

# SURE SEAL



## Sure Seal LBF Lined Butterfly Valve

Sure Seal, part of OPW Fluid Transfer Group, LBF Lined Butterfly Valves are designed and engineered for demanding applications in corrosive, sanitary and ultra-pure processes. Unique benefits in design and a wide range of options allows the Sure Seal LBF lined butterfly valve to provide superior service to the chemical and industrial market. Our ISO 9001 quality system insures that each valve Sure Seal supplies exceeds your application expectations.

# Sure Seal's LBF Series Lined Butterfly Valves



**Design Criteria** - All Sure Seal LBF series butterfly valves conform to the following specifications: PED 97/23/EC, ISO 5752/20 (5752/25 for 14"), ISO 5211 (Mounting Flanges), EN-12266-1, API 609, MSS SP-67, MSS-SP25 and ASME B16.5. Valves are also available in conformance with the PN10 requirements.

**Bubble Tight Shut-Off** - All Sure Seal valves feature a non-wetted, 360° radially-loaded, elastometric energizer that is engineered to provide uniform pressure to the outer circumference of the liner and disc. This energizer ensures **absolute bubble tight shut-off**. Each valve is individually tested and certified for 100% bubble tight shut-off per the EN558-1/T5 and API 598 criteria.

**Mechanical Shaft Sealing Mechanism** - Sure Seal's state-of-the-art mechanical shaft-sealing mechanism features an industry-proven, three-point, dynamically-loaded Belleville spring technology. The primary seal is created by Belleville springs exerting an axial force at the liner/disc hub interface. The secondary seal is created at the PFA encapsulated stem/PTFE collar interface, and the tertiary seal is created by a radially loaded Fluorocarbon O-ring that is strategically placed around the top of the PTFE extended collar. Sure Seal's unique, spherically-shaped disc and liner eliminates the axial cold flow and deformation problems typical of conventional lined butterfly valves, resulting in a reliable, maintenance-free, environmentally safe stem seal.

**Disc Swing Clearance** - The disc swing of all Sure Seal lined high-performance butterfly valves is compatible with PTFE and other fluoropolymer-lined piping systems as well as other metallic, lined and non-metallic piping systems. This results in the elimination of spacers during installation.

**ISO 5211 Mounting Flange** - Sure Seal's ISO 5211 mounting flange allows the direct mounting of actuators; thus, eliminating hysteresis and costly automation hardware.

**Permeation Resistance** - Sure Seal's ProTef proprietary lining and molding technology features a minimum lining thickness of 3mm and was developed to provide long-term resistance to permeation, absorption, and swelling. Our lining technology features a substantially greater crystallinity, density and lower melt viscosity during the sintering process than conventional fluoropolymer-lined valves. This results in lower rates of permeation, diffusion and absorption. The industry-proven results of our ProTef technology include long-term, maintenance-free operation in harsh environments such as halogens, chlorinated organics and hydrochloric acid applications.

**Reduced Liner Cold Flow** - Sure Seal's mechanically enhanced ProTef liner technology is specifically engineered to reduce the effects of cold flow; thus, facilitating the installation of our valves. The ProTef technology features superior joint, creep and vacuum resistance, especially at elevated temperatures, placing Sure Seal valves in a performance class of its own. The LBF design features spherically-molded and machined, wide-liner sealing surfaces that are securely anchored within the faces of the valve body by a series of concentric serrations, resulting in the reduction of radial cold flow.

**Robust Body Construction** - The robust body construction of the Sure Seal LBF valve is designed to be equally as strong as the PN10/16 counter flanges it will be fastened to when used. Our technically-superior design eliminates the deflection problems experienced by conventional lined butterfly valves, resulting in improved flange sealing properties. Valve bodies meet the minimum wall thickness requirement specified in ASME B16.42.

**External Corrosion Protection** - Polyester Polyurethane powder coating. Test conforms to ASTM B117.

**Chlorine Valves** - Sure Seal LBF series lined butterfly valves are ideally suited for chlorine gas service. Valves for these services are thoroughly cleaned, degreased and packaged per our factory certified procedures.

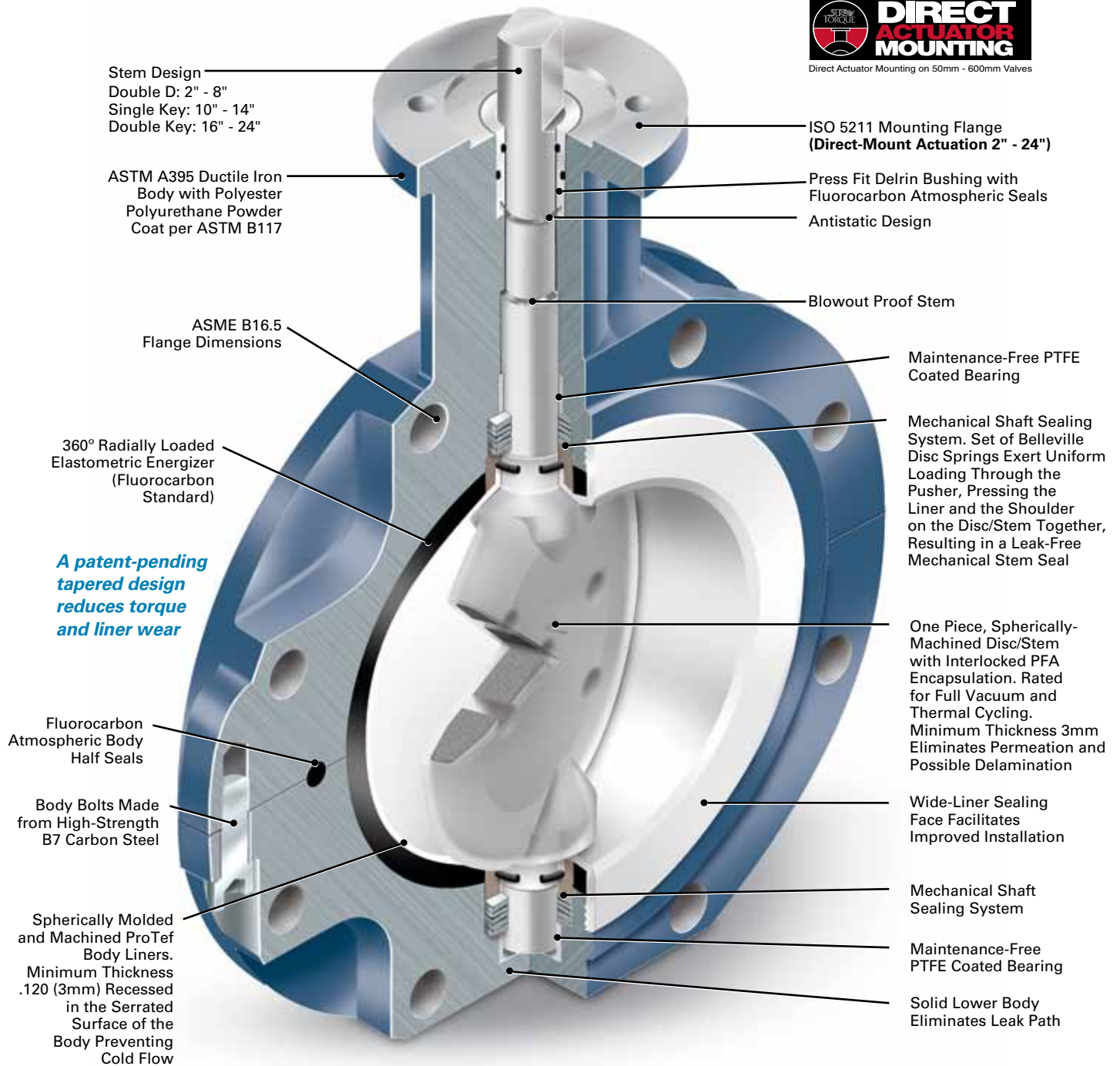
## Sure Seal's Mission

Sure Seal specializes in the design and manufacture of industrial valves and components for any application requiring the safe and efficient processing, movement, control and storage of dry bulk and liquid materials. Sure Seal products are used in the chemical, food processing, pulp and paper, waste water, high-purity liquids, brewery, steel processing, marine barge, ship building, dry bulk transportation, and pharmaceutical industries, among others, and for pneumatic tank trailers, railcars as well.

Known around the world for their quality, reliability and exceptional performance, Sure Seal products include: butterfly valves, lined ball valves, actuators, aeration systems, relief valves, hopper tees, couplers, bellows seal valves, high-purity butterfly valves, sample valves and sanitary valves.



Sure Seal's LBF Series Lined Butterfly Valves feature "The Most Effective Technology" available for controlling and isolating corrosive, high-purity and abrasive process media. Our valves incorporate the absolute highest standards of quality, performance, safety, and reliability that is required by the most demanding industries.

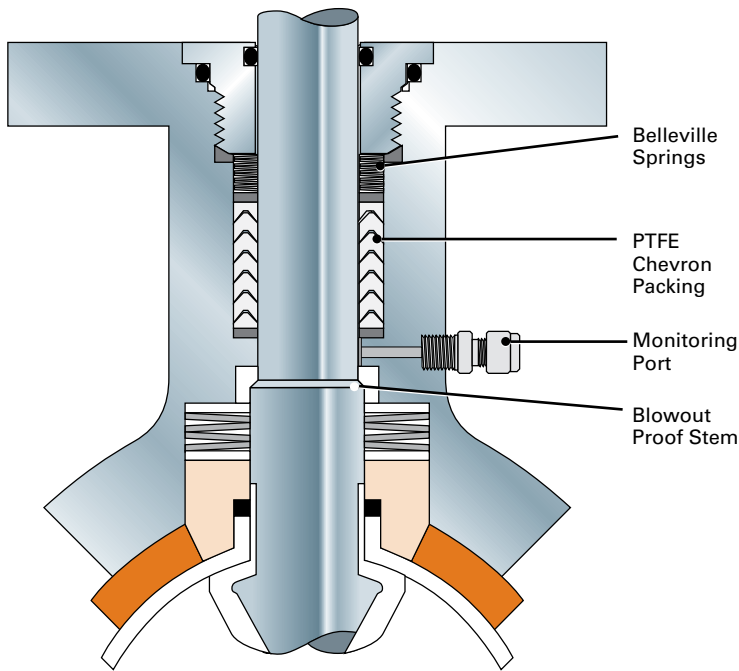


## Materials

The PFA/ProTef disc/liner combination provides the ultimate in corrosion resistance. The ProTef liner is made from molecular enhanced PTFE to ensure the densest seat possible. Then, it is machined to strict tolerances. The one piece disc/stem has a 3mm thick precision-molded PFA locked-in-liner, encapsulating the wetted surfaces of the 255 duplex stainless steel core. This eliminates the permeation and delamination commonly found in lined butterfly valves. Fluorocarbon elastomer backup rings are fitted to give a bubble tight shut-off at minimum operating torque. The stem seal is mechanical with a set of Belleville disc springs. This provides a live load to keep the sealing surfaces under a constant controlled pressure. The result is a butterfly valve with a maintenance-free seal and high cycle life.

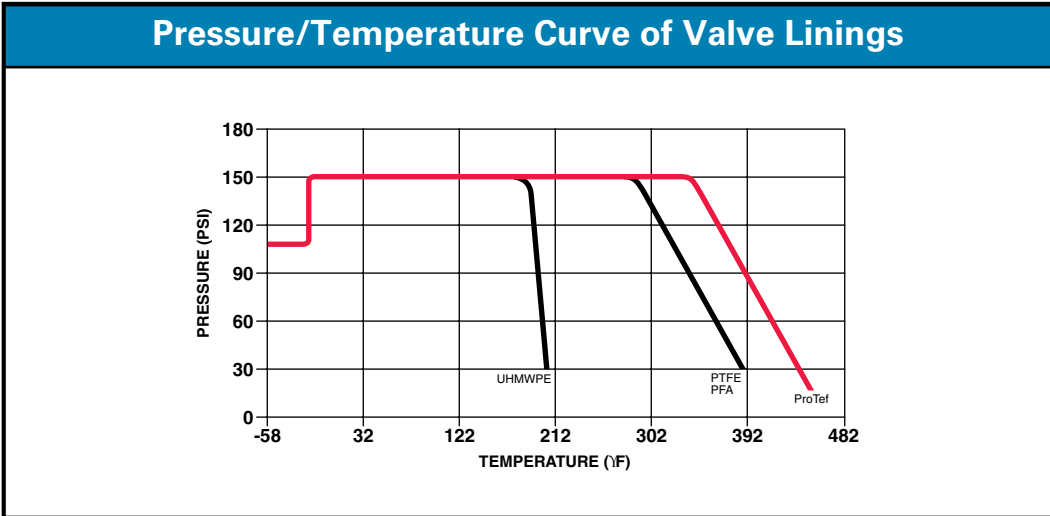
An UHMWPE (ultra high molecular weight polyethylene), PFA and ETFE liners are also available with various body, stem and disc materials in the same configuration.

# Sure Seal's Optional SSS System



The optional **Sure Seal SSS System** incorporates an independent sealing system, featuring a belleville spring loaded packing gland, complete with monitoring ports. The SSS design permits the monitoring of the region between the two mechanical seals. Separate systems such as differential pressure switches, inert gas pads and routing to scrubbers can easily be adapted to the monitoring ports.

**Max DP at 100°F 2"-10" 150 PSIG.**  
**Max DP at 100°F 12"-24" 100 PSIG.**



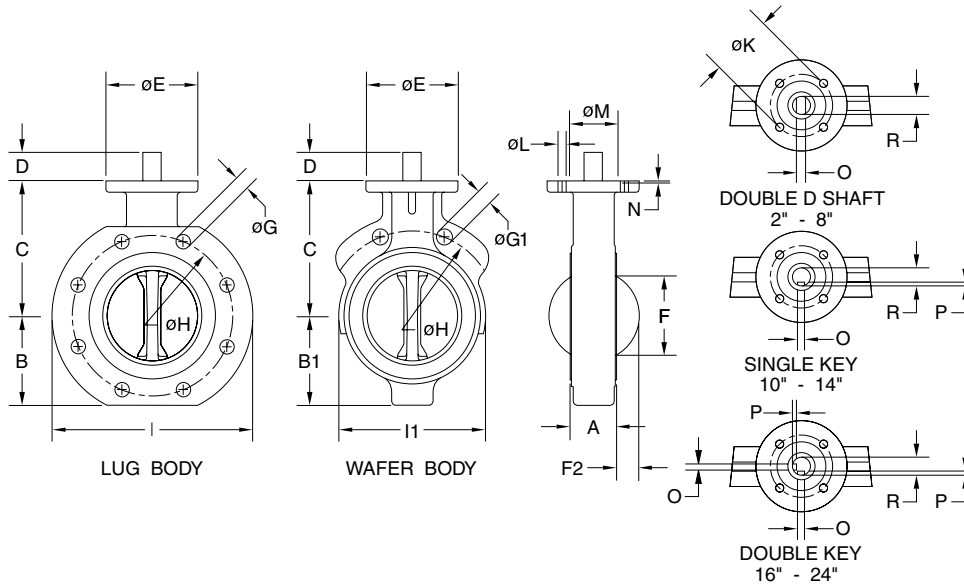
### Sure Seal Lined Butterfly Flow Rate Values Cv

**Valve Disc Angle of Degrees Open**

| Valve Size | 20   | 30   | 40   | 50   | 60    | 70    | 80    | 90    |
|------------|------|------|------|------|-------|-------|-------|-------|
| 2"         | 8    | 20   | 43   | 73   | 111   | 159   | 205   | 233   |
| 3"         | 18   | 40   | 86   | 150  | 229   | 326   | 405   | 473   |
| 4"         | 24   | 59   | 117  | 199  | 314   | 474   | 597   | 720   |
| 6"         | 74   | 160  | 289  | 485  | 793   | 1174  | 1500  | 1838  |
| 8"         | 117  | 283  | 571  | 977  | 1451  | 2231  | 2964  | 3750  |
| 10"        | 211  | 422  | 857  | 1400 | 1943  | 2919  | 4403  | 5441  |
| 12"        | 319  | 630  | 1200 | 2075 | 3215  | 4783  | 7191  | 8699  |
| 14"        | 422  | 797  | 1424 | 2172 | 3475  | 5489  | 8662  | 10568 |
| 16"        | 616  | 1189 | 1786 | 2956 | 5103  | 7902  | 11160 | 13693 |
| 18"        | 817  | 1543 | 2742 | 4734 | 7685  | 11312 | 15063 | 18321 |
| 20"        | 1094 | 1992 | 3664 | 6578 | 10021 | 14509 | 19133 | 22133 |
| 24"        | 1576 | 2669 | 5188 | 9209 | 14088 | 20418 | 26313 | 30409 |

All values represented in US gallons per minute (GPM).

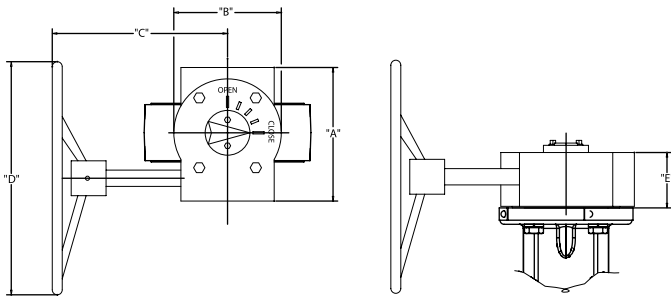
# LBF Series Lined Butterfly Valve Dimensions



| ANSI 150   |      |       |      |       |       |      |       |      |                |         |       |       |       |      |      |       |      |     |       |       |       |
|------------|------|-------|------|-------|-------|------|-------|------|----------------|---------|-------|-------|-------|------|------|-------|------|-----|-------|-------|-------|
| Valve Size | A    | B     | B1   | C     | D     | E    | F     | F2   | G              | G1      | H     | I     | I1    | K    | L    | M     | N    | ISO | O     | P     | R     |
| 2          | 1.69 | 2.28  | 2.20 | 5.12  | 0.748 | 4.02 | 1.22  | 0.24 | 4 x 5/8 - 11   | 2 x 3/4 | 4.75  | 6.02  | 4.09  | 2.76 | 0.35 | 2.205 | 0.14 | F07 | 0.375 |       | 0.500 |
| 3          | 1.81 | 3.46  | 3.31 | 6.50  | 0.748 | 4.02 | 2.48  | 0.67 | 4 x 5/8 - 11   | 2 x 3/4 | 6.00  | 8.27  | 5.69  | 2.76 | 0.35 | 2.205 | 0.14 | F07 | 0.433 |       | 0.551 |
| 4          | 2.05 | 4.02  | 3.94 | 7.28  | 0.984 | 4.02 | 3.54  | 1.06 | 8 x 5/8 - 11   | 2 x 3/4 | 7.50  | 9.65  | 6.46  | 2.76 | 0.35 | 2.205 | 0.14 | F07 | 0.500 |       | 0.750 |
| 6          | 2.19 | 4.92  | 4.92 | 8.54  | 1.181 | 4.02 | 5.31  | 1.81 | 8 x 3/4 - 10   | 2 x 7/8 | 9.50  | 11.61 | 8.66  | 2.76 | 0.35 | 2.205 | 0.14 | F07 | 0.625 |       | 0.875 |
| 8          | 2.36 | 6.30  | 6.22 | 9.65  | 1.181 | 5.98 | 7.44  | 2.80 | 8 x 3/4 - 10   | 2 x 7/8 | 11.75 | 14.44 | 10.79 | 4.92 | 0.51 | 3.425 | 0.14 | F12 | 0.625 |       | 0.875 |
| 10         | 2.68 | 7.64  | 7.48 | 10.63 | 1.181 | 5.98 | 9.41  | 3.62 | 12 x 7/8 - 9   | 2 x 1   | 14.25 | 16.97 | 12.99 | 4.92 | 0.51 | 3.425 | 0.14 | F12 | 0.250 | 0.125 | 1.125 |
| 12         | 3.08 | 9.02  | 8.86 | 12.13 | 1.181 | 5.98 | 11.42 | 4.41 | 12 x 7/8 - 9   | 2 x 1   | 17.00 | 20.31 | 14.94 | 4.92 | 0.51 | 3.425 | 0.14 | F12 | 0.250 | 0.125 | 1.125 |
| 14         | 3.62 | 10.08 |      | 12.99 | 1.457 | 8.27 | 12.91 | 4.92 | 12 x 1 - 8     |         | 18.75 | 22.82 |       | 6.50 | 0.83 | 5.197 | 0.20 | F16 | 0.250 | 0.125 | 1.125 |
| 16         | 4.02 | 11.50 |      | 14.37 | 1.457 | 8.27 | 14.84 | 5.75 | 16 x 1 - 8     |         | 21.25 | 25.45 |       | 6.50 | 0.83 | 5.197 | 0.20 | F16 | 0.394 | 0.197 | 1.420 |
| 18         | 4.49 | 12.28 |      | 15.75 | 1.969 | 8.27 | 16.72 | 6.46 | 16 x 1 1/8 - 7 |         | 22.75 | 27.04 |       | 6.50 | 0.83 | 5.197 | 0.20 | F16 | 0.500 | 0.216 | 1.875 |
| 20         | 5.00 | 13.49 |      | 17.13 | 1.969 | 8.27 | 18.78 | 7.24 | 20 x 1 1/8 - 7 |         | 25.00 | 29.54 |       | 6.50 | 0.83 | 5.197 | 0.20 | F16 | 0.500 | 0.216 | 1.875 |
| 24         | 6.06 | 15.72 |      | 20.08 | 2.460 | 8.27 | 22.05 | 8.46 | 20 x 1 1/4 - 7 |         | 29.50 | 34.50 |       | 6.50 | 0.83 | 5.197 | 0.20 | F16 | 0.500 | 0.216 | 1.875 |

Note: All Valves are designed in conformance with API 609 standards.  
Valves greater than 24" are available on separate data sheets.

# LBF Series Gear-Op and Handle Dimensions



| Dimension  |        |        |        |     |       |
|------------|--------|--------|--------|-----|-------|
| Valve Size | "A"    | "B"    | "C"    | "D" | "E"   |
| 2" - 6"    | 5.07"  | 4.00"  | 5.77"  | 8"  | 2.65" |
| 8" - 12"   | 6.90"  | 6.00"  | 9.50"  | 12" | 3.00" |
| 14" - 16"  | 7.80"  | 6.70"  | 9.00"  | 16" | 3.00" |
| 18"-24"    | 11.50" | 10.25" | 10.75" | 16" | 4.40" |

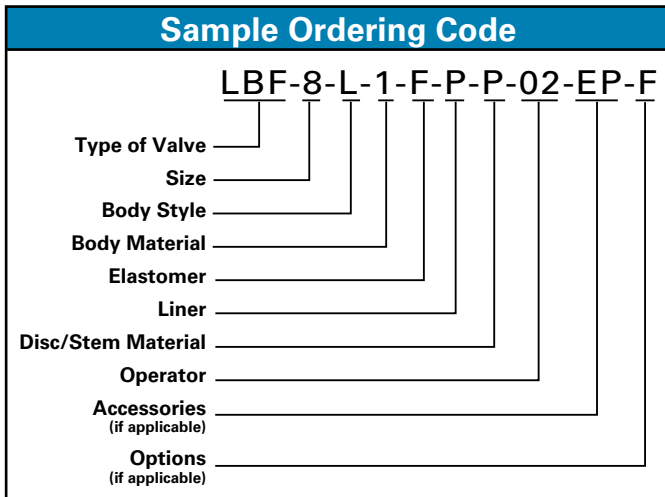
| Dimension  |         |       |
|------------|---------|-------|
| Valve Size | "A"     | "B"   |
| 2" - 6"    | 10.33"  | 1.13" |
| 6"         | 12.875" | 2.15" |

| Torque Values |                   |        |            |      |       |       |
|---------------|-------------------|--------|------------|------|-------|-------|
|               | Breakaway Torque* |        | Body Style |      |       |       |
|               | ProTef            |        | Wafer      |      | Lug   |       |
| Size ANSI     | Nm                | In Lbs | Kg         | Lbs  | Kg    | Lbs   |
| 2             | 30                | 266    | 2.6        | 5.7  | 4.7   | 10.4  |
| 3             | 44                | 399    | 4.3        | 9.5  | 8.9   | 19.6  |
| 4             | 60                | 531    | 6.3        | 13.9 | 12.3  | 27.1  |
| 6             | 114               | 1009   | 10.9       | 24.0 | 17.7  | 39.0  |
| 8             | 190               | 1682   | 16.2       | 35.7 | 28.8  | 63.5  |
| 10            | 300               | 2655   | 24.1       | 53.1 | 40.3  | 88.8  |
| 12            | 400               | 3540   | 31.2       | 68.8 | 61.4  | 135.3 |
| 14            | 465               | 4115   |            |      | 87.8  | 193.5 |
| 16            | 615               | 5443   |            |      | 92.4  | 203.7 |
| 18            | 755               | 6682   |            |      | 112   | 246.9 |
| 20            | 920               | 8142   |            |      | 122.2 | 269.3 |
| 24            | 1200              | 10620  |            |      | 183.1 | 403.6 |

*\*Actual operating torques will be lower. When sizing actuator, multiply torque values by 1.25 safety factor.*

## Sure Seal's LBF Series Lined Butterfly Valve Ordering Information

|             |                       |                  |                                       |                                  |                                     |
|-------------|-----------------------|------------------|---------------------------------------|----------------------------------|-------------------------------------|
| <b>SIZE</b> | <b>BODY STYLE</b>     | <b>ELASTOMER</b> | <b>LINER</b>                          | <b>DISC/STEM</b>                 | <b>OPERATOR</b>                     |
| 2 2"        | W Wafer               | F Fluorocarbon   | P ProTef<br>(Molecular Enhanced PTFE) | P PFA Lined 255SS                | 00 Bare Stem                        |
| 3 3"        | L Lug                 | S Silicone       | T PTFE                                | E ETFE Lined 255SS               | 01 Lever Locking Handle             |
| 4 4"        |                       | H Hypalon        | U UHMWPE                              | A Alloy 20                       | 02 Manual Gear                      |
| 6 6"        | <b>BODY MATERIAL</b>  | E EPDM           | E ETFE                                | B Hastelloy B                    | 03 Double Acting Pneumatic Actuator |
| 8 8"        | 1 A395 Ductile Iron   |                  | A PFA                                 | I Inconel 600                    | 04 Fail Open Pneumatic Actuator     |
| 10 10"      | 2 316 Stainless Steel |                  |                                       | S 316L Stainless Steel           | 05 Fail Closed Pneumatic Actuator   |
| 12 12"      |                       |                  |                                       | SP 316L Stainless Steel Polished | 06 Electric Actuator                |
| 14 14"      |                       |                  |                                       | T Titanium Grade 2               | 07 Hydraulic Actuator               |
| 16 16"      |                       |                  |                                       | H Hastelloy C276                 |                                     |
| 18 18"      |                       |                  |                                       |                                  |                                     |
| 20 20"      |                       |                  |                                       |                                  |                                     |
| 24 24"      |                       |                  |                                       |                                  |                                     |



|                                 |                             |
|---------------------------------|-----------------------------|
| <b>ACCESSORIES</b>              | <b>OPTIONS</b>              |
| P Pneumatic Positioner          | S Solenoid Valve            |
| EP Electro Pneumatic Positioner | F Filter Regulator W/ Gauge |
| PS Proximity Switch Box         | M Manual Override           |
| LS Micro Limit Switches         |                             |

*For additional options and materials contact your nearest Sure Seal distributor.*

## Quality Assurance

Sure Seal's LBF series lined butterfly valves are strictly produced under a company-committed, statistical quality assurance process to assure defect-free products that are delivered to our customers on time. All valves are manufactured utilizing the latest computer-aided production methods and molding technology, guaranteeing control of the manufacturing process and reduction of rework. Each valve is individually tested in accordance with the EN558-1/T5 and API 598 specifications and is spark tested with 30,000 volts to assure lining integrity. Each valve is individually designed and tested using applicable standards as a minimum requirement. A PMI process is performed on all critical components allowing total identification. Valves are also subject to visual and dimensional examinations as well as functional tests. Upon successfully completing all testing, each valve is assigned a stainless steel serial numbered identification plate that quickly identifies the valve and assures complete traceability. Mill Test Certificates are available upon request.

# Sure Torque's Series ST Actuators



Sure Torque's Series ST is a proven winner in today's market. With over 14 sizes and 90°, 120°, 135°, 180°, 240° and 270° rotation, the Sure Torque actuator can accommodate any situation.

All Sure Torque actuators can be easily field converted from double acting to spring return by inserting the correct number of spring cartridges to the double acting unit, thus eliminating bulky housing extensions, saving weight and space. Specially designed, preloaded self-contained spring cartridges are completely contained before end cap screws release, ensuring the safest installation and removal.

The Sure Torque Series ST is an uncomplicated compact design. Internal porting eliminates the need for costly, external tubing. Accessory mounting is to

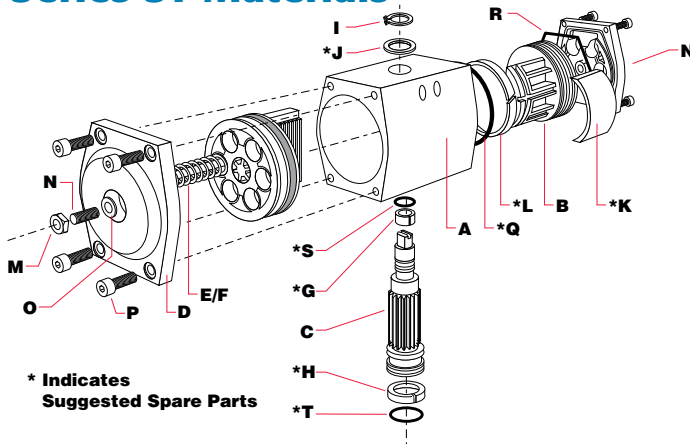
NAMUR standards. Solenoid mounting to NAMUR specifications is available, and is standard on sizes STU148 and above.

The Sure Torque Series ST is available with a variety of accessories. Direct mount solenoids are available in NEMA 4, 7, and 9 in standard and special voltages. Limit switches are available in NEMA 4, 7 and 9. Positioners can be supplied to receive .207-1.034 bar or 4-20 mA input control signals. Declutchable manual gear overrides are available for all size actuators.

The actuator drive side directly mounts to Sure Seal Butterfly Valves. Available in ISO 5211 Dimensional Standards to meet your needs.

Safe, compact, versatile, rugged, long-lasting and economical. The Sure Torque Series ST is the best choice for your actuation needs. Call or write for further information.

## Series ST Materials



| Qty. | Description | Material                                     |                        |
|------|-------------|--|------------------------|
| A    | body        | anodized aluminum<br>polyester epoxy coating |                        |
| B    | piston**    | die cast aluminum                            |                        |
| C    | pinion      | E.N.P. ASTM B656 Steel                       |                        |
| D    | end cap**   | epoxy coated aluminum                        |                        |
| E    | Max 12      | spring                                       | epoxy coated steel     |
| F    | Max 12      | spring cartridge                             | Delrin/brass           |
| G    | 1           | upper pinion bearing                         | Delrin 500             |
| H    | 1           | lower pinion bearing                         | Delrin 500             |
| I    | 1           | circlip                                      | E.N.P. ASTM B656 Steel |
| J    | 1           | pinion washer                                | Delrin 500             |
| K    | 2           | piston skate                                 | Delrin 500             |
| L    | 2           | piston guide ring                            | Delrin 500             |
| M    | 2           | sealing nut                                  | 304 Stainless Steel    |
| N    | 2           | travel stop                                  | 304 Stainless Steel    |
| O    | 2           | travel stop O-ring                           | Buna-N                 |
| P    | 8           | end cap screw                                | 304 Stainless Steel    |
| Q    | 2           | piston O-ring                                | Buna-N                 |
| R    | 2           | end cap O-ring                               | Buna-N                 |
| S    | 1           | upper pinion O-ring                          | Buna-N                 |
| T    | 1           | lower pinion O-ring                          | Buna-N                 |

\*\*ST10-ST20 utilize polyrlamide materials

## Series ST Accessories

### Limit Switches



Sure Seal's Watchman VPT Series are ruggedly designed to meet industrial process requirements for reliable cost effective feedback systems. Sure Seal's Sentinel VPT Series are ruggedly designed to keep up with today's advanced process control technology. The Sentinel VPT is an accurate, versatile valve position transmitter.

### Positioners

The Series SP/SE from SureTorque is designed and manufactured to offer years of trouble free and economical operation. Every component has been field tested and field proven to exceed your expectations of performance and reliability. The Series SP/SE simply outperforms every other positioner in its class.



### Solenoids



Sure Seal Solenoids are constructed with quality Anodized Aluminum for the body, phosphate treated black steel springs, copper shading coil and stainless steel core and core tube.

We are committed to providing the strength and performance you demand.



OPW Fluid Transfer Group (OPWFTG), part of Dover Corporation (NYSE:DOV), is comprised of market-leading operating companies, each dedicated to designing, manufacturing and distributing world-class solutions for the safe handling and transporting of hazardous bulk products. In addition to these companies, OPWFTG has manufacturing plants in North America, Europe, Brazil and India; and sales offices in Singapore, and China.

Throughout the world, OPWFTG companies are hard at work ensuring the safe processing, loading, transporting and unloading of hazardous bulk products and safeguarding against costly petroleum and chemical spills, tank overfills and fugitive vapor emissions. Whether your need is in the chemical plant, at the terminal loading rack, or outfitting a fleet of rail tank cars, cargo tanks or dry-bulk trailers, OPWFTG systems set the standard for safety, performance and peace-of-mind assurance in the most rigorous and demanding applications. If the safe, profitable handling of hazardous liquids and dry bulk commodities such as gasoline and diesel, chlorine, chlor-alkali products, LPG, acids, cement, flour and starch, among others, is your concern, trust OPWFTG.

## EXPERT SOLUTIONS FOR THE SAFE HANDLING & TRANSPORTING OF HAZARDOUS BULK PRODUCTS

|                           | Applications  | Processing  | Load  | Transporting  |   | Unload  |
|---------------------------|---|---|---|---|---|---|
| <b>PETROLEUM</b>          | <ul style="list-style-type: none"> <li>Gasoline</li> <li>Ethanol</li> <li>Alcohols</li> <li>Fuel Oil</li> <li>LPG</li> <li>Diesel</li> <li>Biodiesel</li> </ul>   | <ul style="list-style-type: none"> <li>Bellow Sealed Valves</li> <li>Sample Valves</li> <li>Lined Ball Valves</li> <li>Lined Butterfly Valves</li> <li>Industrial Valves</li> <li>ISO Rings</li> <li>Sight Flow Indicators</li> <li>Globe Valves</li> <li>Swivels</li> <li>Dry Disconnects</li> </ul>   | <ul style="list-style-type: none"> <li>Loading Arms</li> <li>Couplers</li> <li>Rack Monitors</li> <li>Dry Disconnects</li> <li>API Coupler</li> <li>Swivels</li> </ul>  | <b>Cargo Tanks</b> <ul style="list-style-type: none"> <li>Manholes</li> <li>Vapor Vents</li> <li>Electronics</li> <li>Internal Valves</li> <li>API Adaptors</li> <li>Sealed Parcel</li> <li>Pneumatic Controls</li> <li>Manifold Systems</li> </ul>           | <b>Rail Tank Cars</b> <ul style="list-style-type: none"> <li>Pressure Relief Valves</li> <li>Plug Valves</li> <li>Ball Valves</li> <li>Level Measurement</li> <li>Autoloks</li> <li>Kamvaloks</li> <li>Dryloks</li> <li>Rupture Disc Devices</li> <li>Angle Valves</li> </ul>         | <ul style="list-style-type: none"> <li>Drylok Couplers</li> <li>Adaptors</li> <li>Delivery Elbows</li> <li>Vapor Recovery Elbows</li> <li>Swivels</li> </ul>  |
| <b>CHEMICALS</b>          | <ul style="list-style-type: none"> <li>Chlorine</li> <li>Acids &amp; Bases</li> <li>Amines</li> <li>Anhydrous Ammonia</li> <li>Propylene</li> <li>Butadiene</li> <li>Hazardous Liquids</li> </ul>                 | <ul style="list-style-type: none"> <li>Bellow Sealed Valves</li> <li>Sample Valves</li> <li>Lined Ball Valves</li> <li>Lined Butterfly Valves</li> <li>Industrial Valves</li> <li>ISO Rings</li> <li>Sight Flow Indicators</li> <li>Globe Valves</li> <li>Swivels</li> <li>Dry Disconnects</li> <li>Quick Disconnects</li> <li>Epsilon</li> </ul> | <ul style="list-style-type: none"> <li>Loading Arms</li> <li>Autoloks</li> <li>Kamvaloks</li> <li>Dryloks</li> <li>Loading Manholes</li> <li>Valves</li> <li>Actuators</li> <li>Swivels</li> <li>Epsilon</li> </ul>     | <b>Cargo Tanks</b> <ul style="list-style-type: none"> <li>Manholes</li> <li>Vapor Vents</li> <li>Electronics</li> <li>Internal Valves</li> <li>Sealed Parcel</li> <li>Epsilon</li> </ul>  | <b>Rail Tank Cars</b> <ul style="list-style-type: none"> <li>Safety Valves</li> <li>Plug Valves</li> <li>Ball Valves</li> <li>Level Measurement</li> <li>Autoloks</li> <li>Kamvaloks</li> <li>Dryloks</li> <li>Rupture Disc Devices</li> <li>Angle Valves</li> <li>Epsilon</li> </ul> | <ul style="list-style-type: none"> <li>Loading Arms</li> <li>Autoloks</li> <li>Kamvaloks</li> <li>Dryloks</li> <li>Valves</li> <li>Actuators</li> <li>Safety Breakaways</li> <li>Swivels</li> <li>Epsilon</li> </ul>    |
| <b>DRY BULK</b>           | <ul style="list-style-type: none"> <li>Cement</li> <li>Flour/Starch</li> <li>Pharmaceuticals</li> </ul>   | <ul style="list-style-type: none"> <li>Industrial Valves</li> <li>Sight Flow Indicators</li> <li>Butterfly Valves</li> <li>Swivels</li> </ul>   | <ul style="list-style-type: none"> <li>Loading Arms</li> <li>Aerators</li> <li>Hatch Covers</li> <li>Swivels</li> </ul>   | <b>Cargo Tanks</b> <ul style="list-style-type: none"> <li>Manholes</li> <li>Check Valves</li> <li>Hopper Tees</li> <li>Butterfly Valves</li> <li>Aerators</li> <li>Weld Rings</li> </ul>  | <b>Railcars</b> <ul style="list-style-type: none"> <li>Manholes</li> <li>Hatches</li> <li>Access Ports</li> <li>Check Valves</li> <li>Hopper Tees</li> <li>Butterfly Valves</li> <li>Aerators</li> <li>Pressure Vacuum Valves</li> </ul>  | <ul style="list-style-type: none"> <li>Aerators</li> <li>Butterfly Valves</li> <li>Tank Hatches</li> <li>Pressure Relief</li> <li>Vacuum Relief</li> <li>Temperature Monitoring</li> </ul>                              |
| <b>INDUSTRIAL/GENERAL</b> | <ul style="list-style-type: none"> <li>Food Processing</li> <li>Pharmaceuticals</li> <li>Waste Water</li> <li>High-Purity Liquids</li> <li>Breweries</li> <li>Pulp and Paper</li> <li>Steel Processing</li> </ul> | <ul style="list-style-type: none"> <li>Lined Ball Valves</li> <li>Lined Butterfly Valves</li> <li>Sample Systems</li> <li>Sight Flow Indicators</li> <li>ISO Rings</li> <li>Dry Disconnects</li> <li>Swivels</li> <li>Dry Disconnects</li> <li>High-Performance Butterfly Valves</li> <li>Epsilon</li> </ul>                                      | <ul style="list-style-type: none"> <li>Loading Arms</li> <li>Couplers</li> <li>Rack Monitors</li> <li>Swivels</li> <li>Dry Disconnects</li> <li>Quick Disconnects</li> <li>Butterfly Valves</li> <li>Epsilon</li> </ul> | <b>Cargo Tanks</b> <ul style="list-style-type: none"> <li>Manholes</li> <li>Vapor Vents</li> <li>Electronics</li> <li>Weld Rings</li> <li>Hopper Tees</li> <li>Pneumatic Controls</li> <li>Sealed Parcel</li> <li>Dry Disconnects</li> <li>Epsilon</li> </ul> | <b>Rail Tank Cars</b> <ul style="list-style-type: none"> <li>Safety Valves</li> <li>Plug Valves</li> <li>Ball Valves</li> <li>Level Measurement</li> <li>Autoloks</li> <li>Kamvaloks</li> <li>Dryloks</li> <li>Rupture Disc Devices</li> <li>Angle Valves</li> <li>Epsilon</li> </ul> | <ul style="list-style-type: none"> <li>Loading Arms</li> <li>Couplers</li> <li>Rack Monitors</li> <li>Swivels</li> <li>Dry Disconnects</li> <li>Quick Disconnects</li> <li>Butterfly Valves</li> <li>Epsilon</li> </ul> |

### Chemical & Industrial Processing Market Unit

- Food Processing
- Chemical Plants
- Petroleum Loading Stations
- Steel Processing, Pulp & Paper
- Waste Water Treatment
- Pharmaceutical
- Breweries
- High-Purity Liquids
- Ethanol Processing
- Biodiesel Processing

### Rail Market Unit

- Pressure & General Purpose Rail Tank Cars
- Dry Bulk Railcars
- Ethanol Rail Tank Cars
- Diesel
- Biodiesel

### Cargo Tank Market Unit

- Gasoline & Diesel
- Dry Bulk
- Ethanol
- Biodiesel



### INDIA

36 Marol Co-op. Ind. Est. Ltd.  
2nd Floor, M.V. Road., Marol  
Andheri (E), Mumbai – 400 059  
Tel: +91 22 2851 7296, 91 22 2851 7355  
Fax: +91 22 2851 7333

### ASIA PACIFIC

Telephone: +65 9679 1762

2726 Henkle Drive  
Lebanon, Ohio 45036, USA  
Telephone: +1 513 696 1500  
Fax: +1 513 932 9845

### SOUTH AMERICA

Rua Manuel Augusto de Alvarenga, 155  
São Paulo, São Paulo, Brazil  
CEP 04402-050  
Telephone: +55 11 5564 6466  
Fax: +55 11 5679 7960  
www.opwftg.com.br/

### EUROPE

Boekweitstraat 1, P.O. Box 32,  
2150 AA Nieuw-Vennep, Netherlands  
Telephone: +31 252 660 300  
Fax: +31 252 687 258  
www.opwftg.nl



4304 Mattox Road  
Kansas City, MO 64150 USA  
Telephone: +1 816 741 6600  
Fax: +1 816 741 1061  
www.civacon.com

### CHINA

Suite 25 B, Suntime  
International Mansion  
450 Fushan Road,  
Shanghai, China 200122  
Tel: +011 86 21 5830 7595  
Fax: +011 86 21 5830 7535

### UNITED STATES

4680 Parkway Dr., Suite 203  
Mason, Ohio 45040 USA  
Telephone: +1 513 696 1798  
Fax: +1 513 204 5770  
www.opwftg.com



7733 Gross Point Road  
Skokie, IL 60077 USA  
Telephone: +1 847 677 0333  
Fax: +1 847 677 0138  
www.midlandmfg.net

Distributed By:



PHONE: (800) 547-9393 • (513) 696-1500 • Fax: (800) 245-8536 • (513) 932-9845  
2726 Henkle Drive • Lebanon, OH 45036 • www.opw-es.com