

OVERVIEW

Fully PFA lined butterfly valves engineered for bidirectional bubble-tight shutoff in demanding corrosive, chemical, semiconductor, and ultrapure water applications.

SPECIFICATIONS

Size Range	NPS 2 to 24 DN 50 to 600
Temperature Range	-20°F to 320°F -29°C to 160°C
Pressure Rating	NPS 2 to 6: Up to 232 psi DN 50 to 150: Up to 16 bar NPS 8 to 24: Up to 150 psi DN 200 to 600: Up to 10 bar
Vacuum Rating	Up to 0.0002 psia Up to 1.03 x 10 ⁻² torr
Body Style	2-piece Wafer, Lug
Shutoff Rating	Zero leakage

APPLICATIONS

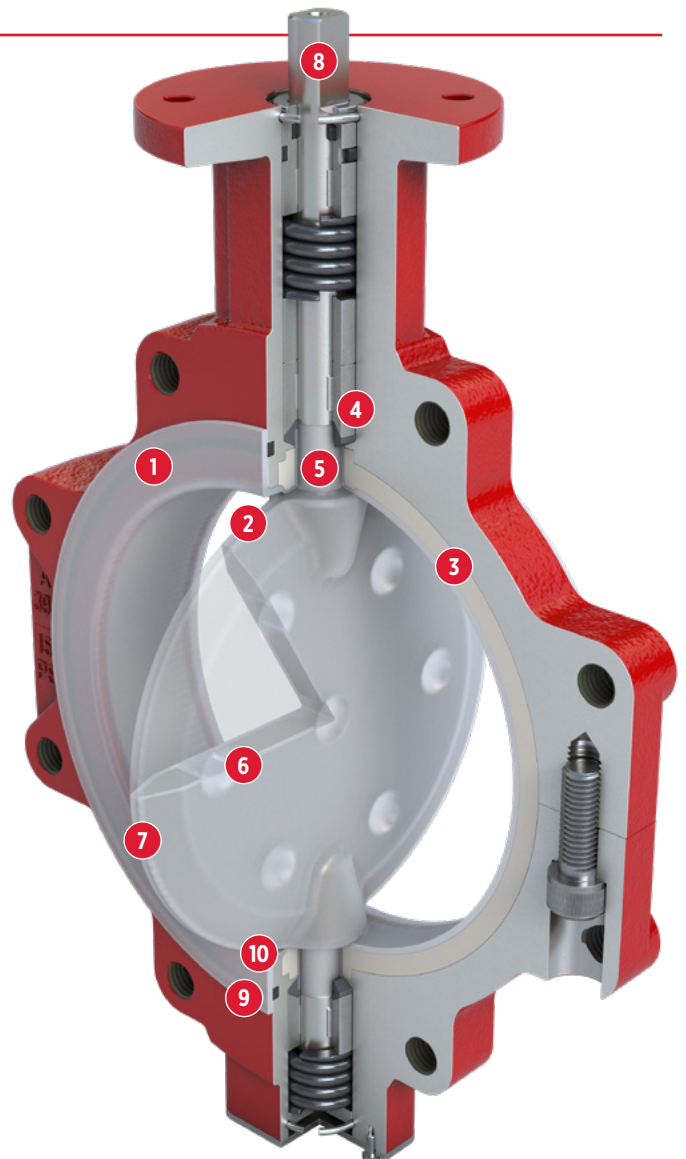
- > Chemical & Petrochemical
- > Chlor-Alkali
- > Ion Exchange Resin Systems
- > Make-up Water Reverse Osmosis Systems
- > Semiconductor Manufacturing
- > Ultrafiltration
- > Ultrapure Piping Systems
- > UV Light Systems
- > Vacuum Service
- > Wastewater Treatment Systems

MEDIA

- > Brine
- > Bromine
- > Caustic
- > Chlorine Gas (Wet/Dry)
- > Hydrochloric Acid
- > Organic Solvents
- > Phosphatic Fertilizer
- > Strong Oxidizing Agents
- > Sulfuric Acid
- > Ultrapure Water
- > Viscous Liquids

DESIGN FEATURES

- 1 FULLY PFA LINED DISC AND BODY:** Proprietary compound provides unsurpassed resistance to corrosion, permeation, and microbial contamination for maximum purity and reliability with minimum maintenance.
- 2 DURABLE, SPHERICALLY MOLDED PFA LINER AND MATCHING DISC:** Interface forms a tight bidirectional seal.
- 3 FULL WIDTH 360° SEAT ENERGIZER:** Ensures uniform sealing.
- 4 LIVE-LOADED, STEM SEALING SYSTEM:** Self-adjusts to eliminate leak paths and reduce fugitive emissions for long-term, maintenance-free operation. (Standard sealing system meets ISO 15848-1 low fugitive emission requirements.)
- 5 EXTENDED PFA SHAFT OVER-MOLDING:** Enhances stem sealing, eliminates leak paths, and shields the stem from corrosive media.
- 6 PFA DISC OVER-MOLDING:** PFA resin is mechanically bonded to the base metal to enable vacuum capability.
- 7 STREAMLINED DISC:** Engineered for maximum flow.
- 8 HIGH-STRENGTH, ONE-PIECE 17-4 STAINLESS STEEL DISC AND STEM:** Standard for improved reliability.
- 9 ENERGIZED FLANGE SEAL:** Maintains proper sealing between valve and flange.
- 10 MECHANICALLY RETAINED SEAT ENERGIZER:** Wide elastomer seat energizer rests in a machined body groove to enable end-of-line service at full working pressure.



DESIGN STANDARDS

Valve Design	MSS SP-155 MSS SP-67
Seat Tightness	API 598 ISO 5208
Face-to-Face	API 609 ISO 5752 EN 558 Series 20
Flange Drilling	ASME B16.5 CL150 ASME B16.1 CL125 PN10, 16 JIS 10K
Top Flange	ISO 5211

CERTIFICATIONS & APPROVALS

Certifications	SIL 3
Fugitive Emissions	ISO 15848-1

MATERIAL OPTIONS

Body	Ductile iron
Disc/Stem	17-4 Stainless Steel over-molded with PFA ¹ 17-4 Stainless Steel stem/high strength steel disc over-molded with PFA ²
Liner	PFA
Seat Energizer	Silicone Viton™
Body Bolts	18-8 Stainless Steel A193 Gr B7 Bolting

Note:
 1 Standard for sizes NPS 2 to 12 (DN 50 to 300)
 2 Standard for sizes NPS 14 to 24 (DN 350 to 600)

ADVANTAGES OF PFA LINER DESIGN

- > In-house proprietary precision molding processes provide smooth surface finish.
- > Superior flexibility withstands repeated flexing and dynamic loads for extended service life. PFA liners will not take a permanent set.
- > Higher resistance to permeation provides increased durability, with lower total cost of ownership.
- > Lower particle shedding for maximum purity.
- > Superior creep resistance at high temperatures.
- > Increased resistance to microbial contamination.

STEM SEALING SYSTEM

Precision engineered for reliable, maintenance-free service, the three-step stem sealing system provides unmatched sealing for long term zero leakage performance.

Primary Seal (1)

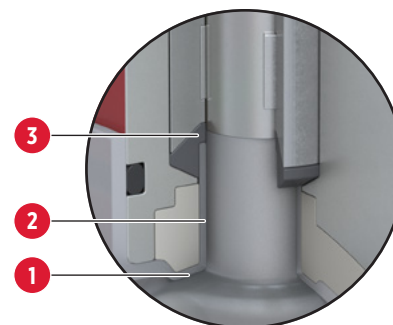
The primary seal is created by the spherically molded PFA body liner and matching disc hub interface. The seat energizer maintains tight contact pressure for consistent shutoff in high cycle applications.

Secondary Seal (2)

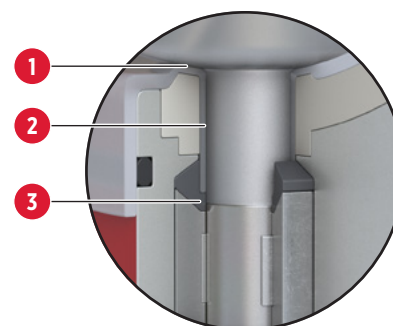
An independent secondary seal is formed by the extended body and disc liners. The flexible PFA body liner extends into the stem cavity and the disc liner encapsulates the stem. The resulting protective sleeve eliminates potential leak paths for fugitive emissions and shields internal components from contact with the media. This feature works in conjunction with the tertiary safety seal to ensure compliance with ISO 15848-1 standards for fugitive emissions.

Safety Seal (3)

The third sealing mechanism is a graphite filled PTFE safety seal. Completely isolated from the process media by the extended disc liner, and energized by a coil spring, the safety seal self-adjusts for changes in temperature and wear to ensure absolute zero leakage shutoff of corrosive and ultra pure process media.



UPPER SHAFT SEALING



LOWER SHAFT SEALING