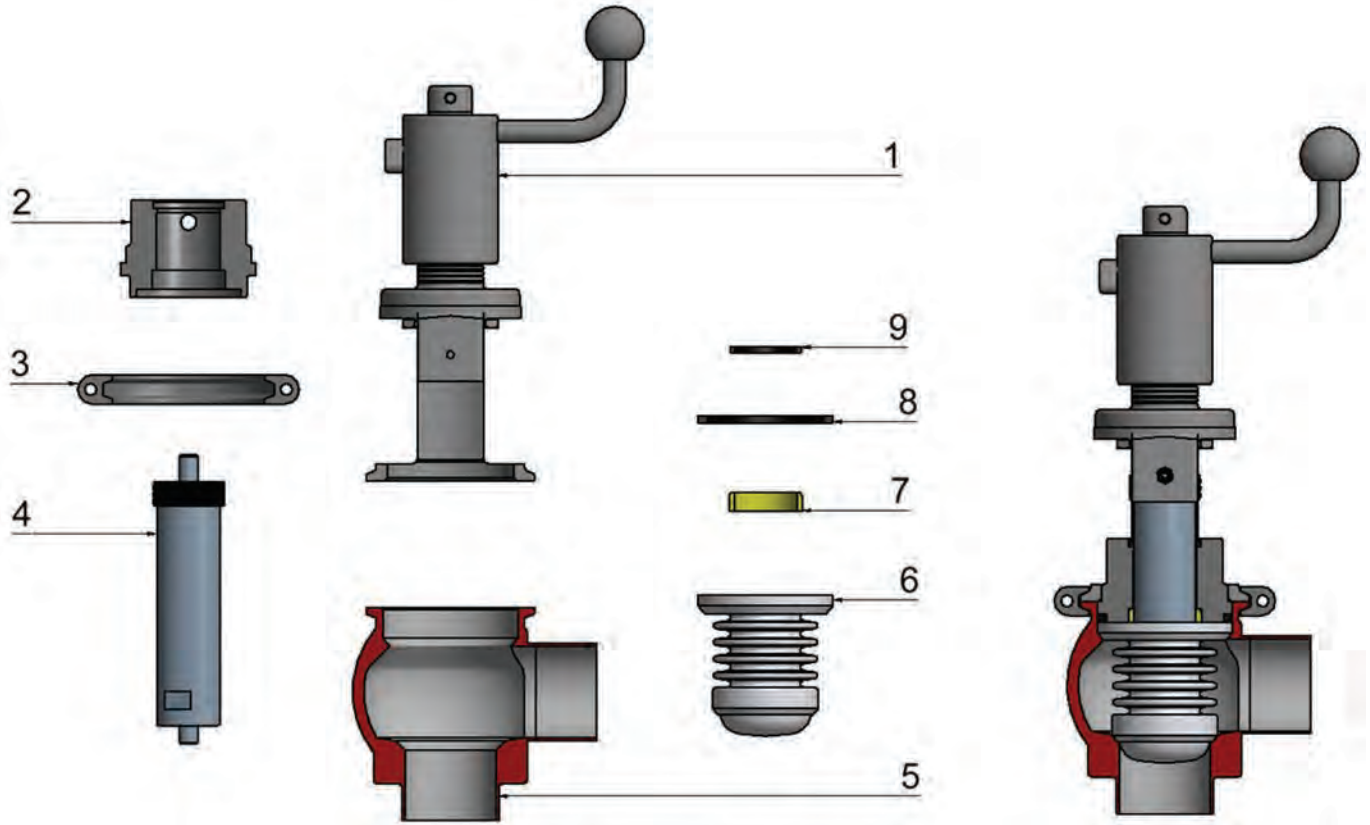


| Size | Nominal Wall | A | B | R | H | Stroke | lbs |
|--------|--------------|------|------|------|-------|--------|------|
| 1" | 1 x 0.065 | 1.97 | 1.97 | 2.87 | 12.21 | 0.28 | 6.8 |
| 1-1/2" | 1.5 x 0.065 | 2.36 | 2.36 | 2.87 | 12.99 | 0.35 | 11.7 |
| 2" | 2 x 0.065 | 3.15 | 2.76 | 3.54 | 15.75 | 0.47 | 12.6 |
| 2-1/2" | 2.5 x 0.065 | 3.94 | 3.15 | 3.54 | 16.34 | 0.59 | 16.8 |
| 3" | 3 x 0.065 | 4.92 | 3.54 | 3.54 | 17.52 | 0.71 | 22.7 |
| 4" | 4 x 0.083 | 5.91 | 3.94 | 3.54 | 18.31 | 0.91 | 31.5 |

At time of order please provide us with the following information: product viscosity, temperature, inlet and outlet pressure or process pressure and desired product flow.

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Bill of Materials for Aseptic Control Angle Valves



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Repair Kit contains:

#6 (1) PTFE-bellows

#7 (1) guide

#8 (1) O-ring for bellows

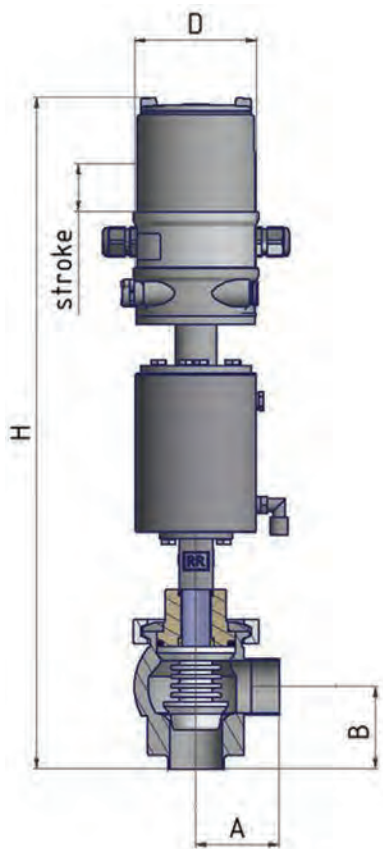
#9 (1) O-ring for spindle

*Repair Kits will be quoted
depending upon the
applications of the valve.*

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | crank handle | 1 |
| 2 | mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | spindle | 1 |
| 5 | housing | 1 |
| 6 | PTFE-bellows | 1 |
| 7 | guide | 1 |
| 8 | O-Ring for bellows | 1 |
| 9 | O-Ring for spindle | 1 |

Aseptic Control Angle Valve

Pneumatic – Air to Open / Spring to Close NC – with Positioner

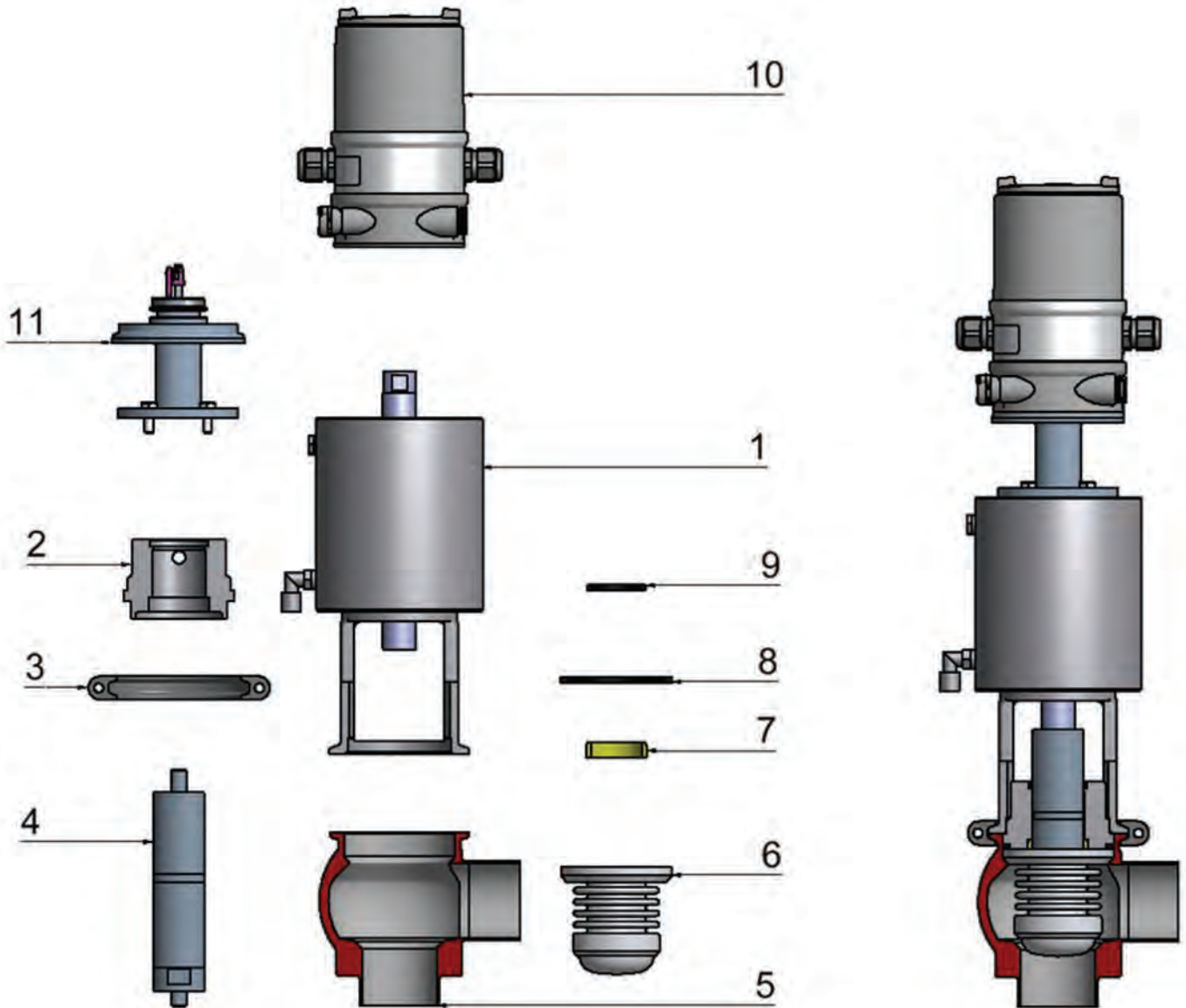


| Size | Nominal Wall | A | B | R | D | Stroke | lbs |
|--------|--------------|------|------|------|-------|--------|------|
| 1" | 1 x 0.065 | 1.97 | 1.97 | 3.54 | 17.91 | 0.28 | 11.2 |
| 1-1/2" | 1.5 x 0.065 | 2.36 | 2.36 | 3.54 | 18.31 | 0.35 | 13.7 |
| 2" | 2 x 0.065 | 3.15 | 2.76 | 4.33 | 20.87 | 0.47 | 22.9 |
| 2-1/2" | 2.5 x 0.065 | 3.94 | 3.15 | 5.24 | 22.83 | 0.59 | 33.5 |
| 3" | 3 x 0.065 | 4.92 | 3.54 | 6.77 | 25.79 | 0.71 | 54.5 |
| 4" | 4 x 0.083 | 5.91 | 3.94 | 6.77 | 26.57 | 0.91 | 63.1 |

At time of order please provide us with the following information: product viscosity, temperature, inlet and outlet pressure or process pressure and desired product flow.

Bill of Materials for Aseptic Control Angle Valves

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Repair Kit contains:

#6 (1) PTFE-bellows

#7 (1) guide

#8 (1) O-ring for bellows

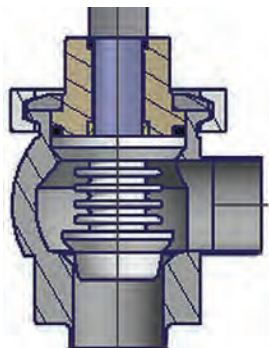
#9 (1) O-ring for spindle

*Repair Kits will be quoted
depending upon the
application of the valve.*

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | actuator | 1 |
| 2 | mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | spindle | 1 |
| 5 | housing | 1 |
| 6 | PTFE-bellows | 1 |
| 7 | guide | 1 |
| 8 | O-Ring for bellows | 1 |
| 9 | O-Ring for spindle | 1 |
| 10 | positioner | 1 |
| 11 | adapter | 1 |

Control Angle Valve - C_v Table

For Aseptic Control Valve



| Size | Nominal Wall | m ³ /h | | gallon/h | |
|--------|--------------|-------------------|------|----------|-------|
| | | 10% | 100% | 10% | 100% |
| 1" | 1 x 0.065 | 1.4 | 6.4 | 370 | 1691 |
| 1-1/2" | 1.5 x 0.065 | 3.1 | 13.4 | 819 | 3540 |
| 2" | 2 x 0.065 | 4.3 | 27.3 | 1136 | 7212 |
| 2-1/2" | 2.5 x 0.065 | 1.9 | 35.2 | 502 | 9299 |
| 3" | 3 x 0.065 | 10.1 | 54 | 2668 | 14265 |
| 4" | 4 x 0.083 | upon request | | | |

1 m³/h = 264.17 gallon

Values are calculated on: water, 20 °C (68 °F) temperature,
1 bar (**14.50 PSI**) pressure loss, +/- 10 % tolerance

With each order a drawing of the K_v table will be submitted for approval.

C_v Values - Aseptic Size 1"

| Opening | m ³ /h | Gallon/h |
|---------|-------------------|----------|
| 10% | 1.4 | 370 |
| 20% | 3.5 | 925 |
| 30% | 5.3 | 1400 |
| 40% | 5.4 | 1427 |
| 50% | 5.5 | 1453 |
| 60% | 5.7 | 1506 |
| 70% | 5.9 | 1559 |
| 80% | 6.2 | 1638 |
| 90% | 6.3 | 1664 |
| 100% | 6.4 | 1691 |

1 m³/h = 264.17 gallon

The above mentioned C_v values are not binding, they are examples for possible control modes. Depending upon customer's operating conditions requested in place the regulating cone will be adapted and thus the control modes.

Control Angle Valve - C_v Table

C_v Values - Aseptic Size 1-1/2"

| Opening | m ³ /h | Gallon/h |
|---------|-------------------|----------|
| 10% | 3.1 | 819 |
| 20% | 6.1 | 1611 |
| 30% | 7.1 | 1876 |
| 40% | 7.6 | 2008 |
| 50% | 7.8 | 2061 |
| 60% | 8.2 | 2166 |
| 70% | 9.2 | 2430 |
| 80% | 10.4 | 2747 |
| 90% | 11.3 | 2985 |
| 100% | 13.4 | 3540 |

1 m³/h = 264.17 gallon

C_v Values - Aseptic Size 2"

| Opening | m ³ /h | Gallon/h |
|---------|-------------------|----------|
| 10% | 4.3 | 1136 |
| 20% | 10.2 | 2695 |
| 30% | 13.2 | 3487 |
| 40% | 15.0 | 3963 |
| 50% | 17.7 | 4676 |
| 60% | 20.5 | 5415 |
| 70% | 22.5 | 5944 |
| 80% | 25.0 | 6604 |
| 90% | 26.4 | 6974 |
| 100% | 27.3 | 7212 |

1 m³/h = 264.17 gallon

The above mentioned C_v values are not binding, they are examples for possible control modes. Depending upon customer's operating conditions requested in place the regulating cone will be adapted and thus the control modes.

Control Angle Valve - C_v Table

C_v Values - Aseptic Size 2-1/2"

| Opening | m³/h | Gallon/h |
|---------|------|----------|
| 10% | 7.4 | 1955 |
| 20% | 13.4 | 3540 |
| 30% | 17.4 | 4597 |
| 40% | 20.0 | 5283 |
| 50% | 21.8 | 5759 |
| 60% | 24.3 | 6419 |
| 70% | 27.5 | 7265 |
| 80% | 30.8 | 8136 |
| 90% | 33.2 | 8770 |
| 100% | 35.2 | 9299 |

1 m³/h = 264.17 gallon

C_v Values - Aseptic Size 3"

| Opening | m³/h | Gallon/h |
|---------|------|----------|
| 10% | 10.1 | 2668 |
| 20% | 17.5 | 4623 |
| 30% | 22.0 | 5812 |
| 40% | 25.0 | 6604 |
| 50% | 28.5 | 7529 |
| 60% | 33.8 | 8929 |
| 70% | 40.0 | 10567 |
| 80% | 46.0 | 12152 |
| 90% | 50.4 | 13314 |
| 100% | 54.0 | 14265 |

1 m³/h = 264.17 gallon

The above mentioned C_v values are not binding, they are examples for possible control modes. Depending upon customer's operating conditions requested in place the regulating cone will be adapted and thus the control modes.

Positioner Type 8692

For Pneumatic Control Angle Valves

Applications:

- Digital electro pneumatic positioner for the integrated mounting on process control valves.

Features:

- compact stainless steel design
- graphic display with backlight
- easy start-up
- comprehensive range of additional software functions
- internal control air channel



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**Adaptor Kits
For Positioner Type 8692**

| Size | Part # | lbs. |
|-------------|--------------|------|
| 1" - 1-1/2" | CV-AK100-150 | 2.4 |
| 2" - 4" | CV-AK200-400 | 2.6 |

Positioner Type 8694

For Pneumatic Control Angle Valves

Applications:

- electro pneumatic positioner for the integrated mounting on process control valves.

Features:

- compact stainless steel design
- easy start-up
- comprehensive range of additional software functions
- internal control air channel



**Adaptor Kits
For Positioner Type 8694**

| Size | Part # | lbs. |
|-------------|--------------|------|
| 1" - 1-1/2" | CV-AK100-150 | 2.4 |
| 2" - 4" | CV-AK200-400 | 2.6 |

Characterized V Seat 2-Way Sanitary Stainless Steel Control Valves



L = 60° V seat



M = 30° V seat

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Features and Benefits

- compact design for areas with tight space restrictions
- full port design offer high flow capacity
- balanced encapsulated construction minimizes cold-flow of seats
- precise control
- bubble tight shut off
- interchangeable V port characterized seats
- precision stainless steel balls reduce torque and friction losses while extending seat life
- other characterized seats available
- blow-out proof stem
- live-loaded stem packing
- ISO 5211 mounting pad
- lock out, tag out
- ID polish is R_a 32 minimum
- maximum pressure rating: 1/2" - 2" **1000 PSI WOG**, 2 1/2" - 4" **800 PSI WOG**
- sizes 1/2" thru 4"

Ordering Information

When ordering please list part number along with description. Example:

BV2CL-200CC-A characterized V seat ball valve, virgin PTFE, 2" clamp ends, standard handle

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
B V 2 L V - 2 0 0 C C - A

| Valve (1-4) | Seat Material (5) | (6) | Size (7-9) | End (10-11) | (12) | Actuation (13-15) |
|-------------|----------------------|-----|------------|-----------------------|------|------------------------|
| BV2L 60° | V virgin PTFE | - | 050 1/2" | C Clamp | - | manual (13) |
| BV2M 30° | G RTFE | | 075 3/4" | B Weld | | A standard |
| | C 25% carbon PTFE | | 100 1" | F Female I-Line | | All others (13-15) |
| | S 50% stainless PTFE | | 150 1 1/2" | M Male I-Line | | Contact Dixon Sanitary |
| | U UHMW | | 200 2" | T Threaded Bevel | | |
| | | | 250 2 1/2" | P Plain Bevel | | |
| | | | 300 3" | Q Q-Line | | |
| | | | 400 4" | J John Perry Plain | | |
| | | | | H John Perry Threaded | | |
| | | | | E Extended Weld | | |
| | | | | 1 Female NPT | | |
| | | | | 2 Male NPT | | |
| | | | | 3 Socket Weld | | |

The BV2 series control valve has all the features and benefits of the BV2C sanitary encapsulated ball valve including complete interchangeability of all components. The BV2 "V" port control valve utilizes all the components of the BV2C including the full port ball. has introduced a special encapsulated characterized "V" port seat that replaces one end of the standard full port encapsulated seat. All five seat material options are available.

The throttling part of the valve is based on an encapsulated 60° "V" port. Characterized seat technology provides accurate modulating control. The characterized seat control valve gives you extremely precise control through the complete valve rotation. This design gives efficient laminar flow with bubble tight closure. Combine this with our wide variety of pneumatic or electric actuators, positioners and accessories and will provide a modulating control valve package that can match a multitude of performance requirements. 60° "V" port is standard. 30° "V" port is available on request. A simple change of the seat style and/or seat material allows a modification of valve C_v characteristic and fluid compatibility to match your process requirements.

Characterized V Seat 2-Way Sanitary Stainless Steel Control Valves

Specifications

| Size | Part # | Weight (lbs.) | Assembly Torque (in. lbs.) | Break Torque (in. lbs.) | ISO 5211 |
|------|----------------------|---------------|-------------------------------|----------------------------|----------|
| ½" | BV2"L or M**-050CC-A | 1.5 | 160 | 150 | F03/F04 |
| ¾" | BV2"L or M**-075CC-A | 1.9 | 160 | 116 | F03/F04 |
| 1" | BV2"L or M**-100CC-A | 2.7 | 160 | 336 | F04/F05 |
| 1½" | BV2"L or M**-150CC-A | 4.8 | 200 | 420 | F05/F07 |
| 2" | BV2"L or M**-200CC-A | 8.9 | 212 | 473 | F05/F07 |
| 2½" | BV2"L or M**-250CC-A | 18.7 | 221 | 788 | F07/F10 |
| 3" | BV2"L or M**-300CC-A | 29.7 | 239 | 1155 | F10/F12 |
| 4" | BV2"L or M**-400CC-A | 43.6 | 266 | 1680 | F10/F12 |

* see chart material options chart below

Seat Material Codes

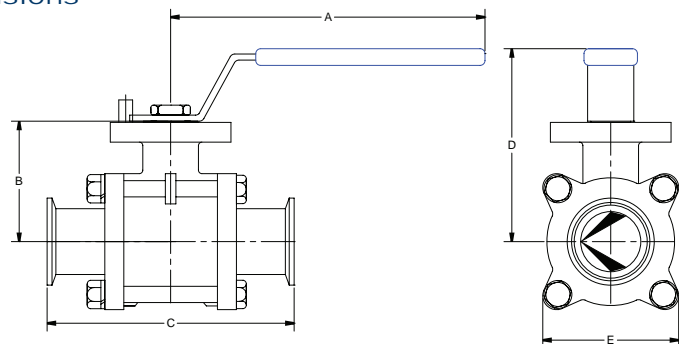
| Code | Description | Food Grade Material |
|------|---------------------------|---------------------|
| V | virgin PTFE | yes |
| G | RTFE | yes |
| C | 25% carbon PTFE | no |
| S | stainless reinforced PTFE | yes |
| U | UHMW | yes |

Flow Coefficient (C_v)

| Percent and Angle of Ball Rotation | | | | | | | | | | | | |
|------------------------------------|--------------|----|-----|------|-------|-------|-------|--------|--------|--------|--------|--------|
| Valve Size | V Port Angle | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
| ½" | 30° | 0 | .04 | .23 | .47 | .77 | 1.19 | 1.83 | 2.47 | 3.43 | 4.65 | 5.55 |
| | 60° | 0 | .04 | .28 | .73 | 1.11 | 1.83 | 2.92 | 4.29 | 7.00 | 9.43 | 12.78 |
| ¾" | 30° | 0 | .07 | .30 | .61 | .99 | 1.57 | 2.42 | 3.25 | 4.52 | 6.12 | 7.30 |
| | 60° | 0 | .07 | .35 | .93 | 1.46 | 2.42 | 3.85 | 5.64 | 9.21 | 12.41 | 16.25 |
| 1" | 30° | 0 | .08 | .45 | 1.25 | 2.06 | 3.54 | 5.30 | 7.70 | 10.49 | 12.84 | 15.48 |
| | 60° | 0 | .09 | .68 | 1.74 | 2.78 | 5.13 | 8.00 | 11.88 | 18.71 | 23.22 | 32.81 |
| 1½" | 30° | 0 | .07 | .65 | 1.88 | 3.39 | 5.66 | 8.36 | 12.12 | 16.17 | 20.44 | 23.88 |
| | 60° | 0 | .09 | .92 | 2.81 | 4.69 | 8.89 | 14.85 | 21.16 | 30.73 | 45.88 | 59.74 |
| 2" | 30° | 0 | .09 | 1.18 | 3.79 | 7.53 | 12.26 | 17.83 | 26.44 | 36.45 | 48.09 | 55.85 |
| | 60° | 0 | .11 | 1.51 | 5.80 | 10.39 | 20.60 | 33.98 | 48.75 | 69.04 | 104.23 | 135.75 |
| 2½" | 30° | 0 | .09 | 1.15 | 4.42 | 7.91 | 13.39 | 20.05 | 30.43 | 41.92 | 56.30 | 76.95 |
| | 60° | 0 | .13 | 1.46 | 5.91 | 11.90 | 23.24 | 37.92 | 59.31 | 83.29 | 113.65 | 162.50 |
| 3" | 30° | 0 | .12 | 1.20 | 4.15 | 9.49 | 15.96 | 26.78 | 38.91 | 53.31 | 69.77 | 85.91 |
| | 60° | 0 | .15 | 2.89 | 6.70 | 15.82 | 29.36 | 46.32 | 73.60 | 106.74 | 149.88 | 193.20 |
| 4" | 30° | 0 | .16 | 1.75 | 7.84 | 18.59 | 35.21 | 58.60 | 87.89 | 124.21 | 158.53 | 196.35 |
| | 60° | 0 | .26 | 2.20 | 12.44 | 33.67 | 62.98 | 106.26 | 160.49 | 233.96 | 329.50 | 437.29 |

Dimensions

| Size | A | B | C | D | E |
|------|------|-----|-----|-----|-----|
| ½" | 4.9 | 1.5 | 4.3 | 3.0 | 1.9 |
| ¾" | 4.9 | 1.8 | 4.7 | 3.3 | 2.2 |
| 1" | 5.6 | 2.1 | 4.9 | 3.6 | 2.4 |
| 1½" | 9.5 | 2.7 | 5.6 | 4.4 | 3.1 |
| 2" | 9.5 | 3.1 | 6.4 | 4.8 | 3.7 |
| 2½" | 18.0 | 3.8 | 7.8 | 5.2 | 4.8 |
| 3" | 18.0 | 4.2 | 9.0 | 5.7 | 5.4 |
| 4" | 18.0 | 5.3 | 9.5 | 6.8 | 8.8 |



All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.



Safety Valves - Technical Information



Applications:

- Safety valve prevents excess pressure of gaseous media in pipelines and vessels. The set pressure is always higher than the operating pressure. As soon as the pressure is reached, the valve opens against the force of the spring. The pressure excess is relieved as soon as the pressure is 10 % higher than the set pressure.

Features:

- valve body made from solid bar
- no dead spaces
- drainable
- high-grade inner surfaces
- no sump, no dome
- change of seals without special tools
- safety: closed spring cap
- optimum cleanability
- modular assembly systems
- connections suitable for orbital welding
- low spare part cost
- adjustable set pressure

Technical Data

Material:

- product contact: 1.4404/AISI316L
- optional: 1.4435/AISI316L
- non product contact: 1.4301/AISI304

Product Contact Seals:

- O-rings: EPDM or FKM

Temperatures:

- maximum standard operating temperature: 130 °C (266 °F)
- sterilization temperature: 150 °C (300 °F) short time* (approx. 20 min)

Pressure:

- set pressure: **22 PSI** to **116 PSI** resp. **29 PSI** to **116 PSI**
- controlled air pressure: min. **87 PSI** - max. **145 PSI**

Surfaces:

- wetted product surfaces: $R_a \leq 0.8 \mu\text{m}$ (32), optional surfaces available
- non product contact: $R_a = 1.6 \mu\text{m}$

Connections:

- weld ends combined with concentrically reduced inch clamp ferrules

**dependent on operating conditions*

3A versions not available

Contact Dixon Sanitary Engineering Department for all inquiries.

Safety Valves Certificate

Applications:

- RIEGER safety valves prevent pressure excesses because of their design: the inlet size is smaller than the outlet size.

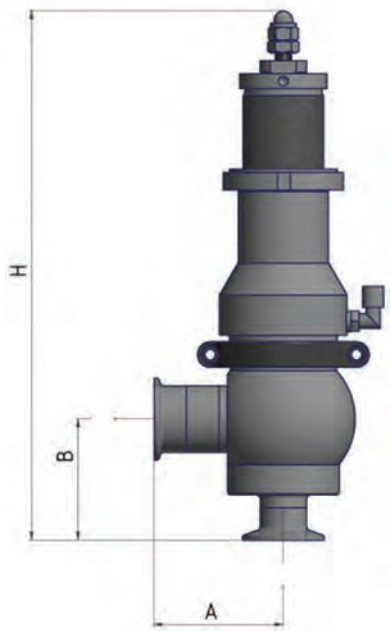
Features:

- Passed the EC type-examination (Module B) according to Directive 97/23/EG for steam and gas for the set ranges from **22 PSI to 116 PSI**, but for 1" / 1 1/2" from **29 PSI to 116 PSI**
- The corresponding certificate issued by: TÜV Industries Service GmbH TÜV SÜD Group Abteilung Druckbehälter Dudenstraße 28 D-68167 Mannheim

| | |
|--|--|
| <p>ZERTIFIKAT ♦ CERTIFICADO ♦ CERTIFICAT ♦ 認 証 証 書 CERTIFICATE ♦</p> |  Industrie Service |
| <h1>ZERTIFIKAT Certificate</h1> | |
| EG-Baumusterprüfung (Modul B) nach Richtlinie 97/23/EG EC Type-examination (Module B) according to Directive 97/23/EC | |
| Zertifikat-Nr.: Z-IS-DDB-MAN-07-01-13086879-001 Certificate No.: Gültigkeit / Validity: 10 Jahre / 10 Years | |
| Name und Anschrift des Herstellers: <small>Name and postal address of manufacturer:</small> | Gebr. Rieger GmbH & Co. KG Maschinenfabrik Kochertalstraße 32 73406 Aalen |
| Hiermit wird bescheinigt, daß das unten genannte EG-Baumuster die Anforderungen der Richtlinie 97/23/EG erfüllt. <small>We herewith certify that the type mentioned below meets the requirements of the Directive 97/23/EC.</small> | |
| Prüfbericht Nr.: <small>Test report No.:</small> | P-IS-DDB-MAN-07-01-13086879-001 P-IS-DDB-MAN-06-01-13086879-001 P-IS-DDB-MAN-07-01-13086879-002 |
| Geltungsbereich: <small>Scope of examination:</small> | Sicherheitsventile der Typen SH 01, SH 04 und SH 14 in den Baugrößen NW 10x15, 15x20, 20x25, 40x50 und 50x65 (Einstelldruck 1,5 – 8 bar) sowie 25x40 (Einstelldruck 2 – 8 bar) |
| Fertigungsstätte: <small>Manufacturing plant:</small> | Gebr. Rieger GmbH & Co. KG Ma- schinenfabrik Kochertalstraße 32 73406 Aalen TÜV SÜD Industrie Service GmbH |
| Mannheim, 05. Februar 2007 (Ort, Datum) <small>(Place, date)</small> Bitte beachten Sie die Hinweise auf der zweiten Seite. <small>Please note the remarks on the second page.</small> | TÜV-CERT-Zertifizierungsstelle für Druckgeräte  (Dr. M. Michael Arras) Benannte Stelle, Kennnummer 0036 Notified Body, No. 0036 |
| TÜV Industrie Service GmbH TÜV SÜD Gruppe Abteilung Druckbehälter Dudenstraße 28 68167 Mannheim | Tel.: (06 21) 3 95-2 57 Fax: (06 21) 3 95-5 94 www.tuv-sued.de |
| Mitglied der CONFÉDÉRATION EUROPÉENNE  D'ORGANISMES DE CONTRÔLE | |
| <small>Zertifikat 31-01-07-Modul-B-SH1.01.001-04-08Z.doc</small> | |
| <small>DGR Zertifikat Modul B.001</small> | |

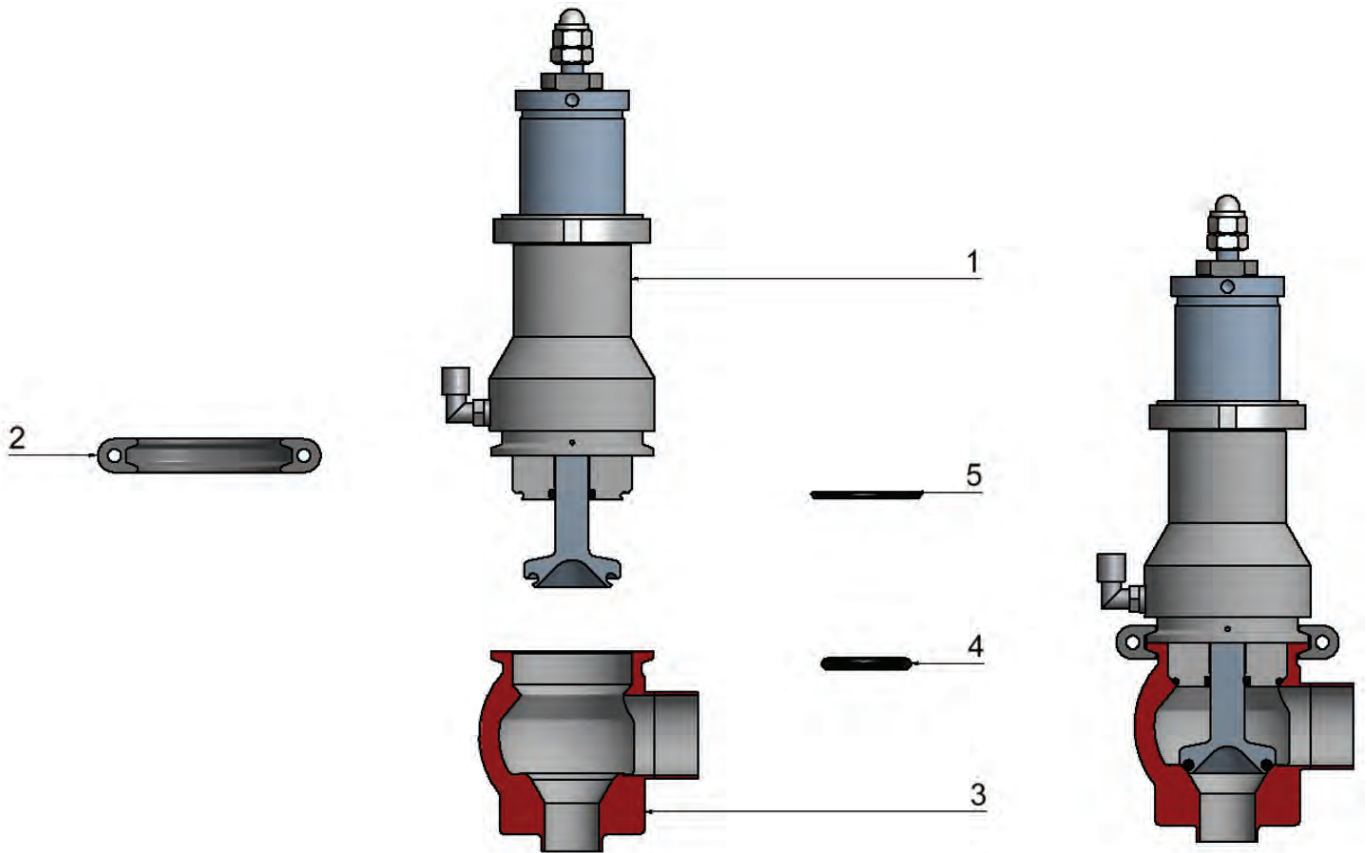
Safety Valve

With Pneumatic Connection for Cleaning – Inch Clamp Ferrule



| Size | A | B | H | PSI | | lbs |
|-------------|------|------|-------|-----|-----|------|
| | | | | min | max | |
| 1" / 1-1/2" | 3.15 | 3.15 | 13.15 | 29 | 116 | 12.5 |
| 1-1/2" / 2" | 3.94 | 3.54 | 14.96 | 22 | 116 | 15.8 |
| 2" / 2-1/2" | 4.72 | 3.94 | 16.06 | 22 | 116 | 20.2 |

Bill of Materials for Safety Valves



Repair Kit contains:

#4 (1) O-ring

#5 (1) O-ring

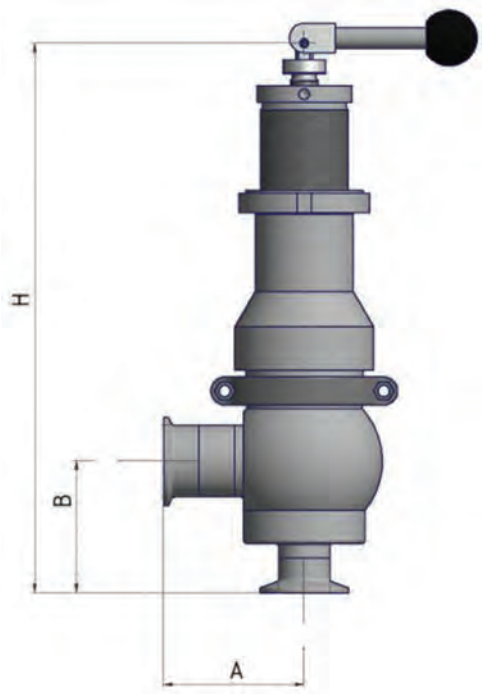
| Valve Size | Repair Kit Part # EPDM |
|-------------|---------------------------|
| 1" - 1-1/2" | SH-100150-RKE |
| 1-1/2" - 2" | SH-150200-RKE |
| 2" - 2-1/2" | SH-200250-RKE |

| Valve Size | Repair Kit Part # FKM |
|-------------|--------------------------|
| 1" - 1-1/2" | SH-100150-RKV |
| 1-1/2" - 2" | SH-150200-RKV |
| 2" - 2-1/2" | SH-200-250-RKV |

| Item | Description | Quantity |
|------|-------------|----------|
| 1 | actuator | 1 |
| 2 | clamp | 1 |
| 3 | housing | 1 |
| 4 | O-ring | 1 |
| 5 | O-ring | 1 |

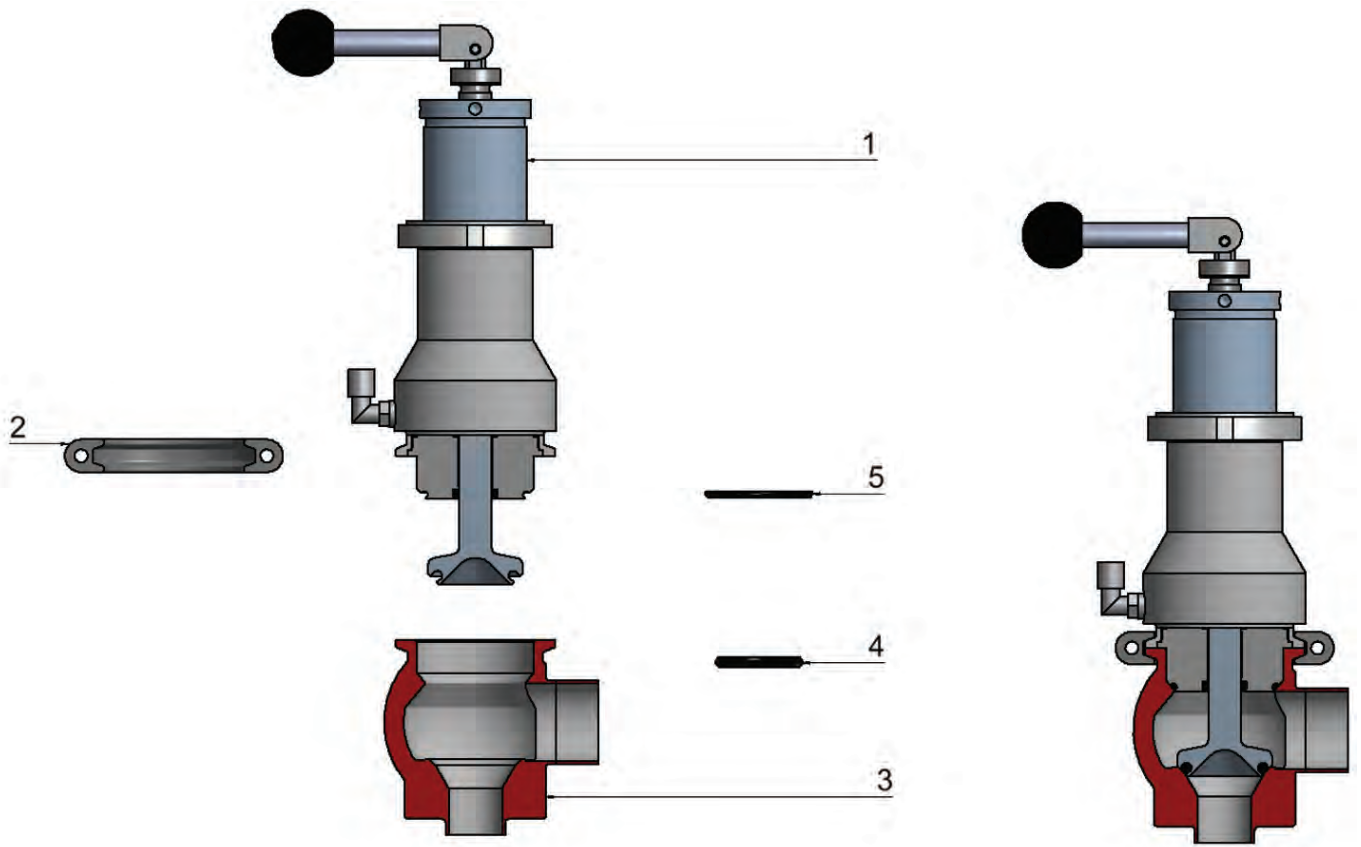
Safety Valve

With Lever for Cleaning – Inch Clamp Ferrule



| Size | A | B | H | PSI | | lbs |
|-------------|------|------|-------|-----|-----|------|
| | | | | min | max | |
| 1" / 1-1/2" | 3.15 | 3.15 | 13.15 | 29 | 116 | 12.8 |
| 1-1/2" / 2" | 3.94 | 3.54 | 14.96 | 22 | 116 | 16.1 |
| 2" / 2-1/2" | 4.72 | 3.94 | 16.06 | 22 | 116 | 20.5 |

Bill of Materials for Safety Valves



Repair Kit contains:

#4 (1) O-ring

#5 (1) O-ring

| Valve Size | Repair Kit Part # EPDM |
|-------------|---------------------------|
| 1" - 1-1/2" | SH-100150-RKE |
| 1-1/2" - 2" | SH-150200-RKE |
| 2" - 2-1/2" | SH-200250-RKE |

| Valve Size | Repair Kit Part # FKM |
|-------------|--------------------------|
| 1" - 1-1/2" | SH-100150-RKV |
| 1-1/2" - 2" | SH-150200-RKV |
| 2" - 2-1/2" | SH-200-250-RKV |

| Item | Description | Quantity |
|------|-------------|----------|
| 1 | actuator | 1 |
| 2 | clamp | 1 |
| 3 | housing | 1 |
| 4 | O-ring | 1 |
| 5 | O-ring | 1 |



Manual Overflow Valves - Technical Information



Applications:

- Valve opens when the set pressure is reached to prevent excess pressure in piping or systems. The lever allows lifting by hand for seat cleaning purposes. They are suitable for liquids, steam and gas.

Features:

- valve body made from solid bar
- no dead spaces
- drainable when mounted in various positions
- high-grade inner surfaces
- no sump, no dome
- clamp union between housing and actuator
- optimum cleanability
- low spare part cost

Technical Data

Material:

- product contact: 1.4404/AISI316L
- optional: 1.4435/AISI316L
- non product contact: 1.4301/AISI304

Product Contact Seals:

- O-rings: EPDM or FKM

Temperatures:

- maximum standard operating temperature: 130 °C (266 °F)
- sterilization temperature: 150 °C (300 °F) short time* (approx. 20 min)

Pressure:

- set pressure: 0.5 to 6 bar (**8 PSI to 87 PSI**) higher pressures on request

Surfaces:

- wetted product surfaces: $R_a \leq 0.8 \mu\text{m}$ (32), optional surfaces available
- non product contact: $R_a = 1.6 \mu\text{m}$

Standard Connections:

- O.D.-Tube (DIN 11866 C) weld optional connections on request

**dependent on operating conditions*

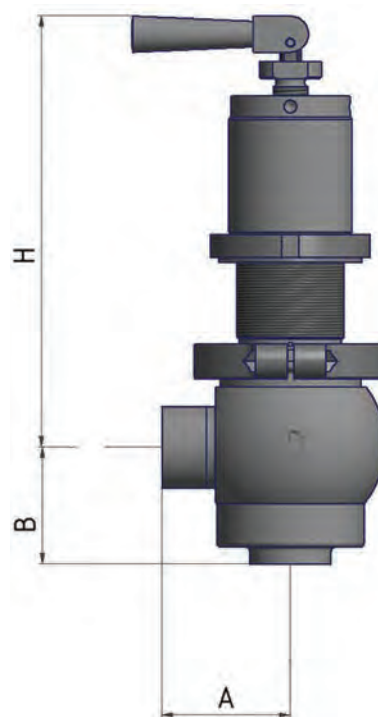
3A versions not available

Contact Dixon Sanitary Engineering Department for all inquiries.

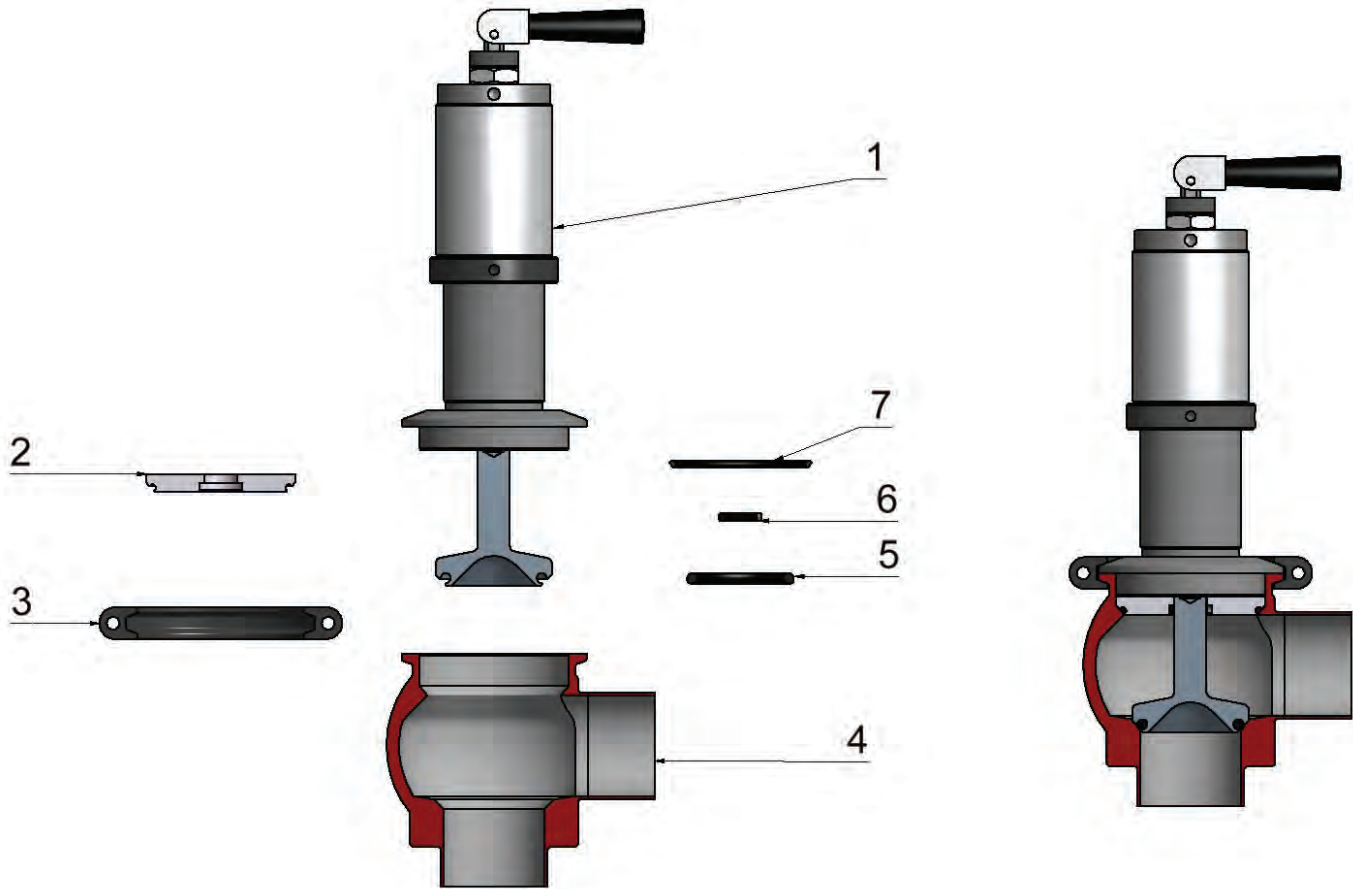
Overflow Valve

With Weld Ends

| Size | Nominal Wall | A | B | H | lbs |
|--------|--------------|------|------|-------|------|
| 1" | 1 x 0.065 | 1.97 | 1.97 | 7.68 | 5.7 |
| 1-1/2" | 1.5 x 0.065 | 2.36 | 2.36 | 8.07 | 8.8 |
| 2" | 2 x 0.065 | 3.15 | 2.76 | 10.04 | 11.1 |
| 2-1/2" | 2.5 x 0.065 | 3.86 | 3.15 | 12.20 | 22 |
| 3" | 3 x 0.065 | 4.92 | 3.74 | 13.39 | 29.1 |
| 4" | 4 x 0.083 | 5.00 | 3.86 | 13.78 | 36.4 |



Bill of Materials for Hygienic Overflow Valves



Repair Kit contains:

#5 (1) O-ring

#6 (1) O-ring

#7 (1) O-ring

| Valve Size | Repair Kit Part # EPDM |
|------------|---------------------------|
| 1" | MOV-100-RKE |
| 1-1/2" | MOV-150-RKE |
| 2" | MOV-200-RKE |
| 2-1/2" | MOV-250-RKE |
| 3" | MOV-300-RKE |
| 4" | MOV-400-RKE |

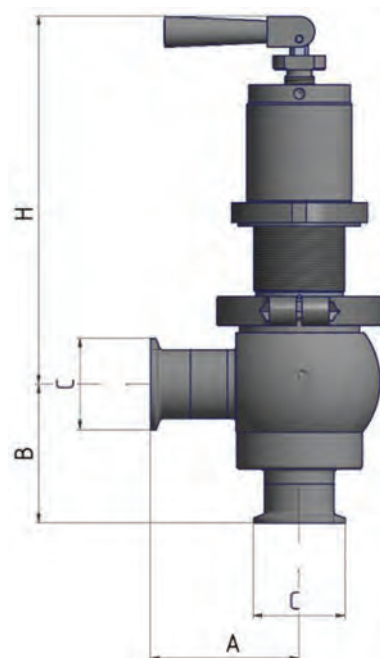
| Valve Size | Repair Kit Part # FKM |
|------------|--------------------------|
| 1" | MOV-100-RKV |
| 1-1/2" | MOV-150-RKV |
| 2" | MOV-200-RKV |
| 2-1/2" | MOV-250-RKV |
| 3" | MOV-300-RKV |
| 4" | MOV-400-RKV |

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | actuator | 1 |
| 2 | mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | housing | 1 |
| 5 | O-ring | 1 |
| 6 | O-ring | 1 |
| 7 | O-ring | 1 |

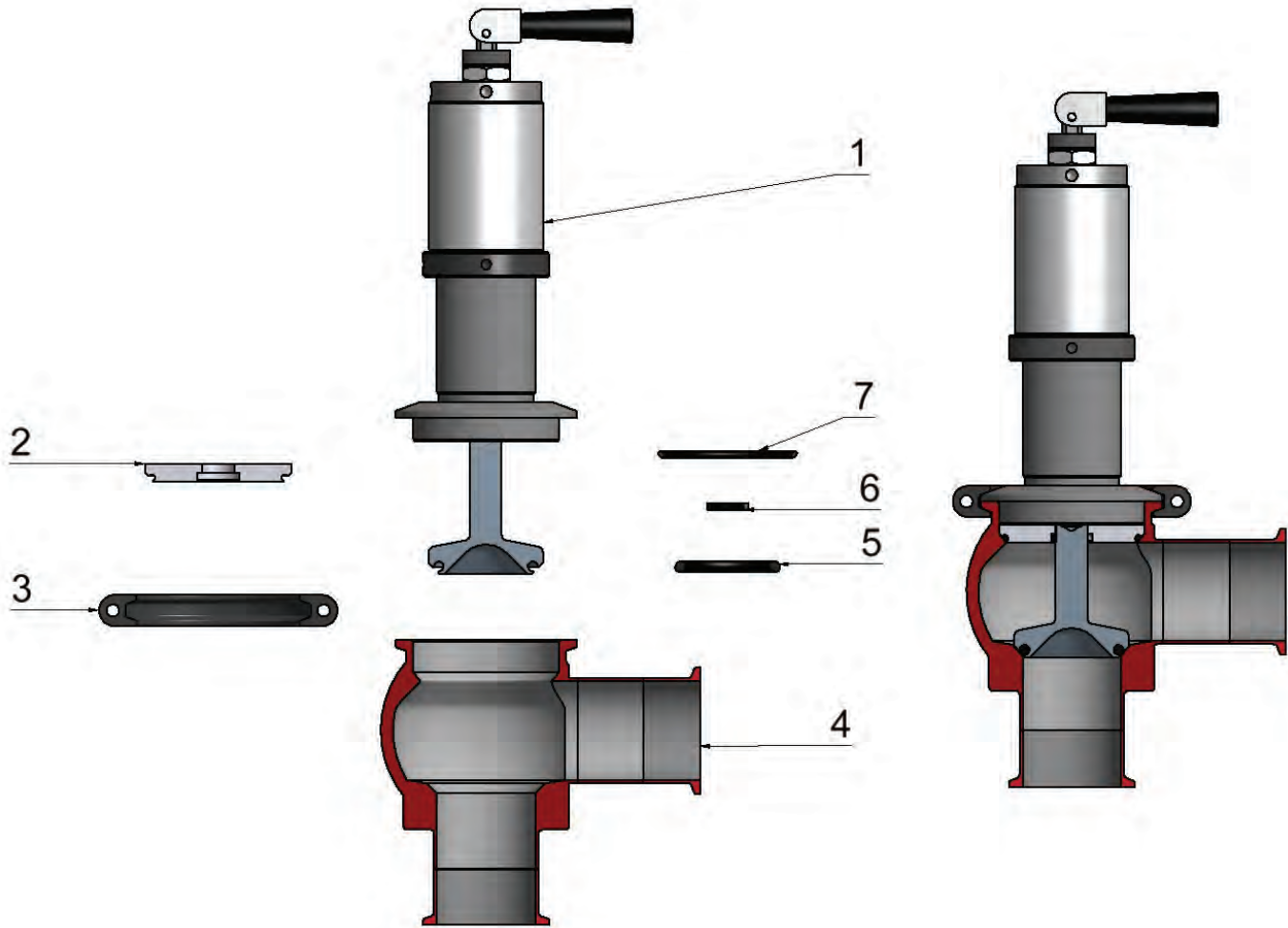
Overflow Valve

With Tri-Clamps

| Size | Nominal Wall | C | A | B | H | lbs |
|--------|--------------|------|------|------|-------|------|
| 1" | 1 x 0.065 | 1.99 | 3.07 | 3.07 | 8.07 | 6.2 |
| 1-1/2" | 1.5 x 0.065 | 1.99 | 3.46 | 3.46 | 8.27 | 9.3 |
| 2" | 2 x 0.065 | 2.52 | 4.25 | 3.86 | 10.63 | 11.5 |
| 2-1/2" | 2.5 x 0.065 | 3.05 | 4.96 | 4.25 | 12.79 | 22.5 |
| 3" | 3 x 0.065 | 3.58 | 6.02 | 4.84 | 14.17 | 30.0 |
| 4" | 4 x 0.083 | 4.69 | 6.10 | 4.96 | 14.57 | 37.5 |



Bill of Materials for Hygienic Overflow Valves



Repair Kit contains:

#5 (1) O-ring

#6 (1) O-ring

#7 (1) O-ring

| Valve Size | Repair Kit Part # EPDM |
|------------|---------------------------|
| 1" | MOV-100-RKE |
| 1-1/2" | MOV-150-RKE |
| 2" | MOV-200-RKE |
| 2-1/2" | MOV-250-RKE |
| 3" | MOV-300-RKE |
| 4" | MOV-400-RKE |

| Valve Size | Repair Kit Part # FKM |
|------------|--------------------------|
| 1" | MOV-100-RKV |
| 1-1/2" | MOV-150-RKV |
| 2" | MOV-200-RKV |
| 2-1/2" | MOV-250-RKV |
| 3" | MOV-300-RKV |
| 4" | MOV-400-RKV |

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | actuator | 1 |
| 2 | mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | housing | 1 |
| 5 | O-ring | 1 |
| 6 | O-ring | 1 |
| 7 | O-ring | 1 |

Pneumatic Overflow Valves - Technical Information

Applications:

- Valve opens when the set pressure is reached to prevent excess pressure in piping or systems. They are suitable for liquids, steam and gas.

Features:

- valve body made from solid bar
- no dead spaces
- drainable when mounted in various positions
- high-grade inner surfaces
- no sump, no dome
- clamp union between valve body and actuator
- easily and perfectly cleanable
- modular assembly system – easy change between hygienic and aseptic type
- standards seals
- spare parts out of right angle program

Technical Data

Material:

- product contact: 1.4404/AISI316L
- optional: 1.4435/AISI316L
- non product contact: 1.4301/AISI304

Seals:

- Hygienic EPDM O-rings
- Aseptic PTFE Bellows

Temperatures:

- maximum standard operating temperature EPDM: 130 °C (266 °F)
- maximum standard operating temperature PTFE: 121 °C (250 °F)
- sterilization temperature EPDM: 150 °C (300 °F) short time* (approx. 20 min)
- sterilization temperature PTFE: 135 °C (275 °F) short time* (approx. 20 min)

Set Range:

- possible set pressure for O-ring version: 0.5 to 6 bar (**8 PSI to 87 PSI**) 1.5 to 6 bar (**22 PSI to 87 PSI**)
- PTFE-bellows version pressure range depends on spring control air pressure: min 6 bar - max 10 bar (min. **87 PSI** - max **145 PSI**)

Surfaces:

- product contact optional: $R_a \leq 0.8 \mu\text{m}$ electro polished
- non product contact: $R_a = 1.6 \mu\text{m}$

Standard Connections:

- O.D.-Tube (DIN 11866 C) weld optional connections on request

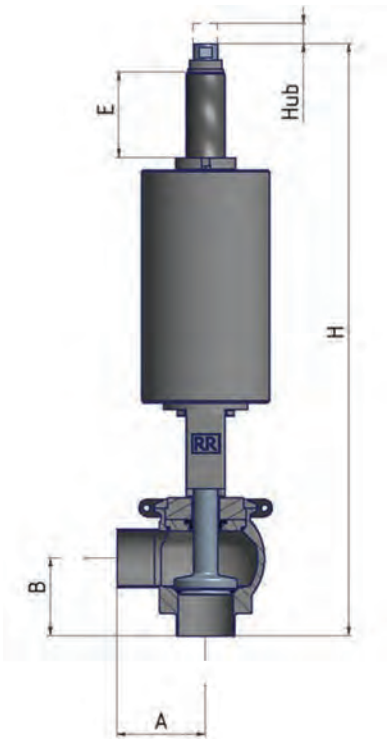
**dependent on operating conditions*



Contact Dixon Sanitary Engineering Department for all inquiries.

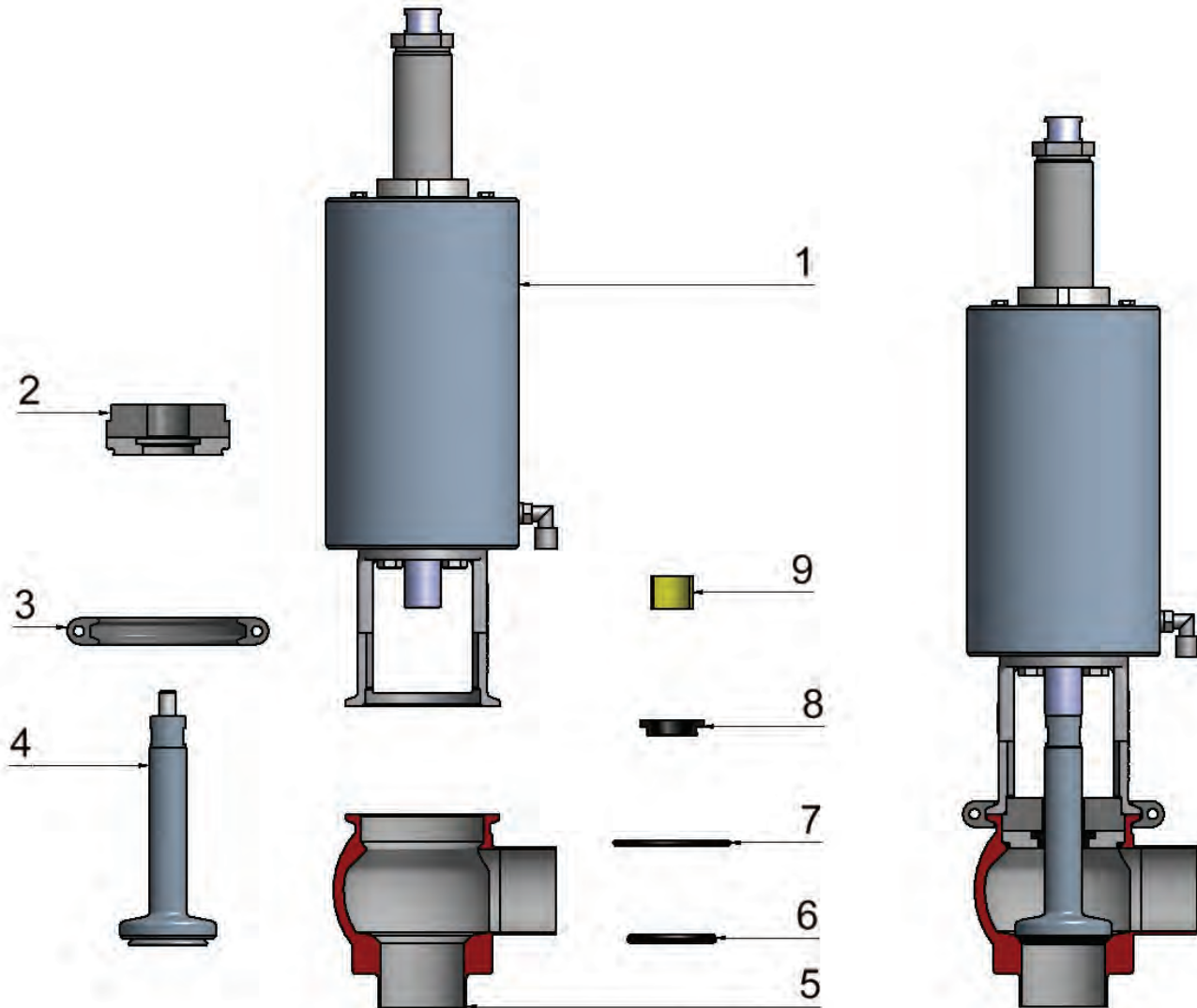
Overflow Valve

Hygienic



| Size | Nominal Wall | E | A | B | H | Stroke | lbs |
|--------|--------------|------|------|------|-------|--------|------|
| 1" | 1 x 0.065 | 1.5 | 1.97 | 1.97 | 15.0 | 0.27 | 17.6 |
| 1-1/2" | 1.5 x 0.065 | 1.97 | 3.15 | 2.16 | 16.89 | 0.35 | 24.3 |
| 2" | 2 x 0.065 | 3.07 | 3.15 | 2.55 | 21.49 | 0.47 | 28.7 |
| 2-1/2" | 2.5 x 0.065 | 3.62 | 3.97 | 2.75 | 24.92 | 0.63 | 35.3 |
| 3" | 3 x 0.065 | 3.62 | 4.72 | 3.15 | 26.38 | 0.75 | 46.3 |

Bill of Materials for Hygienic Overflow Valves



Repair Kit contains:

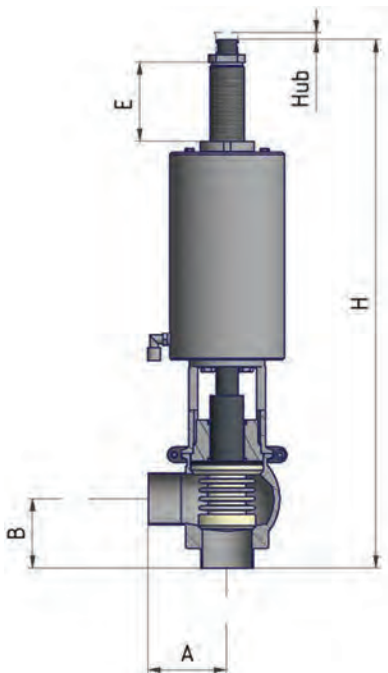
- #6 (1) O-ring
- #7 (1) O-ring
- #8 (1) gasket
- #9 (1) plastic bushing

| Valve Size | Repair Kit Part # |
|------------|-------------------|
| 1" | OVPH-100-RK |
| 1-1/2" | OVPH-150-RK |
| 2" | OVPH-200-RK |
| 2-1/2" | OVPH-250-RK |
| 3" | OVPH-300-RK |

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | actuator | 1 |
| 2 | mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | spindle | 1 |
| 5 | housing | 1 |
| 6 | O-ring | 1 |
| 7 | O-ring | 1 |
| 8 | gasket | 1 |
| 9 | plastic bushing | 1 |

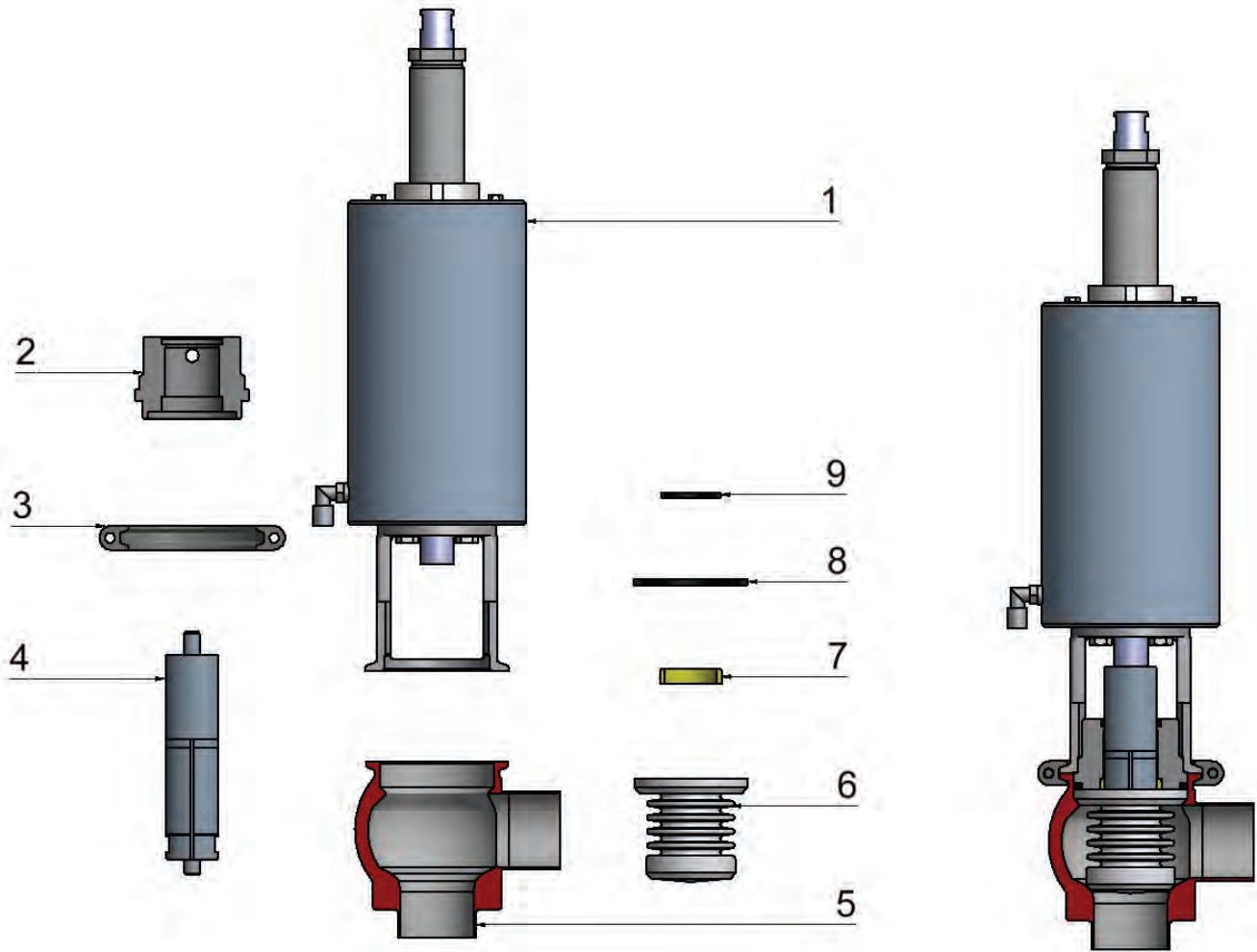
Overflow Valve

Aseptic



| Size | Nominal Wall | E | A | B | H | Stroke | lbs |
|--------|--------------|------|------|------|-------|--------|------|
| 1" | 1 x 0.065 | 1.5 | 1.97 | 1.97 | 15.0 | 0.27 | 17.6 |
| 1-1/2" | 1.5 x 0.065 | 1.97 | 3.15 | 2.16 | 16.89 | 0.35 | 24.3 |
| 2" | 2 x 0.065 | 3.07 | 3.15 | 2.55 | 21.49 | 0.47 | 28.7 |
| 2-1/2" | 2.5 x 0.065 | 3.62 | 3.97 | 2.75 | 24.92 | 0.63 | 35.3 |
| 3" | 3 x 0.065 | 3.62 | 4.72 | 3.15 | 26.38 | 0.75 | 46.3 |

Bill of Materials for Aseptic Overflow Valves



Repair Kit contains:

#6 (1) PTFE-bellows

#7 (1) guide

#8 (1) O-ring for bellows

#9 (1) O-ring for spindle

| Valve Size | Repair Kit Part # |
|------------|-------------------|
| 1" | OVPA-100-RK |
| 1-1/2" | OVPA-150-RK |
| 2" | OVPA-200-RK |
| 2-1/2" | OVPA-250-RK |
| 3" | OVPA-300-RK |

| Item | Description | Quantity |
|------|----------------------------|----------|
| 1 | actuator | 1 |
| 2 | mounting for spindle seals | 1 |
| 3 | clamp | 1 |
| 4 | spindle | 1 |
| 5 | housing | 1 |
| 6 | PTFE-bellows | 1 |
| 7 | guide | 1 |
| 8 | O-Ring for bellows | 1 |
| 9 | O-Ring for spindle | 1 |

Sanitary Breakaway Coupling



Applications:

- Minimizes spillage and damage associated with pull away and drive away incidents

Features:

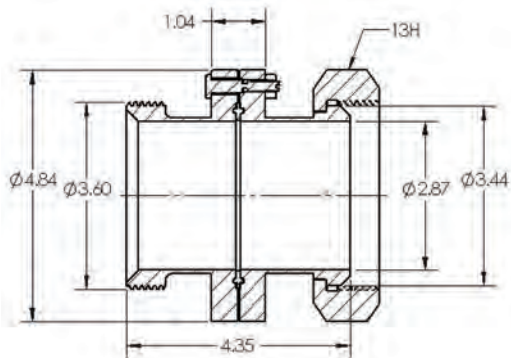
- designed to be installed between a fixed point and a hose
- coupling breaks away with an excessive load
- bevel seat connection standard, optional sanitary ends available
- EPDM standard clamp gasket, optional material available
- working pressure: 350 PSI @ 70°F
- 13kN break load bolts standard, other break loads available
- 316 stainless steel polished to standard <32R_a, 3A finish
- EPDM standard clamp gasket

Ordering Information

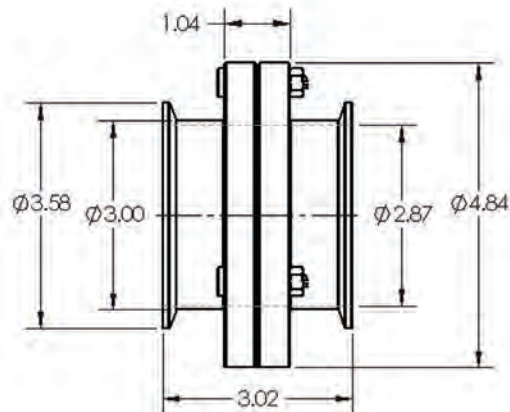
| Series (1-3) | (4) | Gasket Material (5) | | Size (6-9) | | End (10-11) | | Break Load kN (12-13) | |
|---------------------------------|-----|------------------------|----------|---------------|----|----------------|------------------------|--------------------------|------|
| SBC Sanitary Breakaway Coupling | - | E* | EPDM | 200 | 2" | C | Clamp | 09 | 9kN |
| | | V | FKM | 300* | 3" | B | Weld | 13* | 13kN |
| | | S | Silicone | 400 | 4" | F | Female I-Line | 15 | 15kN |
| | | B | Buna | | | M | Male I-Line | 24 | 24kN |
| | | | | | | T | Threaded Bevel | 33 | 33kN |
| | | | | | | P | Plain Bevel | | |
| | | | | | | Q | Q-Line | | |
| | | | | | | J | John Perry Plain | | |
| | | | | | | H | John Perry Threaded | | |
| | | | | | | E | Extended Weld | | |
| | | | | | | Z | Combination (Add Note) | | |

* Standard Configuration

Dimensions



Bevel Seat End
part # SBC-E300TP13



Clamp End
part # SBC-E300CC13

Sanitary Ball Valves

BV2C ball valve is manufactured of CF8M (316) stainless steel. It is a three piece **encapsulated** valve with clamp ends and ISO 5211 mounting pad.

BV2N ball valve is manufactured of CF8M (316) stainless steel. It is a three piece **non-encapsulated** valve with clamp ends and ISO 5211 mounting pad.



BV3S ball valve is manufactured of CF8M (316) stainless steel. It is a 3-way encapsulated valve with clamp ends and ISO 5211 mounting pad.

BV4S ball valve is manufactured of CF8M (316) stainless steel. It is a 4-way encapsulated valve with clamp ends and ISO 5211 mounting pad.



BV2G ball valve is manufactured of CF8M (316) stainless steel. It is a three piece **non-encapsulated** valve with clamp ends. There is no ISO mounting pad; for manual actuation only.



BV2L and BV2M ball valves are characterized V Seat 2-Way CF8M (316) sanitary stainless steel control valves. It is a three piece encapsulated valve with clamps end and ISO 5211 mounting pad.



Private label valve handles covers are available. See page 215

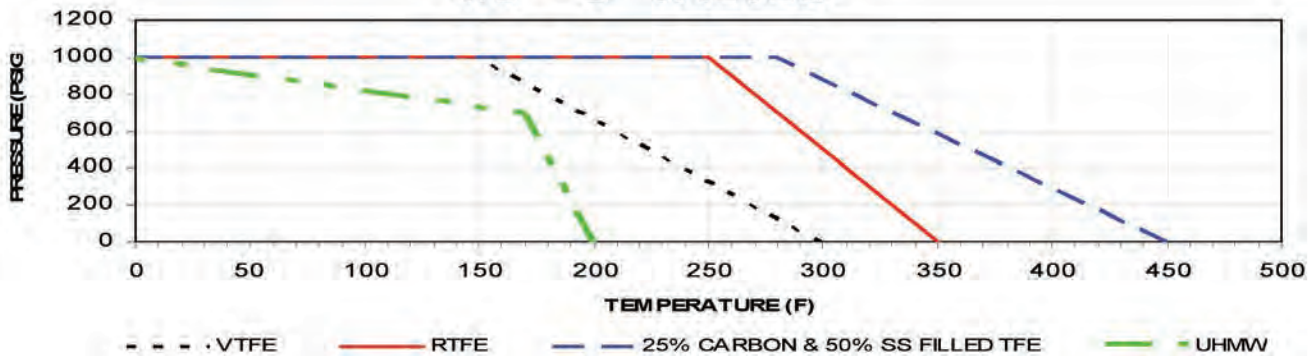
Sanitary Ball Valves

Seat Materials for Ball Valves

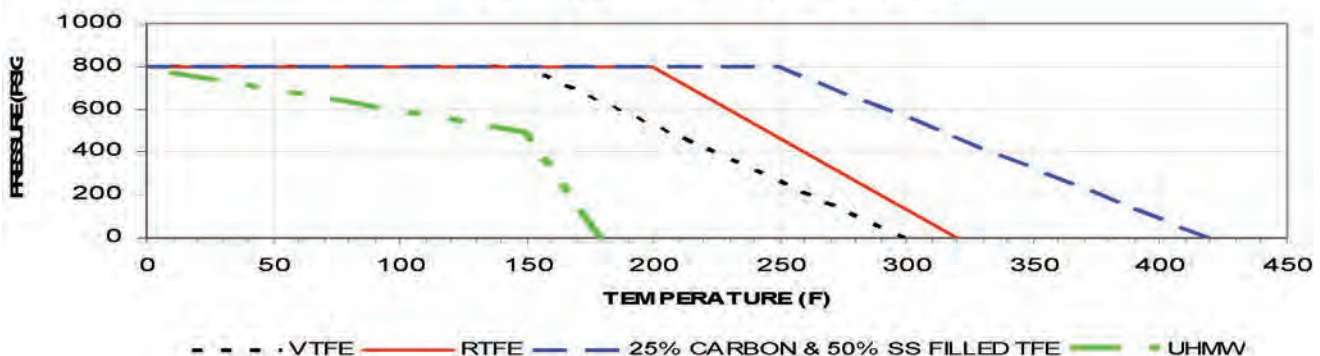
| Code | Designation | Material | Applications |
|------|----------------------|--|---|
| V | virgin PTFE | Virgin polytetrafluoroethylene | 100% PTFE Our standard seat material. Ideal for most sanitary services. Specified for applications requiring a low co-efficient of friction. Food Grade Material |
| G | RTFE | 15% Glass reinforced tetrafluoroethylene | 15% Glass filled + 85% PTFE Slightly higher temperature and pressure rating than PTFE. Specified for applications requiring higher cycle life than PTFE. Food Grade Material |
| C | 25% carbon PTFE | 25% Carbon reinforced tetrafluoroethylene | 25% Carbon +75% PTFE Specified for higher temperature pressure applications. Ideal for steam and thermal fluid applications. Higher cycle life than RTFE. |
| S | stainless steel PTFE | 50% Stainless steel filled tetrafluoroethylene | 50% Stainless steel + 50% PTFE Specified for higher temperature pressure applications in a sanitary process. Food Grade Material |
| U | UHMW | Ultra-high molecular weight polyethylene | Specified for its low modulus of abrasion and minimal property degradation when exposed to moderate levels of radiation. Ideal for applications where fluorocarbons are not acceptable. Food Grade Material |

Pressure Temperature Charts

1/2" - 2" VALVES



2 1/2" - 4" VALVES



Sanitary Ball Valves

Features and Benefits

- compact design for areas with tight space restrictions
- full port design offers lower pressure drop and a less turbulent flow
- balanced encapsulated construction minimizes cold-flow of seats
- precision stainless steel balls reduce torque and friction losses while extending seat life
- blow-out proof stem
- live-loaded stem packing
- ISO 5211 mounting pad
- lockable handle can prevent accidental actuation when used
- ID polish is R_a 32 minimum
- pressure rating: ½" - 2" **1000 PSI WOG**, 2½" - 4" **800 PSI WOG**
- see seat material ratings on page ?? for applicable temperature ranges
- sizes ½" thru 4"



Ordering Information

BV2C Encapsulated 2-way Sanitary Stainless Steel Ball Valve

BV2N Non-Encapsulated 2-way Sanitary Stainless Steel Ball Valve

When ordering please list part number along with description. Example:

BV2CV-200CC-A encapsulated ball valve, virgin PTFE, 2" clamp ends, standard handle

$\frac{1}{B}$ $\frac{2}{V}$ $\frac{3}{2}$ $\frac{4}{C}$ $\frac{5}{V}$ $\frac{6}{-}$ $\frac{7}{2}$ $\frac{8}{0}$ $\frac{9}{0}$ $\frac{10}{C}$ $\frac{11}{C}$ $\frac{12}{-}$ $\frac{13}{A}$ $\frac{14}{}$ $\frac{15}{}$

| Valve (1-4) | Seat Material (5) | (6) | Size (7-9) | End (10-11) | (12) | Actuation (13-15) |
|------------------|-------------------|-----|------------|-----------------------|------|------------------------|
| BV2C | V Virgin PTFE | - | 050 1/2" | C Clamp | - | Manual |
| Encapsulated | G RTFE | | 075 3/4" | B Weld | | A - Standard |
| BV2N | C 25% Carbon PTFE | | 100 1" | F Female I-Line | | All others (13-15) |
| Non-Encapsulated | S 50% SS PTFE | | 150 1-1/2" | M Male I-Line | | Contact Dixon Sanitary |
| | U UHMW | | 200 2" | T Threaded Bevel | | |
| | | | 250 2-1/2" | P Plain Bevel | | |
| | | | 300 3" | Q Q-Line | | |
| | | | 400 4" | J John Perry Plain | | |
| | | | | H John Perry Threaded | | |
| | | | | E Extended Weld | | |
| | | | | 1 Female NPT | | |
| | | | | 2 Male NPT | | |
| | | | | 3 Socket Weld | | |

Specifications

Information supplied based on water media at 68°F

| Size | Part # | Weight (lbs.) | Assembly Torque (in. lbs.) | Non-Encapsulated Break Torque ** (in. lbs.) | Encapsulated Break Torque ** (in. lbs.) | ISO 5211 |
|------|---------------|---------------|----------------------------|---|---|----------|
| ½" | BV2C*-050CC-A | 1.5 | 160 | 55 | 105 | F03/F04 |
| ¾" | BV2C*-075CC-A | 1.9 | 160 | 71 | 116 | F03/F04 |
| 1" | BV2C*-100CC-A | 2.7 | 160 | 101 | 336 | F04/F05 |
| 1½" | BV2C*-150CC-A | 4.8 | 200 | 221 | 420 | F05/F07 |
| 2" | BV2C*-200CC-A | 8.9 | 212 | 345 | 473 | F05/F07 |
| 2½" | BV2C*-250CC-A | 18.7 | 221 | 683 | 788 | F07/F10 |
| 3" | BV2C*-300CC-A | 29.7 | 239 | 830 | 1155 | F10/F12 |
| 4" | BV2C*-400CC-A | 43.6 | 266 | 1323 | 1680 | F10/F12 |

* Refer to seat material codes on the next page.

** Torque is measured at the valve stem with virgin PTFE seats, 100 PSI differential pressure, ambient temperature and fluid with a specific gravity of 1.0. For varying conditions or other seat options, please contact Dixon Sanitary. When the valve is not factory actuated by Dixon Sanitary, an additional safety factor is recommended.

Sanitary Ball Valves

Specifications

Vacuum Testing (virgin PTFE seats)

| Valve Size | Body Leakage (atm-cc/sec) | Helium Leak Rate Test |
|------------|------------------------------|-----------------------|
| ½" - 1½" | 1 x 10 ⁻⁹ | 10 ⁻⁵ Torr |
| 2" - 4" | 1 x 10 ⁻⁷ | 10 ⁻⁴ Torr |

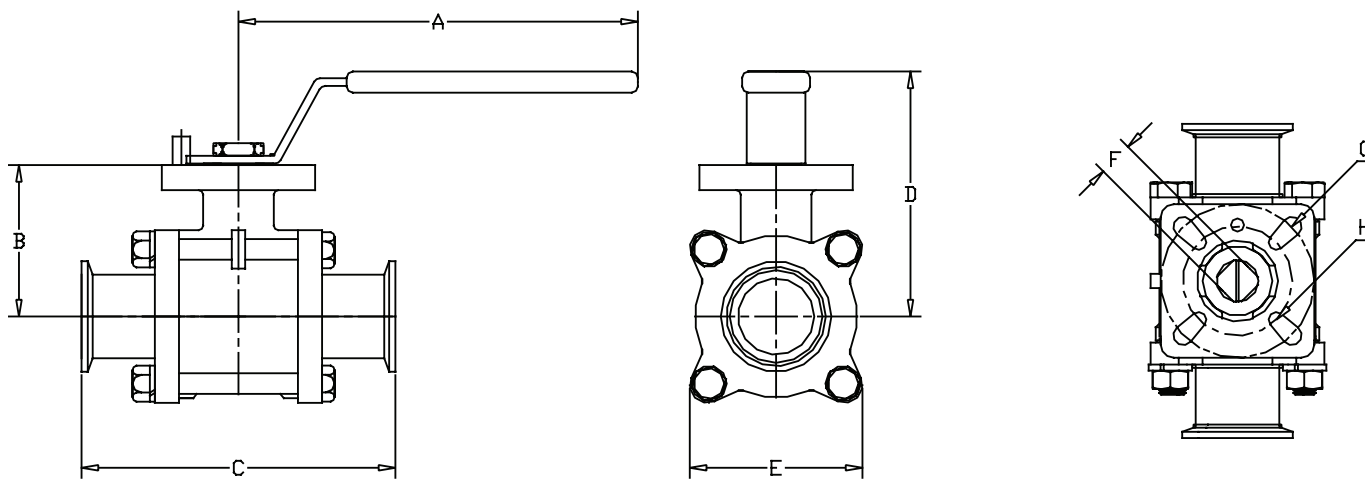
Flow Data

| Valve Size | Encapsulated and Non-encapsulated C _v |
|------------|--|
| ½" | 8 |
| ¾" | 29 |
| 1" | 66 |
| 1½" | 192 |
| 2" | 434 |
| 2½" | 723 |
| 3" | 1124 |
| 4" | 2100 |

Seat Material Codes

| Code | Description | Food Grade Materials |
|------|---------------------------|----------------------|
| V | virgin PTFE | yes |
| G | RTFE | yes |
| C | 25% carbon PTFE | no |
| S | stainless reinforced PTFE | yes |
| U | UHMW | yes |

Dimensions



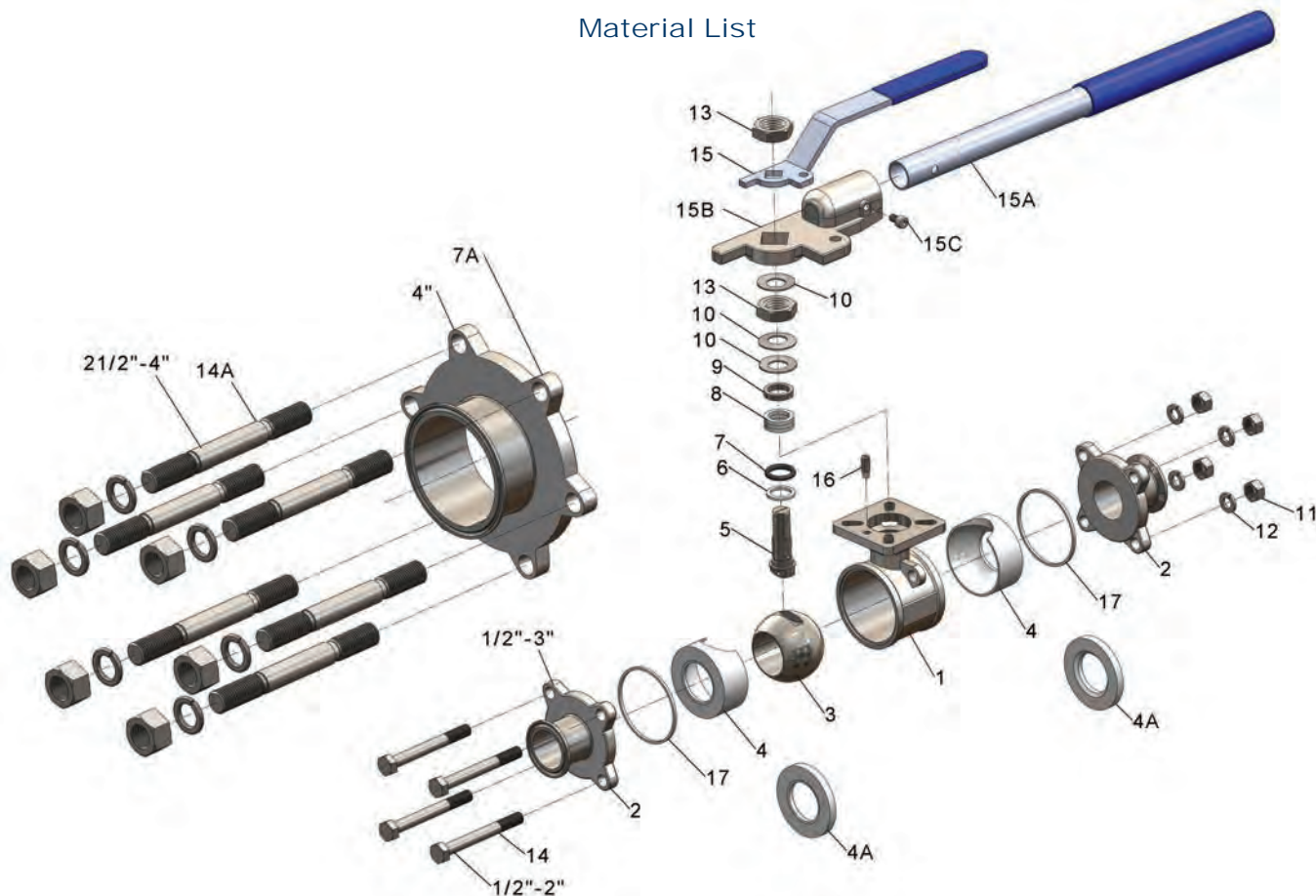
| Size | A | B | C | D | E | F (mm) | G | H |
|------|------|-----|-----|-----|-----|--------|-----|-----|
| ½" | 4.9 | 1.5 | 4.3 | 3.0 | 1.9 | 9 | F04 | F03 |
| ¾" | 4.9 | 1.8 | 4.7 | 3.3 | 2.2 | 9 | F04 | F03 |
| 1" | 5.6 | 2.1 | 4.9 | 3.6 | 2.4 | 11 | F05 | F04 |
| 1½" | 9.5 | 2.7 | 5.6 | 4.4 | 3.1 | 14 | F07 | F05 |
| 2" | 9.5 | 3.1 | 6.4 | 4.8 | 3.7 | 14 | F07 | F05 |
| 2½" | 18.0 | 3.8 | 7.8 | 5.2 | 4.8 | 17 | F10 | F07 |
| 3" | 18.0 | 4.2 | 9 | 5.7 | 5.4 | 17 | F12 | F10 |
| 4" | 18.0 | 5.3 | 9.5 | 6.8 | 8.8 | 22 | F12 | F10 |

All dimensions are in inches, unless noted. Dimensions are approximate.

Engineering dimensions are available upon request. Specifications are subject to change without notice.

Encapsulated and Non-Encapsulated 2-Way Sanitary Stainless Steel Ball Valves

Material List



Repair Kit contains:

#4 (2) seats (encapsulated)
or
#4A (2) seats (non-encapsulated)
#6 (1) thrust washer
#7 (1) O-ring
#8 (3) stem packings
#17 (2) body seals

| Valve Size | Repair Kit Part # |
|------------|--------------------|
| 1/2" | BV-2"C or N"-*K050 |
| 3/4" | BV-2"C or N"-*K075 |
| 1" | BV-2"C or N"-*K100 |
| 1 1/2" | BV-2"C or N"-*K150 |
| 2" | BV-2"C or N"-*K200 |
| 2 1/2" | BV-2"C or N"-*K250 |
| 3" | BV-2"C or N"-*K300 |
| 4" | BV-2"C or N"-*K400 |

| Code * | Description |
|--------|----------------------|
| V | virgin PTFE |
| G | RTFE |
| C | 25% carbon PTFE |
| S | stainless rein. PTFE |
| U | UHMW |

| Item | Description | Material | Quantity | | | |
|------|-------------------------|-----------------|------------|--------|-----|-----|
| | | | 1/2" to 2" | 2 1/2" | 3" | 4" |
| 1 | body | CF8M | 1 | 1 | 1 | 1 |
| 2 | end (4-bolt) | CF8M | 2 | 2 | 2 | n/a |
| 2A | end (6-bolt) | CF8M | n/a | n/a | n/a | 2 |
| 3 | ball | CF8M | 1 | 1 | 1 | 1 |
| 4 | seat (encapsulated) | V, G, C, S or U | 2 | 2 | 2 | 2 |
| 4A | seat (non-encapsulated) | V, G, C, S or U | 2 | 2 | 2 | 2 |
| 5 | stem | 316 | 1 | 1 | 1 | 1 |
| 6 | thrust washer | V, G, C, S or U | 1 | 1 | 1 | 1 |
| 7 | O-ring | FKM | 1 | 1 | 1 | 1 |
| 8 | stem packing | V, G, C, S or U | 3 | 3 | 3 | 3 |
| 9 | gland ring | 316 | 1 | 1 | 1 | 1 |
| 10 | bevel washer | 301 | 3 | 3 | 3 | 3 |
| 11 | hex nut | 304 | 4 | 4 | 8 | 12 |
| 12 | bolt washer | 304 | 4 | 4 | 8 | 12 |
| 13 | nut | 304 | 2 | 2 | 2 | 2 |
| 14 | bolt | 304 | 4 | 4 | n/a | n/a |
| 14A | bolt (double thread) | 304 | n/a | n/a | 4 | 6 |
| 15 | handle | 304/Vinyl | 1 | n/a | n/a | n/a |
| 15A | handle (rod) | 304/Vinyl | n/a | 1 | 1 | 1 |
| 15B | handle head | 304 | n/a | 1 | 1 | 1 |
| 15C | handle nut | 304 | n/a | 1 | 1 | 1 |
| 16 | stop pin | 316 | 1 | 1 | 1 | 1 |
| 17 | body seal | V, G, C, S or U | 2 | 2 | 2 | 2 |

Multi-Port Sanitary Stainless Steel Ball Valves

Features and Benefits



- compact design for areas with tight space restrictions
- full port design ($\frac{1}{2}$ " - 3") offers lower pressure drop and a less turbulent flow
- reduced port design on 4"
- balanced encapsulated construction minimizes cold-flow of seats
- precision stainless steel balls reduce torque and friction losses while extending seat life
- blow-out proof stem
- live-loaded stem packing
- ISO 5211 mounting pad
- lockable handle can prevent accidental actuation (when used)
- ID polish is R_a 32 or better
- pressure rating: $\frac{1}{2}$ " - 2" **1000 PSI** WOG, $2\frac{1}{2}$ " - 4" **800 PSI** WOG
- materials: CF8M (316) stainless steel
- sizes: $\frac{1}{2}$ " - 4"



Ordering Information

When ordering please list part number along with description. Example:

BV3SVTF200C-A 3-way, PTFE, T port, full port, 2", clamp ends, standard handle

$\frac{1}{B}$ $\frac{2}{V}$ $\frac{3}{3}$ $\frac{4}{S}$ $\frac{5}{V}$ $\frac{6}{T}$ $\frac{7}{F}$ $\frac{8}{2}$ $\frac{9}{0}$ $\frac{10}{0}$ $\frac{11}{C}$ $\frac{12}{-}$ $\frac{13}{A}$ $\frac{14}{}$ $\frac{15}{}$

| Valve (1-4) | Seat Material (5) | Ball Config (6) | Port Size (7) | Size (8-10) | End (11) | (12) | Actuation (13-15) |
|-------------|----------------------|-----------------|---------------|----------------------|-----------------------|------|--|
| BV3S 3 way | V Virgin PTFE | T T port | F full | 050 $\frac{1}{2}$ " | C Clamp | - | <i>manual (13)</i> |
| BV4S 4 way | G RTFE | L L port | R reduced * | 075 $\frac{3}{4}$ " | B Weld | | A standard |
| | C 25% carbon PTFE | | | 100 1" | F Female I-Line | | <i>All others (13-15) Contact Dixon Sanitary</i> |
| | S 50% stainless PTFE | | | 150 $1\frac{1}{2}$ " | M Male I-Line | | |
| | U UHMW | | | 200 2" | T Threaded Bevel | | |
| | | | | 250 $2\frac{1}{2}$ " | P Plain Bevel | | |
| | | | | 300 3" | Q Q-Line | | |
| | | | | 400 4" | J John Perry Plain | | |
| | | | | | H John Perry Threaded | | |
| | | | | | E Extended Weld | | |
| | | | | | 1 Female NPT | | |
| | | | | | 2 Male NPT | | |
| | | | | | 3 Socket Weld | | |

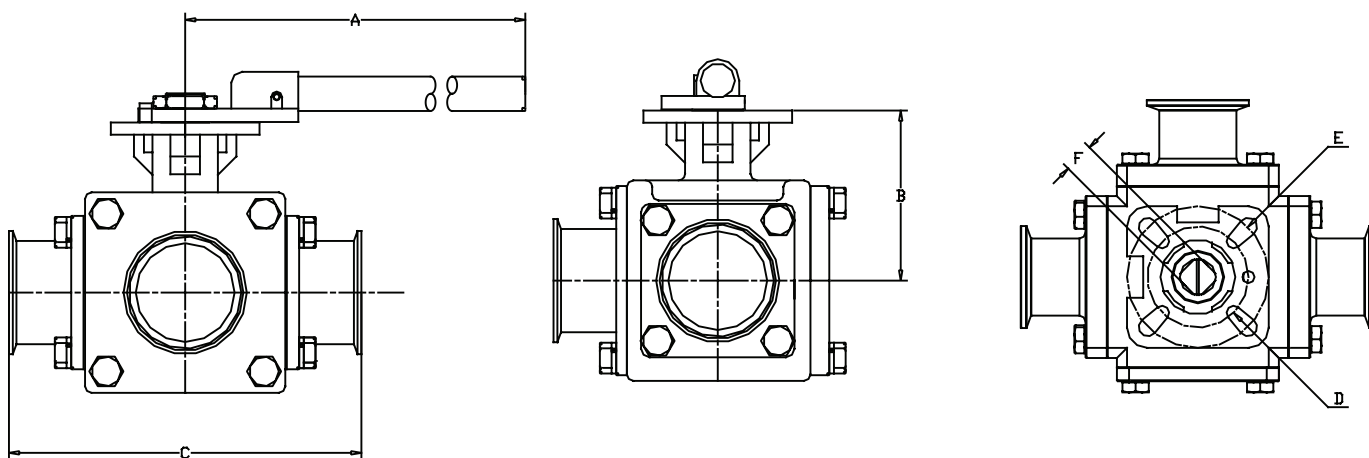
* reduced port 4" only

Multi-Port Sanitary Stainless Steel Ball Valves

Specifications (Virgin PTFE Seats and Seals)

| Size | Weight (lbs.) | Assembly Torque (in. lbs.) | Break Torque (in. lbs.) | | ISO 5211 | Flow Coefficient (C_v) (gpm) port configurations | | | Vacuum Testing | |
|------|---------------|----------------------------|-------------------------|---------|----------|---|--------|------------|---------------------------|-----------------------|
| | | | L style | T style | | L | T thru | T branched | Body Leakage (atm-cc/sec) | Helium Leak Rate Test |
| ½" | 3.6 | 160 | 62 | 50 | F03/F04 | 3.5 | 5.3 | 3 | 1 x 10 ⁻⁹ | 10 ⁻⁵ Torr |
| ¾" | 4.3 | 160 | 75 | 60 | F03/F04 | 10 | 14 | 8 | 1 x 10 ⁻⁹ | 10 ⁻⁵ Torr |
| 1" | 6.8 | 160 | 100 | 80 | F04/F05 | 20 | 30 | 14 | 1 x 10 ⁻⁹ | 10 ⁻⁵ Torr |
| 1½" | 12.6 | 200 | 262 | 210 | F05/F07 | 52 | 80 | 44 | 1 x 10 ⁻⁹ | 10 ⁻⁵ Torr |
| 2" | 21.6 | 212 | 535 | 425 | F05/F07 | 100 | 150 | 83 | 1 x 10 ⁻⁷ | 10 ⁻⁴ Torr |
| 2½" | 33.7 | 221 | 1250 | 1000 | F07/F10 | 148 | 176 | 108 | 1 x 10 ⁻⁷ | 10 ⁻⁴ Torr |
| 3" | 56.4 | 239 | 1625 | 1300 | F10/F12 | 250 | 380 | 200 | 1 x 10 ⁻⁷ | 10 ⁻⁴ Torr |
| 4" | 85.4 | 266 | 1875 | 1500 | F10/F12 | 450 | 650 | 350 | 1 x 10 ⁻⁷ | 10 ⁻⁴ Torr |

Dimensions



| Size | A | B | C | D | E | F (mm) | Weight (lbs.) |
|------|------|-----|------|-----|-----|--------|---------------|
| ½" | 4.9 | 3.2 | 4.6 | F03 | F04 | 9 | 3.6 |
| ¾" | 5.0 | 3.4 | 5.1 | F03 | F04 | 9 | 4.3 |
| 1" | 5.3 | 3.8 | 6.0 | F04 | F05 | 11 | 6.8 |
| 1½" | 9.3 | 4.5 | 6.9 | F05 | F07 | 14 | 12.6 |
| 2" | 9.4 | 5.0 | 7.5 | F05 | F07 | 14 | 21.6 |
| 2½" | 18.0 | 5.3 | 8.4 | F07 | F10 | 17 | 33.7 |
| 3" | 18.3 | 6.4 | 9.6 | F10 | F12 | 22 | 56.4 |
| 4" | 18.3 | 6.8 | 11.5 | F10 | F12 | 22 | 85.4 |

*All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.*

Multi-Port Sanitary Stainless Steel Ball Valves

Part Numbers

| Size | 3-Way L port Part # | 3-Way T port Part # | 4-Way L port Part # | 4-Way T port Part # |
|------|------------------------|------------------------|------------------------|------------------------|
| ½" | BV3S*LF050C-A | BV3S*TF050C-A | BV4S*LF050C-A | BV4S*TF050C-A |
| ¾" | BV3S*LF075C-A | BV3S*TF075C-A | BV4S*LF075C-A | BV4S*TF075C-A |
| 1" | BV3S*LF100C-A | BV3S*TF100C-A | BV4S*LF100C-A | BV4S*TF100C-A |
| 1½" | BV3S*LF150C-A | BV3S*TF150C-A | BV4S*LF150C-A | BV4S*TF150C-A |
| 2" | BV3S*LF200C-A | BV3S*TF200C-A | BV4S*LF200C-A | BV4S*TF200C-A |
| 2½" | BV3S*LF250C-A | BV3S*TF250C-A | BV4S*LF250C-A | BV4S*TF250C-A |
| 3" | BV3S*LF300C-A | BV3S*TF300C-A | BV4S*LF300C-A | BV4S*TF300C-A |
| 4" | BV3S*LR400C-A | BV3S*TR400C-A | BV4S*LR400C-A | BV4S*TR400C-A |

* see seat material options chart below.

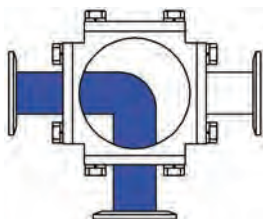
Flow path position number must be specified at the time of order if valve is actuated.

Seat Material Codes

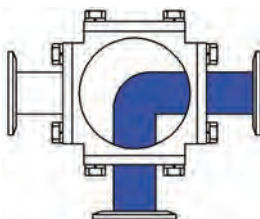
| Code | Description | Food Grade Materials |
|------|---------------------------|----------------------|
| V | virgin PTFE | yes |
| G | RTFE | yes |
| C | 25% carbon PTFE | no |
| S | stainless reinforced PTFE | yes |
| U | UHMW | yes |

3-Way Side Entry Flow Paths

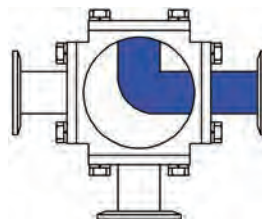
3-way 'L'-port
position A



3-way 'L'-port
position B

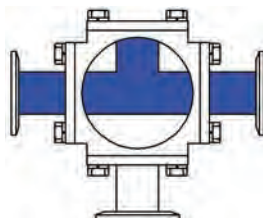


3-way 'L'-port
position C

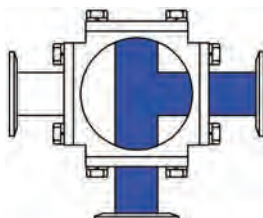


| Number | Rotation | Flow Plan Options |
|--------|----------|-------------------|
| 1 | 90° | A, B |
| 2 | 180° | A, B, C |

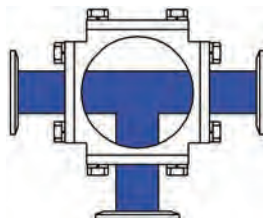
3-way 'T'-port
position A



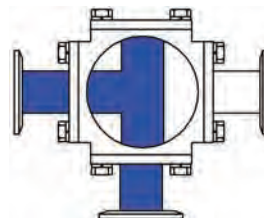
3-way 'T'-port
position B



3-way 'T'-port
position C



3-way 'T'-port
position D



| Number | Rotation | Flow Plan Options |
|--------|----------|-------------------|
| 1 | 90° | A, B |
| 2 | 90° | B, C |
| 3 | 90° | C, D |
| 4 | 90° | A, D |

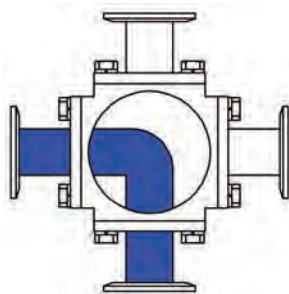
| Number | Rotation | Flow Plan Options |
|--------|----------|-------------------|
| 5 | 180° | A, B, C |
| 6 | 180° | B, C, D |
| 7 | 180° | A, C, D |
| 8 | 180° | A, B, D |

Multi-Port Sanitary Stainless Steel Ball Valves

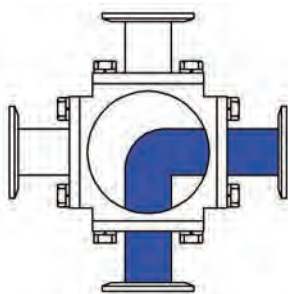
4-Way Side Entry Flow Paths

Flow path position number must be specified at the time of order if valve is actuated.

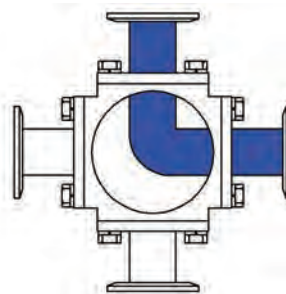
4-way 'L'-port
position A



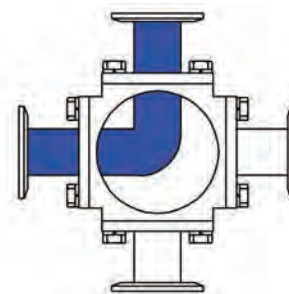
4-way 'L'-port
position B



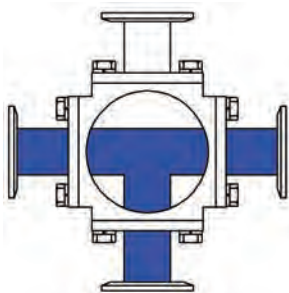
4-way 'L'-port
position C



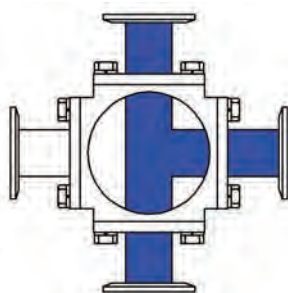
4-way 'L'-port
position D



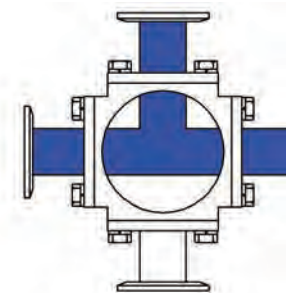
4-way 'T'-port
position A



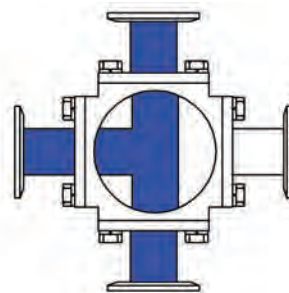
4-way 'T'-port
position B



4-way 'T'-port
position C



4-way 'T'-port
position D

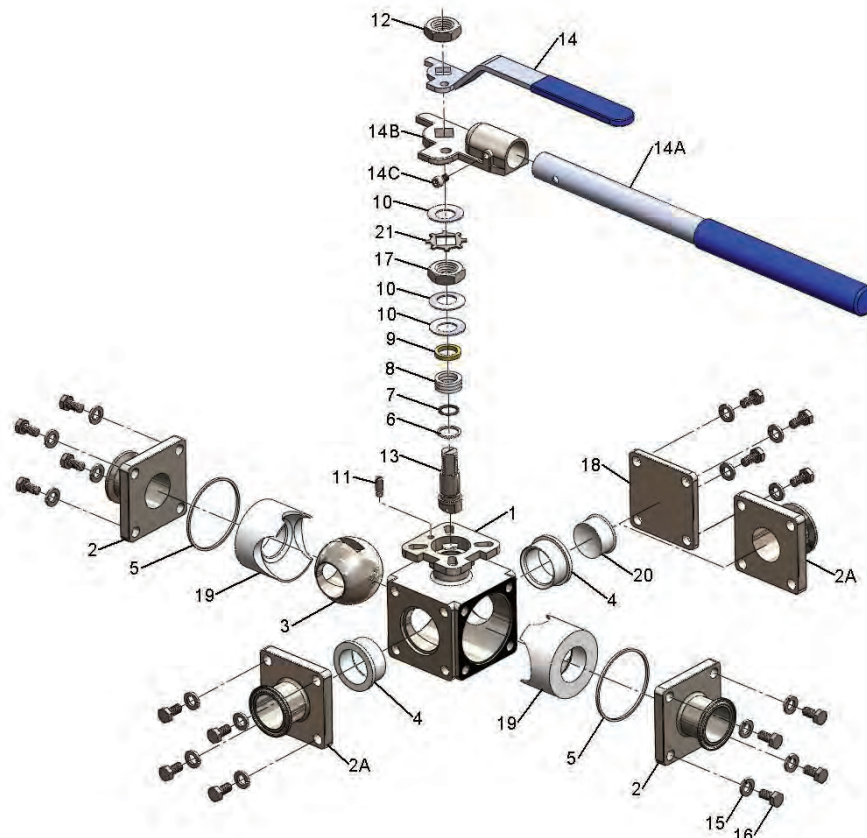


J

| Number | Rotation | Flow Plan Options |
|--------|----------|-------------------|
| 1 | 90° | A, B |
| 2 | 90° | B, C |
| 3 | 90° | C, D |
| 4 | 90° | A, D |
| 5 | 180° | A, B, C |
| 6 | 180° | B, C, D |
| 7 | 180° | A, C, D |
| 8 | 180° | A, B, D |

Multi-Port Sanitary Stainless Steel Ball Valves

Material List



Repair Kit contains:

#4 (2) encapsulated seat
small

#5 (2) body seals

#6 (1) thrust washer

#7 (1) O-ring

#8 (see chart) stem packing

| size | qty |
|------------|-----|
| 1/2" | 1 |
| 3/4" | 2 |
| 1" thru 4" | 3 |

#19 (2) encapsulated seat
large

#20 (1) plug *

* 3-way only

| Item | Description | Material | Quantity | | | |
|------|---------------------------|-----------------|------------|--------------|------------|--------------|
| | | | 3-way | | 4-way | |
| | | | 1/2" to 2" | 2 1/2" to 4" | 1/2" to 2" | 2 1/2" to 4" |
| 1 | body | CF8M | 1 | 1 | 1 | 1 |
| 2 | end (large) | CF8M | 3 | 2 | 4 | 2 |
| 2A | end (small) | CF8M | n/a | 1 | n/a | 2 |
| 3 | ball | CF8M | 1 | 1 | 1 | 1 |
| 4 | encapsulated seat (small) | V, G, C, S or U | 2 | 2 | 2 | 2 |
| 5 | body seals | V, G, C, S or U | 2 | 2 | 2 | 2 |
| 6 | thrust washer | V, G, C, S or U | 1 | 1 | 1 | 1 |
| 7 | o-ring | FKM | 1 | 1 | 1 | 1 |
| 8 | stem packing | V, G, C, S or U | * | * | * | * |
| 9 | gland ring | 316 | 1 | 1 | 1 | 1 |
| 10 | spring washer | 301 | 2 | 2 | 2 | 2 |
| 11 | stop pin | 304 | 1 | 1 | 1 | 1 |
| 12 | nut | 304 | 1 | 1 | 1 | 1 |
| 13 | stem | 316 | 1 | 1 | 1 | 1 |
| 14 | handle w/ cover | 304 / PLASTIC | 1 | n/a | 1 | n/a |
| 14A | handle (rod) w/ cover | 304 / PLASTIC | n/a | 1 | n/a | 1 |
| 14B | handle head | 304 | n/a | 1 | n/a | 1 |
| 14C | handle screw | 304 | n/a | 1 | n/a | 1 |
| 15 | lock washer | 304 | 16 | 16 | 16 | 16 |
| 16 | bolt | 304 | 16 | 16 | 16 | 16 |
| 17 | nut (stem packing) | 304 | 1 | 1 | 1 | 1 |
| 18 | cover plate | CF8M | 1 | 1 | n/a | n/a |
| 19 | encapsulated seat (large) | V, G, C, S or U | 2 | 2 | 2 | 2 |
| 20 | plug | V, G, C, S or U | 1 | 1 | n/a | n/a |
| 21 | lock washer | 304 | na | 1 | n/a | 1 |

| Valve Size | 3-Way and 4-Way Repair Kit Part # |
|------------|-----------------------------------|
| 1/2" | BV-3S*RK050 |
| 3/4" | BV-3S*RK075 |
| 1" | BV-3S*RK100 |
| 1 1/2" | BV-3S*RK150 |
| 2" | BV-3S*RK200 |
| 2 1/2" | BV-3S*RK250 |
| 3" | BV-3S*RK300 |
| 4" | BV-3S*RK400 |

| Code * | Description |
|--------|-------------------|
| V | virgin PTFE |
| G | RTFE |
| C | 25% carbon PTFE |
| S | stain. rein. PTFE |
| U | UHMW |

Ball Valve Automation

Manual Ball Valves with Limit Switch

Dixon Sanitary offers remote indication on manual valves. This allows an operator to see valve position from a central panel in the plant, saving labor costs.

Features and Benefits

- signal back equipment can be provided for information on open / close positions, intermediate and proportional feedback
- position detection can be determined using mechanical switches, proximity switches, or 4-20 mA signal transmission in NEMA 4 or NEMA 7 enclosures

Manual ball valve with NEMA 4 SPDT limit switches. Remote indication is also available on butterfly valves.



3 Piece Stainless Steel Sanitary Ball Valves

Dixon Sanitary offers various configurations of automated sanitary 2-way ball valves. Call for price and delivery of different options.

Automated encapsulated 2-way ball valve weld ends spring return actuator and NEMA 7 (explosion proof) SPDT limit switch with two proximity switches and NEMA 7 NAMUR mount 24VDC solenoid valve.



Automated encapsulated ball valve with direct mount double acting, actuator and NEMA 7 (explosion proof with 2 mechanical switches) SPDT limit switch.



Automated 2-way encapsulated ball valve with spring return fail close actuator and NEMA 4/4X limit switch with two SPDT mechanical switches.



Non-Encapsulated 2-Way 3 Piece Stainless Steel Ball Valves

Features and Benefits



- compact design for areas with tight space restrictions
- full port design offers lower pressure drop and a less turbulent flow
- balanced non-encapsulated construction minimizes cold flow
- precision stainless steel balls reduce torque and friction losses while extending seat life
- blow-out proof stem
- lockable handle can prevent accidental actuation when used
- ID polish is R_a 32 minimum
- pressure rating: $\frac{1}{2}$ " - 2" **1000 PSI** WOG, $2\frac{1}{2}$ " - 4" **800 PSI** WOG
- see seat material ratings on page 53 for applicable temperature ranges
- materials: CF8M (316) stainless steel
- sizes $\frac{1}{2}$ " thru 4"

Ordering Information

When ordering please list part number along with description. Example:

BV2GG-200CC-A non-encapsulated ball valve, 2" clamp ends, standard handle

1 2 3 4 5 6 7 8 9 10 11 12 13
B V 2 G G - 2 0 0 C C - A

| Valve (1-4) | Seat Material (5) | (6) | Size (7-9) | Ends (10-11) | (12) | Actuation (13) |
|-------------|------------------------------|-----|----------------------|-----------------------|------|----------------|
| BV2G | G RTFE | - | 050 $\frac{1}{2}$ " | C Clamp | - | A standard |
| | C 25% carbon reinforced PTFE | | 075 $\frac{3}{4}$ " | B Weld | | |
| | | | 100 1" | F Female I-Line | | |
| | | | 150 $1\frac{1}{2}$ " | M Male I-Line | | |
| | | | 200 2" | T Threaded Bevel | | |
| | | | 250 $2\frac{1}{2}$ " | P Plain Bevel | | |
| | | | 300 3" | Q Q-Line | | |
| | | | 400 4" | J John Perry Plain | | |
| | | | | H John Perry Threaded | | |
| | | | | E Extended Weld | | |
| | | | | 1 Female NPT | | |
| | | | | 2 Male NPT | | |
| | | | | 3 Socket Weld | | |

Specifications

| Size | Part | Weight (in. lbs.) | Break Torque (in. lbs.) |
|------------------|---------------|-------------------|-------------------------|
| $\frac{1}{2}$ " | BV2G*-050CC-A | 1.4 | 55 |
| $\frac{3}{4}$ " | BV2G*-075CC-A | 1.8 | 71 |
| 1" | BV2G*-100CC-A | 2.6 | 101 |
| $1\frac{1}{2}$ " | BV2G*-150CC-A | 4.6 | 221 |
| 2" | BV2G*-200CC-A | 8.5 | 345 |
| $2\frac{1}{2}$ " | BV2G*-250CC-A | 17.8 | 883 |
| 3" | BV2G*-300CC-A | 28.2 | 830 |
| 4" | BV2G*-400CC-A | 41.4 | 1323 |

* G - RTFE; C - 25% carbon/PTFE

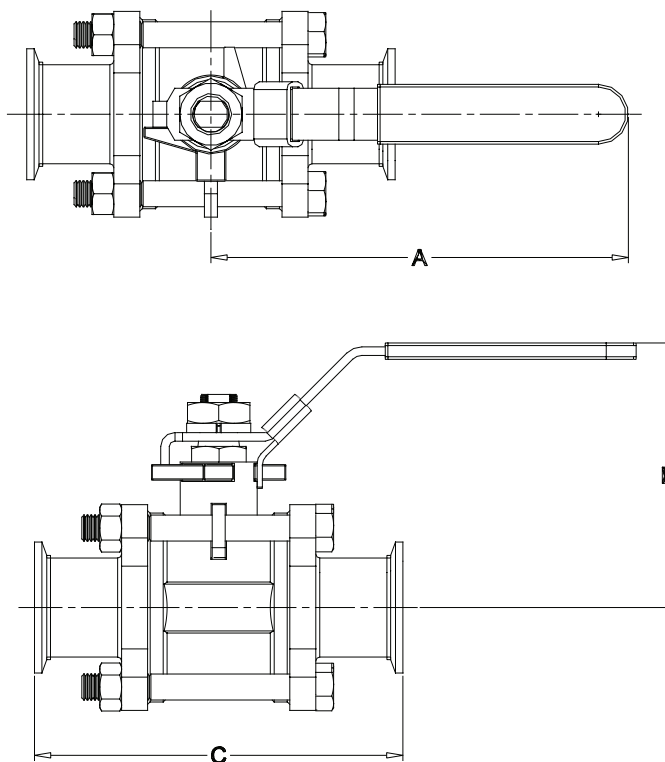
Non-Encapsulated 2-Way 3 Piece Stainless Steel Ball Valves

Flow Data

| Size | Non-Encapsulated C _v |
|------|---------------------------------|
| ½" | 8 |
| ¾" | 29 |
| 1" | 66 |
| 1½" | 192 |
| 2" | 434 |
| 2½" | 723 |
| 3" | 1124 |
| 4" | 2100 |

Dimensions

| Size | A | B | C |
|------|------|-----|-----|
| ½" | 4.1 | 2.3 | 4.6 |
| ¾" | 4.1 | 2.5 | 4.7 |
| 1" | 5.0 | 2.8 | 4.9 |
| 1½" | 6.1 | 3.5 | 5.6 |
| 2" | 7.6 | 3.9 | 6.4 |
| 2½" | 7.6 | 4.4 | 7.8 |
| 3" | 10.9 | 4.9 | 9.0 |
| 4" | 13.2 | 6.6 | 9.6 |



*All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.*

Non-Encapsulated 2-Way 3 Piece Stainless Steel Ball Valves

Material List



| Item | Description | Material | Quantity | |
|------|---------------|----------|----------|----|
| | | | ½" to 3" | 4" |
| 1 | body | CF8M | 1 | 1 |
| 2 | end (4-bolt) | CF8M | 2 | 2 |
| 3 | ball | CF8M | 1 | 1 |
| 4 | seat | G or C * | 2 | 2 |
| 5 | gasket | G or C * | 2 | 2 |
| 6 | thrust washer | G or C * | 1 | 1 |
| 7 | stem | 316 | 1 | 1 |
| 8 | stem packing | G or C * | 3 | 3 |
| 9 | gland | 304 | 1 | 1 |
| 10 | bevel washer | 301 | 1 | 1 |
| 11 | handle | 304 | 1 | 1 |
| 12 | nut | 304 | 1 | 1 |
| 13 | bolt | 304 | 4 | 6 |
| 14 | bolt washer | 304 | 4 | 6 |
| 15 | bolt nut | 304 | 4 | 6 |

Repair Kit contains:

- #4 (2) seats
- #5 (2) gaskets
- #6 (1) thrust washer
- #8 (3) stem packing

| Valve Size | Repair Kit Part # |
|------------|-------------------|
| ½" | BV-2G-*K050 |
| ¾" | BV-2G-*K075 |
| 1" | BV-2G-*K100 |
| 1½" | BV-2G-*K150 |
| 2" | BV-2G-*K200 |
| 2½" | BV-2G-*K250 |
| 3" | BV-2G-*K300 |
| 4" | BV-2G-*K400 |

* G - RTFE; C - 25% carbon/PTFE

Characterized V Seat 2-Way Sanitary Stainless Steel Control Valves



L = 60° V seat



M = 30° V seat



Features and Benefits

- compact design for areas with tight space restrictions
- full port design offer high flow capacity
- balanced encapsulated construction minimizes cold-flow of seats
- precise control
- bubble tight shut off
- interchangeable V port characterized seats
- precision stainless steel balls reduce torque and friction losses while extending seat life
- other characterized seats available
- blow-out proof stem
- live-loaded stem packing
- ISO 5211 mounting pad
- lock out, tag out
- ID polish is $R_a 32$ minimum
- maximum pressure rating: ½" - 2" **1000 PSI WOG**, 2½" - 4" **800 PSI WOG**
- sizes ½" thru 4"

Ordering Information

When ordering please list part number along with description. Example:

BV2CL-200CC-A characterized V seat ball valve, virgin PTFE, 2" clamp ends, standard handle

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
B V 2 L V - 2 0 0 C C - A

| Valve (1-4) | Seat Material (5) | (6) | Size (7-9) | End (10-11) | (12) | Actuation (13-15) |
|-------------|----------------------|-----|------------|-----------------------|------|------------------------|
| BV2L 60° | V virgin PTFE | - | 050 ½" | C Clamp | - | manual (13) |
| BV2M 30° | G RTFE | | 075 ¾" | B Weld | | A standard |
| | C 25% carbon PTFE | | 100 1" | F Female I-Line | | All others (13-15) |
| | S 50% stainless PTFE | | 150 1½" | M Male I-Line | | Contact Dixon Sanitary |
| | U UHMW | | 200 2" | T Threaded Bevel | | |
| | | | 250 2½" | P Plain Bevel | | |
| | | | 300 3" | Q Q-Line | | |
| | | | 400 4" | J John Perry Plain | | |
| | | | | H John Perry Threaded | | |
| | | | | E Extended Weld | | |
| | | | | 1 Female NPT | | |
| | | | | 2 Male NPT | | |
| | | | | 3 Socket Weld | | |

The BV2 series control valve has all the features and benefits of the BV2C sanitary encapsulated ball valve including complete interchangeability of all components. The BV2 "V" port control valve utilizes all the components of the BV2C including the full port ball. has introduced a special encapsulated characterized "V" port seat that replaces one end of the standard full port encapsulated seat. All five seat material options are available.

The throttling part of the valve is based on an encapsulated 60° "V" port. Characterized seat technology provides accurate modulating control. The characterized seat control valve gives you extremely precise control through the complete valve rotation. This design gives efficient laminar flow with bubble tight closure. Combine this with our wide variety of pneumatic or electric actuators, positioners and accessories and will provide a modulating control valve package that can match a multitude of performance requirements. 60° "V" port is standard. 30° "V" port is available on request. A simple change of the seat style and/or seat material allows a modification of valve C_v characteristic and fluid compatibility to match your process requirements.

Characterized V Seat 2-Way Sanitary Stainless Steel Control Valves

Specifications

| Size | Part # | Weight (lbs.) | Assembly Torque (in. lbs.) | Break Torque (in. lbs.) | ISO 5211 |
|------|---------------------|---------------|-------------------------------|----------------------------|----------|
| ½" | BV2"L or M"-050CC-A | 1.5 | 160 | 150 | F03/F04 |
| ¾" | BV2"L or M"-075CC-A | 1.9 | 160 | 116 | F03/F04 |
| 1" | BV2"L or M"-100CC-A | 2.7 | 160 | 336 | F04/F05 |
| 1½" | BV2"L or M"-150CC-A | 4.8 | 200 | 420 | F05/F07 |
| 2" | BV2"L or M"-200CC-A | 8.9 | 212 | 473 | F05/F07 |
| 2½" | BV2"L or M"-250CC-A | 18.7 | 221 | 788 | F07/F10 |
| 3" | BV2"L or M"-300CC-A | 29.7 | 239 | 1155 | F10/F12 |
| 4" | BV2"L or M"-400CC-A | 43.6 | 266 | 1680 | F10/F12 |

* see chart material options chart below

Seat Material Codes

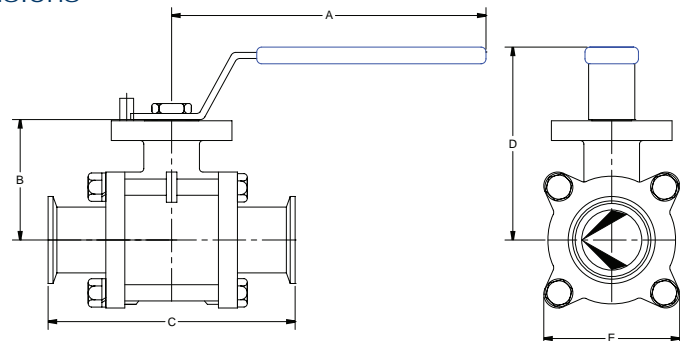
| Code | Description | Food Grade Material |
|------|---------------------------|---------------------|
| V | virgin PTFE | yes |
| G | RTFE | yes |
| C | 25% carbon PTFE | no |
| S | stainless reinforced PTFE | yes |
| U | UHMW | yes |

Flow Coefficient (C_v)

| Percent and Angle of Ball Rotation | | | | | | | | | | | | |
|------------------------------------|--------------|----|-----|------|-------|-------|-------|--------|--------|--------|--------|--------|
| Valve Size | V Port Angle | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
| ½" | 30° | 0 | .04 | .23 | .47 | .77 | 1.19 | 1.83 | 2.47 | 3.43 | 4.65 | 5.55 |
| | 60° | 0 | .04 | .28 | .73 | 1.11 | 1.83 | 2.92 | 4.29 | 7.00 | 9.43 | 12.78 |
| ¾" | 30° | 0 | .07 | .30 | .61 | .99 | 1.57 | 2.42 | 3.25 | 4.52 | 6.12 | 7.30 |
| | 60° | 0 | .07 | .35 | .93 | 1.46 | 2.42 | 3.85 | 5.64 | 9.21 | 12.41 | 16.25 |
| 1" | 30° | 0 | .08 | .45 | 1.25 | 2.06 | 3.54 | 5.30 | 7.70 | 10.49 | 12.84 | 15.48 |
| | 60° | 0 | .09 | .68 | 1.74 | 2.78 | 5.13 | 8.00 | 11.88 | 18.71 | 23.22 | 32.81 |
| 1½" | 30° | 0 | .07 | .65 | 1.88 | 3.39 | 5.66 | 8.36 | 12.12 | 16.17 | 20.44 | 23.88 |
| | 60° | 0 | .09 | .92 | 2.81 | 4.69 | 8.89 | 14.85 | 21.16 | 30.73 | 45.88 | 59.74 |
| 2" | 30° | 0 | .09 | 1.18 | 3.79 | 7.53 | 12.26 | 17.83 | 26.44 | 36.45 | 48.09 | 55.85 |
| | 60° | 0 | .11 | 1.51 | 5.80 | 10.39 | 20.60 | 33.98 | 48.75 | 69.04 | 104.23 | 135.75 |
| 2½" | 30° | 0 | .09 | 1.15 | 4.42 | 7.91 | 13.39 | 20.05 | 30.43 | 41.92 | 56.30 | 76.95 |
| | 60° | 0 | .13 | 1.46 | 5.91 | 11.90 | 23.24 | 37.92 | 59.31 | 83.29 | 113.65 | 162.50 |
| 3" | 30° | 0 | .12 | 1.20 | 4.15 | 9.49 | 15.96 | 26.78 | 38.91 | 53.31 | 69.77 | 85.91 |
| | 60° | 0 | .15 | 2.89 | 6.70 | 15.82 | 29.36 | 46.32 | 73.60 | 106.74 | 149.88 | 193.20 |
| 4" | 30° | 0 | .16 | 1.75 | 7.84 | 18.59 | 35.21 | 58.60 | 87.89 | 124.21 | 158.53 | 196.35 |
| | 60° | 0 | .26 | 2.20 | 12.44 | 33.67 | 62.98 | 106.26 | 160.49 | 233.96 | 329.50 | 437.29 |

Dimensions

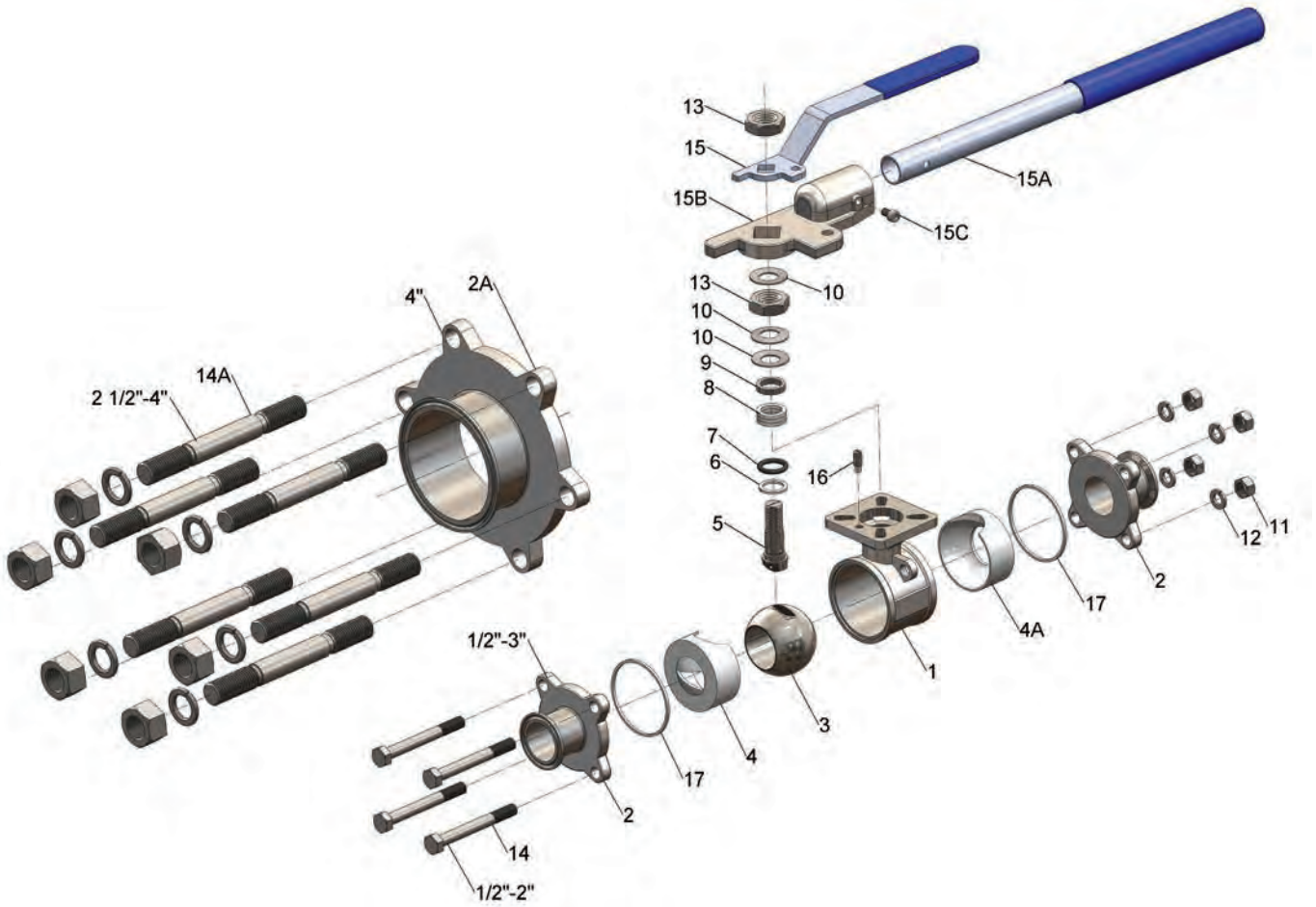
| Size | A | B | C | D | E |
|------|------|-----|-----|-----|-----|
| ½" | 4.9 | 1.5 | 4.3 | 3.0 | 1.9 |
| ¾" | 4.9 | 1.8 | 4.7 | 3.3 | 2.2 |
| 1" | 5.6 | 2.1 | 4.9 | 3.6 | 2.4 |
| 1½" | 9.5 | 2.7 | 5.6 | 4.4 | 3.1 |
| 2" | 9.5 | 3.1 | 6.4 | 4.8 | 3.7 |
| 2½" | 18.0 | 3.8 | 7.8 | 5.2 | 4.8 |
| 3" | 18.0 | 4.2 | 9.0 | 5.7 | 5.4 |
| 4" | 18.0 | 5.3 | 9.5 | 6.8 | 8.8 |



All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.

Characterized V Seat 2-Way Sanitary Stainless Steel Control Valves

Material List



Repair Kit contains:

- #4 (1) V seat
- #4A (1) seat
- #6 (1) thrust washer
- #7 (1) O-Ring
- #8 (3) stem packing
- #17 (2) gasket

| Valve Size | Repair Kit Part # |
|------------|--------------------|
| 1/2" | BV-2"L or M"-*K050 |
| 3/4" | BV-2"L or M"-*K075 |
| 1" | BV-2"L or M"-*K100 |
| 1 1/2" | BV-2"L or M"-*K150 |
| 2" | BV-2"L or M"-*K200 |
| 2 1/2" | BV-2"L or M"-*K250 |
| 3" | BV-2"L or M"-*K300 |
| 4" | BV-2"L or M"-*K400 |

| Code * | Description |
|--------|-------------------|
| V | virgin PTFE |
| G | RTFE |
| C | 25% carbon PTFE |
| S | stain. rein. PTFE |
| U | UHMW |

| Item | Description | Material | Quantity | | | |
|------|-----------------------|-----------------|------------|--------|-----|-----|
| | | | 1/2" to 2" | 2 1/2" | 3" | 4" |
| 1 | body | CF8M | 1 | 1 | 1 | 1 |
| 2 | end (4-bolt) | CF8M | 2 | 2 | 2 | n/a |
| 2A | end (6-bolt) | CF8M | n/a | n/a | n/a | 2 |
| 3 | ball | CF8M | 1 | 1 | 1 | 1 |
| 4 | V seat (encapsulated) | V, G, C, S, U | 1 | 1 | 1 | 1 |
| 4A | seat (encapsulated) | V, G, C, S, U | 1 | 1 | 1 | 1 |
| 5 | stem | 316 | 1 | 1 | 1 | 1 |
| 6 | thrust washer | V, G, C, S, U | 1 | 1 | 1 | 1 |
| 7 | O-ring | RTF | 1 | 1 | 1 | 1 |
| 8 | stem packing | V, G, C, S, U | * | 3 | 3 | 3 |
| 9 | gland ring | 316 | 1 | 1 | 1 | 1 |
| 10 | bevel washer | 301 | 3 | 3 | 3 | 3 |
| 11 | hex nut | 304 | 4 | 4 | 8 | 12 |
| 12 | bolt washer | 304 | 4 | 4 | 8 | 12 |
| 13 | nut | 304 | 2 | 2 | 2 | 2 |
| 14 | bolt | 304 | 4 | 4 | n/a | n/a |
| 14A | bolt (double thread) | 304 | n/a | n/a | 4 | 6 |
| 15 | handle | 304/Vinyl | 1 | n/a | n/a | n/a |
| 15A | handle (rod) | 304/Vinyl | n/a | 1 | 1 | 1 |
| 15B | handle head | 304 | n/a | 1 | 1 | 1 |
| 15C | handle nut | 304 | n/a | 1 | 1 | 1 |
| 16 | stop pin | 316 | 1 | 1 | 1 | 1 |
| 17 | body seal | V, G, C, S or U | 2 | 2 | 2 | 2 |

Industrial Ball Valves



BV2H ball valve is manufactured of CF8M (316) stainless steel. It is a two-piece industrial valve with FNPT ends and ISO 5211 mounting pad.



SSBV ball valve is manufactured from 316 stainless steel. It is a two-piece industrial valve with FNPT ends.



BV2I ball valve is manufactured of CF8M (316) stainless steel. It is a three-piece industrial valve with FNPT or socket weld ends and ISO 5211 mounting pad.



BV3I ball valve is manufactured of CF8M (316) stainless steel. It is a 3-way valve with FNPT ends and ISO 5211 mounting pad.



BV2B ball valve is manufactured of brass. It is a two-piece industrial valve with FNPT ends and ISO 5211 mounting pad.



BV3B ball valve is manufactured of brass. It is a 3-way reduced port valve with FNPT end and ISO 5211 mounting pad.

Private label valve handle covers are available. See page 215

2 Piece Industrial Stainless Steel Ball Valves

Features and Benefits

- ISO5211 low profile mounting pad
- blow-out proof stem
- low torque design
- RTFE® seats and TFE seals
- pressure rating: ¼" - 2" **1000 PSI** WOG,
2½" - 3" **800 PSI** WOG
- temperature range: **-40°F to 450°F**
- materials: CF8M (316) stainless steel body
- full port stainless steel ball valves ¼" thru 3"



Ordering Information

When ordering please list part number along with description. Example:

BV2HG-20011-A ball valve, RTFE seals, 2" FNPT, standard handle

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
B V 2 H G - 2 0 0 1 1 - A

| Valve (1-4) | Seat Material (5) | (6) | Size (7-9) | Ends (10-11) | (12) | Actuation (13-15) |
|-------------|-------------------|-----|------------|--------------|------|---------------------------------|
| BV2H | G RTFE | - | 025 1/4" * | 1 female NPT | - | <i>manual (13)</i> |
| | C 25% carbon/PTFE | | 038 3/8" * | | | A standard handle (1½"-3" only) |
| | | | 050 1/2" * | | | <i>All others (13-15)</i> |
| | | | 075 3/4" * | | | <i>Contact Dixon Sanitary</i> |
| | | | 100 1" * | | | |
| | | | 125 1 1/4" | | | |
| | | | 150 1 1/2" | | | |
| | | | 200 2" | | | |
| | | | 250 2 1/2" | | | |
| | | | 300 3" | | | |

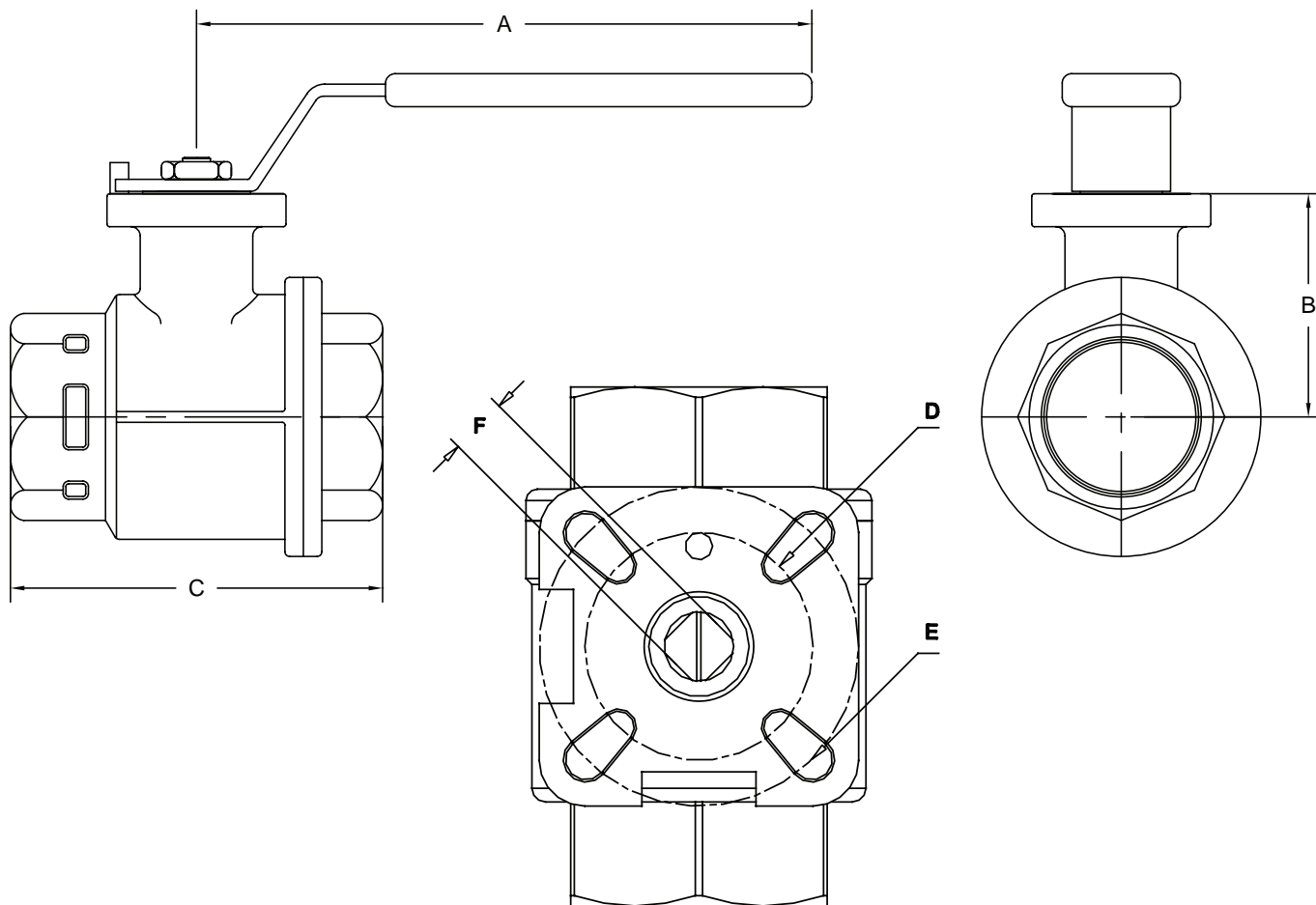
* for manual valve - see SSBV on page 73

Specifications

| Size | Part # | Weight (lbs.) | Break Torque (in. lbs.) |
|--------|---------------|---------------|-------------------------|
| 1/4" | BV2HG-02511-A | 0.53 | 65 |
| 3/8" | BV2HG-03811-A | 0.53 | 86 |
| 1/2" | BV2HG-05011-A | 0.66 | 86 |
| 3/4" | BV2HG-07511-A | 1.12 | 97 |
| 1" | BV2HG-10011-A | 1.87 | 160 |
| 1 1/4" | BV2HG-12511-A | 2.76 | 239 |
| 1 1/2" | BV2HG-15011-A | 4.45 | 398 |
| 2" | BV2HG-20011-A | 6.30 | 600 |
| 2 1/2" | BV2HG-25011-A | 11.62 | 980 |
| 3" | BV2HG-30011-A | 24.69 | 1000 |

2 Piece Industrial Stainless Steel Ball Valves

Dimensions



| Size | A | B | C | D | E | F (mm) | Stainless Steel Part Number |
|--------|-------|------|------|-----|-----|--------|-----------------------------|
| 1/4" | n/a | 1.06 | 2.17 | F03 | F04 | 9 | BV2H*-02511-A** |
| 3/8" | n/a | 1.06 | 2.17 | F03 | F04 | 9 | BV2H*-03811-A** |
| 1/2" | n/a | 1.18 | 2.41 | F03 | F04 | 9 | BV2H*-05011-A** |
| 3/4" | n/a | 1.29 | 2.99 | F03 | F04 | 9 | BV2H*-07511-A** |
| 1" | n/a | 1.72 | 3.43 | F04 | F05 | 9 | BV2H*-10011-A** |
| 1 1/4" | 5.35 | 1.86 | 3.93 | F04 | F05 | 9 | BV2H*-12511-A |
| 1 1/2" | 9.17 | 2.34 | 4.48 | F05 | F07 | 11 | BV2H*-15011-A |
| 2" | 9.17 | 2.74 | 5.21 | F05 | F07 | 11 | BV2H*-20011-A |
| 2 1/2" | 17.32 | 3.29 | 6.33 | F07 | F10 | 14 | BV2H*-25011-A |
| 3" | 17.32 | 4.67 | 7.34 | F07 | F10 | 17 | BV2H*-30011-A |

Note: Temperatures and pressures shown are guidelines only. They do not indicate maximum and minimum continuous working conditions.

* C or G

** For 1/4" to 1" valves with handles, use SSBV valves see page 180

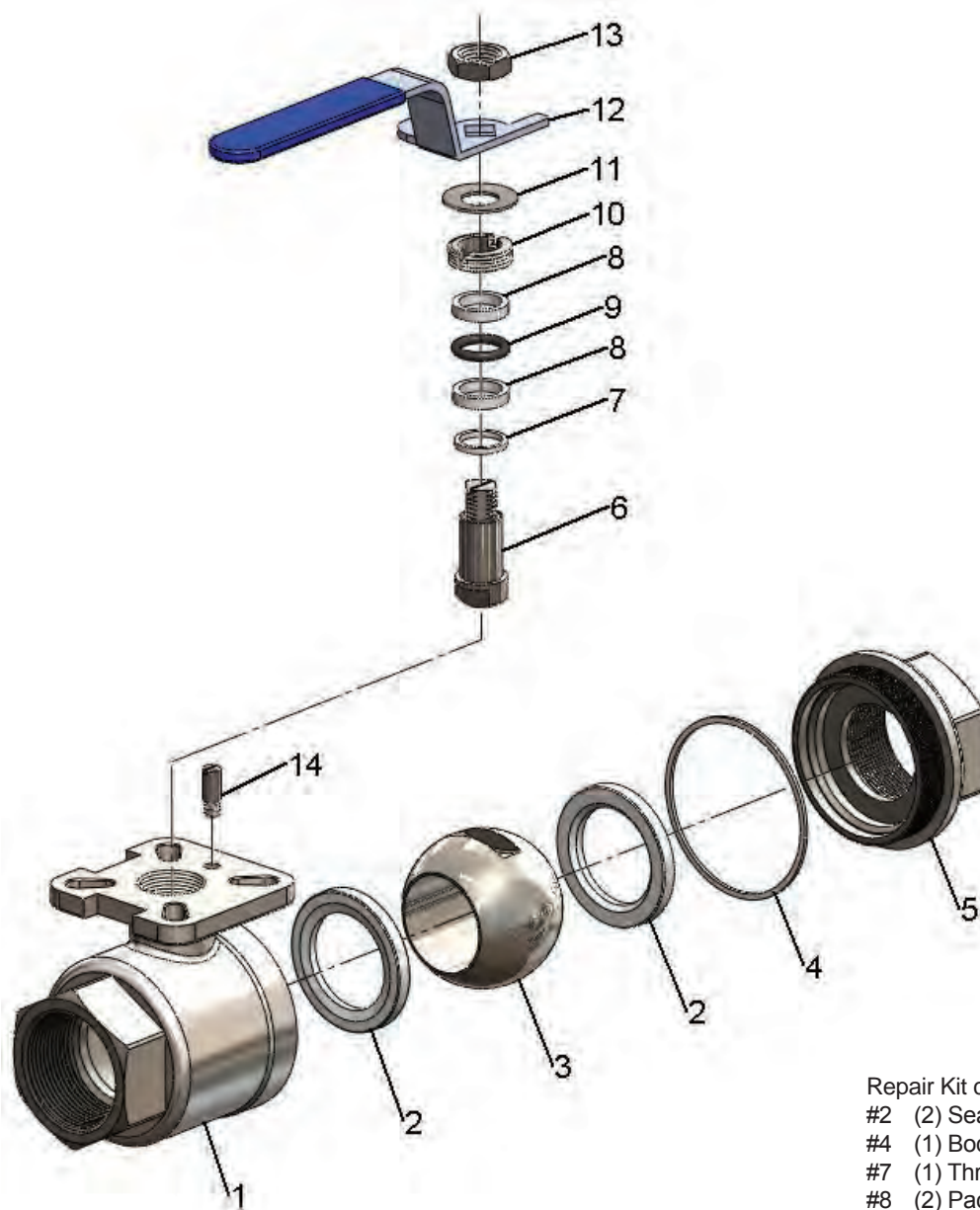
All dimensions are in inches, unless noted. Dimensions are approximate.

Engineering dimensions are available upon request. Specifications are subject to change without notice.



2 Piece Industrial Stainless Steel Ball Valves

Material List



Repair Kit contains:

#2 (2) Seats

#4 (1) Body Seal

#7 (1) Thrust Washer

#8 (2) Packaging

| Item | Description | Material | Quantity |
|------|---------------|-------------------------|----------|
| 1 | body | CF8M | 1 |
| 2 | seat | RTFE or 25% Carbon PTFE | 2 |
| 3 | ball | 316 SS | 1 |
| 4 | body seal | RTFE | 1 |
| 5 | end cap | CF8M | 1 |
| 6 | stem | 316 SS | 1 |
| 7 | thrust washer | RTFE | 1 |
| 8 | packing | RTFE | 2 |
| 9 | o-ring | SILICONE | 1 |
| 10 | glandnut | 304 SS | 1 |
| 11 | spring washer | 304 SS | 1 |
| 12 | handle | 304 SS/PLASTIC | 1 |
| 13 | handle nut | 304 SS | 1 |
| 14 | stop pin | 304 SS | 1 |

| Valve size | Repair kit part # |
|------------|-------------------|
| 1/4" | BV-2H-*K025 |
| 3/8" | BV-2H-*K038 |
| 1/2" | BV-2H-*K050 |
| 3/4" | BV-2H-*K075 |
| 1" | BV-2H-*K100 |
| 1 1/4" | BV-2H-*K125 |
| 1 1/2" | BV-2H-*K150 |
| 2" | BV-2H-*K200 |
| 2 1/2" | BV-2H-*K250 |
| 3" | BV-2H-*K300 |

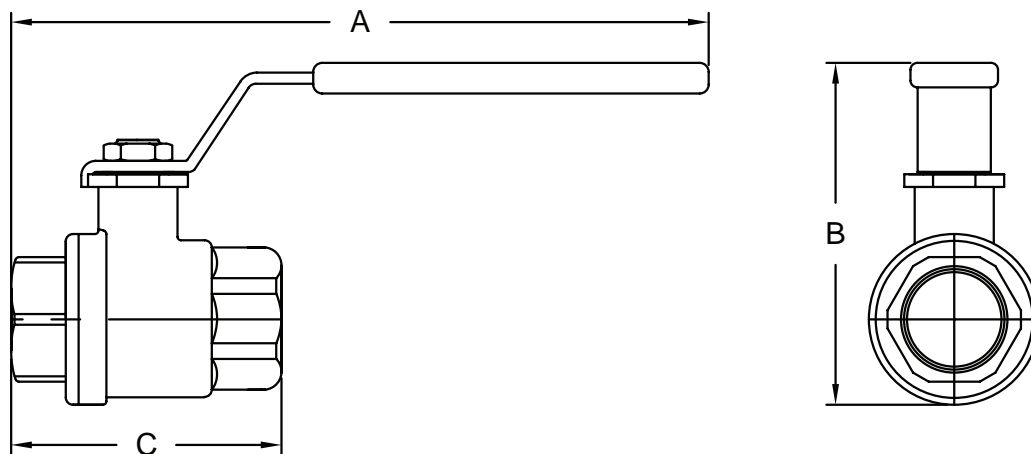
* C or G

2 Piece Industrial Stainless Steel Ball Valves



- for use in water, oil and gas
- 1/4" - 2" rated to **1000 PSI** WOG (CWP); 2 1/2" - 3" rated to **800 PSI** WOG (CWP); **100 PSI** saturated steam
- 316 stainless steel body, ball and stem
- PTFE seat, joint gasket and thrust washer
- plastic cover on handle
- blow-out proof stem design
- full port
- temperature range **-60°F to 450°F**

Dimensions



| Part Number | Valve Size(In) | A | B | C |
|-------------|----------------|-------|------|------|
| SSBV25 | 1/4" | 5.25 | 2.75 | 1.25 |
| SSBV38 | 3/8" | 5.25 | 3.00 | 2.25 |
| SSBV50 | 1/2" | 6.50 | 3.25 | 2.75 |
| SSBV75 | 3/4" | 6.75 | 3.50 | 3.00 |
| SSBV100 | 1" | 8.25 | 4.00 | 3.50 |
| SSBV125 | 1 1/4" | 8.75 | 4.50 | 4.00 |
| SSBV150 | 1 1/2" | 9.75 | 5.00 | 4.50 |
| SSBV200 | 2" | 10.00 | 5.75 | 5.00 |
| SSBV250 | 2 1/2" | 13.50 | 7.75 | 6.50 |
| SSBV300 | 3" | 14.00 | 8.50 | 7.00 |

3 Piece Industrial Stainless Steel Ball Valves

Features and Benefits

- 316 stainless steel stem and ball
- CF8M stainless steel body
- ISO 5211 mounting pad
- swing out design for easy maintenance
- pressure ratings:
 - ½" thru 2" **1000 PSI** WOG
 - 2½" thru 3" **800 PSI** WOG
 - 4" **600 PSI** WOG
- temperature range: **-40°F to 400°F**
- full port stainless steel ball valves with FNPT or socket weld ends



Ordering Information

When ordering please list part number along with description. Example:

BV2IG-20011-A ball valve, RTFE, 2" female NPT, standard handle

¹_B ²_V ³₂ ⁴_I ⁵_G ⁶₋ ⁷₂ ⁸₀ ⁹₀ ¹⁰₁ ¹¹₁ ¹²₋ ¹³_A ¹⁴ ¹⁵

| Valve (1-4) | Seat Material (5) | (6) | Size (7-9) | | End (10-11) | | (12) | Actuation (13-15) |
|-------------|-------------------|-----|------------|--------|-------------|-------------|------|-------------------------------|
| BV2I | G RTFE | - | 025 | 1/4" | 1 | female NPT | - | <i>manual (13)</i> |
| | C 25% carbon/PTFE | | 038 | 3/8" | 3 | socket weld | | A standard |
| | | | 050 | 1/2" | | | | <i>All others (13-15)</i> |
| | | | 075 | 3/4" | | | | <i>Contact Dixon Sanitary</i> |
| | | | 100 | 1" | | | | |
| | | | 125 | 1 1/4" | | | | |
| | | | 150 | 1 1/2" | | | | |
| | | | 200 | 2" | | | | |
| | | | 250 | 2 1/2" | | | | |
| | | | 300 | 3" | | | | |
| | | | 400 | 4" | | | | |

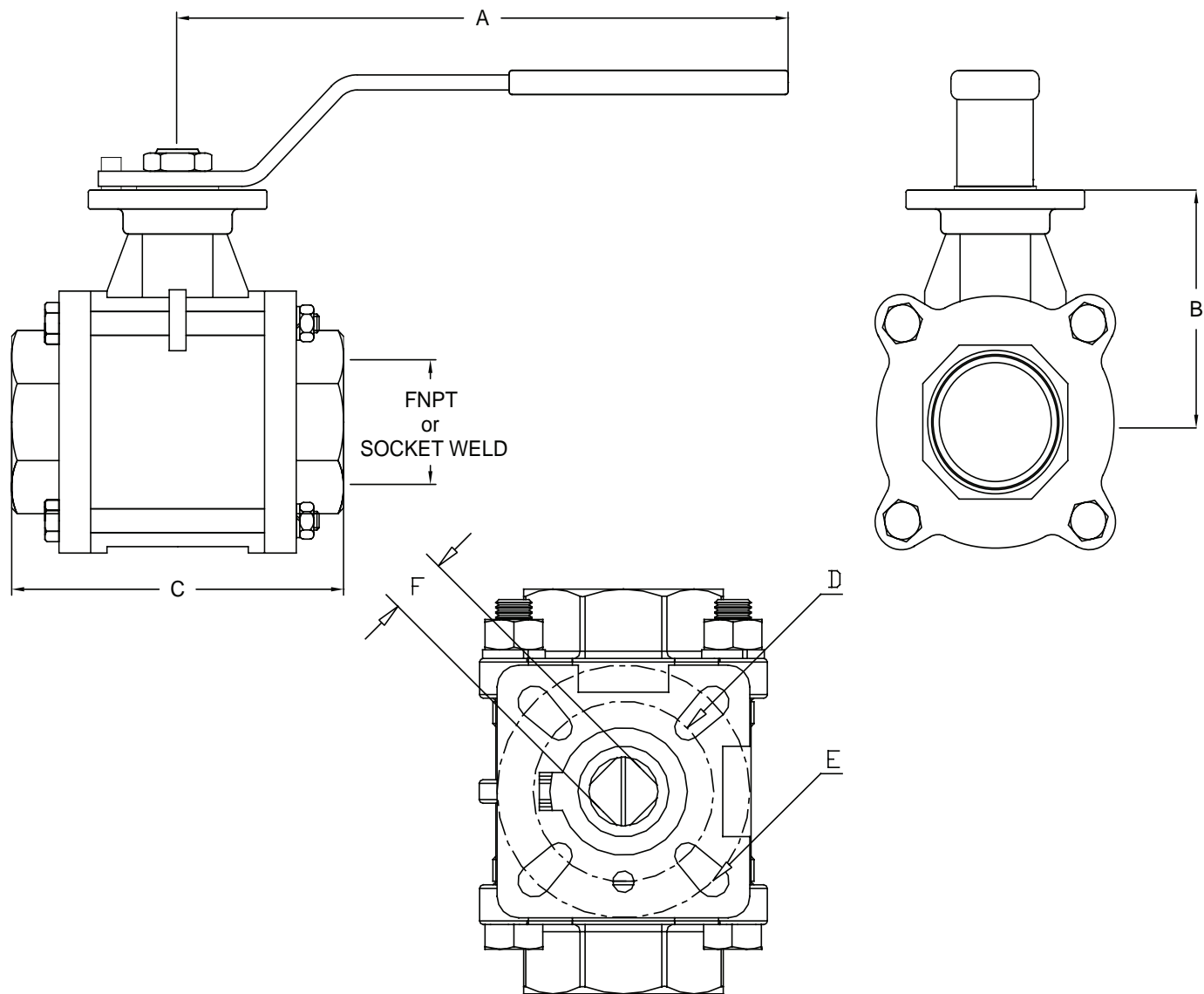
Specifications

| Size | FNPT Part # | Socket Weld Part # | Weight (lbs.) | Break Torque (in. lbs.) | ISO 5211 |
|--------|---------------|--------------------|---------------|-------------------------|----------|
| 1/4" | BV2I*-02511-A | n/a | 1.00 | 40 | F03/F04 |
| 3/8" | BV2I*-03811-A | BV2I*-03833-A | 1.10 | 40 | F03/F04 |
| 1/2" | BV2I*-05011-A | BV2I*-05033-A | 1.26 | 47 | F03/F04 |
| 3/4" | BV2I*-07511-A | BV2I*-07533-A | 1.57 | 67 | F03/F04 |
| 1" | BV2I*-10011-A | BV2I*-10033-A | 2.27 | 165 | F04/F05 |
| 1-1/4" | BV2I*-12511-A | BV2I*-12533-A | 3.44 | 265 | F04/F05 |
| 1-1/2" | BV2I*-15011-A | BV2I*-15033-A | 5.51 | 481 | F05/F07 |
| 2" | BV2I*-20011-A | BV2I*-20033-A | 7.58 | 728 | F05/F07 |
| 2-1/2" | BV2I*-25011-A | BV2I*-25033-A | 14.11 | 900 | F07/F10 |
| 3" | BV2I*-30011-A | BV2I*-30033-A | 24.69 | 1000 | F07/F10 |
| 4" | BV2I*-40011-A | BV2I*-40033-A | 48.50 | 1482 | F07/F10 |

* Use G or C

3 Piece Industrial Stainless Steel Ball Valves

Dimensions

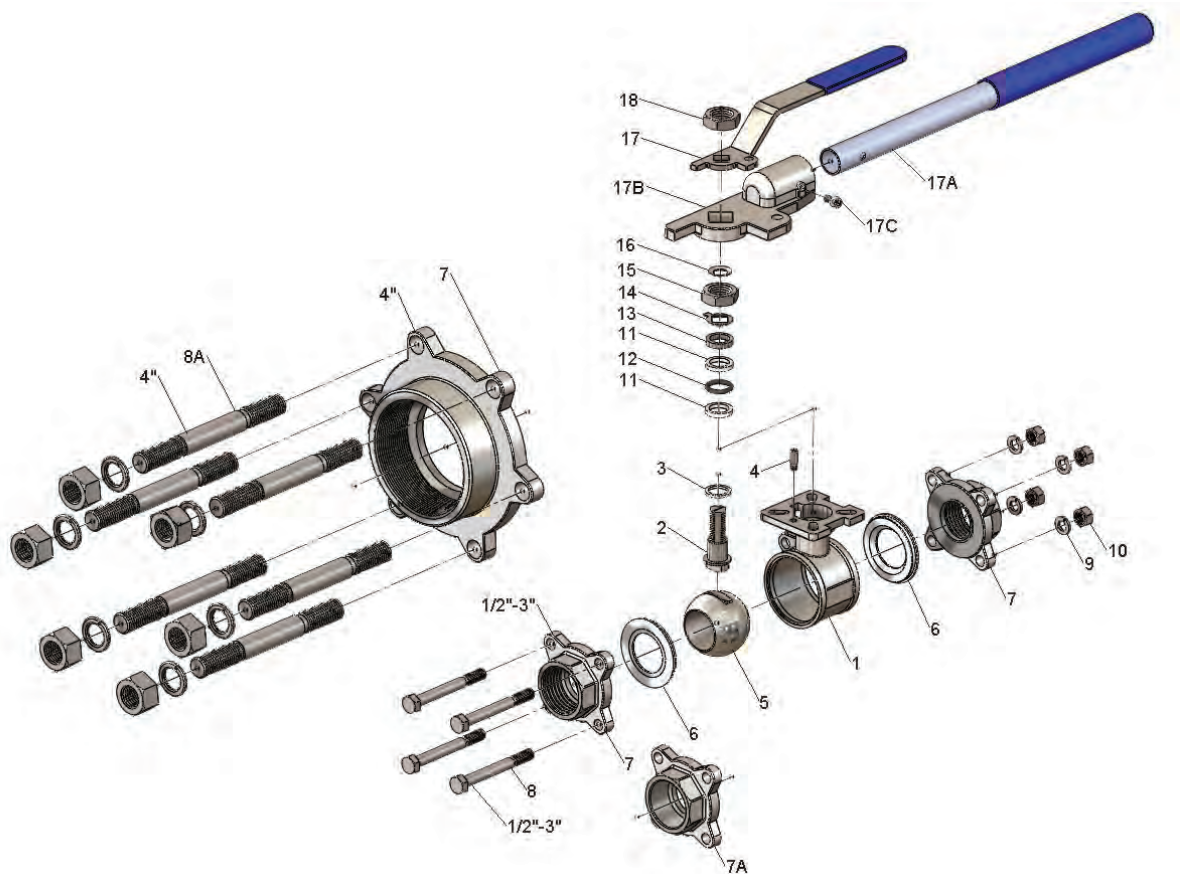


| Size | A | B | C | D | E | F (mm) | FNPT | Socket Weld | FNPT Part # | Socket Weld Part # |
|--------|-------|------|------|-----|-----|--------|------|-------------|---------------|--------------------|
| 1/4" | 4.72 | 1.52 | 2.51 | F03 | F04 | 9 | 0.25 | NA | BV2I*-02511-A | n/a |
| 3/8" | 4.72 | 1.52 | 2.51 | F03 | F04 | 9 | 0.38 | 0.71 | BV2I*-03811-A | BV2I*-03833-A |
| 1/2" | 4.72 | 1.67 | 2.84 | F03 | F04 | 9 | 0.50 | 0.88 | BV2I*-05011-A | BV2I*-05033-A |
| 3/4" | 4.72 | 1.91 | 3.11 | F03 | F04 | 9 | 0.75 | 1.09 | BV2I*-07511-A | BV2I*-07533-A |
| 1" | 5.35 | 2.17 | 3.29 | F04 | F05 | 11 | 1.00 | 1.35 | BV2I*-10011-A | BV2I*-10033-A |
| 1 1/4" | 5.35 | 2.35 | 4.14 | F04 | F05 | 11 | 1.25 | 1.70 | BV2I*-12511-A | BV2I*-12533-A |
| 1 1/2" | 9.17 | 2.77 | 4.41 | F05 | F07 | 14 | 1.50 | 1.94 | BV2I*-15011-A | BV2I*-15033-A |
| 2" | 9.17 | 3.38 | 5.13 | F05 | F07 | 14 | 2.00 | 2.44 | BV2I*-20011-A | BV2I*-20033-A |
| 2 1/2" | 17.32 | 4.29 | 6.64 | F07 | F10 | 17 | 2.50 | 3.01 | BV2I*-25011-A | BV2I*-25033-A |
| 3" | 17.32 | 4.67 | 7.34 | F07 | F10 | 17 | 3.00 | 3.52 | BV2I*-30011-A | BV2I*-30033-A |
| 4" | 17.32 | 4.54 | 8.88 | F07 | F10 | 22 | 4.00 | 4.52 | BV2I*-40011-A | BV2I*-40033-A |

* Use G or C

3 Piece Industrial Stainless Steel Ball Valves

Material List



| Item | Description | Material | Quantity | | |
|------|-------------------|-------------|----------|-----------|----|
| | | | ¼" to 2" | 2½" to 3" | 4" |
| 1 | body | CF8M | 1 | | |
| 2 | stem | 316 | 1 | | |
| 3 | thrust washer | G or C | 1 | | |
| 4 | stopper | 304 | 1 | | |
| 5 | ball | 316 | 1 | | |
| 6 | seat | G or C | 2 | | |
| 7 | end (FNPT) | CF8M | 2 | | |
| 7A | end (socket weld) | CF8M | 2 | | |
| 8 | body bolt | 304 | 4 | n/a | |
| 8A | body bolt | 304 | n/a | 6 | |
| 9 | bolt washer | 304 | 4 | 12 | |
| 10 | bolt nut | 304 | 4 | 12 | |
| 11 | stem packing | G or C | 2 | | |
| 12 | o-ring | silicone | 1 | | |
| 13 | gland bushing | 304 | 1 | | |
| 14 | tab washer | 304 | 1 | | |
| 15 | gland nut | 304 | 1 | | |
| 16 | spring washer | 304 | 1 | | |
| 17 | handle | 304/Plastic | 1 | n/a | |
| 17A | handle rod | 304/Plastic | n/a | 1 | |
| 17B | handle hub | 304 | n/a | 1 | |
| 17C | hub bolt | 304 | n/a | 1 | |
| 18 | handle nut | 304 | 1 | | |

Repair Kit contains:

#3 (1) thrust washer

#6 (2) seats

#11 (2) stem packing

#12 (1) silicone O-ring

| Valve Size | Repair Kit Part # |
|------------|-------------------|
| ¼" | BV-2I-*K025 |
| 3/8" | BV-2I-*K038 |
| ½" | BV-2I-*K050 |
| ¾" | BV-2I-*K075 |
| 1" | BV-2I-*K100 |
| 1¼" | BV-2I-*K125 |
| 1½" | BV-2I-*K150 |
| 2" | BV-2I-*K200 |
| 2½" | BV-2I-*K250 |
| 3" | BV-2I-*K300 |
| 4" | BV-2I-*K400 |

* Use G or C

Multi-port Stainless Steel Ball Valves

Features and Benefits



- full port stainless steel ball
- female NPT ends
- ISO 5211 mounting pad
- blow-out proof stem
- pressure ratings: 1/4" thru 2" **1000 PSI WOG**
- temperature range: **-40°F to 400°F**
- 100% air tested under water at 80 PSI
- sizes 1/4" thru 2"

Ordering Information

When ordering please list part number along with description. Example:

BV3IGLF-2001-A 3-way multi-port ball valve, RTFE, 2" female NPT, standard handle

$\frac{1}{B}$ $\frac{2}{V}$ $\frac{3}{3}$ $\frac{4}{I}$ $\frac{5}{G}$ $\frac{6}{L}$ $\frac{7}{F}$ $\frac{8}{-}$ $\frac{9}{2}$ $\frac{10}{0}$ $\frac{11}{0}$ $\frac{12}{1}$ $\frac{13}{-}$ $\frac{14}{A}$ $\frac{15}{}$

| Valve (1-4) | Seat Material (5) | | Ball Configuration (6) | | Port Size (7) | | (8) | Size (9-11) | | End (12) | | Actuation (13-15) |
|-------------|-------------------|------|------------------------|--------|---------------|------|-----|-------------|--------|----------|------------|-------------------------------|
| BV3I | G | RTFE | L | L-port | F | full | - | 025 | 1/4" | 1 | female NPT | <i>manual (14)</i> |
| | | | T | T-port | | | | 038 | 3/8" | | | - A standard |
| | | | | | | | | 050 | 1/2" | | | <i>All others (13-15)</i> |
| | | | | | | | | 075 | 3/4" | | | <i>Contact Dixon Sanitary</i> |
| | | | | | | | | 100 | 1" | | | |
| | | | | | | | | 125 | 1 1/4" | | | |
| | | | | | | | | 150 | 1-1/2" | | | |
| | | | | | | | | 200 | 2" | | | |

Specifications

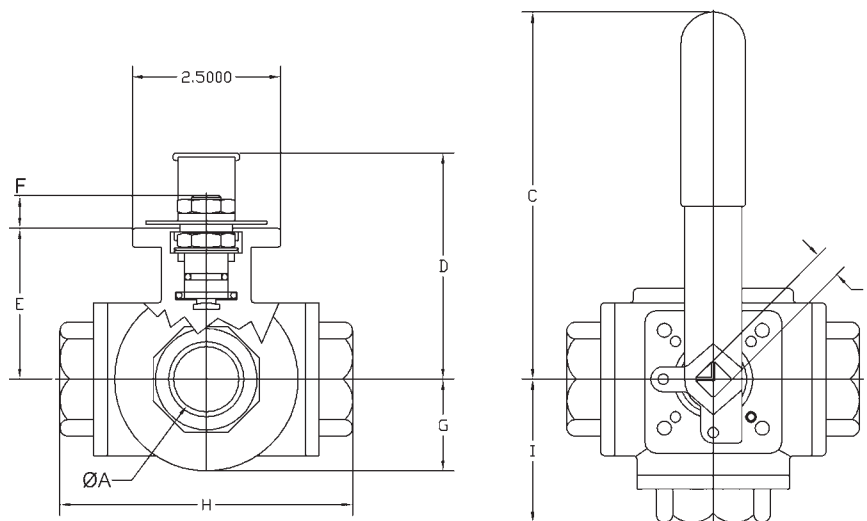
| Size | L-port Part # | T-port Part # | Weight (lbs.) | Break Torque (in. lbs.) | ISO 5211 |
|--------|----------------|----------------|---------------|-------------------------|----------|
| 1/4" | BV3IGLF-0251-A | BV3IGTF-0251-A | .70 | 105 | F03/F04 |
| 3/8" | BV3IGLF-0381-A | BV3IGTF-0381-A | .72 | 105 | F03/F04 |
| 1/2" | BV3IGLF-0501-A | BV3IGTF-0501-A | .72 | 138 | F03/F04 |
| 3/4" | BV3IGLF-0751-A | BV3IGTF-0751-A | 1.11 | 184 | F04/F05 |
| 1" | BV3IGLF-1001-A | BV3IGTF-1001-A | 1.71 | 323 | F04/F05 |
| 1-1/4" | BV3IGLF-1251-A | BV3IGTF-1251-A | 2.77 | 461 | F05/F07 |
| 1-1/2" | BV3IGLF-1501-A | BV3IGTF-1501-A | 3.82 | 633 | F05/F07 |
| 2" | BV3IGLF-2001-A | BV3IGTF-2001-A | 6.73 | 1037 | F07/F10 |

Multi-port Stainless Steel Ball Valves

Flow Paths

*Flow paths must be advised at time of order.
Please see pages 166-167 for options.*

Dimensions

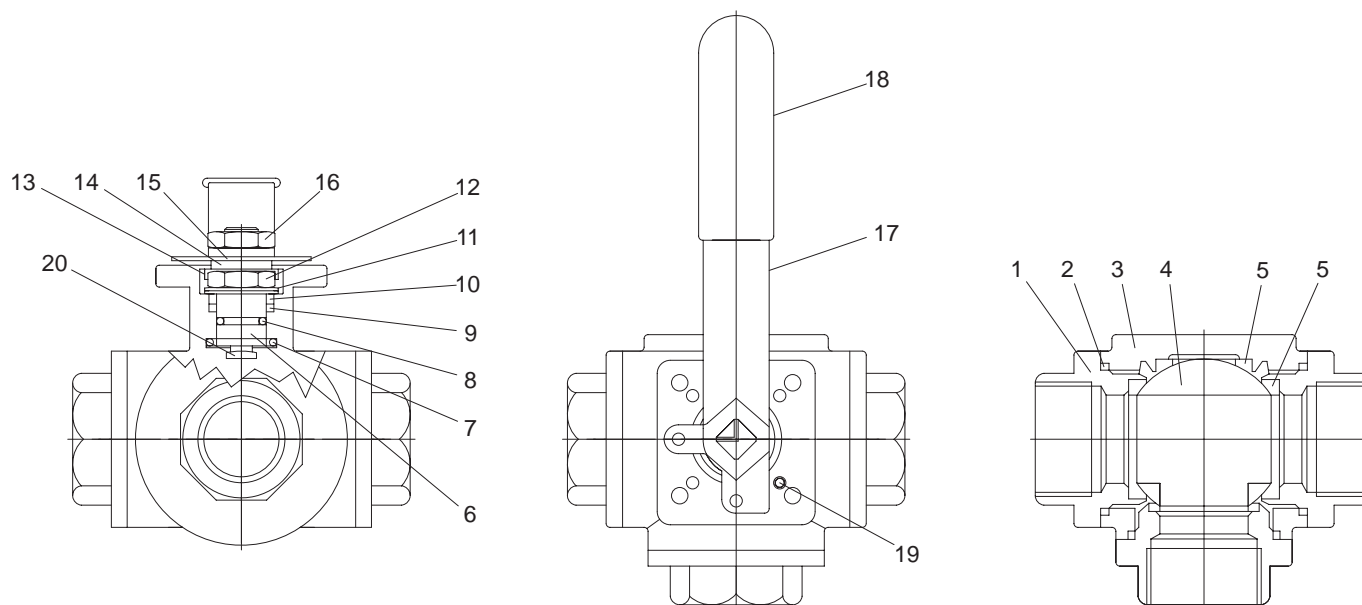


| Size | A | B (mm) | C | D | E | F | G | H | I |
|--------|------|--------|-------|------|------|-----|------|------|------|
| 1/4" | .43 | 9 | 5.12 | 2.44 | 1.45 | .40 | .78 | 2.83 | 1.41 |
| 3/8" | .47 | 9 | 5.12 | 2.44 | 1.45 | .40 | .78 | 2.83 | 1.41 |
| 1/2" | .59 | 5 | 5.12 | 2.51 | 1.65 | .45 | .91 | 3.26 | 1.63 |
| 3/4" | .78 | 11 | 6.49 | 3.22 | 1.65 | .59 | 1.10 | 3.89 | 1.94 |
| 1" | .98 | 11 | 6.49 | 3.50 | 2.18 | .55 | 1.33 | 4.40 | 2.20 |
| 1 1/4" | 1.25 | 14 | 8.07 | 3.85 | 2.48 | .64 | 1.53 | 4.92 | 2.46 |
| 1 1/2" | 1.50 | 14 | 8.07 | 4.25 | 2.88 | .62 | 1.88 | 5.86 | 2.93 |
| 2" | 2.0 | 17 | 12.79 | 5.51 | 3.63 | .88 | 2.36 | 6.85 | 3.42 |

*All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.*

Multi-port Stainless Steel Ball Valves

Material List



| Item | Description | Material | Quantity |
|------|-------------------|----------|----------|
| 1 | end cap | CF8M | 1 |
| 2 | gasket | PTFE | 3 |
| 3 | body | CF8M | 1 |
| 4 | ball | CF8M | 1 |
| 5 | seat | PTFE | 4 |
| 6 | stem | RTFE | 1 |
| 7 | stem seal | FKM | 1 |
| 8 | O-ring | PTFE | 1 |
| 9 | stem packing | PTFE | 1 |
| 10 | gland | 301 | 1 |
| 11 | Belleville washer | 304 | 2 |
| 12 | stem nut | 304 | 1 |
| 13 | nut stop | 304 | 1 |
| 14 | space washer | 304 | 1 |
| 15 | lock saddle | 304 | 1 |
| 16 | handle nut | 304 | 1 |
| 17 | handle | 304 | 1 |
| 18 | handle sleeve | vinyl | 1 |
| 19 | stop pin | 304 | 1 |
| 20 | insert pin | 316 | 1 |

Repair Kit contains:

#2 (3) PTFE gaskets

#5 (4) PTFE seats

#6 (1) RTFE stem

#7 (1) FKM stem seal

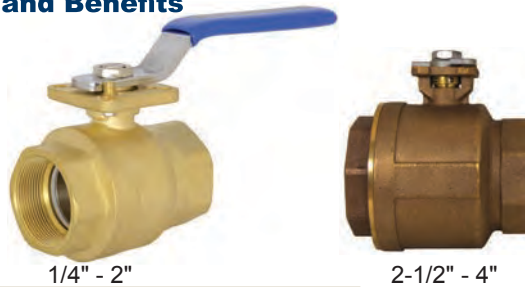
#9 (1) PTFE stem packing

| Valve Size | Repair Kit Part # |
|------------|-------------------|
| 1/4" | BV-3I-GK0251 |
| 3/8" | BV-3I-GK0381 |
| 1/2" | BV-3I-GK0501 |
| 3/4" | BV-3I-GK0751 |
| 1" | BV-3I-GK1001 |
| 1-1/4" | BV-3I-GK1251 |
| 1 1/2" | BV-3I-GK1501 |
| 2" | BV-3I-GK2001 |

2 Piece Industrial Brass Ball Valves

Features and Benefits

- ISO5211 mounting pad
- blow-out proof stem
- PTFE seats
- pressure rating: **600 PSI WOG** and **150 PSI WSP**
- maximum temperature: **320°F**
- full port brass ball valves 1/4" thru 2"
- full port bronze ball valves 2-1/2" - 4"



Ordering Information

When ordering please list part number along with description. Example:

BV2BV-20011-A ball valve, Viton®, 2" female NPT, standard handle

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
B V 2 B V - 2 0 0 1 1 - A

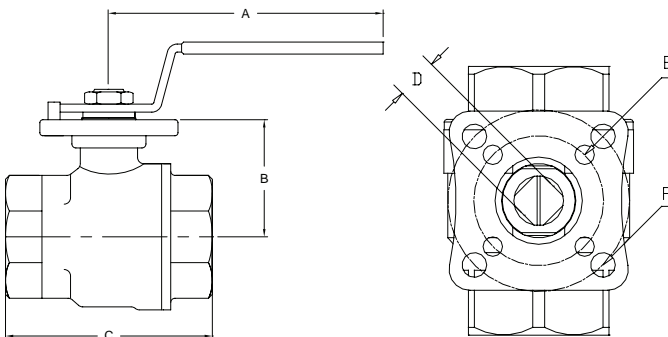
| Valve (1-4) | Seat Material (5) | (6) | Size (7-9) | Ends (10-11) | (12) | Actuation (13-15) |
|-------------|-------------------|-----|------------|--------------|------|------------------------|
| BV2B | V PTFE | - | 025 1/4" | 1 female NPT | - | manual (13) |
| | | | 038 3/8" | | | A standard |
| | | | 050 1/2" | | | All others (13-15) |
| | | | 075 3/4" | | | Contact Dixon Sanitary |
| | | | 100 1" | | | |
| | | | 125 1 1/4" | | | |
| | | | 150 1 1/2" | | | |
| | | | 200 2" | | | |
| | | | 250 2 1/2" | | | |
| | | | 300 3" | | | |
| | | | 400 4" | | | |

Specifications

| Size | Part # | Weight (lbs.) | Break Torque (in. lbs.) |
|--------|---------------|---------------|-------------------------|
| 1/4" | BV2BV-02511 * | 0.82 | 53 |
| 3/8" | BV2BV-03811 * | 0.79 | 53 |
| 1/2" | BV2BV-05011-A | 0.86 | 86 |
| 3/4" | BV2BV-07511-A | 0.91 | 149 |
| 1" | BV2BV-10011-A | 1.55 | 193 |
| 1 1/4" | BV2BV-12511-A | 2.14 | 290 |
| 1 1/2" | BV2BV-15011-A | 3.71 | 470 |
| 2" | BV2BV-20011-A | 5.52 | 634 |
| 2 1/2" | BV2BV-25011-A | 8.83 | 725 |
| 3" | BV2BV-30011-A | 13.29 | 800 |
| 4" | BV2BV-40011-A | 18.32 | 1062 |

* Actuated only

Dimensions



| Size | A | B | C | D | E | F (mm) |
|--------|------|------|------|-----|-----|--------|
| 1/4" | n/a | 1.28 | 2.64 | F03 | n/a | 9 |
| 3/8" | n/a | 1.28 | 2.64 | F03 | n/a | 9 |
| 1/2" | 4.40 | 1.51 | 2.16 | F04 | n/a | 9 |
| 3/4" | 4.40 | 1.63 | 2.80 | F04 | F05 | 11 |
| 1" | 5.40 | 1.76 | 3.23 | F04 | F05 | 11 |
| 1 1/4" | 7.30 | 2.13 | 3.58 | F05 | F07 | 11 |
| 1 1/2" | 7.80 | 2.32 | 4.06 | F05 | F07 | 11 |
| 2" | 7.80 | 2.65 | 4.76 | F05 | F07 | 14 |
| 2 1/2" | 7.10 | 3.93 | 6.10 | n/a | F07 | 17 |
| 3" | 7.10 | 4.32 | 6.90 | n/a | F07 | 17 |
| 4" | 7.10 | 4.93 | 8.10 | n/a | F07 | 17 |



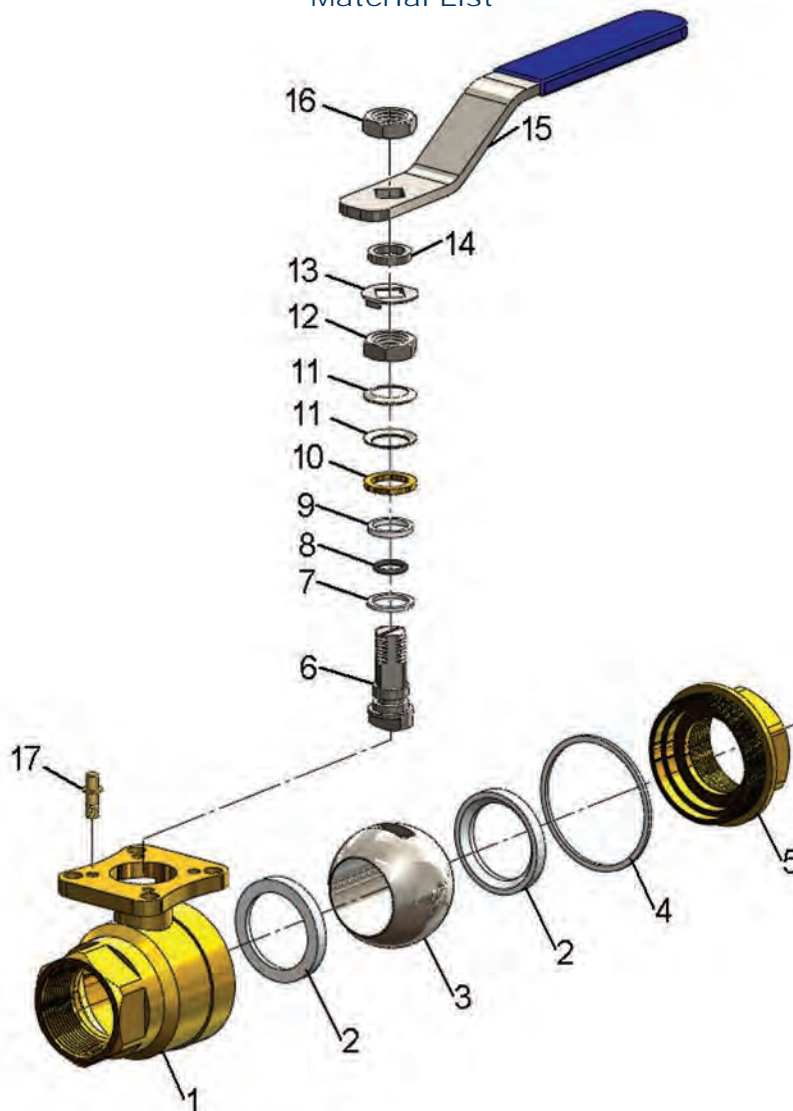
Note: Temperatures and pressures shown are guidelines only. They do not indicate maximum and minimum continuous working conditions.

All dimensions are in inches, unless noted. Dimensions are approximate.

Engineering dimensions are available upon request. Specifications are subject to change without notice.

2 Piece Industrial Brass Ball Valves

Material List



| Item | Description 1/4" - 4" | Material | | Quantity | |
|------|--------------------------|---------------------|-------------|-----------|-------------|
| | | 1/4" - 2" | 2 1/2" - 4" | 1/4" - 2" | 2 1/2" - 4" |
| 1 | body | brass | bronze | 1 | 1 |
| 2 | seat | PTFE | PTFE | 2 | 2 |
| 3 | ball | chrome plated brass | 304 SS | 1 | 1 |
| 4 | body seal | PTFE | n/a | 1 | 1 |
| 5 | end cap | brass | bronze | 1 | 1 |
| 6 | stem | 304 SS | 304 SS | 1 | 1 |
| 7 | thrust washer | PTFE | PTFE | 1 | 1 |
| 8 | O-ring | FKM | EPDM | 1 | 2 |
| 9 | packing | PTFE | PTFE | 1 | 1 |
| 10 | gland ring | brass | brass | 1 | 1 |
| 11 | spring washer | 301 SS | 304 SS | 2 | 1 |
| 12 | gland nut | 304 SS | n/a | 1 | n/a |
| 13 | washer | 304 SS | n/a | 1 | n/a |
| 14 | handle washer | 304 SS | n/a | 1 | n/a |
| 15 | handle washer | 304 SS/plastic | steel/PVC | 1 | 1 |
| 16 | handle nut | 304 SS | steel | 1 | 1 |
| 17 | stop pin | brass | brass | 1 | 1 |
| 18 | pin washer | 304 SS | steel | 1 | 1 |
| 19 | pin nut | 304 SS | steel | 1 | 1 |

Repair Kit contains:

#2 (2) PTFE seats

#4 (1) PTFE body seal

#7 (1) PTFE thrust washer

#8 (1) FKM O-ring

#9 (1) PTFE packing

| Valve Size | Repair Kit Part # |
|---------------|-------------------|
| 1/4" | BV-2B-VK025 |
| 3/8" | BV-2B-VK038 |
| 1/2" | BV-2B-VK050 |
| 3/4" | BV-2B-VK075 |
| 1" | BV-2B-VK100 |
| 1 1/4" | BV-2B-VK125 |
| 1 1/2" | BV-2B-VK150 |
| 2" | BV-2B-VK200 |
| 2 1/2" | BV-2B-VK250 |
| 3" | BV-2B-VK300 |
| 4" | BV-2B-VK400 |

Multi-port Industrial Brass Ball Valves

Features and Benefits

- reduced port brass ball
- female NPT ends
- ISO 5211 mounting pad
- blow-out proof stem
- chrome plated brass ball
- PTFE seats with O-ring backing for low operation torque
- FKM elastomers
- double O-ring stem packing
- pressure rating: **400 PSI** WOG; **100 PSI** WSP
- maximum temperature: **344° F**
- 100% tested
- sizes 1/4" thru 3"



Ordering Information

When ordering please list part number along with description. Example:

BV3BVLR-2001-A ball valve, L port, reduced port, 2" female NPT, standard handle

¹B ²V ³3 ⁴B ⁵V ⁶L ⁷R ⁸- ⁹2 ¹⁰0 ¹¹0 ¹²1 ¹³- ¹⁴A ¹⁵

| Valve (1-4) | Seat Material (5) | Ball Configuration (6) | Port Size (7) | (8) | Size (9-11) | End (12) | Actuation (13-15) |
|-------------|-------------------|------------------------|---------------|-----|-------------|--------------|-------------------------------|
| BV3B | V virgin PTFE | L L port | R reduced | - | 025 1/4" | 1 female NPT | <i>manual (13-14)</i> |
| | | T T port | | | 038 3/8" | | - A standard |
| | | | | | 050 1/2" | | <i>All others (13-15)</i> |
| | | | | | 075 3/4" | | <i>Contact Dixon Sanitary</i> |
| | | | | | 100 1" | | |
| | | | | | 125 1-1/4" | | |
| | | | | | 150 1-1/2" | | |
| | | | | | 200 2" | | |
| | | | | | 250 2-1/2" | | |
| | | | | | 300 3" | | |

Specifications

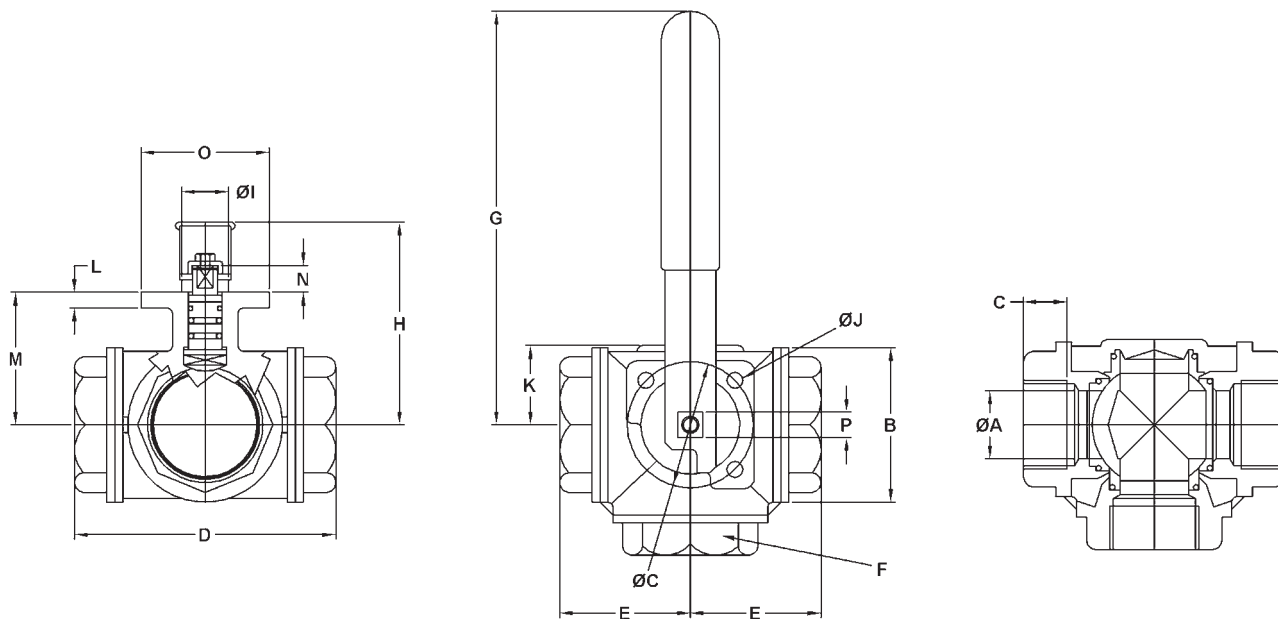
| Size | L port Part # | T port Part # | Weight (lbs.) | Break Torque (in. lbs.) | ISO 5211 |
|--------|----------------|----------------|---------------|-------------------------|----------|
| 1/4" | BV3BVLR-0251-A | BV3BVTR-0251-A | 1.22 | 53.1 | F03 |
| 3/8" | BV3BVLR-0381-A | BV3BVTR-0381-A | 1.16 | 53.1 | F03 |
| 1/2" | BV3BVLR-0501-A | BV3BVTR-0501-A | 1.21 | 53.1 | F03 |
| 3/4" | BV3BVLR-0751-A | BV3BVTR-0751-A | 1.44 | 53.1 | F03 |
| 1" | BV3BVLR-1001-A | BV3BVTR-1001-A | 2.64 | 150.46 | F05 |
| 1-1/4" | BV3BVLR-1251-A | BV3BVTR-1251-A | 4.15 | 150.46 | F05 |
| 1-1/2" | BV3BVLR-1501-A | BV3BVTR-1501-A | 6.02 | 150.46 | F05 |
| 2" | BV3BVLR-2001-A | BV3BVTR-2001-A | 9.08 | 274.37 | F07 |
| 2-1/2" | BV3BVLR-2501-A | BV3BVTR-2501-A | 16.33 | 380.58 | F07 |
| 3" | BV3BVLR-3001-A | BV3BVTR-3001-A | 19.55 | 380.58 | F07 |

Multi-port Industrial Brass Ball Valves

Flow Paths

*Flow paths must be advised at time of order.
Please see pages 166-167 for options.*

Dimensions

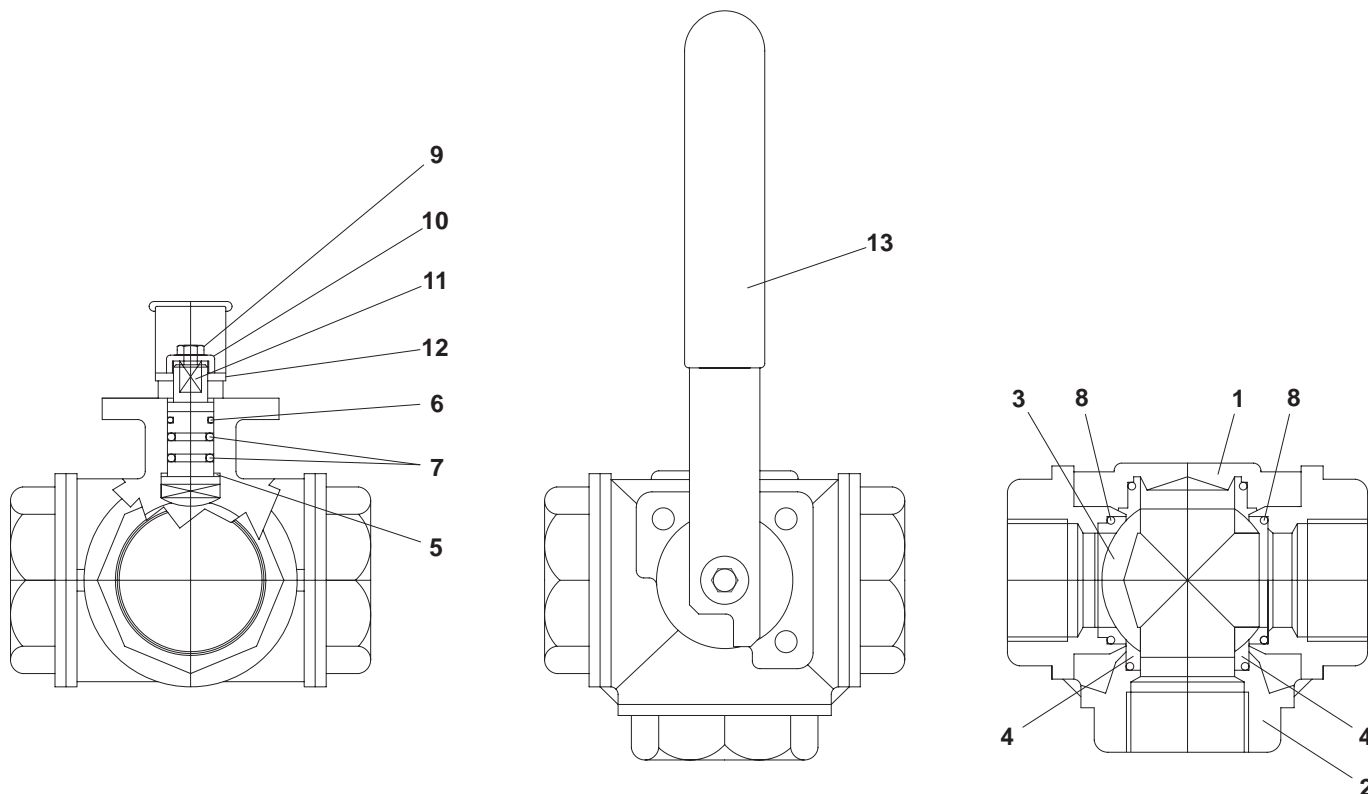


| Size | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P (mm) |
|--------|------|------|------|------|------|------|------|------|------|-----|------|-----|------|-----|------|--------|
| 1/4" | .39 | 1.34 | .39 | 2.64 | 1.32 | .86 | 4.72 | 2.44 | .87 | .23 | .77 | .20 | 1.20 | .35 | 1.49 | 9 |
| 3/8" | .43 | 1.34 | .40 | 2.64 | 1.32 | .86 | 4.72 | 2.44 | .87 | .23 | .77 | .20 | 1.20 | .35 | 1.49 | 9 |
| 1/2" | .43 | 1.34 | .53 | 2.87 | 1.44 | 1.06 | 4.72 | 2.44 | .87 | .23 | .77 | .20 | 1.20 | .35 | 1.49 | 9 |
| 3/4" | .59 | 1.53 | .55 | 3.19 | 1.60 | 1.25 | 4.72 | 2.52 | .87 | .23 | .87 | .20 | 1.29 | .35 | 1.49 | 9 |
| 1" | .79 | 1.89 | .66 | 3.74 | 1.87 | 1.61 | 6.69 | 2.95 | .94 | .27 | 1.00 | .28 | 1.63 | .43 | 1.97 | 11 |
| 1-1/4" | .98 | 2.36 | .68 | 4.39 | 2.20 | 1.96 | 6.69 | 3.17 | .94 | .27 | 1.22 | .28 | 1.85 | .43 | 1.97 | 11 |
| 1-1/2" | 1.26 | 2.83 | .68 | 4.86 | 2.43 | 2.16 | 6.69 | 3.66 | 1.26 | .27 | 1.79 | .28 | 2.34 | .43 | 1.97 | 11 |
| 2" | 1.57 | 3.38 | .70 | 5.73 | 2.87 | 2.75 | 9.05 | 4.43 | 1.46 | .35 | 1.75 | .32 | 2.90 | .59 | 2.75 | 14 |
| 2-1/2" | 1.95 | 4.37 | .93 | 6.93 | 3.47 | 3.34 | 9.05 | 4.86 | 1.46 | .35 | 2.20 | .32 | 3.35 | .59 | 2.75 | 14 |
| 3" | 1.95 | 4.45 | 1.01 | 7.08 | 3.54 | 4.13 | 9.05 | 4.86 | 1.46 | .35 | 2.20 | .32 | 3.35 | .59 | 2.75 | 14 |

*All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.*

Multi-port Industrial Brass Ball Valves

Material List



| Item | Description | Material | Quantity |
|------|----------------|---------------------|----------|
| 1 | body | brass | 1 |
| 2 | end connection | brass | 3 |
| 3 | ball | chrome plated brass | 1 |
| 4 | ball seat | PTFE | 4 |
| 5 | thrust washer | PTFE | 1 |
| 6 | stem seal | PTFE | 1 |
| 7 | O-ring stem | FKM | 1 |
| 8 | O-ring body | FKM | 4 |
| 9 | screw | steel | 1 |
| 10 | bushing | brass | 1 |
| 11 | stem | brass | 1 |
| 12 | washer | nylon | 1 |
| 13 | handle | steel and vinyl | 1 |

Repair Kit contains:

- #4 (4) PTFE ball seats
- #5 (1) PTFE thrust washer
- #6 (1) PTFE stem seal
- #7 (1) FKM O-ring stem
- #8 (4) FKM O-ring body

| Valve Size | Repair Kit Part # |
|------------|-------------------|
| 1/4" | BV-3B-VK0251 |
| 3/8" | BV-3B-VK0381 |
| 1/2" | BV-3B-VK0501 |
| 3/4" | BV-3B-VK0751 |
| 1" | BV-3B-VK1001 |
| 1 1/4" | BV-3B-VK1251 |
| 1-1/2" | BV-3B-VK1501 |
| 2" | BV-3B-VK2001 |
| 2-1/2" | BV-3B-VK2501 |
| 3" | BV-3B-VK3001 |

Delrin™ Assembly Gauge Fixture for 3-Piece Ball Valve Assembly

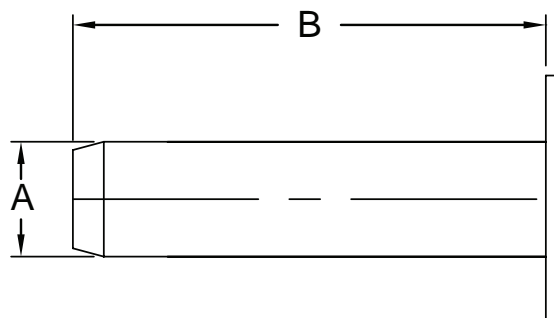
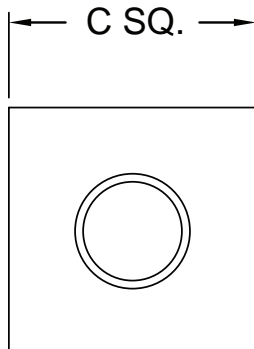


Gauge fixtures insure perfect alignment of 3-piece ball valves when assembling after changing seats or valve ends.

Features and Benefits

- ½" – 4" sizes available
- Sanitary Tube OD or Industrial FNPT / Socket weld available
- Delrin® material will not damage surface finish
- Aluminum base can be mounted in vise

Dimensions



Sanitary Tube OD

| Size | Part # | A | B | C |
|------|-----------|------|-------|------|
| ½" | BV2C-G050 | 0.36 | 5.18 | 4.00 |
| ¾" | BV2C-G075 | 0.61 | 5.23 | 4.00 |
| 1" | BV2C-G100 | 0.86 | 5.75 | 4.00 |
| 1½" | BV2C-G150 | 1.36 | 7.30 | 4.00 |
| 2" | BV2C-G200 | 1.86 | 7.65 | 4.00 |
| 2½" | BV2C-G250 | 2.36 | 9.31 | 6.00 |
| 3" | BV2C-G300 | 2.86 | 10.56 | 6.00 |
| 4" | BV2C-G400 | 3.83 | 10.93 | 6.00 |

Industrial FNPT / Socket Weld

| Size | Part # | A | B | C |
|------|-----------|------|-------|------|
| ½" | BV2I-G050 | 0.59 | 5.18 | 4.00 |
| ¾" | BV2I-G075 | 0.78 | 5.23 | 4.00 |
| 1" | BV2I-G100 | 0.98 | 5.75 | 4.00 |
| 1½" | BV2I-G150 | 1.49 | 7.30 | 4.00 |
| 2" | BV2I-G200 | 1.97 | 7.65 | 4.00 |
| 2½" | BV2I-G250 | 2.55 | 9.31 | 6.00 |
| 3" | BV2I-G300 | 3.00 | 10.56 | 6.00 |
| 4" | BV2I-G400 | 3.70 | 10.93 | 6.00 |

Ball Valve Check List

Contact Name: _____ Company Name: _____
 Date: _____ Phone: _____ Email: _____
 Customer ID#: _____

Process Background

Process Temp: _____ Plant Air Supply (PSI): _____

Product: _____

Size

1/4" ☐ 3/8" ☐ 1/2" ☐ 3/4" ☐ 1" ☐ 1-1/4" ☐ 1-1/2" ☐ 2" ☐ 2-1/2" ☐ 3" ☐ 4" ☐

Seat Material - Industrial

15% Glass Reinforced PTFE
 25% Carbon Reinforced PTFE
 50% SS Reinforced PTFE
 UHMW

☐
☐
☐
☐

Seat Material - Sanitary

Virgin PTFE
 15% Glass Reinforced PTFE
 25% Carbon Reinforced PTFE
 50% SS Reinforced PTFE
 UHMW

☐
☐
☐
☐
☐

Connection Industrial

FNPT
 Socket Weld
 150# Flange

☐
☐
☐

Other: _____

Connection Sanitary

Clamp
 Weld

☐
☐

Body

Industrial 2 piece body
 Industrial 3 piece body

☐
☐

Flow Control

with 30° V-port
 with 60° V-port

☐
☐

Ports/Ball

2-way
 3-way L
 3-way T
 4-way

☐
☐
☐
☐

Actuation

Manual

☐

Pneumatic

☐

Electric

☐

Dead man Handle

☐

Operation

Spring return normally open
 Spring return normally closed

☐
☐

Double acting
 Standard Electric

☐
☐

Rotation

90° (2 position)
 180° (3 position)

☐
☐

180° (2 position)
 Modulating

☐
☐

Other: _____

If 3-way valve specify flow path. See page 166

Pneumatic Actuator Options

Enclosure Material

Aluminum ☐ Ni Plated AL ☐
 SS ☐ Techno-polymer ☐

Accessory Enclosure

NEMA 4/4X ☐ Intrinsically Safe ☐
 NEMA 7/9 ☐

Limit Switch

Mechanical ☐ # switch ☐
 Prox ☐ # poles ☐

Other: _____

Solenoid

12VDC ☐ 220VAC ☐
 24VDC ☐ Single Coil ☐
 24VAC ☐ Dual Coil ☐
 110VAC ☐ Closed Centers ☐

Positioner

Pneumatic ☐ Electro-pneumatic ☐
 Feedback: Yes ☐ No ☐
 Other: _____

Other Options

Declutchable Gear Over-Ride ☐
 Pre Wired Sol to Switch ☐
 Receptical (Specify): _____

Electric Actuator Options

Enclosure

NEMA 4/4X ☐
 NEMA 7/9 ☐
 Intrinsically Safe ☐

Manual Over-Ride

Yes ☐
 No ☐
 Handwheel ☐

Switches

Standard ☐
 2 Extra ☐
 Torque Switches ☐

Potentiometer ☐
 Current Position ☐

Power Supply

12 VDC ☐ 220VAC 1PH ☐
 24VDC ☐ 220 VAC 3PH ☐
 24VAC ☐ 440VAC 3PH ☐
 110 VAC ☐

Modulating (Positioner)

1-5 V ☐ 2-10 V ☐
 4-20 mA ☐
 Feedback: Yes ☐ No ☐
 Other: _____

Other Options

Declutchable Gear Over-Ride ☐
 Local Control Unit ☐
 Battery Back-Up ☐
 Other Requests: _____

Other Special Requests

Sanitary **Butterfly Valves**



B5101 series butterfly valves offer three handle options. Clamp ends standard.



B5102 series butterfly valves is extremely diversified. Consider it a clamp that acts like a butterfly valve.



B5104 series butterfly valves offer a short face to face dimension and can be installed in any direction. Clamp ends are standard.



B5115 series butterfly valves are 304 stainless steel with a trigger handle. Offered with both clamp and weld ends.



Any B5101, B5102 and B5014 butterfly valve can be actuated with many options. See page ?? for more details.

B5101 Butterfly Valves

Features and Benefits

- low resistance to flow
- bi-directional flow
- gentle to media
- suitable for low and medium viscosity fluids
- field serviceable (no special tools required)
- self-draining
- various manual or automatic operators available
- special handle available for accurate, manual flow balancing capabilities
- polyacetal bushings for the valve disc reduce friction and increase cycle life.
- optional wing nut kit is available for effortless valve assembly and disassembly.
- 100% tested / 100% inspected
- all wetted surfaces are sanitary finished to $\leq 32R$
- seat materials available $\frac{1}{2}$ " - 4" (EPDM, silicone, FKM)
- material: forged 316L body & disc
- sizes from $\frac{1}{2}$ " thru 8"



Ordering Information

When ordering please list part number along with description. Example:

B5101E200CC-C - butterfly valve, EPDM seat, 2" clamp ends with trigger handle

$\frac{1}{B}$ $\frac{2}{5}$ $\frac{3}{1}$ $\frac{4}{0}$ $\frac{5}{1}$ $\frac{6}{E}$ $\frac{7}{2}$ $\frac{8}{0}$ $\frac{9}{0}$ $\frac{10}{C}$ $\frac{11}{C}$ $\frac{12}{-}$ $\frac{13}{C}$ $\frac{14}{}$ $\frac{15}{}$

| Valve (1-5) | Seat Material (6) * | Size (7-9) | Ends (10-11) | (12) | Actuation (13-15) |
|-------------|---------------------|----------------------|-----------------------|------|---------------------------|
| B5101 | E EPDM | 050 $\frac{1}{2}$ " | C Clamp | - | <i>Manual (13)</i> |
| | S Silicone | 075 $\frac{3}{4}$ " | B Weld | | A Pull |
| | V FKM | 100 1" | F Female I-Line | | B Infinite |
| | | 150 $1\frac{1}{2}$ " | M Male I-Line | | C Trigger |
| | | 200 2" | T Threaded Bevel | | <i>Pneumatic (13)</i> |
| | | 250 $2\frac{1}{2}$ " | P Plain Bevel | | F Canister STO |
| | | 300 3" | Q Q-Line | | G Canister STC |
| | | 400 4" | J John Perry Plain | | H Canister DA |
| | | 600 6" | H John Perry Threaded | | <i>All Others (13-15)</i> |
| | | 800 8" | E Extended Weld | | Contact Dixon Sanitary |
| | | | 1 Female NPT | | |
| | | | 2 Male NPT | | |
| | | | | | |
| | | | | | |

* 6" EPDM and silicone only, 8" EPDM only

Specifications

Information supplied based on water media at 68°F

| Size | Break Torque (in. lbs.) silicone | Break Torque (in. lbs.) EPDM | Break Torque (in. lbs.) FKM | Pressure Rating (PSI) | Flow Coefficient (C_v) | Weight w/standard handle (lbs.) |
|------------------|-------------------------------------|---------------------------------|--------------------------------|--------------------------|-------------------------------|------------------------------------|
| $\frac{1}{2}$ " | 20 | 75 | 70 | 140 | 7 | 2.2 |
| $\frac{3}{4}$ " | 20 | 75 | 70 | 140 | 11 | 2.2 |
| 1" | 20 | 75 | 70 | 140 | 23 | 2.2 |
| $1\frac{1}{2}$ " | 40 | 130 | 125 | 140 | 80 | 2.9 |
| 2" | 55 | 165 | 175 | 140 | 230 | 3.5 |
| $2\frac{1}{2}$ " | 70 | 210 | 220 | 110 | 264 | 3.7 |
| 3" | 165 | 350 | 310 | 110 | 372 | 4.4 |
| 4" | 350 | 540 | 450 | 85 | 800 | 9 |
| 6" | 700 | 1550 | n/a | 60 | 1200 | 18.5 |
| 8" | n/a | 1650 | n/a | 60 | 2800 | 13.6 |

For All Diameters of Manual B5101 Butterfly Valves

| Elastomer | Minimum Line Pressure | Minimum Temperature Rating | Maximum Temperature Rating |
|-----------|-----------------------------|----------------------------|----------------------------|
| all | .4 inches Hg vacuum at 68°F | 15°F | 200°F |

B5101 Butterfly Valves with Pull Handle

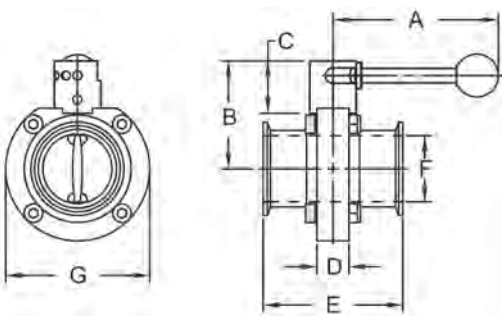
Dimensions

B5101 Series Butterfly Valve with Pull Handle and Clamp Ends



| Valve Size | Clamp x Clamp Configuration Part # | | |
|------------|------------------------------------|----------------|---------------|
| | EPDM seats | Silicone seats | FKM seats |
| 1/2" | B5101E050CC-A | B5101S050CC-A | B5101V050CC-A |
| 3/4" | B5101E075CC-A | B5101S075CC-A | B5101V075CC-A |
| 1" | B5101E100CC-A | B5101S100CC-A | B5101V100CC-A |
| 1 1/2" | B5101E150CC-A | B5101S150CC-A | B5101V150CC-A |
| 2" | B5101E200CC-A | B5101S200CC-A | B5101V200CC-A |
| 2 1/2" | B5101E250CC-A | B5101S250CC-A | B5101V250CC-A |
| 3" | B5101E300CC-A | B5101S300CC-A | B5101V300CC-A |
| 4" | B5101E400CC-A | B5101S400CC-A | B5101V400CC-A |
| 6" | B5101E600CC-A | B5101S600CC-A | --- |
| 8" | B5101E800CC-A | --- | --- |

Clamp End x Clamp End



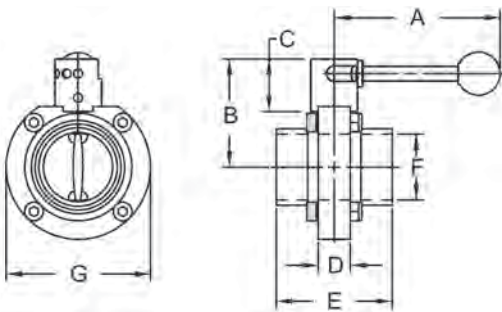
| Size | A | B | C | D | E | F | G |
|--------|------|-----|-----|-----|-----|-----|------|
| 1/2" | 4.4 | 2.8 | 1.4 | 0.9 | 3.5 | .37 | 3.1 |
| 3/4" | 4.4 | 2.8 | 1.4 | 0.9 | 3.5 | .62 | 3.1 |
| 1" | 4.4 | 2.8 | 1.4 | 0.9 | 3.5 | 0.9 | 3.1 |
| 1 1/2" | 4.4 | 2.8 | 1.4 | 0.9 | 3.5 | 1.4 | 3.1 |
| 2" | 4.4 | 3.1 | 1.4 | 0.9 | 3.8 | 1.9 | 3.9 |
| 2 1/2" | 4.4 | 3.5 | 1.4 | 0.9 | 3.8 | 2.4 | 4.6 |
| 3" | 6.2 | 3.8 | 1.3 | 1.2 | 4.1 | 2.9 | 5.2 |
| 4" | 6.2 | 4.5 | 1.3 | 1.2 | 4.8 | 3.8 | 6.7 |
| 6" | 11.5 | 5.5 | 1.3 | 1.2 | 5.5 | 5.8 | 8.5 |
| 8" | 18.0 | 6.9 | 1.6 | 1.2 | 4.9 | 7.8 | 11.2 |

B5101 Series Butterfly Valve with Pull Handle and Weld Ends



| Valve Size | Weld x Weld Configuration Part # | | |
|------------|----------------------------------|----------------|---------------|
| | EPDM seats | Silicone seats | FKM seats |
| 1/2" | B5101E050BB-A | B5101S050BB-A | B5101V050BB-A |
| 3/4" | B5101E075BB-A | B5101S075BB-A | B5101V075BB-A |
| 1" | B5101E100BB-A | B5101S100BB-A | B5101V100BB-A |
| 1 1/2" | B5101E150BB-A | B5101S150BB-A | B5101V150BB-A |
| 2" | B5101E200BB-A | B5101S200BB-A | B5101V200BB-A |
| 2 1/2" | B5101E250BB-A | B5101S250BB-A | B5101V250BB-A |
| 3" | B5101E300BB-A | B5101S300BB-A | B5101V300BB-A |
| 4" | B5101E400BB-A | B5101S400BB-A | B5101V400BB-A |
| 6" | B5101E600BB-A | B5101S600BB-A | --- |
| 8" | B5101E800BB-A | --- | --- |

Weld End x Weld End



| Size | A | B | C | D | E | F | G |
|--------|------|-----|-----|-----|-----|-----|------|
| 1/2" | 4.3 | 2.6 | 1.3 | 0.9 | 2.0 | .37 | 3.1 |
| 3/4" | 4.3 | 2.6 | 1.3 | 0.9 | 2.0 | .62 | 3.1 |
| 1" | 4.4 | 2.8 | 1.4 | 0.9 | 2.0 | 0.9 | 3.1 |
| 1 1/2" | 4.4 | 2.8 | 1.4 | 0.9 | 2.0 | 1.4 | 3.1 |
| 2" | 4.4 | 3.1 | 1.4 | 0.9 | 2.0 | 1.9 | 3.9 |
| 2 1/2" | 4.4 | 3.5 | 1.4 | 0.9 | 2.1 | 2.4 | 4.6 |
| 3" | 6.2 | 3.8 | 1.3 | 1.2 | 2.5 | 2.9 | 5.2 |
| 4" | 6.2 | 4.5 | 1.3 | 1.2 | 3.1 | 3.8 | 6.7 |
| 6" | 11.5 | 5.5 | 1.3 | 1.2 | 5.5 | 5.8 | 8.5 |
| 8" | 18.0 | 6.9 | 1.6 | 1.2 | 4.9 | 7.8 | 11.2 |

All dimensions are in inches, unless noted. Dimensions are approximate.

Engineering dimensions are available upon request. Specifications are subject to change without notice.

B5101 Butterfly Valve with Infinite Handle

Dimensions

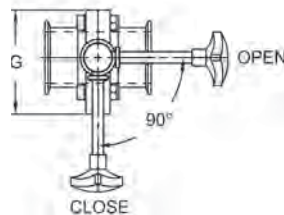
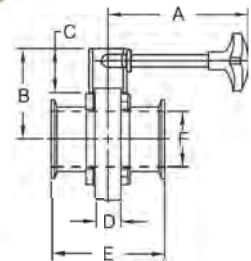
B5101 Series Butterfly Valve with Infinite Handle and Clamp Ends

| Valve Size | Clamp x Clamp Configuration Part # | | |
|------------|------------------------------------|----------------|---------------|
| | EPDM seats | Silicone seats | FKM seats |
| ½" | B5101E050CC-B | B5101S050CC-B | B5101V050CC-B |
| ¾" | B5101E075CC-B | B5101S075CC-B | B5101V075CC-B |
| 1" | B5101E100CC-B | B5101S100CC-B | B5101V100CC-B |
| 1½" | B5101E150CC-B | B5101S150CC-B | B5101V150CC-B |
| 2" | B5101E200CC-B | B5101S200CC-B | B5101V200CC-B |
| 2½" | B5101E250CC-B | B5101S250CC-B | B5101V250CC-B |
| 3" | B5101E300CC-B | B5101S300CC-B | B5101V300CC-B |
| 4" | B5101E400CC-B | B5101S400CC-B | B5101V400CC-B |



Clamp End x Clamp End

| Size | A | B | C | D | E | F | G |
|------|-----|-----|-----|-----|-----|------|-----|
| ½" | 4.3 | 2.6 | 1.3 | 0.9 | 3.5 | .37 | 3.1 |
| ¾" | 4.3 | 2.6 | 1.3 | 0.9 | 3.5 | .62 | 3.1 |
| 1" | 4.3 | 2.6 | 1.3 | 0.9 | 3.5 | 0.90 | 3.1 |
| 1½" | 4.3 | 2.6 | 1.3 | 0.9 | 3.5 | 1.40 | 3.1 |
| 2" | 4.3 | 2.9 | 1.3 | 0.9 | 3.8 | 1.90 | 3.1 |
| 2½" | 4.3 | 3.3 | 1.3 | 0.9 | 3.8 | 2.40 | 4.6 |
| 3" | 6.4 | 3.6 | 1.3 | 1.2 | 4.1 | 2.90 | 5.2 |
| 4" | 6.4 | 4.4 | 1.3 | 1.2 | 4.8 | 3.80 | 6.7 |



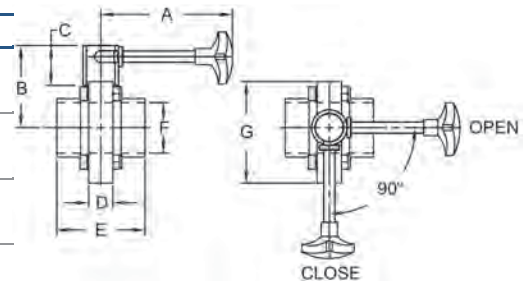
B5101 Series Butterfly Valve with Infinite Handle and Weld Ends

| Valve Size | Weld x Weld Configuration Part # | | |
|------------|----------------------------------|----------------|---------------|
| | EPDM seats | Silicone seats | FKM seats |
| ½" | B5101E050BB-B | B5101S050BB-B | B5101V050BB-B |
| ¾" | B5101E075BB-B | B5101S075BB-B | B5101V075BB-B |
| 1" | B5101E100BB-B | B5101S100BB-B | B5101V100BB-B |
| 1½" | B5101E150BB-B | B5101S150BB-B | B5101V150BB-B |
| 2" | B5101E200BB-B | B5101S200BB-B | B5101V200BB-B |
| 2½" | B5101E250BB-B | B5101S250BB-B | B5101V250BB-B |
| 3" | B5101E300BB-B | B5101S300BB-B | B5101V300BB-B |
| 4" | B5101E400BB-B | B5101S400BB-B | B5101V400BB-B |



Weld End x Weld End

| Size | A | B | C | D | E | F | G |
|------|-----|-----|-----|-----|-----|-----|-----|
| ½" | 4.3 | 2.6 | 1.3 | 0.9 | 1.9 | .37 | 3.1 |
| ¾" | 4.3 | 2.6 | 1.3 | 0.9 | 1.9 | .62 | 3.1 |
| 1" | 4.3 | 2.6 | 1.3 | 0.9 | 1.9 | 0.9 | 3.1 |
| 1½" | 4.3 | 2.6 | 1.3 | 0.9 | 1.9 | 1.4 | 3.1 |
| 2" | 4.3 | 2.9 | 1.3 | 0.9 | 2.0 | 1.9 | 3.1 |
| 2½" | 4.3 | 3.3 | 1.3 | 0.9 | 2.1 | 2.4 | 4.6 |
| 3" | 6.4 | 3.6 | 1.3 | 1.2 | 2.5 | 2.9 | 5.2 |
| 4" | 6.4 | 4.4 | 1.3 | 1.2 | 3.1 | 3.8 | 6.7 |

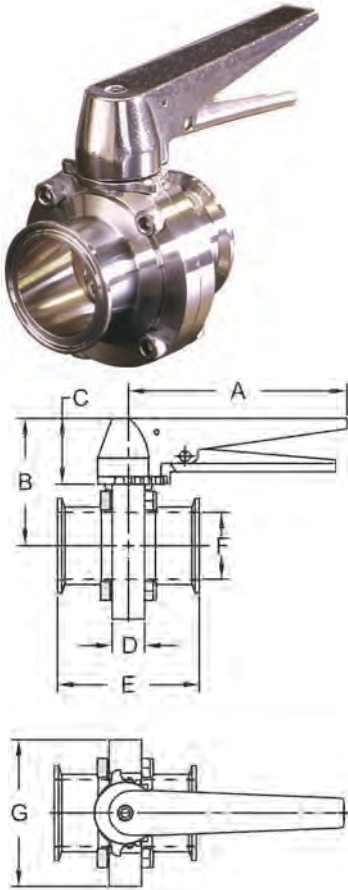


All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.

B5101 Butterfly Valve with Trigger Handle

Dimensions

B5101 Series Butterfly Valve with Trigger Handle and Clamp Ends

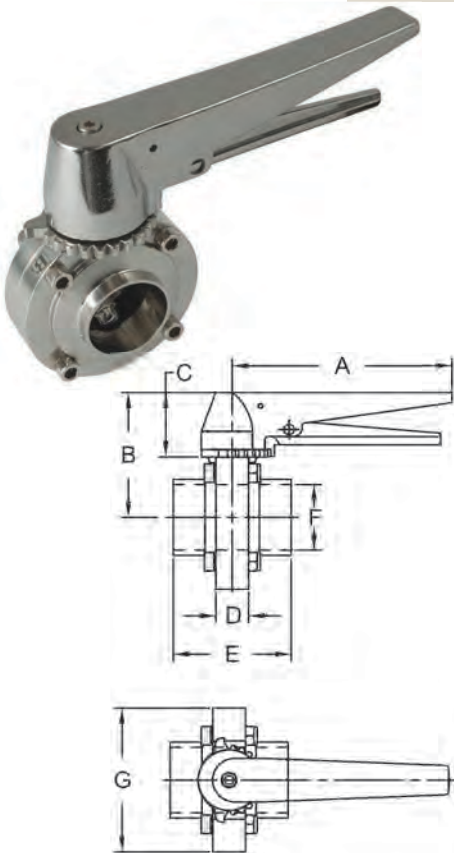


| Valve Size | Clamp x Clamp Configuration Part # | | |
|------------|------------------------------------|----------------|---------------|
| | EPDM seats | Silicone seats | FKM seats |
| 1/2" | B5101E050CC-C | B5101S050CC-C | B5101V050CC-C |
| 3/4" | B5101E075CC-C | B5101S075CC-C | B5101V075CC-C |
| 1" | B5101E100CC-C | B5101S100CC-C | B5101V100CC-C |
| 1 1/2" | B5101E150CC-C | B5101S150CC-C | B5101V150CC-C |
| 2" | B5101E200CC-C | B5101S200CC-C | B5101V200CC-C |
| 2 1/2" | B5101E250CC-C | B5101S250CC-C | B5101V250CC-C |
| 3" | B5101E300CC-C | B5101S300CC-C | B5101V300CC-C |
| 4" | B5101E400CC-C | B5101S400CC-C | B5101V400CC-C |

Clamp End x Clamp End

| Size | A | B | C | D | E | F | G |
|--------|-----|-----|-----|-----|-----|-----|-----|
| 1/2" | 6.6 | 3.0 | 1.7 | 0.9 | 3.5 | .37 | 3.1 |
| 3/4" | 6.6 | 3.0 | 1.7 | 0.9 | 3.5 | .62 | 3.1 |
| 1" | 6.6 | 3.0 | 1.7 | 0.9 | 3.5 | 0.9 | 3.1 |
| 1 1/2" | 6.6 | 3.0 | 1.7 | 0.9 | 3.5 | 1.4 | 3.1 |
| 2" | 6.6 | 3.5 | 1.7 | 0.9 | 3.8 | 1.9 | 3.1 |
| 2 1/2" | 6.6 | 3.7 | 1.7 | 0.9 | 3.8 | 2.4 | 4.6 |
| 3" | 6.6 | 3.9 | 1.7 | 1.2 | 4.1 | 2.9 | 5.2 |
| 4" | 6.6 | 4.8 | 1.7 | 1.2 | 4.8 | 3.8 | 6.7 |

B5101 Series Butterfly Valve with Trigger Handle and Weld Ends



| Valve Size | Weld x Weld Configuration Part # | | |
|------------|----------------------------------|----------------|---------------|
| | EPDM seats | Silicone seats | FKM seats |
| 1/2" | B5101E050BB-C | B5101S050BB-C | B5101V050BB-C |
| 3/4" | B5101E075BB-C | B5101S075BB-C | B5101V075BB-C |
| 1" | B5101E100BB-C | B5101S100BB-C | B5101V100BB-C |
| 1 1/2" | B5101E150BB-C | B5101S150BB-C | B5101V150BB-C |
| 2" | B5101E200BB-C | B5101S200BB-C | B5101V200BB-C |
| 2 1/2" | B5101E250BB-C | B5101S250BB-C | B5101V250BB-C |
| 3" | B5101E300BB-C | B5101S300BB-C | B5101V300BB-C |
| 4" | B5101E400BB-C | B5101S400BB-C | B5101V400BB-C |

Weld End x Weld End

| Size | A | B | C | D | E | F | G |
|--------|-----|-----|-----|-----|-----|-----|-----|
| 1/2" | 6.6 | 3.0 | 1.7 | 0.9 | 1.9 | .37 | 3.1 |
| 3/4" | 6.6 | 3.0 | 1.7 | 0.9 | 1.9 | .62 | 3.1 |
| 1" | 6.6 | 3.0 | 1.7 | 0.9 | 1.9 | 0.9 | 3.1 |
| 1 1/2" | 6.6 | 3.0 | 1.7 | 0.9 | 1.9 | 1.4 | 3.1 |
| 2" | 6.6 | 3.5 | 1.7 | 0.9 | 2.0 | 1.9 | 3.9 |
| 2 1/2" | 6.6 | 3.7 | 1.7 | 0.9 | 2.1 | 2.4 | 4.6 |
| 3" | 6.6 | 3.9 | 1.7 | 1.2 | 2.5 | 2.9 | 5.2 |
| 4" | 6.6 | 4.8 | 1.7 | 1.2 | 3.1 | 2.9 | 6.7 |

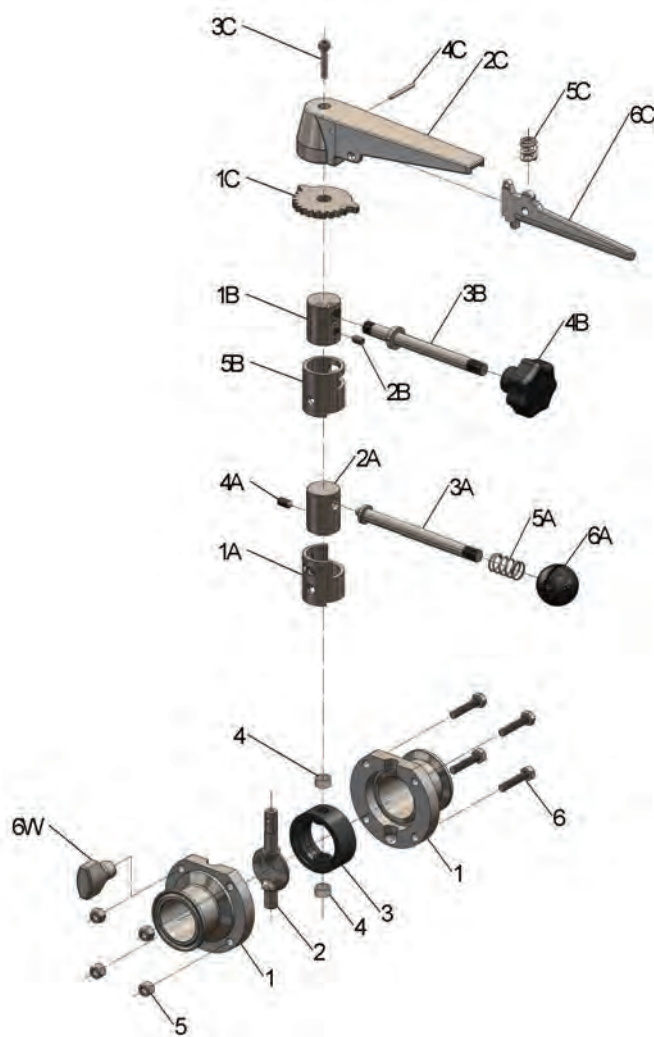
All dimensions are in inches, unless noted. Dimensions are approximate.

Engineering dimensions are available upon request. Specifications are subject to change without notice.

B5101 Butterfly Valves

Material List

| Item | Description | Material | Quantity |
|------------------------|-------------------|-------------------------|----------|
| Trigger Handle | | | |
| 1C | sprocket | CF8 | 1 |
| 2C | handle | CF8 | 1 |
| 3C | hex socket bolt | 304 | 1 |
| 4C | pin | 304 | 1 |
| 5C | spring | 304 | 1 |
| 6C | trigger | CF8 | 1 |
| Infinite Handle | | | |
| 1B | hub | CF8 | 1 |
| 2B | hex socket screw | 304 | 1 |
| 3B | handle shaft | 304 | 1 |
| 4B | knob | polymer | 1 |
| 5B | hub housing | CF8 | 1 |
| Pull Handle | | | |
| 1A | hub housing | CF8 | 1 |
| 2A | hub | CF8 | 1 |
| 3A | handle shaft | 304 | 1 |
| 4A | hex socket screw | 304 | 1 |
| 5A | spring | 304 | 1 |
| 6A | knob | polymer | 1 |
| Valve | | | |
| 1 | body half | 316 | 2 |
| 2 | disc | 316 | 1 |
| 3 | seat | silicone EPDM FKM | 1 |
| 4 | bushing | polyacetal | 2 |
| 5 | hex nut | 304 | 4 * |
| 6 | bolt | 304 | 4 * |
| 6W | optional wing nut | 304 | 4 * |



* 4" and 8" valves have 6 bolts and nuts
6" valve has 8 bolts and nuts

Repair Kit contains:

#3 (1) seat

#4 (2) bushings

| Valve Size | Part # | | |
|------------|--------------|--------------|--------------|
| | Black EPDM | Red Silicone | Brown FKM |
| ½" - 1" | B5101-RKE100 | B5101-RKS100 | B5101-RKV100 |
| 1½" | B5101-RKE150 | B5101-RKS150 | B5101-RKV150 |
| 2" | B5101-RKE200 | B5101-RKS200 | B5101-RKV200 |
| 2½" | B5101-RKE250 | B5101-RKS250 | B5101-RKV250 |
| 3" | B5101-RKE300 | B5101-RKS300 | B5101-RKV300 |
| 4" | B5101-RKE400 | B5101-RKS400 | B5101-RKV400 |
| 6" | B5101-RKE600 | B5101-RKS600 | --- |
| 8" | B5101-RKE800 | --- | --- |

B5101 Butterfly Valves

Technical Data

Capacity / Pressure Drop Chart ΔP (PSI)

| Capacity (US GPM) | Valve Size (in) | | | | | | | | | |
|-------------------------|-----------------|-----|------|-----|-----|-----|-----|-----|-----|-----|
| | ½ | ¾ | 1 | 1½ | 2 | 2½ | 3 | 4 | 6 | 8 |
| 5 | 7 | 5 | | | | | | | | |
| 10 | | 2.5 | 0.2 | 0.0 | | | | | | |
| 50 | | | 4.7 | 0.4 | | | | | | |
| 90 | | | 15.3 | 1.3 | 0.2 | | | | | |
| 130 | | | | 2.6 | 0.3 | 0.2 | | | | |
| 170 | | | | 4.5 | 0.5 | 0.4 | 0.2 | | | |
| 210 | | | | 6.9 | 0.8 | 0.6 | 0.3 | | | |
| 250 | | | | 9.8 | 1.2 | 0.9 | 0.5 | | | |
| 290 | | | | | 1.6 | 1.2 | 0.6 | 0.2 | | |
| 330 | | | | | 2.1 | 1.6 | 0.8 | 0.2 | | |
| 370 | | | | | 2.6 | 2.0 | 1.0 | 0.2 | | |
| 410 | | | | | 3.2 | 2.4 | 1.2 | 0.3 | | |
| 450 | | | | | 3.8 | 2.9 | 1.5 | 0.3 | 0.2 | |
| 490 | | | | | 4.5 | 3.4 | 1.7 | 0.4 | 0.2 | |
| 530 | | | | | | 4.0 | 2.0 | 0.4 | 0.2 | |
| 570 | | | | | | 4.7 | 2.3 | 0.5 | 0.2 | |
| 610 | | | | | | 5.3 | 2.7 | 0.6 | 0.3 | |
| 650 | | | | | | 6.1 | 3.1 | 0.7 | 0.3 | |
| 690 | | | | | | 6.8 | 3.4 | 0.7 | 0.3 | |
| 730 | | | | | | | 3.9 | 0.8 | 0.4 | |
| 770 | | | | | | | 4.3 | 0.9 | 0.4 | |
| 810 | | | | | | | 4.7 | 1.0 | 0.5 | |
| 850 | | | | | | | 5.2 | 1.1 | 0.5 | |
| 890 | | | | | | | 5.7 | 1.2 | 0.6 | |
| 930 | | | | | | | 6.3 | 1.4 | 0.6 | |
| 970 | | | | | | | | 1.5 | 0.7 | |
| 1010 | | | | | | | | 1.6 | 0.7 | |
| 1050 | | | | | | | | 1.7 | 0.8 | 0.2 |
| 1090 | | | | | | | | 1.9 | 0.8 | 0.2 |
| 1130 | | | | | | | | 2.0 | 0.9 | 0.2 |
| 1170 | | | | | | | | 2.1 | 1.0 | 0.2 |
| 1210 | | | | | | | | 2.3 | 1.0 | 0.2 |
| 1250 | | | | | | | | 2.4 | 1.1 | 0.2 |
| 1290 | | | | | | | | 2.6 | 1.2 | 0.2 |
| 1330 | | | | | | | | 2.8 | 1.2 | 0.2 |
| 1370 | | | | | | | | 2.9 | 1.3 | 0.2 |
| 1410 | | | | | | | | 3.1 | 1.4 | 0.3 |
| 1450 | | | | | | | | 3.3 | 1.5 | 0.3 |
| 1490 | | | | | | | | 3.5 | 1.5 | 0.3 |
| 1530 | | | | | | | | 3.7 | 1.6 | 0.3 |
| 1570 | | | | | | | | 3.9 | 1.7 | 0.3 |
| 1610 | | | | | | | | 4.1 | 1.8 | 0.3 |
| 1650 | | | | | | | | 4.3 | 1.9 | 0.3 |
| 1690 | | | | | | | | 4.5 | 2.0 | 0.4 |
| 1730 | | | | | | | | 4.7 | 2.1 | 0.4 |
| 1770 | | | | | | | | 4.9 | 2.2 | 0.4 |
| 1810 | | | | | | | | 5.1 | 2.3 | 0.4 |

Note: medium = water at 68°F

Data is not certified. ΔP values are intended as a guideline ONLY.

K

$$\Delta P = \left[\frac{\text{GPM}}{C_v} \right]^2 G$$

B5102 Butterfly Valves

Features and Benefits

- low resistance to flow
- finely profiled disc
- bi-directional flow
- gentle to media
- suitable for low and medium viscosity fluids
- quick and easy installation
- all sizes use only ¾" of line space
- use existing ferrules
- no need for clamps, gaskets or welding
- all wetted surfaces are 20R_a or better
- PTFE valve disc bushings reduce friction and increase cycle life.
- 3-position reversible handle with lockout / tagout capability
- various automatic operators available
- 100% tested / 100% inspected
- field serviceable (no special tools required)
- self-draining
- seat materials available (silicone, EPDM, FKM)
- sizes from 1" thru 4"



Ordering Information

When ordering please list part number along with description. Example:

B5102E200-A - B5102 clamp butterfly valve, EPDM, 2"

1 2 3 4 5 6 7 8 9 10 11 12 13
B 5 1 0 2 E 2 0 0 - A

| Valve (1-5) | Seat Material (6) | | Size (7-9) | | (10) | Actuation (11-13) |
|-------------|-------------------|----------|------------|-----|------|---------------------------|
| B5102 | E | EPDM | 100 | 1" | - | <i>manual (11)</i> |
| | S | silicone | 150 | 1½" | | A standard handle |
| | V | FKM | 200 | 2" | | <i>pneumatic (11)</i> |
| | | | 250 | 2½" | | F canister STO |
| | | | 300 | 3" | | G canister STC |
| | | | 400 | 4" | | H canister DA |
| | | | | | | <i>All others (11-13)</i> |
| | | | | | | contact Dixon Sanitary |

Specifications

Information supplied based on water media at 68°F

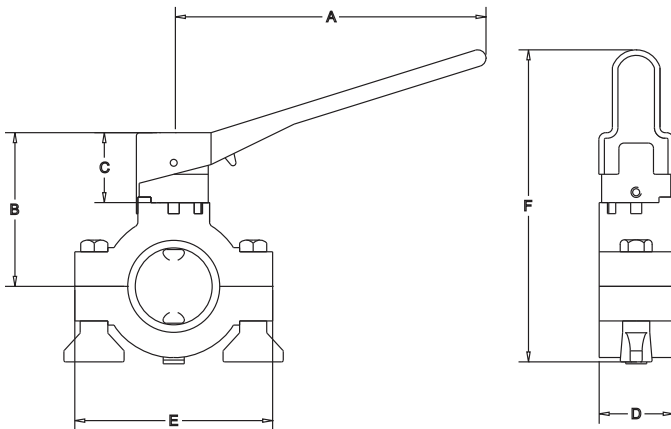
| Size | Break Torque (in. lbs.) | Assembly Torque (in. lbs.) | Pressure Rating (PSI) | Flow Coefficient (C _v) | Weight (lbs.) |
|------|----------------------------|-------------------------------|--------------------------|---------------------------------------|------------------|
| 1" | 125 | 36 | 140 | 23 | 1.5 |
| 1½" | 185 | 36 | 140 | 80 | 2.0 |
| 2" | 200 | 22 | 120 | 230 | 2.5 |
| 2½" | 260 | 22 | 120 | 264 | 3.0 |
| 3" | 350 | 29 | 100 | 372 | 4.0 |
| 4" | 495 | 43 | 70 | 800 | 6.0 |

For All Diameters of Manual B5102 Butterfly Valves

| Elastomer | Minimum Line Pressure | Minimum Temperature Rating | Maximum Temperature Rating |
|-----------|-----------------------------|----------------------------|----------------------------|
| all | .4 inches Hg vacuum at 68°F | 15°F | 200°F |

B5102 Butterfly Valves

Dimensions



B5102 Series Butterfly Valves

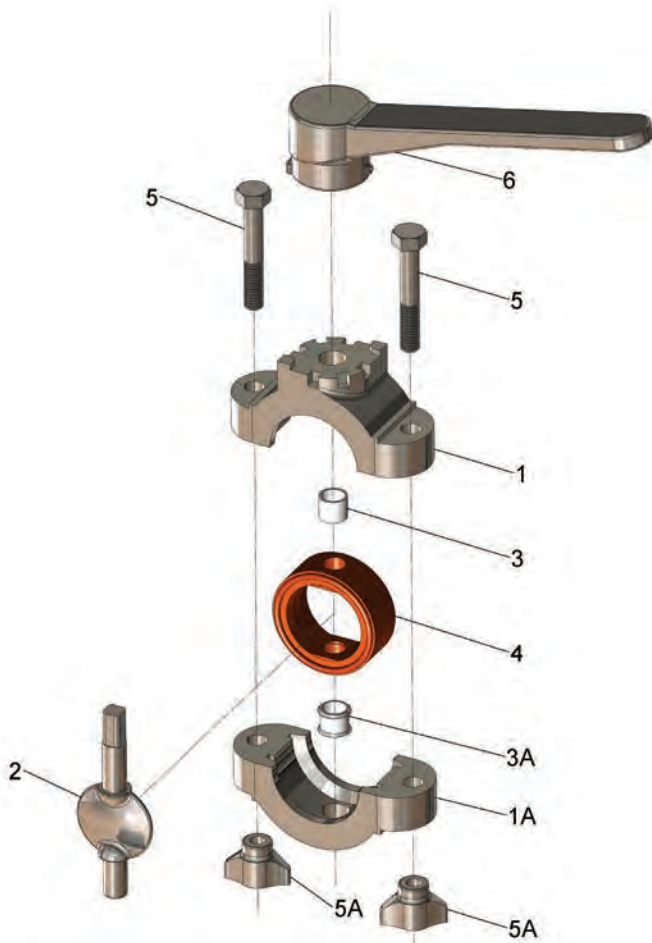
| Valve Size | Part # | | |
|------------|-------------|----------------|-------------|
| | EPDM seats | Silicone seats | FKM seats |
| 1" | B5102E100-A | B5102S100-A | B5102V100-A |
| 1½" | B5102E150-A | B5102S150-A | B5102V150-A |
| 2" | B5102E200-A | B5102S200-A | B5102V200-A |
| 2½" | B5102E250-A | B5102S250-A | B5102V250-A |
| 3" | B5102E300-A | B5102S300-A | B5102V300-A |
| 4" | B5102E400-A | B5102S400-A | B5102V400-A |

| Size | A | B | C | D | E | F |
|------|-----|-----|-----|-----|-----|-----|
| 1" | 5.6 | 2.8 | 1.3 | 1.3 | 3.6 | 5.6 |
| 1½" | 5.6 | 2.8 | 1.3 | 1.3 | 3.6 | 5.6 |
| 2" | 5.6 | 3.0 | 1.3 | 1.3 | 4.1 | 6.1 |
| 2½" | 5.6 | 3.3 | 1.3 | 1.3 | 4.6 | 6.6 |
| 3" | 5.6 | 3.6 | 1.3 | 1.3 | 5.3 | 7.1 |
| 4" | 5.6 | 4.1 | 1.3 | 1.3 | 6.4 | 8.2 |

All dimensions are in inches, unless noted. Dimensions are approximate.

Engineering dimensions are available upon request. Specifications are subject to change without notice.

Material List



| Item | Description | Material | Quantity |
|------|-----------------|---------------------|----------|
| 1 | upper body half | CF8, Stainless | 1 |
| 1A | lower body half | CF8, Stainless | 1 |
| 2 | disc | 316L stainless | 1 |
| 3 | upper bushing | PTFE | 1 |
| 3A | lower bushing | PTFE | 1 |
| 4 | seat | silicone, EPDM, FKM | 1 |
| 5 | bolts | 304 stainless | 2 |
| 5A | wing nuts | 304 stainless | 2 |
| 6 | handle | CF8, Stainless | 1 |

Repair Kit contains:

#4 (1) seat

#3 (1) upper bushings

#3A (1) lower bushings

B5102 Series Butterfly Valve Repair Kits

| Valve Size | Part # | | |
|------------|--------------|--------------|--------------|
| | Black EPDM | Red Silicone | Black FKM |
| 1" | B5102-RKE100 | B5102-RKS100 | B5102-RKV100 |
| 1½" | B5102-RKE150 | B5102-RKS150 | B5102-RKV150 |
| 2" | B5102-RKE200 | B5102-RKS200 | B5102-RKV200 |
| 2½" | B5102-RKE250 | B5102-RKS250 | B5102-RKV250 |
| 3" | B5102-RKE300 | B5102-RKS300 | B5102-RKV300 |
| 4" | B5102-RKE400 | B5102-RKS400 | B5102-RKV400 |

B5104 Butterfly Valves

Features and Benefits

- low resistance to flow
- bi-directional flow
- gentle to media
- suitable for low and medium viscosity fluids
- space-saving, light weight favored by wineries
- field serviceable (no special tools required)
- self-draining
- various automatic operations available
100% Tested / 100% Inspected
- materials: CF8M
- all wetted surfaces are sanitary finished to $\leq 32R_a$
- seat materials available (silicone, EPDM, FKM)
- sizes from 1" thru 4"



Ordering Information

When ordering please list part number along with description. Example:

B5104E200CC-D butterfly valve, EPDM, 2" clamp ends, CCW push handle

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
B 5 1 0 4 E 2 0 0 C C - D

| Valve (1-5) | Seat Material (6) | Size (7-9) | Ends (10-11) | (12) | Actuation (13-15) |
|-------------|-------------------|------------|-----------------------|------|-------------------------------|
| B5104 | E EPDM | 100 1" | C Clamp | - | <i>manual (13)</i> |
| | S silicone | 150 1½" | B Weld | | D push |
| | V FKM | 200 2" | F Female I-Line | | <i>pneumatic (13)</i> |
| | | 250 2½" | M Male I-Line | | F canister STO |
| | | 300 3" | T Threaded Bevel | | G canister STC |
| | | 400 4" | P Plain Bevel | | H canister DA |
| | | | Q Q-Line | | <i>All others (13-15)</i> |
| | | | J John Perry Plain | | <i>Contact Dixon Sanitary</i> |
| | | | H John Perry Threaded | | |
| | | | E Extended Weld | | |
| | | | 1 Female NPT | | |
| | | | 2 Male NPT | | |

Specifications

Information supplied based on water media at 68°F

| Size | Break Torque (in. lbs.) EPDM | Break Torque (in. lbs.) Silicone | Break Torque (in. lbs.) FKM | Pressure Rating (PSI) | Flow Coefficient (C _v) | Weight w/standard handle (lbs.) |
|------|---------------------------------|-------------------------------------|--------------------------------|--------------------------|---------------------------------------|------------------------------------|
| 1" | 105 | 50 | 45 | 140 | 23 | 1.8 |
| 1½" | 135 | 60 | 55 | 140 | 80 | 1.2 |
| 2" | 180 | 175 | 125 | 140 | 230 | 1.6 |
| 2½" | 260 | 250 | 200 | 110 | 264 | 2.0 |
| 3" | 305 | 300 | 250 | 110 | 372 | 2.4 |
| 4" | 360 | 350 | 300 | 85 | 800 | 4.8 |

For All Diameters of Manual B5104 Butterfly Valves

| Elastomer | Minimum Line Pressure | Minimum Temperature Rating | Maximum Temperature Rating |
|-----------|-----------------------------|----------------------------|----------------------------|
| all | .4 inches Hg vacuum at 68°F | 15°F | 200°F |

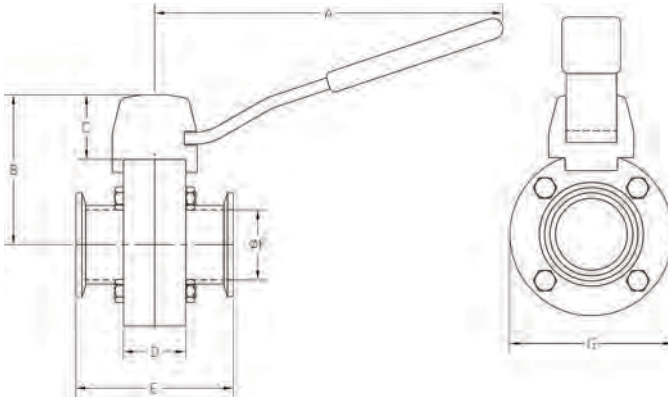
B5104 Butterfly Valves

Dimensions



Clamp End Valves

| Valve Size | Clamp x Clamp Configuration Part # | | |
|------------|------------------------------------|----------------|---------------|
| | EPDM seats | Silicone seats | FKM seats |
| 1" | B5104E100CC-D | B5104S100CC-D | B5104V100CC-D |
| 1½" | B5104E150CC-D | B5104S150CC-D | B5104V150CC-D |
| 2" | B5104E200CC-D | B5104S200CC-D | B5104V200CC-D |
| 2½" | B5104E250CC-D | B5104S250CC-D | B5104V250CC-D |
| 3" | B5104E300CC-D | B5104S300CC-D | B5104V300CC-D |
| 4" | B5104E400CC-D | B5104S400CC-D | B5104V400CC-D |



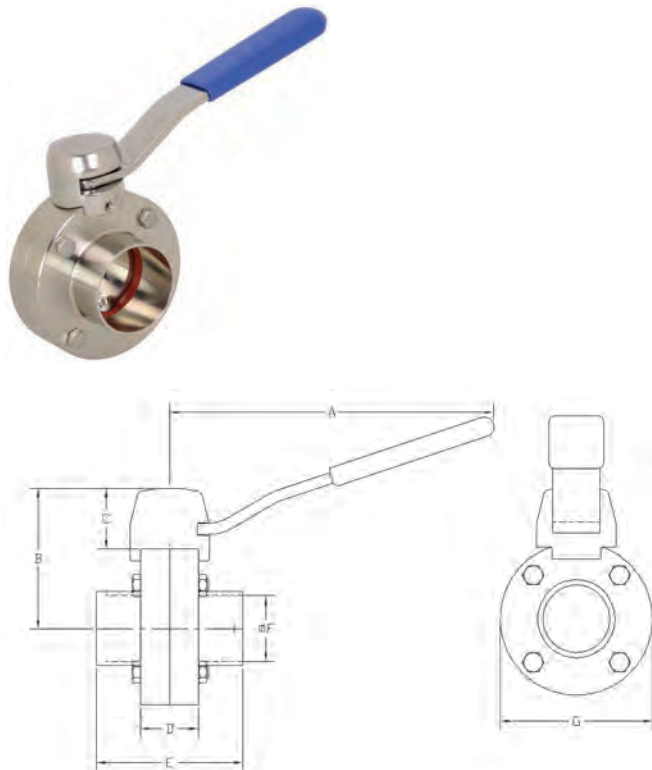
Clamp End x Clamp End

| Size | A | B | C | D | E | F | G |
|------|-----|-----|-----|-----|-----|-----|-----|
| 1" | 6.6 | 2.9 | 1.2 | 1.9 | 3.0 | 0.9 | 3.1 |
| 1½" | 6.6 | 2.9 | 1.2 | 1.9 | 3.0 | 1.4 | 3.1 |
| 2" | 6.6 | 3.2 | 1.2 | 1.9 | 3.0 | 1.9 | 3.7 |
| 2½" | 6.6 | 3.4 | 1.2 | 1.9 | 3.0 | 2.4 | 4.2 |
| 3" | 6.6 | 3.7 | 1.2 | 1.9 | 3.0 | 2.9 | 4.8 |
| 4" | 6.6 | 4.7 | 1.7 | 1.5 | 3.5 | 3.8 | 5.9 |

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Weld End Valves

| Valve Size | Weld x Weld Configuration Part # | | |
|------------|----------------------------------|----------------|---------------|
| | EPDM seats | Silicone seats | FKM seats |
| 1" | B5104E100BB-D | B5104S100BB-D | B5104V100BB-D |
| 1½" | B5104E150BB-D | B5104S150BB-D | B5104V150BB-D |
| 2" | B5104E200BB-D | B5104S200BB-D | B5104V200BB-D |
| 2½" | B5104E250BB-D | B5104S250BB-D | B5104V250BB-D |
| 3" | B5104E300BB-D | B5104S300BB-D | B5104V300BB-D |
| 4" | B5104E400BB-D | B5104S400BB-D | B5104V400BB-D |



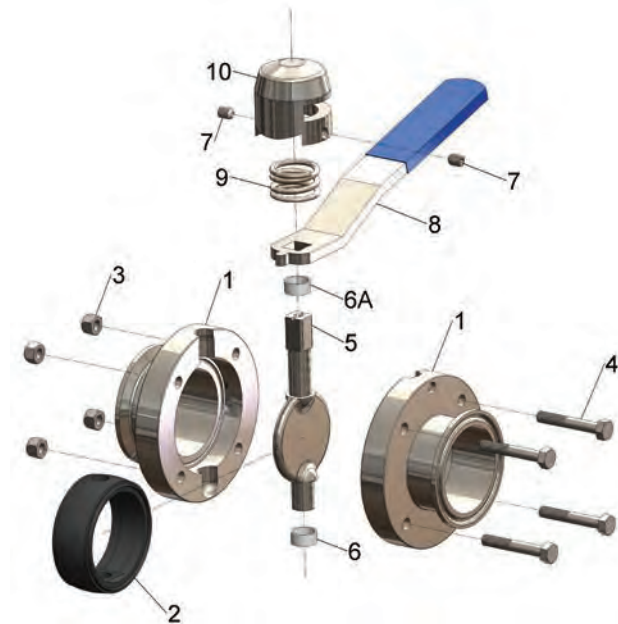
Weld End x Weld End

| Size | A | B | C | D | E | F | G |
|------|-----|-----|-----|-----|-----|-----|-----|
| 1" | 6.6 | 2.9 | 1.2 | 1.9 | 3.0 | 0.9 | 3.1 |
| 1½" | 6.6 | 2.9 | 1.2 | 1.9 | 3.0 | 1.4 | 3.1 |
| 2" | 6.6 | 3.2 | 1.2 | 1.9 | 3.0 | 1.9 | 3.7 |
| 2½" | 6.6 | 3.4 | 1.2 | 1.9 | 3.0 | 2.4 | 4.2 |
| 3" | 6.6 | 3.7 | 1.2 | 1.9 | 3.0 | 2.9 | 4.8 |
| 4" | 6.6 | 4.7 | 1.7 | 1.5 | 3.5 | 3.8 | 5.9 |

All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.

B5104 Butterfly Valves

Material List



| Item | Description | Material | Quantity |
|------|------------------|-------------------------|----------|
| 1 | body half | CF8M | 2 |
| 2 | seat | silicone EPDM FKM | 1 |
| 3 | hex nut | 304 | 4* |
| 4 | bolt | 304 | 4* |
| 5 | disc | 316L | 1 |
| 6 | bushing | PTFE | 1 |
| 6A | split bushing | PTFE | 1 |
| 7 | hex socket screw | 304 | 2 |
| 8 | handle | 304 | 1 |
| 9 | spring | 304 | 1 |
| 10 | hub | CF8 (304) | 1 |

* 4" have 6 bolts and nuts

Repair Kit contains:

#2 (1) seat

#6 (1) bushing

#6A (1) split bushing

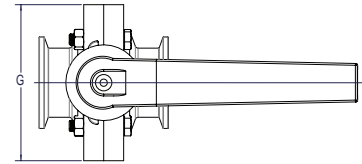
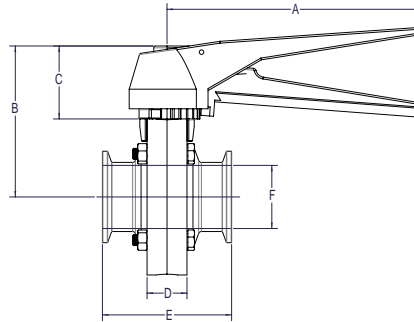
B5104 Series Butterfly Valve Repair Kits

| Valve Size | Part # | | |
|------------|--------------|--------------|--------------|
| | Black EPDM | Red Silicone | Black FKM |
| 1" | B5104-RKE100 | B5104-RKS100 | B5104-RKV100 |
| 1½" | B5104-RKE150 | B5104-RKS150 | B5104-RKV150 |
| 2" | B5104-RKE200 | B5104-RKS200 | B5104-RKV200 |
| 2½" | B5104-RKE250 | B5104-RKS250 | B5104-RKV250 |
| 3" | B5104-RKE300 | B5104-RKS300 | B5104-RKV300 |
| 4" | B5104-RKE400 | B5104-RKS400 | B5104-RKV400 |

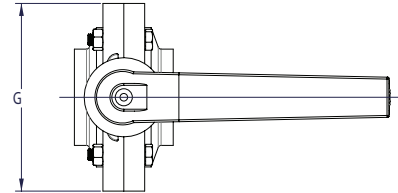
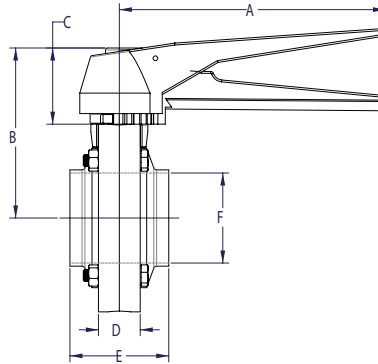
B5115 Series - 304 Stainless Steel **Butterfly Valves** Clamp End with Trigger Handle

Features:

- 100% tested / 100% inspected
- all wetted surface are sanitary finish to $<32R_a$
- field serviceable (no special tools required)
- silicone seats
- blue trigger handle
- repair kits available
- operating temperature range: **15° - 200°F**
- maximum operating pressure: **110 PSI**

Clamp End

| Size | Dimensions | | | | | | | 304 Stainless Steel |
|------|------------|------|------|------|------|------|------|---------------------|
| | A | B | C | D | E | F | G | Part # |
| 1½" | 5.70 | 3.40 | 1.60 | 0.87 | 2.80 | 1.40 | 3.40 | B5115S150CC-C |
| 2" | 5.70 | 3.60 | 1.60 | 0.87 | 3.00 | 1.90 | 3.90 | B5115S200CC-C |
| 3" | 5.70 | 4.20 | 1.60 | 0.87 | 3.30 | 2.90 | 5.00 | B5115S300CC-C |
| 4" | 6.89 | 5.51 | 1.60 | 0.87 | 3.62 | 3.83 | 6.89 | B5115S400CC-C |

Weld End

| Size | Dimensions | | | | | | | 304 Stainless Steel |
|------|------------|------|------|------|------|------|------|---------------------|
| | A | B | C | D | E | F | G | Part # |
| 1½" | 5.70 | 3.40 | 1.60 | 0.87 | 1.97 | 1.40 | 3.40 | B5115S150BB-C |
| 2" | 5.70 | 3.60 | 1.60 | 0.87 | 2.05 | 1.90 | 3.90 | B5115S200BB-C |
| 3" | 5.70 | 4.20 | 1.60 | 0.87 | 2.12 | 2.90 | 5.00 | B5115S300BB-C |
| 4" | 6.89 | 5.51 | 1.60 | 0.87 | 2.52 | 3.83 | 6.89 | B5115S400BB-C |

Replacement Seats

| Size | Part # |
|------|--------------|
| 1½" | B5115-RKS150 |
| 2" | B5115-RKS200 |
| 3" | B5115-RKS300 |
| 4" | B5115-RKS400 |

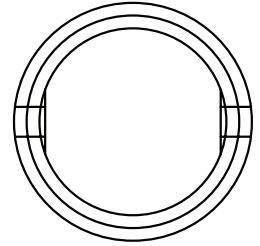
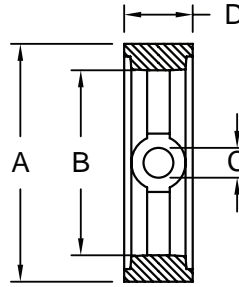
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Butterfly Valve Seat

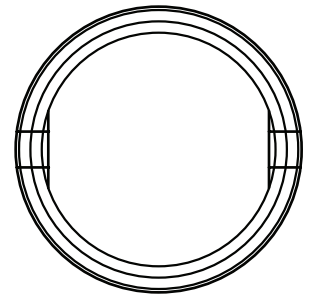
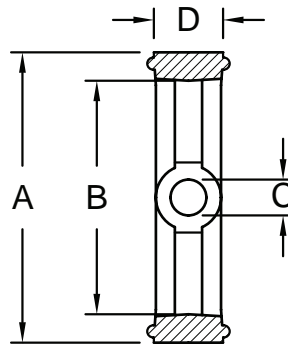
Dimensions

B5101 Seat Dimensions

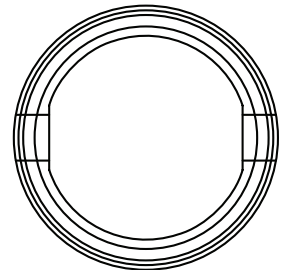
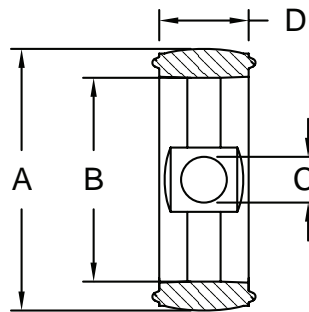
| Size | A | B | C | D |
|---------|------|------|------|------|
| ½" - 1" | 1.42 | 0.83 | 0.37 | 0.77 |
| 1 1/2" | 1.93 | 1.34 | 0.37 | 0.77 |
| 2" | 2.56 | 1.73 | 0.37 | 0.78 |
| 2 1/2" | 3.03 | 2.35 | 0.46 | 0.91 |
| 3" | 3.66 | 2.80 | 0.55 | 1.10 |
| 4" | 4.96 | 3.86 | 0.62 | 1.43 |
| 6" | 6.83 | 5.79 | 0.62 | 1.70 |
| 8" | 9.32 | 7.89 | 0.67 | 1.59 |

**B5102 Seat Dimensions**

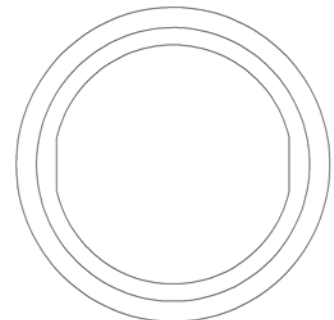
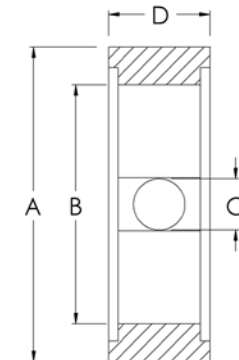
| Size | A | B | C | D |
|--------|------|------|------|------|
| 1" | 1.87 | 0.86 | 0.37 | 0.66 |
| 1 1/2" | 1.87 | 1.32 | 0.37 | 0.66 |
| 2" | 2.42 | 1.89 | 0.37 | 0.66 |
| 2 1/2" | 2.94 | 2.30 | 0.37 | 0.66 |
| 3" | 3.44 | 2.83 | 0.43 | 0.66 |
| 4" | 4.52 | 3.81 | 0.43 | 0.66 |

**K****B5104 Seat Dimensions**

| Size | A | B | C | D |
|--------|------|------|------|------|
| 1" | 1.41 | 0.83 | 0.43 | 0.83 |
| 1 1/2" | 2.21 | 1.36 | 0.43 | 0.85 |
| 2" | 2.48 | 1.93 | 0.43 | 0.85 |
| 2 1/2" | 3.04 | 2.34 | 0.43 | 0.85 |
| 3" | 3.50 | 2.84 | 0.43 | 0.85 |
| 4" | 4.61 | 3.84 | 0.43 | 0.85 |

**B5115 Seat Dimensions**

| Size | A | B | C | D |
|--------|-------|-------|-------|-------|
| 1" | 1.476 | 0.866 | 0.374 | 0.846 |
| 1 1/2" | 2.047 | 1.417 | 0.354 | 0.736 |
| 2" | 2.637 | 2.007 | 0.433 | 0.854 |
| 2 1/2" | 3.070 | 2.382 | 0.433 | 0.933 |
| 3" | 3.543 | 2.834 | 0.433 | 0.906 |
| 4" | 4.763 | 3.976 | 0.496 | 1.102 |



Butterfly Valve Automation

Butterfly Valve with Stainless Steel Vertical Spring Return Actuation

- Silicone and FKM elastomers also available
- other end configurations are available
- Each pneumatically actuated butterfly valve is shipped fully assembled, including pneumatic actuator and mounting bracket assembly.

Butterfly Valve with EPDM seats and a vertical spring return normally closed pneumatic canister style actuator

| Valve Size | Valve Style | | |
|------------|---------------|-------------|---------------|
| | B5101 | B5102 | B5104 |
| 1/2" | B5101E050CC-G | n/a | n/a |
| 3/4" | B5101E075CC-G | n/a | n/a |
| 1" | B5101E100CC-G | B5102E100-G | B5104E100CC-G |
| 1 1/2" | B5101E150CC-G | B5102E150-G | B5104E150CC-G |
| 2" | B5101E200CC-G | B5102E200-G | B5104E200CC-G |
| 2 1/2" | B5101E250CC-G | B5102E250-G | B5104E250CC-G |
| 3" | B5101E300CC-G | B5102E300-G | B5104E300CC-G |
| 4" | B5101E400CC-G | B5102E400-G | B5104E400CC-G |

Butterfly Valve with EPDM seats and a vertical spring return normally open pneumatic canister style actuator

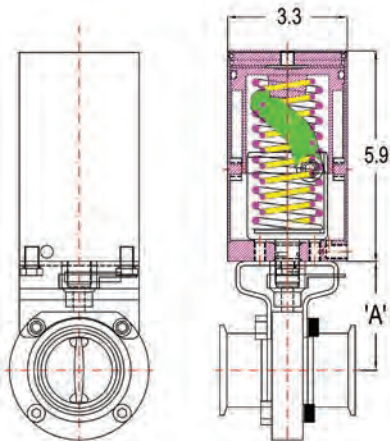
| Valve Size | Valve Style | | |
|------------|---------------|-------------|---------------|
| | B5101 | B5102 | B5104 |
| 1/2" | B5101E050CC-F | n/a | n/a |
| 3/4" | B5101E075CC-F | n/a | n/a |
| 1" | B5101E100CC-F | B5102E100-F | B5104E100CC-F |
| 1 1/2" | B5101E150CC-F | B5102E150-F | B5104E150CC-F |
| 2" | B5101E200CC-F | B5102E200-F | B5104E200CC-F |
| 2 1/2" | B5101E250CC-F | B5102E250-F | B5104E250CC-F |
| 3" | B5101E300CC-F | B5102E300-F | B5104E300CC-F |
| 4" | B5101E400CC-F | B5102E400-F | B5104E400CC-F |

Butterfly Valve with EPDM seats and a vertical double acting pneumatic canister style actuator

| Valve Size | Valve Style | | |
|------------|---------------|-------------|---------------|
| | B5101 | B5102 | B5104 |
| 1/2" | B5101E050CC-H | n/a | n/a |
| 3/4" | B5101E075CC-H | n/a | n/a |
| 1" | B5101E100CC-H | B5102E100-H | B5104E100CC-H |
| 1 1/2" | B5101E150CC-H | B5102E150-H | B5104E150CC-H |
| 2" | B5101E200CC-H | B5102E200-H | B5104E200CC-H |
| 2 1/2" | B5101E250CC-H | B5102E250-H | B5104E250CC-H |
| 3" | B5101E300CC-H | B5102E300-H | B5104E300CC-H |
| 4" | B5101E400CC-H | B5102E400-H | B5104E400CC-H |



Dimensions



Dimension 'A'

| Valve Size | Valve Style | | |
|------------|-------------|-------|-------|
| | B5101 | B5102 | B5104 |
| 1/2" - 1" | 2.7 | 2.5 | 3.1 |
| 1 1/2" | 2.7 | 2.5 | 3.1 |
| 2" | 3.1 | 2.9 | 3.3 |
| 2 1/2" | 3.5 | 3.2 | 3.6 |
| 3" | 3.7 | 3.4 | 3.9 |
| 4" | 4.5 | 4.0 | 4.8 |

All dimensions are in inches, unless noted. Dimensions are approximate.

Engineering dimensions are available upon request. Specifications are subject to change without notice.

Butterfly Valve Automation

Features and Benefits

Dixon Sanitary offers remote indication on manual valves.

- Signal back equipment can be provided for information on open / close positions, intermediate and proportional feedback.
- Position detection can be determined using mechanical switches, proximity switches, or 4-20 mA signal transmission in NEMA 4 or NEMA 7 enclosures.

B5101 series butterfly valve pictured. Remote indication is also available on ball valves (contact Dixon Sanitary for details).



Specifications

- seats - EPDM, Silicone, FKM
- handles - full, infinite, trigger, push
- end configurations - Clamp, Butt-weld, Bevel seat, John Perry, I-Line, Q-line
- butterfly valve: ½" - 8"

K



B5101 series butterfly valve with vertical canister air to open, spring to close actuator. Normally closed, 110VAC control top



B5101 series butterfly valve with vertical canister air to open, spring to close actuator. Normally closed, 10-30VDC, 3-wire PNP proximity sensors

Dixon Sanitary offers various configurations of Automated Butterfly Valves.
Call for price and delivery of different options.

Butterfly Valve Automation



B5102 Series Butterfly Valve with horizontal stainless steel air to open, air to close, 3-15 PSI pneumatic positioner and full gauge set.



B5101 Series Butterfly Valve with horizontal stainless steel rack and pinion air-to-open, air to close, 3-15 PSI pneumatic positioner and full gauge set.



B5101 Series Butterfly Valve with spring return rack & pinion actuator, single coil solenoid, pre-wired to a limit switch.

Dixon Sanitary offers various configurations of Automated Butterfly Valves.
Call for price and delivery of different options

B51 Series Industrial Butterfly Valves

Features and Benefits

- wafer or lug type
- installs between standard ANSI Class 150# flanges
- ISO 5211 drive shaft for easy automation
- conforms to MSS-SP-67, MSS-SP-25, API-609
- seat backing ring ensures blowout proof service
- no taper pins
- field repairable / seats are replaceable
- undercut available
- sizes 1½" to 12"

More options are available for sizes and materials. Contact Dixon Sanitary for details.



Lug Butterfly Valve



Wafer Butterfly Valve

Ordering Information

When ordering please list part number along with description. Example:

B5120B200WW-C: 2" industrial butterfly valve with cast iron body, stainless steel disc, wafer style, buna seat and multi-position handle

| | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> | <u>10</u> | <u>11</u> | <u>12</u> | <u>13</u> | <u>14</u> | <u>15</u> |
|-------------|-------------------|----------|------------------------|----------|--------------------|----------|-------------|----------|--------------|-----------|-----------|---------------------------|-----------|-----------|-----------|
| | B | 5 | 1 | 2 | 0 | B | 2 | 0 | 0 | | W | W | - | C | |
| Valve (1-3) | Body (4) | | Disc (5) | | Seat (6) | | Size (7-10) | | Ends (11-12) | | (13) | Actuation (14-15) | | | |
| B51 | 2 cast iron | | 0 stainless steel | | B Buna | | 150 1½" | | W wafer | | - | C multi-position handle | | | |
| | 3 stainless steel | | 1 NI plated DI | | S silicone | | 200 2" | | L lug | | | Q dead man | | | |
| | 4 aluminum | | 2 nylon coated DI * | | V FKM | | 250 2½" | | | | | G gear operator | | | |
| | 5 ductile iron | | 3 AL bronze | | E EPDM | | 300 3" | | | | | Call for actuation | | | |
| | | | 4 304 SS mirror polish | | P PTFE backed EPDM | | 400 4" | | | | | CL standard w/ lock plate | | | |
| | | | | | A food grade EPDM | | 500 5" | | | | | | | | |
| | | | | | | | 600 6" | | | | | | | | |
| | | | | | | | 800 8" | | | | | | | | |
| | | | | | | | 1000 10" | | | | | | | | |
| | | | | | | | 1200 12" | | | | | | | | |

Note: 10" and higher IBV'S are available with no handle. End part number with 11 & 12 th digits. Valves up to 8" include multi-position handle automatically. Multi-position handles should not be used on 10" valves and larger.

* only available with stainless steel body

Part Numbers for Handles Only

| Valve (1-4) | (5) | Size (6-9) | | (10) | Handle (11) |
|-------------|-----|------------|-----|------|-----------------|
| IBFV | - | 150 | 1½" | - | C trigger lever |
| | | 200 | 2" | | G gear operator |
| | | 250 | 2½" | | Q dead man |
| | | 300 | 3" | | |
| | | 400 | 4" | | |
| | | 500 | 5" | | |
| | | 600 | 6" | | |
| | | 800 | 8" | | |
| | | 1000 | 10" | | |
| | | 1200 | 12" | | |

Specifications

Valve Seating Torque (in. lbs.)

| Size | Standard Disc at Pressure Differential (ΔP) | | | |
|----------|---|--------|--------|--------|
| | 50 ΔP | 100 ΔP | 150 ΔP | 200 ΔP |
| 1" - 1½" | 80 | 95 | 100 | 105 |
| 2" | 99 | 105 | 110 | 116 |
| 2½" | 146 | 160 | 172 | 186 |
| 3" | 198 | 206 | 230 | 240 |
| 4" | 250 | 300 | 340 | 380 |
| 5" | 420 | 470 | 520 | 580 |
| 6" | 600 | 690 | 782 | 873 |
| 8" | 960 | 1100 | 1280 | 1410 |
| 10" | 1590 | 1790 | 2000 | 2180 |
| 12" | 2390 | 2600 | 3011 | 3213 |

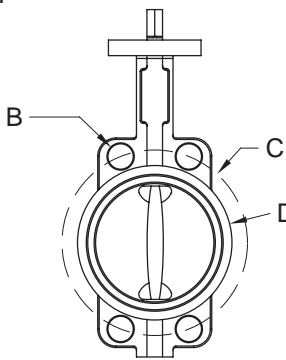
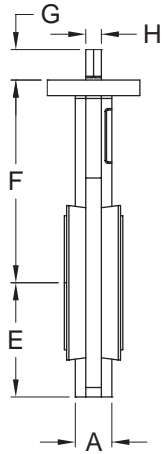
B51 Series Industrial Butterfly Valves

Dimensions

Wafer Butterfly Valves

B5120 Industrial Butterfly Valve, Cast Iron Body, Stainless Steel Disc, Wafer, Manual Handle

| Valve Size | Buna Seats | EPDM Seats | FKM Seats |
|------------|----------------|----------------|----------------|
| 1½" | B5120B150WW-C | B5120E150WW-C | B5120V150WW-C |
| 2" | B5120B200WW-C | B5120E200WW-C | B5120V200WW-C |
| 2½" | B5120B250WW-C | B5120E250WW-C | B5120V250WW-C |
| 3" | B5120B300WW-C | B5120E300WW-C | B5120V300WW-C |
| 4" | B5120B400WW-C | B5120E400WW-C | B5120V400WW-C |
| 5" | B5120B500WW-C | B5120E500WW-C | B5120V500WW-C |
| 6" | B5120B600WW-C | B5120E600WW-C | B5120V600WW-C |
| 8" | B5120B800WW-C | B5120E800WW-C | B5120V800WW-C |
| 10" | B5120B1000WW-G | B5120E1000WW-G | B5120V1000WW-G |
| 12" | B5120B1200WW-G | B5120E1200WW-G | B5120V1200WW-G |



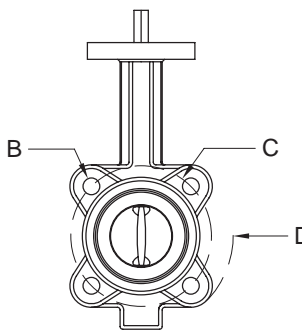
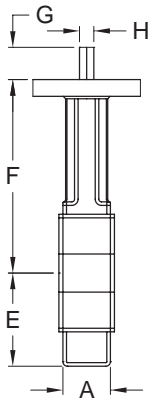
| Size | A | B | C | D | E | F | G | H * | Top Flange |
|------|------|------|-------|-------|------|-------|------|-----|------------|
| 1½" | 1.30 | 4-18 | 4.33 | 3.74 | 2.56 | 5.75 | 1.26 | 9 | F07 |
| 2" | 1.69 | 4-18 | 4.92 | 3.82 | 3.15 | 5.94 | 1.30 | 9 | F07 |
| 2½" | 1.81 | 4-18 | 5.71 | 4.45 | 3.62 | 6.89 | 1.30 | 9 | F07 |
| 3" | 1.81 | 4-18 | 6.30 | 4.92 | 3.74 | 7.13 | 1.30 | 11 | F07 |
| 4" | 2.05 | 4-22 | 7.09 | 6.14 | 4.49 | 7.87 | 1.30 | 11 | F07 |
| 5" | 2.20 | 4-22 | 8.27 | 7.36 | 5.00 | 8.39 | 1.30 | 14 | F07 |
| 6" | 2.20 | 4-22 | 9.45 | 8.46 | 5.47 | 8.90 | 1.30 | 14 | F07 |
| 8" | 2.36 | 4-22 | 11.61 | 10.51 | 6.59 | 10.24 | 1.85 | 17 | F10 |
| 10" | 2.68 | 4-26 | 13.78 | 13.00 | 8.00 | 11.50 | 1.85 | 22 | F10 |
| 12" | 3.07 | 4-26 | 15.75 | 14.96 | 9.53 | 13.27 | 1.85 | 22 | F10 |

* dimensions in millimeters

Lug Butterfly Valves

B5120 Industrial Butterfly Valve, Cast Iron Body, Stainless Steel Disc, Lug, Manual Handle

| Valve Size | Buna Seats | EPDM Seats | FKM Seats |
|------------|----------------|----------------|----------------|
| 2" | B5120B200LL-C | B5120E200LL-C | B5120V200LL-C |
| 2½" | B5120B250LL-C | B5120E250LL-C | B5120V250LL-C |
| 3" | B5120B300LL-C | B5120E300LL-C | B5120V300LL-C |
| 4" | B5120B400LL-C | B5120E400LL-C | B5120V400LL-C |
| 5" | B5120B500LL-C | B5120E500LL-C | B5120V500LL-C |
| 6" | B5120B600LL-C | B5120E600LL-C | B5120V600LL-C |
| 8" | B5120B800LL-C | B5120E800LL-C | B5120V800LL-C |
| 10" | B5120B1000LL-G | B5120E1000LL-G | B5120V1000LL-G |
| 12" | B5120B1200LL-G | B5120E1200LL-G | B5120V1200LL-G |



| Size | A | B | C | D | E | F | G | H * | Top Flange |
|------|------|--------------|-------------|-------------|------|-------|------|-----|------------|
| 2" | 1.69 | 4-5/8-11 UNC | 4.92 | 5.95 | 3.15 | 5.94 | 1.30 | 9 | F07 |
| 2½" | 1.81 | 4-5/8-11 UNC | 5.71 | 6.97 | 3.62 | 6.89 | 1.30 | 9 | F07 |
| 3" | 1.81 | 4-5/8-11 UNC | 6.30 | 7.56 | 3.74 | 7.13 | 1.30 | 11 | F07 |
| 4" | 2.05 | 8-5/8-11 UNC | 7.09 | 8.35 | 4.49 | 7.87 | 1.30 | 11 | F07 |
| 5" | 2.20 | 8-3/4-11 UNC | 8.27 | 9.53 | 5.00 | 8.39 | 1.30 | 14 | F07 |
| 6" | 2.20 | 8-3/4-11 UNC | 9.45 | 11.02 | 5.47 | 8.90 | 1.30 | 14 | F07 |
| 8" | 2.36 | 8-3/4-11 UNC | 11.61 | 13.19 | 6.89 | 10.24 | 1.85 | 17 | F10 |
| 10" | 2.68 | 12-7/8-9 UNC | 13.78/13.98 | 15.38/15.94 | 8.00 | 11.50 | 1.85 | 22 | F10 |
| 12" | 3.07 | 12-7/8-9 UNC | 15.75/16.14 | 17.52/19.09 | 9.53 | 13.27 | 1.85 | 22 | F10 |

* dimensions in millimeters

All dimensions are in inches, unless noted. Dimensions are approximate.

Engineering dimensions are available upon request. Specifications are subject to change without notice.

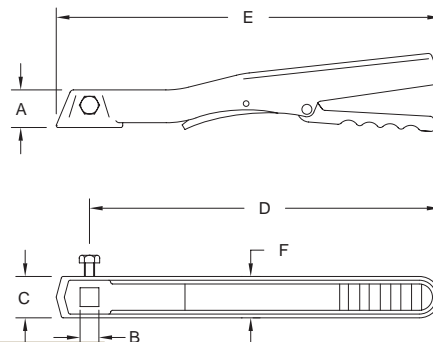
B51 Series Industrial Butterfly Valves

Dimensions

Handles

- 1½" to 8" valves ship with a 10 position trigger style handle

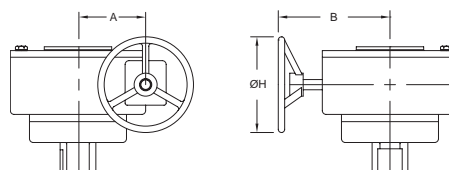
| Size | A | B | C | D | E | F | Weight (lbs.) |
|------|------|-----|------|-------|-------|------|---------------|
| 1½" | .88 | .35 | 1.25 | 8.00 | 9.00 | 1.00 | 1.00 |
| 2" | .88 | .35 | 1.25 | 8.00 | 9.00 | 1.00 | 1.00 |
| 2½" | .88 | .35 | 1.25 | 8.00 | 9.00 | 1.00 | 1.00 |
| 3" | .88 | .35 | 1.25 | 8.00 | 9.00 | 1.00 | 1.00 |
| 4" | 1.00 | .43 | 1.38 | 10.60 | 12.00 | 1.13 | 2.00 |
| 6" | 1.00 | .55 | 1.38 | 10.60 | 12.00 | 1.13 | 2.00 |
| 8" | 1.25 | .67 | 1.75 | 12.60 | 14.00 | 1.38 | 3.00 |



Gear Operators

- 1½" to 8" valves the gear operator is optional
- 10" and 12" valves come standard with a gear operator

| Size | DN | A | B | ØH | Weight (lbs.) | Torque (in. lbs.) |
|--------|-----------|------|------|-------|---------------|-------------------|
| 1½"-3" | DN40-80 | 1.97 | 6.30 | 5.91 | 13.00 | 1330 |
| 4" | DN100 | 1.97 | 6.30 | 5.91 | 13.00 | 1330 |
| 5"-6" | DN125-150 | 1.97 | 6.30 | 5.91 | 13.00 | 1330 |
| 8" | DN200 | 2.60 | 8.86 | 9.84 | 26.00 | 2660 |
| 10" | DN250 | 2.60 | 8.86 | 9.84 | 26.00 | 2660 |
| 12" | DN300-350 | 2.60 | 8.86 | 11.80 | 31.00 | 6900 |



All dimensions are in inches, unless noted. Dimensions are approximate.

Engineering dimensions are available upon request. Specifications are subject to change without notice.

B51 Series Industrial Butterfly Valves

Technical Specifications

- nominal size (inches): 1½" to 12"
- nominal pressure: **200 PSI**
- body test pressure: **220 PSI**
- sealing test pressure: 1.1 x rated pressure
- body material: various
- disc material: various
- shaft material: 416 stainless to ASTM A276
- Buna-N temperature rating: **0°F to 180°F**
- EPDM temperature rating: **-20°F to 250°F**
- FKM temperature rating: **0°F to 350°F**

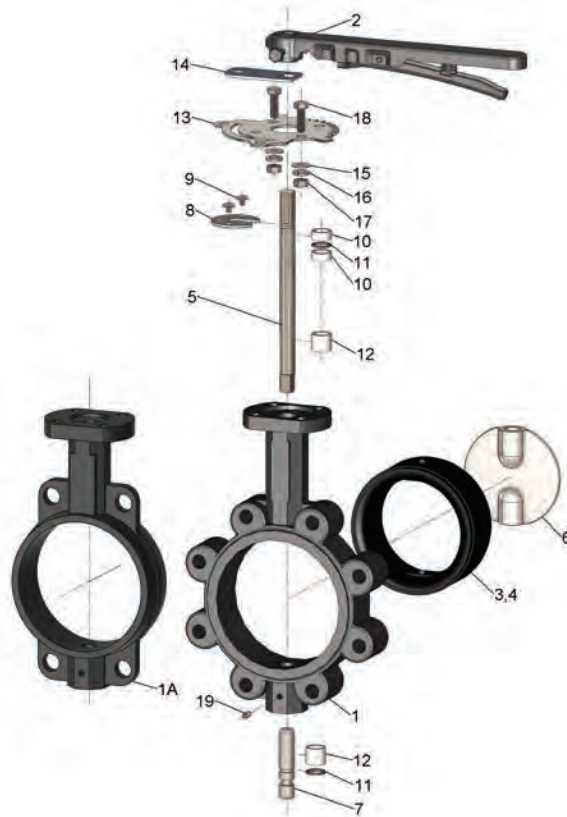
C_v Values

Valve Sizing Coefficients (US-GPM / ΔP)

| Size | Disc Position (degrees) | | | | | | | | |
|------|-------------------------|------|------|------|------|-----|-----|-----|-----|
| | 90° | 80° | 70° | 60° | 50° | 40° | 30° | 20° | 10° |
| 1½" | 130 | 105 | 75 | 50 | 35 | 25 | 12 | 5 | 2 |
| 2" | 140 | 115 | 88 | 60 | 48 | 30 | 15 | 8 | 2 |
| 2½" | 280 | 225 | 158 | 104 | 68 | 46 | 25 | 12 | 2 |
| 3" | 460 | 365 | 250 | 152 | 98 | 63 | 35 | 16 | 2 |
| 4" | 840 | 700 | 500 | 277 | 178 | 108 | 60 | 26 | 3 |
| 5" | 1380 | 1140 | 770 | 431 | 258 | 170 | 100 | 40 | 4 |
| 6" | 1840 | 1520 | 1030 | 555 | 356 | 220 | 130 | 52 | 7 |
| 8" | 3300 | 2810 | 1880 | 1094 | 688 | 410 | 225 | 98 | 14 |
| 10" | 5400 | 4500 | 2980 | 1744 | 1078 | 653 | 380 | 156 | 20 |
| 12" | 8100 | 6740 | 4400 | 2544 | 1498 | 999 | 550 | 220 | 26 |

B51 Series Industrial Butterfly Valves (1½" - 8")

Material List



| Item # | Description | Materials | Qty |
|--------|---------------------------------------|---|-----|
| 1 | Lug Body | Cast Iron, CF8M, Ductile Iron | 1 |
| 1A | Wafer Body | Cast Iron, CF8M, Ductile Iron | 1 |
| 2 | Operator (Bare Stem, Handle, Or Gear) | Cast Iron, 304Ss | 1 |
| 3 | Seat | EPDM, Buna, FKM, (Others) | 1 |
| 4 | Backing Ring | Phenolic Thermoset Resin | 1 |
| 5 | Stem, Upper | 416SS or 316SS | 1 |
| 6 | Disc | Nickle Plated Ductile Iron, CF8M, Aluminum Bronze, Nylon Coated Ductile Iron | 1 |
| 7 | Stem Lower | 416SS Or 316SS | 1 |
| 8 | Stem Retainer Plate | Zinc Dichromate Plated Carbon Steel | 1 |
| 9 | Retainer Plate Screws | Zinc Dichromate Plated Carbon Steel | 2 |
| 10 | Bushings, Upper | Tefon With Graphite | 2 |
| 11 | Stem O-Ring | EPDM, Buna, FKM, (Others) | 1 |
| 12 | Bushings, Lower | PTFE With Graphite | 2 |
| 13 | Throttle Plate | Zinc Dichromate Plated Carbon Steel | 1 |
| 14 | Infinite Lock Plate | Zinc Dichromate Plated Carbon Steel | 1 |
| 15 | Washer | Zinc Dichromate Plated Carbon Steel | 2 |
| 16 | Lock Washer | Zinc Dichromate Plated Carbon Steel | 2 |
| 17 | Nut | Zinc Dichromate Plated Carbon Steel | 2 |
| 18 | Bolt | Zinc Dichromate Plated Carbon Steel | 2 |
| 19 | Set Screw | Zinc Dichromate Plated Carbon Steel | 1 |

Replacement parts are available. Contact Dixon sanitary.

Private Label Valve Handle Covers

Ordering Information

BHC-SR-W

Handle Cover Size Cover Color Screenprint Color

Size

S.....small
M.....medium
L.....large

Cover Color

R.....red
Y.....yellow
B.....blue
G.....green
BK.....black

Screenprint Color

W.....white
BK.....black
N.....none



- 100 pieces per minimum order
- customer to supply artwork for screenprinting

| Size | Length | Width | Thickness |
|--------|--------|-------|-----------|
| small | 3.503 | 0.866 | 0.067 |
| medium | 4.409 | 1.102 | 0.071 |
| large | 9.251 | 1.535 | 0.084 |

Sanitary Butterfly Valve Check List

Contact Name: _____ Company Name: _____
 Date: _____ Phone: _____ Email: _____
 Customer ID#: _____

Process Background

Process Temp: _____ Plant Air Supply (PSI): _____
 Product: _____

Size

1/2" ☐ 3/4" ☐ 1" ☐ 1-1/2" ☐ 2" ☐ 2-1/2" ☐ 3" ☐ 4" ☐ 6" ☐ 8" ☐

Seat Material

EPDM ☐FKM ☐Silicone ☐

Valve Type

B5101 ☐B5102 ☐B5104 ☐

Connection

Clamp ☐Weld ☐

Other: _____

B5101 Handle Options

Pull ☐Trigger ☐Infinite ☐

For Manual Valves Only

Actuation

Manual ☐Pneumatic ☐Electric ☐Dead Man Handle ☐

Pneumatic Actuators

SS Vertical Canister ☐Rack & Pinion ☐Horizontal Double Acting ☐

Operation

Spring return normally open ☐Spring return normally closed ☐Double Acting ☐Standard Electric ☐

SS Vertical Canister Pneumatic Actuator Options

Control Top

CT Series Top see pg. 261 ☐

CT Part #: _____

Prism Top CM Series see pg. 262 ☐

CT Part #: _____

Proximity Sensor (pg. 267)

Vertical Detection (TI-Series) ☐Rotational (MI-Series) ☐Number of Sensors ☐

Other: _____

Manual Valve Option

Limit Switch

Mechanical ☐Prox ☐

Other: _____

Communication: _____

R & P Pneumatic Actuator Options

Enclosure Material

Aluminum ☐SS ☐Ni Plated AL ☐Techno-polymer ☐

Accessory Enclosure

NEMA 4/4X ☐NEMA 7/9 ☐Intrinsically Safe ☐

Limit Switch

Mechanical ☐Prox ☐

Other: _____

Solenoid

12VDC ☐24VDC ☐24VAC ☐110VAC ☐220VAC ☐Single Coil ☐Dual Coil ☐Closed Centers ☐

Positioner

Pneumatic ☐Feedback: ☐

Other: _____

Electro-pneumatic ☐Yes ☐No ☐

Other Options

Decluchable Gear Over-Ride ☐Pre Wired Sol to Switch ☐

Receptical (Specify): _____

Electric Actuator Options

Enclosure

NEMA 4/4X ☐NEMA 7/9 ☐Intrinsically Safe ☐

Manual Over-Ride

Yes ☐No ☐Handwheel ☐

Switches

Standard ☐2 Extra ☐Torque Switches ☐Potentiometer ☐Current Position ☐

Power Supply

12 VDC ☐24VDC ☐24VAC ☐110 VAC ☐220VAC 1PH ☐220 VAC 3PH ☐440VAC 3PH ☐1-5 V ☐4-20 mA ☐Feedback: ☐

Other: _____

2-10 V ☐Yes ☐No ☐

Other Options

Decluchable Gear Over-Ride ☐Local Control Unit ☐Battery Back-Up ☐

Other Requests: _____

Other Special Requests

Industrial Butterfly Valve Check List

Contact Name: _____ Company Name: _____
 Date: _____ Phone: _____ Email: _____
 Customer ID#: _____

Process Background

Process Temp: _____ Plant Air Supply (PSI): _____
 Product: _____ Pressure Differential ΔP : _____

Size

1-1/2" ☐ 2" ☐ 2-1/2" ☐ 3" ☐ 4" ☐ 5" ☐ 6" ☐ 8" ☐ 10" ☐ 12" ☐

Other: _____

Seat Material

Buna ☐ Silicone ☐ FKM ☐ EPDM ☐ PTFE Backed EPDM ☐ Food grade EPDM ☐

Body Material

Cast Iron (CI) ☐
 Ductile Iron (DI) ☐
 Stainless Steel ☐

Disc Material

Stainless Steel ☐ AL Bronzed ☐
 NI Plated DI ☐ 304 SS Miror ☐
 Nylon Coated DI (SS body only) ☐

Style

Lug ☐
 Waffer ☐

Actuation

Pneumatic ☐
 Dead Man Handle ☐

Manual ☐
 Electric ☐

Manual Options

Standard ☐ Gear Operator ☐
 Lock Plate ☐ Spring Return ☐

Other: _____

Operation

Spring return normally open ☐
 Spring return normally closed ☐

Double Acting ☐
 Standard Electric ☐

R & P Pneumatic Actuator Options

Enclosure Material

Aluminum ☐ Ni Plated AL ☐
 SS ☐ Techno-polymer ☐

Accessory Enclosure

NEMA 4/4X ☐
 NEMA 7/9 ☐
 Intrinsically Safe ☐

Limit Switch

Mechanical ☐ Switch # ☐
 Prox ☐ Poles # ☐
 Other: _____

Solenoid

12VDC ☐ 220VAC ☐
 24VDC ☐ Single Coil ☐
 24VAC ☐ Dual Coil ☐
 110VAC ☐ Closed Centers ☐

Modulating Positioner

Pneumatic ☐ Electro-pneumatic ☐
 Feedback: Yes ☐ No ☐
 Other: _____

Other Options

Decluchable Gear Over-Ride ☐
 Pre Wired Sol to Switch ☐
 Receptical (Specify): _____

Electric Actuator Options

Enclosure

NEMA 4/4X ☐
 NEMA 7/9 ☐
 Intrinsically Safe ☐

Manual Over-Ride

Yes ☐
 No ☐
 Handwheel ☐

Limit Switches

Standard ☐ Potentiometer ☐
 2 Extra ☐ Current Position ☐
 Torque Switches ☐

Power Supply

12 VDC ☐ 220VAC 1PH ☐
 24VDC ☐ 220 VAC 3PH ☐
 24VAC ☐ 440VAC 3PH ☐
 110 VAC ☐

Modulating (Positioner)

1-5 V ☐ 2-10 V ☐
 4-20 mA ☐
 Feedback: Yes ☐ No ☐
 Other: _____

Other Options

Decluchable Gear Over-Ride ☐
 Local Control Unit ☐
 Battery Back-Up ☐
 Other Requests: _____

Other Special Requests



Check Valves



Spring check valves are designed to prevent reverse flow. The concentric design makes them ideal for vertical applications.



Y-ball check valves are used where full flow and low pressure drop of product during processing is required. When the flow of product stops, the PTFE ball rolls back and seats, thus preventing backflow. The two-piece body design is available in 1½" - 3" sizes.



Air-blow check valves are used to clear lines of product or CIP solutions. Air connections available are ¼" air quick coupler, 1" hose barb and ½" FNPT. The air-blow check valve is stocked in 1" - 4" sizes.



Air relief valves are used for bleeding of air on the suction side of a pump.



Tank Vent Valves are used for relieving pressure as the fluid level rises while filling a tank and relieving vacuum as the fluid level drops while emptying a tank.

Spring Check Valves



Features and Benefits

- lower resistance to flow
- full size flow plate
- long stem bushing for increased cycle life
- suitable for low and medium viscosity fluids
- space-saving, light weight
- field serviceable (no special tools required)
- special design prevents low pressure leak through
- all wetted surfaces are sanitary finished to $\leq 20R_a$
- operating temperature range: **15°F to 200°F**
- maximum operating pressure: **145 PSI**
- sizes from 1/2" thru 4"



Ordering Information

When ordering please list part number along with description. Example:

B46MP-R100 - Spring check valve, 1" x 1", 316L stainless

1 2 6 4 5 6 7 8 9 10 11 12
B 4 6 M P - R 1 0 0

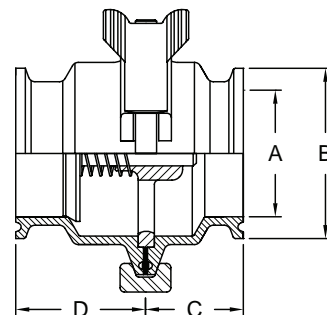
| Valve (1-5) | Ends (6-8) | Material (7) | Size (8-10) |
|---------------------|-------------------------|------------------|-------------|
| B45MP (1/2" & 3/4") | (blank)- Clamp | R 316L stainless | 050 1/2" |
| B46MP (1" to 4") | BB- Weld | | 075 3/4" |
| | FF- Female I-Line | | 100 1" |
| | MM- Male I-Line | | 150 1 1/2" |
| | TT- Threaded Bevel | | 200 2" |
| | PP- Plain Bevel | | 250 2 1/2" |
| | QQ- Q-Line | | 300 3" |
| | JJ- John Perry Plain | | 400 4" |
| | HH- John Perry Threaded | | |
| | EE- Extended Weld | | |
| | 11- Female NPT | | |
| | 22- Male NPT | | |

Specifications

| Size | Part # | Pressure Rating (PSI) | Cracking Pressure (PSI) | Flow Coefficient (CV) |
|--------|------------|-----------------------|-------------------------|-----------------------|
| 1/2" | B45MP-R50 | 145 | 10.0 | 5 |
| 3/4" | B45MP-R75 | 145 | 4.0 | 8 |
| 1" | B46MP-R100 | 145 | 2.0 | 12 |
| 1 1/2" | B46MP-R150 | 145 | 1.6 | 20 |
| 2" | B46MP-R200 | 145 | 1.4 | 40 |
| 2 1/2" | B46MP-R250 | 145 | 0.9 | 60 |
| 3" | B46MP-R300 | 145 | 0.5 | 100 |
| 4" | B46MP-R400 | 145 | 0.5 | 210 |

Dimensions

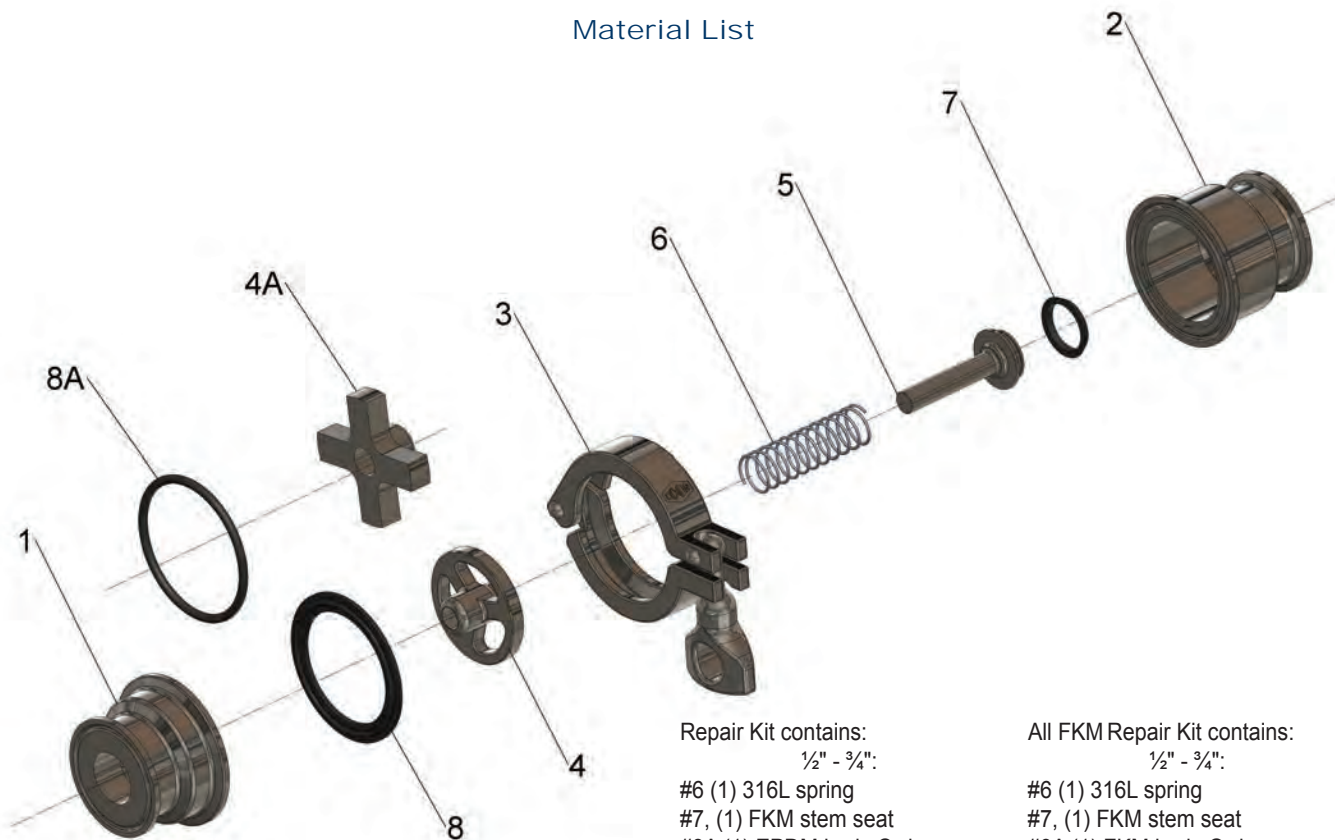
| Size | A | B | C | D | 316L SS Part # | Gasket EPDM Part # | Gasket FKM Part # | Clamp Part # |
|--------|------|------|-----|-----|----------------|--------------------|-------------------|--------------|
| 1/2" | 0.37 | 0.99 | 1.1 | 1.6 | B45MP-R50 | See Repair Kit | See Repair Kit | B45MP3-50 |
| 3/4" | 0.62 | 0.99 | 1.1 | 1.6 | B45MP-R75 | See Repair Kit | See Repair Kit | B45MP3-50 |
| 1" | 0.87 | 1.99 | 1.7 | 2.3 | B46MP-R100 | 40MP-E200 | 40MP-SFY100 | 13MHM200SN |
| 1 1/2" | 1.37 | 1.99 | 1.7 | 2.3 | B46MP-R150 | 40MP-E250 | 40MP-SFY150 | 13MHM250SN |
| 2" | 1.87 | 2.52 | 1.7 | 2.3 | B46MP-R200 | 40MP-E300 | 40MP-SFY300 | 13MHM300SN |
| 2 1/2" | 2.37 | 3.05 | 1.7 | 2.3 | B46MP-R250 | B46MP8-B250 | B46MP8-V250 | 13MHM350SN |
| 3" | 2.87 | 3.58 | 1.7 | 2.3 | B46MP-R300 | 40MP-E400 | 40MP-SFY400 | 13MHM400SN |
| 4" | 3.83 | 4.68 | 2.2 | 2.7 | B46MP-R400 | B46MP8-E400 | B46MP8-V400 | B45MP3-400 |



*All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.*

Spring Check Valves

Material List



Repair Kit contains:

 $\frac{1}{2}$ " - $\frac{3}{4}$ ":

#6 (1) 316L spring
 #7, (1) FKM stem seat
 #8A (1) EPDM body O-ring

1" - 4":

#6 (1) 316L spring
 #7 (1) FKM stem seat,
 #8 (1) EPDM clamp gasket

All FKM Repair Kit contains:

 $\frac{1}{2}$ " - $\frac{3}{4}$ ":

#6 (1) 316L spring
 #7, (1) FKM stem seat
 #8A (1) FKM body O-ring

1" - 4":

#6 (1) 316L spring
 #7 (1) FKM stem seat
 #8 (1) FKM clamp gasket

| Valve Size | Repair Kit Part # |
|-------------------|-------------------|
| $\frac{1}{2}$ " | B45MP-RK050 |
| $\frac{3}{4}$ " | B45MP-RK075 |
| 1" | B46MP-RK100 |
| 1 $\frac{1}{2}$ " | B46MP-RK150 |
| 2" | B46MP-RK200 |
| 2 $\frac{1}{2}$ " | B46MP-RK250 |
| 3" | B46MP-RK300 |
| 4" | B46MP-RK400 |

| Valve Size | Repair Kit Part # |
|-------------------|-------------------|
| $\frac{1}{2}$ " | B45MP-RKV050 |
| $\frac{3}{4}$ " | B45MP-RKV075 |
| 1" | B46MP-RKV100 |
| 1 $\frac{1}{2}$ " | B46MP-RKV150 |
| 2" | B46MP-RKV200 |
| 2 $\frac{1}{2}$ " | B46MP-RKV250 |
| 3" | B46MP-RKV300 |
| 4" | B46MP-RKV400 |

| Item | Description | Material | Quantity | |
|------|--------------------|----------|--------------------------------------|------------|
| | | | $\frac{1}{2}$ " thru $\frac{3}{4}$ " | 1" thru 4" |
| 1 | upper body housing | 316L | 1 | 1 |
| 2 | lower body housing | 316L | 1 | 1 |
| 3 | single pin clamp | CF8 | 1 | 1 |
| 4 | flow plate | CF3M | n/a | 1 |
| 4A | flow plate | CF3M | 1 | n/a |
| 5 | plunger | 316L | 1 | 1 |
| 6 | spring | 316L | 1 | 1 |
| 7 | stem seat | FKM | 1 | 1 |
| 8 | body O-ring | EPDM | 1 | n/a |
| 8A | clamp gasket | EPDM | n/a | 1 |

*4" uses bolted construction instead of clamp

Spring Check Valves

Technical Data

Capacity / Pressure Drop Chart ΔP (PSI)

| Capacity (US GPM) | Valve Size | | | | | | | |
|----------------------|------------|------|------|------|------|------|------|-----|
| | ½" | ¾" | 1" | 1½" | 2" | 2½" | 3" | 4" |
| 10 | 4.0 | 1.6 | .7 | .3 | | | | |
| 30 | 36.0 | 14.1 | 6.3 | 2.3 | .6 | | | |
| 40 | | 25.0 | 11.1 | 4.0 | 1.0 | .4 | | |
| 50 | | 39.1 | 17.4 | 6.3 | 1.6 | .7 | | |
| 60 | | | 25.0 | 9.0 | 2.3 | 1.0 | | |
| 70 | | | 34.0 | 12.3 | 3.1 | 1.4 | .4 | |
| 80 | | | 44.4 | 16.0 | 4.0 | 1.8 | .6 | |
| 90 | | | | 20.3 | 5.1 | 2.3 | .7 | |
| 100 | | | | 25.0 | 6.3 | 2.8 | .9 | |
| 110 | | | | 30.3 | 7.6 | 3.4 | 1.1 | .3 |
| 120 | | | | 36.0 | 9.0 | 4.0 | 1.3 | .3 |
| 130 | | | | 42.3 | 10.6 | 4.7 | 1.5 | .4 |
| 140 | | | | 49.0 | 12.3 | 5.4 | 1.8 | .4 |
| 150 | | | | | 14.1 | 6.3 | 2.0 | .5 |
| 160 | | | | | 16.0 | 7.1 | 2.3 | .6 |
| 170 | | | | | 18.1 | 8.0 | 2.6 | .7 |
| 180 | | | | | 20.3 | 9.0 | 2.9 | .7 |
| 190 | | | | | 22.6 | 10.0 | 3.3 | .8 |
| 200 | | | | | 25.0 | 11.1 | 3.6 | .9 |
| 210 | | | | | 27.6 | 12.3 | 4.0 | 1.0 |
| 220 | | | | | 30.3 | 13.4 | 4.4 | 1.1 |
| 230 | | | | | 33.1 | 14.7 | 4.8 | 1.2 |
| 240 | | | | | 36.0 | 16.0 | 5.2 | 1.3 |
| 250 | | | | | 39.1 | 17.4 | 5.7 | 1.4 |
| 260 | | | | | | 18.8 | 6.1 | 1.5 |
| 270 | | | | | | 20.3 | 6.6 | 1.7 |
| 280 | | | | | | 21.8 | 7.1 | 1.8 |
| 290 | | | | | | 23.4 | 7.6 | 1.9 |
| 300 | | | | | | 25.0 | 8.2 | 2.0 |
| 310 | | | | | | 26.7 | 8.7 | 2.2 |
| 320 | | | | | | 28.4 | 9.3 | 2.3 |
| 330 | | | | | | 30.3 | 9.9 | 2.5 |
| 340 | | | | | | 32.1 | 10.5 | 2.6 |
| 350 | | | | | | 34.0 | 11.1 | 2.8 |
| 360 | | | | | | 36.0 | 11.8 | 2.9 |
| 370 | | | | | | 38.0 | 12.4 | 3.1 |
| 380 | | | | | | 40.1 | 13.1 | 3.3 |
| 390 | | | | | | 42.3 | 13.8 | 3.4 |
| 400 | | | | | | 44.4 | 14.5 | 3.6 |
| 410 | | | | | | | 15.2 | 3.8 |
| 420 | | | | | | | 16.0 | 4.0 |
| 430 | | | | | | | 16.8 | 4.2 |
| 440 | | | | | | | 17.6 | 4.4 |
| 450 | | | | | | | 18.4 | 4.6 |
| 460 | | | | | | | 19.2 | 4.8 |
| 470 | | | | | | | 20.0 | 5.0 |

$$\Delta P = \left[\frac{\text{GPM}}{C_v} \right]^2 G$$

Note: medium = 68°F

Data is not certified. ΔP values are intended as a guideline ONLY.

Y-Ball Check Valves

Features and Benefits



- two piece construction for easier alignment
- seat is replaceable instead of entire valve
- PTFE ball provides better heat and abrasion resistance and lasts longer between maintenance cycles.
- easy cleaning, no tools required
- polished ID and OD to 3A standards
- all metal product contact surfaces are CF8M (316) stainless steel construction
- air blow check valve can be added (see air blow check valve for sizing page 225)
- operating temperature range: **15°F to 200°F**
- FKM max temperature: **240°F**
- maximum operating pressure: **150 PSI**
- sizes 1½" thru 3"

Ordering Information

When ordering please list part number along with description. Example:

B45BY-R150 - Y ball check valve, 1½", 316L stainless, clamp ends

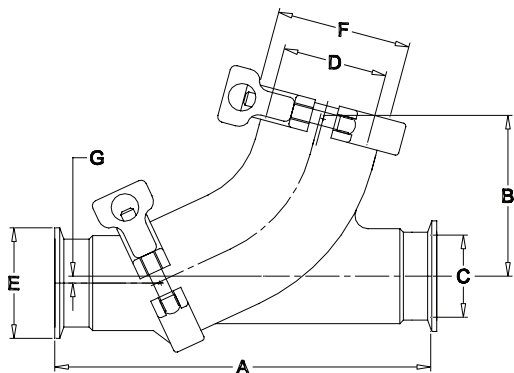
1 2 3 4 5 6 7 8 9 10 11 12
 B 4 5 B Y - R 1 5 0

| Valve (1-5) | Ends (6-8) | Material (7) | Size (8-10) | Elastomer (11) |
|-------------|-------------------------|------------------|-------------|----------------|
| B45BY | (blank)- Clamp | R 316L stainless | 150 1½" | (blank) EPDM |
| | BB- Weld | | 200 2" | V FKM |
| | FF- Female I-Line | | 250 2½" | |
| | MM- Male I-Line | | 300 3" | |
| | TT- Threaded Bevel | | | |
| | PP- Plain Bevel | | | |
| | QQ- Q-Line | | | |
| | JJ- John Perry Plain | | | |
| | HH- John Perry Threaded | | | |
| | EE- Extended Weld | | | |
| | 11- Female NPT | | | |
| | 22- Male NPT | | | |

Specifications

| Valve Size | Part # | Weight (lbs) | Cap Size | Clamp Size | Cap Gasket | Ball Diameter | Cracking Pressure inches (H ₂ O) | | Seating Pressure (PSI) | | Flow Coefficient (CV) |
|------------|------------|--------------|----------|------------|------------|---------------|---|------------|------------------------|------------|-----------------------|
| | | | | | | | Vertical | Horizontal | Vertical | Horizontal | |
| 1½" | B45BY-R150 | 4.9 | 2.0 | 2.0 | 2.0 | 1.6 | 2.0 | 0.5 | 3.6 | 3.9 | 60 |
| 2" | B45BY-R200 | 6.6 | 2.5 | 2.5 | 2.5 | 2.1 | 2.5 | 0.5 | 2.6 | 3.7 | 80 |
| 2½" | B45BY-R250 | 10.5 | 3.0 | 3.0 | 3.0 | 2.7 | 3.0 | 0.5 | 1.6 | 2.4 | 100 |
| 3" | B45BY-R300 | 17.5 | 4.0 | 4.0 | 4.0 | 3.6 | 3.8 | 0.5 | 1.9 | 2.6 | 140 |

Dimensions



| Size | A | B | C | D | E | F | G |
|------|------|-----|-----|-----|-----|-----|------|
| 1½" | 7.5 | 3.3 | 1.4 | 1.9 | 2.0 | 2.5 | 0.16 |
| 2" | 8.5 | 3.9 | 1.9 | 2.3 | 2.5 | 3.0 | 0.16 |
| 2½" | 10.0 | 4.5 | 2.4 | 2.9 | 3.0 | 3.6 | 0.16 |
| 3" | 11.5 | 5.3 | 2.9 | 3.8 | 3.8 | 4.7 | 0.16 |

All dimensions are in inches, unless noted. Dimensions are approximate.
 Engineering dimensions are available upon request. Specifications are subject to change without notice.

Y-Ball Check Valves

Material List



EPDM/PTFE Repair Kit
contains:
#5 (1) EPDM end cap gasket
#6 (1) PTFE ball
#7 (1) EPDM/CF3M seat

EPDM Seal Kit contains:
#5 (1) EPDM end cap gasket
#7 (1) EPDM/CF3M seat

FKM Seal Kit contains:
#5 (1) FKM end cap gasket
#7 (1) FKM seat/CF3M

Replacement Ball Kit contains:
#6 (1) Ball

| Valve Size | Repair Kit Part # |
|------------|-------------------|
| 1½" | B45BY-RK150 |
| 2" | B45BY-RK200 |
| 2½" | B45BY-RK250 |
| 3" | B45BY-RK300 |

| Valve Size | Seal Kit Part # |
|------------|-----------------|
| 1½" | B45BY-SK150 |
| 2" | B45BY-SK200 |
| 2½" | B45BY-SK250 |
| 3" | B45BY-SK300 |

| Valve Size | Seal Kit Part # |
|------------|-----------------|
| 1½" | B45BY-SKV150 |
| 2" | B45BY-SKV200 |
| 2½" | B45BY-SKV250 |
| 3" | B45BY-SKV300 |

| Size | Ball Part # | |
|------|-------------|-------------|
| | PTFE | Buna |
| 1½" | B45BY-TB150 | B45BY-BB150 |
| 2" | B45BY-TB200 | B45BY-BB200 |
| 2½" | B45BY-TB250 | B45BY-BB250 |
| 3" | B45BY-TB300 | B45BY-BB300 |

| Item | Description | Material | Quantity |
|------|-------------|-----------|----------|
| 1 | angle body | CF8M | 1 |
| 2 | inlet body | CF8M | 1 |
| 3 | clamp | CF8 | 2 |
| 4 | end cap | 316L | 1 |
| 5 | cap gasket | EPDM | 1 |
| 6 | ball | PTFE/Buna | 1 |
| 7 | seat | EPDM/CF3M | 1 |

Y-Ball Check Valves

Technical Data

Capacity / Pressure Drop Chart ΔP (PSI)

| Capacity (US GPM) | Valve Size | | | |
|----------------------|------------|------|------|------|
| | 1½" | 2" | 2½" | 3" |
| 10 | 0.0 | 0.0 | 0.0 | 0.0 |
| 20 | 0.1 | 0.1 | 0.0 | 0.0 |
| 30 | 0.3 | 0.1 | 0.1 | 0.0 |
| 40 | 0.4 | 0.3 | 0.2 | 0.1 |
| 50 | 0.7 | 0.4 | 0.3 | 0.1 |
| 60 | 1.0 | 0.6 | 0.4 | 0.2 |
| 70 | 1.4 | 0.8 | 0.5 | 0.3 |
| 80 | 1.8 | 1.0 | 0.6 | 0.3 |
| 90 | 2.3 | 1.3 | 0.8 | 0.4 |
| 100 | 2.8 | 1.6 | 1.0 | 0.5 |
| 110 | 3.4 | 1.9 | 1.2 | 0.6 |
| 120 | 4 | 2.3 | 1.4 | 0.7 |
| 130 | 4.7 | 2.6 | 1.7 | 0.9 |
| 140 | 5.4 | 3.1 | 2 | 1.0 |
| 150 | 6.3 | 3.5 | 2.3 | 1.1 |
| 160 | 7.1 | 4.0 | 2.6 | 1.3 |
| 170 | 8.0 | 4.5 | 2.9 | 1.5 |
| 180 | 9.0 | 5.1 | 3.2 | 1.7 |
| 190 | 10.0 | 5.6 | 3.6 | 1.8 |
| 200 | 11.1 | 6.3 | 4.0 | 2.0 |
| 210 | | 6.9 | 4.4 | 2.3 |
| 220 | | 7.6 | 4.8 | 2.5 |
| 230 | | 8.3 | 5.3 | 2.7 |
| 240 | | 9.0 | 5.8 | 2.9 |
| 250 | | 9.8 | 6.3 | 3.2 |
| 260 | | 10.6 | 6.8 | 3.4 |
| 270 | | 11.4 | 7.3 | 3.7 |
| 280 | | 12.3 | 7.8 | 4.0 |
| 290 | | 13.1 | 8.4 | 4.3 |
| 300 | | 14.1 | 9.0 | 4.6 |
| 310 | | | 9.6 | 4.9 |
| 320 | | | 10.2 | 5.2 |
| 330 | | | 10.9 | 5.6 |
| 340 | | | 11.6 | 5.9 |
| 350 | | | 12.3 | 6.3 |
| 360 | | | | 6.6 |
| 370 | | | | 7.0 |
| 380 | | | | 7.4 |
| 390 | | | | 7.8 |
| 400 | | | | 8.2 |
| 410 | | | | 8.6 |
| 420 | | | | 9.0 |
| 430 | | | | 9.4 |
| 440 | | | | 9.9 |
| 460 | | | | 10.3 |
| 470 | | | | 10.8 |

$$\Delta P = \left[\frac{\text{GPM}}{C_v} \right]^2 G$$

Note: medium = 68°F

Data is not certified. ΔP values are intended as a guideline ONLY.

Air Blow Check Valves

Features and Benefits

- 316L stainless steel offered with EPDM stem seat and gasket
- maximum operating temperature: **212°F**
- maximum operating pressure: **145 PSI**
- Conforms to 3A standards for filtration of air entering tanks or pipelines with optional filter disc
- filter discs sold separately in packs of 50
- sizes from 1" thru 4"



Ordering Information

When ordering please list part number along with description. Example:

B45AB-R200AB - air blow check valve, 2" clamp, 316L stainless, quick connect

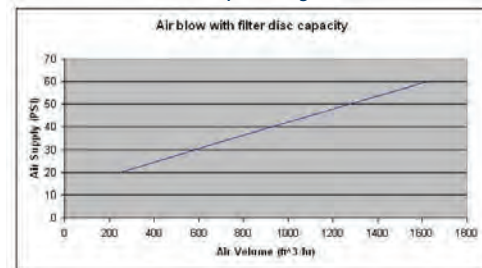
$\frac{1}{B}$ $\frac{2}{4}$ $\frac{3}{5}$ $\frac{4}{A}$ $\frac{5}{B}$ $\frac{6}{-}$ $\frac{7}{R}$ $\frac{8}{2}$ $\frac{9}{0}$ $\frac{10}{0}$ $\frac{11}{}$ $\frac{12}{}$ $\frac{13}{}$

| Valve (1-3) | End (4-5) | (6) | Material (7) | Size (8-13) |
|-------------|-----------------------|-----|------------------|-----------------|
| B45 | AB quick connect plug | - | R 316L stainless | 100150 1" - 1½" |
| | BC FNPT | | | 200 2" |
| | CC hose barb | | | 250 2½" |
| | AR air relief cap | | | 300 3" |
| | NC no coupler | | | 400 4" |

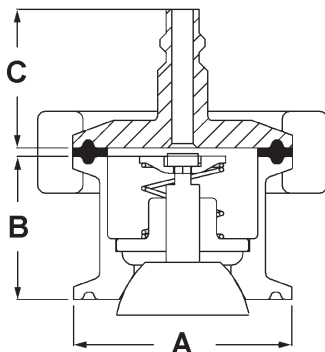
Sizing When Used on Ball Check Valves

| Ball Check Valve Size | Air Blow Check Valve Size |
|-----------------------|---------------------------|
| 1½" | 2" |
| 2" | 2½" |
| 2½" | 3" |
| 3" | 4" |

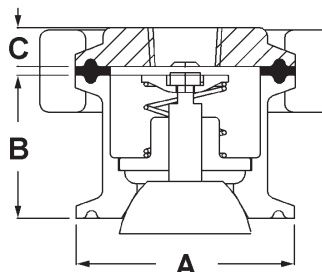
Capacity



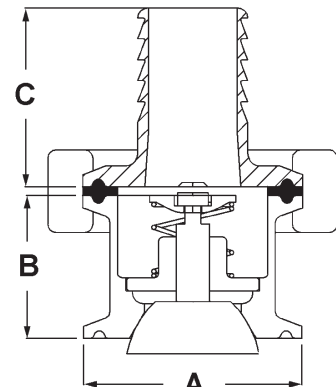
Dimensions



B45AB



B45BC



B45CC

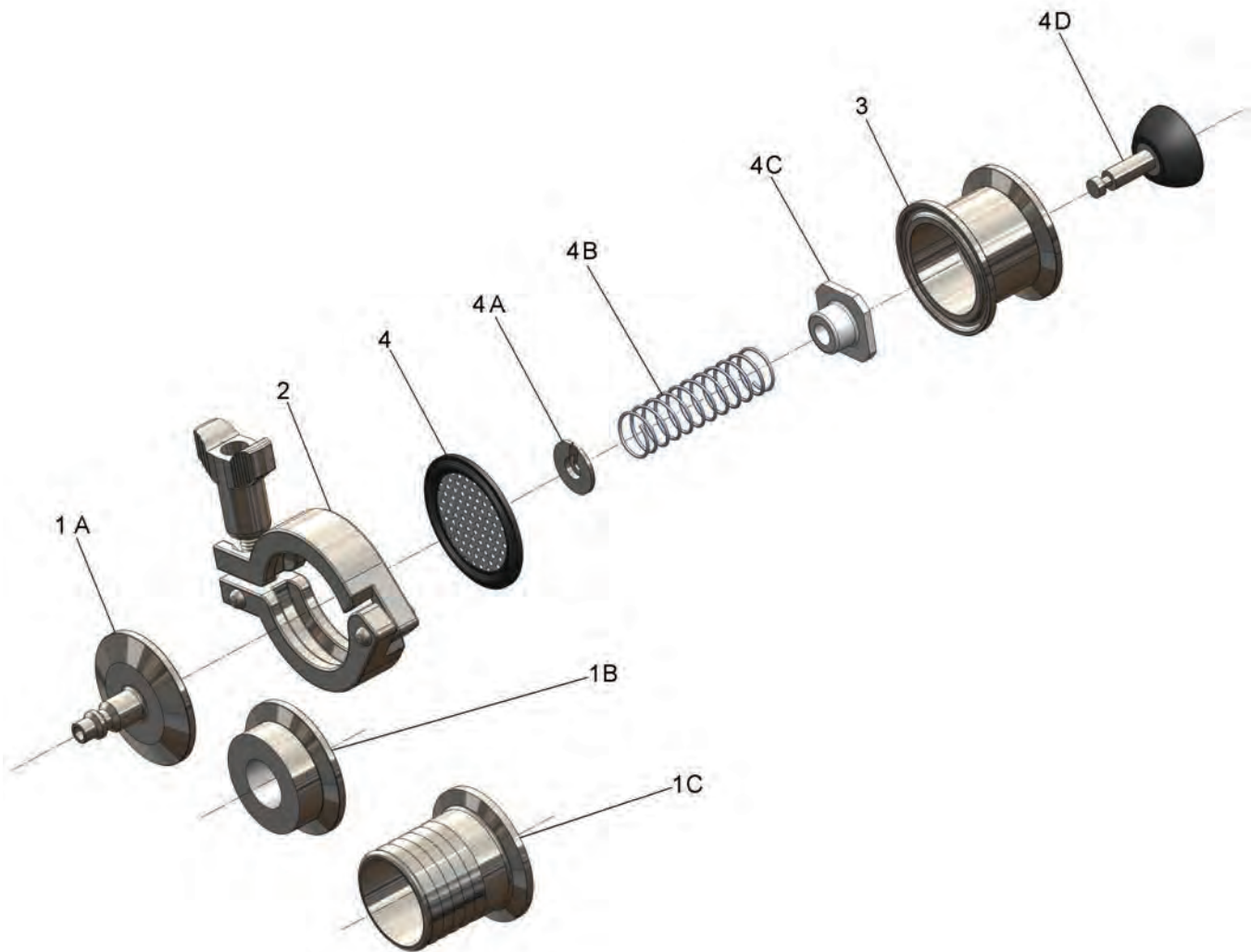
| Size | A | B | C Plug | C FNPT | C Hose Barb | Quick-Connect Plug Part Number | Female NPT Part Number | Hose Barb Part Number |
|--------|-------|------|--------|--------|-------------|--------------------------------|------------------------|-----------------------|
| 1"-1½" | 1.984 | 1.30 | 1.26 | .6 | 1.7 | B45AB-R100150 | B45BC-R100150 | B45CC-R100150 |
| 2" | 2.516 | 1.30 | 1.26 | .6 | 1.7 | B45AB-R200 | B45BC-R200 | B45CC-R200 |
| 2½" | 3.047 | 1.30 | 1.26 | .6 | 1.7 | B45AB-R250 | B45BC-R250 | B45CC-R250 |
| 3" | 3.579 | 1.30 | 1.26 | .6 | 1.7 | B45AB-R300 | B45BC-R300 | B45CC-R300 |
| 4" | 4.682 | 1.30 | 1.26 | .6 | 1.7 | B45AB-R400 | B45BC-R400 | B45CC-R400 |

All dimensions are in inches, unless noted. Dimensions are approximate.

Engineering dimensions are available upon request. Specifications are subject to change without notice.

Air Blow Check Valves

Material List



Repair Kit

repair kit, **B45AB-RK**, contains contains:

#4 (1) EPDM / 316L stainless perforated disc

#4A (1) 304 stainless spring retainer

#4B (1) 304 stainless spring

#4C (1) nylon stem guide

#4D (1) EPDM / 316L stem and plug

| Item | Description | Material | Quantity |
|------|---------------------------|-----------|----------|
| 1A | ¼" air line quick connect | 316L | 1 |
| 1B | ½" NPT cap | 316L | 1 |
| 1C | 1" hose barb | 316L | 1 |
| 2 | single pin clamp | CF8 | 1 |
| 3 | valve body | 316L | 1 |
| 4 | perforated disc | EPDM/316L | 1 |
| 4A | spring retainer | 304 | 1 |
| 4B | spring | 304 | 1 |
| 4C | stem guide | nylon | 1 |
| 4D | stem and plug | EPDM/316L | 1 |

Filter Discs (optional) *Must be used when installed in 3A applications*

| | | | |
|------------|------------------|-----------------|----|
| B45ABFD150 | filter disc pack | 1 micron filter | 50 |
|------------|------------------|-----------------|----|

- filter discs (optional) must be used when installed for Accepted Practice 3A 604-05, supplying air under pressure in contact with milk, milk products and product contact.

Air Relief Check Valves

Features and Benefits

- no tools for assembly or disassembly
- ball and gaskets are replaceable
- valve seals for both pressure and vacuum
- air and water can be directed away by using a plastic tube and the valves 1/8" FNPT connection port
- all product contact surfaces have a radius of 1/4" or better
- valve ball is constructed of FDA, 3A approved polypropylene
- maximum temperature: **212°F**
- Polypropylene ball density = 0.033lb/in³
- PTFE ball available (density = 0.078lb/in³)
- other gasket materials available

Standard materials:

- metal parts - 304 stainless steel
- ball - Polypropylene
- gasket - EPDM



Ordering Information

When ordering please list part number along with description. Example:

BARV-G150 - air relief valve, 1½", 304 stainless

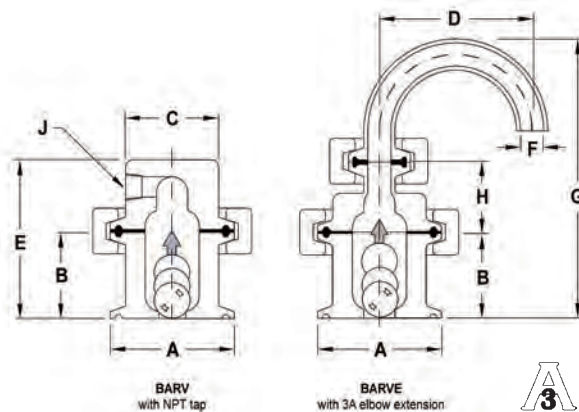
1 2 3 4 5 6 7 8 9 10
B A R V - G 1 5 0

| Valve (1-5) | (6) | Material (7) | Size (8-10) |
|----------------|-----|-----------------|-------------|
| BARV NPT tap | - | G 304 stainless | 150 1½" |
| BARVE 3A | | | 200 2" |
| BARBA no elbow | | | |
| | | | |
| | | | |

Specifications

| Size | Part # | Pressure Rating (PSI) | Description |
|------|------------|-----------------------|--|
| 1½" | BARV-G150 | 145 | 1½" air relief valve with NPT tap |
| 1½" | BARVE-G150 | 145 | 1½" air relief valve with elbow extension (3A) |
| 2" | BARV-G200 | 145 | 2" air relief valve with NPT tap |
| 2" | BARVE-G200 | 145 | 2" air relief valve with elbow extension (3A) |

Dimensions



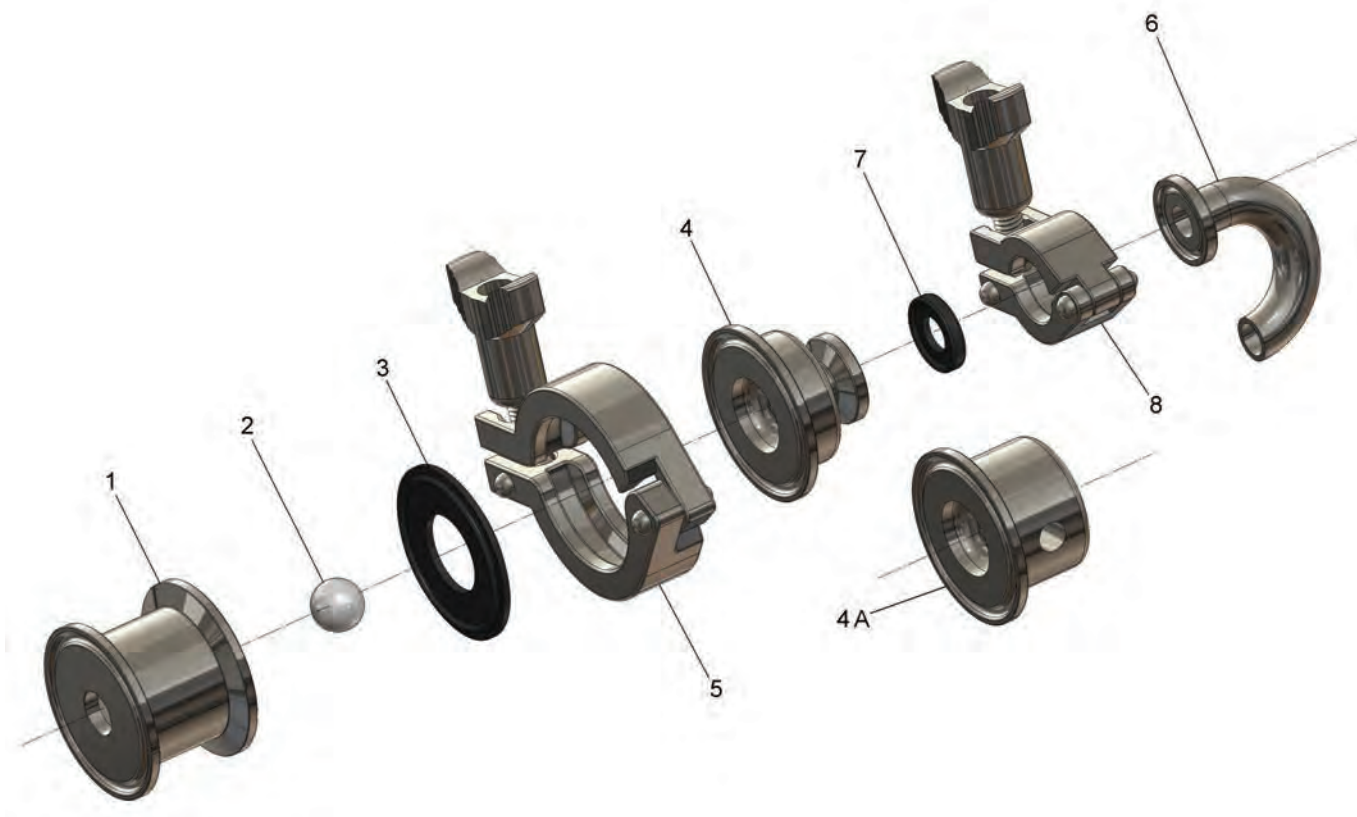
| Size | A | B | C | D | E | F | G | H | J |
|--|------|-----|-----|-----|-----|------|-----|-----|----------|
| 1½" air relief valve with tapped blind end | 1.98 | 1.4 | 1.5 | --- | 2.4 | --- | --- | --- | 1/8" NPT |
| 2" air relief valve with tapped blind end | 2.51 | 1.4 | 1.5 | --- | 2.4 | --- | --- | --- | 1/8" NPT |
| 1½" air relief valve with 180° elbow | 1.98 | 1.4 | --- | 1.5 | --- | 0.37 | 4.5 | 1.1 | --- |
| 2" air relief valve with 180° elbow | 2.51 | 1.4 | --- | 1.5 | --- | 0.37 | 4.5 | 1.1 | --- |

All dimensions are in inches, unless noted. Dimensions are approximate.

Engineering dimensions are available upon request. Specifications are subject to change without notice.


Air Relief Check Valves

Material List



Replacement Ball Kit

| Part # | Description | Material | Qty Required |
|--------------|-------------|---------------|--------------|
| BARVE3P-G150 | ball | polypropylene | 1 |
| BARVE3T-G150 | ball | PTFE | 1 |

| Item | Description | Material | Quantity Required | |
|------|-------------------|---------------|---|--------|
| | | | elbow  | tapped |
| 1 | body | 304 stainless | 1 | 1 |
| 2 | ball | PP or PTFE | 1 | 1 |
| 3 | 1" gasket | EPDM | 1 | 1 |
| 4 | 3A cover | 304 stainless | 1 | n/a |
| 4A | tapped cover | 304 stainless | n/a | 1 |
| 5 | 1½" clamp | CF8 stainless | 1 | 1 |
| 6 | 180° tube ferrule | 304 stainless | 1 | n/a |
| 7 | ½" gasket | EPDM | 1 | n/a |
| 8 | ½" clamp | CF8 stainless | 1 | n/a |

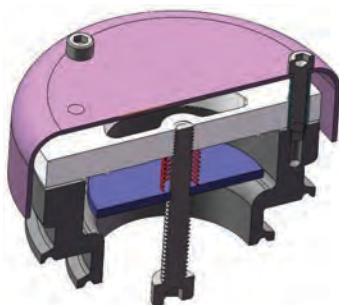
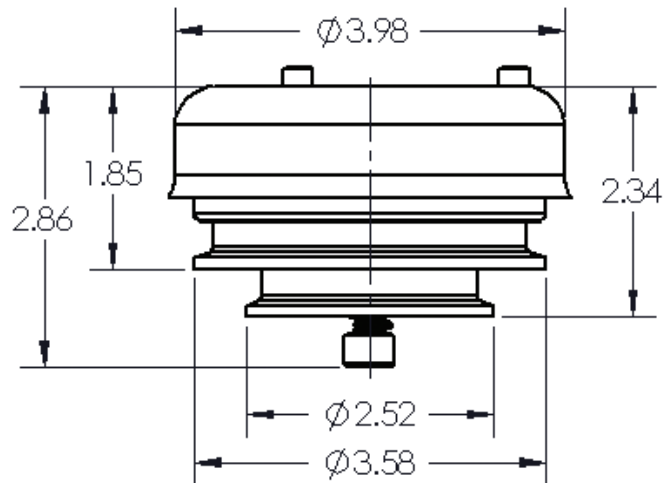
Air & Vacuum Relief Tank Vent Valve

Features:

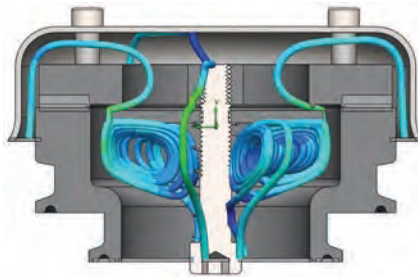
- The valve relieves pressure as the fluid level rises while filling a tank.
- The valve relieves vacuum as the fluid level drops while emptying a tank.
- 2" and 3" clamp connections on the same valve
- dome helps in preventing external contamination
- light weight, robust PVC and 304 stainless steel construction
- can use any clamp gasket
- 304 stainless steel dome
- PVC
- maximum flow rate: 500GPM
- vacuum break: .1 PSI
- pressure relief: .1 PSI



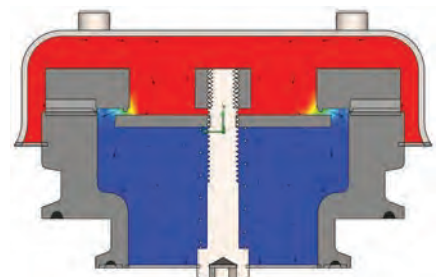
Dimensions



Assembly

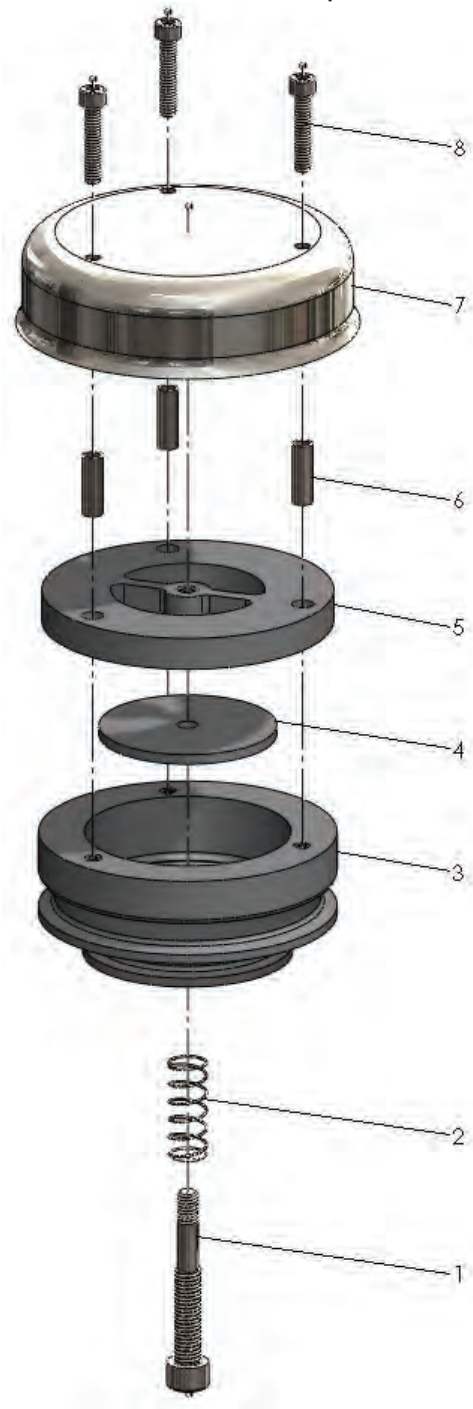


Vent Flow Pipes



Pressure Analysis

Tank Vent Valve - Exploded View



| Item | Description | Material | Quantity |
|------|-------------|---------------------|----------|
| 1 | spring bolt | 304 stainless steel | 1 |
| 2 | spring | 304 stainless steel | 1 |
| 3 | body | PVC | 1 |
| 4 | check plate | PVC | 1 |
| 5 | flow plate | PVC | 1 |
| 6 | spacer | 304 stainless steel | 3 |
| 7 | cap | 304 stainless steel | 1 |
| 8 | cap bolt | 304 stainless steel | 3 |

Pneumatic Rack and Pinion Actuators

The most versatile of the actuator offering. Available in aluminum, stainless steel and Technopolymer materials; and spring return double acting and 90° and 180° rotation. Used on ALL Dixon Butterfly and valves. All standard with ISO 5211 and Namur mounting interface.

RP-BA series is manufactured of extruded hard anodized aluminum alloy. Available in spring return or double acting for all quarter turn valves.



RP-BS series is manufactured of stainless steel for corrosive environments. Available in spring return or double acting for all quarter turn valves.



RP-MA series is manufactured of extruded hard anodized aluminum alloy. For use in 3 position or 180° rotation applications. Available in spring return or double acting.



RP-TP series is manufactured of light weight technopolymer for corrosive environments. Available in spring return or double acting for all quarter turn valves.

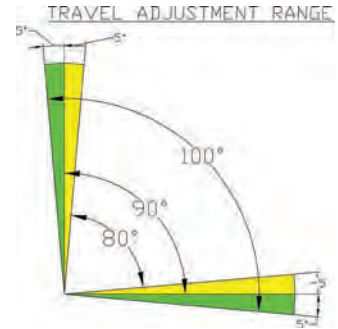


Rack and Pinion Actuators

Bi-Directional Travel Stop

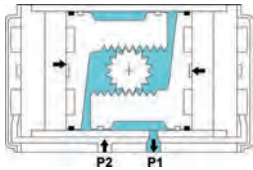
Rack and Pinion actuators feature bi-directional pinion travel stops. Two stops located on the side of the actuator allow a full $\pm 5^\circ$ of valve travel adjustment, giving a guaranteed range of adjustment between 80° and 100° of actuator travel. These travel stops are designed to absorb the maximum rated torque of the actuator and the maximum impact loading associated with recommended stroke speed.

Adjustment of the counterclockwise and clockwise rotation limits are accomplished by turning the respective left and right stops adjustment screws to increase or reduce the output rotation angle.

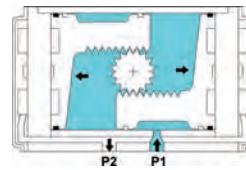


Pneumatic Actuator Operation

Double-Acting

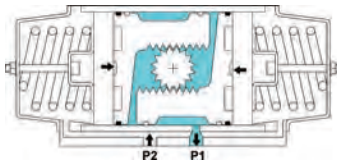


For a clockwise output, apply pressure to P2. This forces the pistons to move to the center resulting in the linear piston travel converted to clockwise rotation of the pinion. The air volume between the pistons is exhausted at P1.

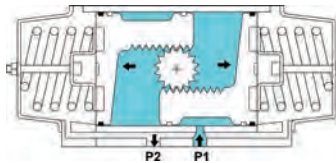


For a counter-clockwise output, apply pressure to P1. This forces the pistons to move away from the center resulting in the linear piston travel converted to counter-clockwise rotation of the pinion. The air volume between the pistons is exhausted at P2.

Spring Return



For a clockwise output, the spring energy forces the pistons to move to the center resulting in the linear piston travel converted to clockwise rotation of the pinion. The air volume between the pistons is exhausted at P1, while the volume outside the pistons is vented at P2.



For a counter-clockwise output, apply pressure to P1. This forces the pistons to move away from the center, compressing the spring sets and resulting in the linear piston travel converted to counter-clockwise rotation of the pinion. The air volume outside each piston is exhausted at P2.

Note: When reverse Rotation is required, the pistons can be inverted in the housing. This will result in a clockwise rotation when air pressure is applied to P1 and a counter-clockwise rotation when P1 is vented.

RP-BS Series Horizontal Rack and Pinion Stainless Steel Actuators

Features and Benefits

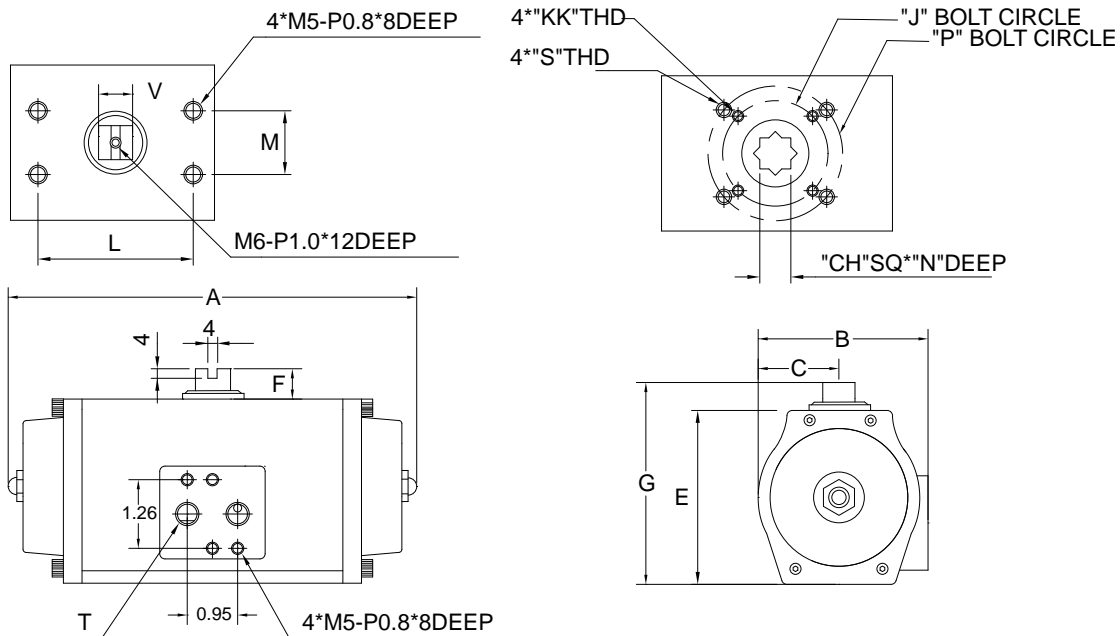
- Replaceable top and bottom PTFE pinion bearings ensure low friction.
- 304SS construction for excellent chemical and corrosion resistance
- travel stops provide $\pm 4^\circ$ travel adjustment
- Precision cast stainless steel pistons are guided through full face engagement with the pinion and piston guide.
- NAMUR slotted shaft is standard to provide a self-centering positive drive for positioners or a variety of switches.
- drive pinion is one-piece stainless steel alloy shaft with precision machined gear teeth for precise control
- ISO 5211 mounting
- Temperature range: **-4° F to 200° F** with Buna elastomers (standard)
- Temperature range: **-4° F to 400° F** with FKM elastomers (optional)



Available in:

- air to open / air to close (ATO/ATC)
- air to open / spring to close (ATO/STC)
- spring to open / air to close (STO/ATC)

Dimensions



| Part # | A* (DA) | A* (SR) | B | C | E | F (mm) | G | CH (mm) | J | L (mm) | M (mm) | N | P | S | T | V (mm) | KK |
|-------------|------------|------------|--------|-------|--------|-----------|--------|------------|--------|-----------|-----------|-------|------|-----------|----------|-----------|-----------|
| RP-BS-045 * | 166.11 | 192.02 | 65.02 | 29.21 | 65.02 | 20 | 85.09 | 11 | 36.06 | 80 | 30 | 14.73 | 1.97 | 10-24 | 1/4" NPT | 16 | 1/4 x 20 |
| RP-BS-065 * | 177.80 | 186.43 | 74.16 | 35.30 | 80.77 | 20 | 100.83 | 14 | 50.03 | 80 | 30 | 14.98 | N/A | 1/4 x 20 | 1/4" NPT | 16 | N/A |
| RP-BS-080 * | 198.37 | 212.59 | 100.83 | 48.51 | 107.69 | 20 | 127.76 | 19 | 50.03 | 80 | 30 | 16.76 | 2.76 | 1/4 x 20 | 1/4" NPT | 16 | 5/16 x 18 |
| RP-BS-105 * | 251.71 | 267.46 | 120.65 | 58.16 | 132.84 | 20 | 152.90 | 19 | 70.10 | 80 | 30 | 19.55 | N/A | 5/16 x 18 | 1/4" NPT | 16 | N/A |
| RP-BS-125 * | 296.16 | 309.88 | 136.90 | 68.32 | 154.68 | 30 | 184.65 | 22 | 70.10 | 130 | 30 | 24.63 | 4.02 | 3/8 x 16 | 1/4" NPT | 22 | 3/8 x 16 |
| RP-BS-140 * | 359.91 | 489.96 | 159.00 | 78.99 | 175.00 | 30 | 204.97 | 27 | 102.10 | 130 | 30 | 29.97 | 4.92 | 3/8 x 16 | 1/4" NPT | 22 | 1/2 x 13 |

*All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.*

Horizontal Rack and Pinion Stainless Steel Actuators

Material List



| Item | Description | Material | Quantity |
|------|------------------------|---------------|----------|
| 1 | body | 304SS | 1 |
| 2 | piston | 304SS | 2 |
| 3 | end cap | 304SS | 2 |
| 4 | Pinion | 304SS | 1 |
| 5 | guide bearing | Nylon | 2 |
| 6 | spring cartridge | Nylon/Steel | * |
| 7 | O-ring | Buna/FKM** | 2 |
| 8 | piston bearing | TFE | 2 |
| 9 | O-ring | Buna / FKM ** | 2 |
| 10 | bearing | Nylon | 1 |
| 11 | washer | 304SS | 1 |
| 12 | snap ring | 304SS | 1 |
| 13 | indicator | Nylon | 1 |
| 14 | O-ring | Buna / FKM ** | 1 |
| 15 | upper pinion bearing 1 | TFE | 1 |
| 16 | upper pinion bearing 2 | TFE | 1 |
| 17 | lower pinion bearing | TFE | 1 |
| 18 | O-ring | Buna / FKM ** | 1 |
| 19 | O-ring | Buna / FKM ** | 2 |
| 20 | nut | 304SS | 2 |
| 21 | travel stop | 304SS | 2 |
| 22 | bolt (end cap) | 304SS | 8 |

Repair Kits

| Item # | Description | Material | Quantity |
|--------|------------------------|------------|----------|
| 5 | guide bearing | nylon | 2 |
| 7 | O-ring | Buna / FKM | 2 |
| 8 | piston bearing | TFE | 2 |
| 9 | O-ring | Buna / FKM | 2 |
| 10 | bearing | nylon | 1 |
| 12 | snap ring | 304SS | 1 |
| 14 | o-ring | Buna / FKM | 1 |
| 15 | upper pinion bearing 1 | TFE | 1 |
| 16 | upper pinion bearing 2 | TFE | 1 |
| 17 | lower pinion bearing | TFE | 1 |
| 18 | O-ring | Buna / FKM | 1 |
| 19 | O-ring | Buna / FKM | 2 |

Buna Repair Kit Part #
Standard

RP-045SS-RK
RP-065SS-RK
RP-080SS-RK
RP-105SS-RK
RP-125SS-RK
RP-140SS-RK

FKM Repair Kit Part #
Optional

RP-045SS-RKV
RP-065SS-RKV
RP-080SS-RKV
RP-105SS-RKV
RP-125SS-RKV
RP-140SS-RKV

* depends upon torque ratings, n/a for double acting see chart on page 235

** Buna standard / FKM optional

Horizontal Rack and Pinion Stainless Steel Actuators

Technical Data

Torque Ratings for Double Acting Actuator
(in. lbs.)

| Part # | 40 PSI | 60 PSI | 80 PSI | 100 PSI | 120 PSI |
|--------------|--------|--------|--------|---------|---------|
| RP-BS-045-DA | 71 | 107 | 143 | 178 | 214 |
| RP-BS-065-DA | 171 | 256 | 342 | 427 | 512 |
| RP-BS-080-DA | 370 | 555 | 740 | 925 | 1110 |
| RP-BS-105-DA | 624 | 936 | 1249 | 1561 | 1873 |
| RP-BS-125-DA | 1214 | 1822 | 2429 | 3036 | 3643 |
| RP-BS-140-DA | 2034 | 3051 | 4068 | 5085 | 6102 |

Torque Ratings for Spring Return Actuator
(in. lbs.)

| Part # | Springs per side | Spring Torque | | 40 PSI | | 60 PSI | | 80 PSI | | 100 PSI | |
|--------------|------------------|---------------|-------------|--------|-------|--------|-------|------------|-------------|-------------|-------------|
| | | End | Break | End | Break | End | Break | End | Break | End | Break |
| RP-BS-045-SR | 3 | 35 | 57 | 14 | 36 | 50 | 72 | 86 | 108 | 121 | 143 |
| | 4 | 47 | 77 | | | 30 | 60 | 66 | 96 | 101 | 131 |
| | 5 | 60 | 96 | | | | | 47 | 83 | 82 | 118 |
| | 6 | 71 | 115 | | | | | | | 63 | 107 |
| RP-BS-065-SR | 3 | 67 | 136 | 35 | 104 | 120 | 189 | 206 | 275 | 291 | 360 |
| | 4 | 90 | 182 | | | 74 | 166 | 160 | 252 | 245 | 337 |
| | 5 | 112 | 227 | | | | | 115 | 230 | 200 | 315 |
| | 6 | 135 | 273 | | | | | | | 154 | 292 |
| RP-BS-080-SR | 3 | 167 | 273 | 97 | 203 | 282 | 388 | 467 | 573 | 652 | 758 |
| | 4 | 223 | 364 | | | 191 | 332 | 376 | 517 | 561 | 702 |
| | 5 | 279 | 456 | | | | | 284 | 461 | 469 | 646 |
| | 6 | 335 | 547 | | | | | | | 378 | 590 |
| RP-BS-105-SR | 3 | 346 | 574 | 50 | 278 | 362 | 590 | 675 | 903 | 987 | 1215 |
| | 4 | 461 | 766 | | | 170 | 475 | 483 | 788 | 795 | 1110 |
| | 5 | 576 | 956 | | | | | 293 | 673 | 605 | 985 |
| | 6 | 692 | 1141 | | | | | | | 420 | 869 |
| RP-BS-125-SR | 3 | 651 | 1141 | 73 | 563 | 681 | 1171 | 1288 | 1778 | 1895 | 2385 |
| | 4 | 869 | 1522 | | | 300 | 953 | 907 | 1560 | 1514 | 2167 |
| | 5 | 1080 | 1902 | | | | | 527 | 1349 | 1134 | 1956 |
| | 6 | 1301 | 2283 | | | | | | | 753 | 1735 |
| RP-BS-140-SR | 3 | 808 | 1859 | 175 | 1226 | 1192 | 2243 | 2209 | 3260 | 3226 | 4277 |
| | 4 | 1071 | 2487 | | | 564 | 1980 | 1581 | 2997 | 2598 | 4014 |
| | 5 | 1345 | 3107 | | | | | 961 | 2723 | 1978 | 3740 |
| | 6 | 1610 | 3726 | | | | | | | 1359 | 3475 |

Note: 5 springs per side is standard

M

RP-BA Series Aluminum Rack and Pinion Actuators



Features and Benefits

- body: extruded hard anodized aluminum alloy provides wear and corrosion resistance and reduced friction
- heavy duty springs: high tensile steel springs with retainer and guide for safe and easy assembly
- pistons: die-cast aluminum alloy fitted with nylon bushing guides and Buna-N seals
- end caps: epoxy-coated die-cast aluminum alloy for maximum resistance to corrosive environments
- pinion: Electroless nickel plated carbon steel for maximum corrosion and wear resistance
- rotation adjustment: A full $\pm 5^\circ$ of travel adjustment in the open and closed positions, standard on all sizes
- solenoid interface: International NAMUR solenoid mounting interface is standard on all units
- indicator: A high visibility polyethylene indicator. Open/Close indication is standard on all models
- tested to 1 million cycles

Available in:

- air to open / air to close (ATO/ATC)
- air to open / spring to close (ATO/STC)
- spring to open / air to close (STO/ATC)

Specifications

- twin rack & pinion design
- female double square output shaft
- ISO 5211 bolt patterns
- piston and pinion lubrication: Shell Darina R2
- range of rotation adjustment: 80° to 100°
- operating media: dry or lubricated non-corrosive gas
- operating pressure: **40 to 120 PSI**
- maximum pressure rating: **150 PSI**
- temperature range: **-4°F to 200°F**
- FKM seal max temperature 350°F
- size range: 40 in. lb. 16,500 in. lb.

Double-Acting

| Part # | Weight (lbs.) | Volume | | | | ISO5211 |
|---------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------|
| | | Outboard | | Inboard | | |
| | | cm ³ | in ³ | cm ³ | in ³ | |
| RP-BA-012-DA | 2.24 | 77 | 4.70 | 80 | 4.88 | F04 |
| RP-BA-025-DA | 2.36 | 139 | 8.48 | 170 | 10.37 | F04 |
| RP-BA-025-DA5 | 2.36 | 139 | 8.48 | 170 | 10.37 | F05 |
| RP-BA-045-DA | 5.00 | 252 | 15.38 | 324 | 19.77 | F05 / F07 |
| RP-BA-101-DA | 8.70 | 495 | 30.21 | 708 | 43.20 | F05 / F07 |
| RP-BA-225-DA | 17.25 | 1163 | 70.97 | 1573 | 95.99 | F07 / F10 |
| RP-BA-365-DA | 14.80 | 2415 | 147.37 | 2673 | 163.12 | F10 / F12 |
| RP-BA-500-DA | 45.00 | 2863 | 174.71 | 3018 | 184.17 | F10 / F12 |

Spring Return

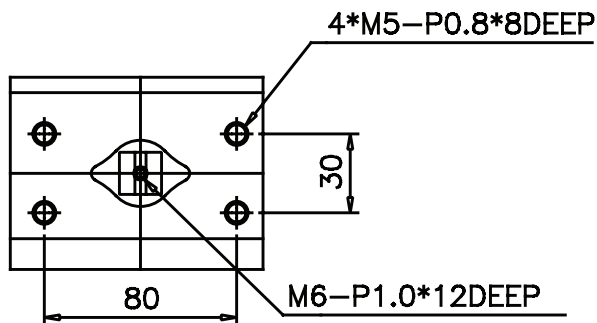
| Part # | Weight (lbs.) | Volume | | ISO 5211 |
|---------------|------------------|-----------------|-----------------|-----------|
| | | cm ³ | in ³ | |
| RP-BA-025-SR | 4.21 | 170 | 10.37 | F04 |
| RP-BA-025-SR5 | 4.21 | 170 | 10.37 | F05 |
| RP-BA-045-SR | 5.20 | 324 | 19.77 | F05 / F07 |
| RP-BA-101-SR | 11.45 | 708 | 43.20 | F05 / F07 |
| RP-BA-225-SR | 22.50 | 1573 | 95.99 | F07 / F10 |
| RP-BA-365-SR | 40.55 | 2673 | 163.12 | F10 / F12 |
| RP-BA-500-SR | 57.80 | 3018 | 184.17 | F10 / F12 |

Cycle Times

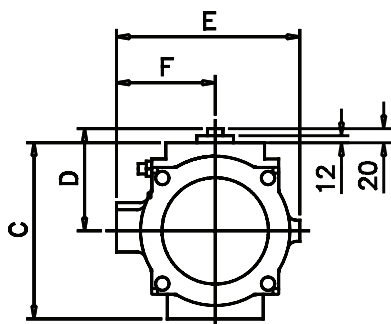
Overall cycle time performance will vary greatly for each unit. Cycle times are dependant on air supply, valve torque, line pressure, temperature and media. Please contact Dixon Sanitary for process specific cycle times.

RP-BA Series Aluminum Rack and Pinion Actuators

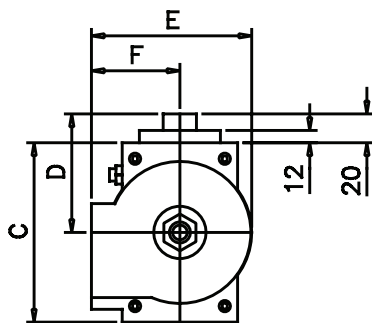
Dimensions
RP-BA-012 through 500-DA/SR



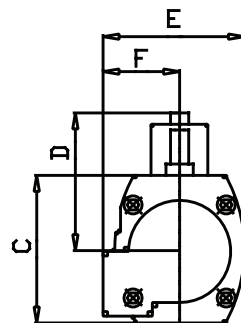
RP-BA-025 TO 500



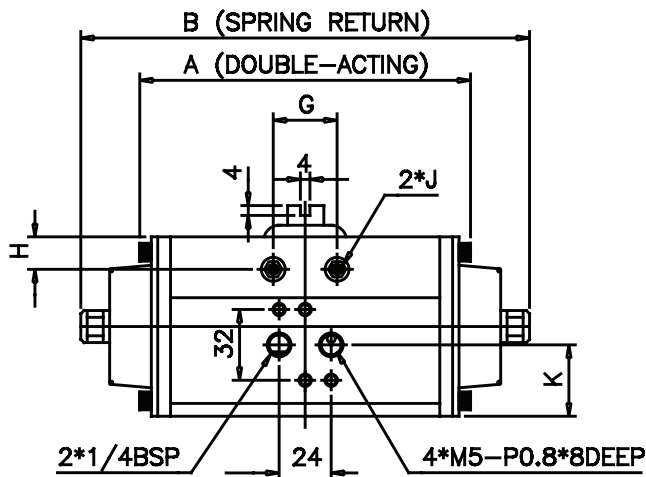
RP-BA-365 TO 500



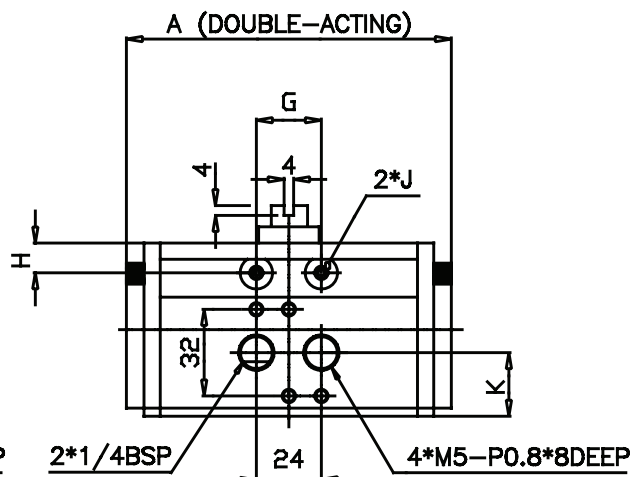
RP-BA-025 TO 225



RP-BA-012-DA



RP-BA-025 TO 500

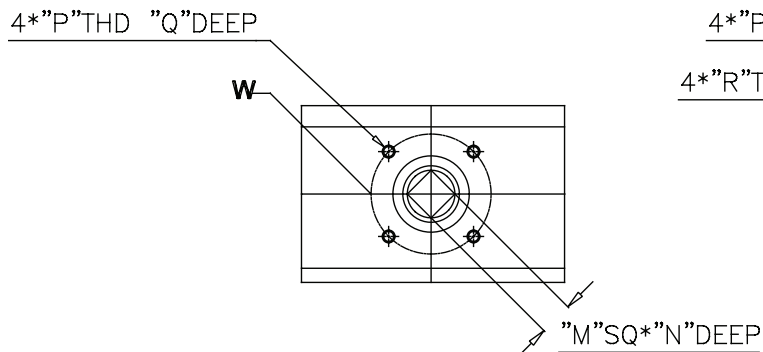


RP-BA-012-DA

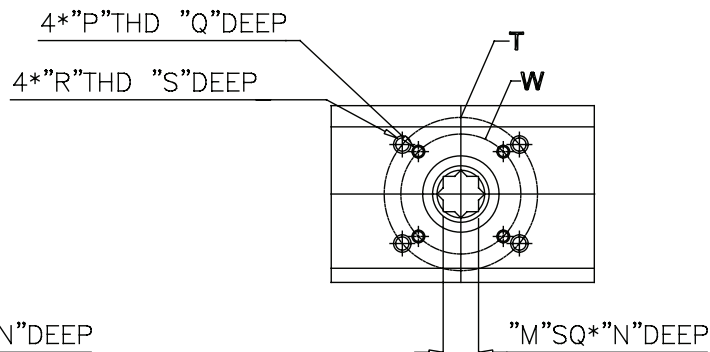
All dimensions are in mm, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.

RP-BA Series Aluminum Rack and Pinion Actuators

Dimensions RP-BA-012 through 500-DA/SR



RP-BA-012-DA



RP-BA-025 TO 500

| Part # | A | B | C | D | E | F | G | H | J | K | M | N | P | Q | R | S | T | W |
|-------------|-------|-------|-------|-------|-------|-------|------|------|-----------|------|------|------|----------|------|-----------|------|-------|-------|
| RP-BA-012 | 120.0 | N/A | 66.0 | 22.0 | 74.5 | 46.0 | 23.8 | 11.0 | M5xP0.8 | 23.5 | 9.0 | 10.5 | M5xP0.8 | 8.0 | N/A | N/A | N/A | 42.0 |
| RP-BA-025 * | 144.3 | 194.6 | 79 | 57.7 | 81.4 | 47.8 | 32.5 | 12.6 | M5xP0.8 | 29.7 | 11 | 17 | M5xP0.8 | 8 | M6xP1.0 | 10 | 50 | 42 |
| RP-BA-045 * | 149.2 | 205.6 | 98.0 | 67.4 | 95.0 | 51.5 | 32.5 | 13.8 | M6xP1.0 | 30.2 | 14.0 | 21.0 | M6xP1.0 | 10.0 | M8xP1.25 | 12.0 | 70.0 | 50.0 |
| RP-BA-101 * | 183.0 | 250.0 | 121.0 | 79.2 | 119.0 | 64.5 | 46.2 | 16.6 | M8xP1.25 | 33.5 | 17.0 | 25.5 | M6xP1.0 | 10.0 | M8xP1.25 | 12.0 | 70.0 | 50.0 |
| RP-BA-225 * | 259.6 | 355.0 | 141.0 | 89.5 | 140.5 | 75.5 | 54.0 | 18.6 | M10xP1.5 | 39.0 | 22.0 | 31.0 | M8xP1.25 | 12.0 | M10xP1.5 | 15.0 | 102.0 | 70.0 |
| RP-BA-365 * | 304.3 | 422.0 | 176.0 | 99.1 | 185.2 | 105.5 | 79.7 | 27.3 | M12xP1.75 | 97.4 | 27.0 | 35.0 | M10xP1.5 | 15.0 | M12xP1.75 | 19.0 | 125.0 | 102.0 |
| RP-BA-500 * | 364.4 | 487.0 | 196.0 | 116.5 | 204.8 | 107.8 | 79.4 | 28.3 | M12xP1.75 | 99.0 | 27.0 | 35.0 | M10xP1.5 | 15.0 | M12xP1.75 | 19.0 | 125.0 | 102.0 |

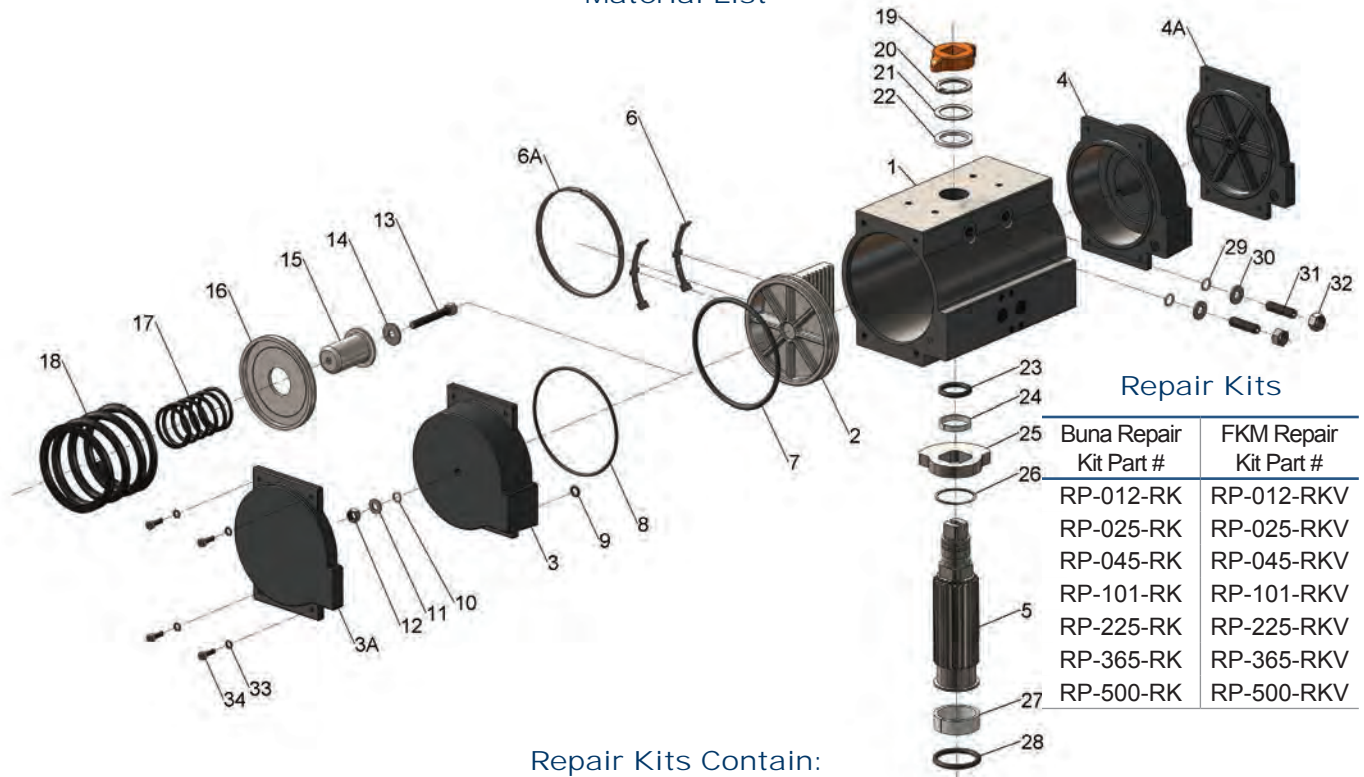
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* -SR (spring return)
-DA (double acting)

All dimensions are in mm, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.

Aluminum Rack and Pinion Actuators

Material List



Repair Kits Contain:

| Item | Description | Material | Quantity | | Item | Description | Material | Quantity | |
|------|----------------|-------------|----------|----------|------|-------------|-------------|----------|----|
| | | | DA | SR | | | | DA | SR |
| 6 | piston bearing | nylon | 2 or 4* | 2 or 4* | 22 | bearing | nylon | 1 | 1 |
| 6A | piston bearing | nylon | 0 or 2** | 0 or 2** | 23 | O-Ring | Buna or FKM | 1 | 1 |
| 7 | O-ring | Buna or FKM | 2 | 2 | 24 | bearing | nylon | 1 | 1 |
| 8 | O-ring | Buna or FKM | 2 | 2 | 27 | bearing | Buna or FKM | 1 | 1 |
| 9 | O-ring | Buna or FKM | 2 | 2 | 28 | O-Ring | Buna or FKM | 1 | 1 |
| 10 | O-ring | Buna or FKM | n/a | 2 | 29 | O-Ring | Buna or FKM | 2 | 2 |

| Item | Description | Material | Quantity | | Item | Description | Material | Quantity | |
|------|-----------------|-------------------------|----------|----------|------|--------------------|--------------------|----------|----|
| | | | DA | SR | | | | DA | SR |
| 1 | body | anodized aluminum alloy | 1 | 1 | 17 | spring (inner) | high tensile steel | n/a | 2 |
| 2 | piston | die-cast aluminum alloy | 2 | 2 | 18 | spring (outer) | high tensile steel | n/a | 2 |
| 3 | end cap (left) | die-cast aluminum alloy | n/a | 1 | 19 | position indicator | polyethylene | 1 | 1 |
| 3A | end cap (left) | die-cast aluminum alloy | 1 | n/a | 20 | snap ring | 304SS | 1 | 1 |
| 4 | end cap (right) | die-cast aluminum alloy | n/a | 1 | 21 | washer | 304SS | 1 | 1 |
| 4A | end cap (right) | die-cast aluminum alloy | 1 | n/a | 22 | bearing | nylon | 1 | 1 |
| 5 | pinion | carbon steel | 1 | 1 | 23 | o-ring | Buna or FKM | 1 | 1 |
| 6 | piston bearing | nylon | 2 or 4* | 2 or 4* | 24 | bearing | nylon | 1 | 1 |
| 6A | piston bearing | nylon | 0 or 2** | 0 or 2** | 25 | stop cam | carbon steel | 1 | 1 |
| 7 | O-ring | Buna or FKM | 2 | 2 | 26 | retaining ring | 304SS | 1 | 1 |
| 8 | O-ring | Buna or FKM | 2 | 2 | 27 | bearing | Buna or FKM | 1 | 1 |
| 9 | O-ring | Buna or FKM | 2 | 2 | 28 | O-ring | Buna or FKM | 1 | 1 |
| 10 | O-ring | Buna or FKM | n/a | 2 | 29 | O-ring | Buna or FKM | 2 | 2 |
| 11 | washer | 304SS | n/a | 2 | 30 | washer | 304SS | 2 | 2 |
| 12 | nut | 304SS | n/a | 2 | 31 | stop screw | 304SS | 2 | 2 |
| 13 | screw | 304SS | n/a | 2 | 32 | nut | 304SS | 2 | 2 |
| 14 | washer | 304SS | n/a | 2 | 33 | spring washer | 304SS | 8 | 8 |
| 15 | spring guide | 304SS | n/a | 2 | 34 | cap screw | 304SS | 8 | 8 |
| 16 | retainer | 304SS | n/a | 2 | | | | | |

* Quantity 4 for sizes 012 to 101, Quantity 2 for sizes 225 to 500

** Quantity 0 for sizes 012 to 101, Quantity 2 for sizes 225 to 500

RP-BA Series Aluminum Rack and Pinion Actuators

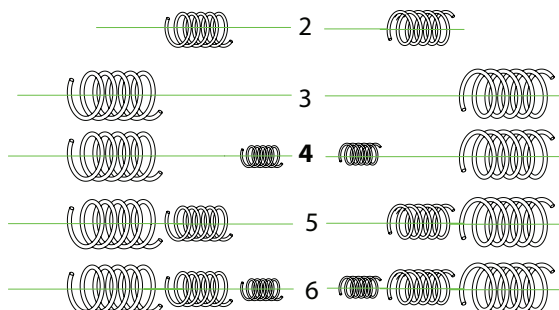
Technical Data Torque Ratings for Double Acting Actuator (in. lb.)

| Part # | 40 PSI | 60 PSI | 80 PSI | 100 PSI | 120 PSI |
|--------------|--------|--------|--------|---------|---------|
| RP-BA-012-DA | 63 | 94 | 125 | 156 | 188 |
| RP-BA-025-DA | 125 | 187 | 250 | 312 | 375 |
| RP-BA-045-DA | 225 | 337 | 450 | 562 | 675 |
| RP-BA-101-DA | 500 | 750 | 1000 | 1250 | 1500 |
| RP-BA-225-DA | 1125 | 1687 | 2250 | 2812 | 3375 |
| RP-BA-365-DA | 1825 | 2738 | 3650 | 4563 | 5475 |
| RP-BA-500-DA | 2500 | 3750 | 5000 | 6250 | 7500 |

Torque Ratings for Spring Return Actuator (in. lb.)

| Part # | Spring Set | Spring Torque | | Air Torque | | | | | | | | | |
|--------------|------------|---------------|-------------|------------|-----|-------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | Start | End | 40 PSI | | 60 PSI | | 80 PSI | | 100 PSI | | 120 PSI | |
| | | | | Start | End | Start | End | Start | End | Start | End | Start | End |
| RP-BA-025-SR | 2 | 69 | 45 | 76 | 47 | 138 | 109 | 201 | 172 | 263 | 234 | 326 | 312 |
| | 3 | 104 | 67 | | | 113 | 70 | 176 | 133 | 229 | 195 | 301 | 258 |
| | 4 | 140 | 90 | | | 88 | 31 | 151 | 93 | 213 | 156 | 276 | 218 |
| | 5 | 175 | 112 | | | | | 126 | 54 | 189 | 116 | 251 | 179 |
| | 6 | 209 | 135 | | | | | | | 164 | 77 | 227 | 139 |
| RP-BA-045-SR | 2 | 126 | 81 | 135 | 83 | 248 | 196 | 361 | 309 | 473 | 421 | 586 | 533 |
| | 3 | 190 | 121 | | | 203 | 125 | 316 | 238 | 428 | 350 | 541 | 463 |
| | 4 | 254 | 162 | | | 158 | 54 | 271 | 167 | 383 | 279 | 496 | 392 |
| | 5 | 317 | 202 | | | | | 226 | 96 | 339 | 209 | 451 | 321 |
| | 6 | 381 | 243 | | | | | | | 293 | 137 | 406 | 251 |
| RP-BA-101-SR | 2 | 279 | 179 | 300 | 184 | 549 | 433 | 798 | 682 | 1048 | 931 | 1297 | 1181 |
| | 3 | 418 | 270 | | | 449 | 278 | 698 | 526 | 947 | 775 | 1196 | 1025 |
| | 4 | 559 | 360 | | | 350 | 120 | 599 | 371 | 848 | 618 | 1097 | 867 |
| | 5 | 698 | 450 | | | | | 500 | 212 | 749 | 464 | 998 | 710 |
| | 6 | 839 | 540 | | | | | | | 650 | 304 | 899 | 557 |
| RP-BA-225-SR | 2 | 659 | 394 | 690 | 395 | 1253 | 958 | 1816 | 1521 | 2379 | 2084 | 2939 | 2647 |
| | 3 | 990 | 590 | | | 1034 | 591 | 1596 | 1154 | 2159 | 1717 | 2722 | 2280 |
| | 4 | 1320 | 787 | | | 816 | 226 | 1379 | 788 | 2029 | 1351 | 2505 | 1914 |
| | 5 | 1650 | 984 | | | | | 1161 | 424 | 1724 | 984 | 2287 | 1549 |
| | 6 | 1980 | 1181 | | | | | | | 1506 | 621 | 2069 | 1181 |
| RP-BA-365-SR | 2 | 1053 | 607 | 1152 | 659 | 2063 | 1570 | 2975 | 2482 | 3886 | 3393 | 4797 | 4305 |
| | 3 | 1573 | 912 | | | 1726 | 996 | 2637 | 1907 | 3549 | 2819 | 4460 | 3730 |
| | 4 | 2091 | 1217 | | | 1388 | 423 | 2300 | 1335 | 3211 | 2246 | 4123 | 3157 |
| | 5 | 2625 | 1519 | | | | | 1967 | 744 | 2878 | 1655 | 3789 | 2566 |
| | 6 | 3144 | 1824 | | | | | | | 2540 | 1082 | 3452 | 1994 |
| RP-BA-500-SR | 2 | 1560 | 785 | 1590 | 803 | 2780 | 1990 | 3970 | 3180 | 5160 | 4380 | 6350 | 5570 |
| | 3 | 2340 | 1180 | | | 2380 | 1200 | 3570 | 2400 | 4760 | 3590 | 5960 | 4780 |
| | 4 | 3130 | 1570 | | | 1980 | 414 | 3180 | 1600 | 4370 | 2800 | 5560 | 3990 |
| | 5 | 3910 | 1960 | | | | | 2780 | 815 | 3970 | 2010 | 5160 | 3200 |
| | 6 | 4690 | 2360 | | | | | | | 3570 | 1220 | 4760 | 2410 |

Note: Spring set 4 is standard on all sizes



RP-MA Series 180° Aluminum Rack and Pinion Actuators

Available in:

- air to open / air to close (ATO/ATC)
- air to open / spring to close (ATO/STC)
- spring to open / air to close (STO/ATC)



Features and Benefits

- NAMUR VDI/VDE 3845 and ISO 5211 dimensions on all sizes, no special blocks are required to mount solenoid valves, limit switches or positioners.
- The standard angle of rotation is 180°, additional travel rotations of 120°, 135°, 150° are available.
- MA016 and larger sizes feature a travel stop with $\pm 10^\circ$ adjustment in both open and close directions (International Patent).
- The patent pending bottom plate design, unique to Dixon Sanitary secures a captive pinion (anti-blowout system) and permits flexibility in mounting by retaining AISI 304 nuts (standard) or AISI 304 bolts (optional). Available in either dual ISO patterns or to customer dimensions.
- All pinions are supplied with anti-blowout retention in both directions.
- The female pinion drive is standard with a double square output drive and optional with a double-D drive, keyed drive and designs to meet your specific requirements.
- Shaft bearings isolate the pinion gear from the housing and support the shaft for high cycle applications.
- The pinion teeth are engaged for the full length and stroke of the piston. The pinion height allows manual override without disturbing the position indication.
- Extruded aluminum body is internally machined and lapped to exact specifications. All internal and external surfaces are anodized for corrosion resistance.
- For additional corrosion resistance actuator can be epoxy coated.
- An external open/closed indicator is standard and available for all rotations.
- Pistons incorporate double wear pads to separate the rack from the actuator wall and serve as both guide and wear bearings.
- Epoxy coated special steel springs are pre-loaded with non-metallic materials. The stainless steel end cap fasteners are extra long to allow for spring relaxation, all parts are corrosion resistant.
- Air pressure operation from 40 to 150 PSI. Water, nitrogen and compatible hydraulic fluids may be used to power the actuator.
- All external fasteners are corrosion resistant stainless steel.
- All units are permanently lubricated at the factory with non-silicone grease.
- All units are externally stamped with a progressive traceable serial number.
- 100% of all units are factory pressure and leak tested.

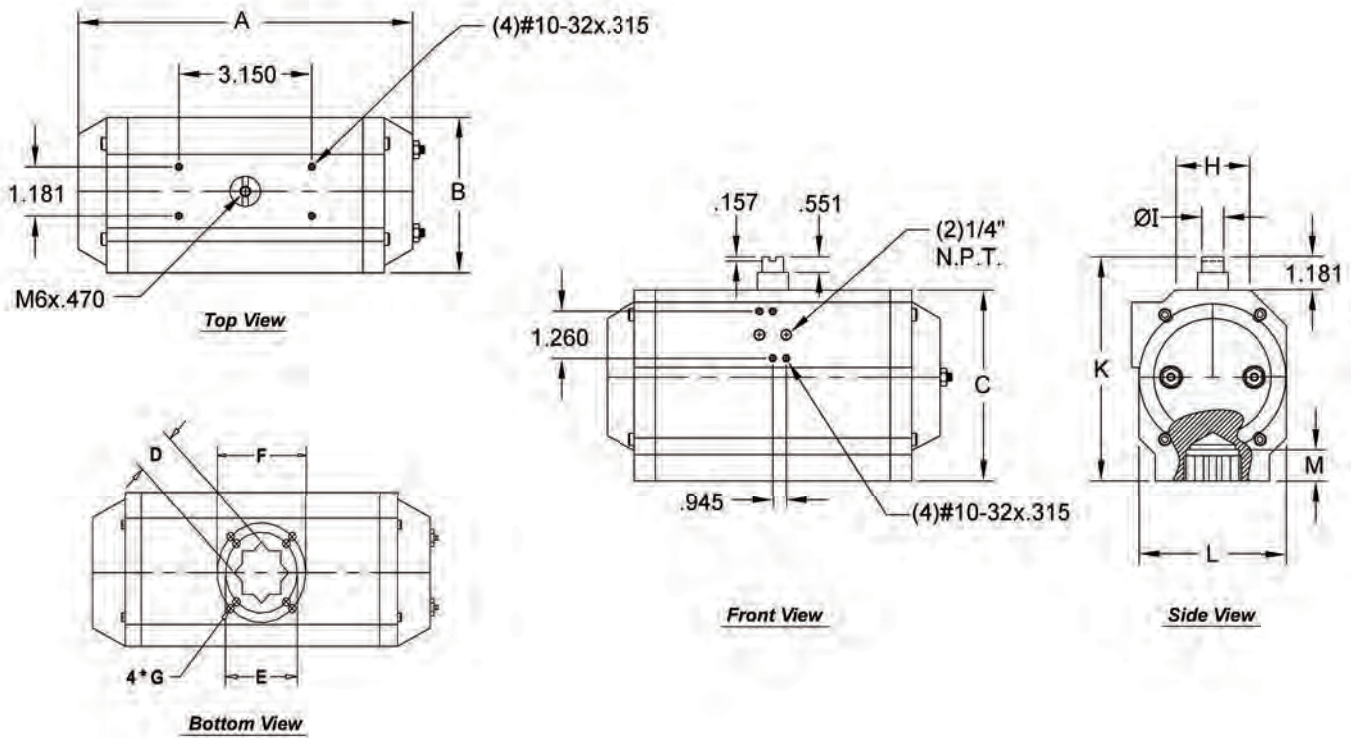
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Specifications

- twin rack and pinion design
- female double square output shaft
- ISO 5211 bolt patterns
- piston and pinion lubrication: non-silicone grease
- range of rotation adjustment: 170° to 190°
- operating media: dry or lubricated non-corrosive gas
- operating pressure: **40 to 120 PSI**
- maximum pressure rating: **150 PSI**
- temperature range: **-40°F to 176°F**

RP-MA Series 180° Aluminum Rack and Pinion Actuators

Dimensions Double Acting

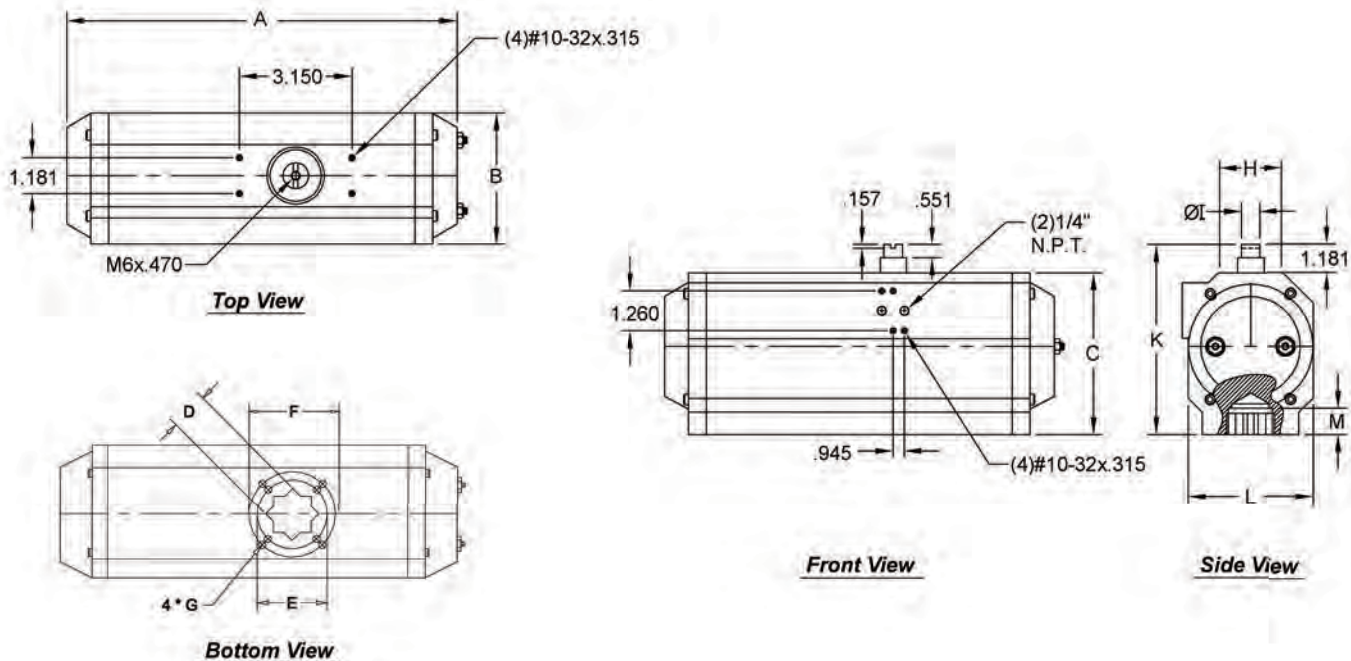


| Part # | A | B | C | D (mm) | E | F | G | H | I | K | L | M |
|--------------|------|-----|-----|--------|-----|-----|----------|-----|-----|-----|-----|-----|
| RP-MA-012-DA | 4.7 | 2.6 | 2.8 | 11 | N/A | F04 | 10 - 32 | 1.9 | 0.5 | 4.0 | 2.1 | 0.5 |
| RP-MA-016-DA | 9.2 | 3.3 | 3.5 | 14 | N/A | F05 | 1/4"-20 | 1.7 | 0.5 | 4.8 | 2.8 | 0.7 |
| RP-MA-017-DA | 10.8 | 3.3 | 3.5 | 14 | N/A | F05 | 1/4"-20 | 1.7 | 0.5 | 4.8 | 2.8 | 0.8 |
| RP-MA-021-DA | 9.9 | 3.8 | 4.5 | 17 | N/A | F07 | 5/16"-18 | 1.8 | 0.6 | 5.6 | 3.4 | 0.9 |
| RP-MA-026-DA | 13.0 | 3.8 | 4.4 | 17 | N/A | F07 | 5/16"-18 | 1.8 | 0.8 | 5.6 | 3.4 | 0.9 |
| RP-MA-031-DA | 13.0 | 4.5 | 5.2 | 17 | N/A | F07 | 5/16"-18 | 2.3 | 0.8 | 6.4 | 4.1 | 0.9 |
| RP-MA-036-DA | 13.7 | 5.4 | 6.5 | 22 | F07 | F10 | 5/16"-18 | 2.6 | 0.8 | 7.7 | 5.2 | 1.2 |
| RP-MA-041-DA | 15.8 | 5.4 | 6.5 | 22 | F07 | F10 | 5/16"-18 | 2.6 | 1.1 | 7.7 | 5.2 | 1.2 |
| RP-MA-046-DA | 20.0 | 5.9 | 7.0 | 22 | F07 | F10 | 5/16"-18 | 3.0 | 1.1 | 8.2 | 5.7 | 1.2 |
| RP-MA-051-DA | 19.6 | 7.3 | 8.5 | 27 | N/A | F12 | 1/2"-13 | 4.0 | 1.1 | 9.8 | 7.2 | 1.5 |
| RP-MA-056-DA | 23.9 | 7.3 | 8.5 | 27 | N/A | F12 | 1/2"-13 | 4.0 | 1.1 | 9.8 | 7.2 | 1.5 |

All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.

RP-MA Series 180° Aluminum Rack and Pinion Actuators

Dimensions Spring Return



| Part # | A | B | C | D (mm) | E | F | G | H | I | K | L | M |
|--------------|------|-----|-----|--------|-----|-----|----------|-----|-----|-----|-----|-----|
| RP-MA-015-SR | 10.9 | 3.4 | 3.5 | 14 | N/A | F05 | 1/4"-20 | 1.7 | 0.5 | 4.0 | 2.1 | 0.5 |
| RP-MA-017-SR | 12.8 | 3.4 | 3.5 | 14 | N/A | F05 | 1/4"-20 | 1.7 | 0.5 | 4.8 | 2.8 | 0.7 |
| RP-MA-020-SR | 11.7 | 3.8 | 4.4 | 17 | N/A | F07 | 5/16"-18 | 1.8 | 0.5 | 4.8 | 2.8 | 0.8 |
| RP-MA-025-SR | 15.5 | 3.8 | 4.4 | 17 | N/A | F07 | 5/16"-18 | 1.8 | 0.6 | 5.6 | 3.4 | 0.9 |
| RP-MA-030-SR | 15.2 | 4.5 | 5.2 | 17 | N/A | F07 | 5/16"-18 | 2.3 | 0.8 | 5.6 | 3.4 | 0.9 |
| RP-MA-035-SR | 16.0 | 5.4 | 6.5 | 22 | F07 | F10 | 5/16"-18 | 2.6 | 0.8 | 6.4 | 4.1 | 0.9 |
| RP-MA-040-SR | 18.8 | 5.4 | 6.5 | 22 | F07 | F10 | 5/16"-18 | 2.6 | 0.8 | 7.7 | 5.2 | 1.2 |
| RP-MA-045-SR | 23.2 | 6.0 | 7.0 | 22 | F07 | F10 | 5/16"-18 | 3.0 | 1.1 | 7.7 | 5.2 | 1.2 |
| RP-MA-050-SR | 23.4 | 7.3 | 7.0 | 27 | N/A | F12 | 1/2"-13 | 4.0 | 1.1 | 8.2 | 5.7 | 1.2 |
| RP-MA-055-SR | 27.7 | 7.3 | 8.5 | 27 | N/A | F12 | 1/2"-13 | 4.0 | 1.1 | 9.8 | 7.2 | 1.5 |

All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.

Technical Data

Torque Ratings for Double Acting Actuator (in. lb.)

| Part # | 40 PSI | 60 PSI | 80 PSI | 100 PSI | 120 PSI |
|--------------|--------|--------|--------|---------|---------|
| RP-MA-012-DA | 62 | 94 | 125 | 156 | 187 |
| RP-MA-016-DA | 137 | 206 | 275 | 344 | 412 |
| RP-MA-017-DA | 180 | 270 | 360 | 450 | 540 |
| RP-MA-021-DA | 250 | 375 | 500 | 625 | 750 |
| RP-MA-026-DA | 375 | 562 | 750 | 937 | 1125 |
| RP-MA-031-DA | 500 | 750 | 1000 | 1250 | 1500 |
| RP-MA-036-DA | 800 | 1200 | 1600 | 2000 | 2400 |
| RP-MA-041-DA | 1000 | 1500 | 2000 | 2500 | 3000 |
| RP-MA-046-DA | 1562 | 2344 | 3125 | 3906 | 4687 |
| RP-MA-051-DA | 2250 | 3375 | 4500 | 5625 | 6750 |
| RP-MA-056-DA | 3000 | 4500 | 6000 | 7500 | 9000 |

RP-MA Series 180° Aluminum Rack and Pinion Actuators

Technical Data

Torque Ratings for Spring Return Actuator (in. lb.)

| Part # | Springs set | Spring Torque | | Air Torque | | | | | | | | | |
|--------------|-------------|---------------|-------------|------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | Start | End | 40 PSI | | 60 PSI | | 80 PSI | | 100 PSI | | 120 PSI | |
| | | | | Start | End | Start | End | Start | End | Start | End | Start | End |
| RP-MA-015-SR | 2+2 | 75 | 53 | 84 | 62 | 153 | 131 | 222 | 200 | 291 | 269 | 359 | 337 |
| | 3+3 | 112 | 81 | 56 | 25 | 125 | 94 | 194 | 163 | 263 | 232 | 331 | 300 |
| | 4+4 | 150 | 107 | | | 99 | 56 | 168 | 125 | 237 | 194 | 305 | 262 |
| | 5+5 | 187 | 134 | | | 72 | 19 | 141 | 88 | 210 | 157 | 278 | 225 |
| | 7+5 | 224 | 160 | | | | | 115 | 51 | 184 | 120 | 252 | 188 |
| RP-MA-017-SR | 2+2 | 93 | 64 | 116 | 87 | 206 | 177 | 296 | 267 | 386 | 357 | 476 | 447 |
| | 3+3 | 139 | 96 | 84 | 41 | 174 | 131 | 264 | 221 | 354 | 311 | 444 | 401 |
| | 4+4 | 185 | 128 | | | 142 | 85 | 232 | 175 | 322 | 265 | 412 | 355 |
| | 5+5 | 232 | 160 | | | 110 | 38 | 200 | 128 | 290 | 218 | 380 | 308 |
| | 7+5 | 278 | 192 | | | | | 168 | 82 | 258 | 172 | 348 | 262 |
| RP-MA-020-SR | 2+2 | 122 | 92 | 158 | 128 | 283 | 253 | 408 | 378 | 533 | 503 | 658 | 628 |
| | 3+3 | 184 | 138 | 112 | 66 | 237 | 191 | 362 | 316 | 487 | 441 | 612 | 566 |
| | 4+4 | 245 | 184 | 66 | 5 | 191 | 130 | 316 | 255 | 441 | 380 | 566 | 505 |
| | 5+5 | 307 | 230 | | | 145 | 68 | 270 | 193 | 395 | 318 | 520 | 443 |
| | 7+5 | 369 | 278 | | | 97 | 6 | 222 | 131 | 347 | 256 | 472 | 381 |
| RP-MA-025-SR | 2+2 | 196 | 124 | 251 | 179 | 438 | 366 | 626 | 554 | 813 | 741 | 1001 | 929 |
| | 3+3 | 294 | 185 | 190 | 81 | 377 | 268 | 565 | 456 | 752 | 643 | 940 | 831 |
| | 4+4 | 392 | 247 | | | 315 | 170 | 503 | 358 | 690 | 545 | 878 | 733 |
| | 5+5 | 490 | 309 | | | 253 | 72 | 441 | 260 | 628 | 447 | 816 | 635 |
| | 7+5 | 588 | 372 | | | | | 378 | 162 | 565 | 349 | 753 | 537 |
| RP-MA-030-SR | 2+2 | 251 | 187 | 313 | 249 | 563 | 499 | 813 | 749 | 1063 | 999 | 1313 | 1249 |
| | 3+3 | 376 | 280 | 220 | 123 | 470 | 374 | 720 | 624 | 970 | 874 | 1220 | 1124 |
| | 4+4 | 502 | 374 | | | 376 | 248 | 626 | 498 | 876 | 748 | 1126 | 998 |
| | 5+5 | 627 | 467 | | | 283 | 123 | 533 | 373 | 783 | 623 | 1033 | 873 |
| | 7+5 | 753 | 560 | | | | | 440 | 247 | 690 | 497 | 940 | 747 |
| RP-MA-035-SR | 2+2 | 412 | 306 | 494 | 388 | 894 | 788 | 1294 | 1188 | 1694 | 1588 | 2094 | 1988 |
| | 3+3 | 617 | 461 | 339 | 183 | 739 | 583 | 1139 | 983 | 1539 | 1383 | 1939 | 1783 |
| | 4+4 | 824 | 614 | | | 586 | 376 | 986 | 776 | 1386 | 1176 | 1786 | 1576 |
| | 5+5 | 1029 | 767 | | | 433 | 171 | 833 | 571 | 1233 | 971 | 1633 | 1371 |
| | 7+5 | 1236 | 921 | | | | | 679 | 364 | 1079 | 764 | 1479 | 1164 |
| RP-MA-040-SR | 2+2 | 505 | 371 | 629 | 495 | 1129 | 995 | 1629 | 1495 | 2129 | 1995 | 2629 | 2495 |
| | 3+3 | 757 | 556 | 444 | 243 | 944 | 743 | 1444 | 1243 | 1944 | 1743 | 2444 | 2243 |
| | 4+4 | 1011 | 741 | | | 759 | 489 | 1259 | 989 | 1759 | 1489 | 2259 | 1989 |
| | 5+5 | 1263 | 929 | | | 572 | 237 | 1072 | 737 | 1572 | 1237 | 2072 | 1737 |
| | 7+5 | 1516 | 1113 | | | | | 887 | 484 | 1387 | 984 | 1887 | 1484 |
| RP-MA-045-SR | 2+2 | 890 | 560 | 1002 | 672 | 1784 | 1454 | 2565 | 2235 | 3346 | 3016 | 4127 | 3797 |
| | 3+3 | 1334 | 840 | 722 | 228 | 1504 | 1010 | 2285 | 1791 | 3066 | 2572 | 3847 | 3353 |
| | 4+4 | 1779 | 1120 | | | 1224 | 565 | 2005 | 1346 | 2786 | 2127 | 3567 | 2908 |
| | 5+5 | 2224 | 1399 | | | 945 | 120 | 1726 | 901 | 2507 | 1682 | 3288 | 2463 |
| | 7+5 | 2669 | 1679 | | | | | 1446 | 456 | 2227 | 1237 | 3008 | 2018 |
| RP-MA-050-SR | 2+2 | 1101 | 869 | 1381 | 1149 | 2506 | 2274 | 3631 | 3399 | 4756 | 4524 | 5881 | 5649 |
| | 3+3 | 1652 | 1304 | 946 | 598 | 2071 | 1723 | 3196 | 2848 | 4321 | 3973 | 5446 | 5098 |
| | 4+4 | 2203 | 1738 | 512 | 47 | 1637 | 1172 | 2762 | 2297 | 3887 | 3422 | 5012 | 4547 |
| | 5+5 | 2754 | 2173 | | | 1202 | 621 | 2327 | 1746 | 3452 | 2871 | 4577 | 3996 |
| | 7+5 | 3303 | 2607 | | | 768 | 72 | 1893 | 1197 | 308 | 2322 | 4143 | 3447 |
| RP-MA-055-SR | 2+2 | 1487 | 1055 | 1945 | 1513 | 3445 | 3013 | 4945 | 4513 | 6445 | 6013 | 7945 | 7513 |
| | 3+3 | 2231 | 1583 | 1417 | 769 | 2917 | 2269 | 4417 | 3769 | 5917 | 5269 | 7417 | 6769 |
| | 4+4 | 2974 | 2111 | 889 | 26 | 2389 | 1526 | 3889 | 3026 | 5389 | 4526 | 6889 | 6026 |
| | 5+5 | 3718 | 2638 | | | 1862 | 782 | 3362 | 2282 | 4862 | 3782 | 6362 | 5282 |
| | 7+5 | 4462 | 3166 | | | 1334 | 38 | 2834 | 1538 | 4334 | 3038 | 5834 | 4538 |

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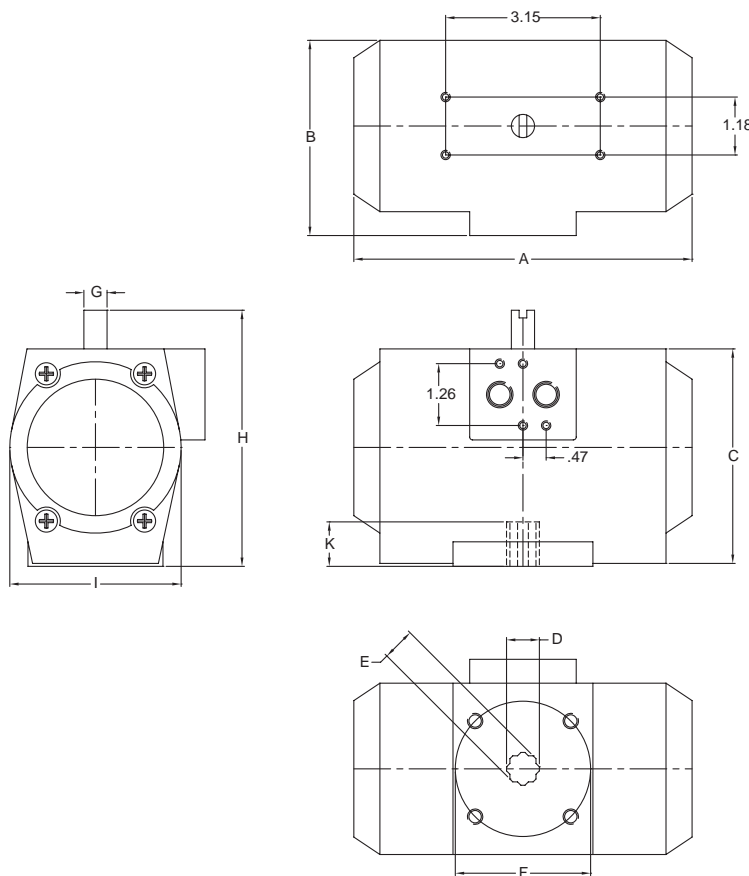
RP-TP Series Technopolymer Actuators

Features and Benefits

- Designed to withstand most environments with 3 different sizes for your corrosive environmental applications.
- Double Acting or Spring Return housings are available in a polyamide base material utilizing high cycle life spring cartridges made with non-metallic materials.
- Pinions are blow out proof ensuring safe and effective operation.
- All pinions and fasteners are made from high quality stainless steel.
- All actuators come with an ISO 5211 female output drive.
- Have the ability to add a NAMUR mountable solenoid and a limit switch box.
- air, hydraulic oil or water, minimum of **40 PSI** and maximum of **120 PSI**
- standard working temperature range of **-4°F to 176°F**
- all actuators are 100% tested before shipping



Dimensions



| Part # | A | B | C | D (mm) | E (mm) | F | G | H | I | K |
|-------------|------|------|------|--------|--------|-----|-----|------|------|-----|
| RP-TP-011-* | 4.69 | 2.64 | 2.76 | 11 | 11 | F04 | .47 | 3.58 | 2.09 | .49 |
| RP-TP-014-* | 6.30 | 3.39 | 3.54 | 14 | 14 | F05 | .47 | 4.37 | 2.76 | .75 |
| RP-TP-019-* | 6.89 | 3.98 | 4.39 | 17 | 17 | F07 | .47 | 5.22 | 2.76 | .91 |

* SR (spring return); DA (double acting)

*All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.*

RP-TP Series Technopolymer Actuators

Torque Ratings for Double Acting Actuators

| Part # | 40 PSI | 60 PSI | 80 PSI | 100 PSI | 120 PSI |
|--------------|--------|--------|--------|---------|---------|
| RP-TP-011-DA | 62 | 94 | 125 | 156 | 187 |
| RP-TP-014-DA | 137 | 206 | 275 | 344 | 412 |
| RP-TP-019-DA | 250 | 375 | 500 | 625 | 750 |

Torque Ratings for Spring Return

| Part # | Position #1 Spring Torque | | | Position #2 Air Torque | | | | | |
|--------------|------------------------------|---------------|-----|---------------------------|-----|--------|-----|---------|-----|
| | # Springs | Spring Torque | | 60 PSI | | 80 PSI | | 100 PSI | |
| | | Start | End | Start | End | Start | End | Start | End |
| RP-TP-011-SR | 1+1 | 33 | 22 | 72 | 61 | 103 | 92 | 134 | 123 |
| | 2+2 | 66 | 44 | 50 | 28 | 81 | 59 | 112 | 90 |
| | 3+3 | 99 | 66 | n/a | n/a | 58 | 27 | 90 | 66 |
| RP-TP-014-SR | 2+2 | 75 | 53 | 153 | 131 | 222 | 200 | 291 | 269 |
| | 3+3 | 112 | 81 | 125 | 94 | 194 | 163 | 263 | 232 |
| | 4+4 | 150 | 107 | 99 | 56 | 168 | 125 | 237 | 194 |
| | 5+5 | 187 | 134 | 72 | 19 | 141 | 88 | 210 | 157 |
| | 7+5 | 224 | 160 | n/a | n/a | 115 | 51 | 184 | 120 |
| RP-TP-019-SR | 2+2 | 122 | 92 | 283 | 253 | 408 | 378 | 533 | 503 |
| | 3+3 | 184 | 138 | 237 | 191 | 362 | 316 | 487 | 441 |
| | 4+4 | 245 | 184 | 191 | 130 | 316 | 255 | 441 | 380 |
| | 5+5 | 307 | 230 | 145 | 68 | 270 | 193 | 395 | 318 |
| | 7+5 | 369 | 278 | 97 | 6 | 222 | 131 | 347 | 256 |

Coupler Kit for Rack and Pinion Actuators

Feature:

- for mounting a rack and pinion actuator to the B5101 and B5104 series butterfly valves.


Rack and Pinion BFV Actuation Kits

| Size | Series | Part # |
|--------------|--------|-----------------|
| 1/2" - 1½" | B5101 | B5101-ISO100150 |
| 2" - 2½" | B5101 | B5101-ISO200250 |
| 3" - 4" | B5101 | B5101-ISO300400 |
| 6" | B5101 | B5101-ISO600 |
| 8" | B5101 | B5101-ISO800 |
| 1", 1½", 2½" | B5104 | B5104-ISO100250 |
| 2", 3" | B5104 | B5104-ISO200300 |
| 4" | B5104 | B5104-ISO400 |

For 1/2" - 6" Valves

| Item | Description | Material | Qty |
|------|---------------|----------|-----|
| 1 | brackets | 304 SS | 2 |
| 2 | coupler | 304 SS | 1 |
| 3 | bracket bolts | 304 SS | 2 |
| 4 | roll pin | 304 SS | 1 |

For 8" Valves

| Item | Description | Material | Qty |
|------|---------------|----------|-----|
| 1 | brackets | 304 SS | 1 |
| 3 | Bracket bolts | 304 SS | 2 |

M

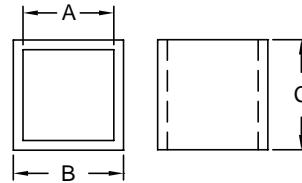
Actuator Sleeve Inserts

Features and Benefits

- Fits all pneumatic actuators
- Reduces actuator ISO 5211 output drive for direct assembly with smaller square valve stems and couplers
- Double square sleeve – high strength iron-based powdered metal
- Square sleeves – 304SS
- Multiple size reductions possible with one sleeve



Square Design

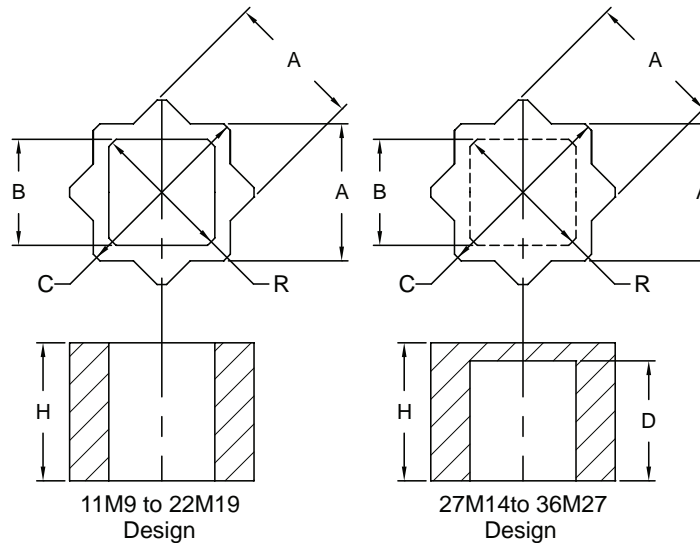


| | XB51-SVA 11/14 | XB51-SVB 14/17 | XB51-SVC 17/22 | XB51-SVD 9/11 | XB51-SVE 22/27 |
|---|-------------------|-------------------|-------------------|------------------|-------------------|
| A | 11 | 14 | 17 | 9 | 22 |
| B | 14 | 17 | 22 | 11 | 27 |
| C | 16 | 17 | 22 | 11 | 27 |

M



Star Design



| Insert Part Number | A | B | C | D | H | R |
|--------------------|----|----|------|------|------|------|
| XB51-STVD | 11 | 9 | 15.0 | N/A | 17.0 | 12.5 |
| XB51-SVH | 14 | 9 | 19.1 | N/A | 20.0 | 12.5 |
| XB51-STVA | 14 | 11 | 19.1 | N/A | 20.0 | 14.5 |
| XB51-SVQ | 17 | 9 | 23.1 | N/A | 24.0 | 12.5 |
| XB51-SVI | 17 | 11 | 23.1 | N/A | 24.0 | 14.5 |
| XB51-STVB | 17 | 14 | 23.1 | N/A | 24.0 | 19.2 |
| XB51-SVJ | 22 | 11 | 29.6 | N/A | 30.0 | 14.5 |
| XB51-SVK | 22 | 14 | 29.6 | N/A | 30.0 | 19.2 |
| XB51-STVC | 22 | 17 | 29.6 | N/A | 30.0 | 23.3 |
| XB51-SVR | 22 | 19 | 29.6 | N/A | 30.0 | 25.8 |
| XB51-SVL | 27 | 14 | 36.0 | 27.0 | 29.0 | 19.2 |
| XB51-SVM | 27 | 17 | 36.0 | 27.0 | 29.0 | 23.3 |
| XB51-STVE | 27 | 22 | 36.0 | 27.0 | 29.0 | 30.0 |
| XB51-STS | 36 | 19 | 48.0 | 33.0 | 35.0 | 25.8 |
| XB51-SVP | 36 | 27 | 48.0 | 33.0 | 35.0 | 37.0 |

Electric Actuators

Available in a variety of voltages, control options, over-sides, fail safe spring return and enclosures. All electric actuators are standard with ISO 5211 mounting interface and are used on all valves.

BEO series are the most versatile of the electric actuators offered. Used on ALL quarter turn valves. All standard with ISO 5211 mounting interface.



BEP series are heavy duty electric spring return actuators. Used on ALL quarter turn valves. All standard with ISO 5211 mounting interface.



BEX series are high speed spring return electric actuators. For use on most quarter valves. Three classifications available.



BEO Series Electric Actuation

Features and Benefits



High Alloy Steel Gear Train

- provides self-locking function to avoid valve back drive
- factory installed high temperature lubricant, reduces maintenance

Additional Features

- tested to one million cycles
- one year manufacturer's warranty
- OM-1 and larger include heater to reduce condensation
- larger actuators available upon request

- conforms to CSA-C for outdoor use
- built by an ISO9001 certified manufacturer
- lightweight powder coated aluminum alloy with plastic cover
- NEMA 4 and 4X waterproof and dust proof
- ROHS compliant
- aluminum cover on larger models

Motor

- extended duty cycle induction motor
- H-insulation class OM-1 and OM-A Class F on OM-2 to OM-4
- built in thermal protection prevents motor burn out
- includes position indicators on top of unit

Manual Override

- non-clutch design allows manual operation in a power outage
- fail-safe does not allow manual operation when electric motor is operating
- some units feature a hand wheel for manual operation
- optional battery back-up available

Ordering Information

Part # example; BEOM-2E-31 = Electric actuator model OM-2, 24VDC, with 4-20 mA input/output Modulating controller and no other options.

| Actuator (1-2) | Model (3-6) | Voltage (7) | (8) | Options (9) | Options (10) |
|----------------|--------------------------|-------------|-----|--|--|
| BE Electric | BM-T* (132 in-lb) | B 115VAC | - | 1 No options | 1 No options |
| | OM-1 (309 in-lb) | C 12VDC | | 2 Torque switches | 2 Torque switches |
| | OM-A (442 in-lb) | D 24VAC | | 3 4-20 mA input/output Modulating controller | 3 4-20 mA input/output Modulating controller |
| | OM-M (OM-A w/ over-ride) | E 24VDC | | 4 Current position transmitter | 4 Current position transmitter |
| | OM-2 (796.5 in-lb) | F 220VAC | | 5 Potentiometer | 5 Potentiometer |
| | BM-2* (1062 in-lb) | | | 6 Local control unit | 6 Local control unit |
| | OM-3 (1327 in-lb) | | | 7 Two extra travel cams and switches | 7 Two extra travel cams and switches |
| | OM-4 (3450 in-lb) | | | 8 Three position cam set | 8 Three position cam set |
| | OM-5 (4425 in-lb) | | | 9 local control unit with lock | 9 local control unit with lock |
| | OM-6 (5752 in-lb) | | | A 1-5V input/ 2-10V output Modulating controller | A 1-5V input/ 2-10V output Modulating controller |
| | OM-7 (8850 in-lb) | | | B 2-10V input/output Modulating controller | B 2-10V input/output Modulating controller |
| | OM-8 (13,243 in-lb) | | | C 75% duty cycle | C 75% duty cycle |
| | OM-9 (17,600 in-lb) | | | D Relay | D Relay |
| | OM-10 (22,000 in-lb) | | | E Four positions cam set | E Four positions cam set |

* limited options available

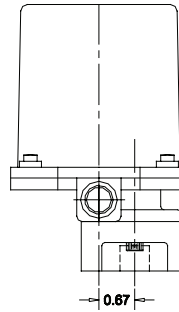
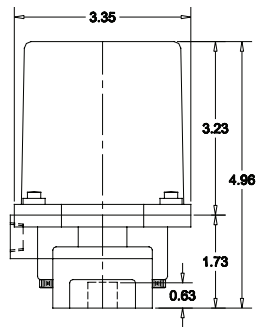
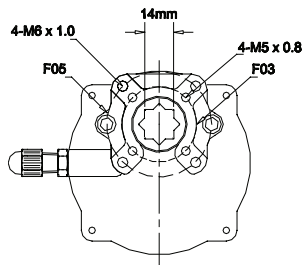
Specifications

| Model # | ISO 5211 Mounting | Manual Override | Heater Standard | Position Indicator | Weight Lbs | Top Cover Material Standard | Options Available |
|---------|-------------------|-----------------|-----------------|--------------------|------------|-----------------------------|-------------------|
| BEBM-T | F03/F05 | lever | no | no | 3.3 | plastic | n/a |
| BEOM-1 | F03/F05 | hex | yes | dome | 4.4 | plastic | all |
| BEOM-A | F05/F07 | optional | yes | dome | 6.6 | plastic | all |
| BEBM-2 | F07 | na | yes | flat | 13.2 | plastic | limited |
| BEOM-2 | F07 | handwheel | yes | dome | 24.3 | aluminum | all |
| BEOM-3 | F07 | handwheel | yes | dome | 24.3 | aluminum | all |
| BEOM-4 | F10 | handwheel | yes | dome | 44.1 | aluminum | all |

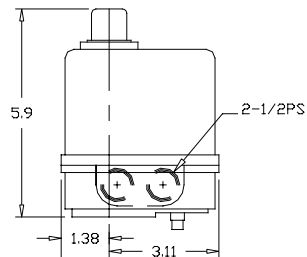
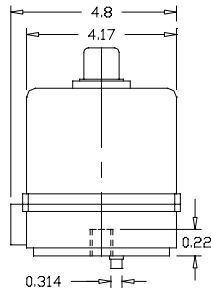
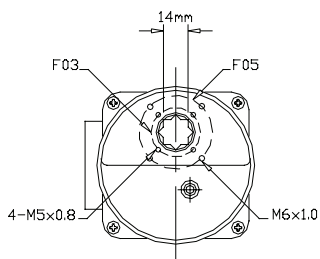
BEO Series Electric Actuators

Dimensions

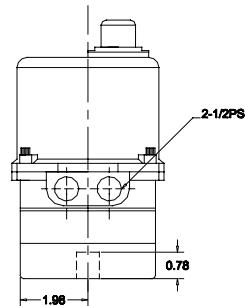
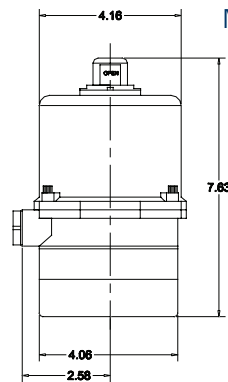
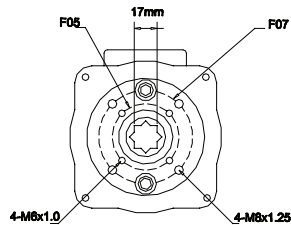
Model BEBM - T



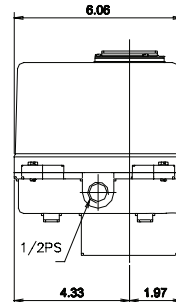
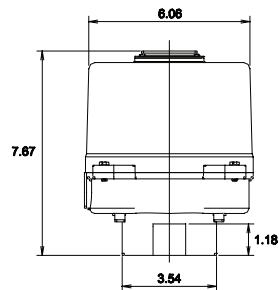
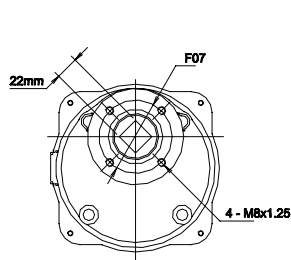
Model BEOM - 1



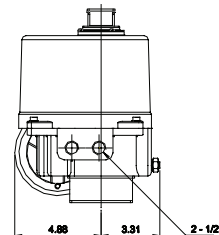
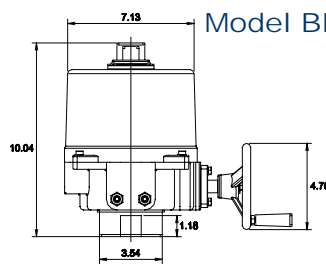
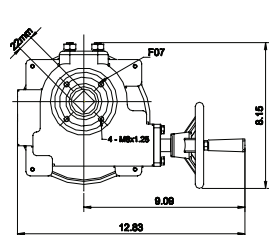
Model BEOM - A



Model BEBM - 2



Model BEOM - 2 to 12



BEO Series Electric Actuators

Specifications

Single Phase

| Model No. | Max Torque in.-lbs. | Speed (90) | | Motor Power | Motor Speed | | 110 V Current | | | 220V-240V Current | | |
|-----------|---------------------|------------|-------|-------------|-------------|----------|---------------|-------|-------|-------------------|-------|-------|
| | | 60 Hz | 50 Hz | | 60 Hz | 50 Hz | Run | Start | Lock | Run | Start | Lock |
| BEBM-T | 132 | 19 s | 22 s | 5W | 3600/min | 3600/min | 0.3A | 0.4A | 0.3A | 0.3A | 0.3A | 0.3A |
| BEBM-2 | 1062 | 8 s | 10 s | 40 W | 1720/min | 1450/min | 1.3A | 3.0A | 1.8A | 0.5A | 1.5A | 0.9A |
| BEOM-A | 442.5 | 20 s | 24 s | 10 W | 3600/min | 3600/min | 0.5A | 1.5A | 0.6A | 0.7A | 0.8A | 1.4A |
| BEOM-1 | 309.75 | 15 s | 13 s | 10 W | 3600/min | 3600/min | 0.5A | 1.5A | 0.6A | 0.6A | 0.8A | 1.4A |
| BEOM-2 | 796.5 | 15 s | 17 s | 70 W | 1720/min | 1450/min | 1.0A | 3.0A | 1.8A | 3.0A | 5.0A | 13.0A |
| BEOM-3 | 1327.5 | 22 s | 26 s | 70 W | 1720/min | 1450/min | 1.0A | 3.0A | 1.8A | 3.0A | 5.0A | 13.0A |
| BEOM-4 | 3540 | 16 s | 18 s | 180 W | 1720/min | 1450/min | 1.3A | 3.1A | 3.6A | 6.0A | 8.0A | 30.0A |
| BEOM-5 | 4425 | 22 s | 25 s | 180 W | 1720/min | 1450/min | 1.5A | 3.0A | 3.6A | 6.5A | 8.0A | 30.0A |
| BEOM-6 | 5752.5 | 28 s | 31 s | 180 W | 1720/min | 1450/min | 1.8A | 3.0A | 3.6A | 7.5A | 8.0A | 30.0A |
| BEOM-7 | 8850 | 46 s | 55 s | 220 W | 1720/min | 1450/min | 3.2A | 12.0A | 10.0A | 7.0A | 8.0A | 30.0A |
| BEOM-8 | 13275 | 46 s | 55 s | 220 W | 1720/min | 1450/min | 4.0A | 14.0A | 10.0A | 7.5A | 8.0A | 30.0A |
| BEOM-9 | 17700 | 58 s | 70 s | 220 W | 1720/min | 1450/min | 3.2A | 12.0A | 6.0A | 7.0A | 8.0A | 30.0A |
| BEOM-10 | 22125 | 58 s | 70 s | 220 W | 1720/min | 1450/min | 4.0A | 12.0A | 6.0A | 7.5A | 8.0A | 30.0A |
| BEOM-11 | 26550 | 58 s | 70 s | 250 W | 1720/min | 1450/min | 3.0A | 10.0A | 5.0A | 10.0A | 10.0A | 26.0A |
| BEOM-12 | 30975 | 58 s | 70 s | 300 W | 1720/min | 1450/min | 4.0A | 14.0A | 5.0A | 15.0A | 15.0A | 26.0A |

N

Three Phase

| Model No. | Max Torque in.-lbs. | Speed (90) | | Motor Power | Motor Speed | | 220 V Current | | | 380 V Current | | | 440 V Current | | |
|-----------|---------------------|------------|-------|-------------|-------------|----------|---------------|-------|------|---------------|-------|------|---------------|-------|------|
| | | 60 Hz | 50 Hz | | 60 Hz | 50 H | Run | Start | Lock | Run | Start | Lock | Run | Start | Lock |
| BEBM-2 | 1062 | 8 s | 10 s | 40 W | 1720/min | 1450/min | 0.6A | 1.8A | 1.1A | 0.3A | 1.0A | 0.7A | 0.4A | 1.3A | 0.7A |
| BEOM-2 | 796.5 | 15 s | 17 s | 70 W | 1720/min | 1450/min | 0.6A | 1.8A | 1.1A | 0.3A | 1.0A | 0.7A | 0.4A | 1.3A | 0.7A |
| BEOM-3 | 1327.5 | 22 s | 26 s | 70 W | 1720/min | 1450/min | 0.6A | 1.8A | 1.1A | 0.3A | 1.0A | 0.7A | 0.4A | 1.3A | 0.7A |
| BEOM-4 | 3540 | 16 s | 18 s | 180 W | 1720/min | 1450/min | 1.0A | 3.0A | 3.5A | 0.7A | 2.2A | 2.0A | 0.8A | 2.5A | 2.0A |
| BEOM-5 | 4425 | 22 s | 25 s | 180 W | 1720/min | 1450/min | 1.0A | 3.0A | 3.5A | 0.7A | 2.2A | 2.0A | 0.8A | 2.5A | 2.0A |
| BEOM-6 | 5752.5 | 28 s | 31 s | 180 W | 1720/min | 1450/min | 1.0A | 3.0A | 3.5A | 0.7A | 2.2A | 2.0A | 0.8A | 2.5A | 2.0A |
| BEOM-7 | 8850 | 46 s | 55 s | 220 W | 1720/min | 1450/min | 0.6A | 0.8A | 1.8A | 0.4A | 0.6A | 1.0A | 0.4A | 0.6A | 1.0A |
| BEOM-8 | 13275 | 46 s | 55 s | 220 W | 1720/min | 1450/min | 0.8A | 1.0A | 2.8A | 0.6A | 0.8A | 1.6A | 0.6A | 0.8A | 1.2A |
| BEOM-9 | 17700 | 58 s | 70 s | 220 W | 1720/min | 1450/min | 0.4A | 0.6A | 2.0A | 0.4A | 0.6A | 1.0A | 0.4A | 0.6A | 1.0A |
| BEOM-10 | 22125 | 58 s | 70 s | 220 W | 1720/min | 1450/min | 0.8A | 1.0A | 1.5A | 0.4A | 0.6A | 1.0A | 0.4A | 0.6A | 1.0A |
| BEOM-11 | 26550 | 58 s | 70 s | 250 W | 1720/min | 1450/min | 1.2A | 1.2A | 3.0A | 0.6A | 0.8A | 1.5A | 0.6A | 0.8A | 1.5A |
| BEOM-12 | 30975 | 58 s | 70 s | 300 W | 1720/min | 1450/min | 1.2A | 1.4A | 2.5A | 0.6A | 0.8A | 1.5A | 0.6A | 0.8A | 1.5A |

BEO Series Electric Actuators

Specifications

12V / 24V

| Model No. | Max Torque in.-lbs. | Speed (90) | Motor Power | Motor Speed | | 12 V DC/AC | | | 24 V DC/AC | | |
|-----------|---------------------|------------|-------------|-------------|----------|------------|-------|-------|------------|-------|-------|
| | | | | 12 V | 24 V | Run | Start | Lock | Run | Start | Lock |
| BEBM-T | 132 | 19 s | 5 W | 3600/min | 3600/min | n/a | n/a | n/a | 1.5A | 1.5A | 1.5A |
| BEOM-A | 442.5 | 20 s | 10 W | 3600/min | 3600/min | 0.5A | 3.0A | 3.0A | 0.7A | 0.8A | 1.4A |
| BEOM-1 | 309.75 | 15 s | 10 W | 3600/min | 3600/min | 0.5A | 3.0A | 3.0A | 0.6A | 0.8A | 1.4A |
| BEOM-2 | 796.5 | 15 s | 70 W | 1800/min | 1800/min | 3.4A | 5.0A | 8.5A | 3.0A | 5.0A | 13.0A |
| BEOM-3 | 1327.5 | 22 s | 70 W | 1800/min | 1800/min | 3.4A | 5.0A | 8.5A | 3.0A | 5.0A | 13.0A |
| BEOM-4 | 3540 | 16 s | 180 W | 1800/min | 1800/min | 12.0A | 8.5A | 30.0A | 6.0A | 8.0A | 30.0A |
| BEOM-5 | 4425 | 22 s | 180 W | 1800/min | 1800/min | 13.0A | 8.5A | 30.0A | 6.5A | 8.0A | 30.0A |
| BEOM-6 | 5752.5 | 28 s | 180 W | 1800/min | 1800/min | 14.0A | 8.5A | 30.0A | 7.5A | 8.0A | 30.0A |
| BEOM-7 | 8850 | 46 s | 220 W | | 1800/min | | | | 7.0A | 8.0A | 30.0A |
| BEOM-8 | 13275 | 46 s | 220 W | | 1800/min | | | | 7.5A | 8.0A | 30.0A |
| BEOM-9 | 17700 | 58 s | 220 W | | 1800/min | | | | 7.0A | 8.0A | 30.0A |
| BEOM-10 | 22125 | 58 s | 220 W | | 1800/min | | | | 7.5A | 8.0A | 30.0A |
| BEOM-11 | 26550 | 58 s | 250 W | | 1800/min | | | | 10.0A | 10.0A | 26.0A |
| BEOM-12 | 30975 | 58 s | 300 W | | 1800/min | | | | 15.0A | 15.0A | 26.0A |

BES Series Heavy Duty Spring Return Electric Actuators



These actuators are designed to provide fail-safe positioning of valves upon loss of power. A mechanical spring set is used to position the valve in either the OPEN or CLOSED position without any external power source. A mechanical buffer is utilized at the end of the spring stroke to reduce dynamic effects. The actuator is available with or without a manual over-ride.

Features and Benefits

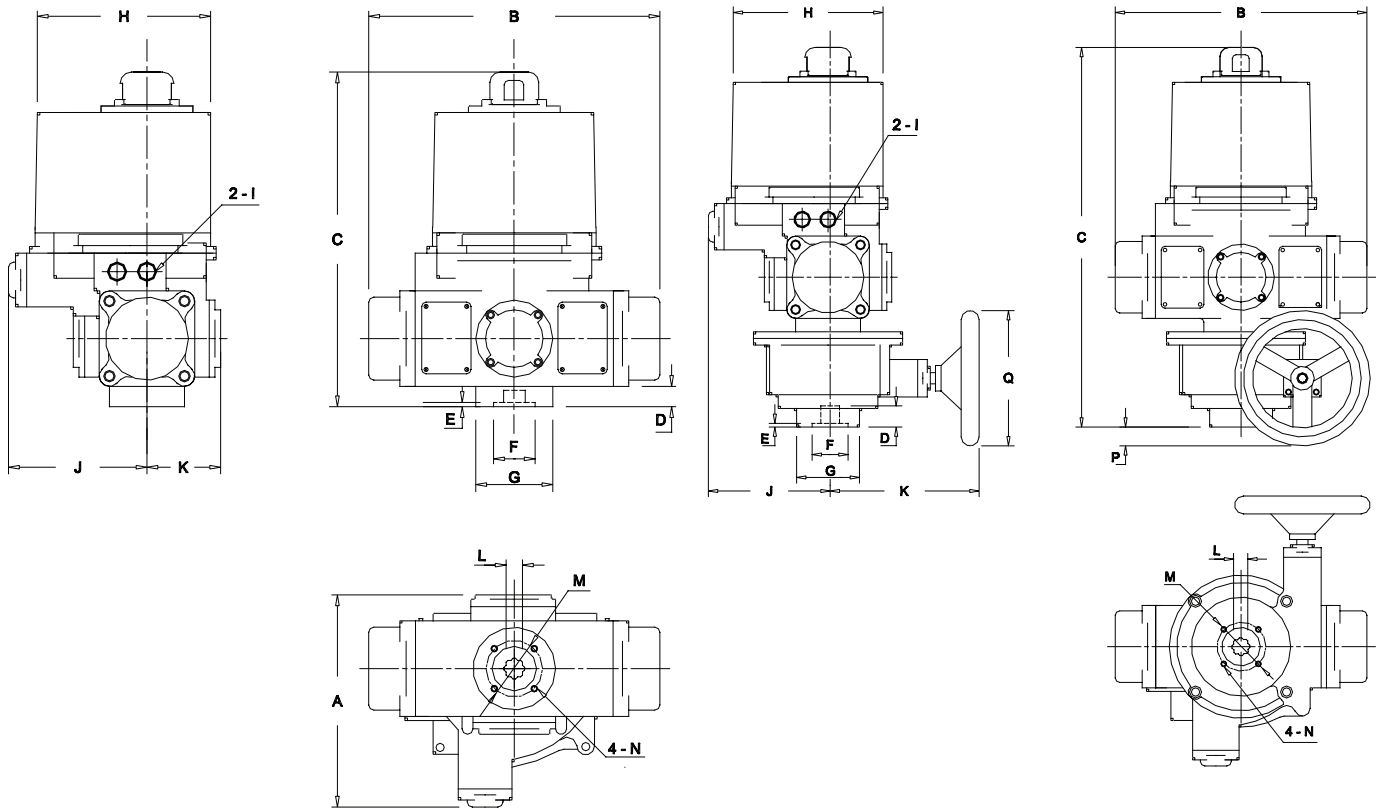
- Spring return electric actuators are designed for load requirements up to 2100 in. lb.
- The actuator comes standard with two switches, an to minimize condensation and NEMA 4x enclosure in 120/230VAC or 24VDC supply voltage.
- Spring return electric actuators come standard with ISO5211 mounting systems for easy mounting on complying valves.
- Actuator is available in three different control modes:
 - on/off (2 position control)
 - floating control (Jog)
 - Proportional (modulating control) and depending on the application it is offered in either clockwise or counterclockwise rotation.

Part Number Key

| Actuator (1-3) | Model (4) | Voltage (5) | (6) | Enclosure (6) | Spring Rotation (7-8) | Over Ride (10) | Options (10) | Options (11) | Cable Entry (12) |
|----------------------------|----------------|-----------------|-----|---------------|-------------------------|--------------------|--|--|-----------------------|
| BES Electric Spring Return | 1 (442 in-lb) | B 110VAC / 1 PH | - | 4 Nema 4/4X | CW Clockwise (standard) | N None | 1 No options | 1 No options | 1 1/2" NPT (standard) |
| | 2 (1150 in-lb) | D 24VAC | | 7 Nema 7 | CC Counter Clockwise | M Manual Over-ride | 2 Heater | 2 Heater | 2 3/4" NPT |
| | 3 (1770 in-lb) | E 24VDC | | | | | 3 4-20 mA input/ output Modulating controller | 3 4-20 mA input/ output Modulating controller | 3 M20 |
| | 4 (2301 in-lb) | F 220VAC / 1PH | | | | | 4 Current position transmitter | 4 Current position transmitter | |
| | | G 380 VAC / 3PH | | | | | 5 Potentiometer | 5 Potentiometer | |
| | | H 440 VAC / 3PH | | | | | 6 Floating control | 6 Floating control | |
| | | | | | | | A 1-5V input/ 2-10V output Modulating controller | A 1-5V input/ 2-10V output Modulating controller | |
| | | | | | | | B 2-10V input/ output Modulating controller | B 2-10V input/ output Modulating controller | |

BES Series Heavy Duty Spring Return Electric Actuators

Dimensions



Spring Return Standard

Spring Return with Manual Override

Spring Return Standard

| Model | A | B | C | D | E | F | G | H | I | J | K | L (mm) | M | N | Flange Type |
|-------|-------|-------|-------|------|------|------|------|-------|----------|-------|------|--------|------|----------|-------------|
| BES1 | 10.16 | 14.17 | 16.73 | 1.22 | 0.20 | 2.17 | 3.94 | 7.010 | 1/2" NPT | 6.73 | 3.43 | 17 | 2.76 | M8X1.25 | F07 |
| BES2 | 14.37 | 18.19 | 19.80 | 1.61 | 0.20 | 2.76 | 5.51 | 10.43 | 1/2" NPT | 9.72 | 4.33 | 22 | 4.02 | M10X1.5 | F10 |
| BES3 | 17.24 | 23.62 | 22.72 | 1.81 | 0.24 | 3.35 | 6.69 | 12.01 | 1/2" NPT | 12.01 | 5.24 | 27 | 4.92 | M12X1.75 | F12 |
| BES4 | 17.24 | 23.62 | 22.72 | 1.81 | 0.24 | 3.35 | 6.69 | 12.01 | 1/2" NPT | 12.01 | 5.24 | 27 | 4.92 | M12X1.75 | F12 |

Note: All units given in (in) unless noted

Spring Return with Manual Override

| Model | A | B | C | D | E | F | G | H | I | J | K | L (mm) | M | N | P | Q | Flange Type |
|-------|-------|-------|-------|------|------|------|------|-------|----------|-------|-------|--------|------|----------|------|-------|-------------|
| BES1 | 15.24 | 14.17 | 21.06 | 1.18 | 0.16 | 2.17 | 3.54 | 7.01 | 1/2" NPT | 6.73 | 8.50 | 17 | 2.76 | M8X1.25 | 1.38 | 7.64 | F07 |
| BES2 | 19.06 | 18.19 | 25.12 | 1.61 | 0.20 | 2.76 | 4.92 | 10.43 | 1/2" NPT | 9.72 | 9.33 | 22 | 4.02 | M10X1.5 | 2.68 | 11.61 | F10 |
| BES3 | 23.19 | 23.62 | 28.82 | 1.77 | 0.20 | 3.35 | 5.91 | 12.01 | 1/2" NPT | 12.01 | 11.81 | 27 | 4.92 | M12X1.75 | 4.30 | 15.67 | F12 |
| BES4 | 23.19 | 23.62 | 28.82 | 1.77 | 0.20 | 3.35 | 5.91 | 12.01 | 1/2" NPT | 12.01 | 11.81 | 27 | 4.92 | M12X1.75 | 4.30 | 15.67 | F12 |

Note: All units given in (in) unless noted

All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.

BES Series Heavy Duty Spring Return Electric Actuators

Specifications

110/120 VAC 1 Phase

| Model | Max. Torque (IN-LB) | Motor Power | Weight | Flange Size (ISO 5211) | Operating Time (Sec./90°) | | Current Ratings 110VAC/1 Phase | | Current Ratings 120VAC/1 Phase | |
|-------|------------------------|-------------|-----------|---------------------------|------------------------------|--------|-----------------------------------|-----------------------|-----------------------------------|-----------------------|
| | | | | | Motor (60 Hz/50 Hz) | Spring | Run (60 Hz/50 Hz) | Lock (60 Hz/50 Hz) | Run (60 Hz/50 Hz) | Lock (60 Hz/50 Hz) |
| BES1 | 442 | 50W | 59.4 lbs | F07 | 7/9 | 3 | 1.0/1.3 | 2.0/2.2 | 1.0/1.3 | 2.0/2.2 |
| BES2 | 1150 | 130W | 125.4 lbs | F10 | 7/9 | 8 | 2.6/4.5 | 10/10.5 | 3.8/6.9 | 11/11.5 |
| BES3 | 1770 | 130W | 209 lbs | F12 | 11/13 | 12 | 2.6/4.5 | 10/10.5 | 3.8/6.9 | 11/11.5 |
| BES4 | 2301 | 130W | 209 lbs | F12 | 11/13 | 12 | 2.6/4.5 | 10/10.5 | 3.8/6.9 | 11/11.5 |

220/240 VAC 1 Phase

| Model | Max. Torque (IN-LB) | Motor Power | Weight | Flange Size (ISO 5211) | Operating Time (Sec./90°) | | Current Ratings 220VAC/1 Phase | | Current Ratings 240VAC/1 Phase | |
|-------|------------------------|-------------|-----------|---------------------------|------------------------------|--------|-----------------------------------|-----------------------|-----------------------------------|-----------------------|
| | | | | | Motor (60 Hz/50 Hz) | Spring | Run (60 Hz/50 Hz) | Lock (60 Hz/50 Hz) | Run (60 Hz/50 Hz) | Lock (60 Hz/50 Hz) |
| BES1 | 442 | 50W | 59.4 lbs | F07 | 7/9 | 3 | 0.6/0.7 | 1.0/1.2 | 1.7/0.8 | 1.3/1.5 |
| BES2 | 1150 | 130W | 125.4 lbs | F10 | 7/9 | 8 | 1.5/2.2 | 5.0/5.1 | 2.1/3.8 | 5.6/5.7 |
| BES3 | 1770 | 130W | 209 lbs | F12 | 11/13 | 12 | 1.5/2.2 | 5.0/5.1 | 2.1/3.8 | 5.6/5.7 |
| BES4 | 2301 | 130W | 209 lbs | F12 | 11/13 | 12 | 1.5/2.2 | 5.0/5.1 | 2.1/3.8 | 5.6/5.7 |

380/440 VAC 3 Phase

| Model | Max. Torque (IN-LB) | Motor Power | Weight | Flange Size (ISO 5211) | Operating Time (Sec./90°) | | Current Ratings 380VAC/1 Phase | | Current Ratings 440VAC/1 Phase | |
|-------|------------------------|-------------|-----------|---------------------------|------------------------------|--------|-----------------------------------|-----------------------|-----------------------------------|-----------------------|
| | | | | | Motor (60 Hz/50 Hz) | Spring | Run (60 Hz/50 Hz) | Lock (60 Hz/50 Hz) | Run (60 Hz/50 Hz) | Lock (60 Hz/50 Hz) |
| BES1 | 442 | 50W | 59.4 lbs | F07 | 7/8.5 | 3 | 0.4/0.4 | 0.5/0.6 | 0.3/0.4 | 0.5/0.6 |
| BES2 | 1150 | 130W | 125.4 lbs | F10 | 7/8.5 | 8 | 1.0/1.5 | 2.8/3.0 | 0.7/1.0 | 2.1/2.2 |
| BES3 | 1770 | 130W | 209 lbs | F12 | 11/13 | 12 | 1.0/1.5 | 2.8/3.0 | 0.7/1.0 | 2.1/2.2 |
| BES4 | 2301 | 130W | 209 lbs | F12 | 14/17 | 12 | 1.0/1.5 | 2.8/3.0 | 0.7/1.0 | 2.1/2.2 |

24 V AC/DC 1 Phase

| Model | Max. Torque (IN-LB) | Motor Power | Weight | Flange Size (ISO 5211) | Operating Time (Sec./90°) | | Current Ratings 24V AC/DC 1 Phase | |
|-------|------------------------|-------------|-----------|---------------------------|------------------------------|--------|--------------------------------------|------|
| | | | | | Motor | Spring | Run | Lock |
| BES1 | 442 | 50W | 59.4 lbs | F07 | 7 | 3 | 3.0 | 4.0 |
| BES2 | 1150 | 130W | 125.4 lbs | F10 | 8 | 3 | 9.0 | 19.0 |
| BES3 | 1770 | 130W | 209 lbs | F12 | 11 | 3 | 9.0 | 19.0 |
| BES4 | 2301 | 130W | 209 lbs | F12 | 17 | 3 | 9.0 | 19.0 |

BEX Series High Speed Spring Return Electric Actuators



Features and Benefits

- 24 – 240 VAC/DC self adaptable power supply
- 95 degree angle of rotation (5° for preload)
- 100% overload protected
- Aluminum housing NEMA4X / IP66, cable - 39.4"
- Temp rating -40° - +104° F/+122° F
- Integrated heater for low temperatures
- Emergency manual over-ride
- High speed spring return
- Three classifications available

Rotational speed

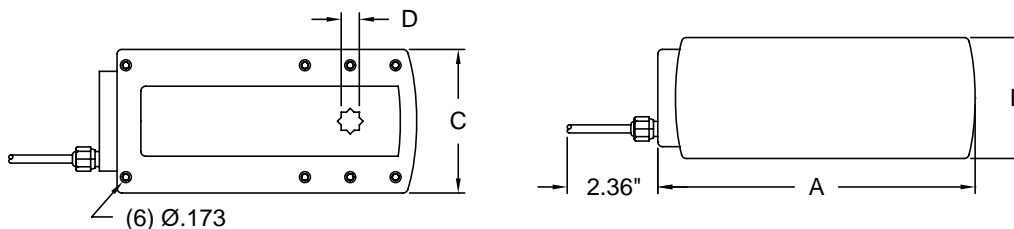
- Spring return running time for 90°.
 - 135 in-lb \leq 1 second
 - 270 & 450 in-lb \leq 3 seconds
- Running time (power) for 90°.
 - 135 in-lb = 3+ seconds
 - 270 & 450 in-lb = 40+ seconds

Note: Many other options are available. Please call Dixon Sanitary for details.

Ordering Information

| Actuator (1-4) | Installation Classification (5) | Torque in-lb (6-8) | (9) | Limit Switches (10) | Options (11-15) |
|-------------------|---|-----------------------|-----|------------------------|--------------------|
| BEX | Explosion Proof XP,DIP / Class I,II,III / Div.1 / Group E BCDEFG Class I Zone 1 Aex d [ia] IIC T6 Class II,III, Zone 21 Aex tD [iaD] T80° C | 135 270 450 | - | A 2 limit switches | |
| | Hazardous Location NI,DIP / Class I,II,III / Div.2 / Group H ABCDEFG Class I Zone 2 Aex nC IIC T6 Class II,III, Zone 22 Aex tD [iaD] T80° C | | | B no switches | |
| | G General purpose (non explosion proof) for use in ordinary locations to standard NEMA 4X / IP66 | | | | |

Dimensions



BEX-135

| Actuator Size | A | B | C | D |
|-----------------|-------|------|------|------|
| BEX-135 | 8.27 | 3.15 | 3.74 | 0.47 |
| BEX - 270 & 450 | 11.31 | 4.57 | 5.87 | 0.63 |



BEX-270 & 450

Coupler Kit for Electric Actuators


Features:

- for mounting a rack and pinion actuator to the B5101 and B5104 series butterfly valves.

Rack and Pinion BFV Actuation Kits

| Size | Series | Part # |
|--------------|--------|-----------------|
| 1/2" - 1½" | B5101 | B5101-ISO100150 |
| 2" - 2½" | B5101 | B5101-ISO200250 |
| 3" - 4" | B5101 | B5101-ISO300400 |
| 6" | B5101 | B5101-ISO600 |
| 8" | B5101 | B5101-ISO800 |
| 1", 1½", 2½" | B5104 | B5104-ISO100250 |
| 2", 3" | B5104 | B5104-ISO200300 |
| 4" | B5104 | B5104-ISO400 |

For 1/2" - 6" Valves

| Item | Description | Material | Qty |
|------|---------------|----------|-----|
| 1 | brackets | 304 SS | 2 |
| 2 | coupler | 304 SS | 1 |
| 3 | bracket bolts | 304 SS | 2 |
| 4 | roll pin | 304 SS | 1 |

For 8" Valves

| Item | Description | Material | Qty |
|------|---------------|----------|-----|
| 1 | brackets | 304 SS | 1 |
| 3 | Bracket bolts | 304 SS | 2 |

Pneumatic Stainless Steel Canister Style Actuators

Developed exclusively for the sanitary butterfly valve. Available in stainless steel construction with vertical and horizontal configurations.

VC series vertical stainless steel actuator. Available in double acting and spring return.



VC series vertical stainless steel actuator with control top options. Available in double acting and spring return.



RP series horizontal double acting stainless steel actuator. Available in two sizes and double acting.



VC Series Pneumatic Vertical Stainless Steel Canister Actuator



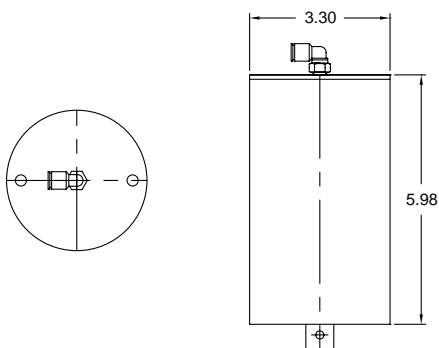
Features and Benefits

- excellent protection and corrosion resistance
- tested to 1 million cycles
- available in ATO/ATC, ATO/STC, STO/ATC
- 100% Fully tested
- backed by 1 year warranty
- can be mounted on all butterfly valves up to 4"

Specifications

| Part # | Description | Weight (lbs.) | Air Consumption (in ³) | | Temp. Rating Max. (°F) | Temp. Rating Min. (°F) | Output Torque (in-lb) | Max. Pres. Rating (PSI) | Supply Pres. Required (PSI) | Dia. (in) | Height (in) | Air Fitting Ports |
|--------------|---------------|---------------|------------------------------------|---------------|------------------------|------------------------|-----------------------|-------------------------|-----------------------------|-----------|-------------|-------------------|
| | | | down stroke CW | up stroke CCW | | | | | | | | |
| VC-NR-100-DA | double acting | 5.1 | 8.5 | 20 | +250 | -4 | 550 | 120 | 80-100 | 3.35 | 5.83 | 1/8" NPT |
| VC-NR-100-SR | spring return | 6 | 8.5 | 18.5 | +250 | -4 | 550 | 120 | 80-100 | 3.35 | 5.83 | 1/8" NPT |

Dimensions / Bill of Materials



Complete Repair Kit for Spring Return = VC-100-RK-SR contains:

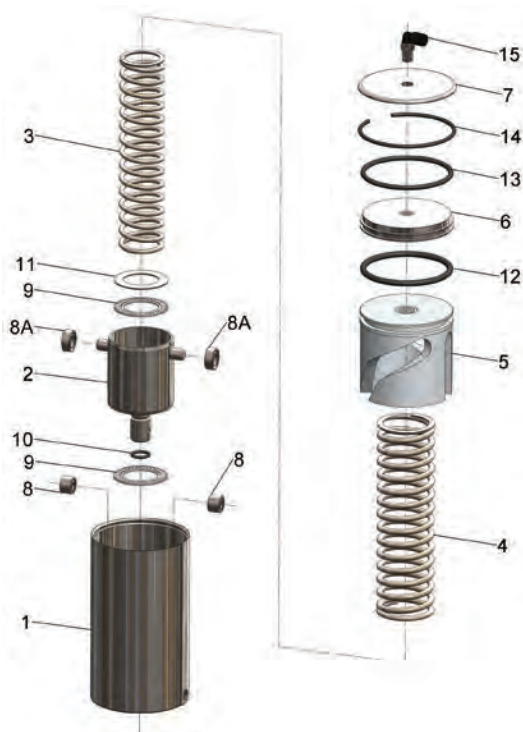
- #13 (1) O-ring
- #12 (1) O-ring
- #11 (1) thrust drive
- #9 (2) thrust bearing
- #8A (2) needle bearing (drive)
- #10 (1) O-ring
- #8 (2) needle bearing (body)

Complete Repair Kit for Double Acting = VC-100-RK-DA contains:

- #13 (1) O-ring
- #12 (1) O-ring
- #9 (2) thrust bearing
- #8A (2) needle bearing (drive)
- #10 (1) O-ring
- #8 (2) needle bearing (body)

Elastomer Only Repair Kit = VC-100-RK contains:

- #13 (1) O-ring
- #12 (1) O-ring
- #10 (1) O-ring



| Item | Description | Material | Quantity | |
|------|------------------------|---------------------|---------------|---------------|
| | | | Spring Return | Double Acting |
| 1 | body | 304 SS | 1 | 1 |
| 2 | drive | 304 SS | 1 | 1 |
| 3 | inner spring | 302 SS | 1 | 0 |
| 4 | outer spring | 302 SS | 1 | 0 |
| 5 | piston | aluminum | 1 | 1 |
| 6 | end cap | 304 SS | 1 | 1 |
| 7 | top cap | 304 SS | 1 | 1 |
| 8 | needle bearing (body) | 304 SS | 2 | 2 |
| 8A | needle bearing (drive) | 304 SS | 2 | 2 |
| 9 | thrust bearing | 304 SS | 2 | 1 |
| 10 | O-ring (drive) | EPDM | 1 | 1 |
| 11 | thrust washer | 304 SS | 1 | 0 |
| 12 | O-ring (piston) | EPDM | 1 | 1 |
| 13 | O-ring (end cap) | EPDM | 1 | 1 |
| 14 | retaining ring | 304 SS | 1 | 1 |
| 15 | air fitting | nickel plated brass | 1 | 2 |

VC Series Pneumatic Vertical Stainless Steel Canister Actuator with Contol Top

Made specifically for butterfly valves 1" through 4"

Available in:

- 24 volt DC solenoid
- 110 volt AC solenoid



Features and Benefits

- excellent protection and corrosion resistance
- tested to 1 million cycles
- available in ATO/ATC, ATO/STC, STO/ATC
- 100% Fully tested
- backed by 1 year warranty
- can be mounted on all butterfly valves up to 4"
- Each pneumatically actuated butterfly valve is shipped fully assembled, including pneumatic actuator and mounting bracket assembly.

Specifications

| Part # | Description | Weight (lbs.) | Air Consumption (in ³) | | Temp. Rating Min. (°F) | Temp. Rating Max. (°F) | Output Torque (in-lb) | Max. Pres. Rating (PSI) | Supply Pres. Required (PSI) | Dia. (in) | Height (in) | Air Fitting Ports |
|--------------|---------------|---------------|------------------------------------|---------------|------------------------|------------------------|-----------------------|-------------------------|-----------------------------|-----------|-------------|-------------------|
| | | | down stroke CW | up stroke CCW | | | | | | | | |
| VC-NR-100-DA | double acting | 5.1 | 8.5 | 20.0 | -4 | +250 | 550 | 120 | 80-100 | 3.35 | 5.83 | 1/8" NPT |
| SSBTDA24/110 | control top | 2.0 | n/a | n/a | -40 | +175 | n/a | n/a | n/a | 3.50 | 4.80 | 1/8" NPT |
| VC-NR-100-SR | spring return | 6.0 | 8.5 | 18.5 | -4 | +250 | 550 | 120 | 80-100 | 3.35 | 5.83 | 1/8" NPT |
| SSBTSR24/110 | control top | 2.1 | n/a | n/a | -40 | +175 | n/a | n/a | n/a | 3.50 | 4.50 | 1/8" NPT |

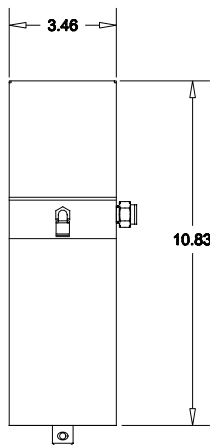
Solenoid Valve

Voltage options 24VDC or 110VAC
 Flow Coefficient $C_v = 0.03$
 Temperature range -40 to 140 degrees F
 Power 6 W
 Seat Material NBR

Micro Switches

Max Voltage 250AC, 48DC
 Max Current (Amps) 5
 Life Cycles Mech. 5,000,000
 Temperature range -40 to 175 degrees F
 Seat Material NBR

Dimensions



*All dimensions are in inches, unless noted. Dimensions are approximate.
 Engineering dimensions are available upon request. Specifications are subject to change without notice.*

CM-Series Control Module

The CM-Series Control Communication Module, designed for corrosive process environments, attaches directly to the Sanitary Divert Valves. This platform offers a full array of communication and switching options as well as discrete integral pneumatic control for spring return actuator operation.

Features and Benefits:

- The CM-Series may be washed down and temporarily submersed with no adverse affects. It is rated NEMA 4, 4x, and 6. It may be used in Div. 2/Zone 2 areas (Nonincendive) or Div. 1/Zones 0 & 1 (Intrinsically Safe) hazardous applications
- Enclosure features high strength polycarbonate with excellent corrosion resistance and exceptional temperature stability.
- Visual electronic and mechanical position indication confirm valve and switch status for added safety.
- Solid state proximity sensors monitor Open/Closed discrete valve position with precision and reliability.
- Integral pneumatic valve is isolated from environmental contamination, offers high tolerance to dirty air and enables rapid valve operation.
- Solenoid options available for 120VAC and 24VDC. Select Piezo option for bus powered Foundation Fieldbus Applications.
- Self Adjusting triggering system provides consistent Open and Closed indication. No resetting is required.
- Manual override enables valve operation without electrically energizing.
- Dual module system seals all position sensing, communication and control electronics in a compact vibration proof package.
- NPT port connections are stainless steel reinforced for long life sealing under high torque stress conditions.
- Water proof quick connectors, compression fittings or conduit connections are available for convenient, reliable attachment to plant electrical systems.



Part Number Key

| Series | Function | Pneumatic Valve | Conduit / Connectors | Visual Indicator | Stroke | Mounting Kit |
|-----------|--|---|--------------------------------------|------------------------------------|-----------------|----------------|
| CM | Sensor Modules | 11 no pneumatic valve | S02 (2) ½" NPT | R red closed/ green open | -L long | N none |
| | 33 (2) SST N.O. switching sensors | 1A 3-way Piezo (use with function option 93) | S05 (2) M20 | G green closed/ red open | -S short | L long |
| | 44 (2) NAMUR sensors (I.S.; EN 60947-5-6) | 1B 3-way 24 VDC 1.8W (use with function options 92, 94, 95 and 96) | S09 (2) cable glands | | | S short |
| | Valve Communication Terminals (VCT) | 1C 3-way 120 VAC 7.2 W (use with function option 33) | S11 (1) 5-pin mini connector | | | |
| | 92 DeviceNet VCT | 1D 3-way 24 VDC 0.5 W (use with function option 97) | S13 (1) 4-pin micro connector | | | |
| | 93 Foundation Fieldbus VCT (bus powered: I.S.) | 1E 3-way (I.S. 12 VDC (use with function option 44) | S14 (2) 4-pin micro connector | | | |
| | 94 Foundation Fieldbus VCT (externally powered) | | S15 (1) 5-pin micro connector | | | |
| | 95 Modbus VCT | | | | | |
| | 96 AS-Interface VCT | | | | | |
| | 97 AS-Interface VCT (with extended addressing) | | | | | |

Part Number Key

SST Switching Sensors (33)

- Configuration (2) SST Switching Sensors (2) Wire Terminations (Solenoid)
- Output Select either NO or NC Models
- Maximum Current
 - Inrush 2.0 Amps
 - Continuous 0.3 Amps
- Minimum On Current 2.0 mA
- Maximum Leakage Current 0.5 mA
- Voltage Range 8 to 125VDC / 24 to 125VAC
- Maximum Voltage Drop 7.0 Volts @ 100 mA

Namur Sensors (44)

- Configuration (2) NAMUR Sensors (2) Wire Terminations (Solenoid)
- Output Conforms to EN 60947-5-6
- Current Ratings Target On I<1.0 mA Target Off I>3.0 mA
- Voltage Range 5 to 25 VDC

AS-Interface VCT (96)

- Configuration (2) Sensor Inputs (2) Auxiliary Inputs (2) Power Outputs (Solenoids)
- Maximum Current 160mA, Both Outputs Combined (Current Limited to 200mA)
- Outputs, Maximum Power 4 Watts, Both Outputs Combined
- Outputs, Voltage 25 to 30 VDC

AS-Interface VCT (97) with Extended Addressing

- Configuration (2) Sensor Inputs (2) Auxiliary Discrete Inputs (1) Power Output (Solenoid)
- Maximum Current 100mA
- Outputs, Maximum Power 2.4 Watts
- Outputs, Voltage 25 to 30 VDC

DeviceNet VCT (92)

- Configuration (2) Discrete Inputs (Open & Closed) (2) Power Outputs (Solenoids) (1) 4-20 mA Auxiliary Input
- Outputs, Maximum Power 4 Watts, Both Outputs Combined
- Outputs, Voltage 24 VDC

Bus Powered Foundation Fieldbus VCT (93)

- Configuration (2) Discrete Inputs, DI (Open & Closed) (2) Discrete Outputs, DO (Piezo Valves)
- Outputs 2mA @ 6.5 VDC each; Current Limited to 2mA (Bus Powered)
- Temperature Range -40° to 80°C (40°F to 176°F)

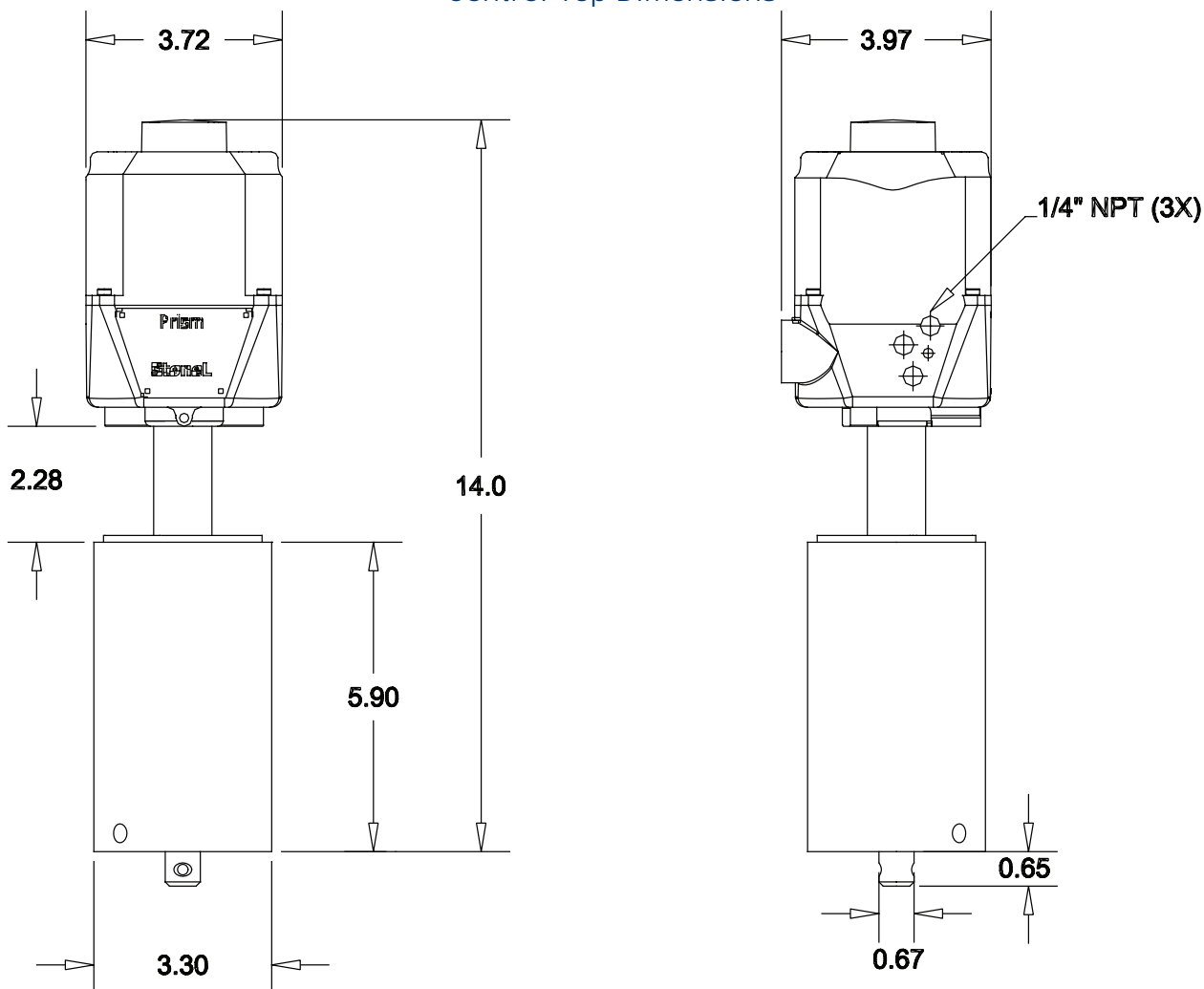
Externally Powered Foundation Fieldbus VCT (94)

- Configuration (2) Discrete Inputs, DI (Open & Closed) (2) Power Outputs, DO (Solenoids)
- Outputs 4 Watts @ 24VDC Both Outputs Combined; Current Limited to 200mA (Externally Powered)
- Temperature Range -40° to 80°C (40°F to 176°F)

Modbus VCT (95)

- Configuration (2) Discrete Inputs (Open & Closed) (2) Power Outputs (Solenoids) (1) 4-20 mA Auxiliary Input
- Outputs 4 Watts @ 24VDC Both Outputs Combined (Current Limited 200mA)
- Temperature Range -40° to 80° C (40°F to 176°F)

Control Top Dimensions



Technical Specifications

Materials of Construction

- Housing and Cover: Polycarbonate
- Fasteners: Stainless Steel
- Triggering Cams: Stainless Steel Banded Polycarbonate
- Shaft: Stainless Steel
- Valve Manifold: Polysulfone with Stainless Steel Reinforced NPT

Temperature Range: -40° C to 80° C (-40° F to 176° F)

- with solenoid: Maximum Ambient 50° C (120° F)

Operating Life: 1 Million Cycles**Nonincendive Ratings**

- NEC/CEC: Classes I and II, All Groups, Div. 2

Intrinsically Safe Ratings

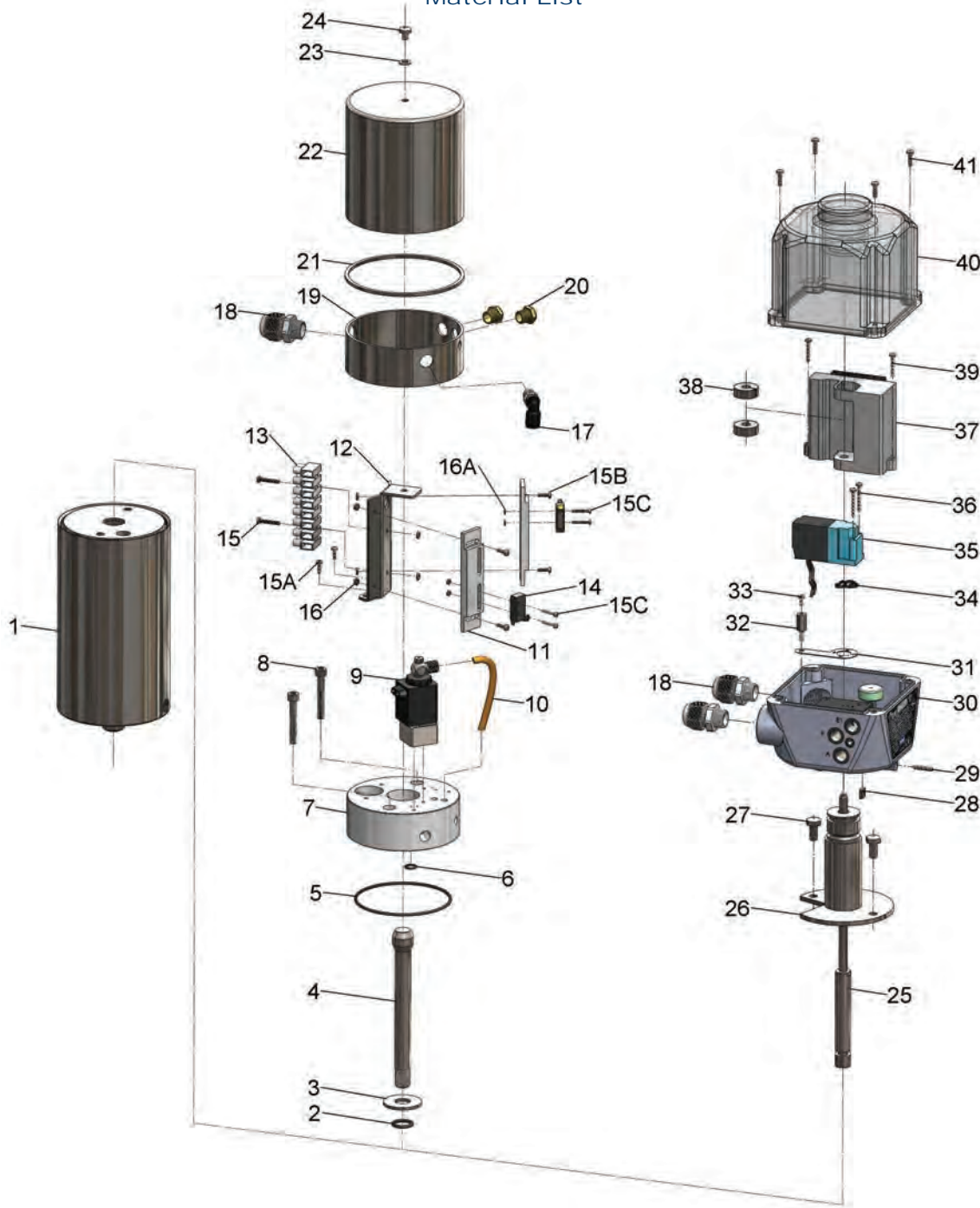
- NEC/CEC: Classes I and II, All Groups, Div. 1 & 2

Enclosure Protection

- NEMA: 4, 4X water proof / dust proof, class IP 67 Enclosure

VC Series Pneumatic Vertical Stainless Steel Canister Actuator with CT / CM Top

Material List



Complete Repair Kit for Spring Return = VC-100-RK-SR contains:

- #8 (2) needle bearings (body)
- #8A (2) needle bearings (drive)
- #9 (2) thrust bearings
- #10 (1) O-ring (drive)
- #11 (1) thrust washer
- #12 (1) O-ring (piston)
- #13 (1) O-ring (end cap)

Complete Repair Kit for Double Acting = VC-100-RK-DA contains:

- #8 (2) needle bearings (body)
- #8A (2) needle bearings (drive)
- #9 (1) thrust bearing
- #10 (1) O-ring (drive)
- #12 (1) O-ring (piston)
- #13 (1) O-ring (end cap)

Elastomer Only Repair Kit = VC-100-RK contains:

- #10 (1) O-ring (drive)
- #12 (1) O-ring (piston)
- #13 (1) O-ring (end cap)

VC Series Pneumatic Vertical Stainless Steel Canister Actuator with CT / CM Top

Bill of Materials

| Item | Description | Material | Quantity | |
|------|----------------------------|----------------------------------|---------------|---------------|
| | | | Spring Return | Double Acting |
| 1 | VC-NR-100 Actuator | 304 SS | 1 | 1 |
| 2 | O-ring (Detection Shaft) | EPDM | 1 | 1 |
| 3 | Washer | 304 | 1 | 1 |
| 4 | CT Detection Shaft | 304 | 1 | 1 |
| 5 | O-ring (Manifold Large) | EPDM | 1 | 1 |
| 6 | O-ring (Manifold Small) | EPDM | 1 | 1 |
| 7 | Manifold | THERMOPLASTIC | 1 | 1 |
| 8 | Bolt (Manifold) | 304 SS | 2 | 2 |
| 9 | Solenoid Valve | ALUMINUM | 1 | 2 |
| 10 | Pneumatic Tube | POLYETHEYLENE | 1 | 2 |
| 11 | Switch Plate | THERMOPLASTIC | 2 | 2 |
| 12 | Switch Rack | 304 SS | 1 | 1 |
| 13 | Terminal Strip | PLASTIC | 1 | 1 |
| 14 | Mechanical Micro-Switch | SILVER CONTACT | 2 | 2 |
| 15 | Bolt (Terminal Strip) | 304 SS | 2 | 2 |
| 15A | Bolt (Switch Rack) | 304 SS | 2 | 2 |
| 15B | Bolt (Switch Plate) | 304 SS | 4 | 4 |
| 15C | Bolt (Micro-Switch) | 304 SS | 4 | 4 |
| 16 | Nut (Switch Plate & Strip) | 304 SS | 6 | 6 |
| 16A | Nut (Micro-Switch) | 304 SS | 4 | 4 |
| 17 | Air Fitting | THERMOPLASTIC | 1 | 3 |
| 18 | Conduit Entry | PLASTIC | 1 | 1 |
| 19 | Manifold Sleeve | 304 SS | 1 | 1 |
| 20 | Plug (Exhaust) | BRASS | 2 | 2 |
| 21 | Cover Seal | THERMOPLASTIC | 1 | 1 |
| 22 | Cover | 304 SS | 1 | 1 |
| 23 | Bolt Seal | THERMOPLASTIC | 1 | 1 |
| 24 | Bolt (Cover) | 304 SS | 1 | 1 |
| 25 | CM Detection Shaft | 304SS | 1 | 1 |
| 26 | Adapter Stem | 304SS | 1 | 1 |
| 27 | Adapter Bolt | 304SS | 2 | 2 |
| 28 | Set Screw Nut | 304SS | 1 | 1 |
| 29 | Set Screw Nut | 304SS | 1 | 1 |
| 30 | Component Housing | POLYCARBONATE | 1 | 1 |
| 31 | Grounding Plate | 304SS | 1 | 1 |
| 32 | Grounding Nut | 304SS | 1 | 1 |
| 33 | Grounding Screw | 304SS | 1 | 1 |
| 34 | Manifold Gasket | BUNA | 1 | 1 |
| 35 | Solenoid Valve | POLYSULFONE WITH 304SS NPT PORTS | 1 | 1 |
| 36 | Solenoid Bolts | 304SS | 2 | 2 |
| 37 | SST Switching Sensor | POLYCARBONATE | 1 | 1 |
| 38 | Trigger Cams | STAINLES BANDED POLYCARBONATE | 2 | 2 |
| 39 | Sensor Bolt | 304SS | 2 | 2 |
| 40 | Cover | POLYCARBONATE | 1 | 1 |
| 41 | Cover Bolts | 304SS | 4 | 4 |

VC-NR-100 Series Actuator With PS-AE Series Inductive Proximity Sensors

(For detailed specification on sensors, see pages 151-152)

Signal back equipment for Dixon Sanitary butterfly valves and VC series actuators

Dixon Sanitary offers two mounting options for differing process space requirements.

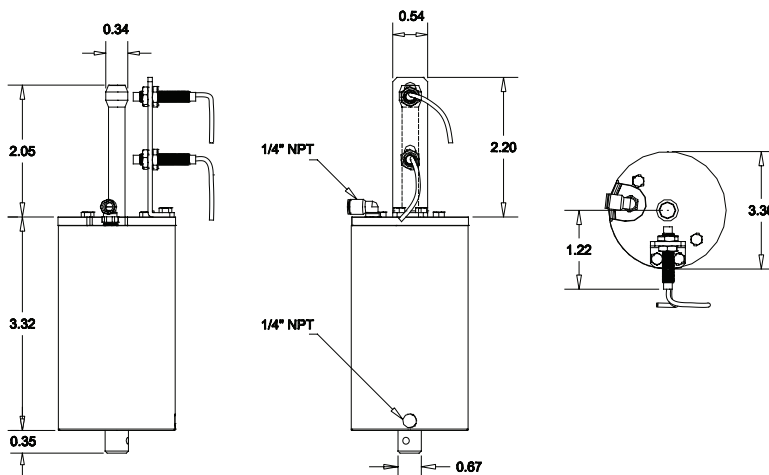
MI-Series bracket mounted sensors

- M8 PS-AE series Proximity sensors (1 or 2) are mounted to the bracket between the actuator and butterfly valve.
- Valve positions are monitored by targets attached to a sensor ring on the actuator coupler. The targets rotate 90 degrees with the coupler to pass in front of the sensor face.
- For use with butterfly valves ½" to 4" mounted to VC-NR -100-SR and VC-NR-100-DA actuators



TI-Series Top mounted sensors

- M8 PS-AE series Proximity sensors (1 or 2) are mounted to a bracket on top of the actuator.
- Valve positions are monitored by a detection shaft attached to the actuator piston. Linear movement of the shaft will pass the target in front of the sensor face.
- For use with butterfly valves ½" to 4" mounted to VC-NR -100-SR-T and VC-NR-100-DA-T actuators.
- Sensor plate and bracket kit part # = VC-TI-BKT-M8



Butterfly Bracket and Coupling Kit for Vertical Stainless Steel Actuators



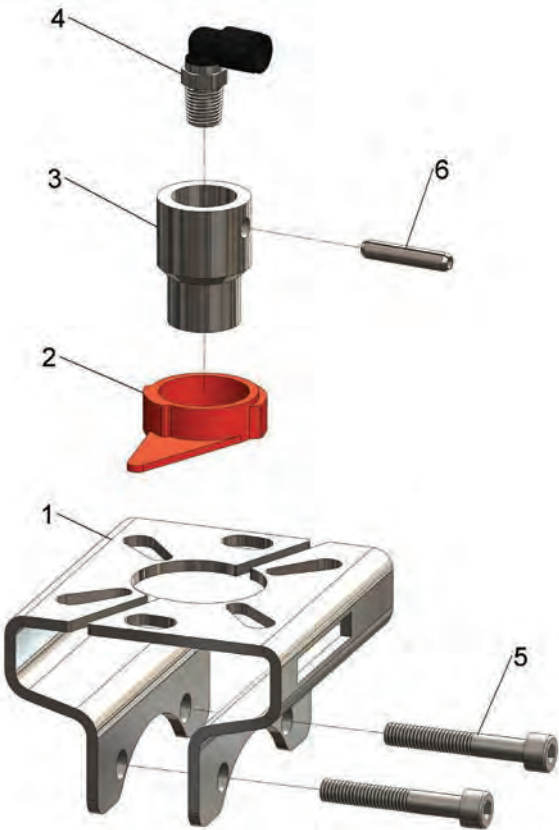
Features and Benefits

The complete bracket and coupler kit includes everything required to assemble your butterfly valves (sizes 1/2"-4") to the VC series actuator. Convenient kit for stocking various sizes of BFV's for future actuation, or converting a manual valve.

Three kits cover valve sizes from 1/2" to 4".

| Size | Series | Part # |
|--------------------|--------|-----------------|
| 1/2" - 1 1/2" | B5101 | B5101-VC100-150 |
| 2" - 2 1/2" | B5101 | B5101-VC200-250 |
| 3" - 4" | B5101 | B5101-VC300-400 |
| 1", 1 1/2", 2 1/2" | B5104 | B5104-VC100-250 |
| 2" - 3" | B5104 | B5104-VC200-300 |
| 4" | B5104 | B5104-VC400 |

Bill of Materials



Kits include:

- #1 (2) 5101 SS brackets
- #2 (1) 1 polyethylene position indicator
- #3 (1) SS coupler
- #4 (1) 90° 1/4" tube x 1/8" NPT air fitting
- #5 (2) Upper valve body to bracket bolts (for use with existing nylock nuts)
- #6 (1) roll pin for coupler to drive assembly

| Item | Description | Material | Qty. |
|------|--------------------------------------|---------------------|------|
| 1 | brackets | 304SS | 2 |
| 2 | position indicator | polyethylene | 1 |
| 3 | coupler | 304SS | 1 |
| 4 | 90° 1/4" tube x 1/8" NPT air fitting | nickle plated brass | 1 |
| 5 | bracket bolts | 304SS | 2 |
| 6 | roll pin | 304SS | 1 |

Bracket kits are also available for ISO 5211 mounting on butterfly valves 6" to 8"

RP Series Pneumatic Double Acting Stainless Steel Actuator



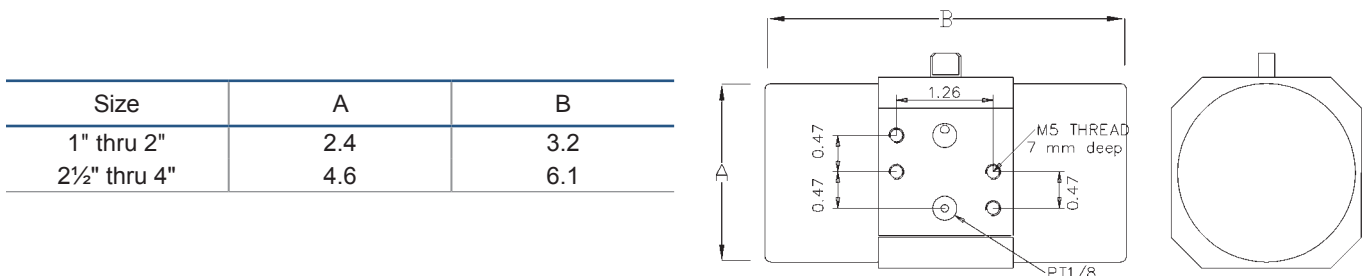
Features and Benefits

- designed for the B5102 series butterfly valves sizes 1" - 4"
- can be mounted on most B5101 and B5104 butterfly valves 1" - 4"
- excellent protection and corrosion resistance
- tested to 1 million cycles
- 100% fully tested prior to shipment
- backed by one year manufacturer's warranty
- air fittings port: 1/8" NPT
- air to open / air to close (ATO/ATC)
- supply pressure: **80 to 100 PSI**
- maximum pressure rating: **120 PSI**
- temperature range: **-4°F to 250°F**

Specifications

| Size | Description | Part # | Weight (lbs.) | Output Torque (in. lbs.) | Air Consumption (in ³) | |
|-------------|---------------|--------------|---------------|--------------------------|------------------------------------|-----------------------------|
| | | | | | down stroke clockwise | up stroke counter-clockwise |
| 1" thru 2" | double acting | RP-BS-050-DA | 4 | 250 | 3.5 | 5.5 |
| 2½" thru 4" | double acting | RP-BS-075-DA | 8 | 500 | 8.5 | 13.5 |

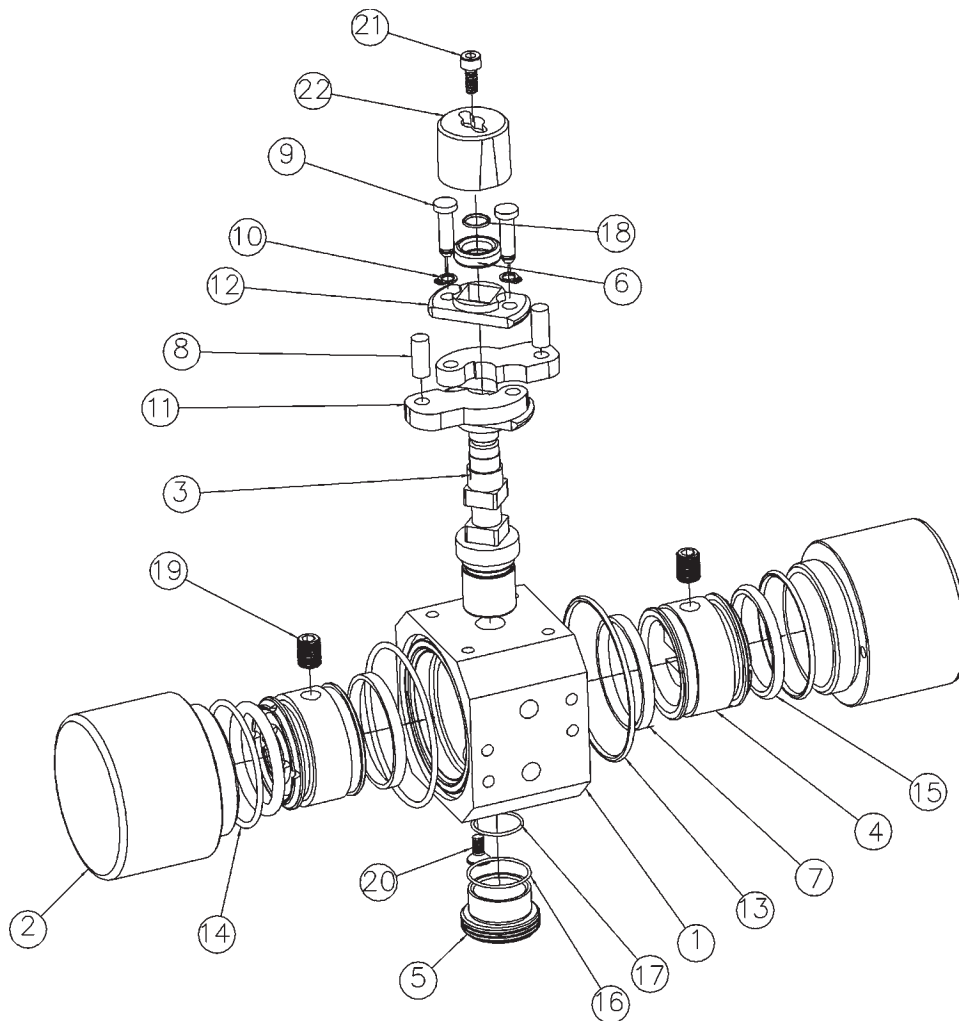
Dimensions



*All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.*

Horizontal Double Acting Stainless Steel Actuator

Material List



| Item | Description | Material | Quantity |
|------|--------------------|-------------------|----------|
| 1 | body | 304 | 1 |
| 2 | cylinder | 304 | 2 |
| 3 | pinion | 304 | 1 |
| 4 | piston | aluminum | 2 |
| 5 | lower bushing | 17-4PH | 1 |
| 6 | upper bushing | 17-4PH | 1 |
| 7 | piston ring | PTFE | 2 |
| 8 | pinion | high carbon steel | 2 |
| 9 | bolt | high carbon steel | 2 |
| 10 | bolt ring | high carbon steel | 2 |
| 11 | arm | high carbon steel | 2 |
| 12 | connector | 304 | 2 |
| 13 | body seal | NBR | 2 |
| 14 | cap seal | NBR | 2 |
| 15 | piston seal | NBR | 2 |
| 16 | bushing seal | NBR | 1 |
| 17 | pinion seal | NBR | 1 |
| 18 | upper bushing seal | NBR | 1 |
| 19 | set screw | high carbon steel | 2 |
| 20 | flat head screw | 304 | 1 |
| 21 | socket head screw | 304 | 1 |
| 22 | indicator | aluminum | 1 |

Repair Kit contains:

#7 (2) piston rings

#13 (2) body seals

#14 (2) cap seals

#15 (2) piston seals

#16 (1) bushing seal

#17 (1) pinion seal

#18 (1) upper bushing seal

Repair Kit Part

RP-BS-050RK

RP-BS-075RK

Manual Operators



Manual Fail Safe Spring Return Handle

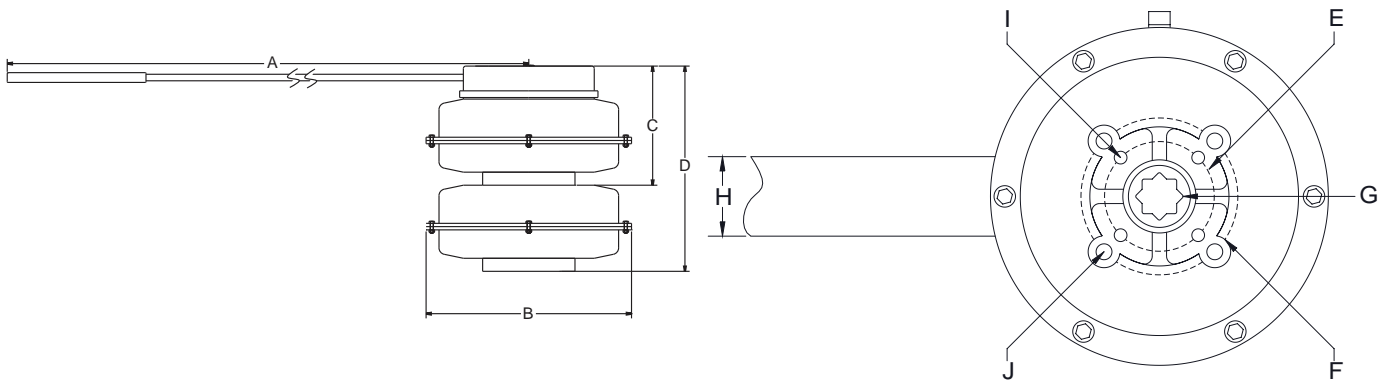
Features and Benefits

- fail safe handles for ball valves and butterfly valves
- manual unit cannot be left in the wrong position
- reliable low stress clock style springs
- weatherproof sealed spring housing
- clockwise or counter-clockwise rotation available
- tough corrosion resistant epoxy paint
- ISO mount allows for direct mounting

Handle Specifications

- spring case: die cast zinc alloy with epoxy finish
- cover shield: nylon
- shaft: stainless steel
- lever: stainless steel

Dimensions



| Part # | A | B | C (single spring) | D (double spring) | E | F | G | H | I | J |
|----------|------|------|----------------------|----------------------|-----|-----|------|-----|----|----|
| DEAD-97 | 9.35 | 4.25 | 2.63 | 5.26 | F03 | F05 | 11mm | 1.0 | M5 | M6 |
| DEAD-180 | 9.35 | 4.64 | 2.63 | 5.26 | F03 | F05 | 14mm | 1.0 | M5 | M6 |
| DEAD-342 | 9.35 | 5.98 | 4.10 | 8.20 | F05 | F07 | 17mm | 1.0 | M6 | M8 |

All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.

Technical Torque Values

| Part # | Spring Start Torque (in. lbs) | Spring End Torque (in. lbs.) |
|----------|----------------------------------|---------------------------------|
| DEAD-97 | 123 | 97 |
| DEAD-180 | 210 | 179 |
| DEAD-342 | 400 | 349 |

Manual Operators



DG series declutchable override

The DG series operators are designed to provide a means of manually overriding pneumatic valve actuators

DG gear operators are installed between the valve and actuator. They are provided with an integral ISO 5211 flange for the actuator and a bottom ISO flange for the valve.

Features and Benefits

- All DG's can be supplied complete with valve and actuator mounting kits.
- We can also assemble customer's valves and actuators with gear operators and control accessories.
- Disengageable design for use with double acting and spring return pneumatic actuators. The disengaging handle is securely held in place with a locking pin.
- DG gear operators are provided with two independent stroke adjustments $90^\circ \pm 5^\circ$.
- The DG series has options for extended strokes: 120° , 180° and 360° (without lock).
- DG gear operators housing is 100% environmentally sealed and submersible to 30 psi.

Ordering Information

| Declutchable Gear (1-3) | (4) | Actuator 5211 ISO (5-7) | Actuator Drive SQ mm (8-9) | Valve 5211 ISO (10-12) | Valve Drive SQ mm (13-14) |
|----------------------------|-----|----------------------------|-------------------------------|---------------------------|------------------------------|
| DGA | - | F07 | 11 | F07 | 11 |
| DGB | | F10 | 14 | F10 | 14 |
| | | F12 | 17 | F12 | 17 |
| | | | 22 | | 22 |
| | | | 27 | | 27 |

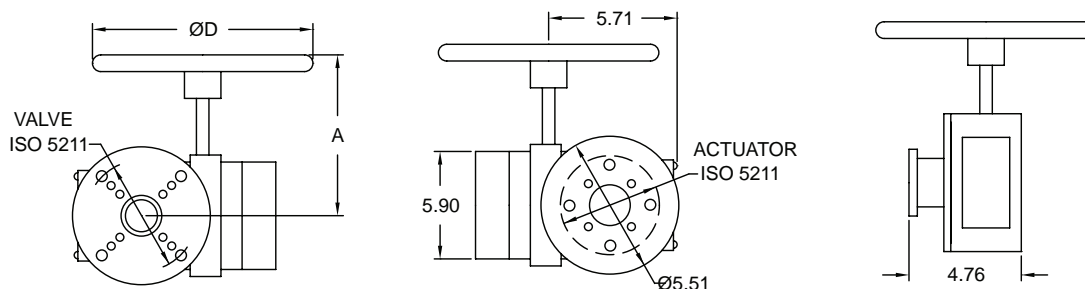
Materials

- Housing : Epoxy coated cast iron
- Input shaft : stainless steel
- Gear segment : ductile iron
- Lever : stainless steel

Specifications

- Torque range : 4,425 (500 Nm) to 31,000 (3,500 Nm)
- Stroke : $90^\circ \pm 5^\circ$ (120° , 180° or 360° on request)
- Temperature range : -4°F (-20°C) to 176°F (80°C)
- High temperature option available on request

Dimensions



| Model | A | D | Max Torque (in-lb) | Ratio | ISO 5211 Actuator specify | ISO 5211 Valve specify |
|-------|-------|--------|--------------------|-------|---------------------------|------------------------|
| DGA | 7.48" | 7.87" | 2650 | 40:1 | F07, F10, F12 | F07, F10, F12 |
| DGB | 7.78" | 11.81" | 4425 | | | |

Limit Switchers

A wide variety of feedback options are offered. Available in NEMA 4/4X and NEMA 7 enclosures, mechanical, solid state and proximity switches, networking options, and various visual indicators. Can be used on ALL rack and pinion actuators. All standard with NAMUR mounting interface.

XLS-B4 series are general purpose limit switches in Nema 4/4x enclosures. Can be used on all rack and pinion actuators.



XLS-C7 series are hazardous location limit switches in Nema 7 & 9 enclosures. Can be used on all rack and pinion actuators.



XLS-C4 series are general purpose limit switches in Nema 4/4X enclosures with additional switching options, including ASI interface. Can be used on all rack and pinion actuators.



S series combines switching with integral solenoids for 3 position control of 3-way ball valves and 180° actuators.



PS-AE & PS-V series are inductive proximity sensors that are available in varying voltages and sizes. Can be bracket mounted to any valve actuation package.



XLS-B4 Series Limit Switch

Features and Benefits



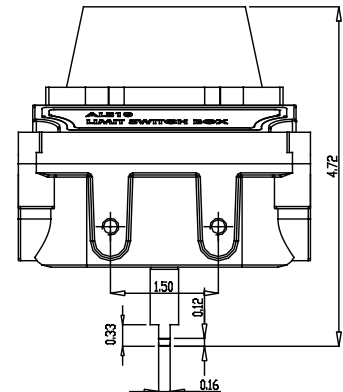
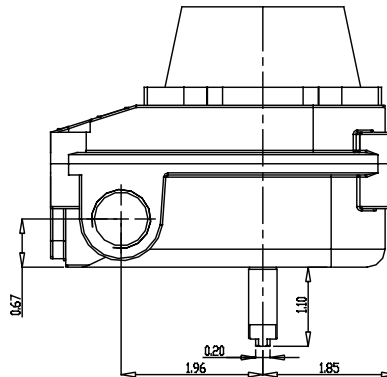
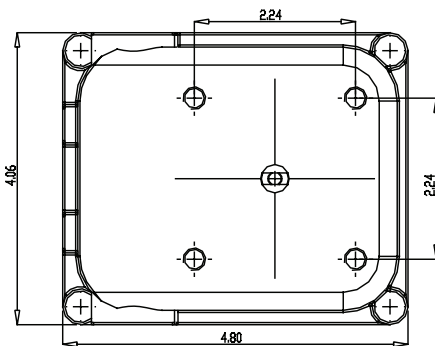
- compact, cost-efficient, low profile limit switches for both local and remote indication of valve and/or actuator position
- visual position indicator
- quick-set cam
- multipoint terminal strip
- dual wire potting
- captive cover bolts
- UL and CENEFLEC approved
- NEMA 4/4X
- standard NAMUR mounting

Specifications

- enclosure: weatherproof, 1P67
- temperature range: **-4°F** (20°C) to **185°F** (85°C)
- cable entry: 2 x ½" NPT
- terminal strip: 8 points
- position indicator: 0 - 90: open - yellow, close - red
- L and T flow indication
- switch type: 2 SPDT mechanical switches
- painting: black polyester powder coating
- bracket: stainless steel (optional)

Dimensions

XLS-B4A0120P (NEMA 4/4x enclosure)



All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.

XLS-C7 Series Limit Switch for Hazardous Environments

The XLS-C7 series hazardous location explosion proof limit switch provides an effective solution for both visual and remote electrical indication of valve/actuator position. The heavy-duty design and wide variety of options make the XLS-C7 series the ideal limit switch for use in NEMA 7 & 9 applications.



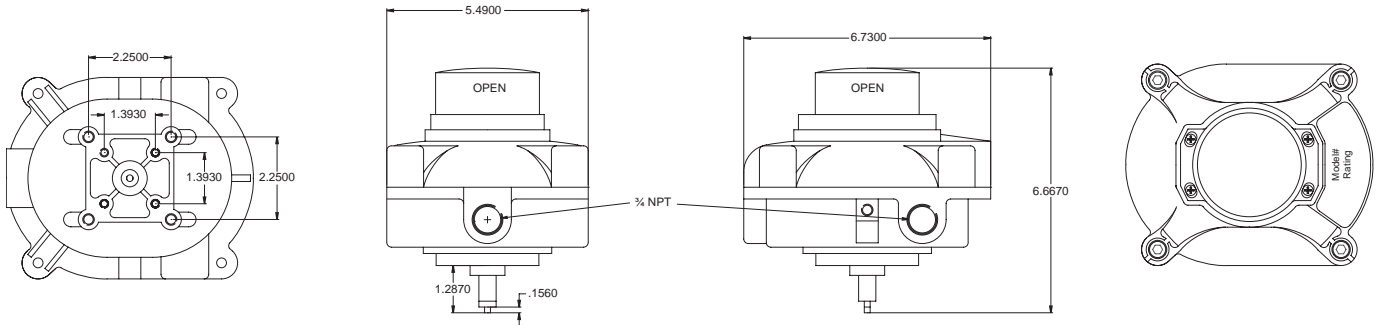
Features and Benefits

- compact, cost-efficient, low profile limit switches for both local and remote indication of valve and/or actuator position
- wide variety of switch options are available
- visual position indicator
- quick-set cam
- multipoint terminal strip
- dual wire potting
- captive cover bolts
- UL and CENELEC approved
- NEMA 4, 4X, 7 and 9
- standard NAMUR mounting

Specifications

- cable entry: 2 x 1/2" NPT
- terminal strip: 8 points
- position indicator: 0 - 90: open - yellow, close - red
- 0-180° L and T flow indication
- painting: black polyester powder coating
- bracket: stainless steel (optional)
- Option for NAMUR proximity switches for intrinsically safe applications.
- AS-i digital communication interface card option
- Indicator dome : UV resistant and 94-V0 polycarbonate
- Shaft : stainless steel
- Fasteners : stainless steel
- Operating temperature range DIV1 -13°F (-25°C) to 176°F (80°C)
- Temp. range may vary due to switch range and switch approvals
- Electrical: according to switch option
- Operating temperature range DIV2 -40°F (-40°C) to 176°F (80°C)
- Switch approvals
 - Class I Division 1 Groups C, D
 - Class I Division 2 Groups A, B, C, D (Proximity Sensors Only)
 - Class II Division 1 Groups E, F, G
 - Class II Division 2 Groups F, G

XLS-C7 Series (NEMA 7 enclosure)



Ordering Information

| Limit Switch (1-5) | Enclosure (6) | Indicator (7) | Switch Type (8-9) | Switch Quantity (10) | Terminal Strip (11) | Cable Entry (12) |
|--------------------|--------------------|----------------|--|----------------------|---------------------|-------------------------|
| XLS-C | 7 NEMA 4/4X, 7 & 9 | A Open/Close | 01 mechanical SPDT silver plated contacts | 0 Use For Tr | 0 Standard *P | Two 1/2" NPT |
| | | L 3-Way L Port | 03 mechanical DPDT silver plated contacts | 1 Use For As | 1 10-Pole | Two 1/2" NPT & One 3/4" |
| | | T 3-Way T Port | 10 proximity SPDT | 2 2 switches | 2 AS-I Terminal | |
| | | | 20 proximity SPST | 4 4 switches | | |
| | | | 30 proximity DPDT | | | |
| | | | AS AS interface | | | |
| | | | TR 4-20 mA transmitter | | | |
| | | | TF 4-20 mA transmitter (plus 2 mech. Switches) | | | |
| | | | 3N proximity NAMUR | | | |
| | | | 71 proximity NO | | | |

* Terminal strip will depend upon switch type

All dimensions are in inches, unless noted. Dimensions are approximate.

Engineering dimensions are available upon request. Specifications are subject to change without notice.

XLS-C4 Series Limit Switch

The XLS-C4 series limit switch box provides a compact design and cost effective solution for both visual and remote electrical indication of rotary valve/actuator position. The large 3D rotor provides highly visible confirmation of valve/actuator position. The XLS-C4 series is the ideal switch for applications requiring proximity switches or ASI interface. Hermetically sealed and solid state switch options also make the XLS-C4 series suitable for use in intrinsically safe applications and Class I & II Division 2 Groups A, B, C, D, F & G hazardous applications.

Features and Benefits



- The polyester powder coating inside and outside and stainless steel shaft, make this unit ideal for use in hostile environments.
- Compact body design is ideal for use on all size actuators including very small units.
- Multiple switch options include mechanical, proximity and inductive switches.
- Visual position indication: the 3D rotor provides high visibility confirmation of valve/actuator position.
- "Easy-Set" cams are splined, spring loaded and independently adjustable. This design offers tool-free calibration and positive vibration resistant engagement.
- Multiple cable entries are standard with two 1/2" NPT cable entries and an option for a third entry.

Specifications

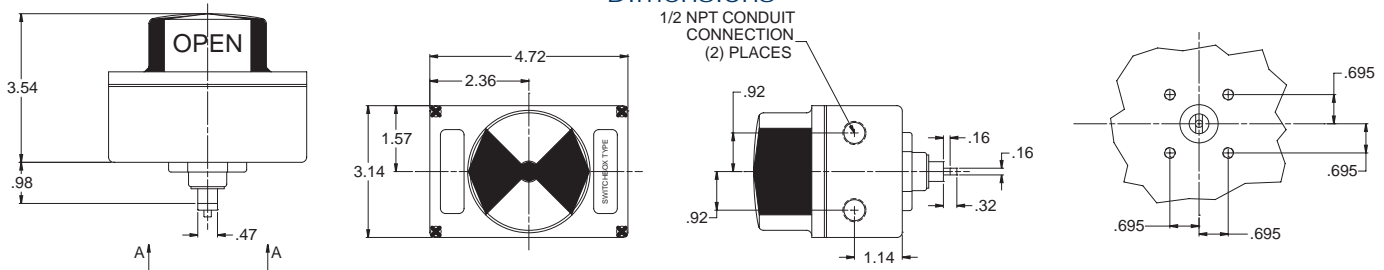
- housing: aluminum, polyester coated or stainless steel
- cover: polycarbonate, aluminum or stainless steel
- shaft: stainless steel
- cam / splines: UV resistant polycarbonate
- 3D Rotor: UV resistant polycarbonate
- terminal block: stainless steel screws and PVC housing
- temperature range: **32°F to +176°F**
- weight: 1 1/4 bs.
- approvals: UL and CUL, NEMA 4,4X also CENELEC IP65 Class I & II Division 2 Groups A, B, C, D, F & G

Ordering Information

| Limit Switch (1-5) | Enclosure (6) | Indicator (7) | Switch Type (8-9) | | Switch Quantity (10) | Terminal Strip (11) | Cable Entry (12) |
|--------------------|-------------------|----------------|-------------------|---|----------------------|---------------------|------------------|
| XLS-C | 4 NEMA 4/4X | A Open/Close | 01 | mechanical SPDT silver plated contacts | 0 Use For TR | 0 Standard * | P Two 1/2" NPT |
| | 5 Stainless Steel | L 3-Way L Port | 03 | mechanical DPDT silver plated contacts | 1 Use For AS | 1 10-Pole | |
| | | T 3-Way T Port | 10 | proximity SPDT | 2 2 switches | 2 AS-I Terminal | |
| | | | 20 | proximity SPST | 3 3 switches | | |
| | | | 30 | proximity DPDT | | | |
| | | | AS | AS interface | | | |
| | | | TR | 4-20 mA transmitter | | | |
| | | | TF | 4-20 mA transmitter (plus 2 mech. Switches) | | | |
| | | | 3N | proximity NAMUR | | | |
| | | | 73 | prox. NO PNP (Pepper & Fuchs) | | | |
| | | | 11 | prox. SPST (one red & one green LED) | | | |

* Terminal strip will depend upon switch type

Dimensions



All dimensions are in inches, unless noted. Dimensions are approximate.

Engineering dimensions are available upon request. Specifications are subject to change without notice.

S-Series Limit Switch with Integral Solenoids

The S- Series combines a compact enclosure with limit switches, visual indication and integral solenoids for position indication plus valve actuator control and 3-position control for 3-way ball valves and 180 degree actuators. NAMUR proximity switch options and EEx ia solenoid valve also make the S-series suitable for use in intrinsically safe applications.

The S- Series integral single or double 5-port, 4-way solenoid valves dramatically reduce automation assembly time and envelop dimension of package. Factory pre-wiring ensures reliable startups and long-term reliability.

The S- Series is available with a variety of switches and feedback choices including: electromechanical, inductive proximity, NAMUR, NPN, PNP and hermetically-sealed proximity dry contact switches; AS-i digital communication or a 4-20 mA position transmitter.



Ordering Information

| Limit Switch (1-5) | Enclosure (6) | Indicator (7) | Switch Type (8-9) | Switch Quantity (10) | Terminal Strip (11) | Cable Entry (12) | (13) | Solenoid Type (14) | Solenoid Voltage (15) |
|--------------------|-------------------|---------------------|---|-----------------------------|---------------------|-----------------------------------|------|---|-----------------------|
| XLS-C | 4 NEMA 4/4X | A Beacon OPEN/CLOSE | 10 Proximity Spdt | 0 Use For TR | 0 Standard PCB ** | P Two 1/2" NPT | | S Dual coil, 3-position, 4 way (SR actuators) | A 24VAC |
| | 5 Stainless Steel | L 3-WAY L PORT | 20 Proximity Spst | 1 Use For AS | | G Two 1/2" NPT & One 3/4" NPT | | T Dual coil, 3-position, 4 way (DA actuators) | B 24VDC |
| | | T 3-WAY T PORT | 30 Proximity Dpdt | 2 2 Switches | | M Two 1/2" NPT & 4-pin micro con. | | V Single Coil, 2-Position, 4-Way | C 12VDC |
| | | F Flat - open close | AS As Interface | 4 2 Switches | | | | Z Dual Coil, 2-Position, 4-Way | D 120VAC |
| | | | TR 4-20 mA transmitter | 5 switches (use w/ 3A & 3B) | | | | | F 240VAC |
| | | | TF 4-20 mA transmitter (plus 2 mechanical switches) | | | | | | |
| | | | 3A Mech, 2-DPDT + 3 SPDT (for DA actuators) | | | | | | |
| | | | 3B Mech, 2-DPDT + 3 SPDT (for SR actuators) | | | | | | |
| | | | DN Device Net | | | | | | |

** According to switches used

Specifications

- integral single and double 5-way solenoid valves
- pneumatic connections are 1/4" NPT
- Large two-color 3D indicator can be clearly viewed from overhead and from all sides.
- Easy-set cams are splined, spring loaded and independently adjustable. This design offers tool free calibration and positive vibration resistant engagement.
- weatherproof IP67 and NEMA 4/4X

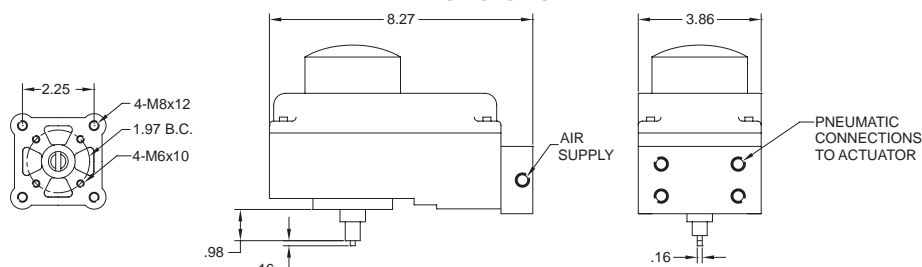
Ratings

- ambient temperature range
- general purpose execution: **-5°C to +50°C**
- intrinsically safe execution: **-20°C to +60°C**
- air supply: filtered, lubricated or non lubricated compressed air (also dried to a dew point of -20°C)
- operating pressure: minimum **37 PSI**, maximum **120 PSI**
- electrical: according to switch option
- temperature range may vary due to switch type

Materials

- body and cover: epoxy coated aluminium
- indicator dome: UV resistant and V0 polycarbonate
- pneumatic connection plate: anodized aluminium
- seals: NBR
- shaft: stainless steel
- fasteners: stainless steel

Dimensions



All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.

PS-AE Series Inductive Proximity Sensors



Features and Benefits

M8 (8 mm) metal – DC

- 20 standard length models available
- Compact metal housing
- Axial cable or M8 quick-disconnect models
- Complete overload protection
- IP67 rated
- LED status indicators are visible 360 degrees around the cylinder

Specifications

| Specifications | Standard Distance Models | | Extended Distance Models | |
|---|--|-------------------------------|--------------------------|---------------|
| Type | Shielded | Unshielded | Shielded | Unshielded |
| Operating Distance | 1.5mm (0.059in) | 2.5mm (0.098in) 2mm (0.079in) | 2mm (0.079in) | 4mm (0.157in) |
| Differential Travel | 2 to 10% | | 1 to 20% | |
| Repeat Accuracy | 2 to 10% | | 2 to 10% | |
| Operating Voltage | 10-30VDC | | | |
| Ripple | ≤10% | | | |
| No-load Supply Current | ≤20mA | | ≤10mA | |
| Load Current | ≤200mA | | | |
| Leakage Current | ≤10μA | | ≤120μA | |
| Voltage Drop | ≤1.2V | | | |
| Output Type | NPN or PNP/N.O. only/3-wire | | | |
| Switching Frequency | 3kHz | | | |
| (tv) Time Delay Before Availability | 100ms (5ms for AE6 short body models) | | | |
| Input Voltage Transient Protection | Up to 30 VDC | | | |
| Input Power Polarity Reversal Protection | yes | | | |
| Output Power Short-Circuit Protection | Yes (switch auto-resets after overload is removed) | | | |
| Temperature Range | -25° to +70° C (-13° to 158° F) | | | |
| Temperature Drift | ≤10% Sr | | | |
| Protection Degree (DIN 40050) | IEC IP67 | | | |
| Agency Approvals | NA | | | |
| LED Indicators | Yellow (output energized) | | | |
| Housing Material | Nickel-plated brass | | | |
| Sensing Face Material | PBT | | | |
| Tightening Torque | 4Nm (35lb-in) | | | |
| Weight (cable/M8 connector/M12 connector) | 43g (1.52oz)/16g (0.56oz)/20g (0.71oz) | | | |

PS-AE Series Inductive Proximity Sensors

Ordering Information

| Part Number | Sensing Range | Housing | Output State | Logic | Connection | Wiring | Dimensions |
|-------------------|------------------------|------------|--------------|-------|-----------------------|-----------|------------|
| Standard Distance | | | | | | | |
| PS-AE1-AN-1A | 0 to 1.5mm (0-0.059in) | Shielded | N.O. | NPN | 2m (6.5') axial cable | Diagram 1 | Figure 1 |
| PS-AE1-AP-1A | | | | PNP | 2m (6.5') axial cable | Diagram 1 | Figure 1 |
| PS-AE1-AN-1H | | | | NPN | M12 (12mm) connector | Diagram 1 | Figure 2 |
| PS-AE1-AP-1H | | | | PNP | M12 (12mm) connector | Diagram 1 | Figure 2 |
| PS-AE1-AN-1F | | | | NPN | M8 (8mm) connector | Diagram 1 | Figure 3 |
| PS-AE1-AP-1F | | | | PNP | M8 (8mm) connector | Diagram 1 | Figure 3 |
| PS-AE1-AN-2A | 0 to 2.5mm (0-0.098in) | Unshielded | N.O. | NPN | 2m (6.5') axial cable | Diagram 1 | Figure 1 |
| PS-AE1-AP-2A | | | | PNP | 2m (6.5') axial cable | Diagram 1 | Figure 1 |
| PS-AE1-AN-2H | | | | NPN | M12 (12mm) connector | Diagram 1 | Figure 2 |
| PS-AE1-AP-2H | | | | PNP | M12 (12mm) connector | Diagram 1 | Figure 2 |
| PS-AE1-AN-2F | | | | NPN | M8 (8mm) connector | Diagram 1 | Figure 3 |
| PS-AE1-AP-2F | | | | PNP | M8 (8mm) connector | Diagram 1 | Figure 3 |
| Extended Distance | | | | | | | |
| PS-AE1-AN-3A | 0 to 2mm (0-0.079in) | Shielded | N.O. | NPN | 2m (6.5') axial cable | Diagram 1 | Figure 1 |
| PS-AE1-AP-3A | | | | PNP | 2m (6.5') axial cable | Diagram 1 | Figure 1 |
| PS-AE1-AN-3F | | | | NPN | M8 (8mm) connector | Diagram 1 | Figure 3 |
| PS-AE1-AP-3F | | | | PNP | M8 (8mm) connector | Diagram 1 | Figure 3 |
| PS-AE1-AN-4A | 0 to 4mm (0-0.157in) | Unshielded | N.O. | NPN | 2m (6.5') axial cable | Diagram 1 | Figure 1 |
| PS-AE1-AP-4A | | | | PNP | 2m (6.5') axial cable | Diagram 1 | Figure 1 |
| PS-AE1-AN-4F | | | | NPN | M8 (8mm) connector | Diagram 1 | Figure 3 |
| PS-AE1-AP-4F | | | | PNP | M8 (8mm) connector | Diagram 1 | Figure 3 |

Figures

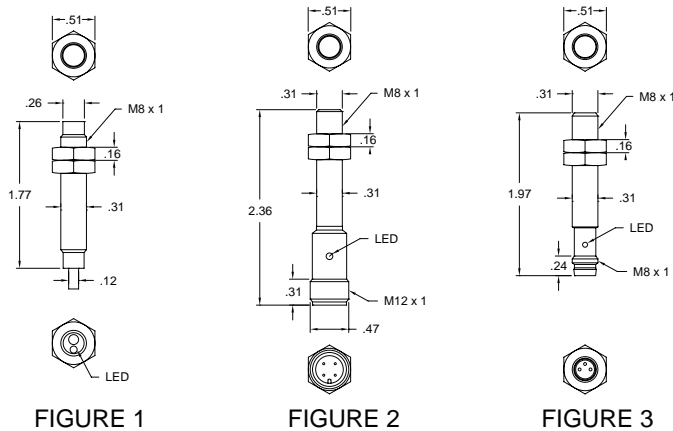
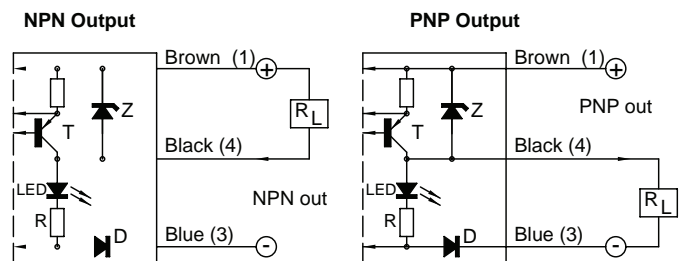
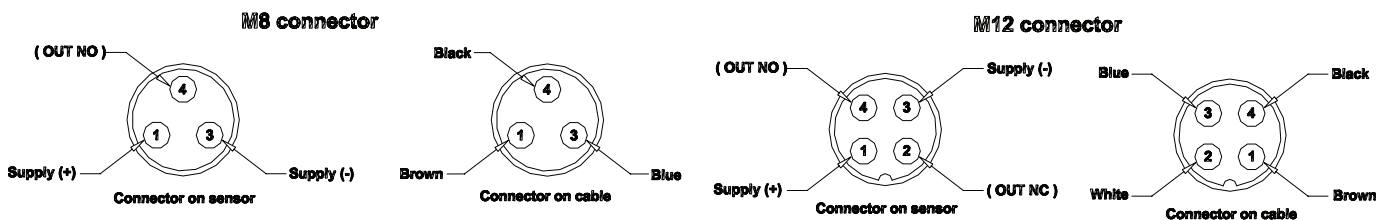


Diagram 1



Connectors



PS-V Series Inductive AC Proximity Sensors

Features:

- Multi-voltage: 20 to 253 VAC
- 2-Wire
- Metal Housing
- Axial cable with tang or quick-disconnect models ; purchase cable separately
- IP67 rated
- LED status indicator

Specifications

| Specifications | M12 Models | | M18 Models | | M30 Models | |
|--|--|------------|---------------------|------------|---------------------|------------|
| Mounting Type | Shielded | Unshielded | Shielded | Unshielded | Shielded | Unshielded |
| Nominal Sensing Distance | 2 | 4 | 5 | 8 | 10 | 15 |
| Operating Distance | N/A | | | | | |
| Output Type | Triac/N.O./2-wire | | | | | |
| Operating Voltage | 20 to 253 VAC, 50/60 Hz | | | | | |
| No-Load Supply Current | N/A | | | | | |
| Operating (load) Current | 5 to 300 mA (RMS) | | | | | |
| Off-state Leakage Current | 1.0 mA max. (RMS) | | | | | |
| Switching Frequency | 25 Hz | | | | | |
| Differential Travel (% of Nominal Distance) | 2 to 10% | | | | | |
| Repeat Accuracy | 5% | | | | | |
| Ripple | N/A | | | | | |
| Time Delay Before Availability (tv) | 200 ms | | | | | |
| Reverse Polarity Protection | N/A | | | | | |
| Short Circuit Protection | No | | | | | |
| Operating Temperature | -25° to +70°C (-13° to + 158°F) | | | | | |
| Protection Degree (DIN 40 050) | IEC IP67 | | | | | |
| LED Indicators | Yellow (output energized) | | | | | |
| Housing Material | Nickel-plated brass | | | | | |
| Sensing Face Material | Polybutylene Terephthalate (PBT) | | | | | |
| Tightening Torque | 10 Nm (11 lb-ft) | | 25 Nm (18.44 lb-ft) | | 50 Nm (36.88 lb-ft) | |
| Weight | 70 g (2.47 oz) | | 120 g (4.23 oz) | | 300 g (10.6 oz) | |
| Connection | 2 m (6.5') axial cable of M12 (12mm) connector | | | | | |
| Agency Approvals | CE, UL Recognized file E130644 | | | | | |

PS-V Series Inductive AC Proximity Sensors

Ordering Information

| Part Number | Sensing Range | Housing | Output State | Connection | Wiring | Dimensions |
|--------------|-----------------|------------|--------------|------------------------|-----------|------------|
| PS-VM1-A0-1B | 2 mm (0.079in) | Shielded | N.O. | 2 m (6.5') axial cable | Diagram 1 | Figure 1 |
| PS-VM1-A0-2B | 4 mm (0.157in) | Unshielded | | 2 m (6.5') axial cable | Diagram 1 | Figure 1 |
| PS-VM1-A0-1H | 2 mm (0.079in) | Shielded | | M12 (12mm) | Diagram 1 | Figure 2 |
| PS-VM1-A0-2H | 4 mm (0.157in) | Unshielded | | M12 (12mm) | Diagram 1 | Figure 2 |
| PS-VK1-A0-1B | 5 mm (0.197in) | Shielded | N.O. | 2 m (6.5') axial cable | Diagram 1 | Figure 3 |
| PS-VK1-A0-2B | 8 mm (0.315in) | Unshielded | | 2 m (6.5') axial cable | Diagram 1 | Figure 3 |
| PS-VK1-A0-1H | 5 mm (0.197in) | Shielded | | M12 (12mm) | Diagram 1 | Figure 4 |
| PS-VK1-A0-2H | 8 mm (0.315in) | Unshielded | | M12 (12mm) | Diagram 1 | Figure 4 |
| PS-VT1-A0-1B | 10 mm (0.394in) | Shielded | N.O. | 2 m (6.5') axial cable | Diagram 1 | Figure 5 |
| PS-VT1-A0-2B | 15 mm (0.591in) | Unshielded | | 2 m (6.5') axial cable | Diagram 1 | Figure 5 |

Figures and Diagrams mm (inches)

Diagram 1

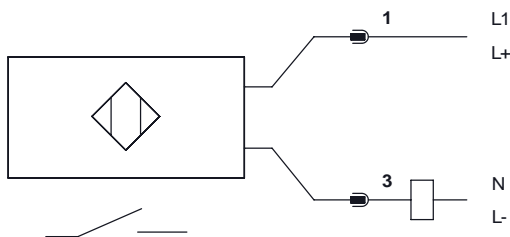


Diagram 1

Connector
M12 connector

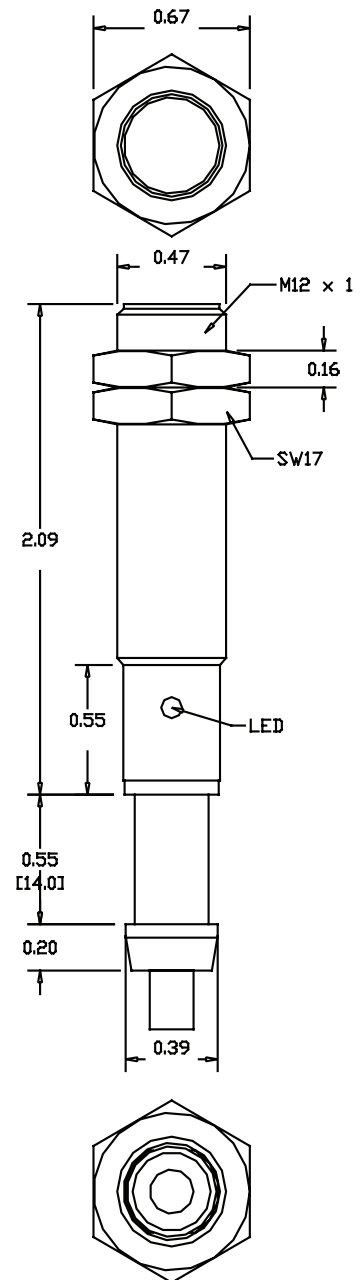
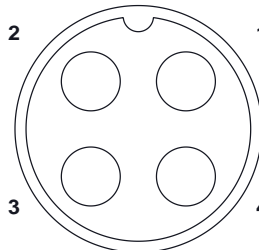


Figure 1

PS-V Series Inductive AC Proximity Sensors

Figures and Diagrams
mm (inches)

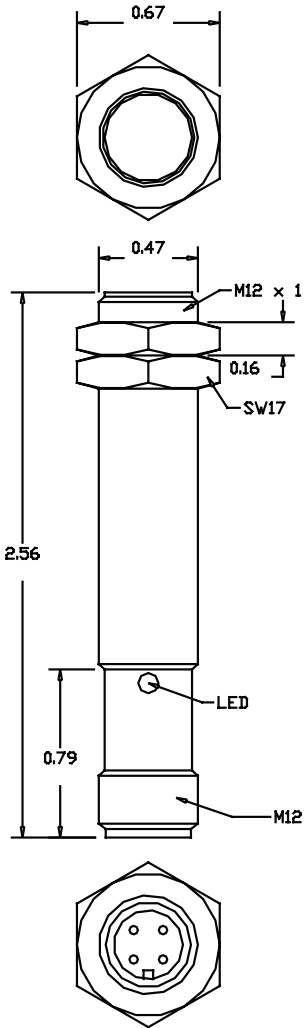


Figure 2

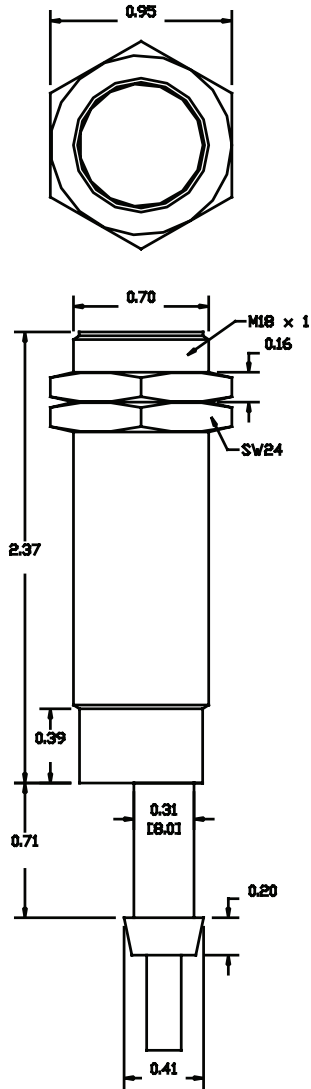


Figure 3

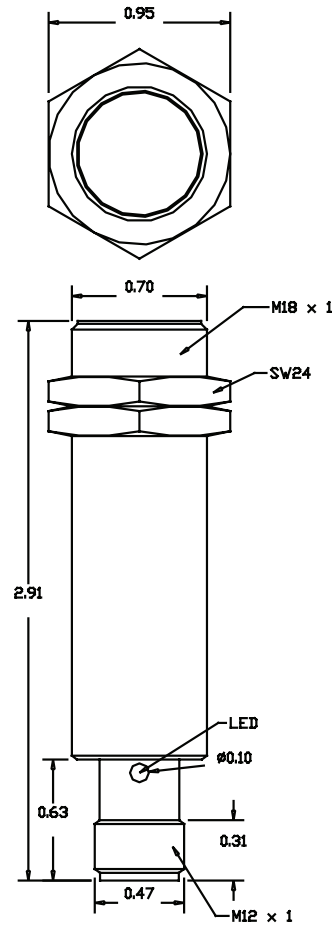


Figure 4

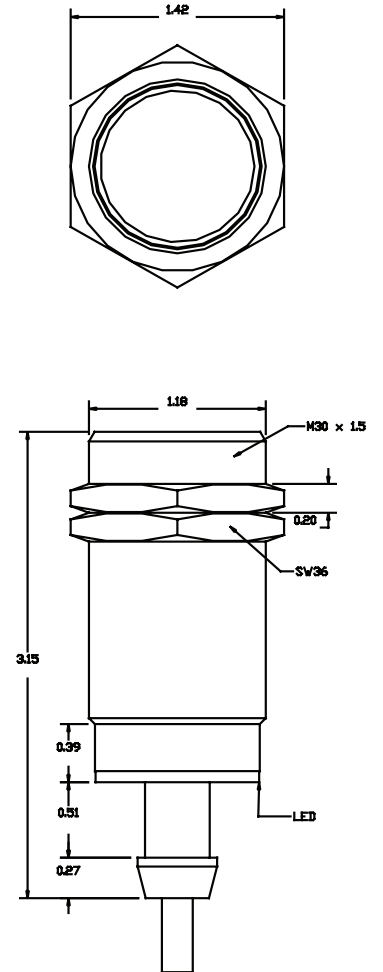
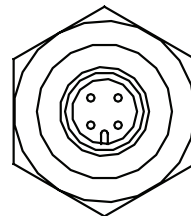
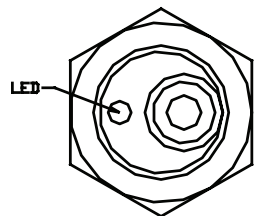


Figure 5



SV Series NAMUR Mount Solenoid Valves

Available in a variety of voltages, materials, spools and enclosures. All solenoid valves are standard with NAMUR mounting interface for direct mounting to all rack and pinion actuators.

SV series single coil NEMA 4/4X solenoid valve.



SV series dual coil NEMA 4/4X solenoid valve.



SV series single coil NEMA 7 solenoid valve.



SV series single coil intrinsically safe solenoid valve.



SV series dual coil NEMA 4/4X solenoid valve with open or closed centers.



SV Series NAMUR Mount Solenoid Valves

Ordering Information

| Solenoid Valve (1-4) | Type (5-6) | Enclosure (7) | Voltage (8) | (9) | Options (10) | Options (11) |
|----------------------|----------------------|--------------------|-------------|-----|---|------------------|
| XSO- | 4S 4-way single coil | 4 NEMA 4/4X | A 12VDC | - 0 | None | A None |
| | 4D 4-way dual coil | 7 NEMA 4/4X, 7 & 9 | B 24VDC | - 1 | Lighted Din Connector | B Pre-Wired Coil |
| | | | C 24VAC | - 2 | Coil Only | |
| | | | D 110VAC | - 3 | 3-Position Da | |
| | | | E 220VAC | - 4 | Intrinsically Safe | |
| | | | F 48VAC | - 5 | Low Watt Coil (1.1W) | |
| | | | | - 6 | 3-Position For Center Return 180° Actuators | |
| | | | | - 7 | 3-Position SR | |

NAMUR mount single coil solenoid valves

Features and Benefits



- Compact IP65 rated NAMUR mount solenoid valve
- Lightweight and easy to use.
- comes standard as 4-Way
- NEMA 4/4X Coil
- Epoxy coated aluminum housing
- Electroless nickel plated spool
- Manual override (Locking Type)
- 1/4" NPT inlet and exhaust ports
- Field interchangeable for DA or SR actuators
- Available in 220VAC, 120VAC, 24VAC, 24VDC, 12VDC, others upon request
- Lighted Din connectors available

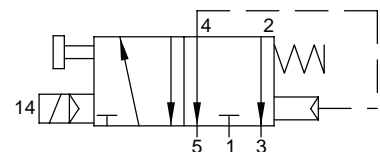
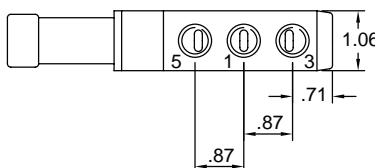
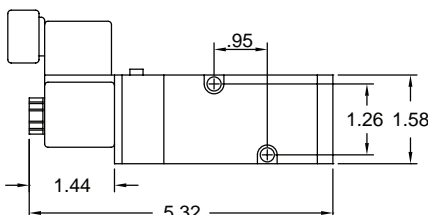
Materials

- Body: powder epoxy coated extruded aluminum
- Spool: anodized aluminum
- Spring: stainless steel
- O-ring: Buna-N (FKM optional)
- DIN Connector: Technopolymer

Specifications

- DC coil voltage: 12v, 24v
- AC coil voltage (60Hz): 24v, 120v, 220v
- standard protection class: IP65, NEMA 4 (DIN connector, as shown)
- electrical connection: 1/2" NPT DIN connector
- coil insulation: Class F
- supply air and environment temperature limits: -4°F to 158°F
- Viton seal temperature range: 0°F to 250°F
- Air supply connection = 1/4"NPT
- Operating pressure = 30 – 120 PSI
- Weight = 0.80 lb
- Flow factor = Kv 10.5
- Duty cycle = 100%
- Power input = 50/60 Hz inrush 7.5VA rated 5VA, DC 3W

Dimensions



SV Series NAMUR Mount Solenoid Valves

NAMUR Mount Dual Coil Solenoid Valves

Features and Benefits

- Compact IP65 rated NAMUR mount solenoid valve
- Lightweight and easy to use.
- comes standard as 4-Way
- NEMA 4/4X Coil
- Epoxy coated aluminum housing
- Electroless nickel plated spool
- Manual override (Locking Type)
- 1/4" NPT inlet and exhaust ports
- Field interchangeable for DA or SR actuators
- Available in 220VAC, 120VAC, 24VAC, 24VDC, 12VDC, others upon request
- Lighted Din connectors available
- Available in explosion proof and intrinsically safe



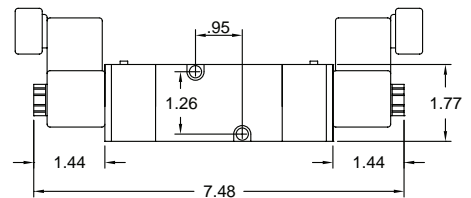
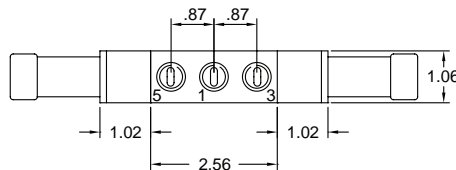
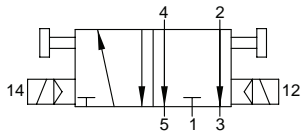
Materials

- Body: powder epoxy coated extruded aluminum
- Spool: anodized aluminum
- Spring: stainless steel
- O-ring: Buna-N (FKM optional)
- DIN Connector: Technopolymer

Specifications

- DC coil voltage: 12v, 24v
- AC coil voltage (60Hz): 24v, 120v, 220v
- standard protection class: IP65, NEMA 4 (DIN connector, as shown)
- electrical connection: 1/2" NPT DIN connector
- coil insulation: Class F
- supply air and environment temperature limits: -4°F to 158°F
- FKM seal temperature range: 0°F to 250°F
- Air supply connection = 1/4" NPT
- Operating pressure = 30 – 120 PSI
- Weight = 1 lb
- Flow factor = Kv 10.5
- Duty cycle = 100%
- Power input = 50/60 Hz inrush 7.5VA rated 5VA, DC 3W

Dimensions



R

SV Series NAMUR Mount Solenoid Valves

NAMUR Mount Explosion Proof Single Coil Solenoid Valves

Features and Benefits



- Compact IP65 rated NAMUR mount solenoid valve
- Lightweight and easy to use.
- comes standard as 4-Way
- NEMA 7 Coil
- Epoxy coated aluminum housing
- Electroless nickel plated spool
- Manual override (Locking Type)
- 1/4" NPT inlet and exhaust ports
- Field interchangeable for DA or SR actuators
- Available in 220VAC, 120VAC, 24VAC, 24VDC, 12VDC, others upon request
- Lighted Din connectors available

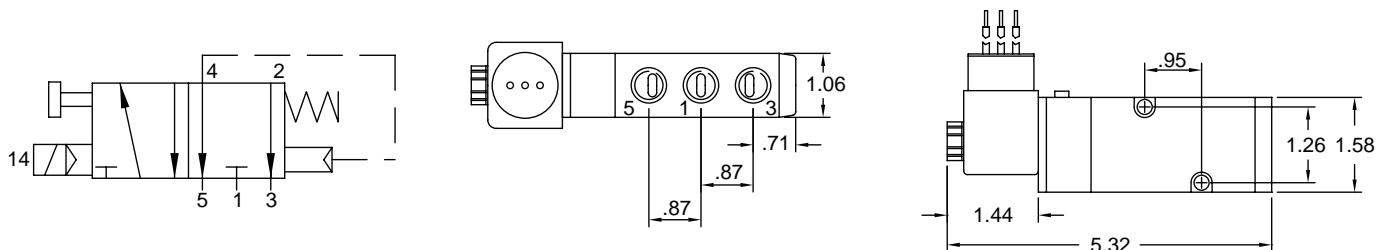
Materials

- Body: powder epoxy coated extruded aluminum
- Spool: anodized aluminum
- Spring: stainless steel
- O-ring: Buna-N (FKM optional)
- DIN Connector: Technopolymer

Specifications

- DC coil voltage: 12v, 24v
- AC coil voltage (60Hz): 24v, 120v, 220v
- standard protection class: IP65, NEMA 7 (DIN connector, as shown)
- electrical connection: 1/2" NPT DIN connector
- coil insulation: Class H
- supply air and environment temperature limits: -4°F to 140°F
- FKM seal temperature range: 0°F to 250°F
- Air supply connection = 1/4"NPT
- Operating pressure = 30 – 120 PSI
- Weight = 0.95 lb
- Flow factor = Kv 10.5
- Duty cycle = 100%
- Power input = 50/60 Hz inrush 7.5VA rated 5VA, DC 6W

Dimensions



SV Series NAMUR Mount Solenoid Valves

NAMUR Mount Intrinsically Safe Single Coil Solenoid Valves

Features and Benefits

- Compact IP65 rated NAMUR mount solenoid valve
- Lightweight and easy to use.
- comes standard as 4-Way
- Intrinsically safe coil
- Epoxy coated aluminum housing
- Electroless nickel plated spool
- Manual override (Locking Type)
- 1/4" NPT inlet and exhaust ports
- Field interchangeable for DA or SR actuators



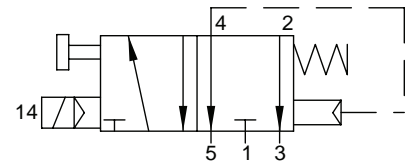
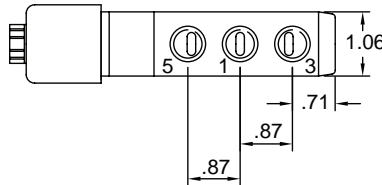
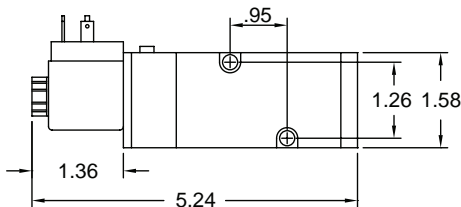
Materials

- Body: powder epoxy coated extruded aluminum
- Spool: anodized aluminum
- Spring: stainless steel
- O-ring: Buna-N (FKM optional)
- DIN Connector: Technopolymer

Specifications

- Standard voltage: 24VDC
- standard protection class: IP65, Intrinsically safe coil
- electrical connection: 1/2" NPT DIN connector
- coil insulation: Class F
- supply air and environment temperature limits: -4°F to 122°F
- FKM seal temperature range: 0°F to 250°F
- Air supply connection = 1/4"NPT
- Operating pressure = 30 – 120 PSI
- Weight = 0.80 lb
- Flow factor = Kv 10.5
- Duty cycle = 100%
- Power input = 50/60 Hz inrush 7.5VA rated 5VA, DC 3W
- Hazardous location class:
 - Class I Groups A, B, C & D
 - Class II Groups E, F & G
 - Class III Division I

Dimensions



SV Series NAMUR Mount Solenoid Valves

NAMUR Mount Dual Coil Solenoid Valves with Open or Closed Centers

Features and Benefits



- Compact IP65 rated NAMUR mount solenoid valve
- Lightweight and easy to use.
- comes standard as 4-Way
- NEMA 4/4X Coil
- Epoxy coated aluminum housing
- Electroless nickel plated spool
- Manual override (Locking Type)
- 1/4" NPT inlet and exhaust ports
- Field interchangeable for DA or SR actuators
- Available in 220VAC, 120VAC, 24VAC, 24VDC, 12VDC, others upon request
- Lighted Din connectors available
- Available in explosion proof and intrinsically safe

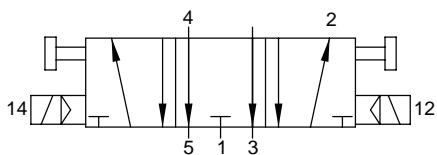
Materials

- Body: powder epoxy coated extruded aluminum
- Spool: anodized aluminum
- Spring: stainless steel
- O-ring: Buna-N (FKM optional)
- DIN Connector: Technopolymer

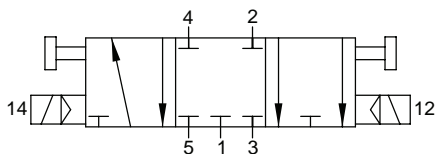
Specifications

- DC coil voltage: 12v, 24v
- AC coil voltage (60Hz): 24v, 120v, 220v
- standard protection class: IP65, NEMA 4 (DIN connector, as shown)
- electrical connection: 1/2" NPT DIN connector
- coil insulation: Class F
- supply air and environment temperature limits: -4°F to 158°F
- FKM seal temperature range: 0°F to 250°F
- Air supply connection = 1/4"NPT
- Operating pressure = 30 – 120 PSI
- Weight = 1.2 lb
- Flow factor = Kv 10.5
- Duty cycle = 100%
- Power input = 50/60 Hz inrush 7.5VA rated 5VA, DC 3W

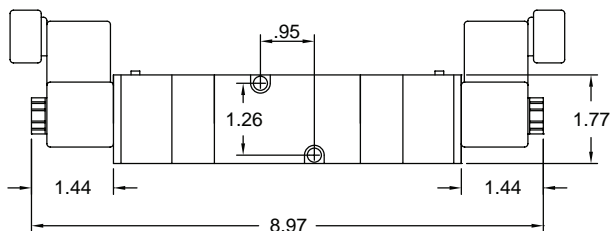
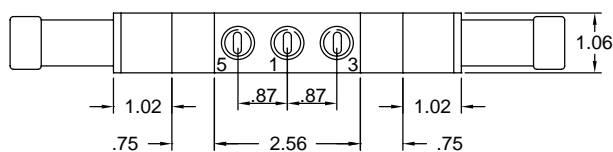
Dimensions



OPEN CENTERS (S36A)



CLOSED CENTERS (S36C)



Positioners and Controls

Dixon Sanitary offers a wide variety of positioner options for varying control requirements. Positioners are available in both pneumatic and electro-pneumatic signal options inside either NEMA 4/4X or NEMA 7 enclosures. Feedback is also available on Dixon positioners in mechanical, reed, and transmitter feedback options. Other options include but are not limited to networking and a wide variety of visual indicators, including digital display. Positioners can be used on ALL Dixon rack and pinion actuators using the standard NAMUR mounting interface.

XPO series pneumatic and electro-pneumatic positioners for use with all rack and pinion actuators.



XPB series digital electropneumatic positioners and control heads are designed for use on Dixon/Rieger hygienic process control valves.



XPO series digital positioner available in NEMA 4/4X or explosion proof enclosure for use with all rack and pinion actuators.



XPO Series Pneumatic & Electro-Pneumatic Positioners



Pneumatic & Electro-Pneumatic positioners are available in pneumatic and electro-pneumatic with many variations.

Ordering Information

| Positioner Feedback (1-4) | Type (5) | Enclosure (6) | Indicator (7) | Material (8) |
|---------------------------|----------------------------|----------------------|---------------|-----------------------------------|
| XPO- | P pneumatic | 4 NEMA 4/4X | F flat | cast aluminum / polyester coating |
| | E electro-pneumatic 4-20mA | 7 NEMA 7 | R raised | T tufram impregnated |
| | V electro-pneumatic 0-10v | I intrinsically safe | | N nickle plated |
| | | F fail freeze | | |

The Pneumatic Positioner is completely modular. To convert the XPO-P4F to electro-pneumatic, intrinsically safe, or fail freeze, add one of the converters below.

Positioner Conversion Kits

| Converter (1-4) | Insert Type (5) |
|-----------------|-----------------------------|
| XPC- | EP electro-pneumatic 4-20mA |
| | IS intrinsically safe |
| | FF fail freeze |

XPO-P4F (pneumatic positioner) Features and Benefits

- cam characterized and force balanced
- cast aluminum NEMA 4X housing with electrostatically applied polyester coating
- operates on a standard **3-15 PSI** signal (12 PSI span, optional 24 PSI)
- pressure gauge blocks built into the unit
- large indicator has scaling to operate in both direct and reverse directions

Specifications

- input range: 3-15 PSI
- supply pressure: <145 PSI
- linearity error: <0.7 f.s.
- hysteresis: <0.4 f.s.
- repeatability: <0.3 f.s.
- pressure gain: 750:1 P
- air delivery:

| | |
|-----------|-------------|
| | <u>SCFM</u> |
| @ 29 PSI | 9.5 |
| @ 87 PSI | 28.3 |
| @ 145 PSI | 47.1 |
- air consumption:

| | |
|--------------------|-------------|
| | <u>SCFM</u> |
| @ 29 PSI (200 kPa) | 0.18 |
| @ 87 PSI (600 KPa) | 0.53 |
| @ 145 PSI | 0.88 |
- temperature range: **-40°F** (-40°C) to **185°F** (85°C)
- air connections: 1/4" NPT
- gauge port: 1/8" NPT
- ingress and corrosion protection: NEMA 4X and IP 66
- coating: Powder polyester (nickel - optional)
- weight: 3.5 lbs.

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Positioners

XPO-E4F

(electro pneumatic positioner)

Features and Benefits

- cam characterized and force balanced
- cast aluminum NEMA 4X housing with electrostatically applied polyester coating
- operates on a 4-20 mA signal
- pressure gauge blocks built into the unit
- large indicator has scaling to operate in both direct and reverse directions

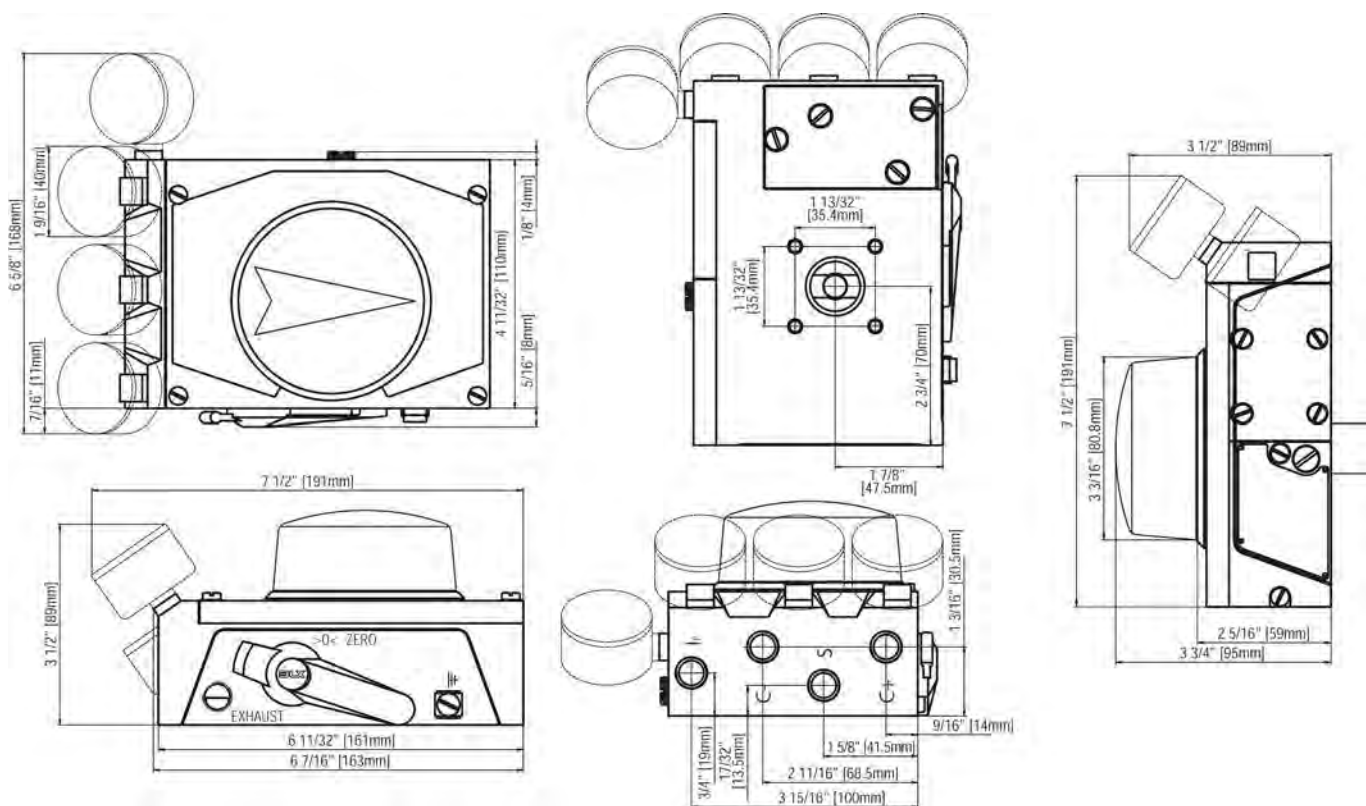
Specifications

- input range: 4-20 (R1<170 ohms)
- supply pressure: 22-145 PSI
- linearity error: <1.0 f.s.
- hysteresis: <0.5 f.s.
- repeatability: <0.3 f.s.
- pressure gain: 750:1 P out / P in
- air delivery:

| | SCFM |
|--------------------|------|
| @ 29 PSI (200 kPa) | 9.5 |
| @ 87 PSI (600 KPa) | 28.3 |
| @ 145 PSI | 47.1 |
- air consumption:

| | SCFM |
|-----------|------|
| @ 29 PSI | 0.18 |
| @ 87 PSI | 0.53 |
| @ 145 PSI | 0.88 |
- temperature range: **-40°F** (-40°C) to **185°F** (85°C)
- air connections: 1/4" NPT
- gauge port: 1/8" NPT
- ingress and corrosion protection: NEMA 4X and IP 66
- coating: powder polyester (nickel - optional)
- weight: 3.8 lbs.

Dimensions



All dimensions are in inches, unless noted. Dimensions are approximate.
Engineering dimensions are available upon request. Specifications are subject to change without notice.

XPF Series Positioner Feedback



This module can be simply added to either of the XPO positioners, without special mounting and calibrated without special tools. Coupled with the XPO, the package still maintains its NEMA 4 X rating, due to sealing designs.

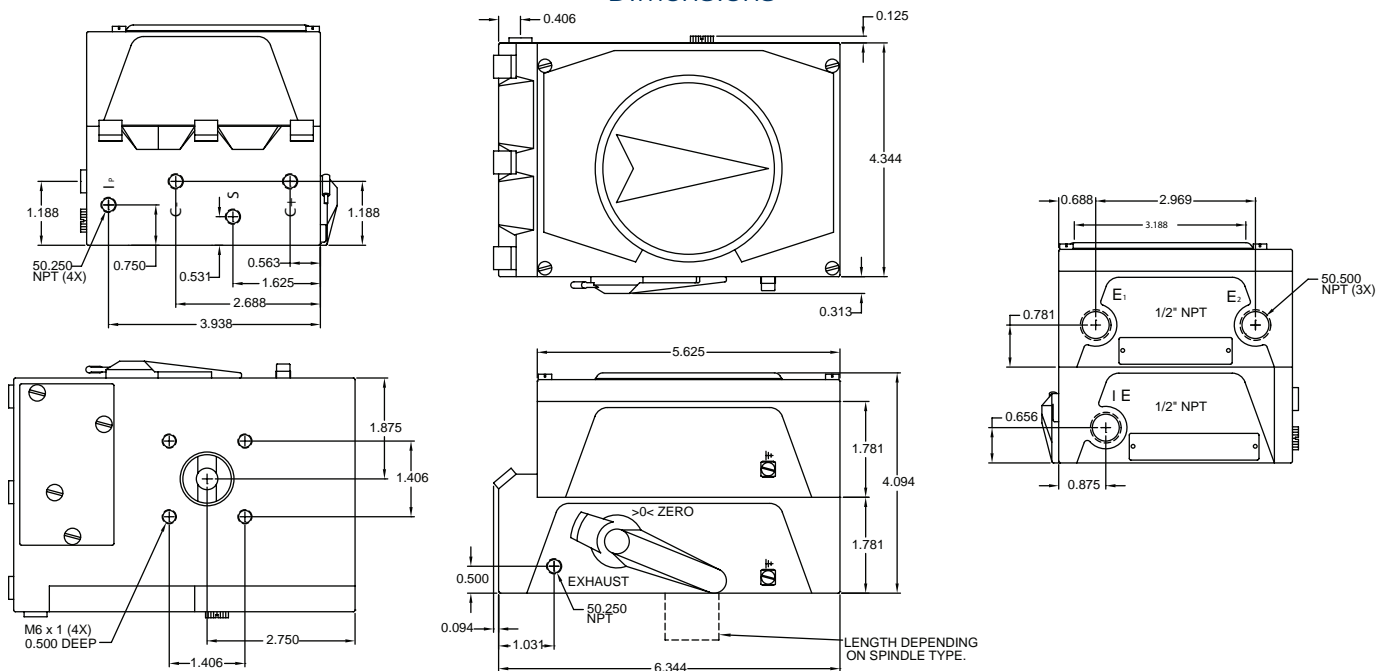
Feedback options are as follows:

- mechanical switches
- reed switches
- 4-20 mA transmitter
- a combination of these items

Ordering Information

| Positioner Feedback (1-4) | Type (5) | Indicator (6) | Feedback (7-8) | Switch Qty (9) | Material (10) |
|---------------------------|------------------------|-------------------|--|----------------|-----------------------------------|
| XPF | W for use w/positioner | F flat | 01 mechanical spdt | 0 use with TR | cast aluminum / polyester coating |
| | S stand alone unit | R raised | 02 proximity spdt | 1 | T tufram impregnated |
| | | N none-use with W | TR 4-20ma transmitter | 2 | N nickle plated |
| | | | TF 4-20ma transmitter w/ feedback (2 mech. spdt) | 3 | |

Dimensions



Module can be factory mounted to the positioner or mounted in the field. If used in the field, the XPF is shipped without a cover and the positioner cover is used to seal the complete package

Specifications

- temperature: -40°F to 185°F
- two 1/2" conduit connections
- 4/20 transmitter- 2 wire-10-30 VDC-Max impedance 700W @ 24 VDC
- mechanical switches-SPDT-Co Form C, (V3)-max 10A (3) 12/250 VAC
- reed switches-SPDT-Co form C-contact rating 5W or 5VA @ 30 VDC/VAC .16 APC Board Settings: Jumpers for CCW or CW-(45) 30-60 degree rotation-(90) 60-120 degree rotation-zero and span adjustments-test pins for loop calibration.

XPO Series Digital Positioner

Part Numbers



Example: XPO-D1H126

This part number would be a standard enclosure digital positioner with Hart communication, including a gauge block with gauges, micro switches and fail freeze.

Ordering Information

| Positioner Feedback (1-4) | Type (5) | Action (6) | Communications (7) | Options (8) | Options (9) | Options (10) |
|---------------------------|---------------------------|---------------|-----------------------|-------------------------------|-------------------------------|-------------------------------|
| XPO- | D digital | 1 single (sr) | N none | 1 gauge block w/ gauges | 1 gauge block w/ gauges | 1 gauge block w/ gauges |
| | X digital explosion proof | 2 double (da) | H hart | 2 micro switches* | 2 micro switches* | 2 micro switches* |
| | I intrinsically safe | | F foundation fieldbus | 3 4/20 transmitter* | 3 4/20 transmitter* | 3 4/20 transmitter* |
| | | | P profibus | 4 filter regulator coalescing | 4 filter regulator coalescing | 4 filter regulator coalescing |
| | | | | 5 filter coalescing | 5 filter coalescing | 5 filter coalescing |
| | | | | 6 fail freeze | 6 fail freeze | 6 fail freeze |
| | | | | 7 atex | 7 atex | 7 atex |
| | | | | 8 prox / no | 8 prox / no | 8 prox / no |
| | | | | 9 prox / nc | 9 prox / nc | 9 prox / nc |

* 4/20 transmitter and switches are not available for profibus or fieldbus units

XPO Series Digital Positioner

Features and Benefits

- microprocessor based valve positioner
- user friendly, menu-driven programming with LCD display, multi-lingual
- local push button configuration - no hand held device or PC necessary
- low air consumption and dependable mechanical design
- modular design - available with position feedback, micro switches and fail free options
- aluminum housing - NEMA 4X IP 65 enclosure standard
- ATEX, FM, CSA, IEC and EX approvals available

Enclosure Options

- NEMA 4X IP 65 standard
- explosion proof
- intrinsically safe / non-incendive

Communications

- Hart
- no communications
- foundation fieldbus
- profibus

Options

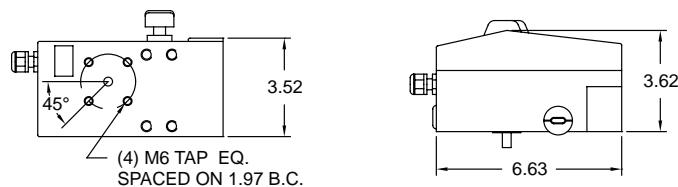
- gauge block with gauges
- micro switches
- 4-20ma transmitter
- filter regulator - coalescing
- fail freeze

Specifications

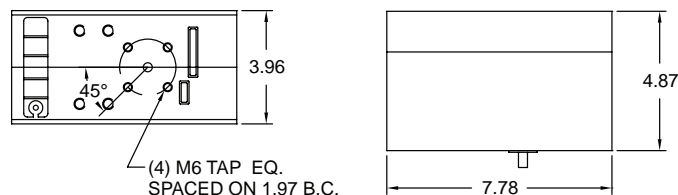
- rotation: 25-120 degrees
- maximum air supply: 90 PSI
- air delivery: 6.0 SCFM @ 90 PSI
- ambient temperature: -40°F to 185°F
- stroke: .4 to 4" (longer strokes - POA)
- connections: 1/4" NPT air, 1/2" NPT cable
- air consumption: .015 SCFM
- characteristic curves: linear, equal %, 1:25, 1:50, 25:1, 50:1 or user configurable with 20 reference points
- characteristic deviation: $\leq 0.5\%$
- deadband 0.1%, adjustable to 10%
- resolution (A/D conversion): 4000 steps, Hart: 16,000 steps, FF and PA
- vibration influence: $\leq 1\%$ up to 10 G and 80 Hz
- sample rate: 20 msec
- air supply: must be free of oil, water and dust to DIN / ISO 8573-1 pollution and oil contents according to Class 3 dew point 20 K below operating temperature

Dimensions

XPO-D series



XPO-X series



XPB Digital Electropneumatic Positioner With Display For The Integrated Mounting On Process Controls Valves

Features:

- Compact stainless steel design
- Graphic display with backlight
- Easy start-up by automatic X-Tune function
- Comprehensive range of additional software functions
- Internal control air routing
- Profibus DPV1 or DeviceNet communication (option)



Technical Information

| Technical Data | | |
|----------------------------|------------------------------|--|
| Material | Body | PPS, stainless steel |
| | Cover | PC |
| | Sealing | EPDM |
| Power Supply | | 24 VDC +/- 10% |
| Residual Ripple | | max. 10% |
| Setpoint Setting | | 0/4 to 20mA and 0 to 5/10 V |
| Output resistance | | 0/4 to 20mA: 180 Ω |
| | | 0 to 5/10V: 19 k Ω |
| Control Medium | | neutral gases, air DIN ISO 8573-1 |
| | Dust concentration | Class 5 (<40µm particle size) |
| | Particle density | Class 5 (<10mg/m³) |
| | Pressure condensation point | Cass 3 (<-20°C) |
| | Oil concentration | Class 5 (<25mg/m³) |
| Ambient Temperature | | 0 to +55°C |
| Pilot air ports | | Threaded ports G1/8 stainless steel or Push-in connectors (Ø6mm and 1/4" tube) |
| Supply pressure | | Low air flow rate 0 to 7 bar ¹ |
| | | High air flow rate 3 to 7 bar |
| Air input filter | | Exchangeable (mesh aperture~0.1mm) |
| Actuator System | Actuator series ELEMENT 23XX | Low air flow rate : Ø Actuator 70 / 90 mm |
| | | High air flow rate: Ø Actuator 130 mm |
| | Actuator series CLASSIC 27XX | Low air flow rate : Ø Actuator 80 / 100 mm |
| | | High air flow rate: Ø Actuator 125 / 175 / 225 mm |
| Position detection module | | Contact-free, wear-free |
| Stroke range valve spindle | | 3 to 45 mm |
| Installation | | as required, preferably with actuator in upright position |
| Protection class | | IP65 and IP67 acc. to EN 60529 |
| Power consumption | | < 5 W |
| Electrical connection | Multipole connection | M12, 8-pins or 4-pins |
| | Cable gland | 2xM16x1.5 (cable-Ø10mm) on terminal screws (1.5 mm²) |
| Bus communication | | Profi bus DPV1, DeviceNet |
| Protection class | | 3 according to VDE 0580 |
| Conformity | | CE acc. to EMV2004/108/EG |

¹ The supply pressure has to be 0.5 - 1 bar above the minimum required pilot pressure for the valve actuator.

XPB Electropneumatic Positioner For The Integrated Mounting On Process Controls Valves



Features:

- contact-free position sensor
- compact stainless steel design
- AS-Interface communication (option)
- internal control air routing

Technical Information

| Technical Data | | |
|----------------------------|------------------------------|--|
| Material | Body | PPS, stainless steel |
| | Cover | PC |
| | Sealing | EPDM |
| Power Supply | | 24 VDC +/- 10% |
| Residual Ripple | | max. 10% |
| Setpoint Setting | | 4 to 20mA (0 to 20mA adjustable via communication interface) |
| Output resistance | | 180 Ω |
| Control Medium | | neutral gases, air DIN ISO 8573-1 |
| | Dust concentration | Class 5 (<40µm particle size) |
| | Particle density | Class 5 (<10mg/m³) |
| | Pressure condensation point | Cass 3 (<-20°C) |
| | Oil concentration | Class 5 (<25mg/m³) |
| Ambient Temperature | | 0 to +60°C |
| Pilot air ports | | Threaded ports G1/8 stainless steel or Push-in connectors (Ø6mm and 1/4" tube) |
| Supply pressure | | Low air flow rate 0 to 7 bar ¹ High air flow rate 3 to 7 bar |
| Air input filter | | Exchangeable (mesh aperture~0.1mm) |
| Actuator System | Actuator series ELEMENT 23XX | Low air flow rate : Ø Actuator 70 / 90 mm |
| | | High air flow rate: Ø Actuator 130 mm |
| | Actuator series CLASSIC 27XX | Low air flow rate : Ø Actuator 80 / 100 mm |
| | | High air flow rate: Ø Actuator 125 / 175 / 225 mm |
| Position detection module | | Contact-free, wear-free |
| Stroke range valve spindle | | 3 to 45 mm |
| Installation | | as required, preferably with actuator in upright position |
| Protection class | | IP65 and IP67 acc. to EN 60529 |
| Protection class | | 3 according to VDE 0580 |
| Conformity | | CE acc. to EMV2004/108/EG |
| Options | | Analogue position feedback, 4-20mA |
| Communication | | AS-Interface (option, in preparation) |

¹ The supply pressure has to be 0.5 - 1 bar above the minimum required pilot pressure for the valve actuator.

Ordering Information

| Positioner (1-4) | Type (5) | Pilot Air Ports (6) | Electrical Connection (7) | Communication (8) | Display (9) | Feedback (10) | Options (11) |
|------------------|--------------------------------|----------------------|---------------------------|-------------------|----------------|-------------------|-----------------------------|
| XPB- | E Electropneumatic 0/4 to 20mA | T Threaded Ports | 4 4 Pole | N None | 1 Dip Switches | N None | N None |
| | V Electropneumatic 0 to 5/10V | P Push in Connectors | 8 8 Pole | A Profibus DPV1 | 2 Digital | A Analogue 4-20mA | Other Options Contact Dixon |
| | | | G Cable Gland | B DeviceNet | | | |
| | | | | C AS-Interface | | | |

Cordsets and Receptacles

Dixon Sanitary offers a wide variety of cordsets and receptacles.

Cordsets are available in a wide variety of single or double ended cordsets in different lengths, gauges, number of poles and shielded or unshielded.



Receptacles available in a wide variety of male and female, single and dual key way and multiple connections.



We can pre-wire all valve packages that include solenoids and electro-pneumatic positioners along with any of our limit switch options.



Cordsets



Available in a wide variety of single or double ended cordsets in different lengths, gauges, number of poles and shielded or unshielded.

Receptacles



Receptacles available in a wide variety of male and female, single and dual key way and multiple connections.

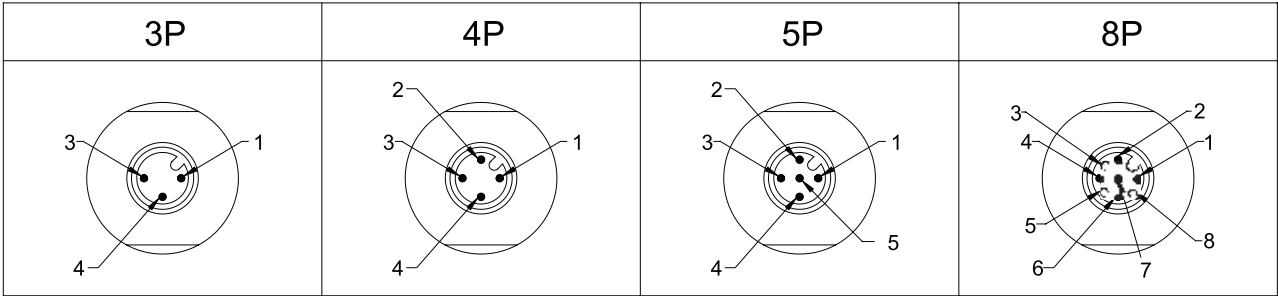
Ordering Information

| Receptacle (1-4) | Material (5) | Poles (6) | Key (7) | Pin Connection (8) | Mating Thread (9) | Mounting Thread (10) |
|------------------|---------------------------|-----------|----------|--------------------|-------------------|----------------------|
| XEC receptacle | A grey anodized aluminum | 2 2-pole | S single | F female | A ½ - 20 UNF | A ½ - 14 MNPT |
| | B black anodized aluminum | 3 3-pole | D dual | M male | B M12 | B ¼ - 18 MNPT |
| | N nickel plated | 4 4-pole | | | | |
| | | 5 5-pole | | | | |
| | | 6 6-pole | | | | |
| | | 8 8-pole | | | | |

* All combinations may not be available

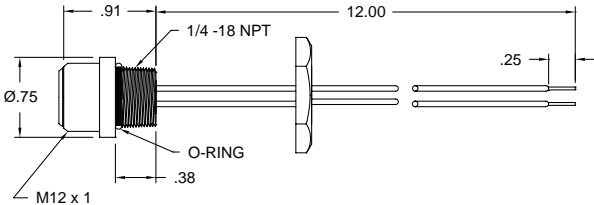
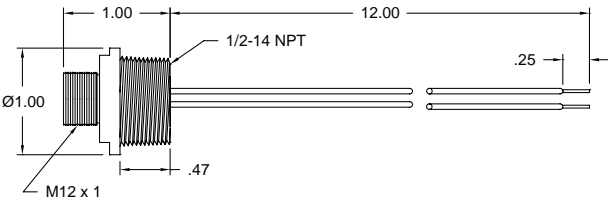
Receptacles

M12 Single Key Way Receptacles



| Male Face View | 3P | 4P | 5P | 8P |
|----------------|---------|---------|---------|----------|
| Color Code | 1 brown | 1 brown | 1 brown | 1 white |
| | 3 blue | 2 white | 2 white | 2 brown |
| | 4 black | 3 blue | 3 blue | 3 orange |
| | | 4 black | 4 black | 4 violet |
| | | | 5 grey | 5 pink |
| | | | | 6 grey |
| | | | | 7 black |
| | | | | 8 blue |

Technical Data



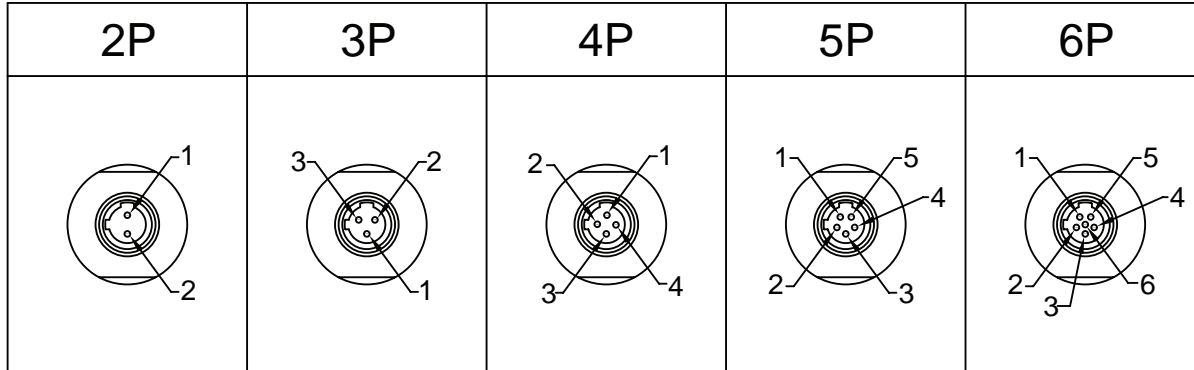
- Shell: anodized aluminum
- Insert: nylon 6/6
- Conductors: #22 AWG w/ PVC insulation over 26 x #36 copper stranding, 300V, UL style 1061, CSA AWM SR
- O-ring: nitrile rubber

- Voltage rating: 250V AC/DC
- Amperage: 4A
- Protection: IP 68 NEMA 6P
- Temperature rating: -4° to 176°F
- Certifications: UL- 3P & 4P UL Listed, 5P UL recognized CSA Certified

T

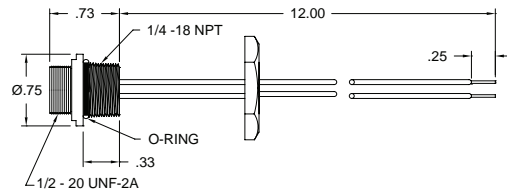
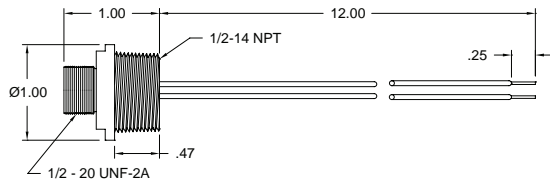
Receptacles

½ - 20 UNF Dual Key Way Receptacles



| Male Face View | 2P | 3P | 4P | 5P | 6P |
|----------------|---------|-------------------|-------------------|--------------------|--------------------|
| Color Code | 1 brown | 1 green-gnd | 1 red-black trace | 1 red-white trace | 1 red-white trace |
| | 2 blue | 2 red-black trace | 2 red-white trace | 2 red | 2 red |
| | | 3 red-white trace | 3 red | 3 green-gnd | 3 green-gnd |
| | | | 4 green-gnd | 4 red-yellow trace | 4 red-yellow trace |
| | | | | 5 red-black trace | 5 red-black trace |
| | | | | | 6 red-blue trace |

Technical Data



T

- Shell: anodized aluminum
- Insert: nylon 6/6
- Conductors: #22 AWG w/ PVC insulation over 26 x #36 copper stranding, 300V, UL style 1061, CSA AWM SR
- O-ring: nitrile rubber

- Voltage rating: 250V AC/DC
- Amperage: 4A
- Protection: IP 68 NEMA 6P
- Temperature rating: -4° to 176°F
- Certifications: UL- 3P & 4P UL Listed, 5P UL recognized CSA Certified

Pre-Wired Valve Packages

Features and Benefits

Save time and money with Dixon Sanitary's Pre-wired solenoid/limit switch combination.

- Meets Nema 4/4x requirements
- Can be prewired to all solenoids and switches.
- Used on all rack and pinion actuators
- No special tools required for removal

Part Numbers

XSOL-LS-M12CRD

- Cordset, solenoid to switch with Din connector x 5P M12 Male connector

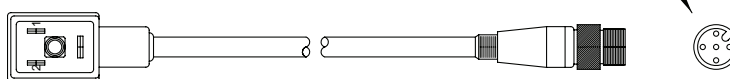
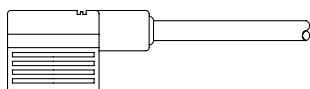
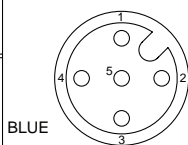
XEC – 5

- M12 female Nickel plated brass Receptacle (mount to cordset), single key, 1/2" NPT (mount to limit switch), special 5 P – 3 wire

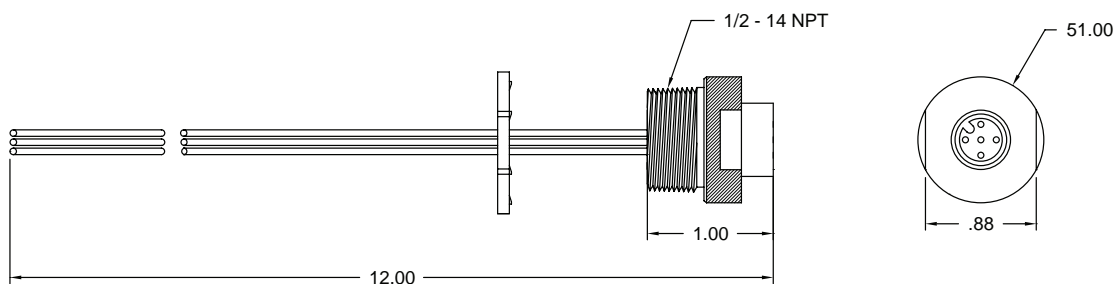


Pre-Wire Cord

| 5 POLE XEC-5 WIRE COLOR | |
|-------------------------------|--------------|
| NUMBER | COLOR |
| 1 | - |
| 2 | - |
| 3 | BLUE |
| 4 | BROWN |
| 5 | GREEN/YELLOW |



Pre-Wire Receptacle



We can pre-wire all valve packages that include solenoids and electro-pneumatic positioners along with any of our limit switch options.

Legris Automation Accessories

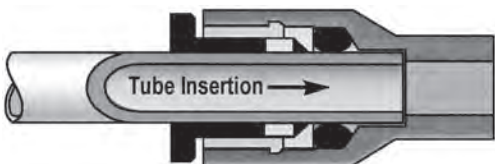
Nylon / Nickel - Plated Brass Push-In Fittings

- materials: nickel-plated brass construction, black body is glass-filled nylon, Buna-N O-Ring seal, polypropylene release button, silicone free
- positive seal: sealing and holding is accomplished instantaneously
- reusable: connect and disconnect numerous times
- full flow: fitting seals on outside diameter of tubing
- working pressure: fittings rated to **290 PSI** at ambient temperature

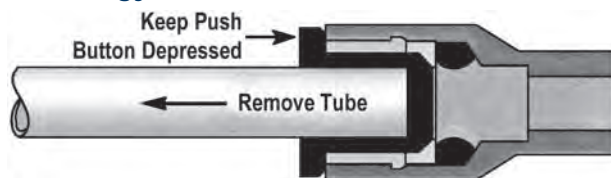
- working temperature: **-4°F to 175°F**
- *Maximum circuit pressure depends equally on the type and diameter of the tube used.*
- pre-applied thread sealant on all male pipe threads
- compatible tubing: semi-rigid nylon, polyurethane and polyethylene tube
- vacuum capability: vacuum of 28 inches Hg (99% vacuum)

SAFETY
ALERT

Gripping Ring Technology



To connect: simply push tubing in.



To disconnect: press the release ring towards the fitting and pull tubing out. No tools required.



Male Swivel Run Tees (tube to male NPT)

| Tube OD | Male NPT | Part # |
|---------|----------|----------|
| 1/4" | 1/8" | 31035611 |



Male Connectors (tube to male NPT)

| Tube OD | Male NPT | Part # |
|---------|----------|----------|
| 1/4" | 1/8" | 31755611 |
| 1/4" | 1/4" | 31755614 |



Male Swivel Elbows (tube to male NPT)

| Tube OD | Male NPT | Part # |
|---------|----------|----------|
| 1/4" | 1/8" | 31095611 |
| 1/4" | 1/4" | 31095614 |



Male Connectors (tube to male BSPT)

| Tube OD | Male BSPT | Part # |
|---------|-----------|----------|
| 1/4" | 1/8" | 31755610 |
| 1/4" | 1/4" | 31755613 |



45° Male Elbows (tube to male NPT)

| Tube OD | Male NPT | Part # |
|---------|----------|----------|
| 1/4" | 1/8" | 31135611 |
| 1/4" | 1/4" | 31135614 |

Features:

- materials:
 - nickel-plated brass threads; black body is glass-filled nylon; Buna-N D seal; polypropylene release button; silicone free
- positive seal: sealing and holding is accomplished instantaneously
- reusable: connect and disconnect numerous times
- full flow: fitting seals on outside diameter of tubing
- working pressure: fittings rated to **290 PSI** at ambient temperature. *Maximum circuit pressure depends equally on the type and diameter of the tube used.*
- working temperature: **-4°F to 175°F**
- pre-applied thread sealant on all tapered male pipe threads
- compatible tubing: semi-rigid nylon, polyurethane and polyethylene tube
- vacuum capability: vacuum of 28" Hg (99% vacuum)



Maximum circuit pressure depends equally on the type and diameter of the tube used.

Male Connectors**tube to male NPT**

| Tube OD | Male NPT | Nickel-plated Brass Part # |
|---------|----------|----------------------------|
| 1/8" | 1/16" | 31755308 |
| 1/8" | 1/8" | 31755311 |
| 1/8" | 1/4" | 31755314 |
| 5/32" | 1/8" | 31750411 |
| 5/32" | 1/4" | 31750414 |
| 1/4" | 1/8" | 31755611 |
| 1/4" | 1/4" | 31755614 |
| 1/4" | 3/8" | 31755618 |
| 5/16" | 1/8" | 31750811 |
| 5/16" | 1/4" | 31750814 |
| 5/16" | 3/8" | 31750818 |
| 3/8" | 1/8" | 31756011 |
| 3/8" | 1/4" | 31756014 |
| 3/8" | 3/8" | 31756018 |
| 3/8" | 1/2" | 31756022 |
| 1/2" | 1/4" | 31756214 |
| 1/2" | 3/8" | 31756218 |
| 1/2" | 1/2" | 31756222 |

Gripping Ring Technology**Quick Connect and Disconnect:**

- To connect, simply push tubing in.
- To disconnect, press the release ring towards the fitting and pull tubing out.
- No tools required.

Female Connectors**tube to female NPT**

| Tube OD | Female NPT | Nickel-plated Brass Part # |
|---------|------------|----------------------------|
| 1/8" | 1/8" | 30145311 |
| 1/8" | 1/4" | 30145314 |
| 5/32" | 1/8" | 30140411 |
| 5/32" | 1/4" | 30140414 |
| 1/4" | 1/8" | 30145611 |
| 1/4" | 1/4" | 30145614 |
| 5/16" | 1/8" | 30140811 |
| 5/16" | 1/4" | 30140814 |
| 3/8" | 1/8" | 30146011 |
| 3/8" | 1/4" | 30146014 |
| 3/8" | 3/8" | 30146018 |

"Hybrid" Male Connectors**fractional inch tube to male BSPT**

| Tube OD | Male BSPT | Nickel-plated Brass Part # |
|---------|-----------|----------------------------|
| 1/4" | 1/8" | 31755610 |
| 1/4" | 1/4" | 31755613 |
| 3/8" | 1/4" | 31756013 |

Nylon/Nickel-Plated Brass Legris Push-In Fittings

Unions



tube to tube

Bulkhead Unions



tube to tube

Union Elbows



tube to tube

| Tube OD | Nylon Part # | Nylon Part # | Nylon Part # |
|---------|-----------------|-----------------|-----------------|
| 1/8" | 31065300 | 31165300 | 31025300 |
| 5/32" | 31060400 | 31160400 | 31020400 |
| 1/4" | 31065600 | 31165600 | 31025600 |
| 5/16" | 31060800 | 31160800 | 31020800 |
| 3/8" | 31066000 | 31166000 | 31026000 |
| 1/2" | 31066200 | 31166200 | 31026200 |

Male Swivel Elbows



tube to male NPT

| Tube OD | Male NPT | Nylon/Nickel-plated Brass Part # |
|------------|-------------|-------------------------------------|
| 1/8" | 10-32 * | 31095320 |
| 1/8" | 1/16" | 31095308 |
| 1/8" | 1/8" | 31095311 |
| 1/8" | 1/4" | 31095314 |
| 5/32" | 10-32 * | 31090420 |
| 5/32" | 1/8" | 31090411 |
| 5/32" | 1/4" | 31090414 |
| 1/4" | 10-32 * | 31095620 |
| 1/4" | 1/8" | 31095611 |
| 1/4" | 1/4" | 31095614 |
| 1/4" | 3/8" | 31095618 |
| 5/16" | 1/8" | 31090811 |
| 5/16" | 1/4" | 31090814 |
| 5/16" | 3/8" | 31090818 |
| 3/8" | 1/8" | 31096011 |
| 3/8" | 1/4" | 31096014 |
| 3/8" | 3/8" | 31096018 |
| 3/8" | 1/2" | 31096022 |
| 1/2" | 1/4" | 31096214 |
| 1/2" | 3/8" | 31096218 |
| 1/2" | 1/2" | 31096222 |

Female Swivel Elbows



tube to female NPT

| Tube OD | Female NPT | Nylon/Nickel-plated Brass Part # |
|------------|---------------|-------------------------------------|
| 1/8" | 1/8" | 30095311 |
| 5/32" | 1/4" | 30090414 |
| 1/4" | 1/8" | 30095611 |
| 1/4" | 1/4" | 30095614 |
| 5/16" | 1/8" | 30090811 |
| 5/16" | 1/4" | 30090814 |
| 3/8" | 1/4" | 30096014 |
| 1/2" | 3/8" | 30096218 |

* UNF - Straight thread, supplied with gasket

Nylon/Nickel-Plated Brass Legris Push-In Fittings

45° Male Elbows Extended Male Swivel Elbows



fractional inch tube to male NPT



fractional inch tube to male NPT

| Tube OD | Male NPT | Nylon/Nickel-plated Brass Part # | Nylon/Nickel-plated Brass Part # |
|---------|----------|-------------------------------------|-------------------------------------|
| 1/4" | 1/8" | 31135611 | 31295611 |
| 1/4" | 1/4" | 31135614 | 31295614 |
| 3/8" | 1/4" | 31136014 | 31296014 |
| 3/8" | 3/8" | 31136018 | 31296018 |

Male Swivel Branch Tees



tube to male NPT

| Tube OD | Male NPT | Nylon/Nickel-plated Brass Part # |
|---------|----------|-------------------------------------|
| 1/8" | 10-32 * | 31085320 |
| 1/8" | 1/8" | 31085311 |
| 5/32" | 10-32 * | 31080420 |
| 5/32" | 1/8" | 31080411 |
| 5/32" | 1/4" | 31080414 |
| 1/4" | 1/8" | 31085611 |
| 1/4" | 1/4" | 31085614 |
| 1/4" | 3/8" | 31085618 |
| 5/16" | 1/8" | 31080811 |
| 5/16" | 1/4" | 31080814 |
| 5/16" | 3/8" | 31080818 |
| 3/8" | 1/8" | 31086011 |
| 3/8" | 1/4" | 31086014 |
| 3/8" | 3/8" | 31086018 |
| 3/8" | 1/2" | 31086022 |
| 1/2" | 1/4" | 31086214 |
| 1/2" | 3/8" | 31086218 |
| 1/2" | 1/2" | 31086222 |

* UNF - Straight thread, supplied with gasket

Male Swivel Run Tees



tube to male NPT

| Tube OD | Male NPT | Nylon/Nickel-plated Brass Part # |
|---------|----------|-------------------------------------|
| 1/8" | 10-32 * | 31035320 |
| 1/8" | 1/16" | 31035308 |
| 1/8" | 1/8" | 31035311 |
| 5/32" | 10-32 * | 31030420 |
| 5/32" | 1/8" | 31030411 |
| 5/32" | 1/4" | 31030414 |
| 1/4" | 1/8" | 31035611 |
| 1/4" | 1/4" | 31035614 |
| 1/4" | 3/8" | 31035618 |
| 5/16" | 1/8" | 31030811 |
| 5/16" | 1/4" | 31030814 |
| 3/8" | 1/8" | 31036011 |
| 3/8" | 1/4" | 31036014 |
| 3/8" | 3/8" | 31036018 |
| 1/2" | 1/4" | 31036214 |
| 1/2" | 3/8" | 31036218 |
| 1/2" | 1/2" | 31036222 |

* UNF - Straight thread, supplied with gasket

Y Male Swivel Connectors



tube to male NPT

| Tube OD | Male NPT | Nylon/Nickel-plated Brass Part # |
|---------|----------|-------------------------------------|
| 5/32" | 1/8" | 31480411 |
| 5/32" | 1/4" | 31480414 |
| 1/4" | 1/8" | 31485611 |
| 1/4" | 1/4" | 31485614 |

Y Connectors



tube to tube

| Tube OD | Nylon Part # |
|---------|-----------------|
| 1/8" | 31405300 |
| 5/32" | 31400400 |
| 1/4" | 31405600 |
| 5/16" | 31400800 |
| 3/8" | 31406000 |

Union Tees



tube to tube

| Tube OD | Nylon Part # |
|---------|-----------------|
| 1/8" | 31045300 |
| 5/32" | 31040400 |
| 1/4" | 31045600 |
| 5/16" | 31040800 |
| 3/8" | 31046000 |
| 1/2" | 31046200 |

Plugs



| Tube OD | Plastic Part # |
|---------|-------------------|
| 1/8" | 31265300 |
| 5/32" | 31260400 |
| 1/4" | 31265600 |
| 5/16" | 31260800 |
| 3/8" | 31266000 |
| 1/2" | 31266200 |

Metric Push-In Fittings

Features:

- materials:
 - nickel-plated brass threads; black body is glass-filled nylon;
 - Buna-N D seal; polypropylene release button; silicone free
- positive seal: sealing and holding is accomplished instantaneously
- reusable: connect and disconnect numerous times
- full flow: fitting seals on outside diameter of tubing
- working pressure: fittings rated to **290 PSI** at ambient temperature
- working temperature: **-4°F to 175°F**
- pre-applied thread sealant on all tapered male pipe threads
- compatible tubing: semi-rigid nylon, polyurethane and polyethylene tube
- vacuum capability: vacuum of 28" Hg (99% vacuum)

Gripping Ring Technology



Quick Connect and Disconnect:

- To connect, simply push tubing in.
- To disconnect, press the release ring towards the fitting and pull tubing out.
- No tools required.

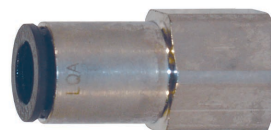
Male Connectors



tube to male BSPT

| Tube OD | Male BSPT | Part # |
|---------|-----------|----------|
| 4 mm | 1/8" | 31750410 |
| 4 mm | 1/4" | 31750413 |
| 6 mm | 1/8" | 31750610 |
| 6 mm | 1/4" | 31750613 |
| 8 mm | 1/8" | 31750810 |
| 8 mm | 1/4" | 31750813 |
| 8 mm | 3/8" | 31750817 |
| 10 mm | 1/4" | 31751013 |
| 10 mm | 3/8" | 31751017 |

Female Connectors



tube to female BSPP

| Tube OD | Female BSPT | Part # |
|---------|-------------|----------|
| 4 mm | 1/8" | 31140410 |
| 4 mm | 1/4" | 31140413 |
| 6 mm | 1/8" | 31140610 |
| 6 mm | 1/4" | 31140613 |
| 8 mm | 1/8" | 31140810 |
| 8 mm | 1/4" | 31140813 |

Male Swivel Elbows



tube to male BSPT

| Tube OD | Male BSPT | Part # |
|---------|-----------|----------|
| 4 mm | 1/8" | 31090410 |
| 4 mm | 1/4" | 31090413 |
| 6 mm | 1/8" | 31090610 |
| 6 mm | 1/4" | 31090613 |
| 8 mm | 1/8" | 31090810 |
| 8 mm | 1/4" | 31090813 |
| 8 mm | 3/8" | 31090817 |
| 10 mm | 1/4" | 31091013 |
| 10 mm | 3/8" | 31091017 |

Male Swivel Branch Tees



tube to male BSPT

| Tube OD | Male BSPT | Part # |
|---------|-----------|----------|
| 4 mm | 1/8" | 31080410 |
| 4 mm | 1/4" | 31080413 |
| 6 mm | 1/8" | 31080610 |
| 6 mm | 1/4" | 31080613 |
| 8 mm | 1/8" | 31080810 |
| 8 mm | 1/4" | 31080813 |

Metric Push-In Fittings

Unions



tube to tube

| Tube OD | Tube OD | Part # |
|---------|---------|----------|
| 4 mm | 6 mm | 31060406 |
| 6 mm | 6 mm | 31060600 |
| 10 mm | 10 mm | 31061000 |

Union Tees



tube to tube

| Tube OD | Part # |
|---------|----------|
| 6 mm | 31040600 |
| 10 mm | 31041000 |

Union Elbows



tube to tube

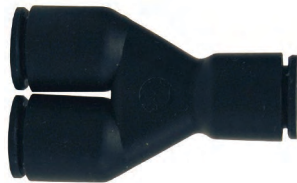
| Tube OD | Tube OD | Part # |
|---------|---------|----------|
| 6 mm | 6 mm | 31020600 |
| 10 mm | 10 mm | 31021000 |

Bulkhead Unions



| Tube OD | Tube OD | Part # |
|---------|---------|----------|
| 6 mm | 6 mm | 31160600 |

Y Connectors



| Tube OD | Tube OD | Part # |
|---------|---------|----------|
| 6 mm | 6 mm | 31400600 |

Plugs



| Tube OD | Tube OD | Part # |
|---------|---------|----------|
| 6 mm | 6 mm | 31260600 |
| 10 mm | 10 mm | 31261000 |

Male Connectors



tube to thread

| Tube OD | Thread | Part # |
|---------|----------|----------|
| 4 mm | M5 | 31010419 |
| 4 mm | 1/8 BSPP | 31010410 |
| 6 mm | M5 | 31010619 |
| 6 mm | 1/8 BSPP | 31010610 |
| 6 mm | 1/4 BSPP | 31010613 |
| 8 mm | 1/8 BSPP | 31010810 |
| 8 mm | 1/4 BSPP | 31010813 |
| 10 mm | 1/4 BSPP | 31011013 |

Male Swivel Elbows



tube to thread

| Tube OD | Thread | Part # |
|---------|----------|----------|
| 4 mm | M5 | 31990419 |
| 4 mm | 1/8 BSPP | 31990410 |
| 6 mm | M5 | 31990619 |
| 6 mm | 1/8 BSPP | 31990610 |
| 6 mm | 1/4 BSPP | 31990613 |
| 8 mm | 1/8 BSPP | 31990810 |
| 8 mm | 1/4 BSPP | 31990813 |
| 10 mm | 1/8 BSPP | 31991013 |



Legris Tubing Nylon 12 Tubing

Applications: Nylon tubing is ideal for many industrial applications. It has optimum mechanical properties and good chemical, humidity and abrasive resistance.

Features:

- semi rigid tubing
- working temperature: **-4°F to 175°F** (working pressure given at 75°F)

| Size OD ID | Wall Thickness | Working Pressure at 75°F | Length | Clear Part # | Black Part # | Blue Part # |
|---------------|----------------|--------------------------|----------|--------------|--------------|-------------|
| 1/4" x .18" | .035 | 265 | 50' roll | 1091P5600 | 1091P5601 | 1091P5604 |

| Size OD ID | Wall Thickness | Working Pressure at 75°F | Length | Clear Part # | Black Part # | Blue Part # |
|---------------|----------------|--------------------------|-----------|--------------|--------------|-------------|
| 1/4" x .18" | .035 | 265 | 100' roll | 1094P5600 | 1094P5601 | 1094P5604 |



Polyurethane - 95 Durometer Tubing

Applications: Polyurethane tubing has high flexibility and a small bend radius and thus is very good for applications where space is tight. For applications where the tubing will be exposed black tubing is recommended.

Features:

- working temperature: **-40°F to 165°F** (working pressure given at 75°F)

| Size OD ID | Wall Thickness | Working Pressure at 75°F | Length | Clear Part # | Black Part # | Blue Part # |
|---------------|----------------|--------------------------|----------|--------------|--------------|-------------|
| 1/4" x .160" | .045 | 148 | 50' roll | 1091U56R00 | 1091U56R01 | 1091U56R04 |

| Size OD ID | Wall Thickness | Working Pressure at 75°F | Length | Clear Part # | Black Part # | Blue Part # |
|---------------|----------------|--------------------------|-----------|--------------|--------------|-------------|
| 1/4" x .160" | .045 | 148 | 100' roll | 1094U56R00 | 1094U56R01 | 1094U56R04 |



Fluoropolymer FEP 140 Tubing

Applications: Fluoropolymer tubing is of food quality and provides excellent resistance to aggressive and corrosive agents as well as high temperatures.

Features:

- FDA compliant materials
- maximum working temperature: **300°F** (working pressure given at 75°F)

| Size OD ID | Wall Thickness | Working Pressure at 75°F | Length | Clear Part # |
|---------------|----------------|--------------------------|----------|--------------|
| 1/4" x .17" | .040 | 246 | 25' roll | 1092T5600 |

U

Nylon Metric Tubing Rolls

Features:

- translucent color
- resistant to fungus, abrasion, moisture and UV radiation
- temperature range **-60°F to 200°F** (working pressure given at 75°F)



| Size OD ID | Wall Thickness | Working Pressure @ 75°F | Length | Part # |
|---------------|----------------|-------------------------|--------|-----------|
| 4 mm x 2.7 mm | .65 mm | 275 | 25 m | 1025P0400 |
| 6 mm x 4 mm | 1 mm | 280 | 25 m | 1025P0600 |
| 8 mm x 6 mm | 1 mm | 210 | 25 m | 1025P0800 |

Jax Lubes

Food Grade Penetrating Oil

Features:

- NSF H1 Registered for incidental food contact
- Colorless, odorless & tasteless
- Quickly frees corroded parts
- Protects metal from corrosion
- Lubricates moving parts

| Part # | Description |
|---------|--------------------------------|
| LUPO-16 | 16 fl.oz. trigger spray bottle |



PurGel Klear

Features:

- Meets FDA 21 CFR Part 172: Food Additive Permitted for direct addition to food for human consumption and Part 178: Indirect Food Additives
- Pure White, FDA approved kosher petrolatum for use as a release agent
- Use for any assembly, barrier or release applications holding O-rings or gaskets or coating cutting blades or augers

| Part # | Description |
|---------|--------------------|
| LUPG-08 | 8 oz. squeeze tube |



Food Grade Anti-Seize

Features:

- NSF H1 Registered for incidental food contact
- Non-toxic & Non-drying
- Lubricates threads
- Forms leak-proof seals
- Prevents corrosion
- Resists water and steam

| Part # | Description |
|---------|---------------------------------|
| LUAS-08 | 8 oz. bottle with brush-top cap |



Stainless Steel Cleaner & Polish

Features:

- A7 Registered for use in federally-inspected facilities
- Repels water – beads up like wax
- Provides high-gloss protective shield
- Dissolves tarnish
- Rubs in completely, with no dust or residue

| Part # | Description |
|---------|--------------------|
| LUCP-14 | 14 oz. aerosol can |



All products shipped with MSDS (Material Safety Data Sheets)

Breather Vents

Applications:

- Breather vents have many applications, including vacuum relief or pressure equalization on gear boxes, oil tanks or reservoirs.
- Common uses can be found on single acting cylinders or valves to prevent dirt and foreign particles from entering ports open to the atmosphere.

Features:

- standard pipe thread fittings for quick assembly and removal for cleaning
- nickel plated steel insert with a bronze filter
- The filter element is rated for 40 micron filtration.
- maximum operating pressure: **150 PSI**
- operating temperatures: **35°F to 300°F**



| NPT Thread Size | Overall Length | Nickel Plated Steel Part # |
|-----------------|----------------|----------------------------|
| 1/8" | 7/16" | ASP-1BV |
| 1/4" | 5/8" | ASP-2BV |
| 3/8" | 3/4" | ASP-3BV |
| 1/2" | 7/8" | ASP-4BV |
| 3/4" | 1" | ASP-6BV |
| 1" | 1-5/16" | ASP-8BV |

Conical Mufflers

Application:

Conical mufflers are easy to install, threading the exhaust ports of air tool, valves, cylinders and other pneumatic equipment. They offer an economical method of reducing the noise levels below 90 dBA, conforming with OSHA standards.

Features:

- The bronze filter element is rated for 40 micron filtration.
- The element is bonded directly to the fitting. *These elements are not replaceable.*
- maximum operating pressure: **300 PSI**
- operating temperature: **35°F to 300°F**



| NPT Thread Size | Overall Length | Nickel Plated Steel Part # |
|-----------------|----------------|----------------------------|
| 1/8" | 1-1/8" | CMF18 |
| 1/4" | 1-3/8" | CMF28 |
| 3/8" | 1-1/2" | CMF38 |
| 1/2" | 1-7/8" | CMF48 |
| 3/4" | 2-1/8" | CMF68 |
| 1" | 2-7/8" | CMF88 |

Speed Control Mufflers

Application:

Speed control mufflers provide an infinite variation of metering air flow at an acceptable sound level on exhaust ports of air valves with complete safety. The speed of an operating cylinder or air tool may be increased or decreased with the adjusting screw. The final position is then locked in place by the lock nut. Objectionable exhaust air noise is eliminated by the surrounding sleeve of sintered bronze.

Features:

- maximum operating pressure: **300 PSI**
- operating temperature: **35°F to 300°F**



aluminum



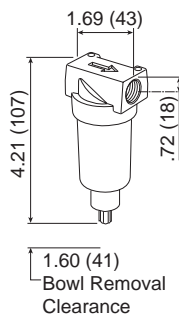
brass

| NPT Thread Size | Approximate Full Operating Height | Maximum Adjusted SCFM | 2011T3 Aluminum Part # | Brass Part # |
|-----------------|-----------------------------------|-----------------------|------------------------|--------------|
| 1/8" | 1-5/16" | 20 | ASCM18 | SCM18 |
| 1/4" | 1-9/16" | 30 | ASCM28 | SCM28 |
| 3/8" | 1-5/8" | 40 | ASCM38 | SCM38 |
| 1/2" | 2" | 60 | ASCM48 | SCM48 |
| 3/4" | 2-3/8" | 70 | ASCM68 | SCM68 |
| 1" | 2-1/2" | 100 | ASCM88 | SCM88 |

Wilkerson Miniature Filters

Features:

- excellent water removal efficiency
- 5 micron element
- .5 oz. bowl
- maximum operating conditions:
transparent bowl: **150 PSIG** (10 bar) and **32°F to 125°F** (0°C to 52°C)
metal bowl: **250 PSIG** (17 bar) and **32°F to 175°F** (0°C to 80°C)

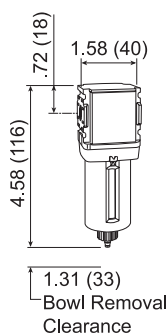


transparent bowl

| Size | SCFM | With Transparent Bowl | | With Metal Bowl | |
|------|------|-----------------------|--------------|-----------------|--------------|
| | | Automatic Drain | Manual Drain | Automatic Drain | Manual Drain |
| | | Part # | Part # | Part # | Part # |
| 1/8" | 22 | F03-01A | F03-01M | F03-01AMB | F03-01MMB |
| 1/4" | 24 | F03-02A | F03-02M | F03-02AMB | F03-02MMB |

Features:

- 5 micron element
- .4 oz. bowl
- maximum operating conditions:
transparent bowl: **150 PSIG** (10 bar) and **32°F to 125°F** (0°C to 52°C)
metal bowl: **250 PSIG** (17 bar) and **32°F to 150°F** (0°C to 65.5°C)



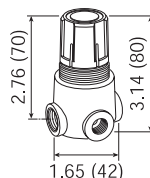
metal bowl

| Size | SCFM | With Transparent Bowl and Guard | | With Metal Bowl | |
|------|------|---------------------------------|--------------|-----------------|--------------|
| | | Automatic Drain | Manual Drain | Automatic Drain | Manual Drain |
| | | Part # | Part # | Part # | Part # |
| 1/8" | 25 | F08-01A | F08-01M | F08-01AMB | F08-01MMB |
| 1/4" | 50 | F08-02A | F08-02M | F08-02AMB | F08-02MMB |

Wilkerson Miniature Regulators

Features:

- 2-125 PSI adjusting range
- balanced valve design
- self-relieving standard
- non-rising push/pull locking adjustment knob
- two 1/8" NPT gauge ports standard on models without gauge, one 1/8" NPT gauge port standard on models with gauge - can be used for additional outlet ports.
- models supplied without gauge use a GC620 gauge.
- panel mount nuts sold separately
- maximum operating conditions:
300 PSIG (20.17 bar) and **32°F to 125°F** (0°C to 52°C)



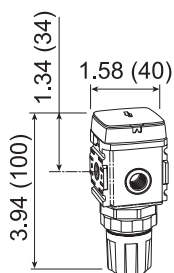
| Size | SCFM | With Gauge | Without Gauge |
|------|------|------------|---------------|
| | | Part # | Part # |
| 1/8" | 13 | R03-01RG | R03-01R |
| 1/4" | 15 | R03-02RG | R03-02R |



FRL's are designed for air service only, unless otherwise indicated.

SCFM ratings at 150 PSIG inlet pressure.

Wilkerson Miniature Regulators



Features:

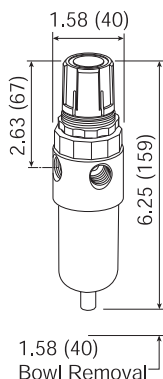
- 0-125 PSI adjusting range
- balanced valve design
- self-relieving standard
- non-rising push/pull locking adjustment knob
- two 1/8" NPT gauge ports standard on models without gauge, one 1/8" NPT gauge port standard on models with gauge - can be used for additional outlet ports.
- models with gauge are supplied with a 0-160 flush mount style gauge
- models supplied without gauge use a GC620 gauge.
- panel mount nuts sold separately
- maximum operating conditions:
300 PSIG (20.7 bar) and **32°F to 150°F** (0°C to 65.5°C)

| Size | SCFM | With Gauge Part # | Without Gauge Part # |
|------|------|----------------------|-------------------------|
| 1/8" | 29.2 | R08-01RG | R08-01R |
| 1/4" | 44 | R08-02RG | R08-02R |

Wilkerson Miniature Filter / Regulators



transparent bowl



Features:

- 2-125 PSI adjusting range
- 5 micron element
- .5 oz. bowl
- self-relieving
- supplied with a GC620 gauge
- maximum operating conditions:
transparent bowl: **125 PSIG** (8.6 bar) and **40°F to 125°F** (4.4°C to 52°C)
metal bowl: **300 PSIG** (20.7 bar) and **40°F to 125°F** (4.4°C to 52°C)

| Size | SCFM | With Transparent Bowl and Guard | | With Metal Bowl | |
|------|------|---------------------------------|------------------------|---------------------------|------------------------|
| | | Automatic Drain Part # | Manual Drain Part # | Automatic Drain Part # | Manual Drain Part # |
| 1/8" | 13 | BB3-01AG | BB3-01MG | BB3-01AGMB | BB3-01MGMB |
| 1/4" | 16 | BB3-02AG | BB3-02MG | BB3-02AGMB | BB3-02MGMB |



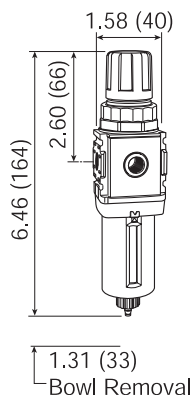
FRL's are designed for air service only, unless otherwise indicated.

SCFM ratings at 150 PSIG inlet pressure.

Wilkerson Miniature Filter / Regulators

Features:

- 0-125 PSI adjusting range
- 5 micron element
- .4 oz. bowl
- self-relieving
- supplied with a 0-160 PSI flush mount style gauge
- maximum operating conditions:
transparent bowl: **150 PSIG** (10.3 bar) and **32°F to 125°F** (0°C to 52°C)
metal bowl: **250 PSIG** (17.2 bar) and **32°F to 150°F** (0°C to 65.5°C)



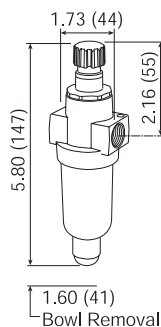
metal bowl

| Size | SCFM | With Transparent Bowl and Guard | | With Metal Bowl | |
|------|------|---------------------------------|------------------------|---------------------------|------------------------|
| | | Automatic Drain Part # | Manual Drain Part # | Automatic Drain Part # | Manual Drain Part # |
| 1/8" | 28.6 | B08-01AG | B08-01MG | B08-01AGMB | B08-01MGMB |
| 1/4" | 42.1 | B08-02AG | B08-02MG | B08-02AGMB | B08-02MGMB |

Wilkerson Miniature Lubricators

Features:

- 1 oz. bowl
- adjustable oil feed
- full view sight dome
- *Do not fill under pressure. Air supply must be turned off and pressure bled from unit prior to adding oil.*
- maximum operating conditions:
transparent bowl: **150 PSIG** (10.3 bar) and **32°F to 125°F** (0°C to 52°C)
metal bowl: **250 PSIG** (17.2 bar) and **32°F to 175°F** (0°C to 80°C)

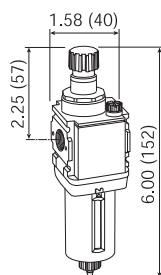


transparent bowl

| Size | SCFM | With Transparent Bowl Part # | With Metal Bowl Part # |
|------|------|---------------------------------|---------------------------|
| 1/8" | 20 | L03-01A | L03-01AMB |
| 1/4" | 20 | L03-02A | L03-02AMB |

Features:

- .6 oz. bowl
- adjustable oil feed
- full view sight dome
- fill under pressure design
- maximum operating conditions:
transparent bowl: **150 PSIG** (10.3 bar) and **32°F to 125°F** (0°C to 52°C)
metal bowl: **250 PSIG** (17.2 bar) and **32°F to 150°F** (0°C to 65.5°C)



metal bowl

| Size | SCFM | With Transparent Bowl Part # | With Metal Bowl Part # |
|------|------|---------------------------------|---------------------------|
| 1/8" | 23.5 | L08-01A | L08-01AMB |
| 1/4" | 57.5 | L08-02A | L08-02AMB |



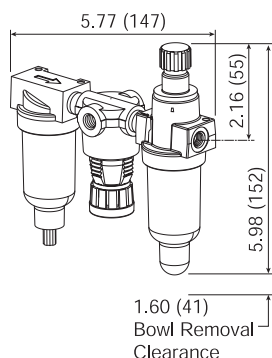
FRL's are designed for air service only, unless otherwise indicated.

SCFM ratings at 150 PSIG inlet pressure.

Wilkerson Miniature Combination Units (Filter, Regulator, Lubricator)



transparent bowl

**Features:**

- maximum operating conditions:
transparent bowl: **150 PSIG** (10.3 bar) and **32°F to 125°F** (0°C to 52°C)
metal bowl: **250 PSIG** (17.2 bar) and **32°F to 175°F** (0°C to 80°C)

Filter series F03:

- 5 micron element
- .5 oz. bowl

Regulator series R03:

- 2-125 PSI adjusting range
- balanced valve design
- self-relieving
- supplied with a GC620 gauge
- Regulator can be mounted with knob in up or down position.

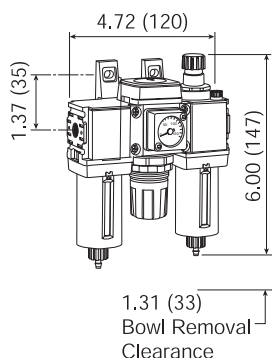
Lubricator series L03:

- 1 oz. bowl
- adjustable oil feed
- full view sight dome
- Included components:
• (2) adapters

| Size | SCFM | With Transparent Bowl and Guard | | With Metal Bowl | |
|------|------|---------------------------------|------------------------|---------------------------|------------------------|
| | | Automatic Drain Part # | Manual Drain Part # | Automatic Drain Part # | Manual Drain Part # |
| 1/8" | 20 | C03-01A | C03-01M | C03-01AMB | C03-01MMB |
| 1/4" | 20 | C03-02A | C03-02M | C03-02AMB | C03-02MMB |



metal bowl

**Features:**

- maximum operating conditions:
transparent bowl: **150 PSIG** (10.3 bar) and **32°F to 125°F** (0°C to 52°C)
metal bowl: **250 PSIG** (17.2 bar) and **32°F to 150°F** (0°C to 65.5°C)

Filter series F08:

- 5 micron element
- .4 oz. bowl

Regulator series R08:

- 0-125 PSI adjusting range
- balanced valve design
- self-relieving
- supplied with a 0-160 PSI flush mount style gauge

Lubricator series L08:

- .6 oz. bowl
- adjustable oil feed
- full view sight dome
- Included components:
• (2) mounting brackets with joiner set

| Size | SCFM | With Transparent Bowl and Guard | | With Metal Bowl | |
|------|------|---------------------------------|------------------------|---------------------------|------------------------|
| | | Automatic Drain Part # | Manual Drain Part # | Automatic Drain Part # | Manual Drain Part # |
| 1/8" | 29 | C08-01A | C08-01M | C08-01AMB | C08-01MMB |
| 1/4" | 44 | C08-02A | C08-02M | C08-02AMB | C08-02MMB |



FRL's are designed for air service only, unless otherwise indicated.

SCFM ratings at 150 PSIG inlet pressure.

BC-Series Sanitary Centrifugal Pump

A 1537
02-10



Mechanical Specifications

Standard Construction

- volute: 316L stainless steel
- impeller: CF3M (316L) stainless steel
- backplate: 316L stainless steel
- stub shaft: 316L stainless steel
- adapter: 304 stainless steel
- optional leg kit: 304 stainless steel
- seal types: externally balanced 'D' and 'DG' with clamped in seat, F flush seal
- rotary seal material: carbon, silicon carbide rotating element available as option
- 'DG' seal seat material: silicon carbide, ceramic and tungsten carbide
- elastomers: Buna, EPDM, silicone and FKM
- finish: sanitary polish 32R_a

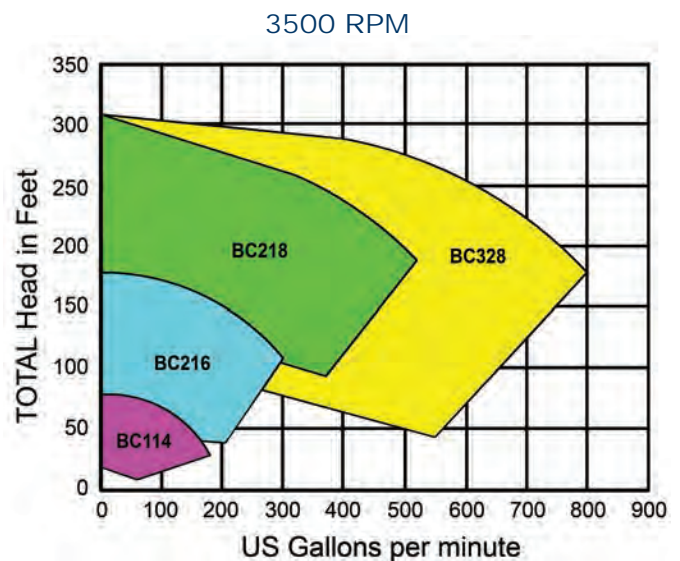
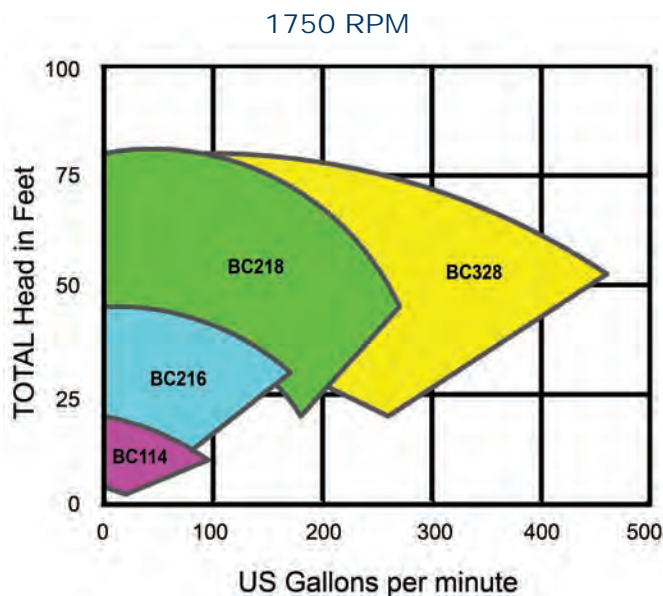
Performance Characteristics

- nominal capacity: up to 780 GPM
- temperature: **32°F to 212°F**, consult factory for other temperatures
- nominal speed: up to 3500 RPM - 60 Hz

Motors and Mounting

- motor: standard C-face, 1750 and 3450 RPM, TEFC and washdown, foot mounted
- additional motor types available upon request
- mounting: pump head mounted to a C-Face motor

Family of Curves

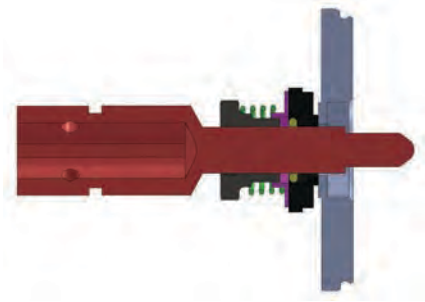


BC-Series Sanitary Centrifugal Pump

Seal Options

D Seal

External Balanced

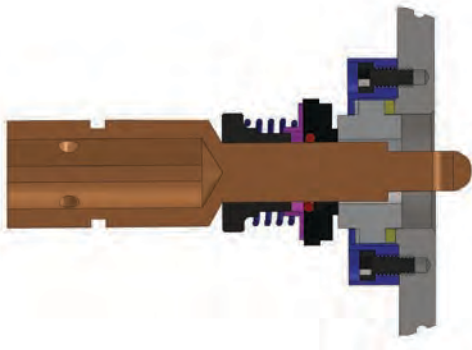


Features:

- optional silicon carbide
- carbon rotating element on stationary stainless steel
- suitable for sanitary and industrial applications where fluid is non-abrasive and lubricating

DG Seal

Clamped-In Seat

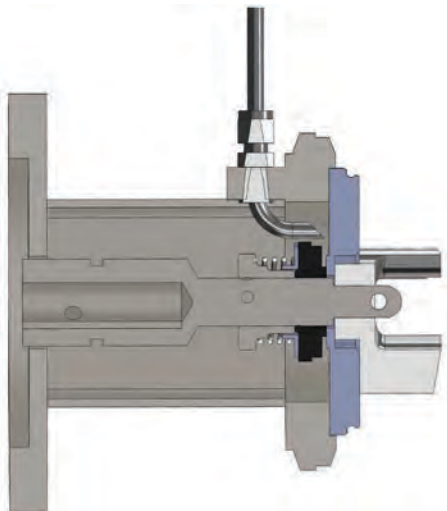


Features:

- choose from ceramic, silicon carbide and tungsten carbide as the stationary seal
- suitable for the majority of sanitary applications, including those using non-lubricating and abrasive fluids
- carbon rotating element on encapsulated seat; optional silicon rotating element is available

F Seal

External Balanced



Feature:

- Externally balanced D or DG Seal with water cascade for use when normal D seal applications include product temperatures that reach 212°F or when the fluid is sticky or tacky.

Sanitary Pump Carts

Dixon now offers pump carts as an added option to all of our pumps. There are two standard model sizes and others available upon request. Carts can be ordered with countless options and customized to your specifications. Please contact Dixon Engineering with your request at (800)-789-1718.



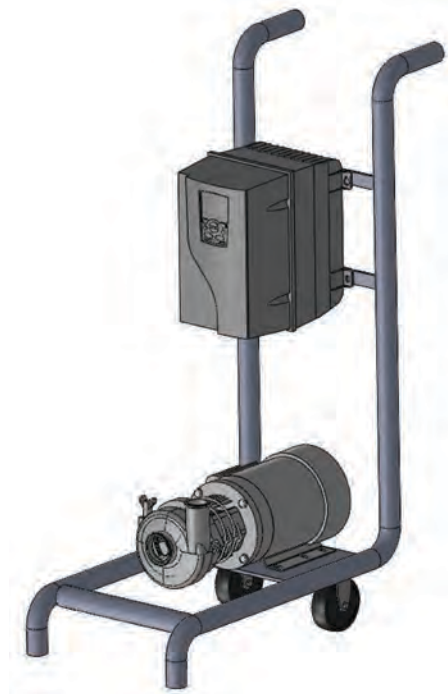
Big Cart without Pump



Big Cart with Pump

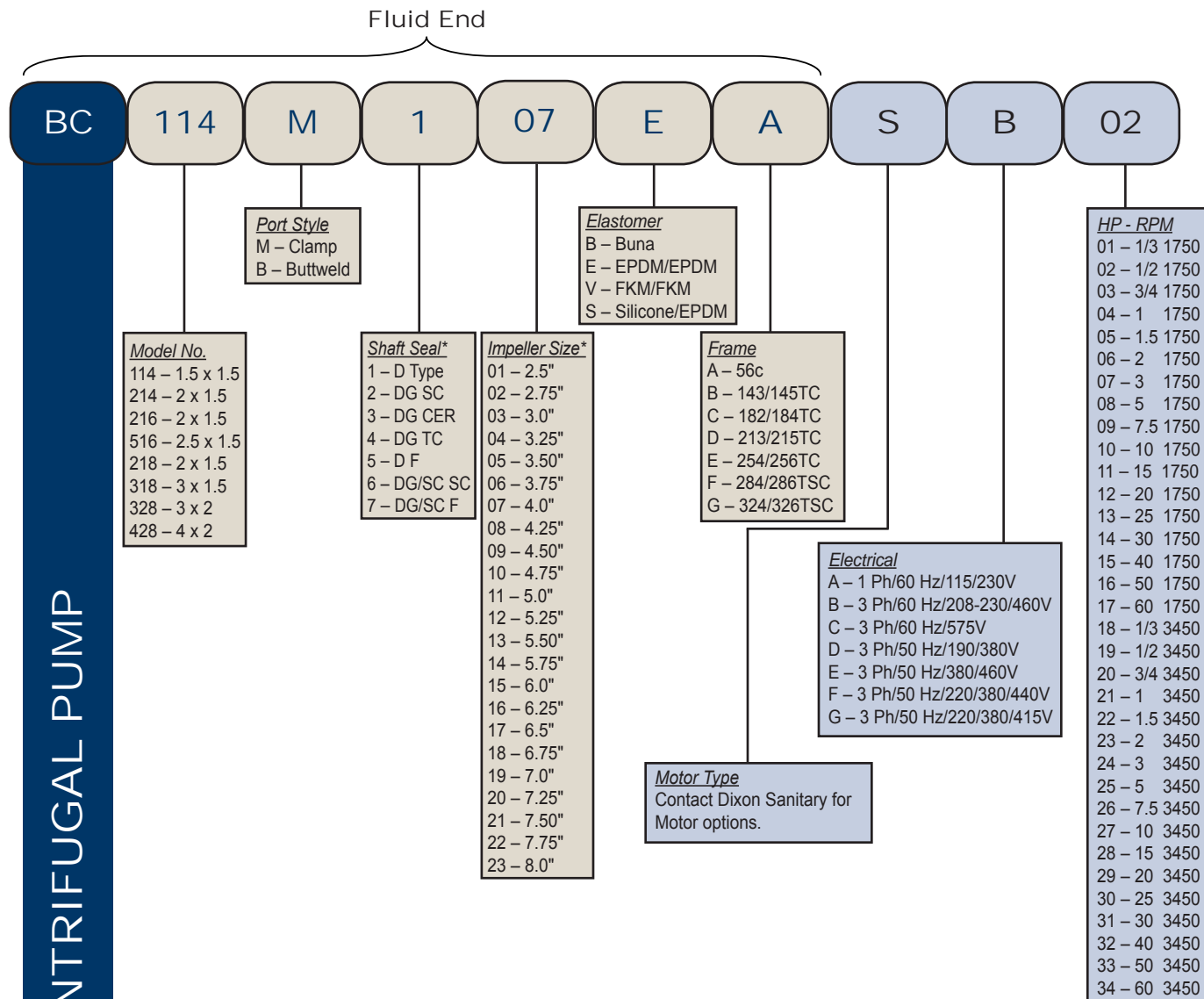


Small Cart without Pump



Small Cart with Pump

BC-Series Sanitary Centrifugal Pump

Key Numbers
Pump Model Number Breakdown

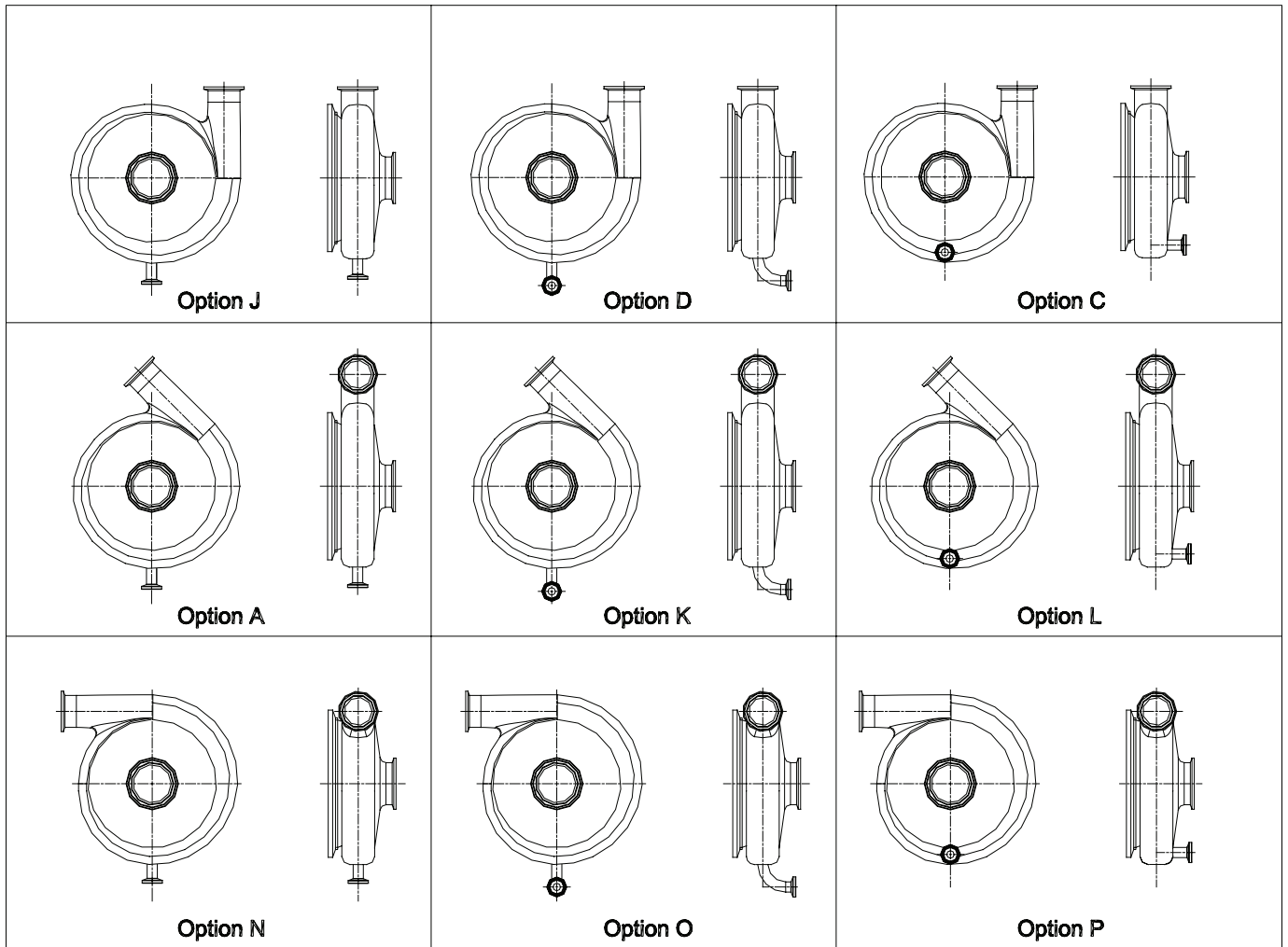
* other options available

Fluid end includes all parts required to assemble to your motor.

Specify adjustable leg kits at time of order. Leg kits will be shipped to match the frame size of motor as specified by model number. Leg kits will not be assembled.

Please note, if there are options that are not listed above, please contact Dixon Sanitary (800.789.1718) for availability and pricing.

BC-Series Sanitary Centrifugal Pump Casing Drain Options



Contact Dixon Sanitary Engineering Department for other configurations.

BC-Series Sanitary Centrifugal Pump

How to Read a Curve

A: This section references the size of the pump, speed, frequency and the model number.

B: y axis, shows head in feet

C: x axis, shows flow in GPM

D: These solid line curves are for specific impeller diameters.

E: The dotted line curves are for motor horsepower requirements.

F: Duty point, where the flow and head requirements intersect.

G: NPSH required for the duty point.

Example:

72 GPM @ 40' Head of water

Find 72 GPM on the curve and then go upwards until you hit the line that is 40' of head on the impeller trim curves. This determines what impeller diameter is needed for your application. This is your duty point as labeled F. To determine the horsepower required, from the duty point go towards the right to the closest dotted horsepower curve and that will be the size of motor you will need.

To determine the NPSH required, from the duty point, draw a line straight downward and where that intersects is the NPSH required in feet. That figure is on the y axis in feet.

In this example the pump you would select would be:

Model No. BC114, 3.5" impeller diameter, driven by a 1½ HP, 3500 RPM motor, NPSHr would be 8'.

BC-Series Sanitary Centrifugal Pump



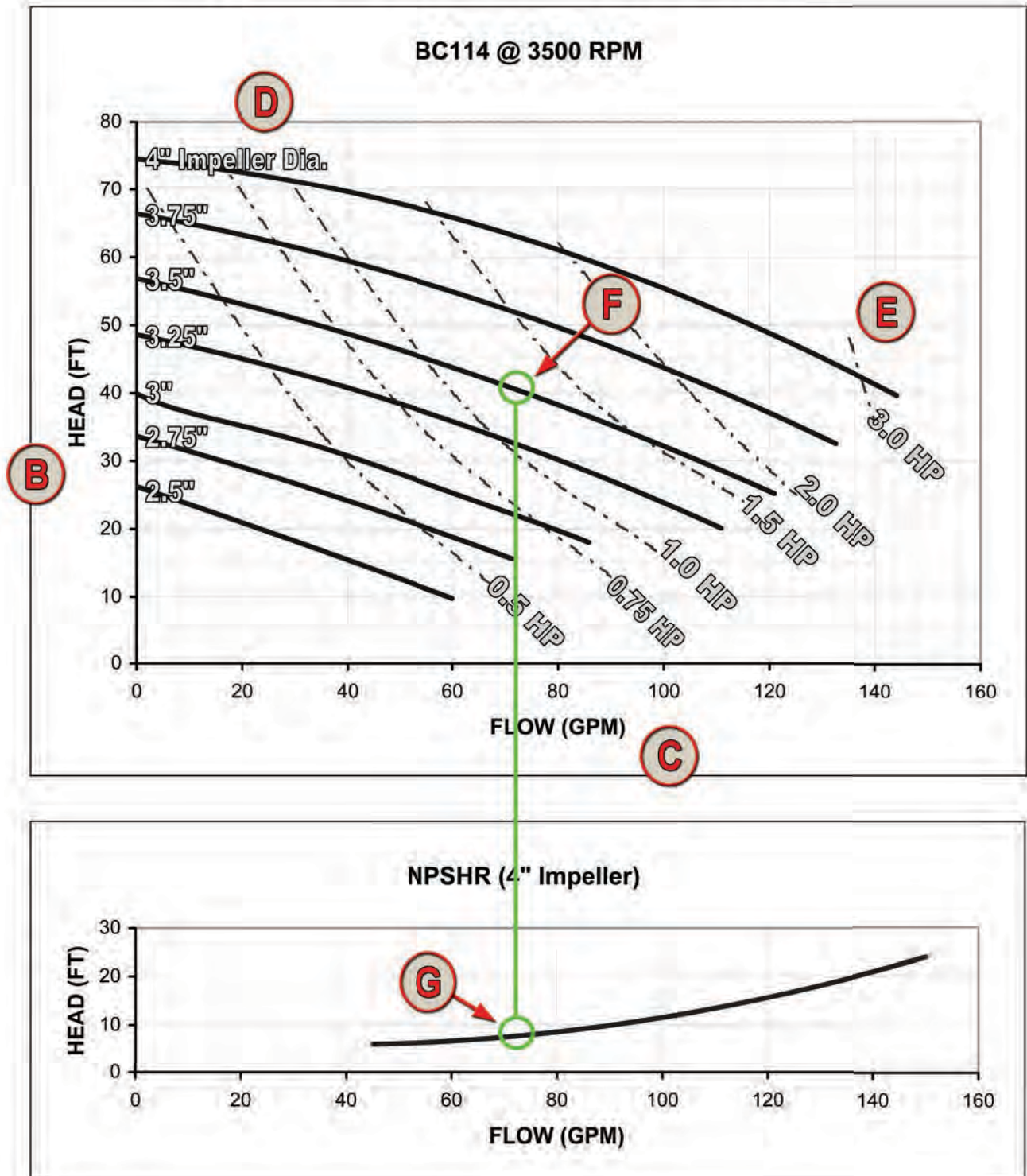
The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: 1.5 x 1.5 x 4
 RPM: 3500
 Frequency: 60 Hz
 Model #: BC114



BC-Series Sanitary Centrifugal Pump

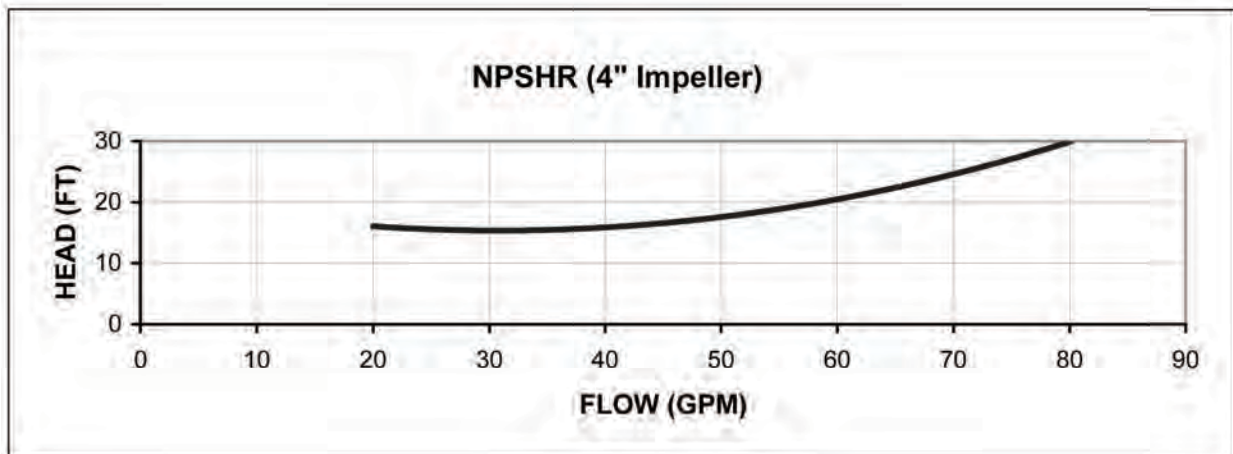
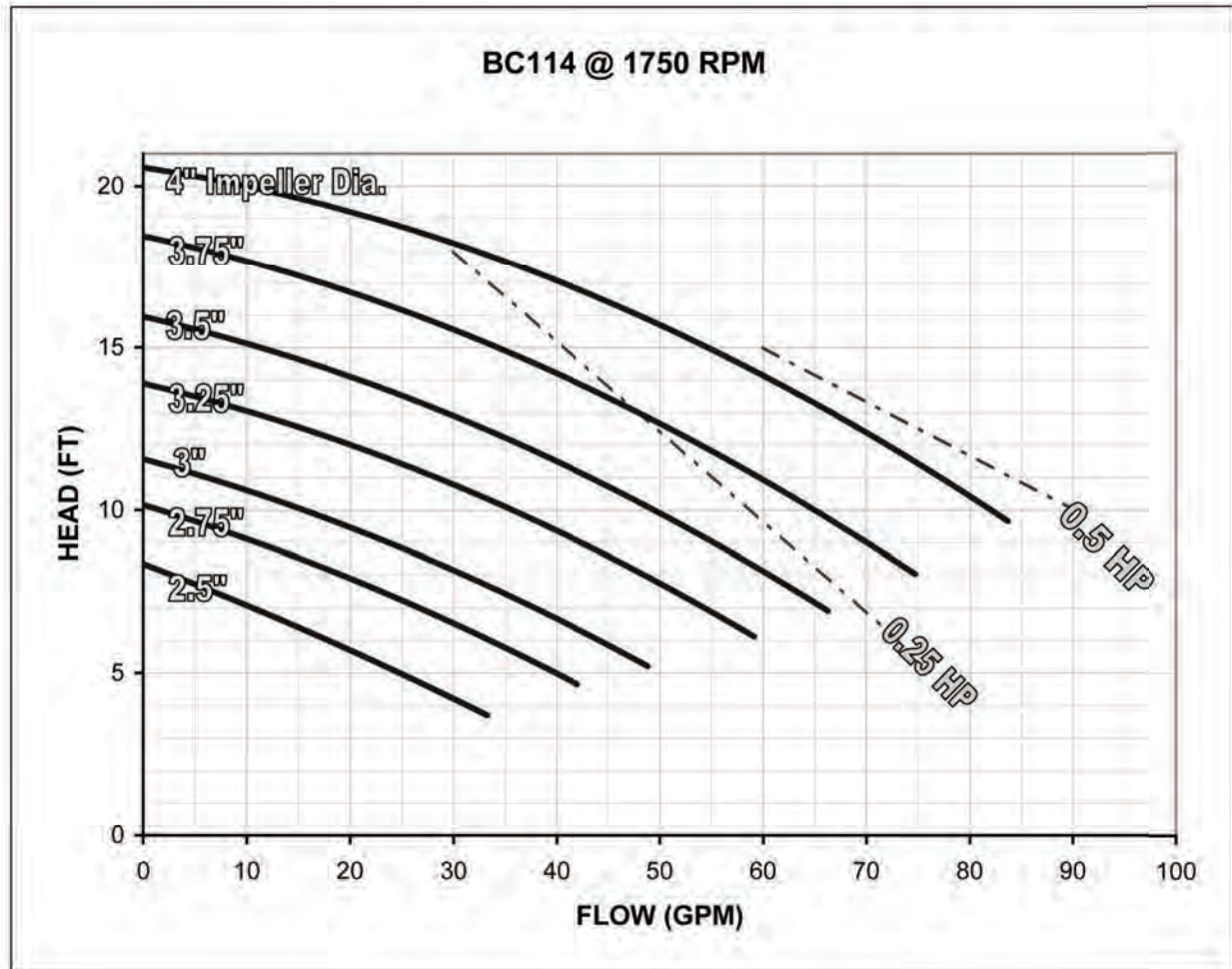


The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES (Based on H₂O @ 70° F)

Size: 1.5 x 1.5 x 4
RPM: 1750
Frequency: 60 Hz
Model #: BC114



BC-Series Sanitary Centrifugal Pump



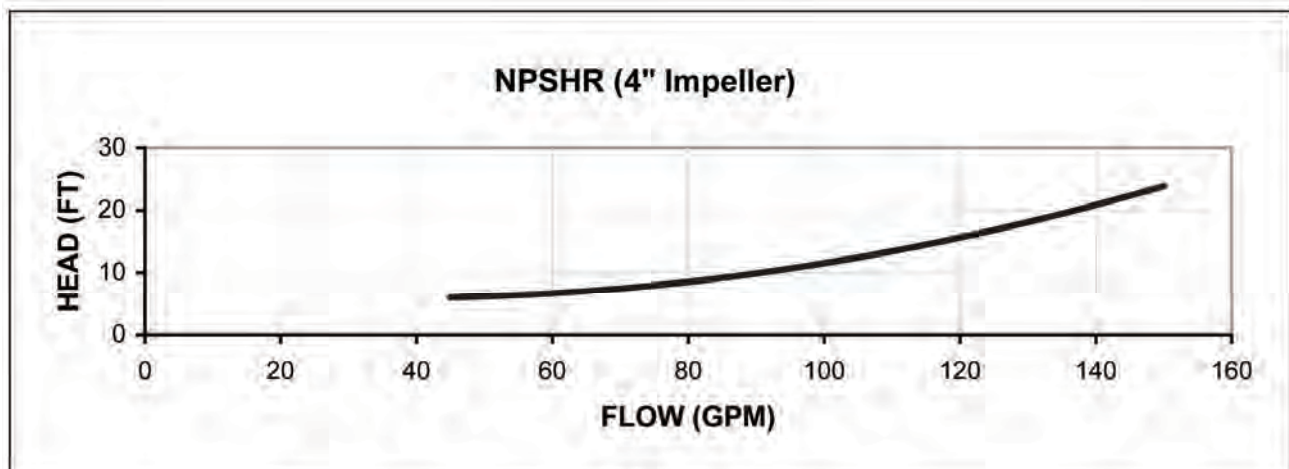
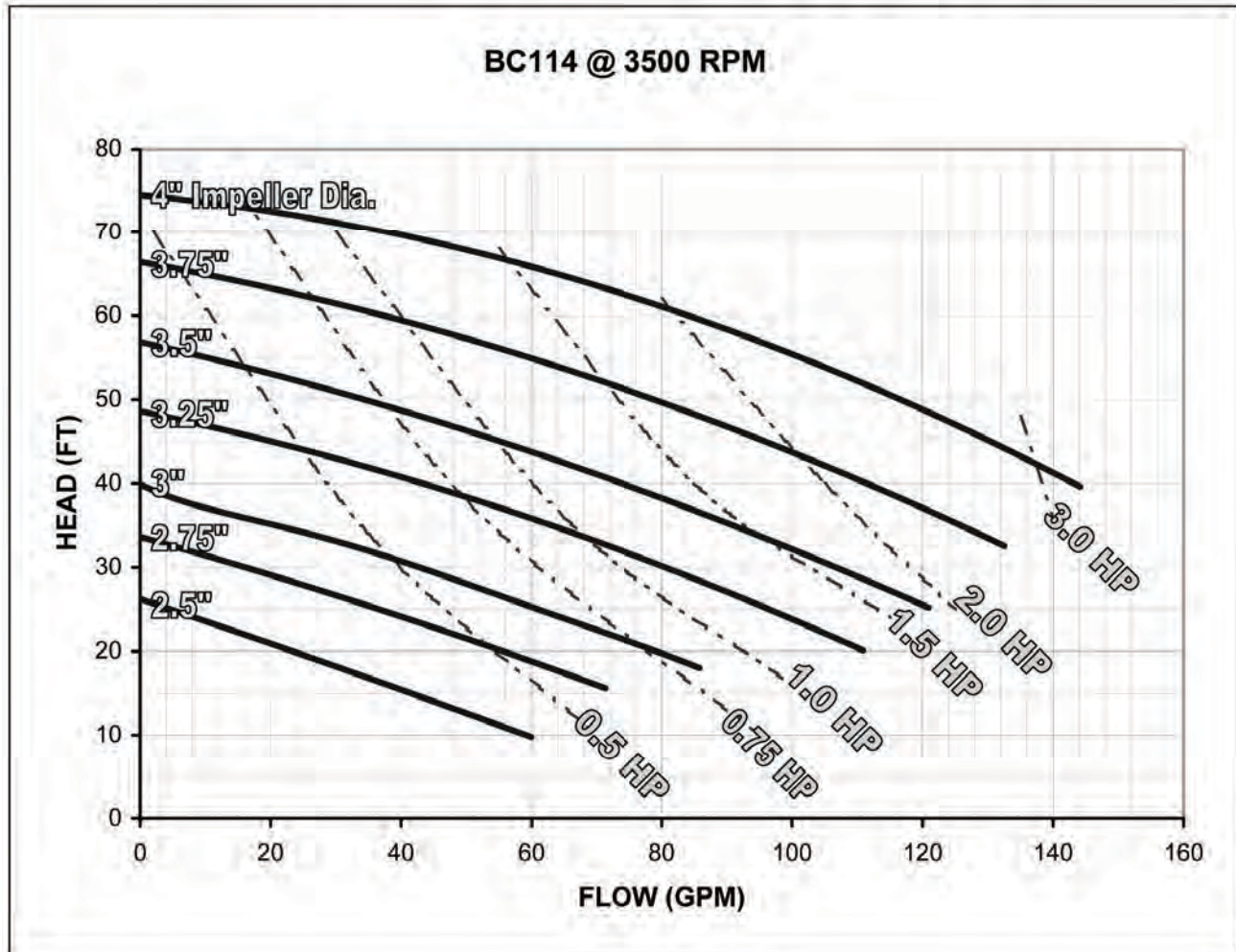
The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: 1.5 x 1.5 x 4
 RPM: 3500
 Frequency: 60 Hz
 Model #: BC114



BC-Series Sanitary Centrifugal Pump



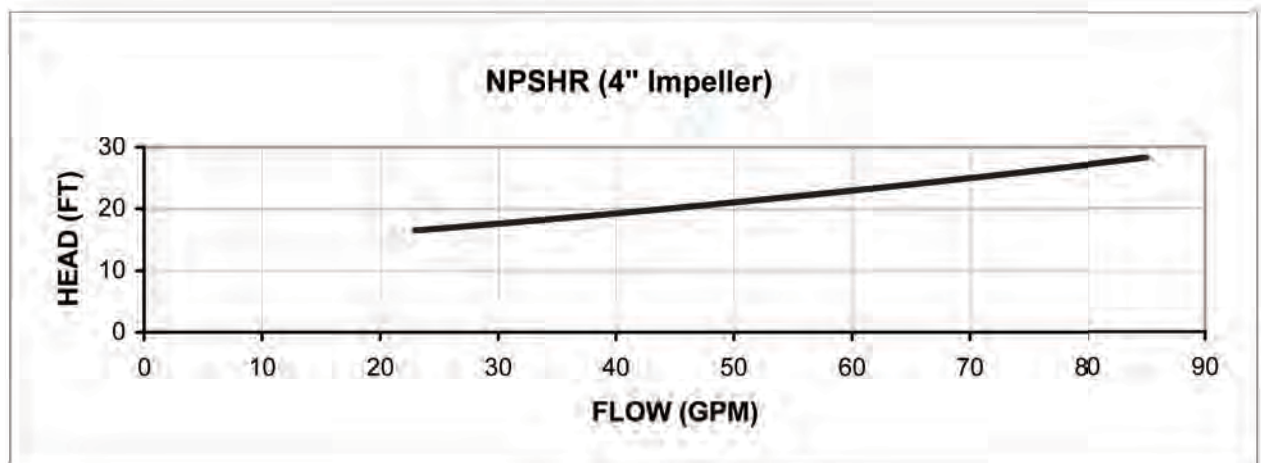
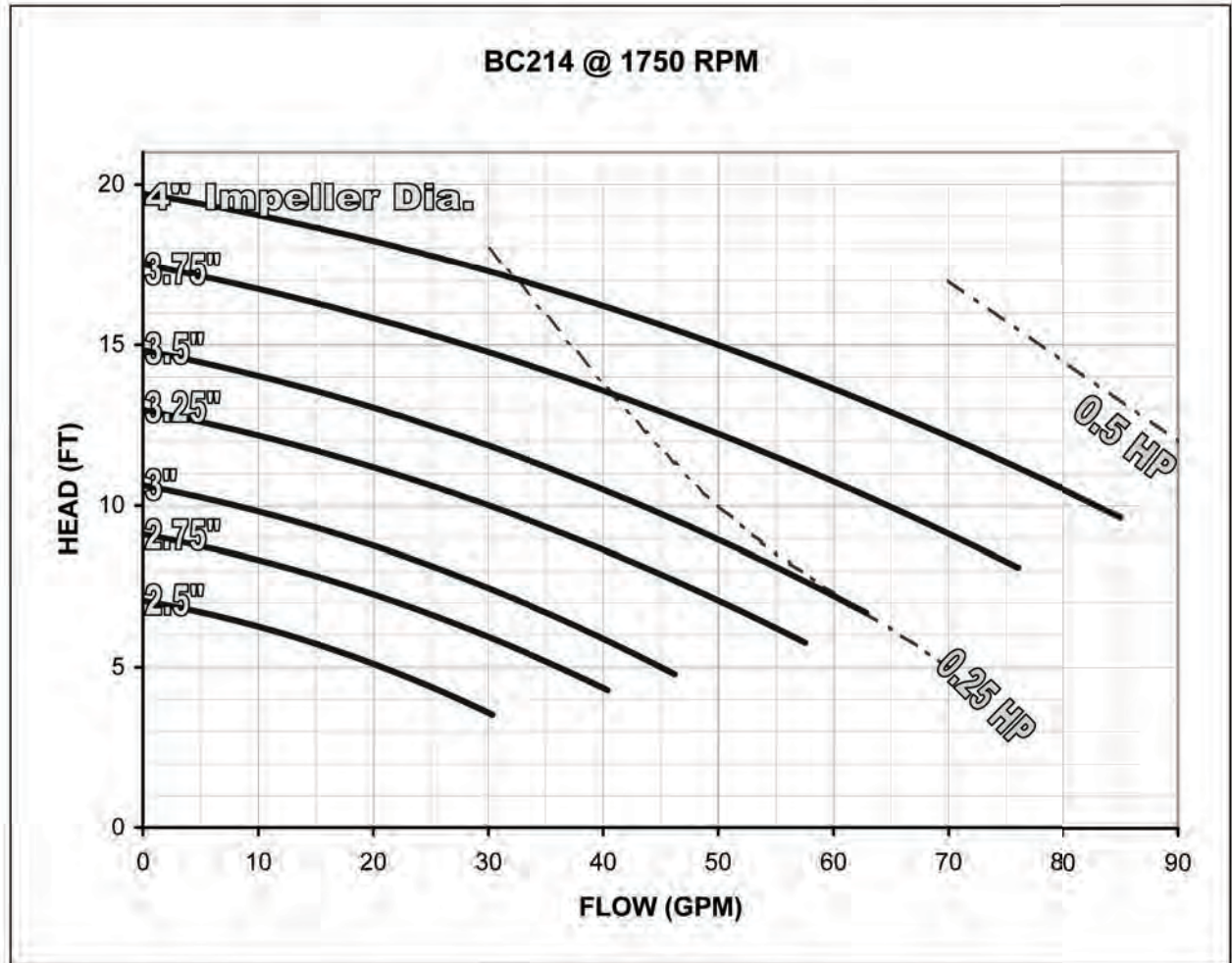
The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: **2 x 1.5 x 4**
RPM: **1750**
Frequency: **60 Hz**
Model #: **BC214**



BC-Series Sanitary Centrifugal Pump



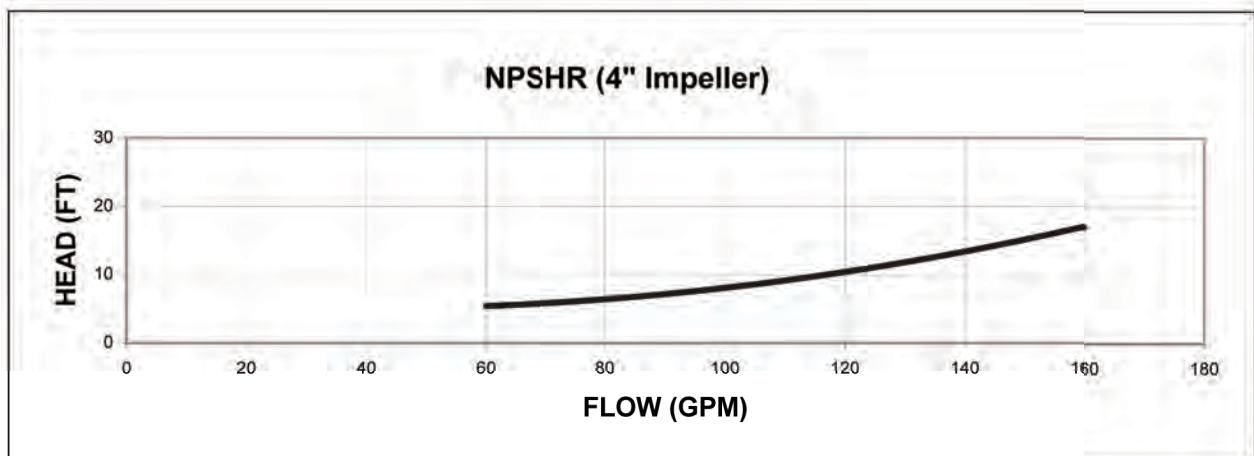
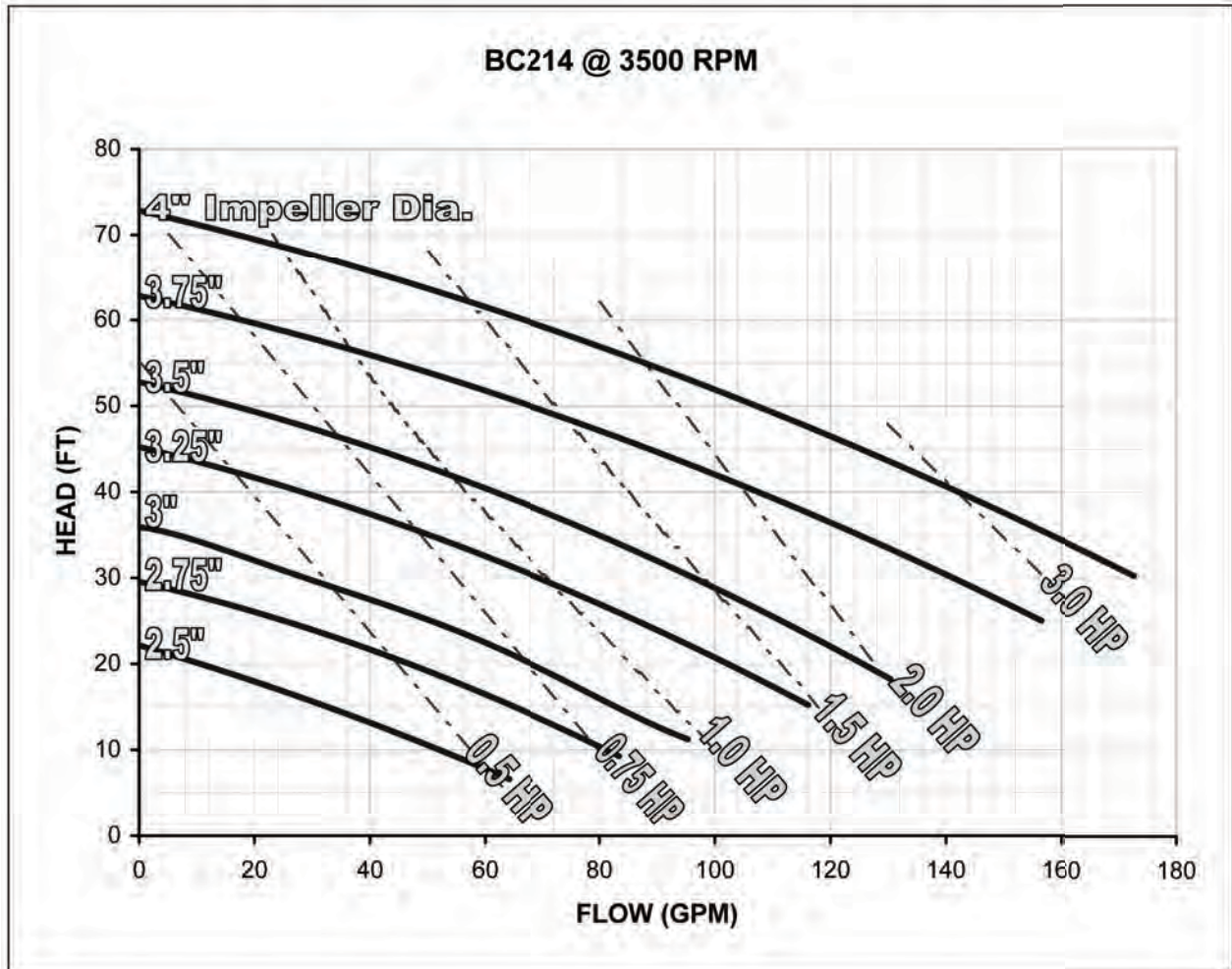
The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: 2 x 1.5 x 4
RPM: 3500
Frequency: 60 Hz
Model #: BC214



BC-Series Sanitary Centrifugal Pump



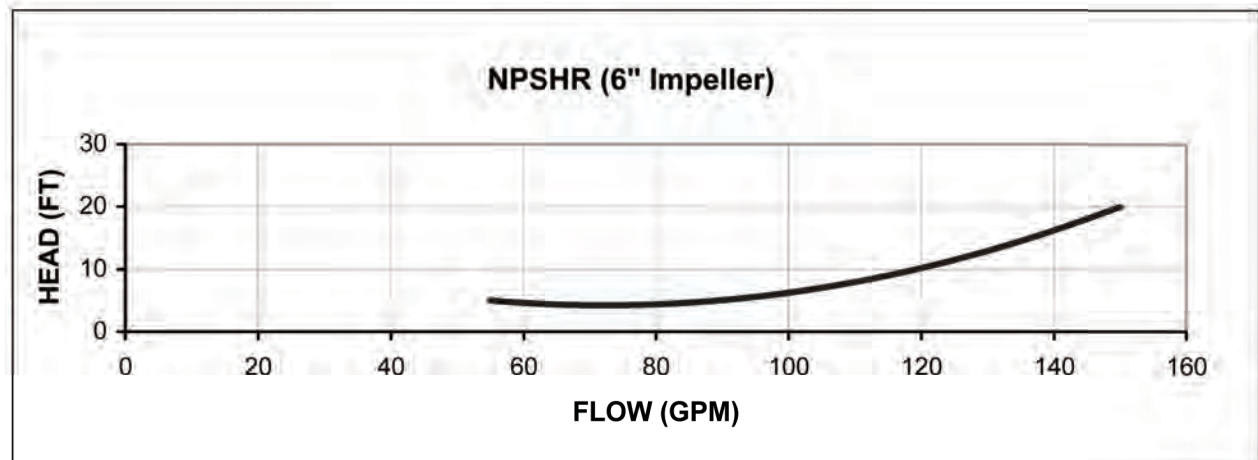
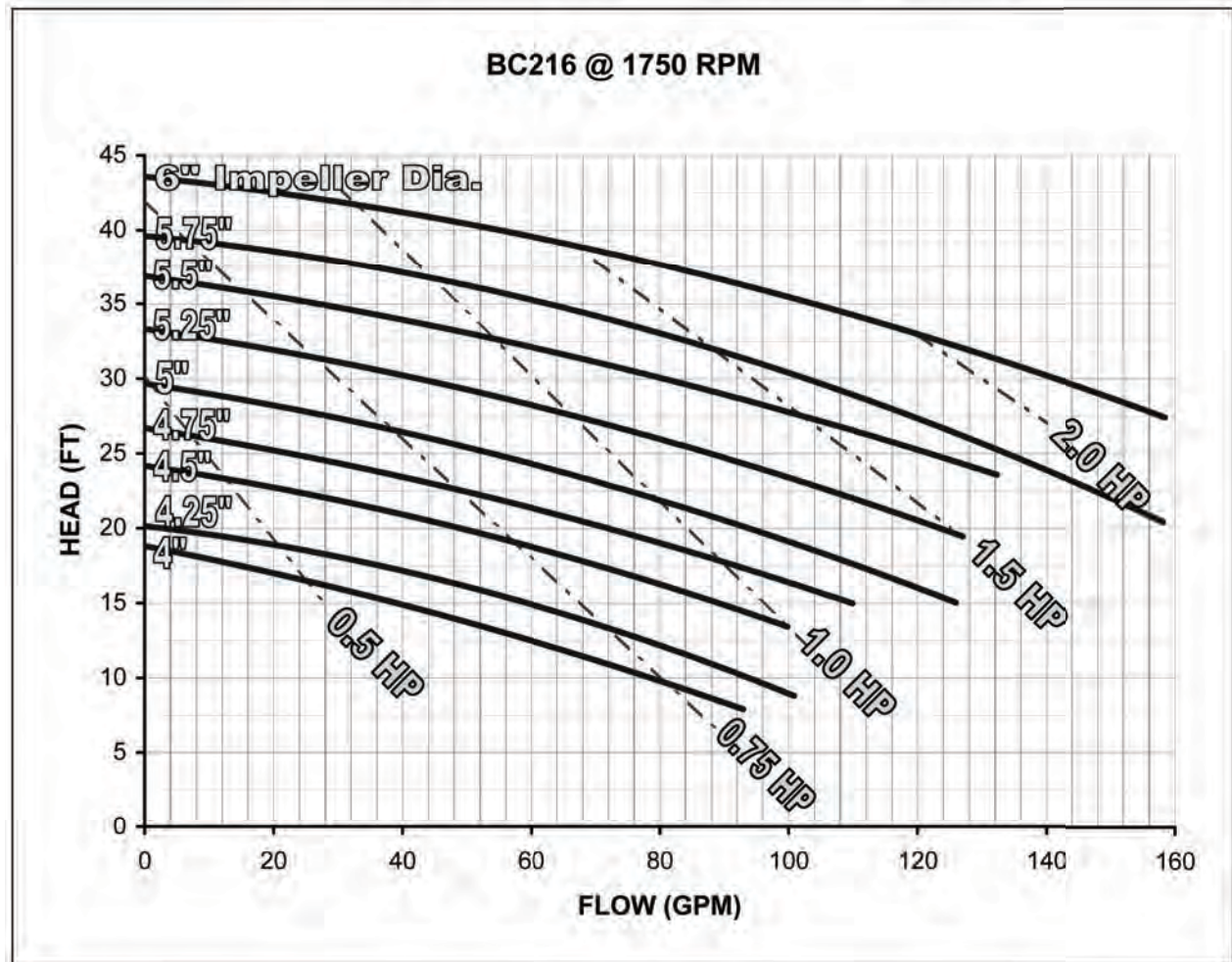
The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: 2 x 1.5 x 6
 RPM: 1750
 Frequency: 60 Hz
 Model #: BC216



BC-Series Sanitary Centrifugal Pump



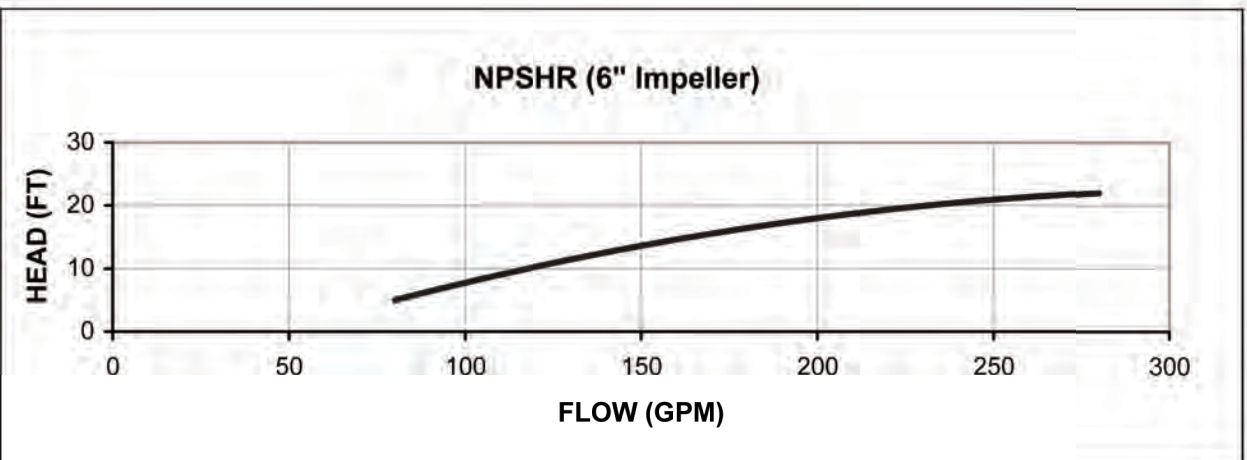
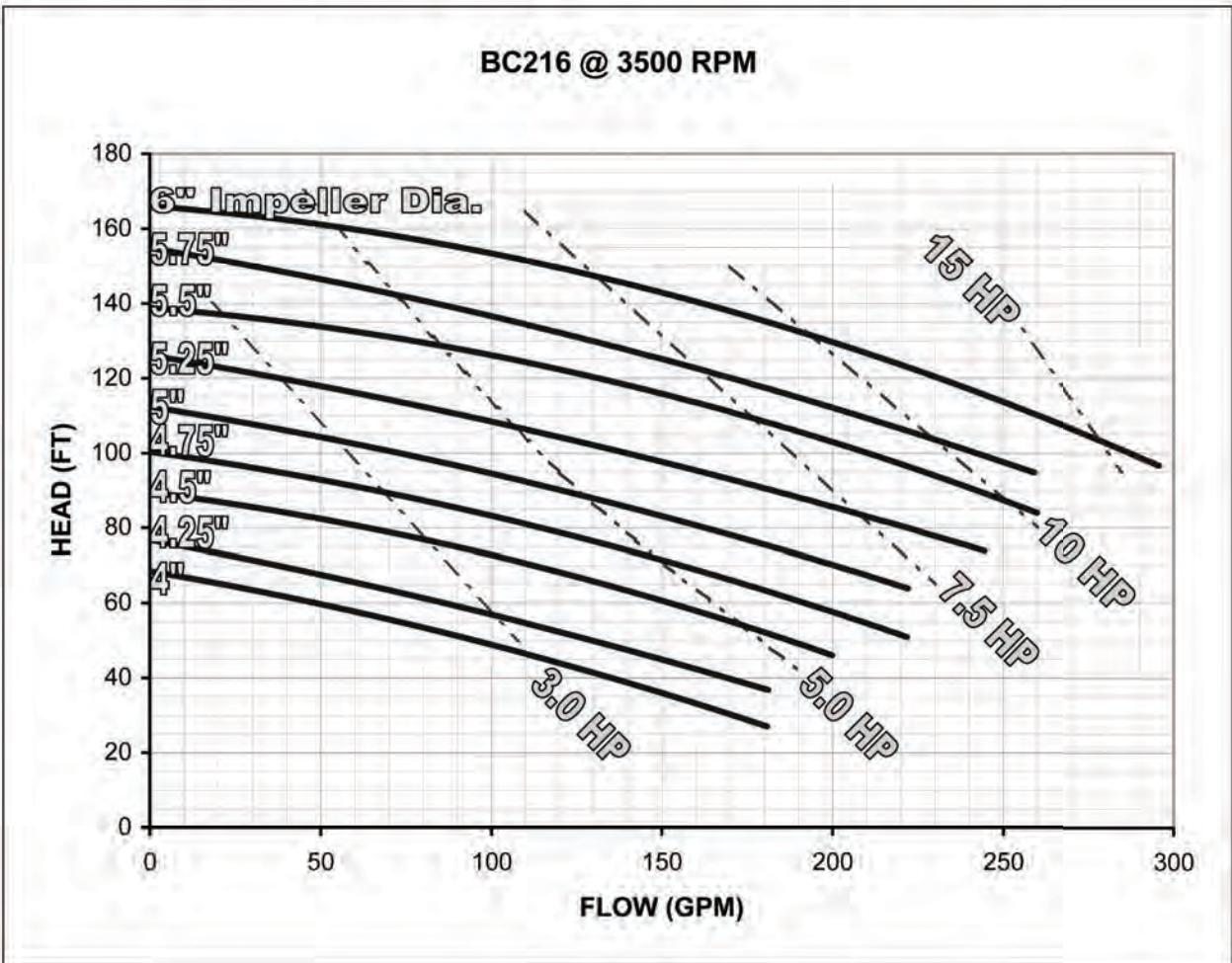
The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: 2 x 1.5 x 6
RPM: 3500
Frequency: 60 Hz
Model #: BC216



BC-Series Sanitary Centrifugal Pump



The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

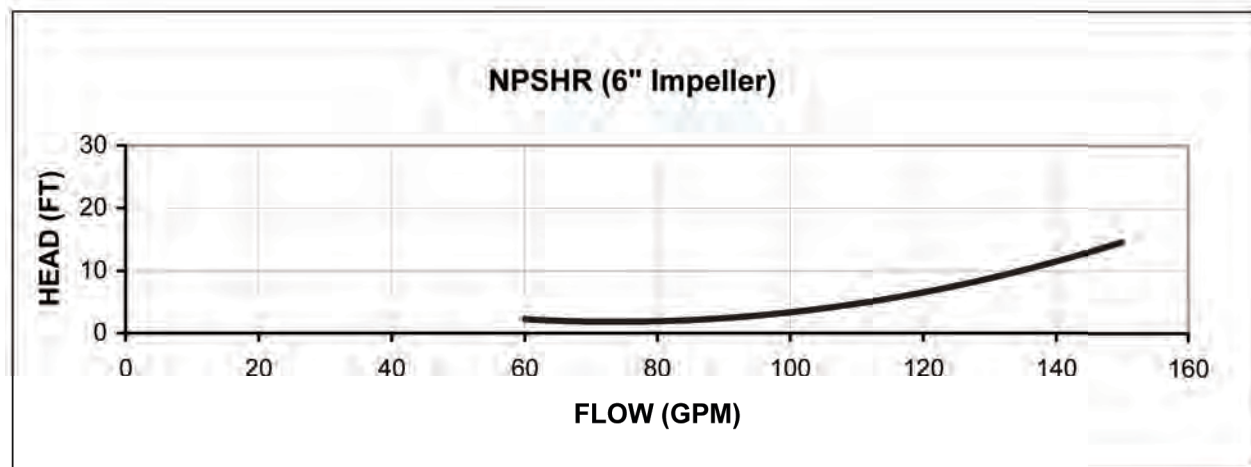
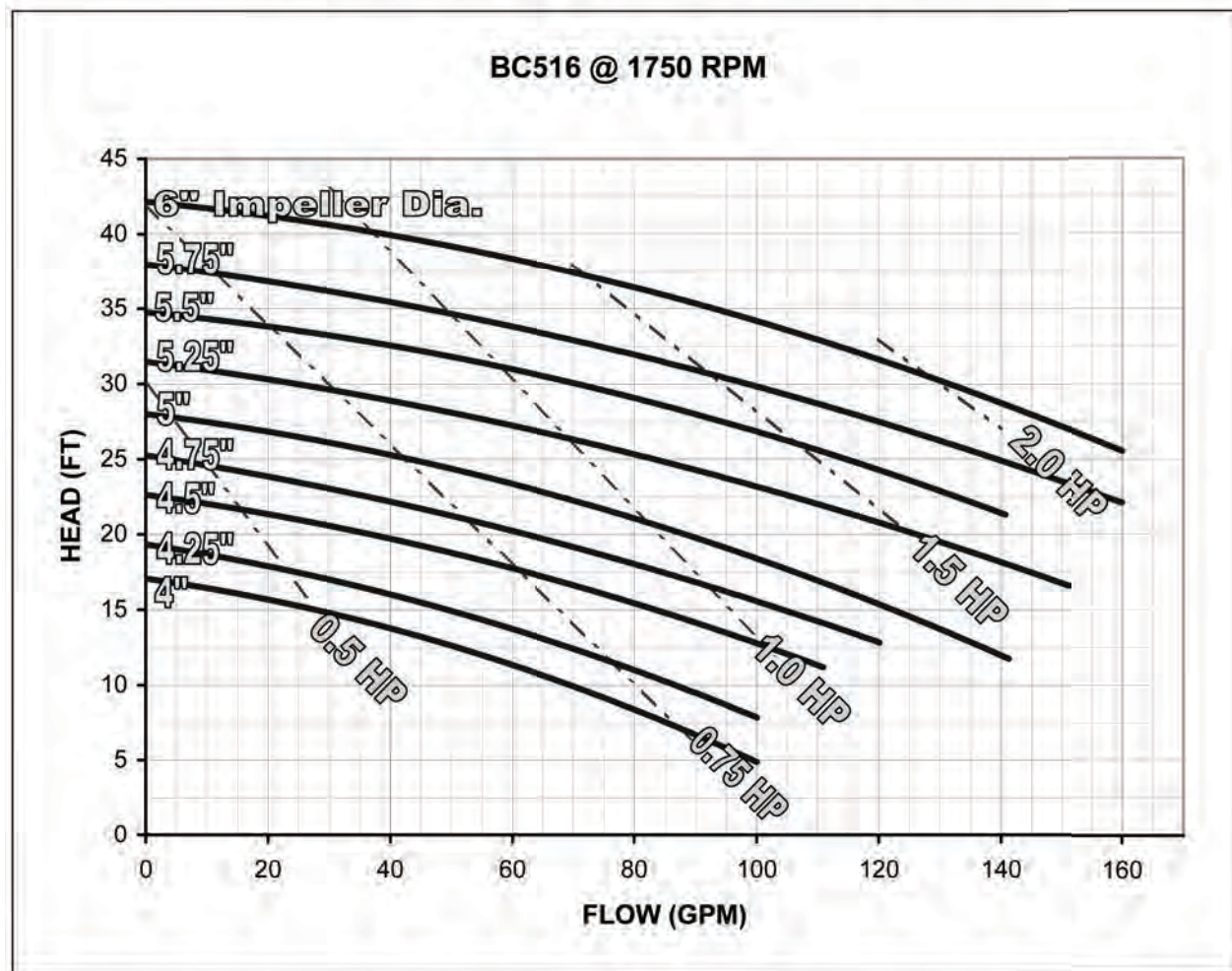
(Based on H₂O @ 70° F)

Size: 2.5 x 1.5 x 6

RPM: 1750

Frequency: 60 Hz

Model #: BC516



BC-Series Sanitary Centrifugal Pump

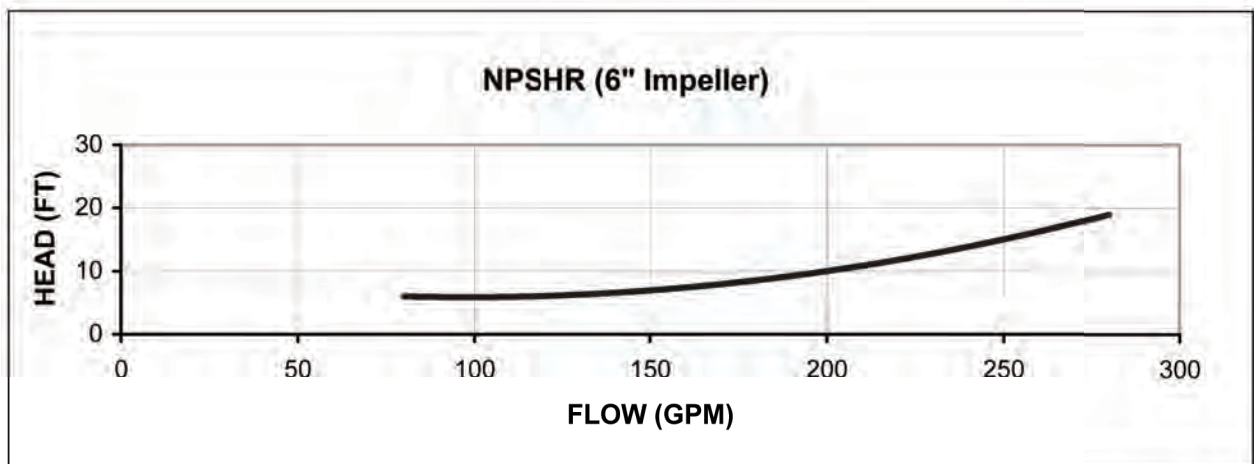
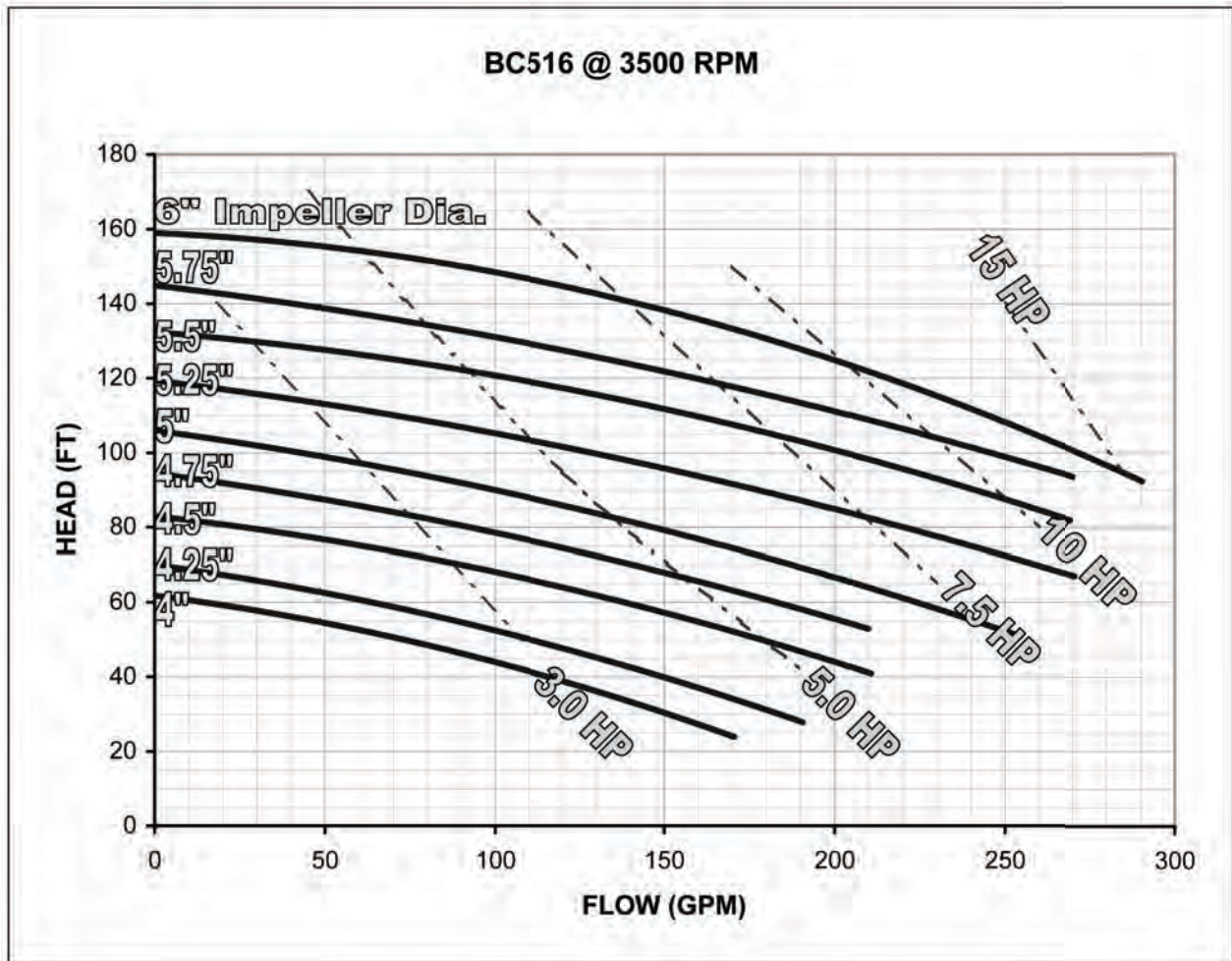


BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: 2.5 x 1.5 x 6
 RPM: 3500
 Frequency: 60 Hz
 Model #: BC516



BC-Series Sanitary Centrifugal Pump



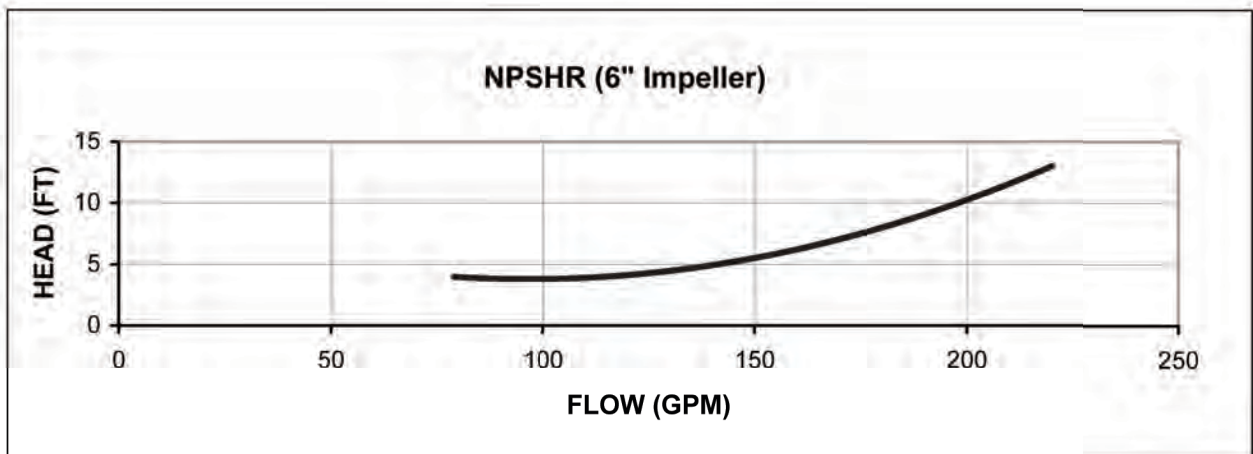
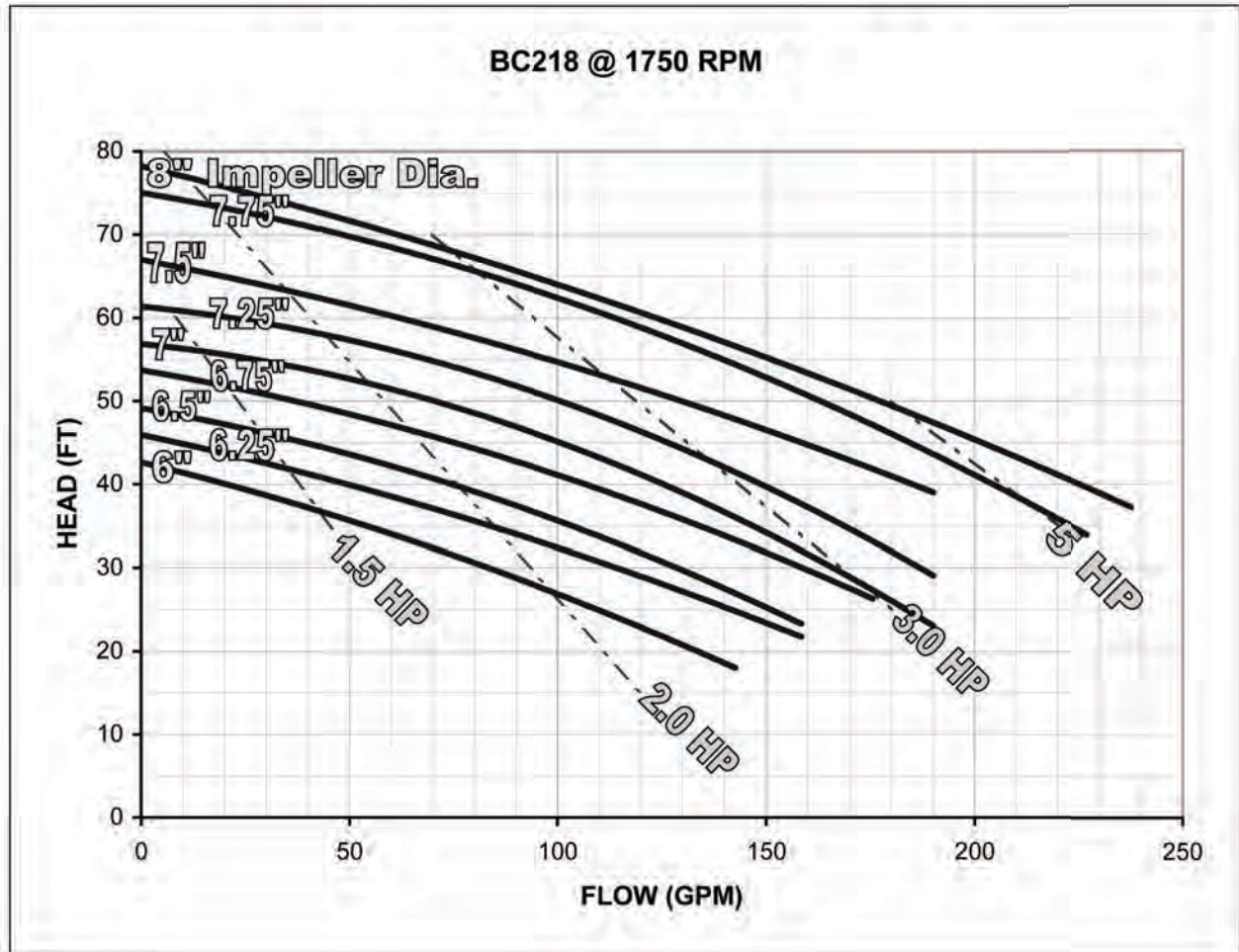
The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: 2 x 1.5 x 8
 RPM: 1750
 Frequency: 60 Hz
 Model #: BC218



BC-Series Sanitary Centrifugal Pump



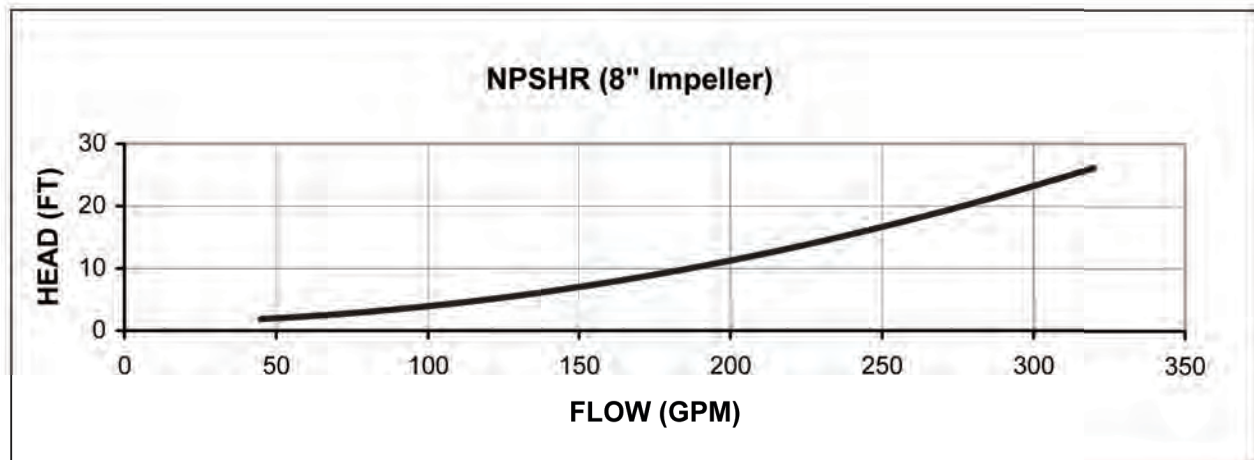
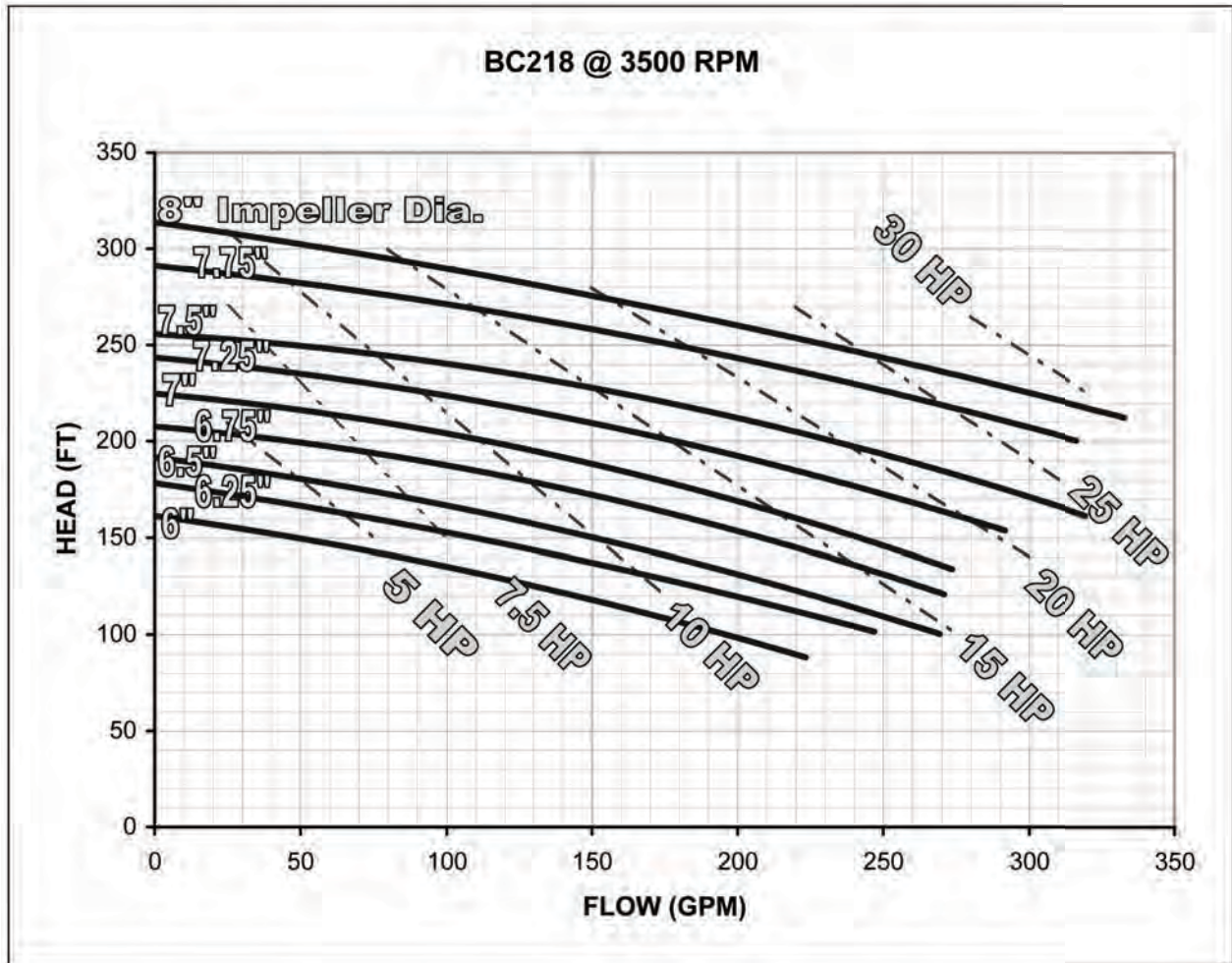
The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: **2 x 1.5 x 8**
 RPM: **3500**
 Frequency: **60 Hz**
 Model #: **BC218**



BC-Series Sanitary Centrifugal Pump



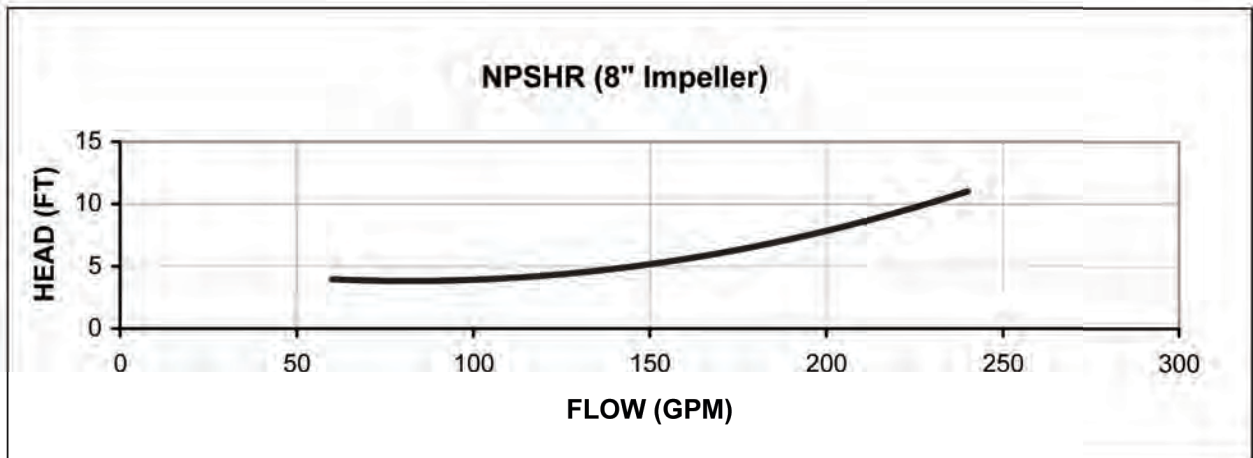
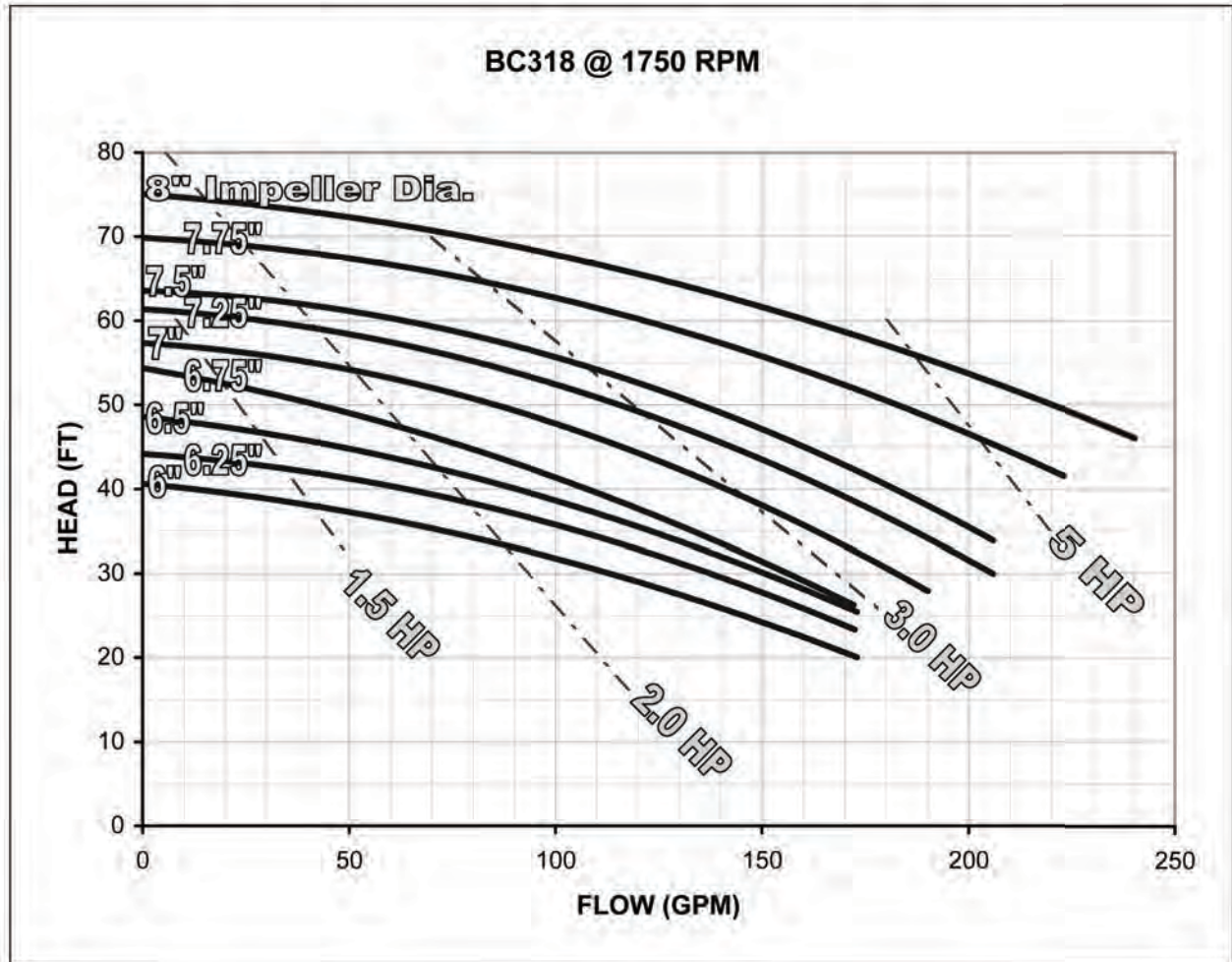
The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: 3 x 1.5 x 8
 RPM: 1750
 Frequency: 60 Hz
 Model #: BC318



BC-Series Sanitary Centrifugal Pump



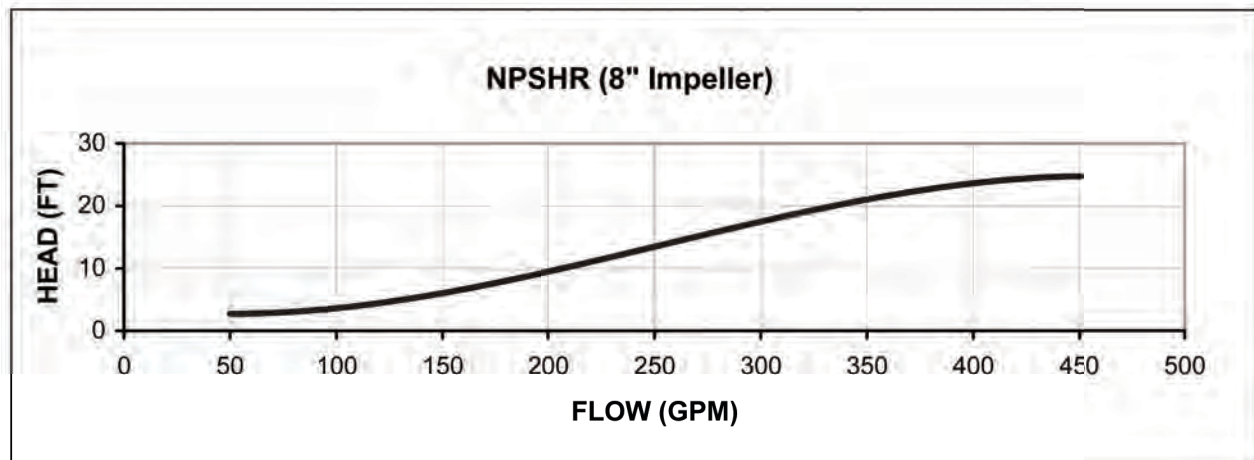
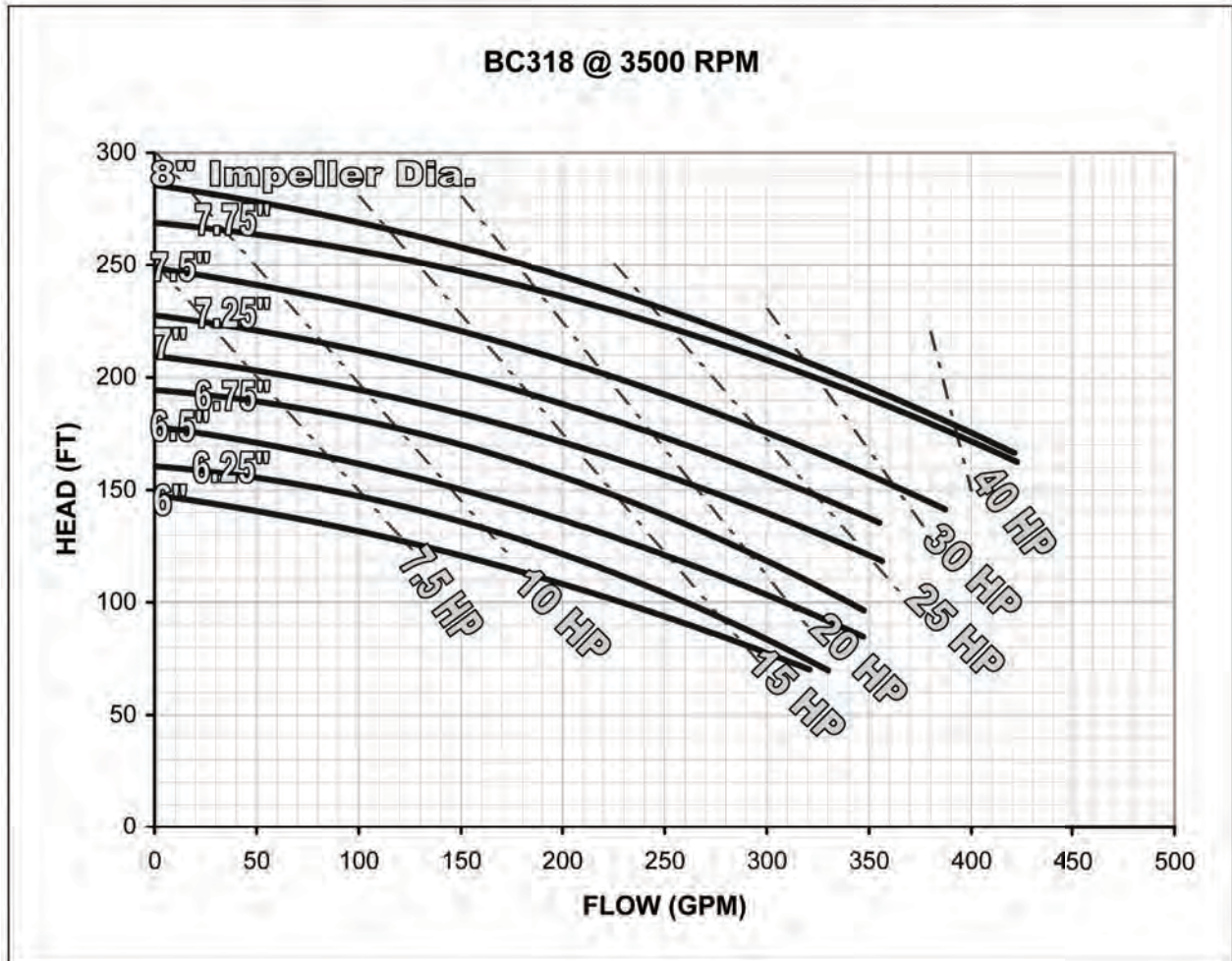
The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: 3 x 1.5 x 8
RPM: 3500
Frequency: 60 Hz
Model #: BC318



BC-Series Sanitary Centrifugal Pump



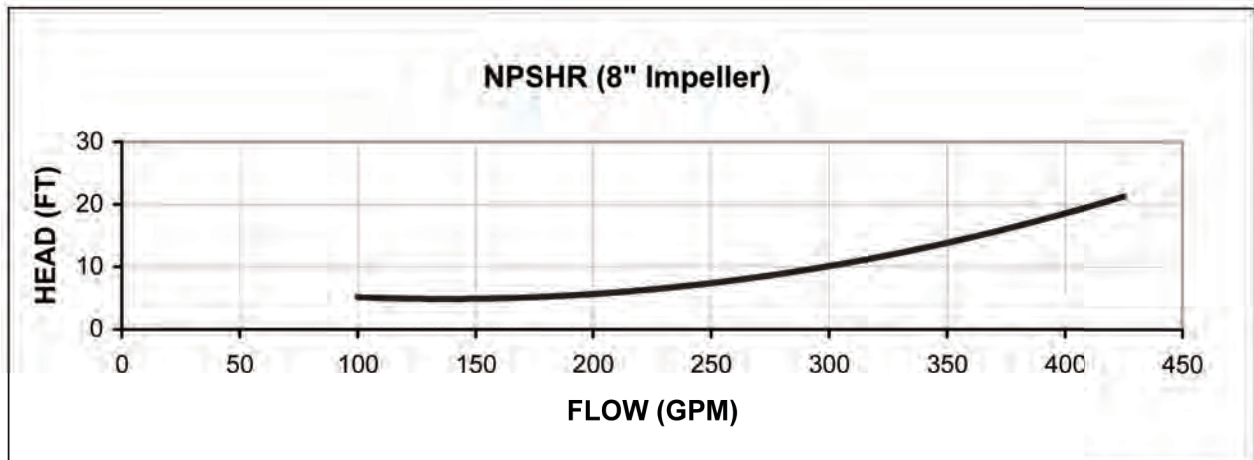
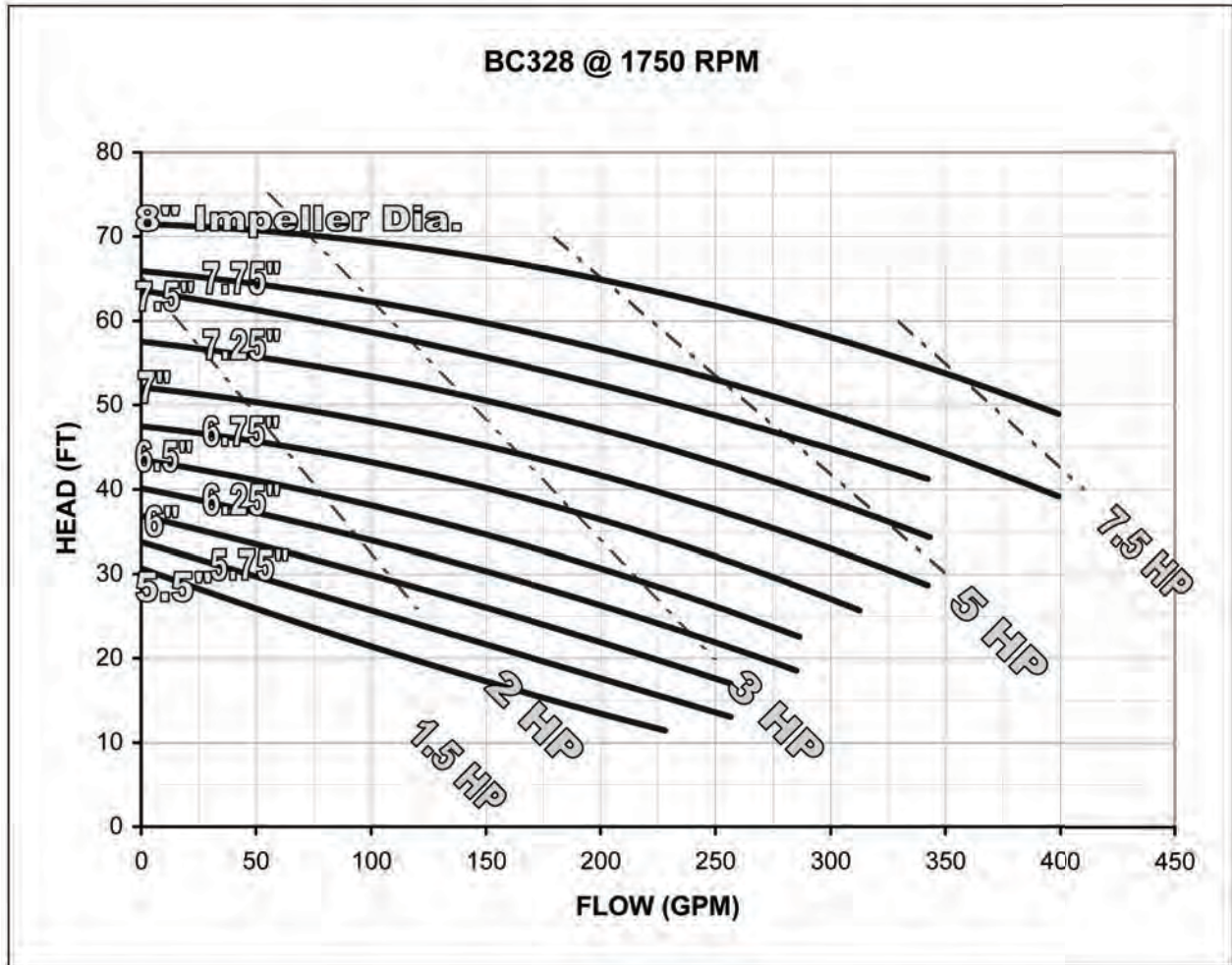
The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: 3 x 2 x 8
 RPM: 1750
 Frequency: 60 Hz
 Model #: BC328



BC-Series Sanitary Centrifugal Pump



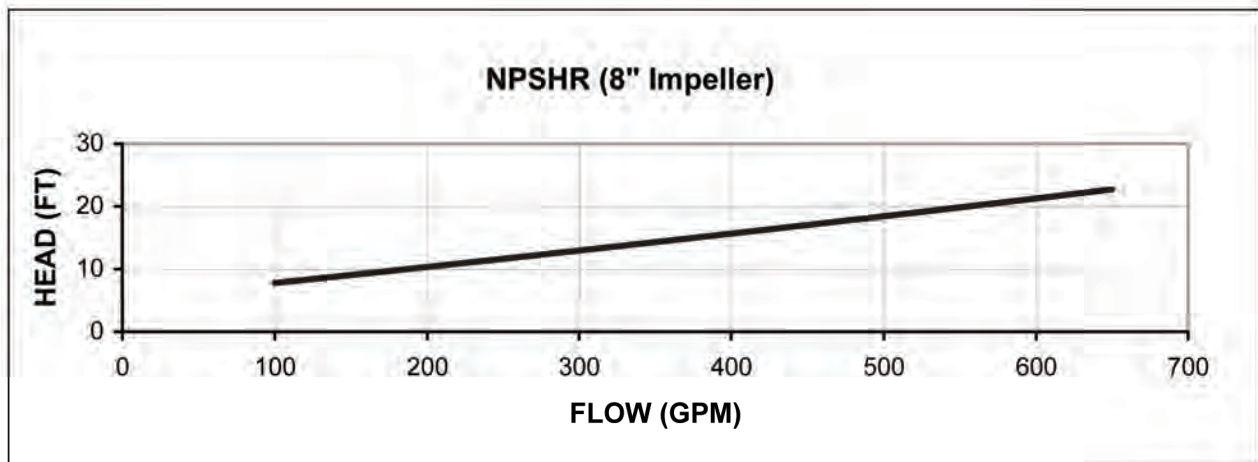
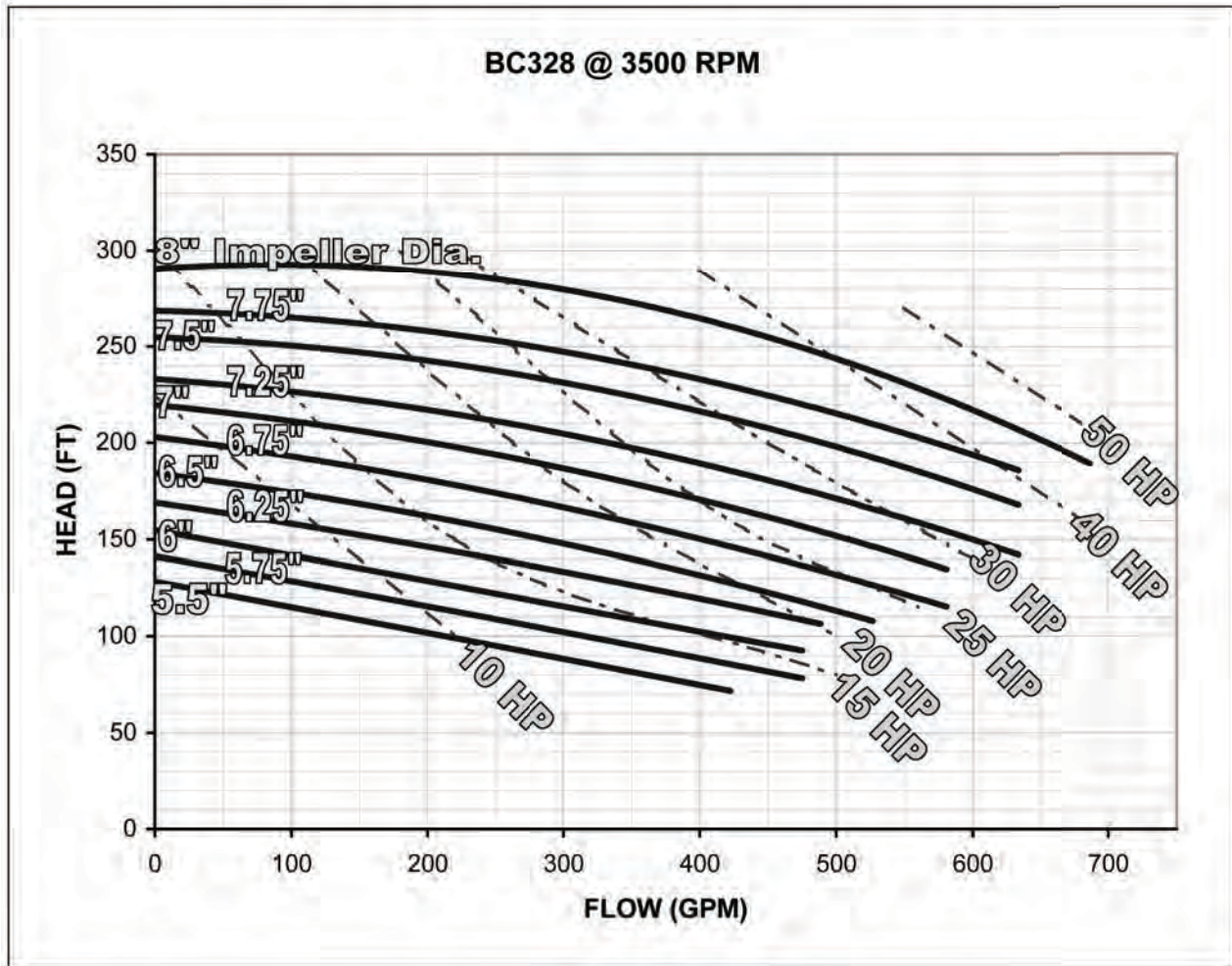
The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: 3 x 2 x 8
RPM: 3500
Frequency: 60 Hz
Model #: BC328



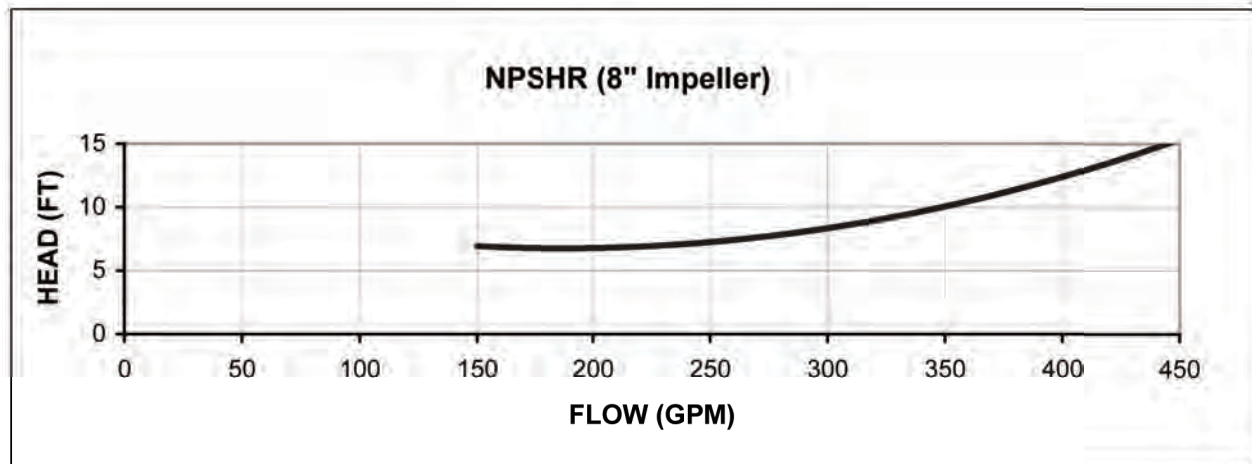
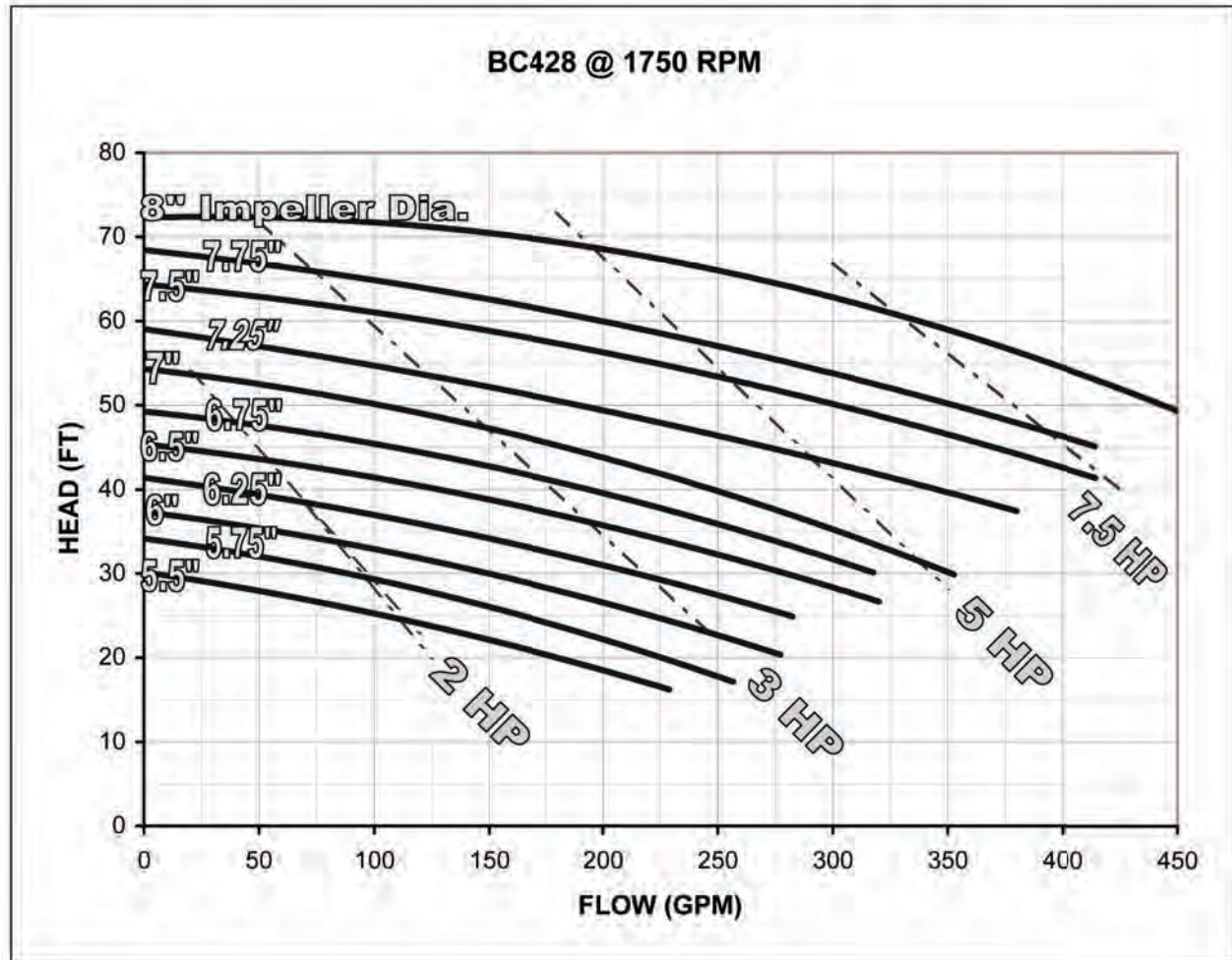
BC-Series Sanitary Centrifugal Pump



The Right Connection™

Size: 4 x 2 x 8
 RPM: 1750
 Frequency: 60 Hz
 Model #: BC428

BC Series Centrifugal Pump

PERFORMANCE CURVES (Based on H₂O @ 70° F)

BC-Series Sanitary Centrifugal Pump



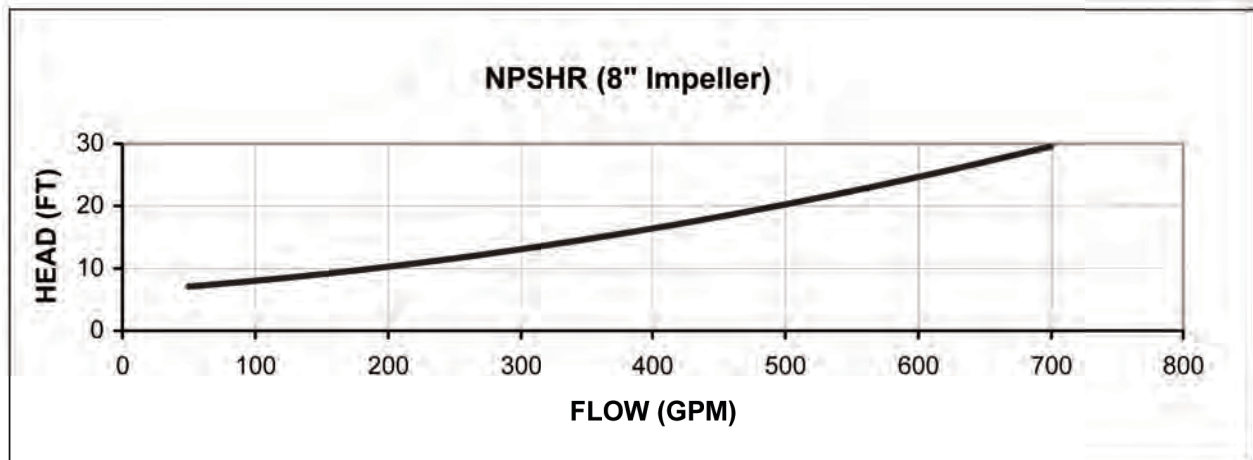
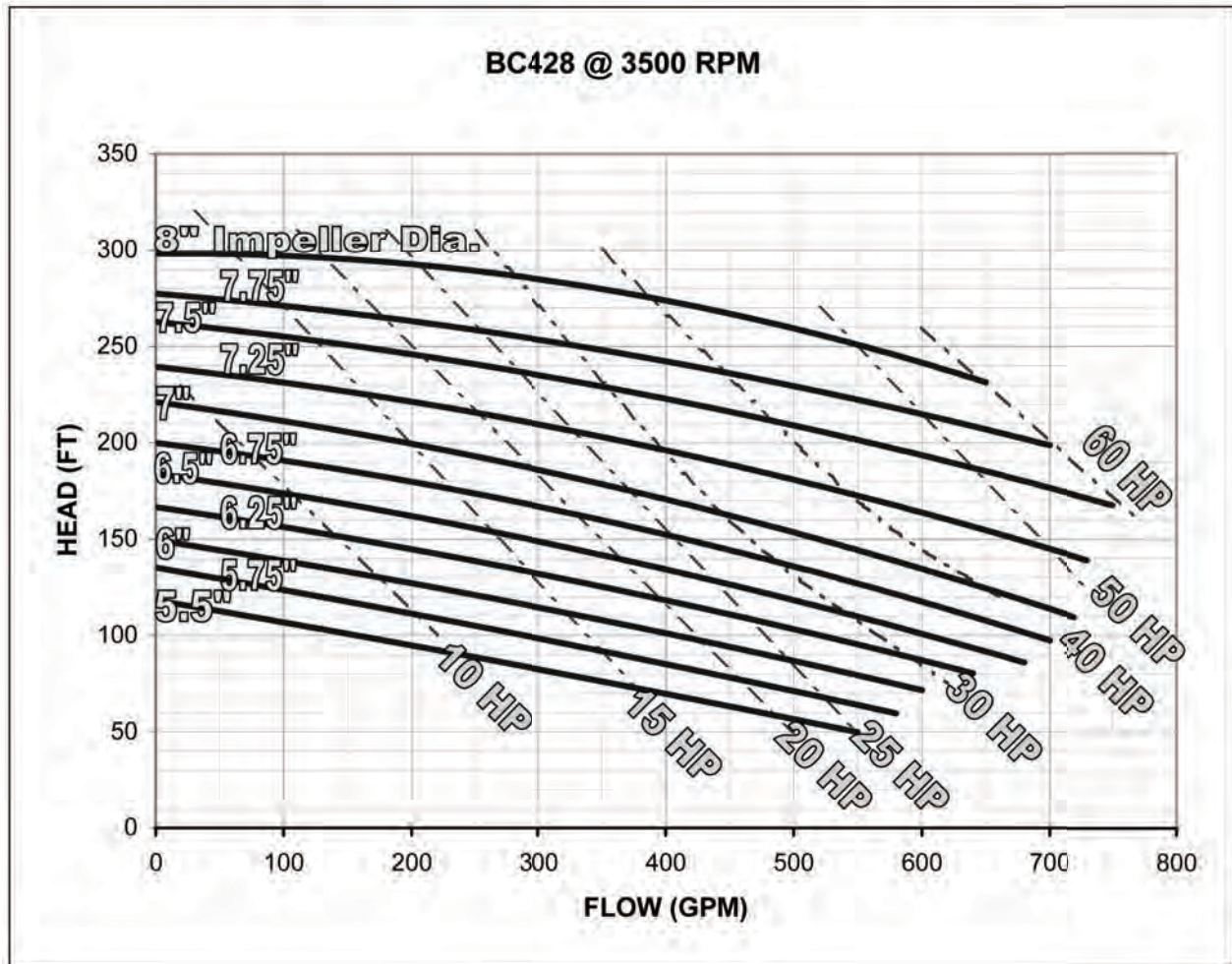
The Right Connection™

BC Series Centrifugal Pump

PERFORMANCE CURVES

(Based on H₂O @ 70° F)

Size: 4 x 2 x 8
 RPM: 3500
 Frequency: 60 Hz
 Model #: BC428



BC-Series Sanitary Centrifugal Pump



The Right Connection™

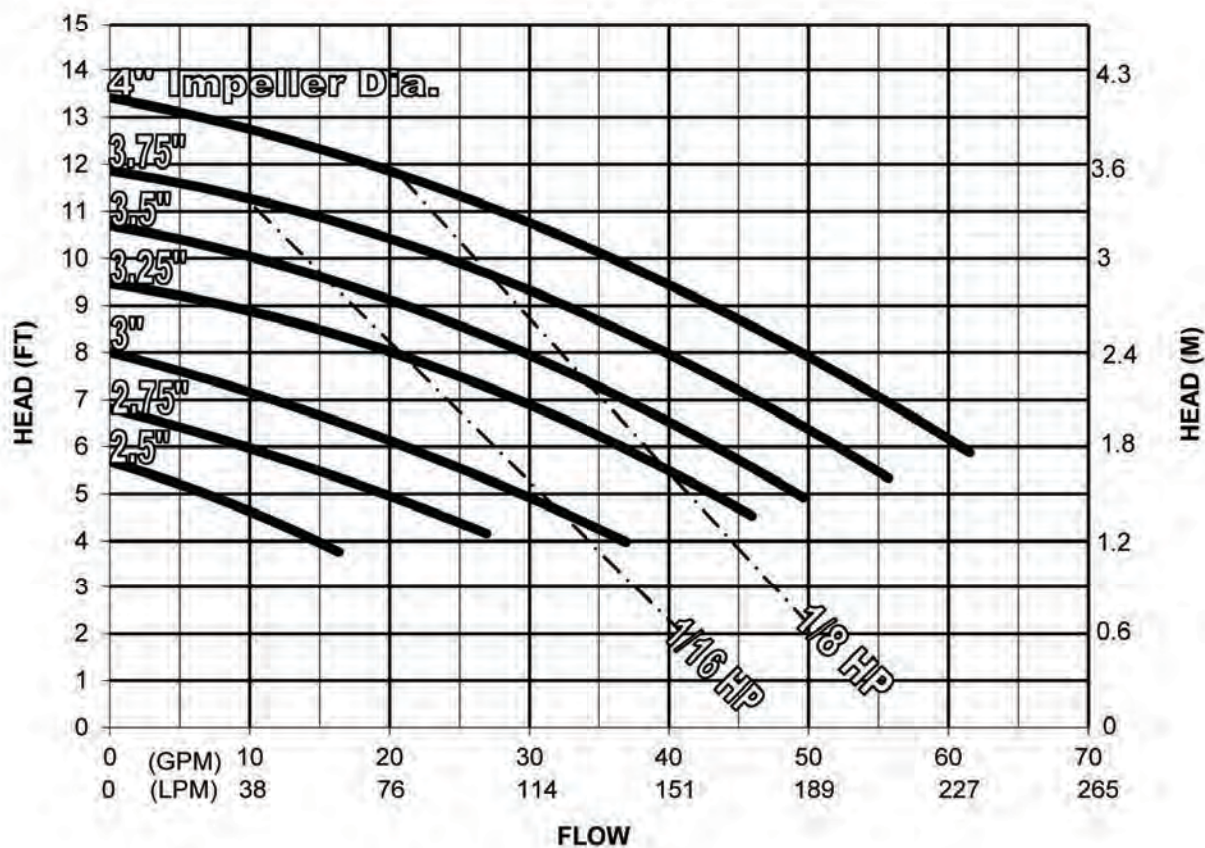
Size: 1.5 x 1.5 x 4
2 x 1.5 x 4
RPM: 1450
Frequency: 50 Hz
Model #: BC114 & BC 214

BC Series Centrifugal Pump

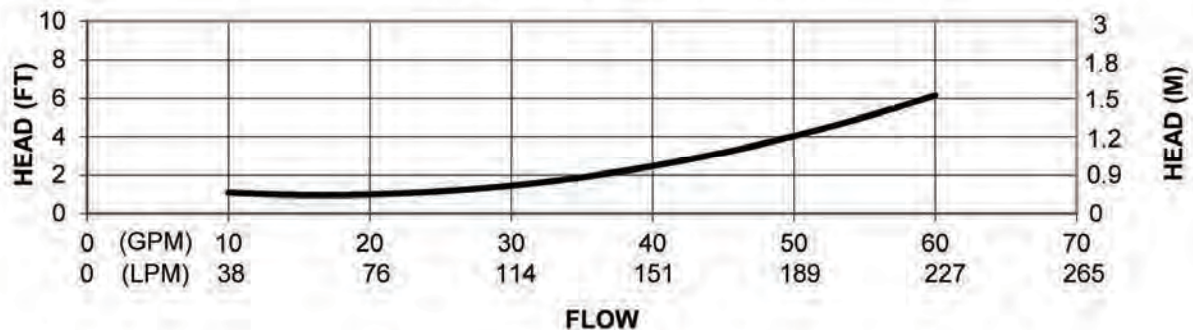
PERFORMANCE CURVES

(Based on H₂O @ 70° F)

BC114 & BC214 @ 1450 RPM



NPSHR (4" Impeller)



BC-Series Sanitary Centrifugal Pump



The Right Connection™

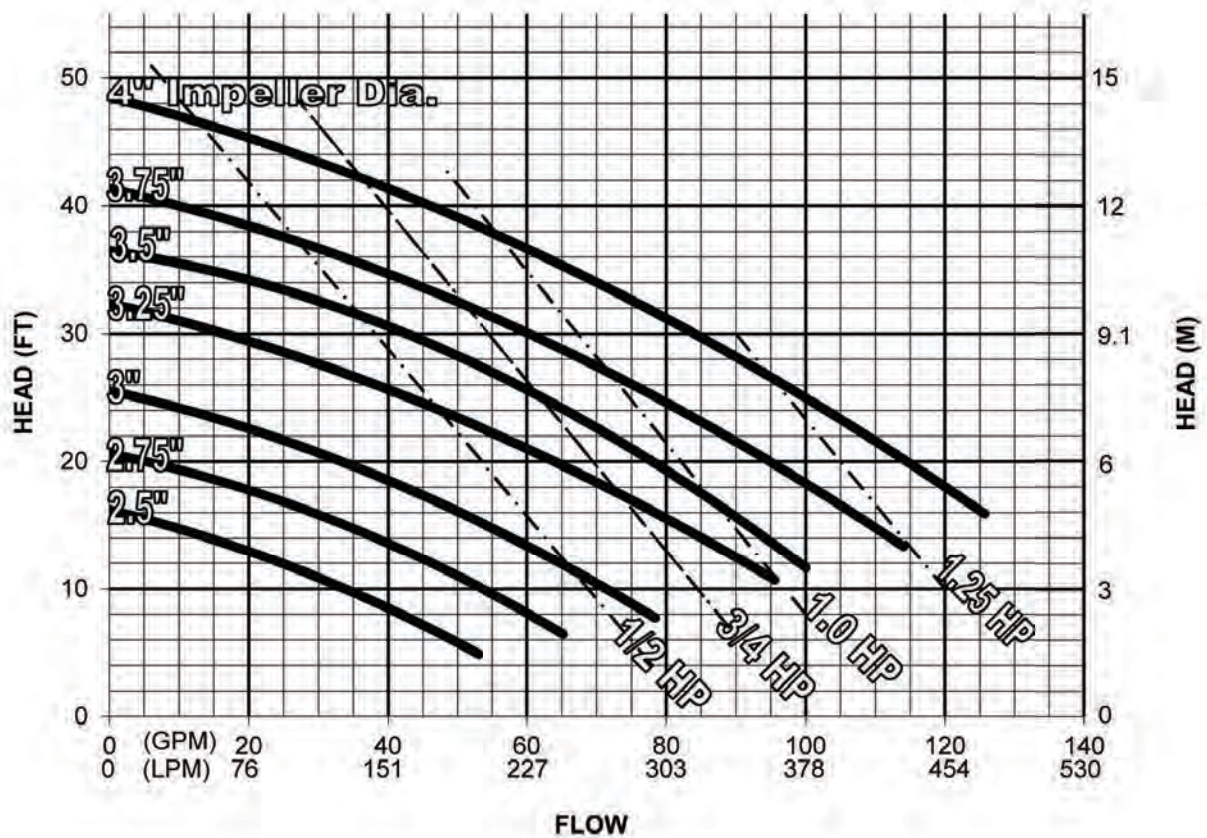
Size: 1.5 x 1.5 x 4
2 x 1.5 x 4
RPM: 2900
Frequency: 50 Hz
Model #: BC114 & BC 214

BC Series Centrifugal Pump

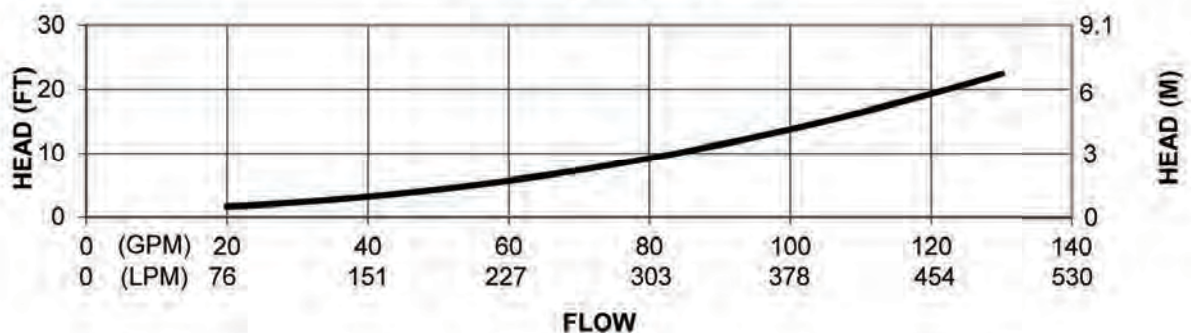
PERFORMANCE CURVES

(Based on H₂O @ 70° F)

BC114 & BC214 @ 2900 RPM



NPSHR (4" Impeller)



BC-Series Sanitary Centrifugal Pump



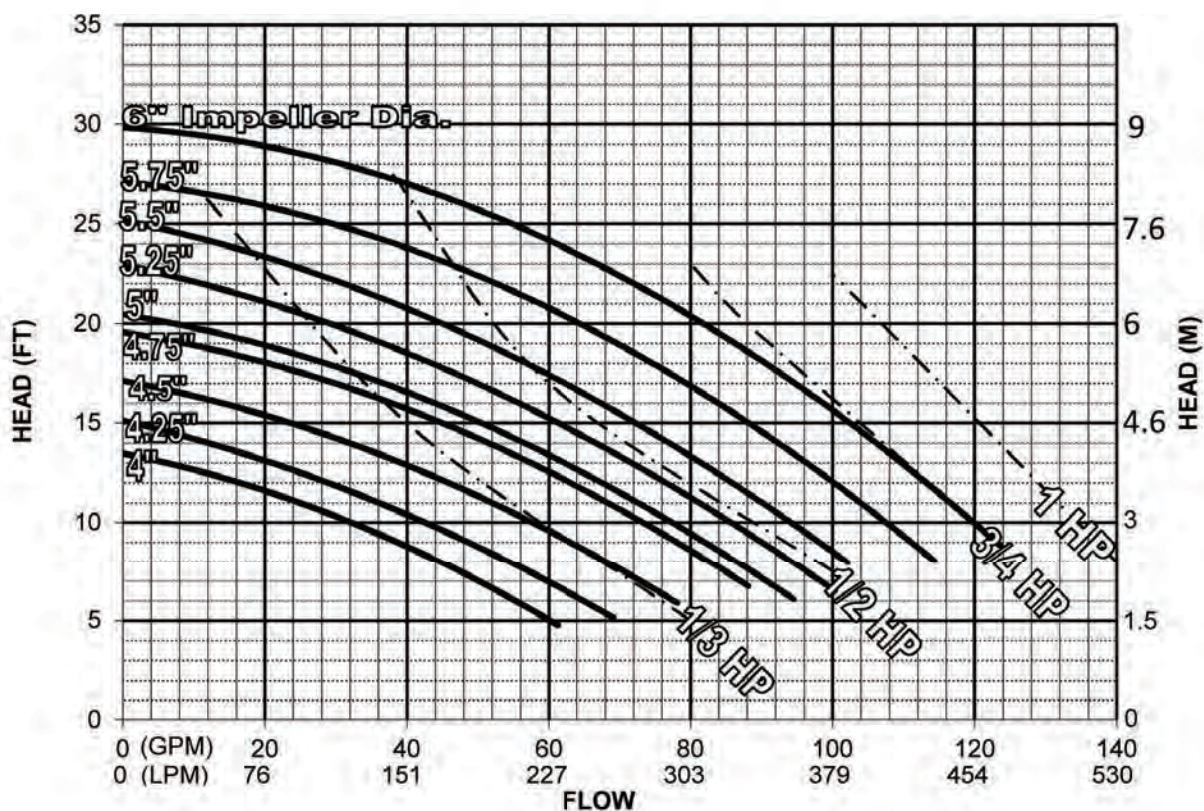
The Right Connection™

Size: 2 x 1.5 x 6
 2.5 x 1.5 x 6
 RPM: 1450
 Frequency: 50 Hz
 Model #: BC216 & BC516

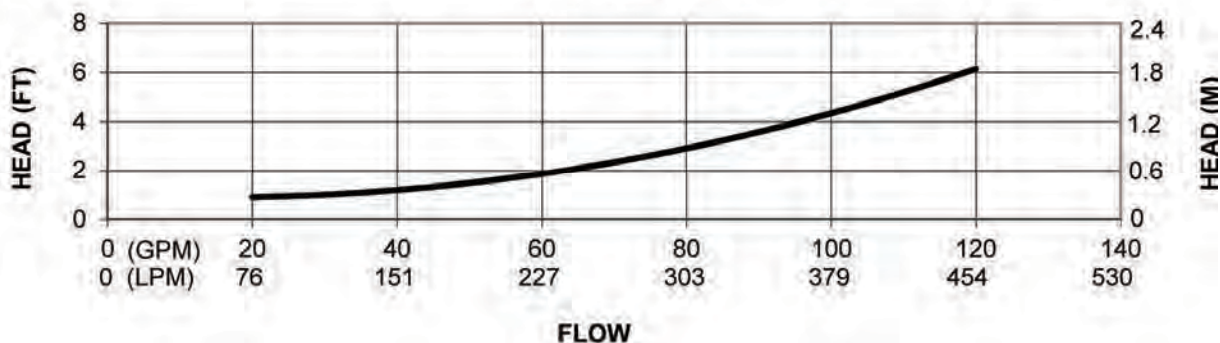
BC Series Centrifugal Pump PERFORMANCE CURVES

(Based on H₂O @ 70° F)

BC216 & BC516 @ 1450 RPM



NPSHR (6" Impeller)



BC-Series Sanitary Centrifugal Pump



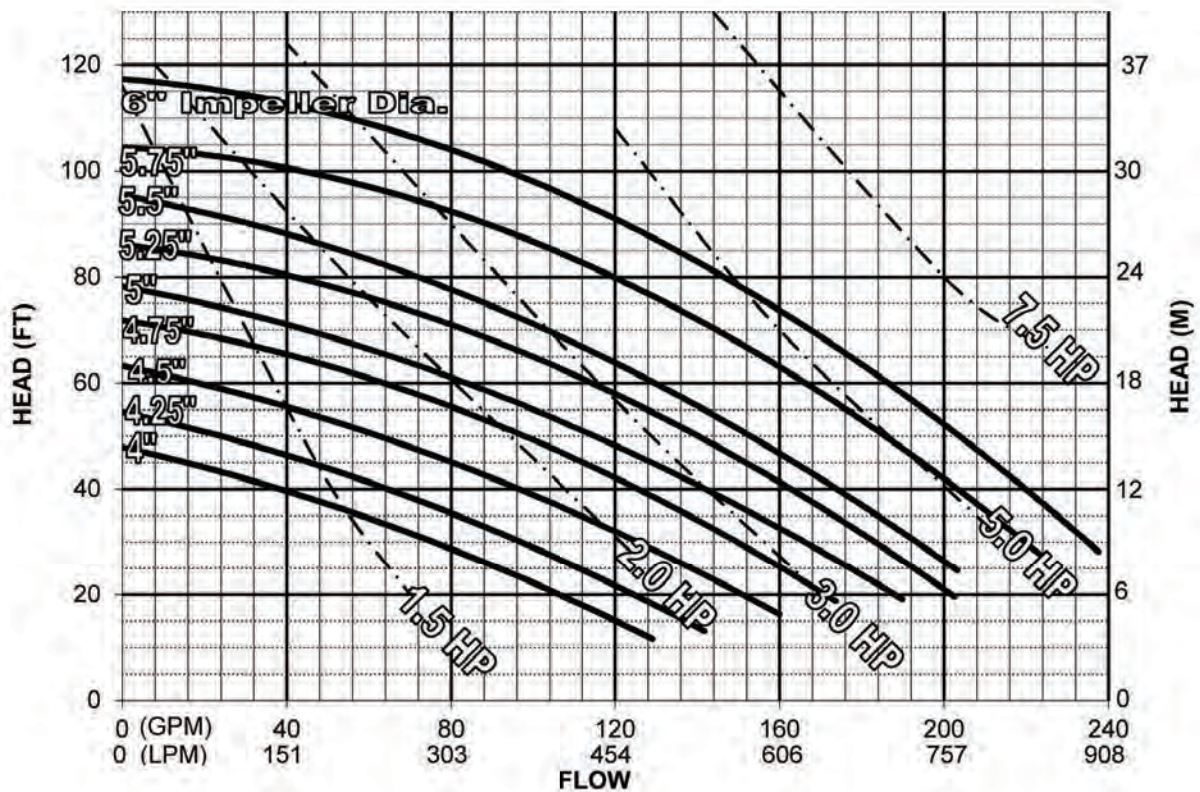
The Right Connection™

Size: 2 x 1.5 x 6
 2.5 x 1.5 x 6
 RPM: 2900
 Frequency: 50 Hz
 Model #: BC216 & BC516

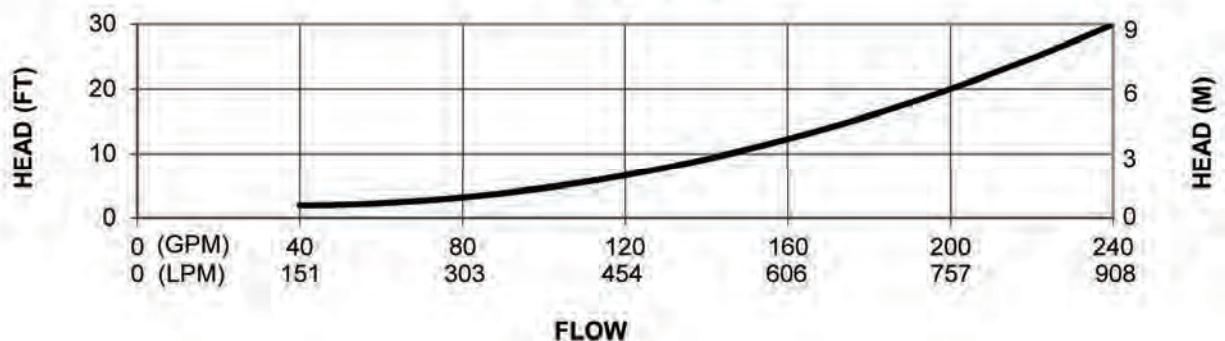
BC Series Centrifugal Pump PERFORMANCE CURVES

(Based on H₂O @ 70° F)

BC216 & BC516 @ 2900 RPM



NPSHR (6" Impeller)



BC-Series Sanitary Centrifugal Pump



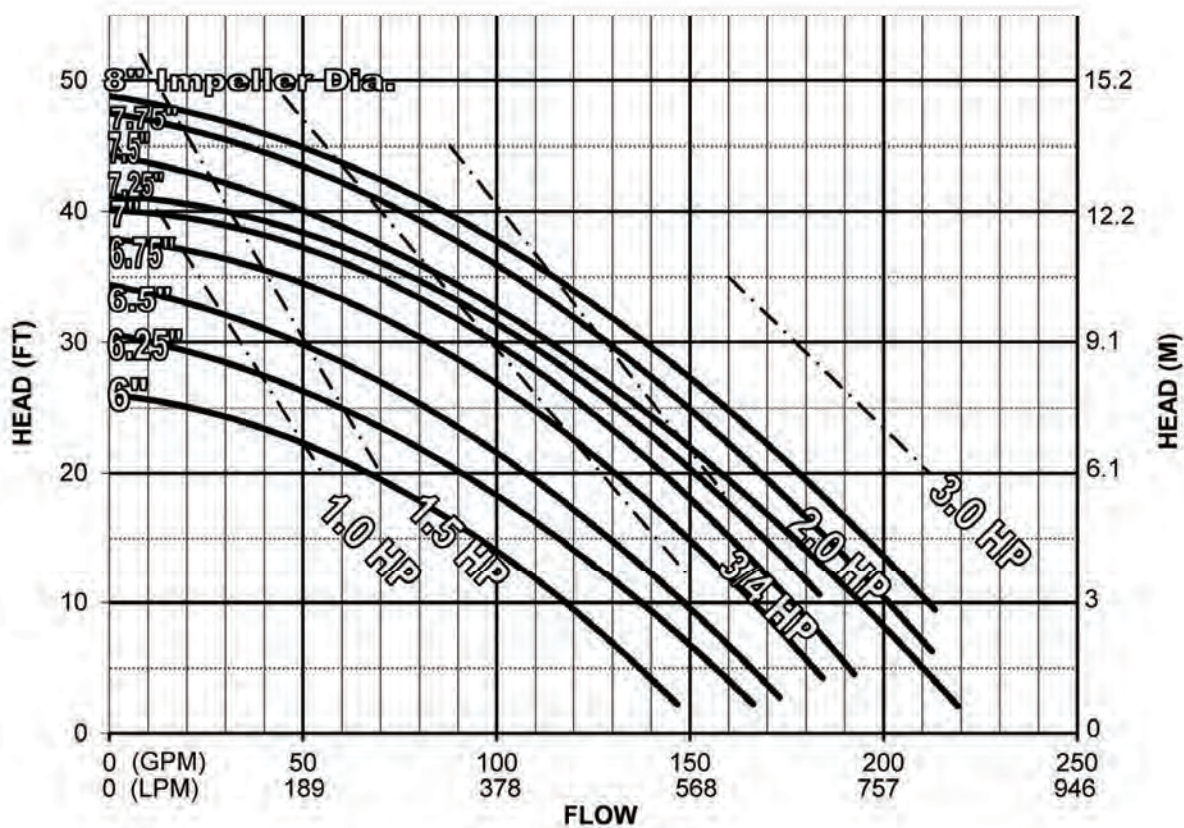
The Right Connection™

Size: 2 x 1.5 x 8
3 x 1.5 x 8
RPM: 1450
Frequency: 50 Hz
Model #: BC218 & BC318

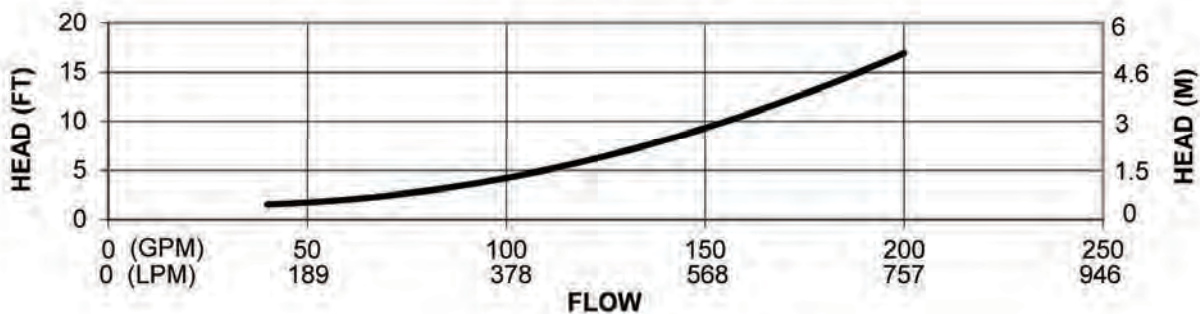
BC Series Centrifugal Pump PERFORMANCE CURVES

(Based on H₂O @ 70° F)

BC218 & BC 318 @ 1450 RPM



NPSHR (8" Impeller)



BC-Series Sanitary Centrifugal Pump



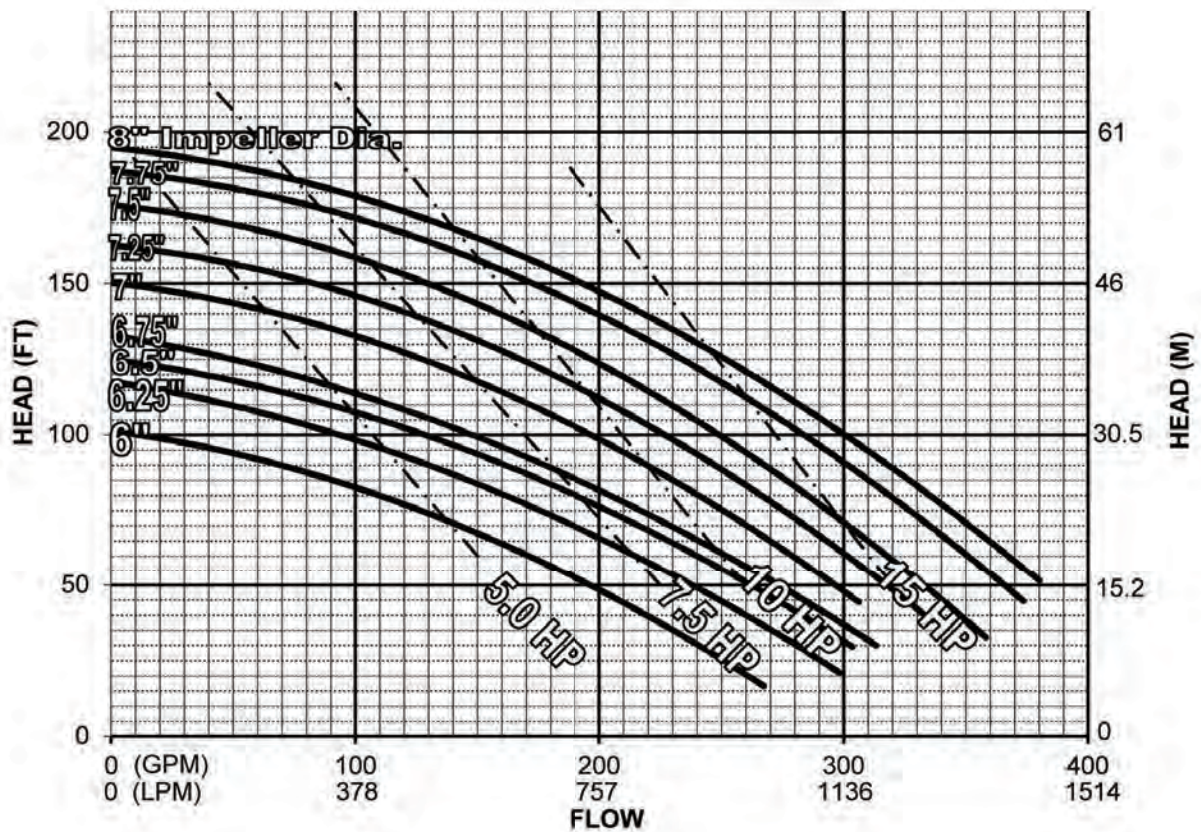
The Right Connection™

Size: 2 x 1.5 x 8
3 x 1.5 x 8
RPM: 2900
Frequency: 50 Hz
Model #: BC218 & BC318

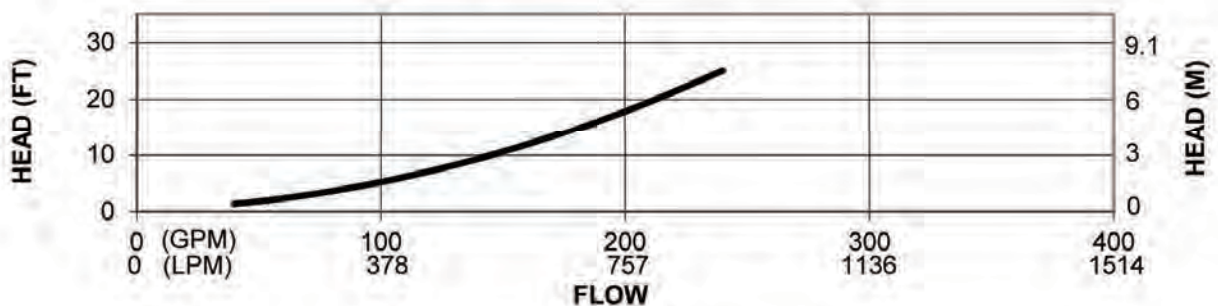
BC Series Centrifugal Pump PERFORMANCE CURVES

(Based on H₂O @ 70° F)

BC218 & BC318 @ 2900 RPM



NPSHR (8" Impeller)



BC-Series Sanitary Centrifugal Pump



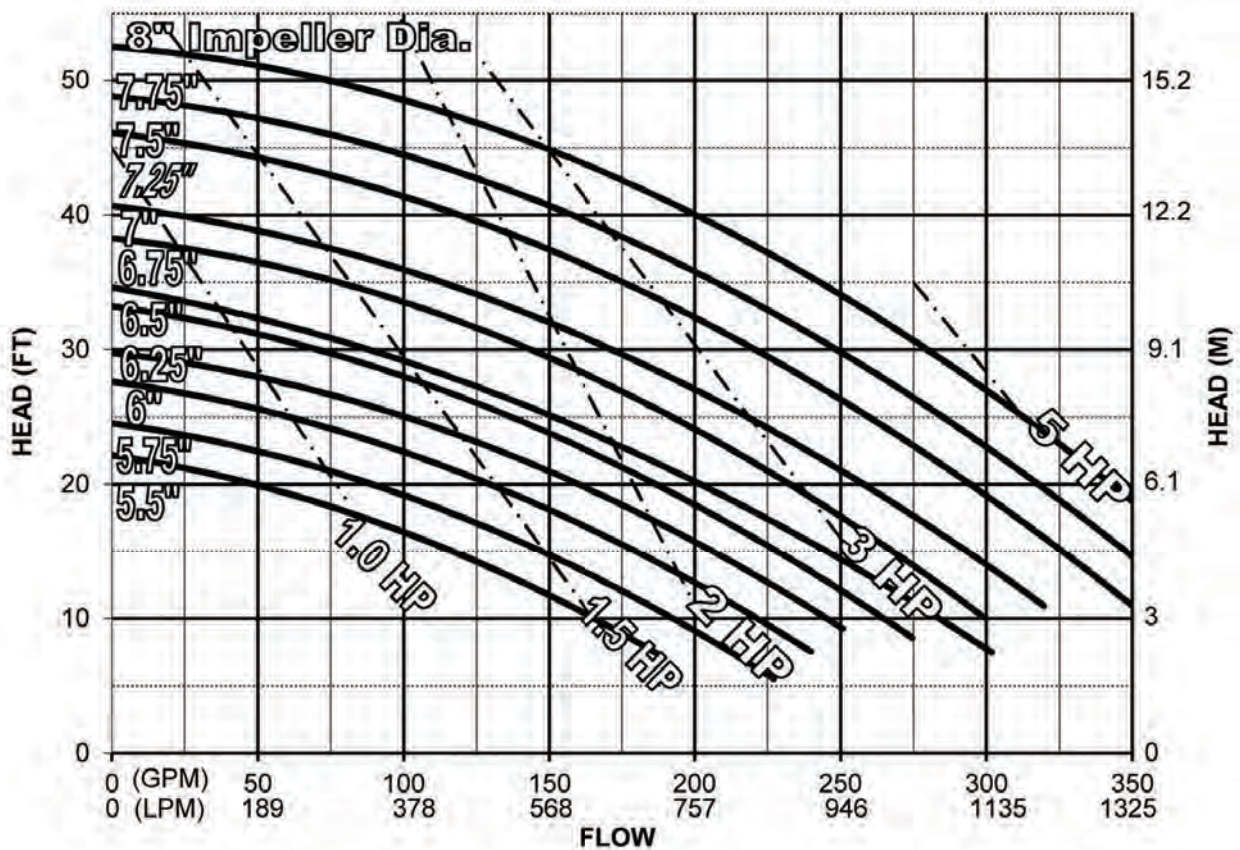
The Right Connection™

Size: 4 x 2 x 8
3 x 2 x 8
RPM: 1450
Frequency: 50 Hz

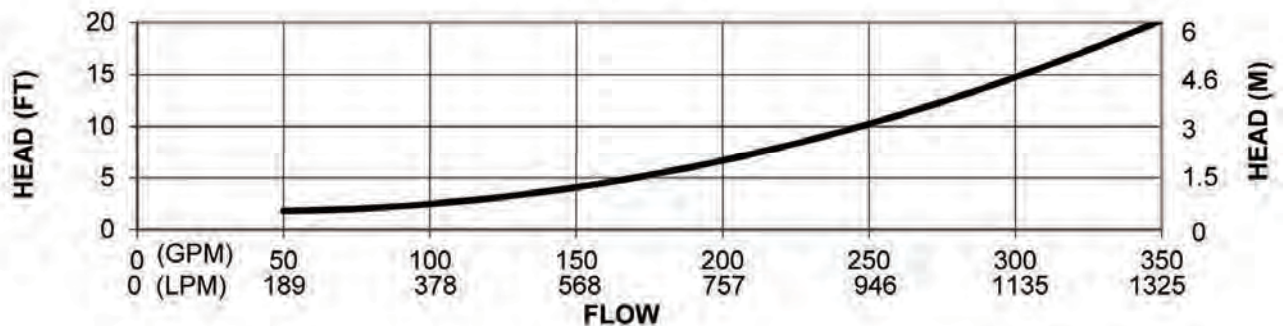
BC Series Centrifugal Pump PERFORMANCE CURVES

(Based on H₂O @ 70° F)

BC428 & BC328 @ 1450 RPM



NPSHR (8" Impeller)



BC-Series Sanitary Centrifugal Pump



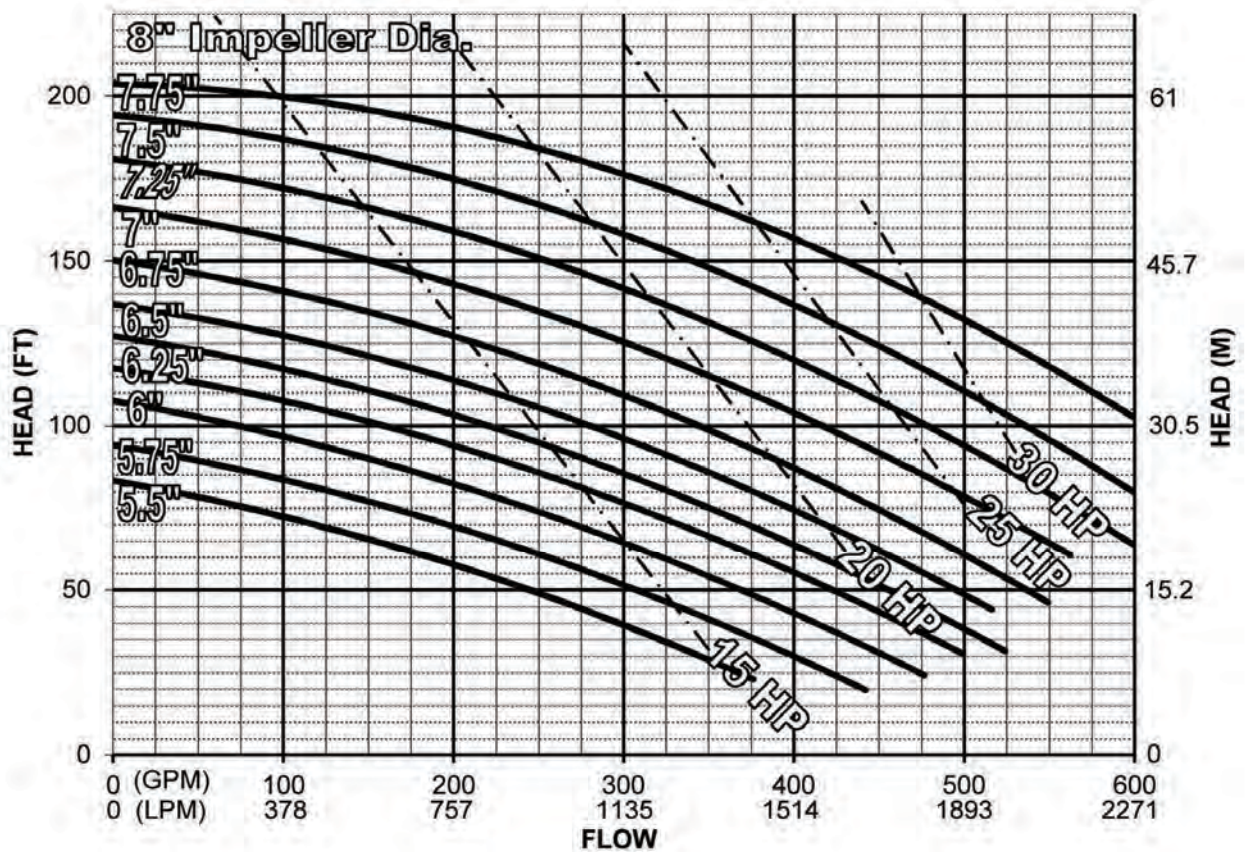
The Right Connection™

Size: 4 x 2 x 8
3 x 2 x 8
RPM: 2900
Frequency: 50 Hz

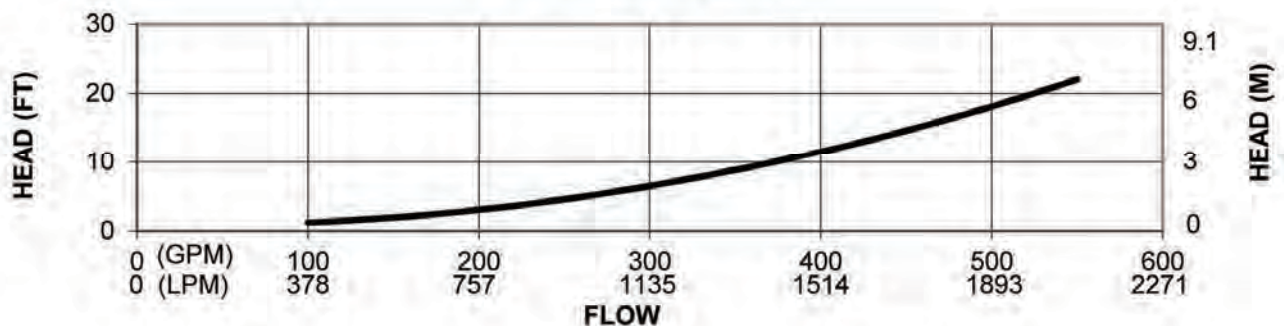
BC Series Centrifugal Pump PERFORMANCE CURVES

(Based on H₂O @ 70° F)

BC428 & BC328 @ 2900 RPM



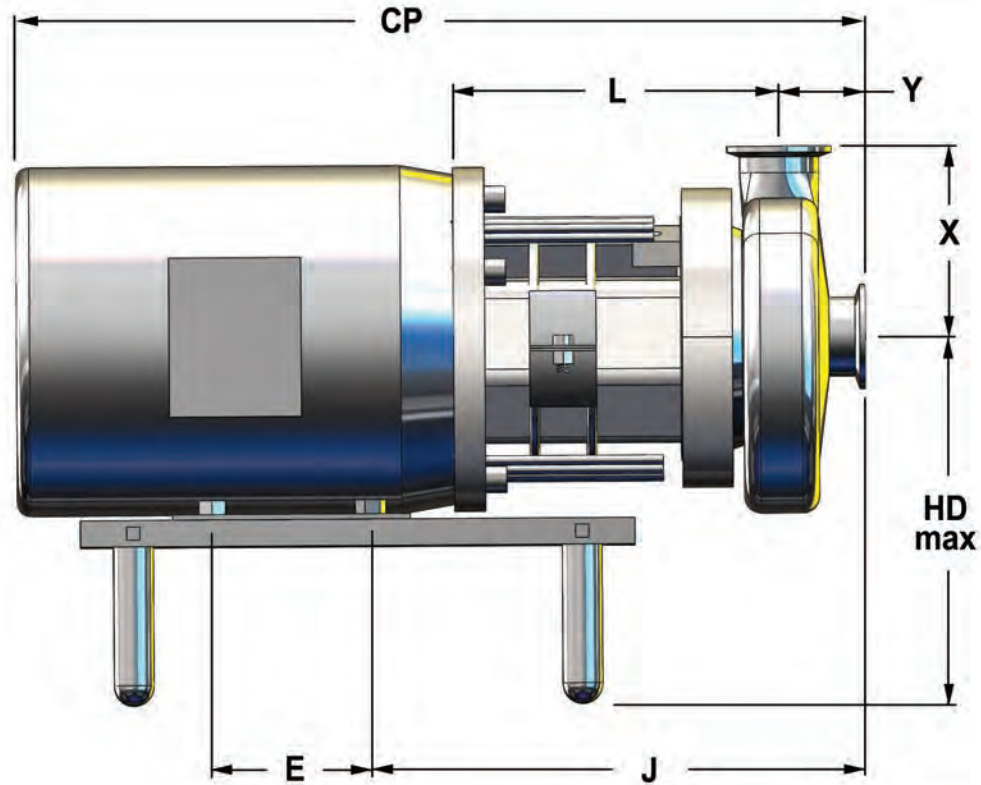
NPSHR (8" Impeller)



BC-Series Sanitary Centrifugal Pump

Dimensions

All dimensions are given in inches



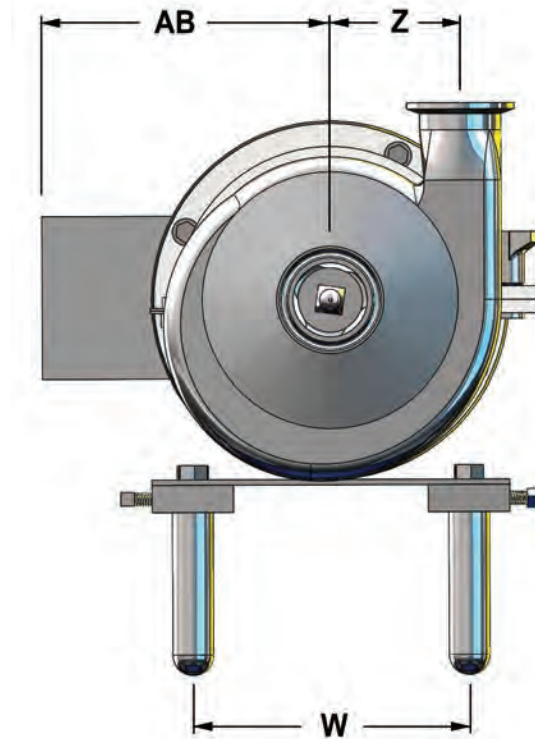
| Pump Model | Frame Size | X | Y | CP | E | HDmax | J | L |
|---------------------|------------|------|----------------|-------|-------|-------|-------|------|
| BC114 | 56C | 3.63 | 1.63 | 18.00 | 3.00 | 7.00 | 10.60 | 6.22 |
| | 140TC | 3.63 | 1.63 | 18.20 | 4.00 | 7.00 | 10.80 | 6.22 |
| | 180TC | 3.63 | 1.63 | 18.80 | 4.50 | 8.00 | 11.00 | 6.78 |
| BC216 | 56C | 4.50 | 1.94 | 16.26 | 3.00 | 7.00 | 8.81 | 6.06 |
| | 140TC | 4.50 | 1.94 | 18.70 | 4.00 | 7.00 | 11.25 | 6.06 |
| | 180TC | 4.50 | 1.94 | 22.00 | 4.50 | 8.00 | 12.00 | 6.69 |
| | 210TC | 4.50 | 1.94 | 25.70 | 5.50 | 8.75 | 13.90 | 7.81 |
| | 250TC | 4.50 | 1.94 | 31.40 | 10.00 | 9.75 | 15.70 | 8.50 |
| BC218 & BC328 | 140TC | 5.50 | 1.94 2.25 * | 18.50 | 4.00 | 7.00 | 11.10 | 6.31 |
| | 180TC | 5.50 | 1.94 2.25 * | 22.50 | 4.50 | 8.00 | 12.00 | 6.94 |
| | 210TC | 5.50 | 1.94 2.25 * | 26.30 | 5.50 | 8.75 | 14.50 | 7.31 |
| | 250TC | 5.50 | 1.94 2.25 * | 31.20 | 10.00 | 9.75 | 15.50 | 8.19 |
| | 280TC | 5.50 | 1.94 2.25 * | 33.80 | 11.00 | 10.50 | 15.60 | 8.81 |
| | 320TC | 5.50 | 1.94 2.25 * | 36.70 | 12.00 | 11.50 | 17.90 | 9.69 |

* only applies to the BC328

BC-Series Sanitary Centrifugal Pump

Dimensions

All dimensions are given in inches



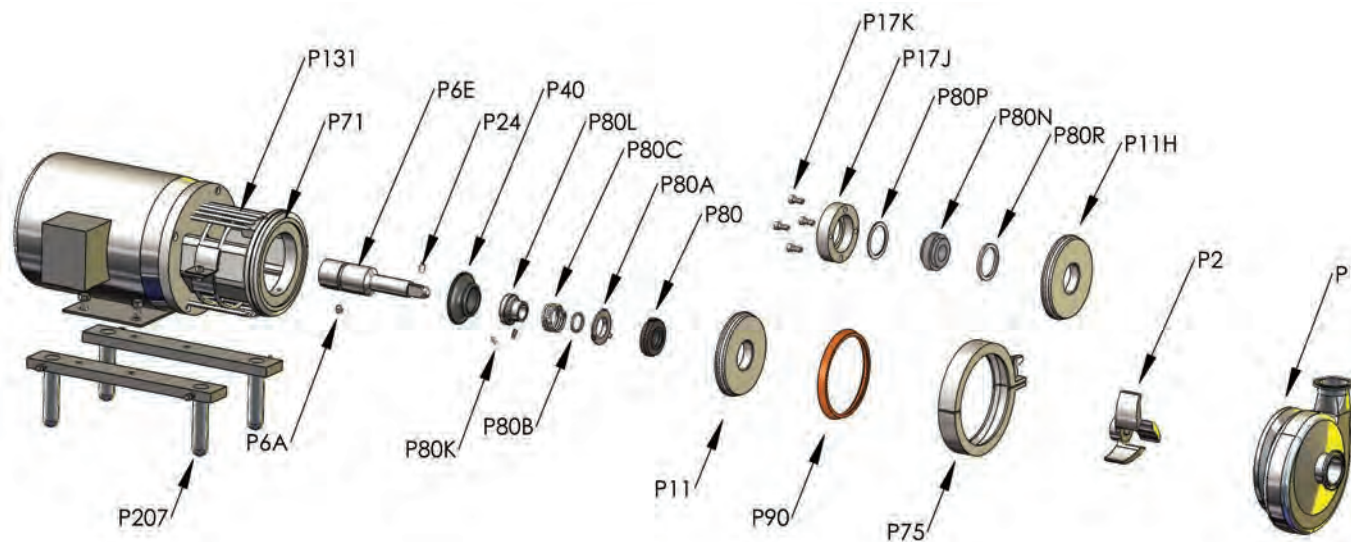
| Pump Model | Inlet | Outlet | Z |
|------------|-------|--------|------|
| BC114 | 1.5 | 1.5 | 2.63 |
| BC214 | 2 | | |
| BC216 | 2 | 1.5 | 3.69 |
| BC516 | 2.5 | | |
| BC218 | 2 | 1.5 | 4.75 |
| BC318 | 3 | | |
| BC328 | 3 | 2 | 4.75 |
| BC428 | 4 | | |

| Frame Size | AB | Conduit Entry diameter | W |
|------------|-------|------------------------|-------|
| 56C | 5.53 | 0.87 | 4.85 |
| 140TC | 5.53 | 0.87 | 5.50 |
| 180TC | 7.00 | 0.87 | 7.50 |
| 210TC | 7.62 | 0.87 | 8.50 |
| 250TC | 10.80 | 2.05 | 10.00 |
| 280TSC | 13.40 | 2.36 | 11.00 |
| 320TSC | 14.37 | 2.36 | 12.50 |

BC-Series Sanitary Centrifugal Pump

Model Numbers and Part Numbers

Part Number Key



Common Parts

| Key No. | Description | BC114 | BC216 | BC218 | BC328 |
|---------|---------------------------------|-------------|--------------|--------------|--------------|
| | | Part Number | Part Number | Part Number | Part Number |
| P1 | casing | P1-114M | P1-216M | P1-218M | P1-328M |
| P1 | casing enlarged | P1-214M | P1-516M | P1-318M | P1-428M |
| P2 | impeller | P2-114-400 | P2-216-600 | P2-218-800 | P2-328-800 |
| P6A | stub shaft set screw | P6A-114SS | P6A-216BSS | P6A-216BSS | P6A-216BSS |
| P11 | back plate (D seal) | P11-114DP | P11-216DP | P11-218BDP | P11-218BDP |
| P11F | back plate pin | P11F-114BPP | P11F-114BPP | P11F-114BPP | P11F-114BPP |
| P11H | back plate (DG seal) | P11H-114DGP | P11H-216DGP | P11H-218BDGP | P11H-218BDGP |
| P17J | gland ring (DG seal) | P17J-114GR | P17J-216GR | P17J-218BGR | P17J-218BGR |
| P17K | gland bolt (DG seal) | P17K-114BG | P17K-216BGB | P17K-216BGB | P17K-216BGB |
| P17M | washers (DG seal) | P17M-114GW | P17M-216BGW | P17M-216BGW | P17M-216BGW |
| P24 | impeller retainer | P24-114R | P24-216R | P24-218BR | P24-218BR |
| P71A | adapter pins | P71A-114BAP | P71A-114BAP | P71A-114BAP | P71A-114BAP |
| P75 | clamp | P75-114CA | P75-216CA | P75-218BCA | P75-218BCA |
| P80 | carbon seal | P80-114CS | P80-216CS | P80-218BCS | P80-218BCS |
| P80 | silicone carbide seal | P80-114-SC | P80-216-SC | P80-218B-SC | P80-218B-SC |
| P80A | seal cup | P80A-114CP | P80A-216CP | P80A-218BCP | P80A-218BCP |
| P80B | EPDM seal O-ring | P80B-114SOE | P80B-216SOE | P80B-218BSOE | P80B-218BSOE |
| P80B | FKM seal O-ring | P80B-114SOV | P80B-216SOV | P80B-218BSOV | P80B-218BSOV |
| P80B | Buna seal O-ring | P80B-114SOB | P80B-216SOB | P80B-218BSOB | P80B-218BSOB |
| P80B | silicone seal O-ring | P80B-114SOS | P80B-216SOS | P80B-218BSOS | P80B-218BSOS |
| P80C | spring | P80C-114SG | P80C-216SG | P80C-218BSG | P80C-218BSG |
| P80K | seat screw | P80K-114DCS | P80K-216BDCS | P80K-216BDCS | P80K-216BDCS |
| P80L | drive collar | P80L-114DC | P80L-216DC | P80L-218BDC | P80L-218BDC |
| P80N | silicon carbide seat (DG seal) | P80N-114SC | P80N-216SC | P80N-218BSC | P80N-218BSC |
| P80N | ceramic seat (DG seal) | P80N-114CER | P80N-216CER | P80N-218BCER | P80N-218BCER |
| P80N | Tungsten carbide seat (DG seal) | P80N-114TC | P80N-216TC | P80N-218BTC | P80N-218BTC |
| P80P | outboard gasket (DG seal) | P80P-114OG | P80P-216OG | P80P-218BOG | P80P-218BOG |
| P80R | inboard gasket (DG seal) | P80R-114IG | P80R-216IG | P80R-218BIG | P80R-218BIG |
| P90 | BUNA casing gasket | P90-114CGB | P90-216CGB | P90-218BCGB | P90-218BCGB |
| P90 | EPDM casing gasket | P90-114CGE | P90-216CGE | P90-218BCGE | P90-218BCGE |
| P90 | Silicone casing gasket | P90-114CGS | P90-216CGS | P90-218BCGS | P90-218BCGS |
| P90 | FKM casing gasket | P90-114CGV | P90-216CGV | P90-218BCGV | P90-218BCGV |

BC-Series Sanitary Centrifugal Pump

Model Numbers and Part Numbers

Variable Parts

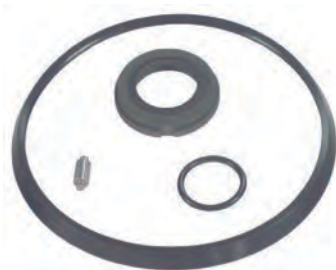
| BC114 | | 56C | 140TC | 180TC |
|--------------|--------------------|----------------|----------------|----------------|
| Item No. | Description | Part Number | Part Number | Part Number |
| P6E | stub shaft | P6E-114-56SH | P6E-114-14SH | P6E-114-18SH |
| P40 | deflector | P40-114-56D | P40-114-56D | P40-114-18D |
| P71 | adapter | P71-114-56A | P71-114-56A | P71-114-18A |
| P71B | adapter bolts | P71B-114B-56AB | P71B-114B-56AB | P71B-114B-18AB |
| P131 | guard assembly | P131-114-56GA | P131-114-56GA | P131-114-18GA |
| P207 | adjustable leg kit | P207-56LK | P207-14LK | P207-18LK |

| BC216 | | 56C | 140TC | 180TC | 210TC | 250TC |
|--------------|--------------------|----------------|----------------|----------------|----------------|----------------|
| Item No. | Description | Part Number | Part Number | Part Number | Part Number | Part Number |
| P6E | stub shaft | P6E-216-56SH | P6E-216-14SH | P6E-216-18SH | P6E-216-21SH | P6E-216-25SH |
| P40 | deflector | P40-216-56D | P40-216-56D | P40-216-56D | P40-216-21D | P40-216B-25D |
| P71 | adapter | P71-216-56GA | P71-216-56GA | P71-216-18GA | P71-216-21GA | P71-216-25GA |
| P71B | adapter bolts | P71B-114B-56AB | P71B-114B-56AB | P71B-114B-18AB | P71B-114B-18AB | P71B-114B-18AB |
| P131 | guard assembly | P131-216-56A | P131-216-56A | P131-216-18A | P131-216-21A | P131-216-25A |
| P207 | adjustable leg kit | P207-56LK | P207-14LK | P207-18LK | P207-21LK | P207-25LK |

| BC218/328 | | 140TC | 180TC | 210TC | 250TC | 280TSC | 320TSC |
|------------------|---------------|----------------|----------------|----------------|----------------|----------------|---------------|
| Item No. | Description | Part Number | Part Number | Part Number | Part Number | Part Number | Part Number |
| P6E | stub shaft | P6E-218-14SH | P6E-218B-18SH | P6E-218B-21SH | P6E-218B-25SH | P6E-218B-28SH | P6E-328-32SH |
| P40 | deflector | P40-218B-14D | P40-218B-14D | P40-218B-14D | P40-218B-14D | P40-218B-28D | P40-328-32D |
| P71 | adapter | P71-218-14A | P71-218B-18A | P71-218B-21A | P71-218B-25A | P71-218B-28A | P71-328-32A |
| P71B | adapter bolts | P71B-114B-56AB | P71B-114B-18AB | P71B-114B-18AB | P71B-114-18AB | P71B-114B-18AB | P71B-328-32AB |
| P131 | guard assbly. | P131-218-14GA | P131-218B-18GA | P131-218B-21GA | P131-218B-25GA | P131-218B-28GA | P131-328-32GA |
| P207 | adj. leg kit | P207-14LK | P207-18LK | P207-21LK | P207-25LK | P207-28LK | P207-32LK |

BC-Series Sanitary Centrifugal Pump Repair Kits

Repair Kit # 1



- 1 - casing gasket (P90)
- 1 - seal O-ring (P80B)
- 1 - carbon seal (P80)
- 1 - impeller retainer (P24)

| Model Number | Buna | EPDM | Silicone | FKM |
|--------------|------------|------------|------------|------------|
| BC114 | PRK1-114B | PRK1-114E | PRK1-114S | PRK1-114V |
| BC216 | PRK1-216B | PRK1-216E | PRK1-216S | PRK1-216V |
| BC218/BC328 | PRK1-218BB | PRK1-218BE | PRK1-218BS | PRK1-218BV |

Repair Kit # 3



- 1 - carbon seal (P80)
- 1 - seal O-ring (P80B)
- 1 - spring (P80C)
- 1 - cup (P80A)

| Model Number | Buna | EPDM | Silicone | FKM |
|--------------|------------|------------|------------|------------|
| BC114 | PRK3-114B | PRK3-114E | PRK3-114S | PRK3-114V |
| BC216 | PRK3-216B | PRK3-216E | PRK3-216S | PRK3-216V |
| BC218/BC328 | PRK3-218BB | PRK3-218BE | PRK3-218BS | PRK3-218BV |

Repair Kit # 4

recommended spare parts



- 1 - casing gasket (P90)
- 1 - seal O-ring (P80B)
- 1 - carbon seal (P80)
- 1 - impeller retainer (P24)
- 1 - seal cup (P80A)
- 1 - spring (P80C)

| Model Number | Buna | EPDM | Silicone | FKM |
|--------------|------------|------------|------------|------------|
| BC114 | PRK4-114B | PRK4-114E | PRK4-114S | PRK4-114V |
| BC216 | PRK4-216B | PRK4-216E | PRK4-216S | PRK4-216V |
| BC218/BC328 | PRK4-218BB | PRK4-218BE | PRK4-218BS | PRK4-218BV |

Repair Kits

DG Repair Kit

recommended spare parts

- 1 - seal seat (P80N)
- 1 - carbon seal (P80)
- 1 - seal cup (P80A)
- 1 - seal O-ring (P80B)
- 1 - spring (P80C)
- 1 - casing gasket (P90)
- 1 - impeller pin (P24)
- 1 - inboard gasket (P80R)
- 1 - outboard gasket (P80P)

| Model Number | Elastomer | Ceramic | SC | TC |
|--------------|-----------|----------------|---------------|---------------|
| BC114 | Buna | PRKDG-114BCER | PRKDG-114BSC | PRKDG-114BTC |
| | EPDM | PRKDG-114ECER | PRKDG-114ESC | PRKDG-114ETC |
| | Silicone | PRKDG-114SCER | PRKDG-114SSC | PRKDG-114STC |
| | FKM | PRKDG-114VCER | PRKDG-114VSC | PRKDG-114VTC |
| BC216 | Buna | PRKDG-216BCER | PRKDG-216BSC | PRKDG-216BTC |
| | EPDM | PRKDG-216ECER | PRKDG-216ESC | PRKDG-216ETC |
| | Silicone | PRKDG-216SCER | PRKDG-216SSC | PRKDG-216STC |
| | FKM | PRKDG-216VCER | PRKDG-216VSC | PRKDG-216VTC |
| BC218/BC328 | Buna | PRKDG-218BBCER | PRKDG-218BBSC | PRKDG-218BBTC |
| | EPDM | PRKDG-218BECER | PRKDG-218BESC | PRKDG-218BETC |
| | Silicone | PRKDG-218BSCER | PRKDG-218BSSC | PRKDG-218BSTC |
| | FKM | PRKDG-218BVCER | PRKDG-218BVSC | PRKDG-218BVTC |



DG Conversion

- 1 - DG backplate (P11H)
- 1 - gland ring (P17J)
- 4 - gland bolts (P17K)
- 4 - lock washers (P17M)
- 1 - seal seat (P80N)
- 1 - outboard gasket (P80P)
- 1 - inboard gasket (P80R)

| Model Number | Ceramic | SC | TC |
|--------------|---------------|--------------|--------------|
| BC114 | PCK-114DGCER | PCK-114DGSC | PCK-114DGTC |
| BC216 | PCK-216DGCER | PCK-216DGSC | PCK-216DGTC |
| BC218/BC328 | PCK-218BDGCER | PCK-218BDGSC | PCK-218BDGTC |



Troubleshooting

Dixon Sanitary BC-Series pumps are manufactured and inspected to meet sanitary standards. Occasional problems may arise. The following guide will help determine the possible cause and offer suggestions on corrections to maximize the performance of your pump. In case of any electric motors issues, contact the motor manufacturer directly. If you have any questions or concerns in regards to your BC-Series pump, we encourage you to contact Dixon Sanitary.

| Problem | Possible Cause | Suggested Action |
|--|---|--|
| Not enough or no discharge | No fluid reaching pump. | Need to prime pump. Installation of a priming system is recommended. |
| | Suction or discharge closed or blocked. | Open suction. If plugged, shutdown pump and remove blockage. If closed, check all valves for proper positions. |
| | Motor rotation incorrect. | Adjust motor electrical wiring to correct rotation. |
| | Speed too slow (low voltage, wrong frequency, wrong motor). | Adjust voltage and frequency. Change motor if necessary. |
| | Impeller damaged. | Replace impeller. |
| | Seal area or supply area has an air leak. | Replace seal if needed. Check all other areas for air leaks and repair. |
| | Excessive air in material. | Make any adjustments in system to insure excess air is removed before material reaches the pump. |
| | Discharge head too high. | Adjust system to lower discharge head. |
| | Suction lift too high. | Adjust system to lower suction lift. |
| | Insufficient NPSH (Net Positive Suction Head) available. | Adjust system to provide correct NPSHa. |
| | Impeller diameter not correct for application. | Contact: Dixon Sanitary 800-789-1718 |
| Not Enough Pressure | Seal area or supply area has an air leak. | Replace seal if needed. Check all other areas for air leaks and repair. |
| | Motor rotation incorrect. | Adjust motor electrical wiring to correct rotation. |
| | Speed too slow (low voltage, wrong frequency, wrong motor). | Adjust voltage and frequency. Change motor if necessary. |
| | Excessive air in material. | Make any adjustments in system to insure excess air is removed before material reaches the pump. |
| | Impeller diameter not correct for application. | Contact: Dixon Sanitary 800-789-1718 |
| Motor Overload/Excessive Power Consumption | Discharge is too high. | Restrict discharge to lower flow rate. |
| | Impeller is binding. | Inspect pump and check for any damage, misalignment or interference. Replace any damaged or worn parts. |
| | Seal binding. | Inspect pump and replace any damaged or worn parts. |
| | Discharge is too low. | Increase discharge head. |
| | Liquid is heavier or more viscous than rating. | Contact: Dixon Sanitary 800-789-1718 |
| | Electrical supply, voltage or frequency incorrect. | Make any adjustments needed up to replacing the motor. |
| | Faulty electrical connections. | Check wiring and repair/replace as necessary. |
| | Overload heaters too small. | Inspect and replace as necessary. |
| | Defective motor. | Contact motor manufacturer for possible warranty or repair. Replace if needed. |

Troubleshooting

| Problem | Possible Cause | Suggested Action |
|-----------------------------------|--|---|
| Excessive Vibration/Pump is Noisy | Pump not level. | Inspect installation of pump and correct level. |
| | Non-supported piping. | Verify piping support follows recommendations in installation portion of this manual. |
| | Not enough or no material reaching pump. | Inspect pump to verify there is no blockage. Inspect suction line and shorten or enlarge. |
| | Insufficient NPSH (Net Positive Suction Head) available. | Adjust system to provide correct NPSHa. |
| | Impeller and/or shaft worn. | Replace worn parts. |
| | Shaft loose or bent. | Readjust shaft settings, tighten shaft screws if loose. If bent, replace shaft and inspect impeller hub for uneven wear, replace impeller if worn. |
| | Impeller out of balance. | Inspect shaft if loose or bent. If impeller damaged, replace. |
| | Foreign material in pump. | Remove any foreign material and replace any worn or damaged parts. |
| | Excessive air in material. | Make any adjustments in system to insure excess air is removed before material reaches the pump. |
| | Motor bearings worn. | Replace any worn parts or replace motor if needed. |
| Rapid Seal Wear | Improper installation of mechanical seal. | Adjust mechanical seal installation. Replace any worn or damaged parts. |
| | Dry running. | Material must be in contact with seal at all times. Catastrophic failure will occur. |
| | Abrasive product. | Contact: Dixon Sanitary 800-789-1718 |
| | Shaft loose or bent. | Readjust shaft settings, tighten shaft screws if loose. If bent, replace shaft and inspect impeller hub for uneven wear, replace impeller if worn. |
| | Water hammer. | Correct system to prevent any quick starts and stops. |
| | Improper seal for application. | Contact: Dixon Sanitary 800-789-1718 |
| Pump Leaks | Inlet/Outlet | Inspect for missing union gaskets, loose connections or damaged ports. Replace worn gaskets and tighten loose connections. Damaged ports repair or replace. |
| | Casing clamp loose. | Tighten clamp. |
| | Casing gasket damaged or worn. | Replace gaskets. |
| | Seal not installed correctly. | Reassemble seal properly. Replace any worn or damaged parts. |
| | Carbon seal worn or damaged. | Replace any worn or damaged parts. |
| | 'D' seal back plate worn. | Resurface or replace. "DG" option should be considered. |
| Any Other Issue | | Contact: Dixon Sanitary 800-789-1718 |



Pump Check List

Contact Name: _____ Company Name: _____
 Date: _____ Phone: _____ Email: _____
 Customer ID#: _____

Application Data

Fluid: _____ Flow (GPM): _____
 Fluid Temp: _____ Total Dynamic Head: _____ or PSI: _____
 Viscosity (CPS): _____ Specific Gravity: _____
 NPSH Available: _____

Preferred Connection Size (Inlet x Outlet)

| | | | | | | | |
|-------------------------|--------------------------|---------------------|--------------------------|---------------------|--------------------------|-------------------------|--------------------------|
| BC114 (1-1/2" x 1-1/2") | <input type="checkbox"/> | BC214 (2" x 1-1/2") | <input type="checkbox"/> | BC216 (2" x 1-1/2") | <input type="checkbox"/> | BC516 (2-1/2" x 1-1/2") | <input type="checkbox"/> |
| BC218 (2" x 1-1/2") | <input type="checkbox"/> | BC318 (3" x 1-1/2") | <input type="checkbox"/> | BC328 (3" x 2") | <input type="checkbox"/> | BC428 (4" x 2") | <input type="checkbox"/> |

Connections

Clamp ☐ Combination: _____ Inlet: _____ Outlet: _____
 Weld ☐ Other: _____

Process Piping Information

| | | | | | |
|----------------------|---|---|---|-------------------------------|---|
| Size / Qty of Elbows | <input type="text"/> / <input type="text"/> | Vertical pipe (size / length) | <input type="text"/> / <input type="text"/> | List check valves size / type | <input type="text"/> / <input type="text"/> |
| Size / Qty of Tees | <input type="text"/> / <input type="text"/> | Horizontal pipe (size / length) | <input type="text"/> / <input type="text"/> | Filters Qty / ΔP | <input type="text"/> / <input type="text"/> |
| BFVs Size / Qty | <input type="text"/> / <input type="text"/> | (For best sizing please include a piping diagram) | | | |

Seal Type

| | | | | | |
|--------------|--------------------------|---------------|--------------------------|--------------------|--------------------------|
| D-seal | <input type="checkbox"/> | DG-seal (CER) | <input type="checkbox"/> | Add flush (F-seal) | <input type="checkbox"/> |
| DG-seal (SC) | <input type="checkbox"/> | DG-seal (TC) | <input type="checkbox"/> | Other: | <input type="text"/> |

Elastomer

| | | | | | | | |
|------|--------------------------|------|--------------------------|----------|--------------------------|-----|--------------------------|
| Buna | <input type="checkbox"/> | EPDM | <input type="checkbox"/> | Silicone | <input type="checkbox"/> | FKM | <input type="checkbox"/> |
|------|--------------------------|------|--------------------------|----------|--------------------------|-----|--------------------------|

Motor Data

Enclosure

| | | | | | |
|------------------------------|--------------------------|--------------|--------------------------|--------------|--------------------------|
| Stainless Steel Washdown | <input type="checkbox"/> | 115/230V | <input type="checkbox"/> | 380/460V | <input type="checkbox"/> |
| Explosion Proof | <input type="checkbox"/> | 208-230/460V | <input type="checkbox"/> | 220/380/440V | <input type="checkbox"/> |
| Epoxy Painted Washdown | <input type="checkbox"/> | 575V | <input type="checkbox"/> | 220/380/415V | <input type="checkbox"/> |
| Totally Enclosed None Vented | <input type="checkbox"/> | 190/380V | <input type="checkbox"/> | | |

Voltage

Phase

| | | | | | |
|-------------------|--------------------------|-------------------|--------------------------|--|--------------------------|
| Single Phase 50Hz | <input type="checkbox"/> | Single Phase 60Hz | <input type="checkbox"/> | Variable Frequency Drive: (control/other info) | <input type="checkbox"/> |
| Three Phase 50Hz | <input type="checkbox"/> | Three Phase 60Hz | <input type="checkbox"/> | | |

Motor Options

Pump Options

Volute with drain (please specify location of drain and orientation) _____ Small Cart ☐ Large Cart ☐
 Cart Options: _____

Other Special Requests

(For all replacement pump orders please include all known information about pump being replaced.)

Friction Loss Chart

Friction Loss in Sanitary Tube and Fittings

This table indicates loss of head due to friction in feet loss per foot of tubing or in feet loss per fitting.

| Capacity in US GPM | OD Tube Size | | | | | | | | | | | | | | | | | |
|--------------------------|---------------|-------|-----|---------------|-------|-----|---------------|-------|------|---------------|-------|------|---------------|-------|------|---------------|-------|------|
| | 1" | | | 1½" | | | 2" | | | 2½" | | | 3" | | | 4" | | |
| | I.D. = 0.870" | | | I.D. = 1.370" | | | I.D. = 1.870" | | | I.D. = 2.370" | | | I.D. = 2.870" | | | I.D. = 3.834" | | |
| | Tubing | Elbow | Tee | Tubing | Elbow | Tee | Tubing | Elbow | Tee | Tubing | Elbow | Tee | Tubing | Elbow | Tee | Tubing | Elbow | Tee |
| 5 | .035 | .025 | .25 | | | | | | | | | | | | | | | |
| 10 | .12 | .06 | .40 | .02 | .01 | .15 | .005 | .015 | .10 | | | | | | | | | |
| 15 | .25 | .10 | .80 | .04 | .02 | .25 | .013 | .02 | .15 | | | | | | | | | |
| 20 | .43 | .22 | 1.5 | .06 | .03 | .30 | .02 | .025 | .20 | .005 | .02 | .10 | .003 | .02 | .06 | | | |
| 25 | .66 | .40 | 2.3 | .08 | .04 | .40 | .025 | .03 | .25 | .006 | .03 | .15 | .004 | .03 | .08 | | | |
| 30 | .93 | .70 | 3.3 | .105 | .06 | .55 | .035 | .05 | .30 | .008 | .05 | .20 | .005 | .04 | .10 | | | |
| 35 | 1.22 | 1.25 | 5.2 | .135 | .09 | .80 | .04 | .06 | .40 | .011 | .06 | .25 | .006 | .05 | .13 | | | |
| 40 | | | | .17 | .11 | 1.0 | .05 | .08 | .50 | .015 | .07 | .30 | .007 | .06 | .15 | | | |
| 45 | | | | .21 | .16 | 1.3 | .063 | .10 | .60 | .02 | .09 | .35 | .008 | .065 | .18 | | | |
| 50 | | | | .25 | .20 | 1.6 | .073 | .12 | .70 | .022 | .10 | .40 | .01 | .07 | .20 | | | |
| 60 | | | | .34 | .35 | 2.2 | .10 | .18 | .90 | .03 | .12 | .45 | .015 | .08 | .25 | | | |
| 80 | | | | .57 | .76 | 3.7 | .16 | .30 | 1.5 | .05 | .15 | .55 | .02 | .10 | .40 | | | |
| 100 | | | | .85 | 1.35 | 5.8 | .23 | .44 | 2.3 | .075 | .18 | .60 | .03 | .11 | .50 | .008 | .04 | .10 |
| 120 | | | | 1.18 | 2.05 | 9.1 | .32 | .64 | 3.3 | .105 | .21 | 1.0 | .04 | .13 | .60 | .01 | .05 | .15 |
| 140 | | | | | | | .42 | .85 | 4.5 | .14 | .23 | 1.25 | .05 | .16 | .80 | .013 | .06 | .2 |
| 160 | | | | | | | .54 | 1.13 | 5.8 | .17 | .28 | 1.6 | .07 | .20 | 1.1 | .015 | .07 | .25 |
| 180 | | | | | | | .67 | 1.45 | 7.4 | .205 | .31 | 2.0 | .08 | .21 | 1.3 | .02 | .08 | .30 |
| 200 | | | | | | | .81 | 1.82 | 9.0 | .245 | .35 | 2.5 | .10 | .26 | 1.6 | .025 | .09 | .40 |
| 220 | | | | | | | .95 | 2.22 | 11.0 | .29 | .41 | 3.0 | .12 | .30 | 1.9 | .028 | .10 | .50 |
| 240 | | | | | | | 1.10 | 2.63 | 13.5 | .34 | .48 | 3.7 | .14 | .33 | 2.2 | .035 | .11 | .55 |
| 260 | | | | | | | | | | .39 | .53 | 4.5 | .165 | .39 | 2.5 | .04 | .115 | .60 |
| 280 | | | | | | | | | | .45 | .61 | 5.3 | .19 | .42 | 2.8 | .045 | .12 | .65 |
| 300 | | | | | | | | | | .515 | .70 | 6.2 | .22 | .50 | 3.1 | .05 | .13 | .70 |
| 350 | | | | | | | | | | .68 | 1.05 | 8.5 | .28 | .67 | 4.1 | .07 | .15 | .90 |
| 400 | | | | | | | | | | .86 | 1.55 | 11.0 | .38 | .88 | 5.2 | .085 | .18 | 1.2 |
| 450 | | | | | | | | | | 1.05 | 2.25 | 13.5 | .44 | 1.1 | 6.6 | .105 | .20 | 1.5 |
| 500 | | | | | | | | | | | | | .54 | 1.4 | 8.0 | .13 | .23 | 1.75 |
| 550 | | | | | | | | | | | | | .64 | 1.7 | 9.5 | .15 | .27 | 2.1 |
| 600 | | | | | | | | | | | | | .75 | 2.05 | 10.2 | .175 | .30 | 2.5 |
| 650 | | | | | | | | | | | | | .87 | 2.41 | 13.0 | .20 | .34 | 2.8 |
| 700 | | | | | | | | | | | | | 1.0 | 2.8 | 15.0 | .23 | .40 | 3.4 |
| 750 | | | | | | | | | | | | | | | | .26 | .43 | 3.8 |
| 800 | | | | | | | | | | | | | | | | .30 | .50 | 4.4 |

CIP Flow Rates

CIP Flow Rate Requirements

5 Feet Per Second Sanitary Tubing

| Size | Flow |
|--------|---------|
| 1" | 10 GPM |
| 1 1/2" | 24 GPM |
| 2" | 43 GPM |
| 2 1/2" | 69 GPM |
| 3" | 101 GPM |
| 4" | 180 GPM |

Water Vapor Pressure Chart

Temperature - Vapor Pressure for Water

At sea level the saturation pressure of vapor pressure (PSIG) = vapor pressure (PSIA - 14.7).

| Temperature °F | Vapor Pressure PSIA | Temperature °F | Vapor Pressure PSIA | Temperature °F | Vapor Pressure PSIA | Temperature °F | Vapor Pressure PSIA |
|-------------------|---------------------------|-------------------|---------------------------|-------------------|---------------------------|-------------------|---------------------------|
| 32 | .088 | 190 | 9.339 | 320 | 89.66 | 460 | 466.9 |
| 35 | .100 | 195 | 10.385 | 324 | 94.84 | 465 | 490.3 |
| 40 | .122 | 200 | 11.526 | 328 | 100.3 | 470 | 514.7 |
| 45 | .148 | 204 | 12.512 | 332 | 105.9 | 475 | 539.9 |
| 50 | .178 | 208 | 13.568 | 336 | 111.8 | 480 | 566.1 |
| 55 | .214 | 212 | 14.70 | 340 | 118.0 | 485 | 593.3 |
| 60 | .256 | 216 | 15.90 | 344 | 124.4 | 490 | 621.4 |
| 65 | .306 | 220 | 17.19 | 348 | 131.2 | 495 | 650.6 |
| 70 | .363 | 224 | 18.56 | 352 | 138.2 | 500 | 680.8 |
| 75 | .430 | 228 | 20.03 | 356 | 145.4 | 505 | 712.0 |
| 80 | .507 | 232 | 21.58 | 360 | 153.0 | 510 | 744.3 |
| 85 | .596 | 236 | 23.22 | 364 | 160.9 | 515 | 777.8 |
| 90 | .698 | 240 | 24.97 | 368 | 169.2 | 520 | 812.4 |
| 95 | .815 | 244 | 26.83 | 372 | 177.7 | 525 | 848.1 |
| 100 | .949 | 248 | 28.80 | 376 | 186.6 | 530 | 885.0 |
| 105 | 1.102 | 252 | 30.88 | 380 | 195.8 | 535 | 923.2 |
| 110 | 1.275 | 256 | 33.09 | 384 | 205.3 | 540 | 962.5 |
| 115 | 1.471 | 260 | 35.43 | 388 | 215.3 | 545 | 1003 |
| 120 | 1.692 | 264 | 37.90 | 392 | 225.6 | 550 | 1045 |
| 125 | 1.942 | 268 | 40.50 | 396 | 236.2 | 555 | 1088 |
| 130 | 2.222 | 272 | 43.25 | 400 | 247.3 | 560 | 1133 |
| 135 | 2.537 | 276 | 46.15 | 405 | 261.7 | 565 | 1179 |
| 140 | 2.889 | 280 | 49.20 | 410 | 276.8 | 570 | 1226 |
| 145 | 3.281 | 284 | 52.42 | 415 | 292.4 | 575 | 1275 |
| 150 | 3.718 | 288 | 55.80 | 420 | 308.8 | 580 | 1326 |
| 155 | 4.203 | 292 | 59.36 | 425 | 325.9 | 585 | 1378 |
| 160 | 4.741 | 296 | 63.09 | 430 | 343.7 | 590 | 1431 |
| 165 | 5.335 | 300 | 67.01 | 435 | 362.3 | 595 | 1486 |
| 170 | 5.992 | 304 | 71.13 | 440 | 381.6 | 600 | 1543 |
| 175 | 6.715 | 308 | 75.44 | 445 | 401.7 | | |
| 180 | 7.510 | 312 | 79.96 | 450 | 422.6 | | |
| 185 | 8.383 | 316 | 84.70 | 455 | 444.3 | | |

Centrifugal Pump Characteristics

The Dixon BC-Series centrifugal pump is characterized as a radial flow centrifugal pump. Radial flow pumps operate according to a specific set of laws known as the Affinity Laws. These laws demonstrate the mathematical relationship between impeller diameter, flow, pressure, brake horsepower, and motor speed. Each of these characteristics and the equations that govern them will be given in detail below. It is important to understand that when dealing with variant centrifugal pumps such as axial or mixed flow, other variables must be taken into consideration. The following equations are only intended for radial flow centrifugal pump applications.

Variance in impeller diameter while maintaining constant motor speed

$$\frac{D_1}{D_2} = \frac{Q_1}{Q_2} = \frac{\sqrt{H_1}}{\sqrt{H_2}}$$

$$\frac{BHP_1}{BHP_2} = \frac{D_1^3}{D_2^3}$$

Where:

- D= Impeller diameter (in)
- Q= Flow rate (gpm)
- H= Head pressure (ft)
- BHP= Brake horsepower (hp)

Variance in motor speed with constant impeller diameter

$$\frac{S_1}{S_2} = \frac{Q_1}{Q_2} = \frac{\sqrt{H_1}}{\sqrt{H_2}}$$

$$\frac{BHP_1}{BHP_2} = \frac{S_1^3}{S_2^3}$$

Where:

- S= Motor speed (rpm)
- Q= Flow rate (gpm)
- H= Head pressure (ft)
- BHP= Brake horsepower (hp)

Viscosity Chart

N - Newtonian

T - Thixotropic

D - Dilatent

| | Fluid | Specific Gravity | Viscosity CPS | Viscous Type |
|------------------------|---|------------------|----------------|--------------|
| Reference | Water | 1.0 | 1.0 | N |
| Adhesives | "Box" Adhesives | 1+- | 3,000 | T |
| | PVA | 1.3 | 100 | T |
| | Rubber & Solvents | 1.0 | 15,000 | N |
| | Batter | 1.0 | 2,000 | T |
| Bakery | Butter (Melted) | 0.98 | 18 @ 140°F | N |
| | Egg (Whole) | 0.5 | 60 @ 50°F | N |
| | Emulsifier | | 20 | T |
| | Frosting | 1.0 | 10,000 | T |
| | Lectithin | | 3,250 @ 125°F | T |
| | 77% Sweetened Condensed Milk | 1.3 | 10,000 @ 77°F | N |
| | Yeast Slurry 15% | 1.0 | 180 | T |
| | | | | |
| Beer/Wine | Beer | 1.0 | 1.1 @ 40°F | N |
| | Brewers Concentrated Yeast (80% solids) | | 16,000 @ 40°F | T |
| | Wort | | | |
| | Wine | 1 | | |
| Confectionery | Caramel | 1.2 | 400 @ 140°F | |
| | Chocolate | 1.1 | 17,000 @ 120°F | T |
| | Fudge (Hot) | 1.1 | 36,000 | T |
| | Toffee | 1.2 | 87,000 | T |
| Cosmetics/Soaps | Face Cream | | 10,000 | T |
| | Hair Gel | 1.4 | 5,000 | T |
| | Shampoo | | 5,000 | T |
| | Toothpaste | | 20,000 | T |
| | Hand Cleaner | | 2,000 | T |
| Dairy | Cottage Cheese | 1.08 | 225 | T |
| | Cream | 1.02 | 20 @ 40°F | N |
| | Milk | 1.03 | 1.2 @ 60°F | N |
| | Process Cheese | | 30,000 @ 160°F | T |
| | Yogurt | | 1,100 | T |
| Detergents | Detergent Concentrate | | 10 | N |
| Dyes & Inks | Printers Ink | 1 to 1.38 | 10,000 | T |
| | Dye | 1.1 | 10 | N |
| | Gum | | 5,000 | T |
| Fats & Oils | Corn Oil | 0.92 | 30 | N |
| | Lard | 0.96 | 60 @ 100°F | N |
| | Linseed Oil | 0.93 | 30 @ 100°F | N |
| | Peanut Oil | 0.92 | 42 @ 100°F | N |
| | Soybean Oil | 0.95 | 36 @ 100°F | N |
| | Vegetable Oil | 0.92 | 3 @ 300°F | N |
| Misc. Foods | Black Bean Paste | | 10,000 | T |
| | Cream Style Corn | | 130 @ 190°F | T |
| | Catsup (Ketsup) | 1.11 | 560 @ 145°F | T |
| | Pabulum | | 4,500 | T |
| | Pear Pulp | | 4,000 @ 160°F | T |
| | Mashed Potato | 1 | 20,000 | T |
| | Potato Skins & Caustic | | 20,000 @ 100°F | T |
| | Prune Juice | 1 | 60 @ 120°F | T |
| | Orange Juice Concentrate | 1.1 | 5,000 @ 38°F | T |
| | Tapioca Pudding | 0.7 | 1,000 @ 235°F | T |
| | Mayonnaise | 1 | 5,000 @ 75°F | T |
| | 33% Tomato Paste | 1.14 | 7,000 | T |
| | Honey | 1.5 | 1,500 @ 100°F | |

Viscosity Chart

N - Newtonian
T - Thixotropic
D - Dilatent

| | Fluid | Specific Gravity | Viscosity CPS | Viscous Type |
|---|--|------------------|-------------------------|--------------|
| Meat Products | Melted Animal Fats | 0.9 | 43 @ 100°F | N |
| | Ground Beef Fats | 0.9 | 11,000 @ 60°F | T |
| | Meat Emulsion | 1 | 22,000 @ 40°F | T |
| | Pet Food | 1 | 11,000 @ 40°F | T |
| | Pork Fat Slurry | 1 | 650 @ 40°F | T |
| Misc. Chemicals | Glycols | 1.1 | 35 @ Range | |
| Paint | Metallic Auto Paints | | 220 | T |
| | Solvents | 0.8 to 0.9 | 0.5 to 10 | N |
| | Titanium Dioxide Slurry | | 10,000 | T |
| | Varnish | 1.06 | 140 @ 100°F | |
| | Turpentine | 0.86 | 2 @ 60°F | |
| Paper & Textile | Black Liquor Tar | | 2,000 @ 300°F | |
| | Paper Coating 35% | | 400 | |
| | Sulfide 6% | | 1,600 | |
| | Black Liquor | 1.3 | 1,100 @ 122°F | |
| | Black Liquor Soap | | 7,000 @ 122°F | |
| Petroleum & Petroleum Products | Asphalt (Unblended) | 1.3 | 500 to 2,500 | |
| | Gasoline | 0.7 | 0.8 @ 60°F | N |
| | Kerosene | 0.8 | 3 @ 68°F | N |
| | Fuel Oil #6 | 0.9 | 660 @ 122°F | N |
| | Auto Lube Oil SAE 40 | 0.9 | 200 @ 100°F | N |
| | Auto Lube Oil SAE 90 | 0.9 | 320 @ 100°F | N |
| | Propane | 0.46 | 0.2 @ 100°F | N |
| | Tars | 1.2 | Wide Range | |
| Pharmaceuticals | Castor Oil | 0.96 | 350 | N |
| | Cough Syrup | 1 | 190 | N |
| | "Stomach" Remedy Slurries | | 1,500 | T |
| | Pill Pastes | | 5,000 +/- | T |
| Plastic Resins | Butadiene | 0.94 | 0.17 @ 40°F | |
| | Polyester Resin (Typ) | 1.4 | 3,000 | T |
| | PVA Resin (Typ) | 1.3 | 65,000 | |
| | (Wide variety of plastics can be pumped, viscosity varies greatly) | | | |
| Starches & Gums | Corn Starch Sol 22°B | 1.18 | 32 | T |
| | Corn Starch Sol 25°B | 1.21 | 300 | T |
| Sugar, Syrups, Molasses | Corn Syrup 41 Be | 1.39 | 15,000 @ 60°F | N |
| | Corn Syrup 45 Be | 1.45 | 12,000 @ 130°F | N |
| | Glucose | 1.42 | 10,000 @ 100°F | |
| | Molasses A | 1.42 | 280 to 5,000 @ 100°F | |
| | B | 1.43 to 1.48 | 1,400 to 13,000 @ 100°F | |
| | C | 1.46 to 1.49 | 2,600 to 5,000 @ 100°F | |
| | Sugar Syrups | | | |
| | 60 Brix | 1.29 | 75 @ 60°F | N |
| | 68 Brix | 1.34 | 360 @ 60°F | N |
| | 76 Brix | 1.39 | 4,000 @ 60°F | N |
| Water & Waste Treatment | Clarified Sewage Sludge | 1.1 | 2,000 Range | |



Filters / Strainers



Product Specifications

Size range:

- 1" - 3" clamp

Type:

- Inline
 - short
 - long
- Side Entry
 - long

Material:

- 316L stainless steel

Finish:

- 3A sanitary, ID and OD

What Are Filters / Strainers Used For?

Filter Definition

A filter uses a disposable media to remove finer particulate from the stream. Dixon Sanitary holds Authorization Number 1446 for the 3-A Sanitary Standard for Filters using Single Service Filter Media, Number: 10-4. Vertical mounting is necessary to meet 3A 10-04 requirements for minimal product clingage.

Strainer Definition

A strainer is a device used to separate solids from fluids. Here it is used for larger particulate matter from liquid or gas. It uses cleanable media.



Full Flow Filters -

Can be equipped with a variety of filtering media, down to 40 microns, media includes polyester, cotton cheesecloth and nylon mesh. See chart on page 365.



Full Flow Coarse Strainers -

1/4" or 1/8" perforations.
(1/8" not 3A)

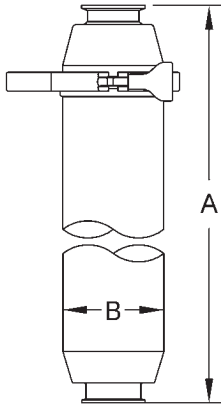


Full Flow Fine/Medium Strainers -

Can be equipped with a variety of mesh screens for removing finer particles (20 to 100 mesh). See chart on page 365.
(not 3A)

Filters / Strainers

In-line Filter / Strainer - BSCCQ



- In-line units ship standard with the following: spring, distributor cap, clamp gasket, 1/4" perforated back-up tube, inlet and outlet bodies and squeeze clamp
- 1/8" perforated back-up tube available, must specify when ordering (not 3A authorized)
- must be vertical mount for 3A usage

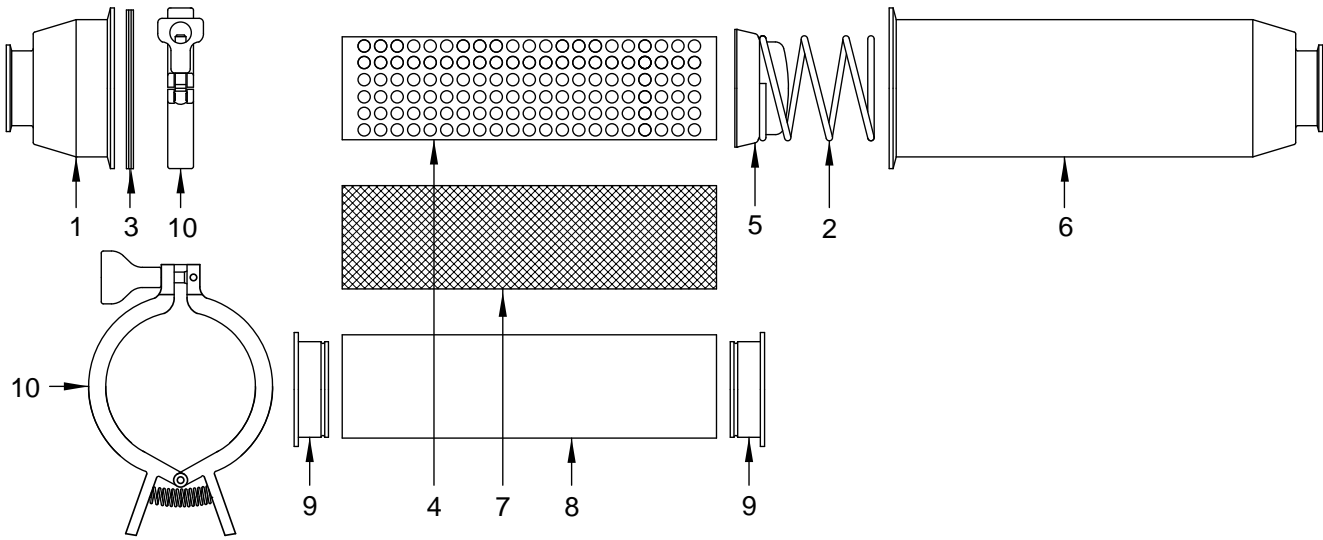
Feature:

- Bevel seat, I-line and weld ends available, call Dixon Sanitary for information

| Size | A short | A long | B | <i>Short</i> 316L Stainless Steel Part Number | <i>Long</i> 316L Stainless Steel Part Number |
|------|------------|-----------|------|---|--|
| 1" | 15.75 | -- | 4.00 | BSCCQ1-R100 | --- |
| 1½" | 15.75 | 35.375 | 4.00 | BSCCQ1-R150 | BSCCQ2-R150 |
| 2" | 15.75 | 35.375 | 4.00 | BSCCQ1-R200 | BSCCQ2-R200 |
| 2½" | 15.75 | -- | 4.50 | BSCCS1-R250 | --- |
| 3" | 15.75 | 35.375 | 4.50 | BSCCS1-R300 | BSCCS2-R300 |

Filters / Strainers

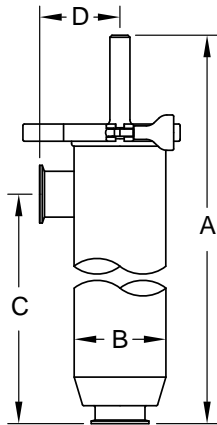
Bill of Materials



| Item # | Description | Short Part # | Long Part # | Material | Qty |
|--------|--|-------------------------|-----------------|----------------------|-----|
| 1 | 1" strainer outlet | BS-01-R100 | --- | 316L stainless steel | 1 |
| | 1½" strainer outlet | BS-01-R150 | | | |
| | 2" strainer outlet | BS-01-R200 | | | |
| | 2½" strainer outlet | BS-01-R250 | --- | | |
| | 3" strainer outlet | BS-01-R300 | | | |
| 2 | 1" - 2" strainer spring | BS-02-R100-200 | | 316L stainless steel | 1 |
| | 2½" - 3" strainer spring | BS-02-R250-300 | | | |
| 3 | 1" - 2" (4") clamp gasket | 40MP-U400 | | Buna | 1 |
| | 2½" - 3" (4") schedule 5 clamp gasket | 40MPV-U400 | | | |
| 4 | 1" - 2" back-up tube with 1/8" perforations | BS-1418-R100200 | BS-2418-R100200 | 316L stainless steel | 1 |
| | 2½" - 3" back-up tube with 1/8" perforations | BS-1418-R250300 | BS-2418-R250300 | | |
| | 1" - 2" back-up tube with 1/4" perforations | BS-1425-R100200 | BS-2425-R100200 | | |
| | 2½" - 3" back-up tube with 1/4" perforations | BS-1425-R250300 | BS-2425-R250300 | | |
| 5 | 1" - 2" strainer cap | BS-05-R100-200 | | 316L stainless steel | 1 |
| | 2½" - 3" strainer cap | BS-05-R250-300 | | | |
| 6 | 1" strainer inlet | BS-16-R100 | --- | 316L stainless steel | 1 |
| | 1½" strainer inlet | BS-16-R150 | BS-26-R150 | | |
| | 2" strainer inlet | BS-16-R200 | BS-26-R200 | | |
| | 2½" strainer inlet | BS-16-R250 | --- | | |
| | 3" strainer inlet | BS-16-R300 | BS-26-R300 | | |
| 7 | 1" - 3" various mesh over screens (short/long) | part number on page 365 | | 316 stainless steel | 1 |
| 8 | 1" - 3" various filter bag (short/long) | part number on page 365 | | various | 1 |
| 9 | 1" - 2" retaining ring used with filter bags | BS-09-U100-200 | | Buna | 2 |
| | 2½" - 3" retaining ring used with filter bags | BS-09-U250-300 | | | |
| 10 | 1" - 2" (4") squeeze clamp | 13MHHM-Q400 | | CF8 | 1 |
| | 2½" - 3" (4") schedule 5 squeeze clamp | 13MHHV-Q400 | | | |

Filters / Strainers

Side-Entry Filter / Strainer - BSCCQ



- Side entry units ship standard with the following: spring, end cap with handle, distributor cap, clamp gasket, 1/4" perforated back-up tube, body and squeeze clamp
- 1/8" perforated back-up tube available, must specify when ordering (not 3A authorized)
- must be vertical mount for 3A usage

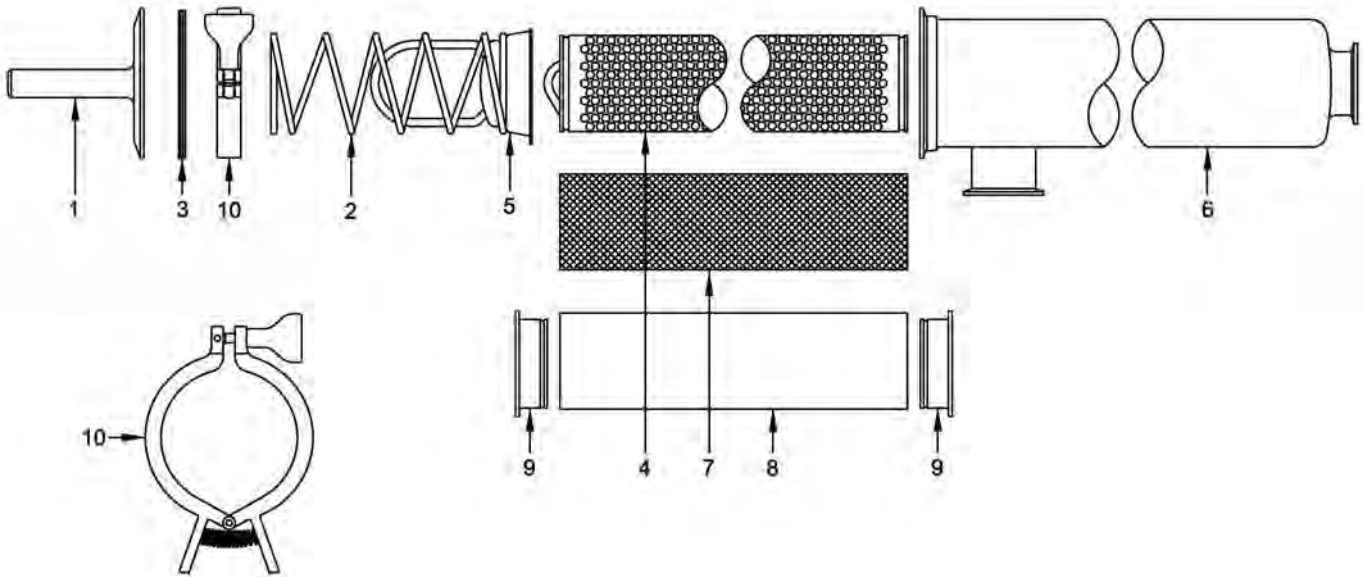
Features:

- Bevel seat, I-line and weld ends available, call Dixon Sanitary for information
- Serviceable without removing from the line

| Size | A | B | C | D | 316L Stainless Steel Part # |
|------|-------|------|-------|------|--------------------------------|
| 1½" | 41.90 | 4.00 | 35.00 | 3.50 | BSCCQ3-R150 |
| 2" | 41.90 | 4.00 | 35.00 | 3.50 | BSCCQ3-R200 |
| 3" | 41.90 | 4.50 | 35.00 | 3.75 | BSCCQ3-R300 |

Filters / Strainers

Bill of Materials



| Item # | Description | 1½" and 2" Part # | 3" Part # | Material | Qty |
|--------|--------------------------------------|-------------------------|-----------------|----------------------|-----|
| 1 | end cap with handle | BS-31-R100-200 | BS-31-R250-300 | 316L stainless steel | 1 |
| 2 | strainer spring | BS-32-R100-200 | BS-32-R250-300 | 316L stainless steel | 1 |
| 3 | clamp gasket | 40MP-U400 | 40MPV-U400 | Buna | 1 |
| 4 | back-up tube with 1/8" perforations | BS-1418-R100200 | BS-2418-R250300 | 316L stainless steel | 1 |
| | back-up tube with 1/4" perforations | BS-1425-R100200 | BS-2425-R250300 | | |
| 5 | distributor cap | BS-35-R100-200 | BS-35-R250-300 | 316L stainless steel | 1 |
| 6 | 1½" strainer body | BS-36-R150 | --- | 316L stainless steel | 1 |
| | 2" strainer body | BS-36-R200 | --- | | |
| | 3" strainer body | --- | BS-36-R300 | | |
| 7 | various mesh over screens | part number on page 365 | | 316 stainless steel | 1 |
| 8 | various filter bag | part number on page 365 | | various | 1 |
| 9 | retaining ring used with filter bags | BS-09-U100-200 | BS-09-U250-300 | Buna | 2 |
| 10 | squeeze clamp for assembly | 13MHHM-Q400 | 13MHHV-Q400 | CF8 | 1 |

Filters / Strainers

Filters

- Filter medium are special order and minimum quantities apply. Not included with base unit.
- Filters require retaining ring. See pages xx and xx for part numbers.

| Size | Micron Rating | Description | Short Part Number | Long/Side Entry Part Number |
|----------|---------------|---|----------------------|--------------------------------|
| 1" - 2" | 38 | nonwoven rayon (glued seam) | BF30A-100-200 | --- |
| 2½" - 3" | 38 | nonwoven rayon (glued seam) | BF30A-250-300 | --- |
| 1" - 2" | 513 | woven knapped cotton flannel | BF30B-100-200 | --- |
| 2½" - 3" | 513 | woven knapped cotton flannel | BF30B-250-300 | --- |
| 1" - 2" | 300 | cheese cloth, single thickness cotton | BF30C-100-200 | --- |
| 2½" - 3" | 300 | cheese cloth, single thickness cotton | BF30C-250-300 | --- |
| 1" - 2" | 765 | nylon, 26/29 mesh, rectangular opening, (.025 x .030) | BF30D-100-200 | --- |
| 2½" - 3" | 765 | nylon, 26/29 mesh, rectangular opening, (.025 x .030) | BF30D-250-300 | --- |
| 1" - 2" | 40-42 | nonwoven rayon | BF30E-100-200 | BF302E-100-200 |
| 2½" - 3" | 40-42 | nonwoven rayon | BF30E-250-300 | BF302E-250-300 |
| 1" - 2" | 40 | nonwoven rayon | BF30F-100-200 | --- |
| 1" - 2" | 420 | woven nylon, 40 mesh | BF30G-100-200 | --- |
| 2½" - 3" | 420 | woven nylon, 40 mesh | BF30G-250-300 | BF302G-250-300 |

316 Stainless Wire Cloth Mesh Over Screens

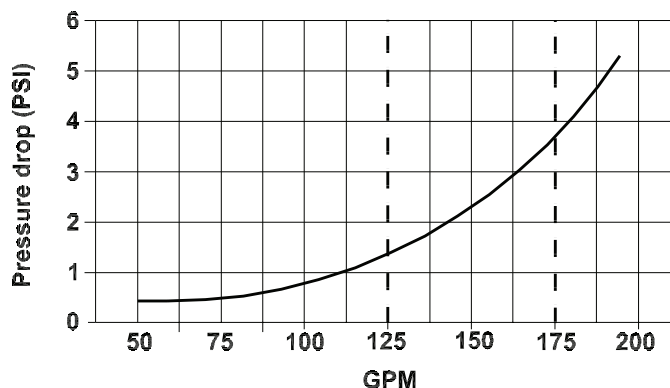
- Not all sizes are stocked additional sizes may be available (5 piece minimum), call Dixon Sanitary. Not included with base unit.
- not 3A compatible

| Size | Micron Rating | Square Mesh | Space Between Wires | Percent of Open Area | Short Part Number | Long/Side Entry Part Number |
|----------|---------------|-------------|------------------------|-------------------------|----------------------|--------------------------------|
| 1" - 2" | 864 | 20 | 0.034 | 46.2 | BS20-100-200 | BS202-100-200 |
| 2½" - 3" | 864 | 20 | 0.034 | 46.2 | BS20-250-300 | BS202-250-300 |
| 1" - 2" | 381 | 40 | 0.015 | 36.0 | BS40-100-200 | BS402-100-200 |
| 2½" - 3" | 381 | 40 | 0.015 | 36.0 | BS40-250-300 | BS402-250-300 |
| 1" - 2" | 229 | 60 | 0.009 | 30.3 | BS60-100-200 | BS602-100-200 |
| 2½" - 3" | 229 | 60 | 0.009 | 30.3 | BS60-250-300 | BS602-250-300 |
| 1" - 2" | 178 | 80 | 0.007 | 31.4 | BS80-100-200 | BS802-100-200 |
| 2½" - 3" | 178 | 80 | 0.007 | 31.4 | BS80-250-300 | BS802-250-300 |
| 1" - 2" | 140 | 100 | 0.006 | 30.3 | BS100-100-200 | BS1002-100-200 |
| 2½" - 3" | 140 | 100 | 0.006 | 30.3 | BS100-250-300 | BS1002-250-300 |

Pressure Drop Curves for Filter and Strainer

Water at ambient temperature

- maximum flow for short units is 125 GPM



Dual Filters / Strainers

Application:

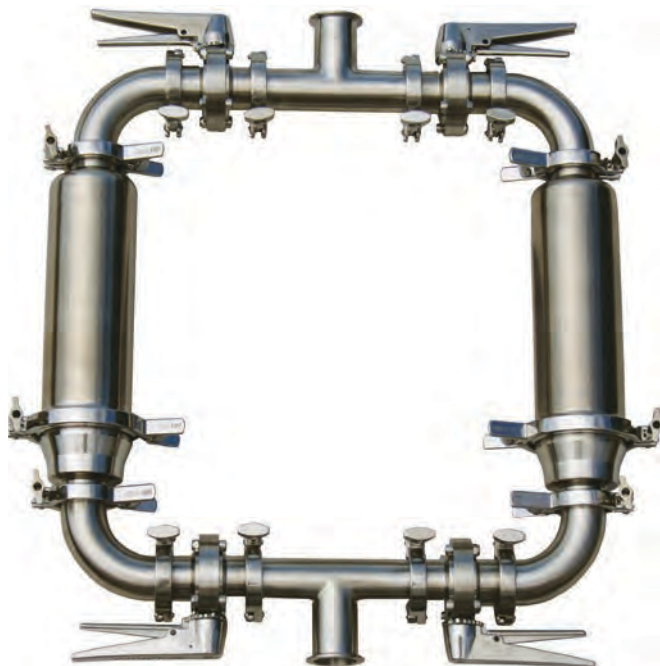
Use when system needs to be cleaned regularly but product flow needs to be maintained. Short, long and side entry dual units are available with manual or actuated valves, contact Dixon Sanitary for information.

Design Using 3-way Ball Valves



| Description | Part # | Qty |
|---|---------|-----|
| 3-way L port ball valves, sizes 1" - 3" | BV3SVLF | 2 |
| squeeze clamps, sizes 1" - 3" | 13MHM-Q | 4 |
| single pin clamps, sizes 1" - 3" | 13MHM | 4 |
| clamp 90° elbow, sizes 1" - 3" | B2CMP-R | 4 |
| clamp gaskets in various materials, sizes 1" - 3" | 40MP | 8 |

Design Using Butterfly Valves



| Description | Part # | Qty |
|---|---------|-----|
| butterfly valve, various handles, actuation and seat materials, sizes 1" - 3" | B5101 | 4 |
| clamp tee, 1" - 3" | B7MP | 2 |
| clamp 90° elbow, sizes 1" - 3" | B2CMP | 4 |
| squeeze clamps, sizes 1" - 3" | 13MHM-Q | 4 |
| single pin clamps, sizes 1" - 3" | 13MHM | 8 |
| clamp gaskets in various materials, sizes 1" - 3" | 40MP | 12 |

Austenitic Stainless Steel Chemistry

| Element | C | Mn | P | S | Si | Cr | Ni | Mo |
|--------------------------|-----|------|-------|-------------|------|-----------|-----------|---------|
| 304 ¹ | .08 | 2.00 | 0.045 | 0.030 | 1.00 | 18.0-20.0 | 8.0-10.0 | |
| 316L ¹ | .03 | 2.00 | 0.045 | 0.030 | 1.00 | 16.0-18.0 | 10.0-14.0 | 2.0-3.0 |
| 316L BPE ² | .03 | 2.00 | 0.045 | 0.05 - 0.17 | 1.00 | 16.0-18.0 | 10.0-14.0 | 2.0-3.0 |
| CF-8 ³ | .08 | 1.50 | 0.04 | 0.04 | 2.00 | 18.0-21.0 | 8.0-11.0 | |
| CF-8M ³ | .08 | 1.50 | 0.04 | 0.04 | 2.00 | 18.0-21.0 | 9.0-12.0 | 2.0-3.0 |

¹ AISI specifications for wrought material

² ASME BPE 2009

³ ASTM A743

- Percentages are maximums unless a range is specified

Finish Information

Polished Finish Specification

| Process | R _a microinch | R _a micron | ISO | BPE | 3A | |
|--------------------------|--------------------------|-----------------------|-----|-----|----|----|
| 150 grit | 30 - 35 | 0.75 - 0.875 | N6 | | | |
| 150 grit + Electropolish | 12 - 20 | 0.3 - 0.5 | | | XX | |
| 180 grit | 20 - 25 | 0.5 - 0.625 | | | | |
| 180 grit + Electropolish | 10 - 16 | 0.25 - 0.4 | | | | |
| 240 grit | 15 - 20 | 0.375 - 0.5 | N5 | SF1 | | PL |
| 240 grit + Electropolish | 8 - 12 | 0.2 - 0.3 | | | | |
| 320 grit | 8 - 12 | 0.2 - 0.3 | N4 | | | |
| 320 grit + Electropolish | 6 - 12 | 0.15 - 0.3 | | SF4 | | PM |

Specifications are "best fit" to the process. Other methods may be used to achieve the desired results.

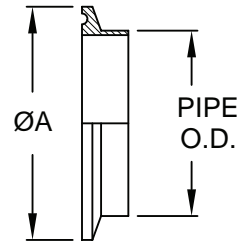
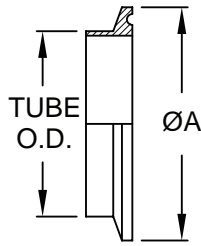
Finish Designations for Tubing and Fittings

| Finish Number | Finish Conditions |
|---------------|---|
| 1 | Mill Finish (bright annealed, pickled, sand blast or tumbled) |
| 3 | Polished 180 grit inside diameter (ID) only |
| 5 | Polished 150 grit outside diameter (OD) only |
| 7 | Polished 180 grit outside/inside diameter (OD/ID) |
| 3A | Polished 150 grit outside (OD), 180 grit inside diameter (ID) |

- 180 grit = 25R_a microinch = 0.5R_a micron (minimum)

Identifying Fittings

Clamp Ferrules



Note: flanges are symmetrical

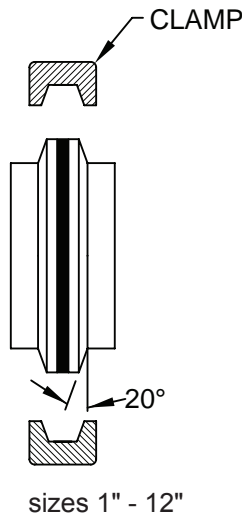
Tube

| Tube OD (inches) | ØA |
|------------------|--------|
| 1/2 | .992 |
| 3/4 | .992 |
| 1 | 1.984 |
| 1 1/2 | 1.984 |
| 2 | 2.516 |
| 2 1/2 | 3.047 |
| 3 | 3.579 |
| 4 | 4.682 |
| 5 | 5.687 |
| 6 | 6.570 |
| 8 | 8.602 |
| 10 | 10.570 |
| 12 | 12.570 |

Pipe

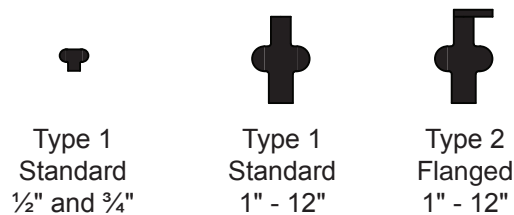
| Pipe Size (inches) | Pipe OD (inches) | ØA |
|--------------------|------------------|-------|
| 1 | 1.315 | 1.984 |
| 1 1/4 | 1.660 | 2.516 |
| 1 1/2 | 1.900 | 2.516 |
| 2 | 2.375 | 3.047 |
| 2 1/2 | 2.875 | 3.579 |
| 3 | 3.500 | 4.125 |
| 4 | 4.500 | 5.125 |
| 6 | 6.625 | 7.195 |
| 8 | 8.625 | 9.200 |

Clamp Connection



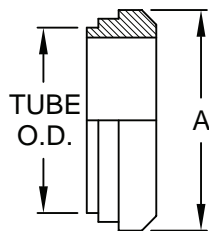
sizes 1/2" and 3/4"

Gaskets



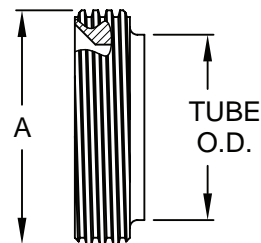
Identifying Fittings

Bevel Seat Ferrules



Plain

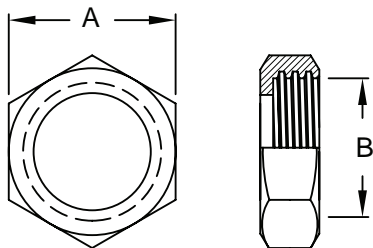
| Tube OD (inches) | ØA |
|------------------|-------|
| 1 | 1.312 |
| 1½ | 1.848 |
| 2 | 2.380 |
| 2½ | 2.912 |
| 3 | 3.444 |
| 4 | 4.508 |



Threaded

| Tube OD (inches) | ØA |
|------------------|-------|
| 1 | 1.462 |
| 1½ | 1.994 |
| 2 | 2.526 |
| 2½ | 3.058 |
| 3 | 3.590 |
| 4 | 4.695 |

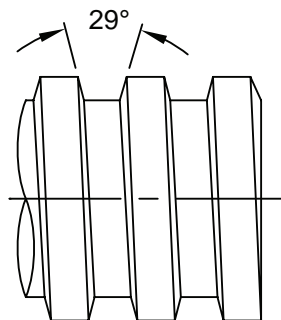
13H Hex Nuts



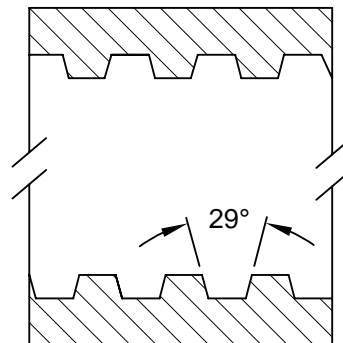
Nut

| Tube OD (inches) | A Across Flats | B Thread ID | Threads per inch |
|------------------|----------------|-------------|------------------|
| 1 | 1.812 | 1.362 | 8 |
| 1½ | 2.406 | 1.894 | 8 |
| 2 | 3.000 | 2.426 | 8 |
| 2½ | 3.594 | 2.958 | 8 |
| 3 | 4.188 | 3.490 | 8 |
| 4 | 5.438 | 4.554 | 6 |

Acme Thread Form



male thread



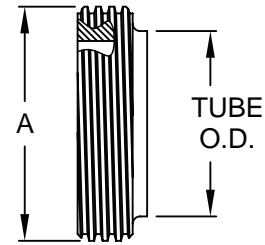
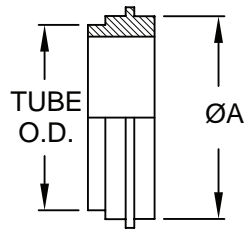
female thread

Gasket



Identifying Fittings

John Perry Ferrules



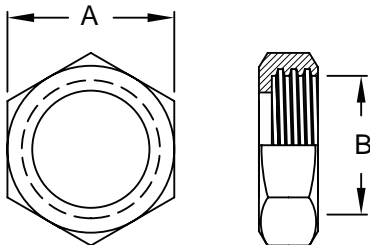
Plain

| Tube OD (inches) | ØA |
|------------------|-------|
| 1 | 1.125 |
| 1½ | 1.656 |
| 2 | 2.187 |
| 2½ | 2.656 |
| 3 | 3.187 |
| 4 | 4.187 |

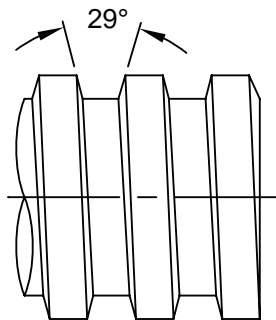
Threaded

| Tube OD (inches) | ØA |
|------------------|-------|
| 1 | 1.462 |
| 1½ | 1.994 |
| 2 | 2.526 |
| 2½ | 3.058 |
| 3 | 3.590 |
| 4 | 4.695 |

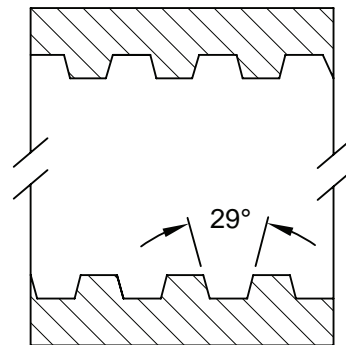
13H Hex Nuts



| Tube OD (inches) | A Across Flats | B Thread ID | B Thread ID |
|------------------|----------------|-------------|-------------|
| 1 | 1.812 | 1.362 | 8 |
| 1½ | 2.406 | 1.894 | 8 |
| 2 | 3.000 | 2.426 | 8 |
| 2½ | 3.594 | 2.958 | 8 |
| 3 | 4.188 | 3.490 | 8 |
| 4 | 5.438 | 4.554 | 6 |



male thread



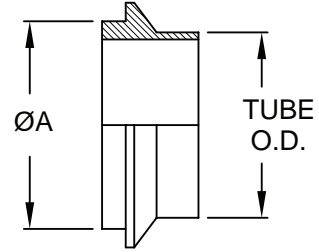
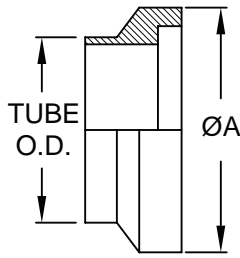
female thread

Gasket



Identifying Fittings

I-line Ferrules



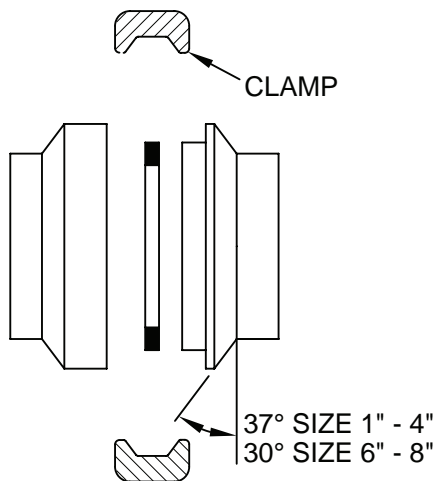
Female

| Tube OD (inches) | ØA |
|------------------|-------|
| 1 | 1.985 |
| 1½ | 1.985 |
| 2 | 2.640 |
| 2½ | 3.307 |
| 3 | 3.870 |
| 4 | 4.870 |
| 6 | 7.495 |
| 8 | 9.945 |

Male

| Tube OD (inches) | ØA |
|------------------|-------|
| 1 | 1.250 |
| 1½ | 1.740 |
| 2 | 2.240 |
| 2½ | 2.740 |
| 3 | 3.300 |
| 4 | 4.297 |
| 6 | 6.830 |
| 8 | 8.830 |

Clamp Connection



Gasket

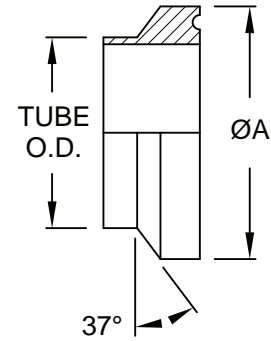


Identifying Fittings

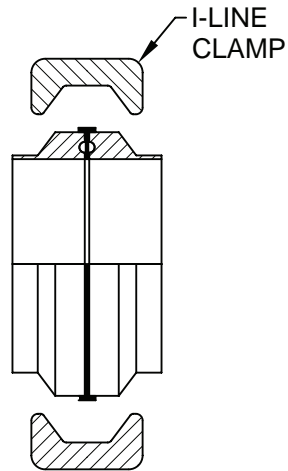
Q-line Ferrules

both halves of a jointed connection are symmetrical

| Tube OD (inches) | ØA |
|---------------------|-------|
| 1 | 1.985 |
| 1½ | 1.985 |
| 2 | 2.640 |
| 2½ | 3.307 |
| 3 | 3.870 |
| 4 | 4.870 |



Clamp Connection



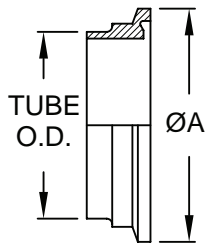
Gasket



Identifying Fittings

APC Clamped Ferrules

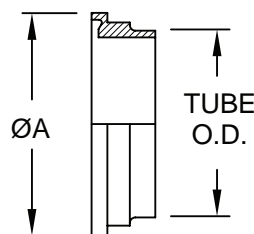
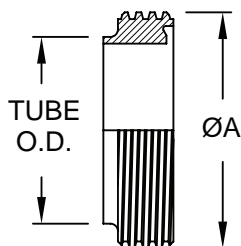
both halves of a jointed connection are symmetrical



clamp ferrule

| Tube OD (inches) | ØA |
|------------------|------|
| 1 | 1.98 |
| 1½ | 1.98 |
| 2 | 2.52 |
| 2½ | 3.05 |
| 3 | 3.58 |
| 4 | 4.68 |

APC Threaded Ferrules



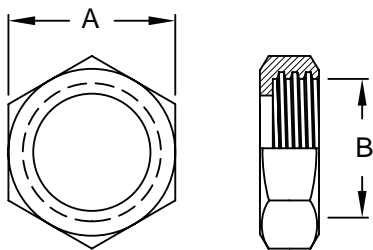
threaded ferrule

| Tube OD (inches) | ØA |
|------------------|-------|
| 1 | 1.462 |
| 1½ | 1.994 |
| 2 | 2.526 |
| 2½ | 3.058 |
| 3 | 3.590 |
| 4 | 4.695 |

plain ferrule

| Tube OD (inches) | ØA |
|------------------|-------|
| 1 | 1.312 |
| 1½ | 1.848 |
| 2 | 2.380 |
| 2½ | 2.912 |
| 3 | 3.444 |
| 4 | 4.508 |

13H Hex Nuts



Nut

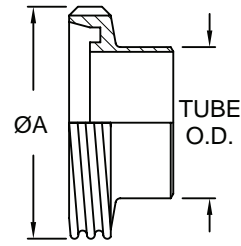
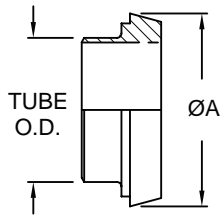
| Tube OD (inches) | A Across Flats | B Thread ID | Threads per inch |
|------------------|----------------|-------------|------------------|
| 1 | 1.812 | 1.362 | 8 |
| 1½ | 2.406 | 1.894 | 8 |
| 2 | 3.000 | 2.426 | 8 |
| 2½ | 3.594 | 2.958 | 8 |
| 3 | 4.188 | 3.490 | 8 |
| 4 | 5.438 | 4.554 | 6 |

Gasket



Identifying Fittings

DIN Ferrules



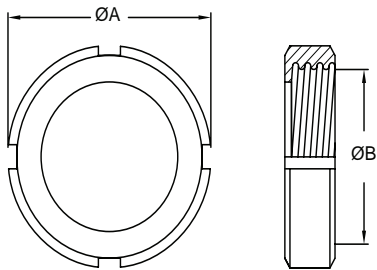
Liners

| Tube OD (inches) | ØA |
|------------------|------|
| 1 | 1.73 |
| 1½ | 2.20 |
| 2 | 2.68 |
| 2½ | 3.39 |
| 3 | 3.94 |
| 4 | 4.76 |

Males

| Tube OD (inches) | ØA |
|------------------|------|
| 1 | 2.04 |
| 1½ | 2.56 |
| 2 | 3.07 |
| 2½ | 3.74 |
| 3 | 4.31 |
| 4 | 5.10 |

DIN Round Nuts

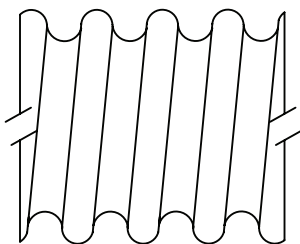


Nut

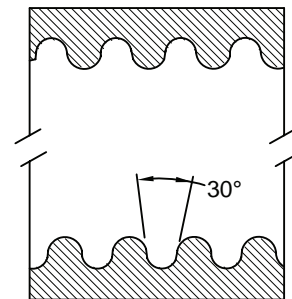
| Tube OD (inches) | DN | ØA | B Thread ID | Threads per inch |
|------------------|-----|------|-------------|------------------|
| 1 | 25 | 2.48 | 1.88 | 6 |
| 1½ | 40 | 3.07 | 2.39 | 6 |
| 2 | 50 | 3.62 | 2.90 | 6 |
| 2½ | 65 | 4.41 | 3.49 | 6 |
| 3 | 80 | 5.00 | 4.14 | 4 |
| 4 | 100 | 5.83 | 4.94 | 4 |

Note: nuts 3" and larger will have 6 slots

DIN Thread Form



male thread



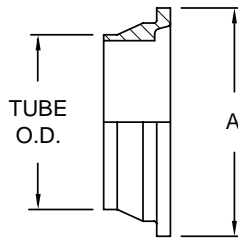
female thread

Gasket



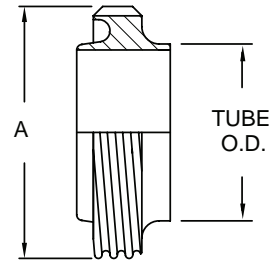
Identifying Fittings

RJT Ferrules



Liners

| Tube OD (inches) | ØA |
|------------------|------|
| 1 | 1.63 |
| 1½ | 2.13 |
| 2 | 2.63 |
| 2½ | 3.13 |
| 3 | 3.63 |
| 4 | 4.63 |



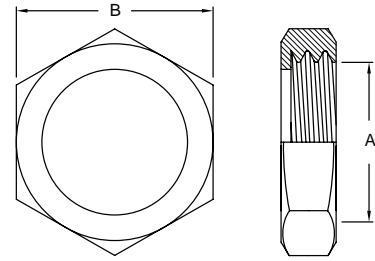
Males

| Tube OD (inches) | ØA |
|------------------|------|
| 1 | 1.80 |
| 1½ | 2.30 |
| 2 | 2.86 |
| 2½ | 3.36 |
| 3 | 3.86 |
| 4 | 4.86 |

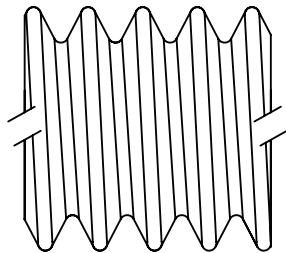
RJT Hex Nuts

Nut

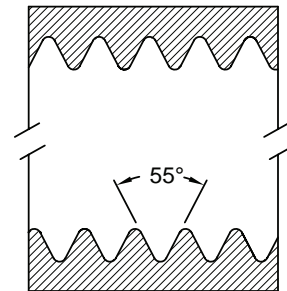
| Tube OD (inches) | ØA Thread ID | B Across flats | Threads per inch |
|------------------|--------------|----------------|------------------|
| 1 | 1.68 | 2.00 | 8 |
| 1½ | 2.18 | 2.56 | 8 |
| 2 | 2.69 | 3.12 | 6 |
| 2½ | 3.19 | 3.62 | 6 |
| 3 | 3.69 | 4.12 | 6 |
| 4 | 4.69 | 5.12 | 6 |



RJT Thread Form (British Standard Whitworth)



male thread



female thread

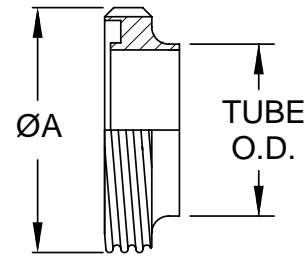
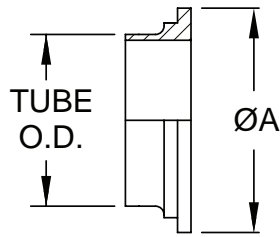
Gasket



Also known as BSM (British Standard Milk) in Australia
modified into Australian CIP Union

Identifying Fittings

SMS Couplings



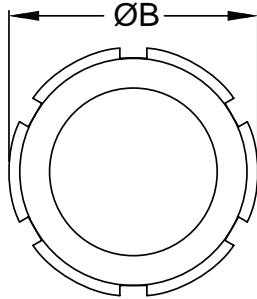
Liners

| Tube OD (inches) | ØA |
|------------------|------|
| 1 | 1.40 |
| 1½ | 2.17 |
| 2 | 2.56 |
| 2½ | 3.15 |
| 3 | 3.66 |
| 4 | 4.65 |

Males

| Tube OD (inches) | ØA |
|------------------|------|
| 1 | 1.55 |
| 1½ | 2.34 |
| 2 | 2.74 |
| 2½ | 3.33 |
| 3 | 3.84 |
| 4 | 4.90 |

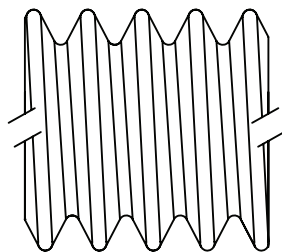
SMS Round Nuts



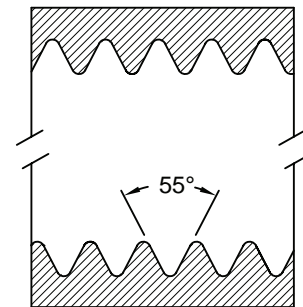
Nut

| Tube OD (inches) | ØA Thread ID | ØB | Threads per inch |
|------------------|--------------|------|------------------|
| 1 | 1.44 | 2.01 | 6 |
| 1½ | 2.22 | 2.91 | 6 |
| 2 | 2.62 | 3.31 | 6 |
| 2½ | 3.21 | 3.94 | 6 |
| 3 | 3.72 | 4.49 | 6 |
| 4 | 4.72 | 5.43 | 4 |

SMS Thread Form



male thread



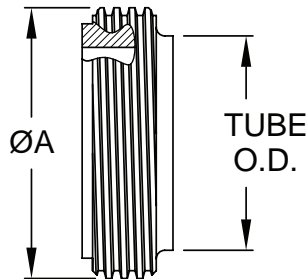
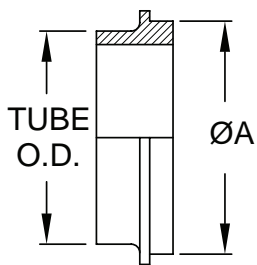
female thread

Gasket



Identifying Fittings

IDF Couplings



Liners

| Tube OD (inches) | ØA |
|------------------|------|
| 1 | 1.33 |
| 1½ | 1.85 |
| 2 | 2.38 |
| 2½ | 2.91 |
| 3 | 3.44 |
| 4 | 4.75 |

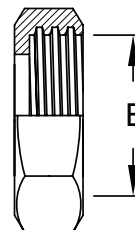
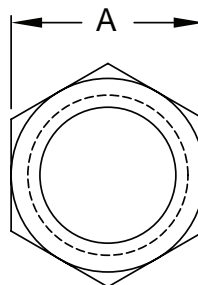
Males

| Tube OD (inches) | ØA |
|------------------|------|
| 1 | 1.46 |
| 1½ | 1.99 |
| 2 | 2.53 |
| 2½ | 3.06 |
| 3 | 3.59 |
| 4 | 4.96 |

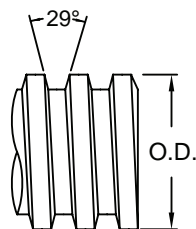
IDF Hex Nuts

Nut

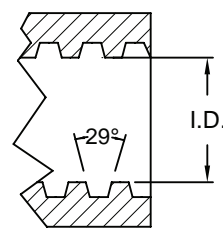
| Tube OD (inches) | ØA Thread ID | B Across flats | Threads per inch |
|------------------|--------------|----------------|------------------|
| 1 | 1.81 | 1.35 | 8 |
| 1½ | 2.36 | 1.88 | 8 |
| 2 | 2.95 | 2.42 | 8 |
| 2½ | 3.54 | 2.95 | 8 |
| 3 | 4.13 | 3.48 | 8 |
| 4 | 5.24 | 4.81 | 6 |



IDF Thread Form (same as Acme thread form)



male thread



female thread

Gaskets



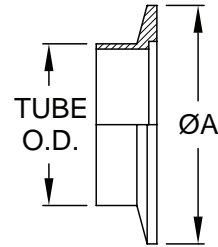
Identifying Fittings

Vacuum Flanges

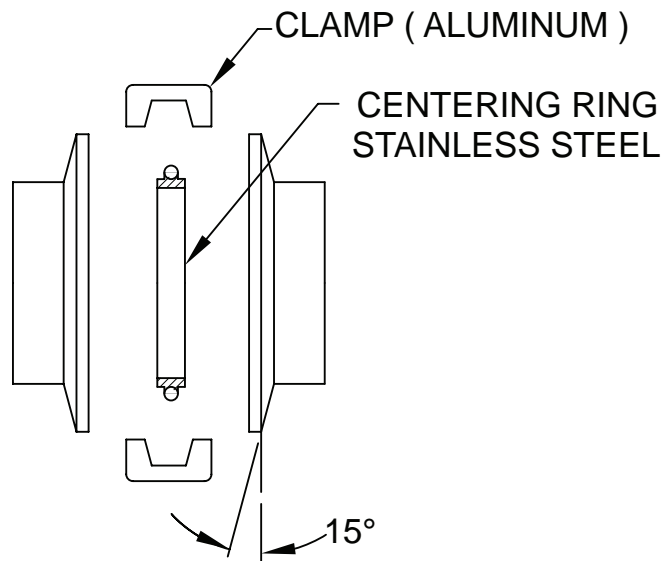
both halves of a jointed connection are symmetrical

clamp ferrule

| Tube OD (inches) | ØA |
|---------------------|------|
| 1/2 | 1.18 |
| 3/4 | 1.18 |
| 1 | 1.57 |
| 1 1/2 | 2.16 |
| 2 | 2.95 |



Clamp Connection



Gasket



Sanitary Gaskets

Elastomers available:

Nitrile (Buna N)
 Silicone (peroxide cured/platinum cured)
 EPDM
 FKM
 PTFE
 Screens and orifice gaskets
 (see page 160 for mesh sizes)
 PTFE orifice gaskets are solid PTFE

Certified as required to:

US Pharmacopoeia Class VI
 Cytotoxicity Criteria
 Title 21CFR177.2600 & .1550
 USDA and 3A Sanitary Standards



All elastomeric gaskets require periodic replacement. Gasket life is influenced by the gasket material, product application, temperature, cleaning procedures, etc. After monitoring gasket conditions in a process system, a schedule should be developed for replacement of gaskets.

Color Coding - Identification of Gasket Materials

| Elastomer | Part Number Identifier | Typical Color | Color Code | Useful Temperature |
|-----------------------------|------------------------|----------------|-----------------------------|--------------------|
| Buna-N | U | black | 1 red dot | -25°F to 225°F |
| Buna-N | UW | white | 1 red dot | -25°F to 225°F |
| EPDM sulfur cured | E | black | 1 green dot | -40°F to 275°F |
| EPDM peroxide cured | E | black | 3 green dots | -40°F to 275°F |
| FKM | SFY | black brown | 1 white dot 1 yellow dot | -15°F to 375°F |
| Silicone peroxide cured | XW | white | 1 pink dot | -50°F to 400°F |
| Silicone platinum cured | XC | clear | none | -50°F to 400°F |
| PTFE | G | white | none | -10°F to 300°F |
| PTFE w/50% 316 particles | GTS | silver | none | -20°F to 450°F |

Packaging and Storing Information

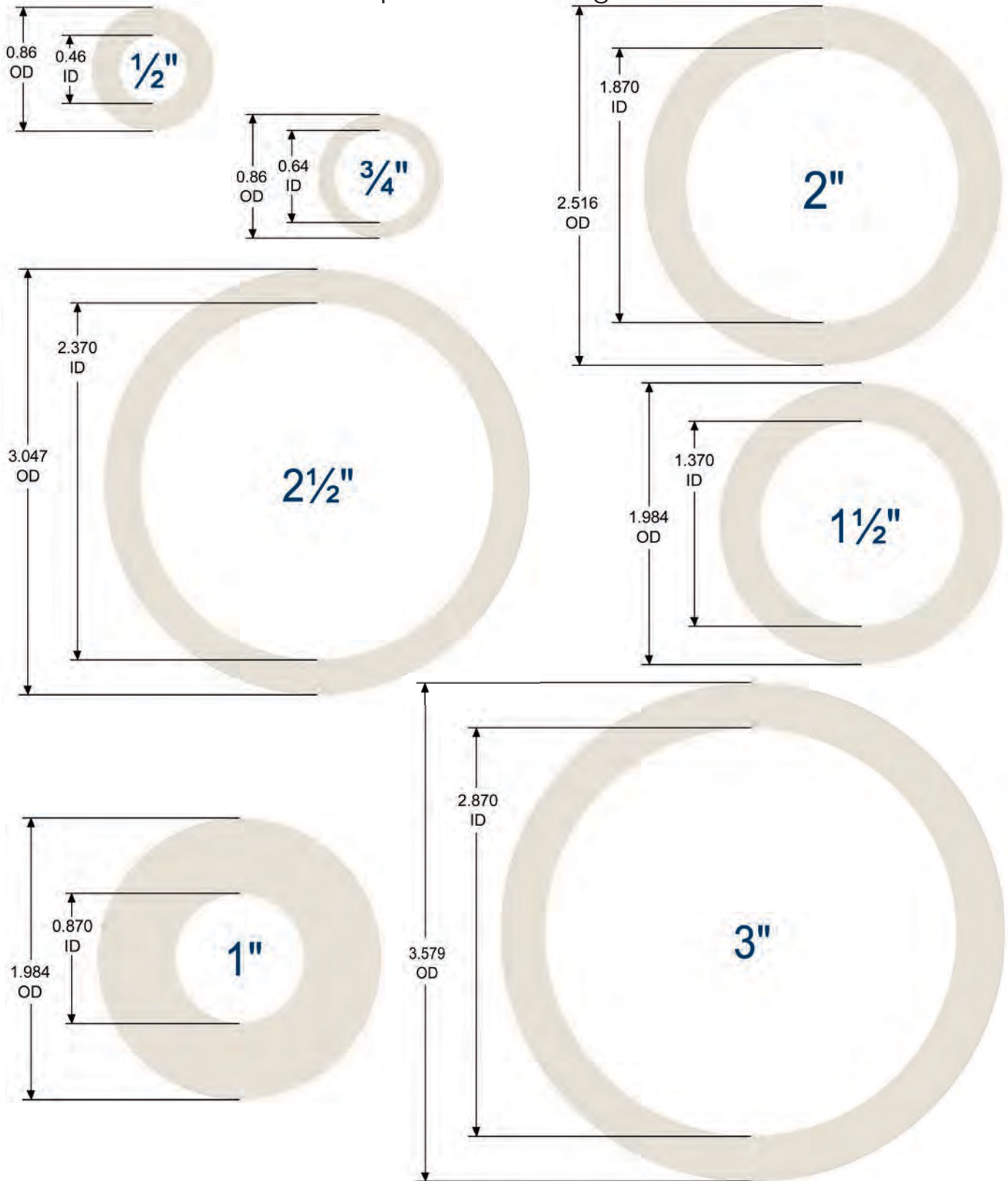
The shelf life of rubber gaskets is the maximum period from cure date to the date the product is installed. During the shelf life time, the rubber product is expected to retain its characteristics under the following conditions:

- stored in original packaging in a clean, dry warehouse
- not exposed to direct sunlight
- stored no closer than 6' from electric motors
- temperature between **65°F to 85°F**

A guideline for shelf life of rubber gaskets manufactured from the following components should have the following shelf life not to exceed:

- Buna 10 years
- EPDM 10 years
- FKM 10 years
- Silicone 5 years
- PTFE 20 years

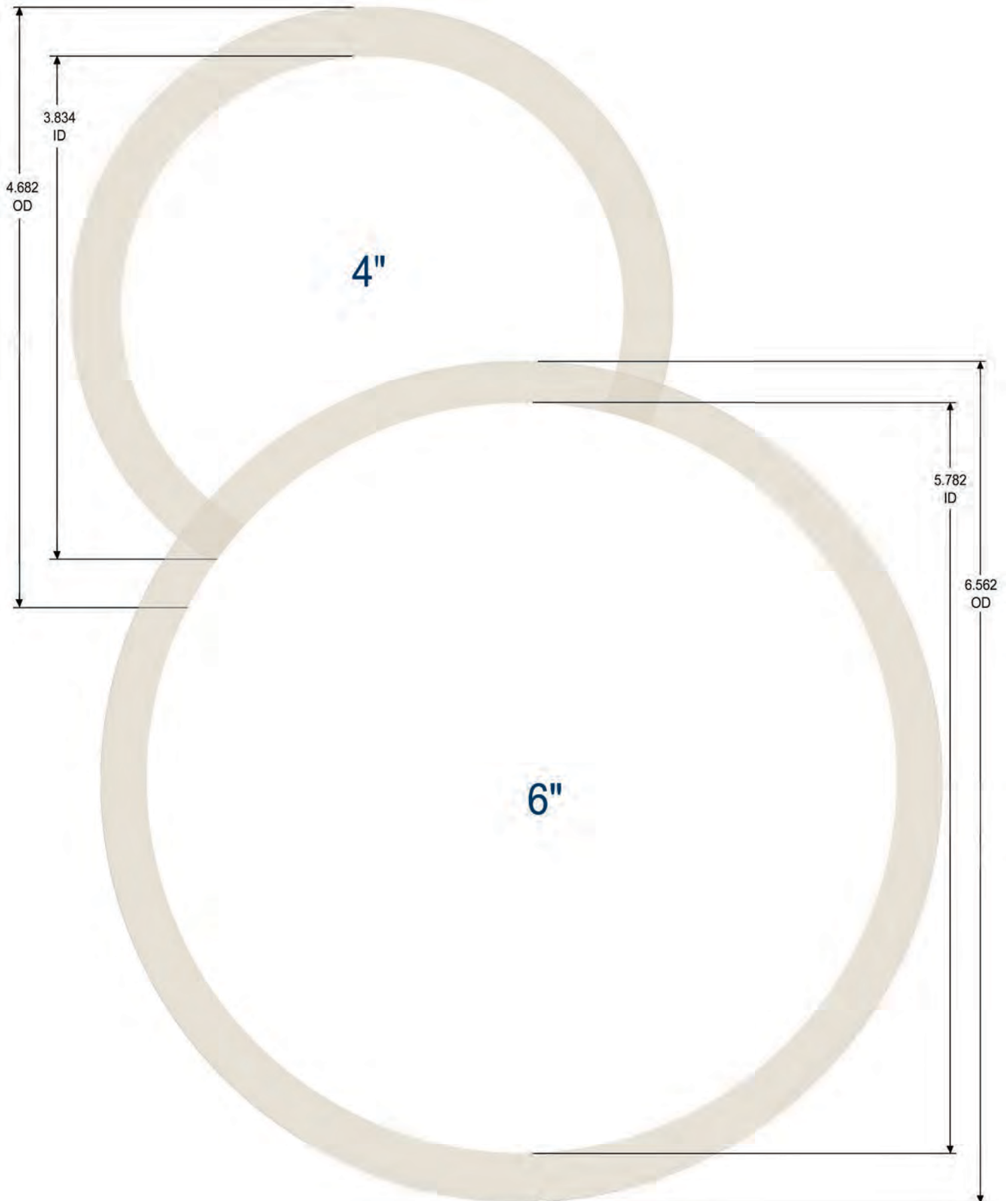
Clamp Gasket Sizing Guide



| Sanitary Size | OD of Clamp End | ID of Fitting |
|---------------|-----------------|---------------|
| 1/2" | 0.992 | 0.370 |
| 3/4" | 0.992 | 0.620 |
| 1" | 1.984 | 0.870 |
| 1 1/2" | 1.984 | 1.370 |
| 2" | 2.516 | 1.870 |
| 2 1/2" | 3.047 | 2.370 |

| Sanitary Size | OD of Clamp End | ID of Fitting |
|---------------|-----------------|---------------|
| 3" | 3.579 | 2.870 |
| 4" | 4.682 | 3.834 |
| 6" | 6.562 | 5.782 |
| 8" | 8.602 | 7.782 |
| 10" | 10.570 | 9.782 |
| 12" | 12.570 | 11.760 |

Clamp Gasket Sizing Guide

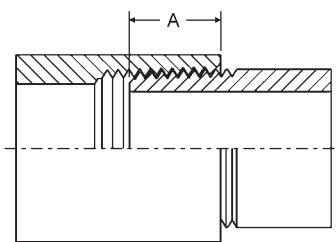


Thread Dimensions

| | Size | Pipe OD | Tapered Threads | | Straight Threads | | |
|--------------------------------------|--------|---------|-----------------|-------------------|------------------|-----------|-----------|
| | | | NPT | BSPT _r | Acme 3A | | |
| | | | TPI | TPI | TPI | ODM (max) | IDF (min) |
| ODM -- Outside Diameter of the Male | 1/8" | .405 | 27 | 28 | | | |
| | 1/4" | .504 | 18 | 19 | | | |
| | 3/8" | .675 | 18 | 19 | | | |
| IDF -- Inside Diameter of the Female | 1/2" | .840 | 14 | 14 | | | |
| | 3/4" | 1.050 | 14 | 14 | | | |
| | 1" | 1.315 | 11.5 | 11 | 8 | 1.462 | 1.352 |
| TPI -- Threads Per Inch | 1-1/4" | 1.660 | 11.5 | 11 | | | |
| | 1-1/2" | 1.900 | 11.5 | 11 | 8 | 1.994 | 1.884 |
| | 2" | 2.375 | 11.5 | 11 | 8 | 2.526 | 2.416 |
| GHT (3/4") -- 1.0625 ODM, 11-1/2 TPI | 2-1/2" | 2.875 | 8 | 11 | 8 | 3.058 | 2.948 |
| | 3" | 3.500 | 8 | 11 | 8 | 3.590 | 3.480 |
| | 4" | 4.500 | 8 | 11 | 6 | 4.695 | 4.544 |
| NPT = National Pipe Taper | 5" | 5.563 | 8 | 11 | | | |
| | 6" | 6.625 | 8 | 11 | | | |
| | 8" | 8.625 | 8 | | | | |
| BS = British Standard | 10" | 10.750 | 8 | | | | |
| | 12" | 12.750 | 8 | | | | |

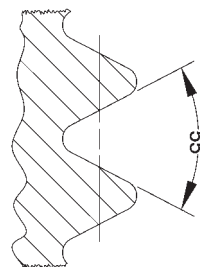
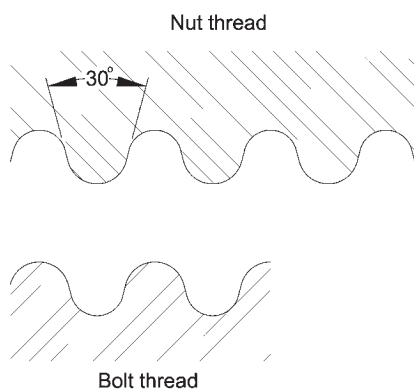
Normal Engagement Length of NPT Thread in Inches (A) *

| Sanitary Size | ID of Fitting | Sanitary Size | ID of Fitting |
|---------------|---------------|---------------|---------------|
| 1/8" | 1/4" | 2-1/2" | 15/16" |
| 1/4" | 3/8" | 3" | 1" |
| 3/8" | 3/8" | 4" | 1-1/8" |
| 1/2" | 1/2" | 5" | 1-1/4" |
| 3/4" | 9/16" | 6" | 1-5/16" |
| 1" | 11/16" | 8" | 1-7/16" |
| 1-1/4" | 11/16" | 10" | 1-5/8" |
| 1-1/2" | 11/16" | 12" | 1-3/4" |
| 2" | 3/4" | | |



* Dimensions given do not allow for variations in tapping or threading.

Identifying Threads



DIN knuckle threads for sanitary applications have a unique round shape making them easy to identify. There is a 30° included angle between the threads. There are 6 to 8 threads per inch for sanitary fittings. Measuring the ID of the round nut or the OD of the threads on the weld liner will help with identification. As Dixon Sanitary will be offering inch sizes, the best size identification is the OD of the tube.

The threads for RJT fittings are British Standard Whitworth. These look similar to straight threads but have a 55° angle and small radii on the tips rather than the flat tips and 60° angle found on U.S. standard straight threads. There are 6 to 8 threads per inch for the sanitary fittings.

Identifying Threads

It is important to identify the threads required before ordering couplings.

Identifying threads can sometimes be the most difficult and frustrating part of coupling selection. However, without the right combination of threads, you may not provide a functional or safe connection.

The diameters, threads per inch (TPI) and thread pitch, etc. are necessary to completely identify a thread. Ring, Plug and GO/NOGO gauges are required to accurately gauge or identify threads. In the field, in the absence of these gauges, thread leaf gauges can be used to identify the Threads Per Inch (TPI) and the thread pitch. On threads you have determined to be straight threads, a caliper can be used to measure the Outside Diameter of the Male (ODM) or the Inside Diameter of the Female (IDF). A caliper can also be used to take measurements of tapered thread diameters. However, these are more difficult to define because of the taper. Fortunately, there are few tapered threads to deal with and these can usually be identified from the nominal ODM and the TPI.

However, identifying the thread may not fully identify what is needed in a mating fitting. The application is the primary *limiting factor on the thread type used*. Dixon offers products with a wide variety of threads used with hose, pipe and hydraulics.

When attempting to choose a fitting, it is always advisable to first identify the thread to which it must connect. This may entail checking with a fitting or equipment manufacturer.

When it is not possible to identify the thread:

- 1) Determine the number of threads per inch by measuring the distance from peak of thread to peak of thread across the largest number of whole threads. Then divide the number of threads by the measurement
(This will provide the TPI).

- 2) Check to see if the thread is straight or tapered or flat thread.

a) Straight Threads

Measure the Outside Diameter of the Male (ODM) or the Inside Diameter of the Female (IDF), from peak of thread to peak of thread.

b) Tapered Threads

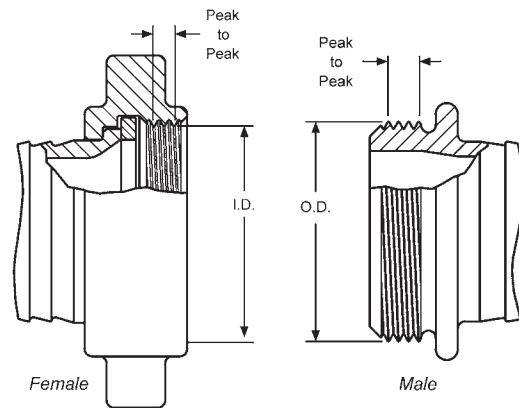
Measure the Outside Diameter of the Male (ODM) at the large end and the small end, or the Inside Diameter of the Female (IDF) at the large end and the small end, from peak of thread to peak of thread. Then measure the Outside Diameter (OD) of the unthreaded pipe.

c) Flat (ACME) Threads

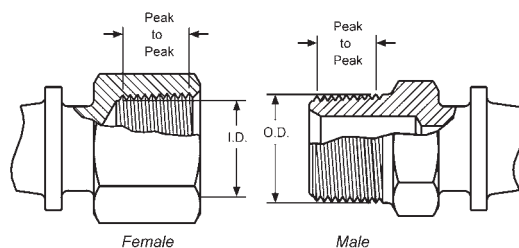
Acme threads are used for bevel seat and John Perry fittings in sanitary installations. Sizes 1" to 3" (tube size) have 8 threads per (TPI) and the 4" has 6 TPI. There is not a sharp point on this thread and it is a straight thread. The tops of the threads are flat and there is typically a 29° included angle between the threads. Measure the outside diameter of the male (OD) or inside diameter of the female (ID)

Once the application and these two pieces of information have been determined, the thread can generally be determined. When in doubt, contact the factory.

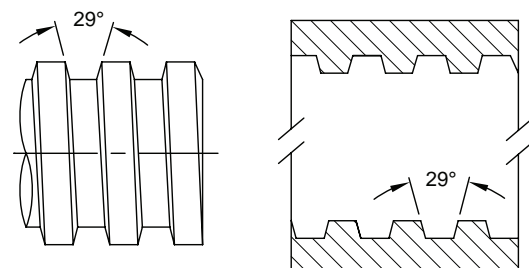
Straight Thread



Tapered Thread



ACME Thread



Temperature Conversions

Look up reading in middle column (shaded). If in degrees Centigrade, read Fahrenheit equivalent in right-hand column; if in degrees Fahrenheit, read Centigrade equivalent in left-hand column.

| °C | °F | °C | °F |
|-------|------|-------|----|
| -73 | -100 | -148 | |
| -68 | -90 | -130 | |
| -62 | -80 | -112 | |
| -57 | -70 | -94 | |
| -51 | -60 | -76 | |
| -46 | -50 | -58 | |
| -40 | -40 | -40 | |
| -34 | -30 | -22 | |
| -29 | -20 | -4 | |
| -23 | -10 | 14 | |
| -17.8 | 0 | 32 | |
| -17.2 | 1 | 33.8 | |
| -16.7 | 2 | 35.6 | |
| -16.1 | 3 | 37.4 | |
| -15.6 | 4 | 39.2 | |
| -15.0 | 5 | 41.0 | |
| -14.4 | 6 | 42.8 | |
| -13.9 | 7 | 44.6 | |
| -13.3 | 8 | 46.4 | |
| -12.8 | 9 | 48.2 | |
| -12.2 | 10 | 50.0 | |
| -11.7 | 11 | 51.8 | |
| -11.1 | 12 | 53.6 | |
| -10.6 | 13 | 55.4 | |
| -10.0 | 14 | 57.2 | |
| -9.4 | 15 | 59.0 | |
| -8.9 | 16 | 60.8 | |
| -8.3 | 17 | 62.6 | |
| -7.8 | 18 | 64.4 | |
| -7.2 | 19 | 66.2 | |
| -6.7 | 20 | 68.0 | |
| -6.1 | 21 | 69.8 | |
| -5.6 | 22 | 71.6 | |
| -5.0 | 23 | 73.4 | |
| -4.4 | 24 | 75.2 | |
| -3.9 | 25 | 77.0 | |
| -3.3 | 26 | 78.8 | |
| -2.8 | 27 | 80.6 | |
| -2.2 | 28 | 82.4 | |
| -1.7 | 29 | 84.2 | |
| -1.1 | 30 | 86.0 | |
| -.6 | 31 | 87.8 | |
| 0 | 32 | 89.6 | |
| .6 | 33 | 91.4 | |
| 1.1 | 34 | 93.2 | |
| 1.7 | 35 | 95.0 | |
| 2.2 | 36 | 96.8 | |
| 2.8 | 37 | 98.6 | |
| 3.3 | 38 | 100.4 | |
| 3.9 | 39 | 102.2 | |
| 4.4 | 40 | 104.0 | |

| °C | °F | °C | °F |
|------|----|-------|----|
| 5.0 | 41 | 105.8 | |
| 5.6 | 42 | 107.6 | |
| 6.1 | 43 | 109.4 | |
| 6.7 | 44 | 111.2 | |
| .72 | 45 | 113.0 | |
| 7.8 | 46 | 114.8 | |
| 8.3 | 47 | 116.6 | |
| 8.9 | 48 | 118.4 | |
| 9.4 | 49 | 120.2 | |
| 10.0 | 50 | 122.0 | |
| 10.6 | 51 | 123.8 | |
| 11.1 | 52 | 125.6 | |
| 11.7 | 53 | 127.4 | |
| 12.2 | 54 | 129.2 | |
| 12.8 | 55 | 131.0 | |
| 13.3 | 56 | 132.8 | |
| 13.9 | 57 | 134.6 | |
| 14.4 | 58 | 136.4 | |
| 15.0 | 59 | 138.2 | |
| 15.6 | 60 | 140.0 | |
| 16.1 | 61 | 141.8 | |
| 16.7 | 62 | 143.6 | |
| 17.2 | 63 | 145.4 | |
| 17.8 | 64 | 147.2 | |
| 18.3 | 65 | 149.0 | |
| 18.9 | 66 | 150.8 | |
| 19.4 | 67 | 152.6 | |
| 20.0 | 68 | 154.4 | |
| 20.6 | 69 | 156.2 | |
| 21.1 | 70 | 158.0 | |
| 21.7 | 71 | 159.8 | |
| 22.2 | 72 | 161.6 | |
| 22.8 | 73 | 163.4 | |
| 23.3 | 74 | 165.2 | |
| 23.9 | 75 | 167.0 | |
| 24.4 | 76 | 168.8 | |
| 25.0 | 77 | 170.6 | |
| 25.6 | 78 | 172.4 | |
| 26.1 | 79 | 174.2 | |
| 26.7 | 80 | 176.0 | |
| 27.2 | 81 | 177.8 | |
| 27.8 | 82 | 179.6 | |
| 28.3 | 83 | 181.4 | |
| 28.9 | 84 | 183.2 | |
| 29.4 | 85 | 185.0 | |
| 30.0 | 86 | 186.8 | |
| 30.6 | 87 | 188.6 | |
| 31.1 | 88 | 190.4 | |
| 31.7 | 89 | 192.2 | |
| 32.2 | 90 | 194.0 | |
| 32.8 | 91 | 195.8 | |

| °C | °F | °C | °F |
|------|-----|-------|----|
| 33.3 | 92 | 197.6 | |
| 33.9 | 93 | 199.4 | |
| 34.4 | 94 | 201.2 | |
| 35.0 | 95 | 203.0 | |
| 35.6 | 96 | 204.8 | |
| 36.1 | 97 | 206.6 | |
| 36.7 | 98 | 208.4 | |
| 37.2 | 99 | 210.2 | |
| 37.8 | 100 | 212.0 | |
| 43 | 110 | 230 | |
| 49 | 120 | 248 | |
| 54 | 130 | 266 | |
| 60 | 140 | 284 | |
| 66 | 150 | 302 | |
| 71 | 160 | 320 | |
| 77 | 170 | 338 | |
| 82 | 180 | 356 | |
| 88 | 190 | 374 | |
| 93 | 200 | 392 | |
| 99 | 210 | 410 | |
| 100 | 212 | 413.6 | |
| 104 | 220 | 428 | |
| 110 | 230 | 446 | |
| 116 | 240 | 464 | |
| 121 | 250 | 482 | |
| 127 | 260 | 500 | |
| 132 | 270 | 518 | |
| 138 | 280 | 536 | |
| 143 | 290 | 554 | |
| 149 | 300 | 572 | |
| 154 | 310 | 590 | |
| 160 | 320 | 608 | |
| 166 | 320 | 626 | |
| 170 | 338 | 640 | |
| 171 | 340 | 644 | |
| 177 | 350 | 662 | |
| 182 | 360 | 680 | |
| 186 | 366 | 691 | |
| 188 | 370 | 698 | |
| 193 | 380 | 716 | |
| 198 | 388 | 730 | |
| 199 | 390 | 734 | |
| 204 | 400 | 752 | |
| 208 | 406 | 763 | |
| 210 | 410 | 770 | |
| 216 | 420 | 788 | |
| 221 | 430 | 806 | |
| 227 | 440 | 824 | |
| 232 | 450 | 842 | |

Water Data and Formulas

1 gallon water = 231 cubic inches = 8.333 pounds

1 pound of water = 27.7 cubic inches

1 cubic foot water = 7.5 gallons = 62.5 pounds (salt water weighs approximately 64.3 pounds per cubic foot)

Pounds per square inch at bottom of a column of water = height of column in feet x .434

Horsepower to Raise Water

If pumping liquid other than water, multiply the gallons per minute below by the liquids specific gravity

$$\text{Horsepower} = \frac{\text{gallons per minute} \times \text{total head in feet}}{3960}$$

Gallons Per Minute through a Pipe

GPM = .0408 x pipe diameter inches² x feet/minute water velocity

Weight of Water in a Pipe

Pounds water = pipe length feet x pipe diameter inches² x .34

(no losses included)

| Water Level (inches) | Gallons per Minute Discharge for a Given Nominal Pipe Diameter (inches) | | | | |
|-------------------------|--|------|------|------|------|
| | 5 | 6 | 8 | 10 | 12 |
| 5 | 163 | --- | --- | --- | --- |
| 6 | 195 | 285 | --- | --- | --- |
| 7 | 228 | 334 | 580 | --- | --- |
| 8 | 260 | 380 | 665 | 1060 | --- |
| 9 | 293 | 430 | 750 | 1190 | 1660 |
| 10 | 326 | 476 | 830 | 1330 | 1850 |
| 11 | 360 | 525 | 915 | 1460 | 2020 |
| 12 | 390 | 570 | 1000 | 1600 | 2220 |
| 13 | 425 | 620 | 1080 | 1730 | 2400 |
| 14 | 456 | 670 | 1160 | 1860 | 2590 |
| 15 | 490 | 710 | 1250 | 2000 | 2780 |
| 16 | 520 | 760 | 1330 | 2120 | 2960 |
| 17 | 550 | 810 | 1410 | 2260 | 3140 |
| 18 | 590 | 860 | 1500 | 2390 | 3330 |
| 19 | 620 | 910 | 1580 | 2520 | 3500 |
| 20 | 650 | 950 | 1660 | 2660 | 3700 |
| 21 | 685 | 1000 | 1750 | 2800 | 3890 |
| 22 | 720 | 1050 | 1830 | 2920 | 4060 |
| 23 | 750 | 1100 | 1910 | 3060 | 4250 |
| 24 | --- | 1140 | 2000 | 3200 | 4440 |

Measurement Information

Measures of Pressure

1 Pound Per Square Inch = 144 Pounds Per Square Foot = 0.068 Atmosphere = 2.042 Inches of Mercury at 62°F = 27.7 Inches of Water at 62°F = 2.31 Feet of Water at 62°F.

1 Atmosphere = 30 Inches of Mercury at 62°F = 14.7 Pounds Per Square Inch = 2116.3 Pounds Per Square Foot = 33.95 Feet of Water at 62°F.

1 Foot of Water at 62°F = 62.355 Pounds Per Square Foot = 0.433 Pounds Per Square Inch.

1 Inch of Mercury at 62°F = 1.132 Feet of Water = 13.58 Inches of Water = 0.491 Pounds Per Square Inch.

Column of Water 12 Inches High, 1 Inch in Diameter = .341 Pounds

Length Conversion Constants

Millimeters x .039370 = Inches

Meters x 39.370 = Inches

Meters x 3.2808 = Feet

Meters x 1.09361 = Yards

Kilometers x 3,280.8 = Feet

Kilometers x .62137 = Statute Mile

Kilometers x .53959 = Nautical Miles

Inches x 25.4001 = Millimeters

Inches x .0254 = Meters

Feet x .30480 = Meters

Yards x .91440 = Meters

Feet x .0003048 = Kilometers

Statute Miles x 1.60935 = Kilometers

Nautical Miles x 1.85325 = Kilometers

Weight Conversion Constants

Grams x .03527 = Ounces (Avd.)

Grams x .033818 = Fluid Ounces (Water)

Kilograms x 35.27 = Ounces (Avd.)

Kilograms x 2.20462 = Pounds (Avd.)

Ounces (Avd.) x 28.35 = Grams

Fluid Ounces (Water) x 29.57 = Grams

Ounces (Avd.) x .02835 = Kilograms

Pounds (Avd.) x .45359 = Kilograms

Fraction - Decimal Conversion Chart

| | <u>Inches</u> | <u>Millimeters</u> | | <u>Inches</u> | <u>Millimeters</u> |
|-----------------|-------------------------|--------------------|-----------------|-------------------------|--------------------|
| $\frac{1}{32}$ | $\frac{1}{64}$.015625 | .3969 | $\frac{17}{32}$ | $\frac{33}{64}$.515625 | 13.0969 |
| $\frac{1}{16}$ | $\frac{3}{64}$.046875 | 1.1906 | $\frac{9}{16}$ | $\frac{35}{64}$.546875 | 13.8907 |
| $\frac{3}{32}$ | $\frac{5}{64}$.078125 | 1.9844 | $\frac{19}{32}$ | $\frac{37}{64}$.578125 | 14.6844 |
| $\frac{1}{8}$ | $\frac{7}{64}$.109375 | 2.7781 | $\frac{5}{8}$ | $\frac{39}{64}$.609375 | 15.4782 |
| $\frac{5}{32}$ | $\frac{9}{64}$.140625 | 3.5719 | $\frac{21}{32}$ | $\frac{41}{64}$.640625 | 16.2719 |
| $\frac{3}{16}$ | $\frac{11}{64}$.171875 | 4.3656 | $\frac{11}{16}$ | $\frac{43}{64}$.671875 | 17.0657 |
| $\frac{7}{32}$ | $\frac{13}{64}$.203125 | 5.1594 | $\frac{23}{32}$ | $\frac{45}{64}$.703125 | 17.8594 |
| $\frac{1}{4}$ | $\frac{15}{64}$.234375 | 5.9531 | $\frac{3}{4}$ | $\frac{47}{64}$.734375 | 18.6532 |
| $\frac{9}{32}$ | $\frac{17}{64}$.265625 | 6.7469 | $\frac{25}{32}$ | $\frac{49}{64}$.765625 | 19.4470 |
| $\frac{5}{16}$ | $\frac{19}{64}$.296875 | 7.5406 | $\frac{13}{16}$ | $\frac{51}{64}$.796875 | 20.2407 |
| $\frac{11}{32}$ | $\frac{21}{64}$.328125 | 8.3344 | $\frac{27}{32}$ | $\frac{53}{64}$.828125 | 21.0345 |
| $\frac{3}{8}$ | $\frac{23}{64}$.359375 | 9.1282 | $\frac{7}{8}$ | $\frac{55}{64}$.859375 | 21.8282 |
| $\frac{13}{32}$ | $\frac{25}{64}$.390625 | 9.9219 | $\frac{29}{32}$ | $\frac{57}{64}$.890625 | 22.6220 |
| $\frac{7}{16}$ | $\frac{27}{64}$.421875 | 10.7157 | $\frac{15}{16}$ | $\frac{59}{64}$.921875 | 23.4157 |
| $\frac{15}{32}$ | $\frac{29}{64}$.453125 | 11.5094 | $\frac{31}{32}$ | $\frac{61}{64}$.953125 | 24.2095 |
| $\frac{1}{2}$ | $\frac{31}{64}$.484375 | 12.3032 | $\frac{63}{64}$ | $\frac{63}{64}$.984375 | 25.0032 |
| | | 12.7001 | 1 | 1.000 | 25.4001 |

A Guideline for Compound Selection for Use with Various Fluids and Chemicals

Note: The information contained in these tables was derived from several sources and is to be used as a general guide only. Compounds suitable for any specific application rests solely by the end user. Dixon Sanitary assumes no responsibility. All effect ratings assume static conditions at ambient temperatures.

A - satisfactory

B - fair

C - severe effect; except for some static applications

D - unsatisfactory

E - insufficient information

| fluid | material | | | | |
|----------------------------|----------|------|-----|------|----------|
| | Buna | EPDM | FKM | PTFE | Silicone |
| Acetaldehyde | D | A | D | A | B |
| Acetamide | A | A | B | A | B |
| Acetic Acid, 30% | B | A | B | A | A |
| Acetone | D | A | D | A | C |
| Acetophenone | D | A | D | A | D |
| Acetyl Chloride | D | D | A | A | C |
| Acetylene | A | A | A | A | B |
| Acrylonitrile | D | D | C | A | D |
| Adipic Acid | A | A | E | E | E |
| Ammonia Gas (cold) | A | A | D | A | A |
| Ammonium Chloride (aq) | A | A | A | A | E |
| Ammonium Hydroxide (conc.) | D | A | B | A | A |
| Ammonium Nitrate (aq) | A | A | E | A | E |
| Ammonium Nitrite (aq) | A | A | E | E | B |
| Ammonium Phosphate (aq) | A | A | E | A | A |
| Ammonium Sulfate (aq) | A | A | D | A | E |
| Amyl Acetate (Banana Oil) | D | A | D | A | D |
| Amyl Alcohol | B | A | B | A | D |
| Amyl Borate | A | D | A | A | E |
| Arsenic Acid | A | A | A | E | A |
| Arsenic Trichloride (aq) | A | C | E | E | E |
| Barium Chloride (aq) | A | A | A | A | A |
| Barium Hydroxide (aq) | A | A | A | A | A |
| Barium Sulfate (aq) | A | A | A | A | A |
| Barium Sulfide (aq) | A | A | A | A | A |
| Benzaldehyde | D | A | D | A | B |
| Benzene | D | D | A | A | D |
| Benzoic Acid | C | C | A | A | C |
| Benzoyl Chloride | D | D | A | A | E |
| Benzyl Alcohol | D | A | A | A | B |
| Benzyl Chloride | D | D | A | A | D |
| Boric Acid | A | A | A | A | A |
| Brine | A | A | A | A | A |
| Bromine, Anhydrous | D | D | A | E | D |
| Bromine Water | D | B | A | E | D |
| Butadiene | D | C | A | A | D |
| Butane | A | D | A | A | D |
| Butyl Acetate | D | C | D | E | D |

| fluid | material | | | | |
|---------------------------|----------|------|-----|------|----------|
| | Buna | EPDM | FKM | PTFE | Silicone |
| Butyl Acetyl Ricinoleate | C | A | A | E | E |
| Butyl Alcohol | A | B | A | A | B |
| Butyl Amine | C | B | D | E | D |
| Butyl Benzoate | D | B | A | E | E |
| Butyl Carbitol | D | A | A | A | D |
| Butyl Cellosolve | D | A | D | A | E |
| Butyl Oleate | D | B | A | E | E |
| Butyl Stearate | B | C | A | E | E |
| Butylene | B | D | A | E | D |
| Butyraldehyde | D | B | D | E | D |
| Carbolic Acid (Phenol) | D | B | A | A | D |
| Carbon Bisulfide | C | D | A | E | D |
| Carbon Dioxide | A | B | A | E | B |
| Carbonic Acid | B | A | A | E | A |
| Carbon Monoxide | A | A | A | A | A |
| Carbon Tetrachloride | C | D | A | A | D |
| Castor Oil | A | B | A | A | A |
| Cellosolve Acetate | D | B | D | A | D |
| China Wood Oil (Tung Oil) | A | C | A | A | D |
| Chlorine (wet) | D | C | A | A | D |
| Chlorine Dioxide | D | C | A | A | E |
| Chloroacetic Acid | D | A | D | A | E |
| Chloroacetone | D | A | D | E | D |
| Chlorobenzene | D | D | A | E | D |
| Chlorobromomethane | D | B | A | E | D |
| Chloroform | D | D | A | A | D |
| Chlorotoluene | D | D | A | E | D |
| Chrome Plating Solutions | D | C | A | A | C |
| Chromic Acid | D | B | A | A | B |
| Cod Liver Oil | A | A | A | A | B |
| Copper Acetate (aq) | B | A | D | E | D |
| Copper Chloride (aq) | A | A | A | A | A |
| Copper Cyanide (aq) | A | A | A | A | A |
| Copper Sulfate (aq) | A | A | A | A | A |
| Creosote (coal tar) | A | D | A | A | D |
| Cresylic Acid | D | D | A | E | D |
| Cyclohexane | A | D | A | A | D |
| Cyclohexanol | C | C | A | E | D |

| fluid | material | | | | |
|---------------------------------|----------|------|-----|------|----------|
| | Buna | EPDM | FKM | PTFE | Silicone |
| Cyclohexanone | D | B | D | E | D |
| Denatured Alcohol | A | A | A | A | A |
| Detergent Solutions | A | A | A | A | A |
| Diacetone Alcohol | D | A | D | A | B |
| Dibenzyl Ether | D | B | D | A | E |
| Dibenzyl Sebecate | D | B | B | E | C |
| Dibromoethyl Benzene (Alkazene) | D | D | B | E | D |
| Dibutyl Amine | D | C | D | E | C |
| Dibutyl Ether | D | C | C | E | D |
| Dibutyl Phthalate | D | B | C | A | B |
| Dibutyl Sebecate | D | B | B | E | B |
| O-Dichlorobenzene | D | D | A | E | D |
| Dichloro-Isopropyl Ether | D | C | C | E | D |
| Diethylamine | B | B | D | A | B |
| Diethyl Benzene | D | D | A | E | D |
| Diethyl Ether | D | D | D | E | D |
| Diethylene Glycol | A | A | A | E | B |
| Diethyl Sebecate | B | B | B | E | B |
| Diisobutylene | B | D | A | E | D |
| Diisopropyl Benzene | D | D | A | E | E |
| Diisopropyl Ketone | D | A | D | E | D |
| Diisopropylidene Acetone | D | C | D | E | D |
| Dimethyl Aniline (Xylidine) | C | B | D | E | D |
| Dimethyl Ether (Methyl Ether) | A | D | A | E | A |
| Dimethyl Formamide | B | B | D | E | B |
| Dimethyl Phthalate | D | B | B | E | E |
| Dinitrotoluene | D | D | D | E | D |
| Diocetyl Phthalate | C | B | B | E | C |
| Diocetyl Sebecate | D | B | B | E | C |
| Dioxane | D | B | D | E | D |
| Dioxolane | D | B | D | E | D |
| Dipentene | A | D | A | E | D |
| Diphenyl (Phenylbenzene) | D | D | A | E | D |
| Diphenyl Oxides | D | D | A | E | C |
| Dowtherm Oil | D | D | A | A | C |
| Ethane | A | D | A | A | D |
| Ethanolamine | B | B | D | E | B |
| Ethyl Acetate | D | B | D | E | B |
| Ethyl Acetoacetate | D | B | D | E | B |
| Ethyl Acrylate | D | B | D | E | B |
| Ethyl Alcohol | A | A | C | A | A |
| Ethyl Benzene | D | D | A | A | D |
| Ethyl Benzoate | D | A | A | A | D |
| Ethyl Cellosolve | D | B | D | E | D |
| Ethyl Cellulose | B | B | D | A | C |
| Ethyl Chloride | A | C | A | A | D |

| fluid | material | | | | |
|--------------------------------|----------|------|-----|------|----------|
| | Buna | EPDM | FKM | PTFE | Silicone |
| Ethyl Chlorocarbonate | D | B | A | A | D |
| Ethyl Chloroformate | D | B | D | E | D |
| Ethyl Ether | C | C | D | A | D |
| Ethyl Pentachlorobenzene | D | D | A | A | D |
| Ethylene | A | B | A | A | E |
| Ethylene Chloride | D | C | B | E | D |
| Ethylene Diamine | A | A | D | E | A |
| Ethylene Dichloride | D | C | A | A | D |
| Ethylene Glycol | A | A | A | A | A |
| Fluoroboric Acid | A | A | E | E | E |
| Freon 11 | B | D | A | A | D |
| Freon 12 | A | B | B | A | D |
| Freon 22 | D | A | D | A | D |
| Fumaric Acid | A | B | A | E | B |
| Gallic Acid | B | B | A | A | E |
| Gasoline | B | D | A | A | D |
| Glucose | A | A | A | A | A |
| Glycerin | A | A | A | A | A |
| Hexane | A | D | A | A | D |
| Hexyl Alcohol | A | C | A | A | B |
| Hydrazine | B | A | D | A | C |
| Hydrobromic Acid | D | A | A | E | D |
| Hydrocyanic Acid | B | A | A | A | C |
| Hydrofluoric Acid (conc.) cold | D | C | A | A | D |
| Hydrofluosilicic Acid | B | B | A | E | D |
| Hydrogen Gas | A | A | A | A | C |
| Hydrogen Peroxide (90%) | D | B | B | E | B |
| Hydrogen Sulfide (wet) cold | D | A | D | E | C |
| Hydroquinone | C | B | B | A | E |
| Iodoform | E | D | E | E | E |
| Isobutyl Alcohol | B | A | A | A | A |
| Isooctane | A | D | A | E | D |
| Isopropyl Acetate | D | B | D | A | D |
| Isopropyl Alcohol | B | A | A | A | A |
| Isopropyl Chloride | D | D | A | A | D |
| Isopropyl Ether | B | D | D | A | D |
| Kerosene | A | D | A | A | D |
| Lacquers | D | D | D | A | D |
| Lactic Acid (cold) | A | A | A | A | A |
| Lead Acetate (aq) | B | A | D | E | D |
| Lead Nitrite (aq) | A | A | E | E | B |
| Lime Bleach | A | A | A | E | B |
| Linoleic Acid | B | D | B | A | B |
| Maleic Acid | D | B | A | A | E |
| Malic Acid | A | B | A | E | B |
| Methane | A | D | B | A | D |
| Methyl Acetate | D | A | D | A | D |

| fluid | material | | | | |
|----------------------------|----------|------|-----|------|----------|
| | Buna | EPDM | FKM | PTFE | Silicone |
| Methyl Acrylate | D | B | D | A | D |
| Methylacrylic Acid | D | B | D | E | D |
| Methyl Alcohol | A | A | D | A | A |
| Methyl Bromide | B | D | A | A | E |
| Methyl Butyl Ketone | D | A | D | A | C |
| Methyl Cellosolve | C | B | D | A | D |
| Methyl Chloride | D | C | B | A | D |
| Methyl Cyclopentane | D | D | B | E | D |
| Methylene Chloride | D | C | B | E | D |
| Methyl Ether | A | D | A | A | A |
| Methyl Ethyl Ketone | D | A | D | A | D |
| Methyl Isobutyl Ketone | D | B | D | A | D |
| Methyl Methacrylate | D | C | D | A | D |
| Milk | A | A | A | A | A |
| Mineral Oil | A | C | A | C | B |
| Monoethanol Amine | D | A | D | E | B |
| Monomethyl Ether | A | D | A | E | A |
| Monovinyl Acetylene | A | A | A | A | B |
| Mustard Gas | E | A | E | E | A |
| Naphthalenic Acid | B | D | A | A | D |
| Natural Gas | A | D | A | A | A |
| Nickel Acetate (aq) | B | A | D | E | D |
| Nickel Chloride (aq) | A | A | A | A | A |
| Nickel Sulfate (aq) | A | A | A | A | A |
| Nitric Acid (dilute) | D | B | A | A | B |
| Nitrobenzene (Ligroin) | A | D | A | A | D |
| Nitroethane | D | B | D | A | D |
| Nitrogen Tetroxide | D | C | D | A | D |
| Octachlorotoluene | D | D | A | E | D |
| Octadecane | A | D | A | E | D |
| N-Octane | B | D | A | A | D |
| Octyl Alcohol | B | C | A | A | B |
| Oleic Acid | C | D | B | A | D |
| Oxalic Acid | B | A | A | E | B |
| Oxonia | D | A | A | E | A |
| Oxygen - Cold | B | A | A | A | A |
| Ozone | D | A | A | E | A |
| Palmitic Acid | A | B | A | E | D |
| Perchloric Acid | D | B | A | E | D |
| Phenyl Ethyl Ether | D | D | D | E | D |
| Phosphoric Acid - 20% | B | A | A | E | B |
| Phosphorus Trichloride | D | A | A | A | E |
| Piperidine | D | A | D | E | D |
| Polyvinyl Acetate Emulsion | E | A | E | E | E |
| Potassium Acetate (aq) | B | A | D | E | D |
| Potassium Chloride (aq) | A | A | A | A | A |
| Potassium Cyanide (aq) | A | A | A | A | A |

| fluid | material | | | | |
|---------------------------|----------|------|-----|------|----------|
| | Buna | EPDM | FKM | PTFE | Silicone |
| Potassium Nitrate (aq) | A | A | A | A | A |
| i-Propyl Acetate | D | B | D | E | D |
| Propyl Nitrate | D | B | D | E | D |
| Propylene | D | D | A | A | D |
| Pyridine | D | B | D | E | D |
| Salicylic Acid | B | A | A | E | E |
| Silicone Oils | A | A | A | A | C |
| Soap Solutions | A | A | A | A | A |
| Sodium Acetate (aq) | B | A | D | E | D |
| Sodium Bicarbonate (aq) | A | A | A | A | A |
| Sodium Borate (aq) | A | A | A | A | A |
| Sodium Chloride (aq) | A | A | A | A | A |
| Sodium Hydroxide (aq) | B | A | B | A | B |
| Sodium Nitrate (aq) | B | A | E | E | D |
| Sodium Peroxide (aq) | B | A | A | E | D |
| Soybean Oil | A | C | A | A | A |
| Steam, under 300°F | D | A | D | A | C |
| Stearic Acid | B | B | E | A | B |
| Stoddard Solvent | A | D | A | A | D |
| Sulfur Chloride (aq) | C | D | A | B | C |
| Sulfuric Acid (dilute) | C | B | A | E | D |
| Sulfurous Acid | B | B | A | A | D |
| Tannic Acid | A | A | A | A | B |
| Tartaric Acid | A | B | A | A | A |
| Tetrachloroethylene | D | D | A | A | D |
| Toluene | D | D | A | A | D |
| Triethanol Amine | B | A | D | A | E |
| Trioctyl Phosphate | D | A | B | E | C |
| Tung Oil (China Wood Oil) | A | C | A | A | D |
| Turpentine | A | D | A | A | D |
| Vegetable Oils | A | C | A | A | B |
| Vinegar | B | A | A | A | A |
| Whiskey, Wines | A | A | A | A | A |
| White Pine Oil | B | D | A | E | D |
| Zinc Chloride (aq) | A | A | A | A | A |

Glossary of Terms

3A Symbol for 3A Sanitary Standards Symbol Administrative Council. The 3A Sanitary Standard were created by the dairy industry as a voluntary benchmark for product performance and sanitary safety. The standard, collaboratively developed by a group of processors, suppliers, regulatory officials and sanitation specialists, is accepted by federal, state and local regulatory authorities. Our products have earned the 3A symbol through third party verification. This assessment makes certain each product conforms in all respects to the published standards. Dixon Sanitary is proud to be a participant in the 3A program.

3A Finish Product surface finish equivalent to 150 grit or better OD, and 180 grit or better ID. A maximum of Ra 32 microinch (0.8 micron) is indicated.

ABS (Acrylonitrile-butadiene-styrene) a thermoplastic resin with an excellent resistance to acids, bases, salts and some solvents. It is heat resistant to 230°F.

AC Alternating current. The form in which electricity is delivered to businesses and residences.

AFD See *VFD*

ANSI American National Standards Institute, Inc.

ASME American Society of Mechanical Engineers

ASTM American Society for Testing and Materials

Absolute Pressure Atmospheric pressure added to gauge pressure.

Acme Thread A flat grooved helical ridge on a nut or bolt. This typically has a 29° included angle. Used on bevel seat and John Perry fittings

Adapter Connects the pump fluid end to the motor

Affinity Laws Used to predict how capacity, head and horsepower are affected by changes in the centrifugal pump impeller diameter or impeller speed.

Ambient Temperature The temperature at a point or area expressed as an average of the surrounding areas or materials. Ambient surface temperature is generally given to be 70°F to 80°F – an average of daily and seasonal variations.

Anneal Stress relief of stainless steel, a heat treatment to remove the stresses generated in forming and welding operations. This heat treatment is best done under controlled atmosphere or vacuum to maintain the mill finish. The fittings are not quenched, as in solution annealing; this would reintroduce residual stresses. Done correctly, parts are processed to provide minimum residual stresses and full corrosion resistance.

Atmospheric Pressure Force per unit area exerted against a surface by the weight of the air above that surface. At sea level, atmospheric pressure is 14.7 PSI.

Automatic Welding welding with equipment that performs the welding operation without adjustment of the controls by a welding operator. The equipment may or may not perform the loading and unloading of the work (see also machine welding).

BEP Best Efficiency Point. The point where the power coming out of the pump (water horsepower) is the closest to the power coming into the pump (brake horsepower) from the motor. This is also the point where there is no radial deflection of the shaft caused by unequal hydraulic forces acting on the impeller. Referred to as the sweet spot on the curve.

Glossary of Terms

BHP Brake Horsepower. The actual amount of horsepower being consumed by the pump as measured on a pony brake or dynamometer. This is not the horsepower used by the motor or driver.

Bioprocessing the creation of a product utilizing a living organism

Bioprocessing Equipment equipment, systems or facilities used in the creation of products utilizing living organisms

Bevel Seat Ferrules A set of plain (male) and externally threaded (female) bushings with matching bevel angles that produce a leak-proof seal when connected with a hex union nut. The threads used are Acme form.

Bright Anneal Annealing in a protective medium to prevent scaling and discoloration of the surface.

Bright Annealed Finish A silvery satin surface, approximating the mill finish of stainless steel.

Buna Synthetic rubber, a copolymer of acrylonitrile and butadiene.

Burst Pressure The pressure at which rupture occurs.

CCW Counter clockwise

C-Face/Frame The NEMA standard for motor mounting dimensions.

C_v The flow rate (in US gal/min) of pure water at 60°F passing through a valve when the valve is fully opened and the pressure differential between the two ends of the valve is 1 PSI.

- V = max. flow (in US gal/min)
- G = specific gravity (1 for water)
- P1 = inlet side pressure (psi)
- P2 = outlet side pressure (psi)

CW Clockwise

Capacity Flow rate normally measured in gallons per minute (GPM).

Carbon/Graphite A common mechanical seal face material chemically inert to most fluids with the exception of oxidizers, bleaches, halogens and a few other fluids.

Cavitation When the NPSH required by the pump is greater than the NPSH available in the system, cavitation occurs. Vapor is formed and moves along with the stream. These vapor bubbles or “cavities” collapse when they reach regions of higher pressure on their way through the pump cavities are forming in the liquid being pumped. When these cavities form at the suction of the pump several things happen all at once:

- Loss in capacity.
- Loss of head (pressure).
- The efficiency drops.
- The cavities or bubbles will collapse when they pass into the higher regions of pressure causing noise, vibration and damage to many of the components.

Centipoise Metric unit of viscosity

Glossary of Terms

Centistoke The kinematic unit of viscosity. Viscosity in centipoise divided by the liquid density at the same temperature gives kinematic viscosity in centistokes.

Centrifugal Pump Moves liquid with centrifugal force.

Ceramic A hard, chemically inert seal face material that has very high compressive resistance.

Clamp A device used to join mechanical parts, fittings, ensuring a quick leak-proof connection and enabling easy tear down.

Clean-In-Place (CIP) internally cleaning a piece of equipment without relocation or disassembly. The equipment is cleaned but not necessarily sterilized. The cleaning is normally done by acid, caustic or a combination of both with water-for-injection (WFI) rinse.

Close Coupled The pump impeller is mounted directly to the motor shaft or stub shaft that is mounted directly on the motor shaft. There is no separate bearing case.

Cold Flow Continued deformation or movement of rubber or PTFE under stress.

Compression Set The deformation that remains in rubber or PTFE after it has been subjected to and released from stress such as a clamp. The longer the stress is maintained the more definitive the deformation.

Controlled Sulfur in weld ends of 316L materials used in BPE installations, the sulfur content must be between .005% and .017% to assure better orbital welding.

Corrosion a chemical or electrochemical interaction between a metal and its environment, which results in changes in the property of the metal. This may lead to impairment of the function of the metal, the environment and/or the technical system involved.

Cycle See Hertz

DC Direct current. The movement of electrical charge is only in one direction.

DPDT Double pole-double throw, a type of limit switch.

Dead Head The condition of a centrifugal pump running with a closed discharge line.

Dilatent Fluid Viscosity increases with shear.

Discharge Head The outlet pressure of a pump.

Double-Acting (DA) Pneumatic Actuator Any pneumatic actuator which uses air to drive the actuator output shaft in both the open and close direction. The air supply is piped to one side of a piston-drive or a diaphragm while the air contained on the opposing side is exhausted.

Dry Running Occurs when a pump is running with insufficient or no fluid in the pump.

Durometer An instrument for measuring the hardness of rubber by resistance to penetration.

Glossary of Terms

Durometer Hardness A numerical value which indicates the resistance to indentation of the blunt indenter of the durometer.

Dynamic Head (System Head) A moving fluid exerts a pressure higher than the static pressure due to the kinetic energy of the fluid.

EPDM Ethylene propylene diene monomer, a synthetic rubber.

Efficiency Power out of the pump divided by power into the pump.

Efficiency Formula:
$$\frac{\text{TDH} \times \text{GPM}}{\text{HP} \times 3960}$$

Elastomer Any of various elastic substances resembling rubber.

Elastomeric Material a material that can be stretched or compressed repeatedly and, upon immediate release of stress, will return to its approximate original size.

Electropolishing a controlled electrochemical process utilizing acid electrolyte, DC current, anode and cathode to smooth the surface by removal of metal.

Electric Actuator An electro-mechanical device used to open and close or modulate a valve. The actuator (which is mounted and coupled to the valve in similar fashion as the pneumatic actuator), operates the valve using an electric motor driving a gear train. While the basic function of the electric actuator is similar to the pneumatic, there are distinct differences in the application and flexibility of the two types, and these differences should be considered to select the proper type.

Electric Fail-safe Actuator Electrically driven actuator that contains an internal spring to close the valve on loss of electricity.

Encapsulation The enclosing of material by an encapsulant for protective purposes. In a ball valve the ball is encased in PTFE, for example, preventing the material flowing through the valve from getting behind the ball causing contamination problems.

Eye of the Impeller The center of the impeller where the fluid enters.

Fail-Closed Spring return pneumatic actuator is applied to the valve such that the spring will drive the valve to the closed position upon loss of air (may be termed air-to open).

Fail-Open Spring return pneumatic actuator is applied to the valve such that the spring will drive the valve to the open position upon loss of air (may be termed air-to close).

Ferrule A bushing used to secure a tube joint. A special bushing designed for welding to the end of tubing. Two ferrules and a gasket make a leak-proof connection when used with the complimentary clamps.

Fitting A small part of an apparatus (may be detachable).

Flooded Suction When the liquid source is higher than the pump and the liquid flows to the pump by gravity. Preferable for centrifugal pump installations.

Glossary of Terms

Flow See *capacity*

Flow Coefficient (C_v) The flow in U.S. gallons of water (at 60°F) that will pass through the valve in one minute with a differential pressure across the valve of 1 PSI.

Fluid End The portion of the pump that comes in contact with the fluid being pumped.

Fluorocarbon Elastomer known as FKM a registered trademark of DuPont. (FKM is generic equivalent)

Fluoropolymer polymer material having a carbon chain either partially or completely bonded to fluorine atoms. FKM (FKM) and PTFE are examples of this material type.

Foot Valve A type of check valve. Used at the point of the liquid intake to retain liquid in the system, preventing the loss of prime when the liquid source is lower than the pump.

Frame See *C-Face*

Friction Head The pressure needed to overcome the resistance to the flow in the pipe and fittings.

Friction Loss The part of the total loss that occurs as the fluid flows through straight pipe.

Gas Tungsten-Arc Welding (GTAW) an arc welding process that produces coalescence of metals by heating them with an arc between a tungsten (non-consumable) electrode and the work. Shielding is obtained from a gas or gas mixture. (This process is sometimes called TIG welding, a non-preferred term.) GTAW may be performed by adding filler material to the weld or by a fusion process in which no filler is added.

Gasket static seal made from deformable material compressed between two mating surfaces.

GPM Gallons per minute

Hard Face A seal face either rotating or stationary. The most common materials are silicon carbide, ceramic and tungsten carbide.

Head The equivalent height of the liquid. 20°C water is used as the standard where 33.9ft of water equals one atmosphere (14.7psi). The pressure in a column of liquid. Pressure will increase as the height of the column increases. Head refers to the height in feet; pressure refers to the PSI. Centrifugal pump discharge is measured in head.

Heat Number an alphanumeric identification of a stated tonnage of metal obtained from a continuous melting in a furnace.

Heat-Affected Zone that portion of the base metal that has not been melted, but whose microstructure or mechanical properties have been altered by the heat of welding or cutting.

Hertz Frequency (cycles per seconds)

Hex Union Nut An internally acme-threaded six-sided connector used to assemble some fittings.

Horsepower Unit for measurement of power or rate of work. One horsepower = 33,000 foot pounds per minute.

Glossary of Terms

Hygienic Clamp Joint a tube outside diameter union consisting of two neutered ferrules having flat faces with a concentric groove and mating gasket that is secured with a clamp, providing a non-protruding, recessless product contact surface.

ISO 5211 International standard for actuator and valve interface

Impeller A rotor or rotor blade attached to the end of the stub shaft imparting energy from the motor to the fluid being pumped

Internal Expansion (IX) A method using a stem and a ferrule to assemble ends on a hose. Upon assembly of the parts, a plug, sometimes known as a bullet, or a set of blades (fingers) is used to expand the stem diameter to a new larger size where the serrations on the stem are forced into the hose and this, in turn, forces the hose cover into the serrations of the ferrule. This provides a permanent assembly.

Kinetic Energy Created by a centrifugal pump when the velocity of the fluid is accelerated to the outer rim of the impeller. The amount of kinetic energy given to the fluid corresponds to the velocity at the impeller vane tip. The faster the impeller revolves or the bigger the impeller, the greater the energy given to the fluid. This kinetic energy is then harnessed and slowed by the resistance created by the pump volute.

Laminar Flow Sometimes known as streamline flow, occurs when a fluid flows in parallel layers, with no disruption between the layers. In fluid dynamics, laminar flow is a flow regime characterized by high momentum diffusion and low momentum convection. It is the opposite of turbulent flow. In nonscientific terms laminar flow is "smooth", while turbulent flow is "rough." Laminar flow is common in viscous fluids, especially those moving at low velocities.

Lubricant Any fluid that will maintain a film thickness of one micron or more at its operating temperature and load.

Machine Welding welding with equipment that performs the welding operation under the constant observation and control of a welding operator. The equipment may or may not perform the loading and unloading of the works. (see also automatic welding).

Manual Override Any mechanical device by which an automated valve may be manually operated. On smaller actuators, this may simply be wrench flats on the output shaft of the actuator. Larger actuators may require a more sophisticated system, such as de-clutchable hand wheels, manual gears, jack screws or hydraulic hand pump over-ride.

Manual Welding welding in which the entire welding operation is performed and controlled by hand.

Maximum-Shut-Off Pressure (Delta-P) The pressure of the media flowing into the valve against which the valve will have to close.

Meandering of or pertaining to a weld bead that deviates from side to side across the weld joint rather than tracking the joint precisely. Note the controlled sulfur content in BPE weld material.

Mechanical Seal A positive sealing device used to seal all fluids. Consists of two basic parts, a rotating element attached to the pump shaft and a stationary element attached to the pump casing. Each of these elements has a highly polished sealing surface. The polished faces of the rotating and stationary elements come into contact with each other to form a seal that prevents leakage along the shaft.

Media The material flowing through the valve.

Glossary of Terms

Modulating Service Proportional positioning of a valve between the open and closed position. Used for flow control processes.

MTR Material Test Report

NAMUR International Standard of Interface for actuator accessories connections.

NEMA National Electrical Manufacturers Association

NEMA Rating National electrical code ratings for electrical component enclosures.

NEMA 4 Weather-proof enclosure suitable for indoor/outdoor applications to protect from windblown dust, rain or hose-directed water.

NEMA 4x Offers the same protection as NEMA 4 with the addition of corrosion resistance.

NEMA 6 Enclosure that may be submerged up to six feet for 30 minutes.

NEMA 7 Enclosure for hazardous locations must be capable of withstanding an internal explosion of gases so as not to ignite an external gas-air mixture.

NPSH(a) Net positive suction head available is the amount of fluid pressure you have at the suction side of the pump due to atmospheric pressure, pressurized tank or other means.

NPSH(r) Net positive suction head required is the amount of fluid pressure required at the suction to prevent cavitation. This requirement is found on pump curves produced by each pump manufacturer.

Net Positive Suction Head Amount of energy in the liquid at the pump datum. It must be defined to have a meaning, as either available or required NPSH.

Neoprene Synthetic rubber, chemically and structurally similar to natural rubber.

Nick a surface void anomaly caused by material removal or compression from the surface, whose bottom surface is usually irregular.

Nominal Size A dimensional value assigned for the purpose of convenient designation.

ODP Open Drip Proof motor enclosure

On-Off Service When the valve is being used to start or stop flow by being cycled to the full open or full closed position

Operating Pressure The pressure at which system functions. Also known as working pressure.

Orbital Welding automatic or machine welding of tubes or pipe in-place with the electrode rotating (or orbiting) around the work. Orbital welding can be done with the addition of filler material or as a fusion process without the addition of filler.

PSI Pounds per square inch

Glossary of Terms

PSIG Pounds per square inch gauge

PTFE Tetrafluoroethylene, is a high performance thermo plastic polymer that has excellent dielectric strength, chemical and temperature resistance.

Passivation removal of exogenous iron or iron from the surface of stainless steels and higher alloys by means of a chemical dissolution, most typically by a treatment with an acid solution that will remove the surface contamination and enhance the formation of the passive layer.

Pipe pipe size is determined by diameter and either schedule, series or SDR. For bioprocessing equipment, pipe does not include tube.

Pipe Friction Loss The positive head (fluid pressure) loss due to friction resistance between the pipe walls and the moving liquid.

Pit a small surface void resulting from a localized loss of base material.

Pneumatic Actuator An air operated mechanical device used to open and close or modulate a valve. The actuator, which is mounted to the valve by a bracket and coupled to the stem, is designed to convert air pressure into mechanical force sufficient to operate the valve.

Polish To make smooth and shiny by rubbing. Fittings may be machine polished to 180 grit finish.

Polypropylene A lightweight synthetic plastic.

Positive Displacement Pump A pump that causes a fluid to move by trapping a fixed amount of it then forcing (displacing) that trapped volume into the discharge pipe.

Pressure The force per unit area applied on a surface in a direction perpendicular to that surface.

Pressure Head Must be considered when a pumping system either begins or terminates in a tank which is under some pressure other than atmospheric. The pressure in such a tank must first be converted to feet of liquid. A vacuum in the suction tank or a positive pressure in the discharge tank must be added to the system head, whereas a positive pressure in the suction tank or vacuum in the discharge tank would be subtracted. The following is a handy formula for converting inches of mercury vacuum into feet of liquid.

$$\text{Vacuum, in. of Hg} \times 1.13$$

$$\text{Vacuum, ft of liquid} = \text{Sp. Gr.}$$

The above forms of head, namely static, friction, velocity, and pressure, are combined to make up the total system head at any particular flow rate.

Pressure Rating pressure at which a system is designed to operate, allowing for applicable safety factors.

Prime. A charge of liquid required beginning the pumping action of centrifugal pumps when the liquid source is lower than the pump.

Profilometer an instrument for the measurement of the degree of surface roughness.

Glossary of Terms

R_a log of the arithmetic mean of the surface profile.

RPM Revolutions per minute

SPDT Single pole double throw, a type of limit switch.

SPST Single pole single throw, a type of limit switch.

STP Standard conditions for temperature and pressure. In physical sciences, STP, are standard sets of conditions for experimental measurements, to allow comparisons to be made between different sets of data. National Institute of Standard and Technology's (NIST) version is a temperature of 20°C (293.15 K, 68°F) and an absolute pressure of 101.325 kPa (14.696 PSI, 1 atm).

Sanitary (hygienic) Weld generally considered to be a groove weld in a square butt joint made by the GTAW (or plasma) process as a fusion weld without the addition of filler material. A sanitary weld must be completely penetrated on the weld ID, with little or no discoloration due to oxidation and be otherwise without defects that would interfere with maintenance in a clean and sterile condition.

Santoprene A thermoplastic elastomer, a rubber-like material that complies to FDA requirements.

Schedule dimensional standard for pipe as defined by ASTM.

Seal Face surface point on which a seal is achieved.

Service Temperature The maximum and minimum temperature of the media.

Shut-Off Head The maximum head that a pump can generate.

Silicon Carbide Synthetic mineral of silicon and carbide. It is used in abrasives, refractories, ceramics and numerous high performance applications.

Silicone Dimethyl silicone, a synthetic rubber.

Sintering Heat process in which powdered metal particles are heated to near melting point, fusing the metal granules together.

Specific Gravity A measure of the weight of a liquid in relation to that of water. If the liquid in question will float on water then the specific gravity will be less than one and if the liquid will sink when mixed with water the specific gravity will be greater than one.

Spring-Return (SR) Pneumatic Actuator Any pneumatic actuator which contains a single coil spring or group of coil springs to oppose the movement of a piston or diaphragm. As air moves the piston or diaphragm the spring is compressed. When the air supply is discontinued and exhausted, the spring extends and drives the piston or diaphragm in the opposite direction. This type of actuator is normally used for applications where it is necessary for the valve to move to the open or close position upon loss of air supply, whether by design or by system failure.

Static Discharge Head The vertical distance in feet between the pump center line and the point of free discharge or the surface of the liquid in the discharge tank.

Glossary of Terms

Static Head The pressure at any point in a liquid can be thought of as being caused by a vertical column of the liquid which, due to its weight, exerts a pressure equal to the pressure at the point in question. The height of this column is called the "static head" and is expressed in terms of feet of liquid.

Stem Torque The force required at the valve stem to open or close the valve against system pressure and service conditions.

Suction Head Exists when the source of supply is above the center line of the pump. Thus the static suction head is the vertical distance in feet from the center line of the pump to the free level of the liquid to be pumped.

Suction Lift Exists when the source of supply is below the center line of the pump. Thus the static suction lift is the vertical distance in feet from the center line of the pump to the free level of the liquid to be pumped.

Supply Pressure The plant air supply pressure available to operate a pneumatic actuator. (plant air)

Surface Finish all surfaced as defined by Part SF of the current ASME BPE Standard and/or the owner/user or manufacturer and referred in R_a $\mu\text{in.}$ or $\mu\text{m.}$

Surge Also known as water hammer. A rapid rise or decrease of internal pressure. Surge conditions occur for various reasons, typically, but not limited to: start and stop sequences.

System Curve A description of what the pump is required to perform. The pump will pump where the system curve intersects the pump curve.

System Head The head caused by friction in the piping valves and fittings.

TDH Total dynamic head. A combination of the suction head and the head being produced by the pump. Discharge reservoir pressure head + static discharge head + velocity head at pump discharge + total friction head in discharge line.

TEFC Totally Enclosed Fan Cooled motor enclosure.

TENV Totally Enclosed Non Ventilated motor enclosure.

Thixotropic Fluid Viscosity thins with shear.

Torque A twisting or turning force. Usually measured in inch pounds (in-lbs) or foot pounds (ft-lbs). (Force through a distance.)

Total Dynamic Discharge Head (hd) The static discharge head plus the velocity head at the pump discharge flange plus the total friction head in the discharge line. The total dynamic discharge head, as determined on pump test, is the reading of a gauge at the discharge flange, converted to feet of liquid and corrected to the pump center line, plus the velocity head at the point of gauge attachment.

Total Dynamic Suction Head (hs) The static suction head plus the velocity head at the pump suction flange minus the total friction head in the suction line. The total dynamic suction head, as determined on pump test, is the reading of the gauge on the suction flange, converted to feet of liquid and corrected to the pump centerline, plus the velocity head at the point of gauge attachment.

Glossary of Terms

Total Dynamic Suction Lift (hs) The static suction lift minus the velocity head at the pump suction flange plus the total friction head in the suction line. The total dynamic suction lift, as determined on pump tests, is the reading of a gauge on the suction flange, converted to feet of liquid and corrected to the pump centerline, minus the velocity head at the point of gauge attachment.

Total Head (H) or **Total Dynamic Head** The total dynamic discharge head minus the total dynamic suction head or plus the total dynamic suction lift.

$$TDH = h_d + h_s \text{ (with suction lift)}$$

$$TDH = h_d - h_s \text{ (with a suction head)}$$

Total Static Head The vertical distance in feet between the free level of the source of supply and the point of free discharge or the free surface of the discharge liquid.

Tube A hollow cylinder especially one that conveys a fluid. For sanitary applications a thin wall is implied.

Tube Fitting A length of tubing formed into a usable shape either welded to an apparatus or welded to ferrules for use in an apparatus.

Tubing A piece or length of tube.

Tumble Polish Surface A uniform finish applied by vibratory equipment to stainless steel, varying from matte grey to bright, depending on media used. This process may cause work hardening on the surfaces.

Tungsten Carbide A common hard face seal material available in several grades depending upon hardness and corrosion resistance. Cobalt and nickel are the two most common binders.

Turbulent Flow Irregular flow that is characterized by tiny whirlpool regions. The velocity of this fluid is definitely not constant at every point.

VFD Variable Frequency Drive. Used to vary the frequency going into a motor, thus varying the speed at which the motor runs.

Vapor Pressure Below this pressure the liquid being pumped will vaporize.

Vaporize The fluid passes from a liquid to a gaseous state.

Velocity A measurement of the speed of the liquid in the system; Velocity = distance/time.

Velocity Head (hv) The energy of a liquid as a result of its motion at some velocity V. It is the equivalent head in feet through which the water would have to fall to acquire the same velocity, or in other words, the head necessary to accelerate the water. Velocity head can be calculated from the following formula:

$$H = \frac{V^2}{2g}$$

$$\text{where } g = 32.2 \text{ ft/second}^2$$

$$V = \text{liquid velocity in feet per second}$$

The velocity head is usually insignificant and can be ignored in most high head systems. However, it can be a large factor and must be considered in low head systems

Glossary of Terms

Viscosity Resistance to flow. Internal friction of a liquid tending to reduce flow.

FKM A DuPont manufactured elastomer widely used in the sealing industry. FKM is the generic equivalent.

Volute (casing) Casing surrounding the pump impeller. The volute converts velocity energy to pressure energy.

WOG Water, Oil, Gas. Pressure rating for valves handling these products. This does not include steam.

WHP Water Horse Power. The calculated horse power coming out of the pump.

$$\text{WHP} = \frac{\text{head} \times \text{gpm}}{3960}$$

Washdown Duty Motor enclosure that is suitable for a liquid washdown atmosphere.

Water Hammer See *surge*

Waviness undulations or rippling of the surfaces.

Welding Join two (or more) pieces of material by applying heat to produce a localized union through fusion across the interface. For sanitary fittings, a ferrule is attached to the ends of a tube fitting by TIG welding without the addition of filler metal. Tube fittings can then be joined with clamps and gaskets to form parts of a system.

Work (Strain) Hardening. An increase in hardness and strength caused by plastic deformation at temperatures below the annealing ranges.

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