



Metal-Seated Severe Service Valves
Model SYM



Severe Service Technology, Inc.



11000 Stancliff Road, Suite 190 – Houston, Texas 77099
Tel: (281) 988-8222 – Fax: (281) 988-8294



Since its founding in 1997, **Severe Service Technology, Inc.** has dedicated itself to the engineering and manufacture of the most rugged and durable metal-seated ball valves in the industry. Our years of manufacturing experience, combined with over 50 years of engineering expertise, has created a complete isolation valve solution to any industry's toughest critical service applications. We have shipped over 15,000 valves.

Our state of the art manufacturing facility is fully equipped with the latest technology in machining, thermal spraying and testing equipment. Our rigid, quality control standards ensure that our products are manufactured with detailed precision that meet or exceed ANSI, AISI, API and MSS-SP-61 requirements.

Rely on us for you next metal-seated ball valve requirements. Allow our products be the solution to your most demanding applications. Increase your productivity, maximize your plant efficiency.

Applicable Codes and Standards

SST valves are designed, manufactured and tested to:

- MSS-SP 61: "Pressure Testing of Steel Valves"
- ASME B16.34: "Valves – Flanged, Threaded and Welding End"
- ASME B31.1: "Power Piping Code"
- API 598 "Valve Inspection and Testing"

Model SYM Product Overview

- Sizes: 3 to 36"
- 2 or 3-Piece Design
- ASME Classes: 150 to 4500
- End Connections: Flanged, RTJ, BW and specials
- Bore: Full and Reduced
- Sealing: Uni- and Bi-directional
- Actuation: Gear, Electric and Pneumatic

Metal-Seated Floating Ball Valves Vs. Metal-Seated Trunnion Mounted Ball Valves

The key difference between a floating ball valve (FBV) and a trunnion mounted ball valve (TMBV) is how each achieves a line seal.

- FBV
 - FBV utilizes natural line pressure to press and seal the Ball against the downstream Seat. The line pressure is exposed to a greater surface area (the entire upstream face of the Ball), which is an area equal to the actual pipe size or full ported valves.
 - FBV with its ball floating inside the valve Body; it drifts toward to the downstream side and tightly pushes against the Seat under the pressure to ensure sealing reliability.
- TMBV
 - TMBV uses a spring mechanism and/or line pressure assistance to drive the upstream Seat against the stationary Ball. The surface area exposed to the pressure through the relatively small passageway (the back of the Seat).
 - The Ball of TMBV is fixed, it does not move with pressure. TMBV has floating Seats. The Seats move with the pressure to tighten the Ball and Seal Ring to ensure sealing reliability.
 - Bearings can be mounted in top and bottom shaft reducing operational torque. Some designs use a lubrication system, where a special sealant is injected between sealing faces of the ball to decrease the operation torque and increase sealing reliability.
 - Issues:
 - Coil Springs provide inadequate and non-uniform load on Seat and Compression Ring.
 - TMBV Metal Seats are unable to handle any Ball misalignment due to trunnion tolerances.
 - Restricted to axial adjustment. Only 1 degree of freedom. Seat cannot follow Ball movement due to trunnion offsets.
 - More parts than FBV which makes it more difficult to maintain.
- Both Designs
 - Can be Fire Safe to API 607
 - Can be designed for anti-static applications
 - Can be furnished with drain holes below Ball

SST Model SYM (FBV)

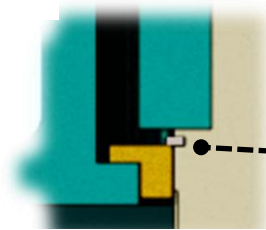
SST's Model SYM is a special design and can be considered as a hybrid between FBV and TMBV designs.

Features:

- The major difference (over a FBV) is its **symmetrical design**, which can be used for uni-directional and bi-directional service as standard.
- **Springs** are located above, rather than behind the Seat and not directly exposed to the flowing media.
- Flat Ball design (bottom) reduces weight by approximately 20%.
- No lubrication system required
- Available with Purge Ports (optional)
- Double Block & Bleed capability

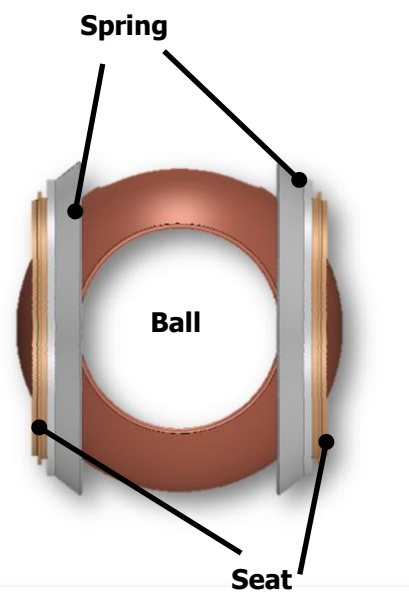


Model SYM: Symmetrical Design

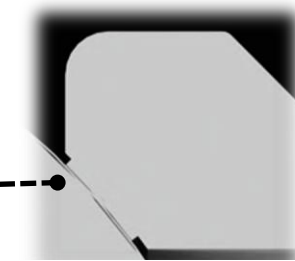
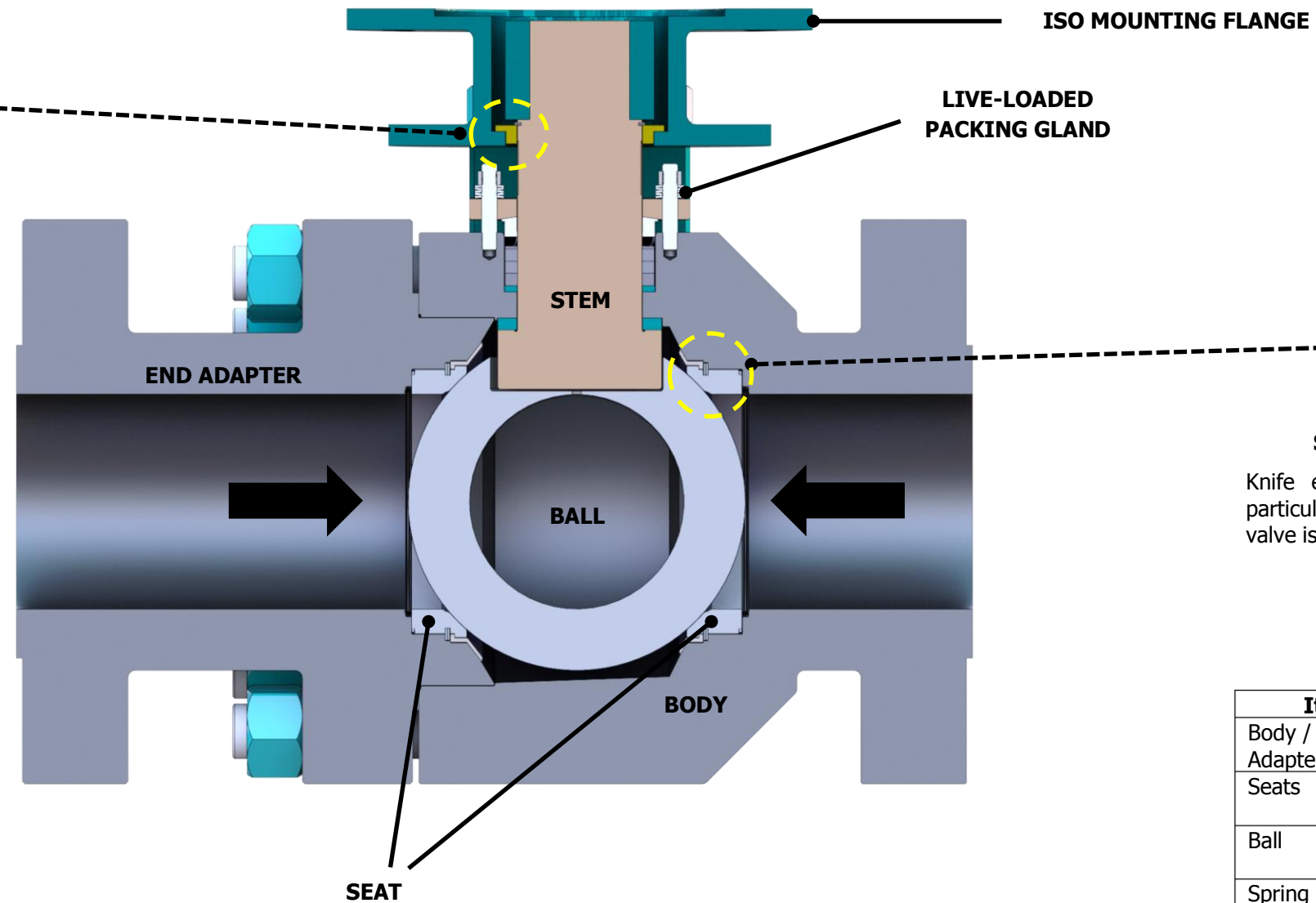


STEM RETENTION SYSTEM

Retention ring prevents bottom of Stem from making direct contact with ball slot, thereby eliminating possibility of damage during actuator installation



A totally Symmetrical Double Metal Seated Floating Ball Valve design with Springs located above, rather than behind Seats. A design for either uni- or bi-directional service. Excellent alternative to Trunnion Mounted Ball Valves. Zero leakage per API 598 in both directions.



SCRAPER SEATS (Optional)

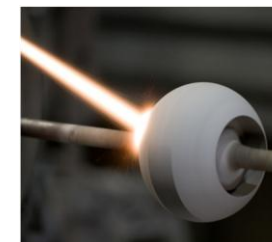
Knife edge design assists in removal of particulate matter from Body cavity when valve is cycled

| Item | Standard Materials |
|---------------------|------------------------------------|
| Body / End Adapters | Carbon and Stainless Steel |
| Seats | 410 Stainless Steel Inconel 718 |
| Ball | 410 Stainless Steel Inconel 718 |
| Spring | 410 Stainless Steel |
| Stem | 410 Stainless Steel Inconel 718 |
| Packing | Grafoil |

Consult Factory for other materials

High Velocity Oxygen Fueled (HVOF) Coating

A process; using oxygen, hydrogen and Chromium (53-57 Rc) or Tungsten Carbide powder (64-68 Rc) at MACH 5 to create harness on Ball and Seats. Coating is suitable for temperatures to 1400 F (750 C).





Severe Service Technology, Inc.

SST

11000 Stancliff Road, Suite 190 – Houston, Texas 77099

Tel: (281) 988-8222 – Fax: (281)988-8294

E-mail: sales@sstvalve.com

www.sstvalve.com