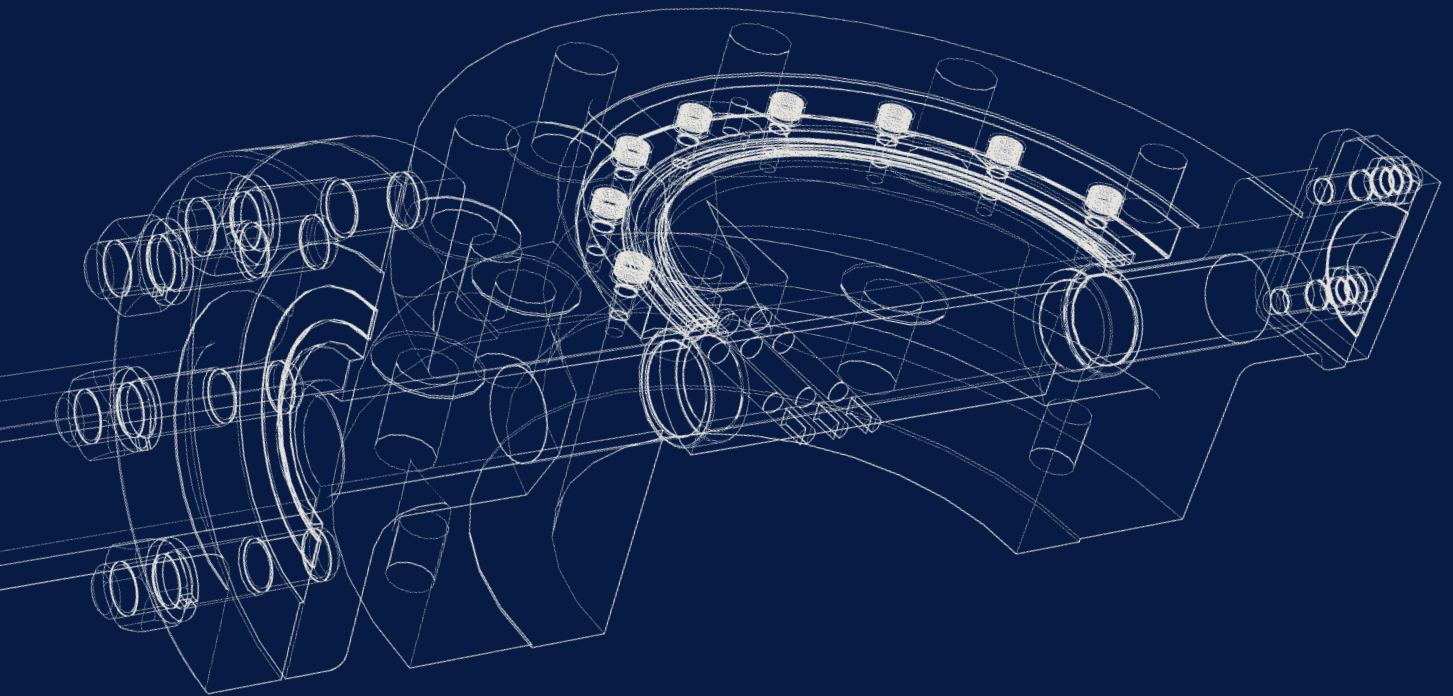


Cryogenic Butterfly Valves



It all flows from expertise.

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CRYOGENIC BUTTERFLY VALVES

Severn's Cryogenic valve range is developed from our years of control valve knowledge and experience. We have developed our 8100, 8300 and 8500 ranges for cryogenic applications. Open or closed extension bonnets are available for all our valve products, ensuring the gland packings are located away from the line media.

By utilising the principles of our 8100, 8300 and 8500 valve ranges, we can offer a vast range of products, from a single offset swing clear valve, a double offset PTFE seated valve or a Triple Offset valve, all specifically tailored for cryogenic service.

Clients can also choose from standard and bespoke face to face and end connection options. With access panels available on Butt Weld End designs when required.

Severn's Cryogenic Butterfly valve series offers the flexibility in design for assurance in performance and ensures you maintain and achieve your core imperative of safe operations and minimum downtime.



Engineering data

General – Design features

- ✔ One piece through shaft
- ✔ Extended bonnet to locate the packings away from the cold line media
- ✔ The quarter turn design ensures ease of actuation for both control and on/off duties
- ✔ Valve size range – 50mm (2in) – 600mm (24in) with larger sizes up to 72in on request.
- ✔ Temperature ratings from -196°C to +230°C (Higher temperatures available on request)
- ✔ Standard face to face dimensions to API 609/ISO 5752 & B16.10 with non-standard dimensions available on request.
- ✔ Body pressure ratings up to 2500lb
- ✔ Can be manufactured in all commercially available metals in Cast, Forged or Plate form.
- ✔ BWE and Top access panel options available
- ✔ Anti-Cavitation Trim options
- ✔ Shut-off pressures up to 100 bar
- ✔ Low emission certified gland arrangements available

Swing Clear – Design features (see 8100 Series brochure)

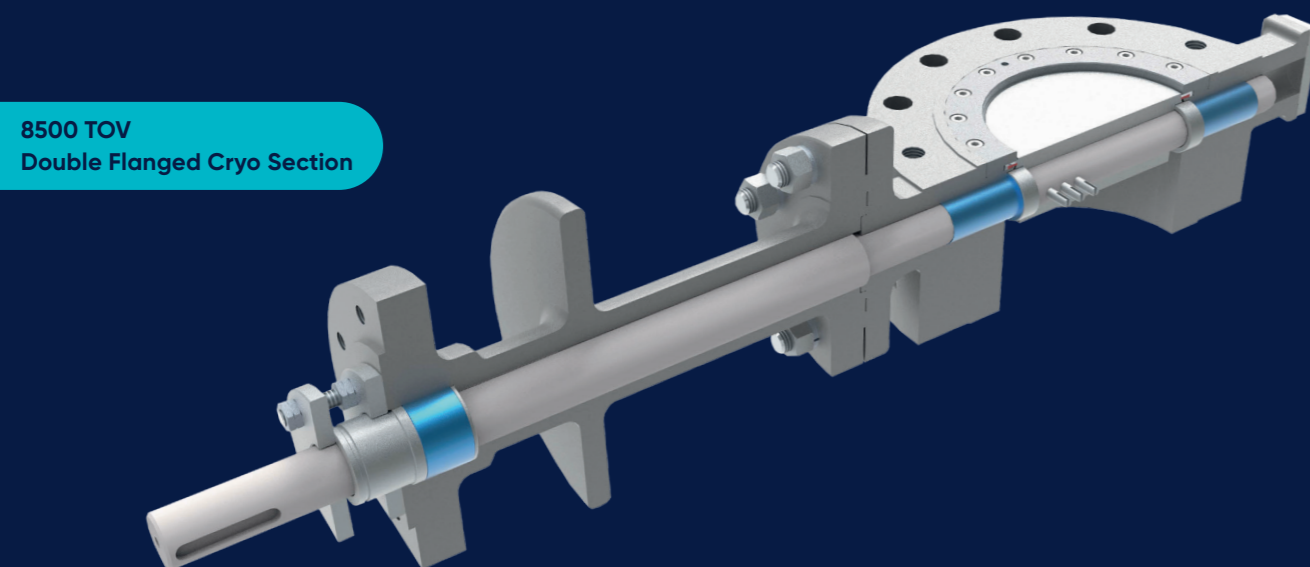
- ✔ Designed to control the flow of liquids and gases for more severe applications generally encountered in chemical and petrochemical applications where a complete tight shut-off is not essential
- ✔ The 'swing clear' disc which has no contact with the valve body enables the valves to be used with high pressures and a wide range of temperatures
- ✔ Streamlined shape disc which provides minimum resistance to flow and on larger valves ribs are incorporated for extra strength

High Performance – Design features (see 8300 Series brochure)

- ✔ Seat design ensures low seating and breakout torque
- ✔ Pressure Energized seal

TOV – Design features (see 8500 Series brochure)

- ✔ Interchangeable laminated & hybrid seal options
- ✔ Disc supplied hard faced as standard for improved abrasion resistance
- ✔ Metal seated for arduous conditions
- ✔ Torque seated design ensures consistent sealing performance.
- ✔ Self-compensating design for wear and temperature



Performance benefits

General

- ✔ One piece through shaft (BS6364 para 4.12) offers maximum strength and rigidity, minimizing deflection thereby minimizing wear and maximizing longevity of seal performance
- ✔ Anti Cavitation trims and baffle plates available to reduce cavitation and noise issues
- ✔ Anti Blowout options available (standard on #300 and above)

Swing Clear

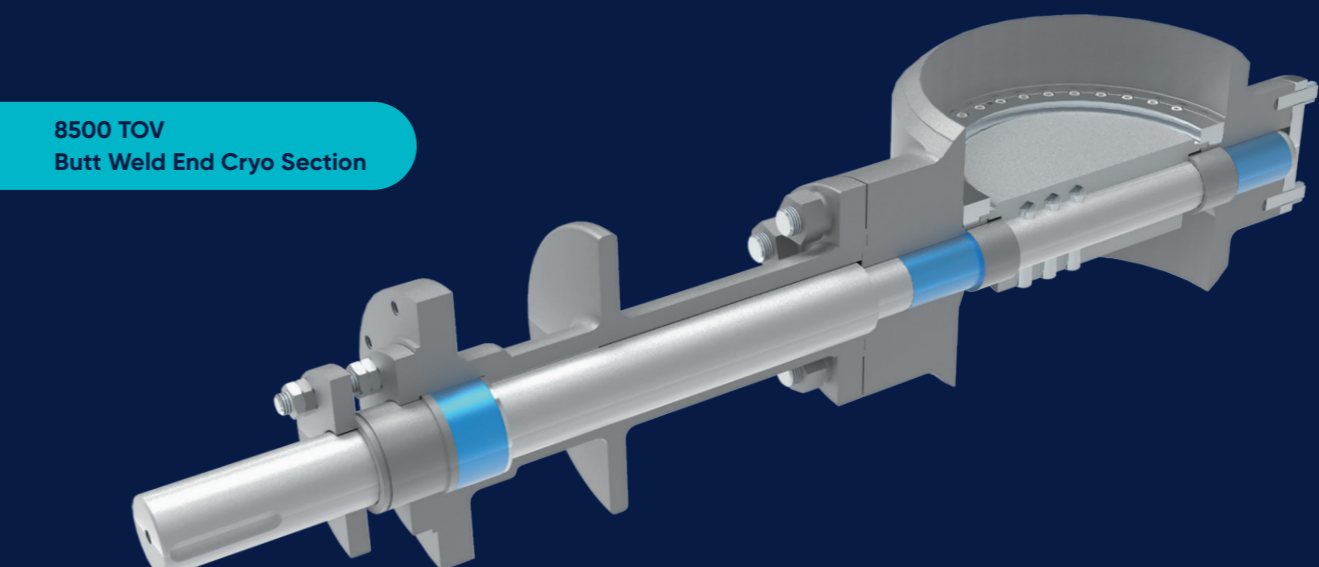
- ✔ Low torque
- ✔ Maximised Cv
- ✔ Hard facing options available for improved abrasion resistance
- ✔ Available with a range of low noise and anti-cavitation trims
- ✔ Reliable performance.

High performance

- ✔ The double eccentric action enables the disc to achieve a uniform 360° seal contact and to move into and break out from the seat with the minimum of wear
- ✔ The seat design ensures low seating and breakout torque
- ✔ The advanced seal is pressure assisted but also employs a metal energising ring to ensure the seat area of the valve is always loaded even at very low operating pressures
- ✔ Reliable leakage performance

TOV

- ✔ Torque energised seal for low & high pressures
- ✔ Self-compensating design for wear and temperature
- ✔ No internal bolting to come loose due to vibration (not BWE)
- ✔ Disc supplied hard faced as standard for improved abrasion resistance
- ✔ Available with a range of low noise and anti-cavitation trims
- ✔ Fully in-field serviceable
- ✔ Reliable performance.



Engineering data (continued)

End connection sizes/types

2in (50mm) – 24in (600mm), larger sizes available. Wafer, Lugged, Flanged or Butt Weld Ends. For other styles and sizes please contact us

Valve body ratings

ASME 150 – ASME 2500 EN 1092 PN 10 to PN 400

Body configurations

Wafer, Lugged, Double Flanged and Butt Weld End

Body face to face dimensions

API 609/ISO 5752 & B16.10 with non-standard dimensions available on request.

Bonnet styles

Standard Cryogenic and Extended cryogenic

Standard valve packing

Teflon and Graphite

Trim options

Anti Cavitation, Baffles, Half Baffles and Hard Faced

Seat leakage class

Up to ANSI/FCI 70.2. Class IV to VI, API 598 Zero available on request.

Construction materials

A wide range of standard materials are available for both the valve pressure containing parts and trim, including carbon and stainless steel, duplex/super duplex, titanium and high nickel alloys. Stellite and other hard facings/coatings are available. For further details on materials please contact us.

Paint

A wide range of paint finishes are available including enamel, alkyd gloss and various epoxy finishes.

Clean build

Severn maintains high clean build standards—utilising clean build areas including Oxygen clean and a Ultra High Purity clean room.

Actuation

We offer a wide range of actuators including – pneumatic scotch yoke and rack and pinion, electric, hydraulic, electro hydraulic and manually operated.

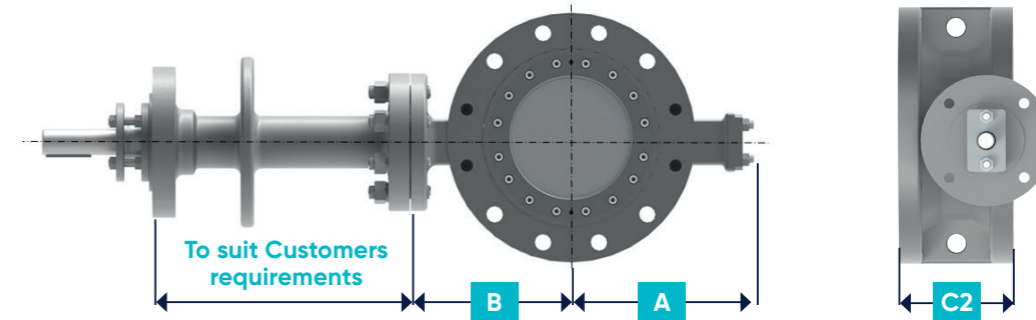
Instruments

A wide range of control instruments are available from Severn including positioners, air-filter regulators, volume boosters, solenoid valves, and lock-up valves.

Applications

- ✔ Butane
- ✔ LNG Liquefaction
- ✔ LNG, LPG and GTL Plants
- ✔ LNG receiving terminals
- ✔ Liquid Natural Gas Service
- ✔ Raw LNG
- ✔ Ethanol
- ✔ Propane
- ✔ LNG Tanker Ships
- ✔ Vent Gas
- ✔ End Flash Gas
- ✔ Ammonia
- ✔ Methanol
- ✔ HP MR Liquid and Gas
- ✔ Propylene

Dimensions

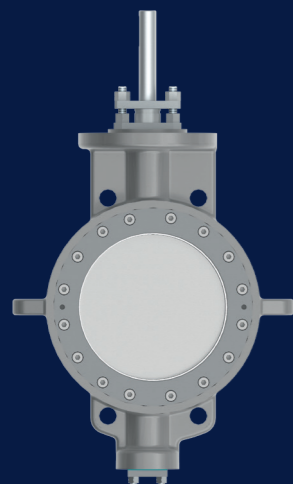


| SIZE | TOV 150# | | | | |
|-------------|----------|-----|------------|----------|--|
| | A | B | C1 (Wafer) | C2 (D/F) | |
| 80mm (3") | 142 | 125 | 46 | 114 | |
| 100mm (4") | 162 | 145 | 54 | 127 | |
| 150mm (6") | 186 | 185 | 56 | 140 | |
| 200mm (8") | 217 | 265 | 64 | 152 | |
| 250mm (10") | 265 | 270 | 71 | 165 | |
| 300mm (12") | 320 | 315 | 80 | 178 | |
| 350mm (14") | 335 | 340 | 92 | 190 | |
| 400mm (16") | 372 | 350 | 102 | 216 | |
| 450mm (18") | 405 | 385 | 114 | 222 | |
| 500mm (20") | 420 | 445 | 127 | 229 | |
| 600mm (24") | 505 | 495 | 154 | 267 | |

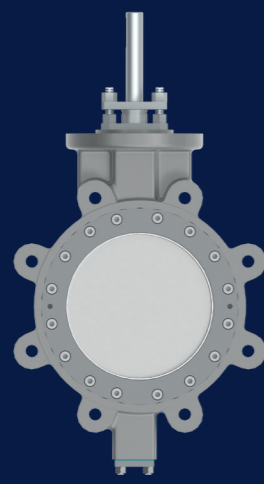
| SIZE | TOV 300# | | | | |
|-------------|----------|-----|------------|----------|--|
| | A | B | C1 (Wafer) | C2 (D/F) | |
| 80mm (3") | 152 | 135 | 48 | 114 | |
| 100mm (4") | 198 | 190 | 54 | 127 | |
| 150mm (6") | 215 | 215 | 59 | 140 | |
| 200mm (8") | 315 | 245 | 71 | 152 | |
| 250mm (10") | 270 | 253 | 83 | 165 | |
| 300mm (12") | 308 | 291 | 92 | 178 | |
| 350mm (14") | 342 | 325 | 117 | 190 | |
| 400mm (16") | 372 | 355 | 133 | 216 | |
| 450mm (18") | 408 | 390 | 149 | 222 | |
| 500mm (20") | 442 | 421 | 159 | 229 | |
| 600mm (24") | 416 | 495 | 181 | 267 | |

Valve body style options

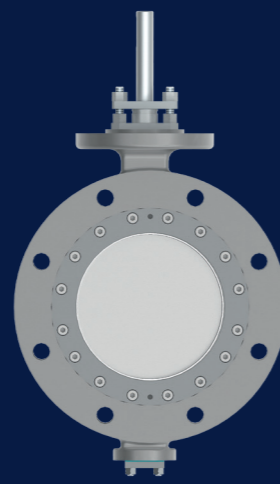
Cryogenic valves are available in four basic body styles, Wafer, Lugged, Double Flanged and Butt Weld End. Special face to face dimensions are available on request.



Wafer



Lugged

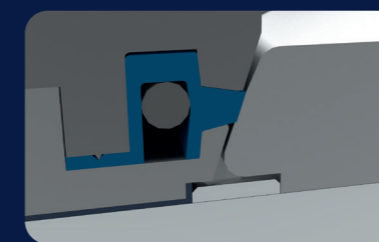


Double Flanged

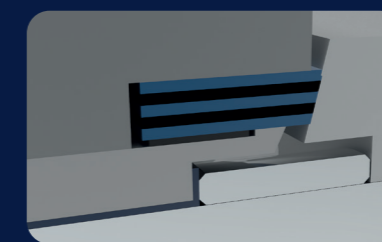


Butt Weld End

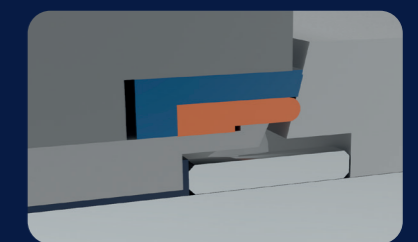
Seat options available



High Performance

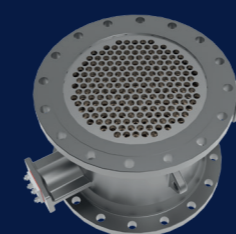


Laminate (TOV)

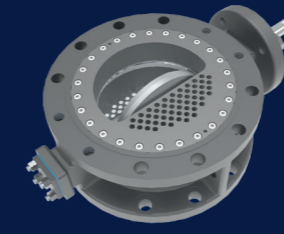


Hybrid Seal (TOV)

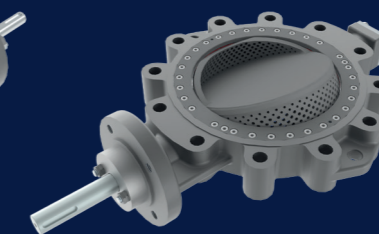
Trim options and accessories available



Full Baffle



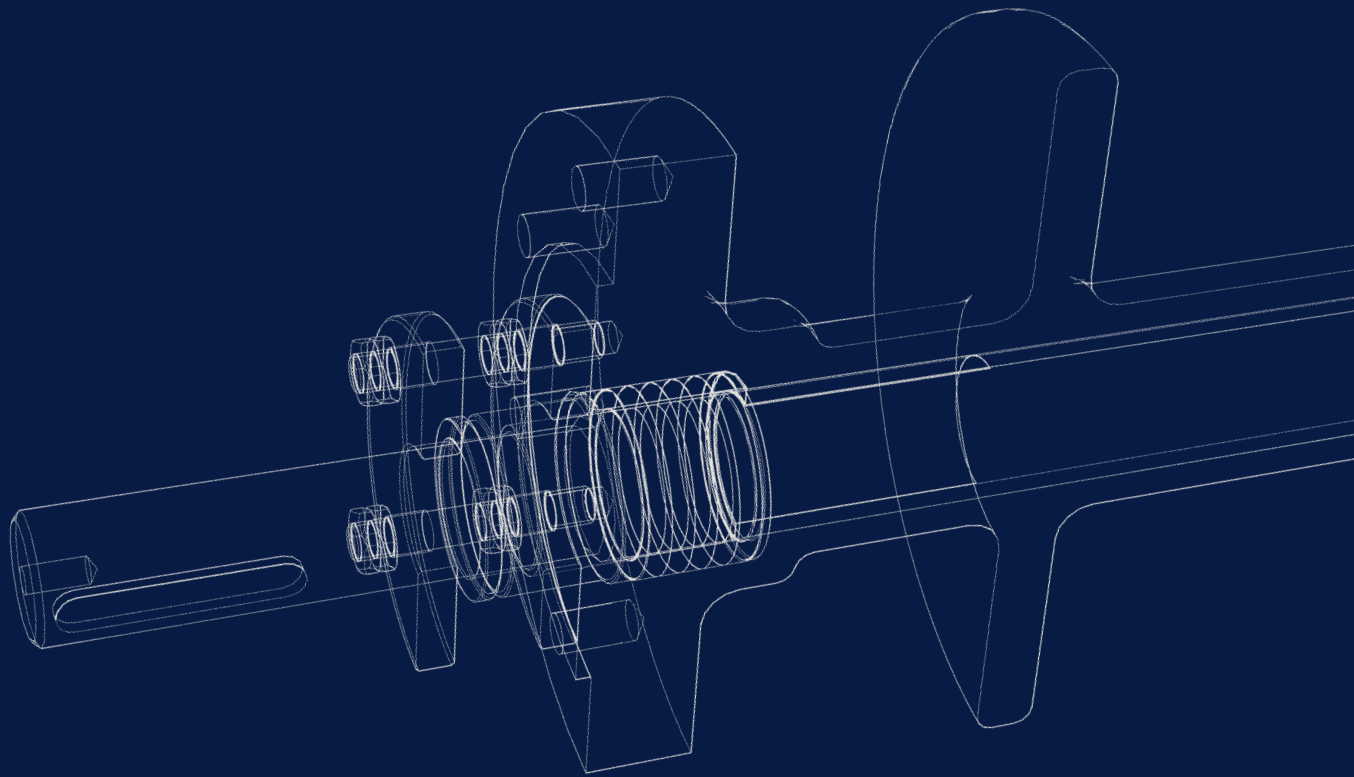
Half Baffle



Anti-Cavitation



8000 Series Top Access Panel



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Excellence

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Our policy is one of continuous improvement and we reserve the right to modify these specification details without notice.

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