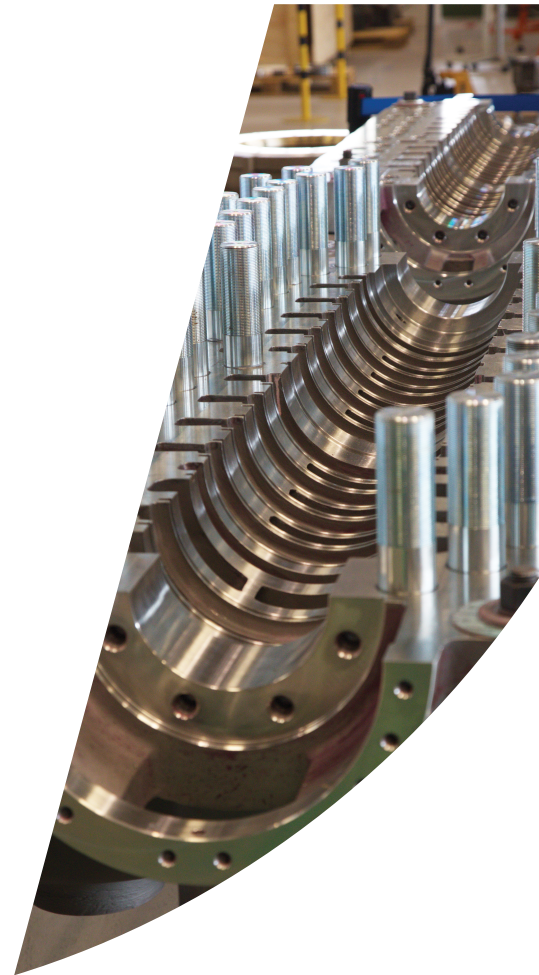


BATLEY® HYPERSEAL BV22000 VALVE FOR CONTAINMENT ISOLATION DUTY



VALVE OVERVIEW

Hyperseal BV22000 double offset butterfly valve is designed with a body-mounted resilient seal that is compatible with the demands of nuclear power duties, particularly the tight shut-off isolation of water and air in radioactive environments. The valve uses a combination of proven design features and materials from the Hyperseal BV22000 and the Steadseal BV20000 product ranges that both have a long-serving install base within PWR, BWR, and CANDU reactors.

The double offset design, plus the geometry of the vane and seal, combine to ensure a uniform 360° seal contact in the closed position. The double eccentric action moves the disc into and out of the seat with minimum wear and seating torque. The body-mounted seal also provides protection from flow particulate impingement when the valve is open, prolonging the seal's effective life.

Quarter turn on/off action allows for fast operation when necessary, and the low torque characteristics of the position-seated double offset seal are an economic advantage in power operation. When fitted with a suitable positioning actuator, the valve can also modulate control and shut off.

The blank end cover features a fully bolted design with a spiral wound gasket, and the gland packing uses industry-specific packing materials in a configuration designed in accordance with industry best practices, both providing long-term, reliable, leak-free performance of the boundary.

The extended structure of the valve is designed to withstand seismic excitation, allowing the valve to remain operable before, during, and after a seismic event. The fundamental frequency of the valve and actuator assembly is assessed to ensure it is greater than the designated cut-off frequency.

All non-metallic materials used within the assembly, such as the seating seal, stem bearings, blank end gasket, and gland packing, are environmentally qualified for use in radioactive environments.

The valves are rated to ASME B16.34 class 150 or 300 in sizes up to 600mm; with sizes above on request. End connections are typically to suit ASME B16.5 flanges with either a wafer, lugged (drilled or tapped), or full flange configuration. Butt weld ends are also available on request.

APPLICATIONS IN NUCLEAR

Containment isolation is provided to prevent or limit the escape of fission products that may result from postulated accidents. In the event of an accident, the containment isolation provisions are designed so that fluid lines penetrating the containment boundary are isolated. These fluid lines consist of valves and actuators designed to perform in a radioactive environment.

In addition to applications related to isolation on the containment boundary, the Hyperseal BV22000 is suitable for many systems that support the normal and accident recovery conditions within containment. These applications range from water applications within component cooling systems, drains, plant sump and dousing water systems to air systems related to the containment structure conditions or the vacuum building of CANDU reactors.

Outside of containment, the Hyperseal BV22000 remains a relevant solution for the isolation of low-pressure and low-temperature water and air systems.



FEATURES:

- Cost-effective Double-offset design
- Long life seats
- Bi-directional tight sealing
- Zero leakage performance
- Excellent throttling characteristics
- Seat design minimises seat/seal wear
- Shutoff is assisted by pressure
- Seating improves as pressure increases
- Position-seated, not torque-seated
- Larger shaft diameter with more bearing wear surface
- Replaceable seat
- Encapsulated bolting
- Designed to operate before, during and after seismic events or accidents events

SPECIAL FEATURES ON REQUEST:

- Live-loaded packing system
- Double packing + Leak-off connection
- Blow-out connection

BENEFITS:

- Less susceptible to seat leakage
- Seating improves as pressure increases – long term seating
- Repeatable first-time sealing
- Longer life
- Robust shaft design supports full range of actuator torques
- Low torque
- Anti-blowout one-piece shaft
- Suitable for horizontal and vertical shaft installations

TECHNICAL STANDARDS:

- Design: ASME BPVC Section III, ASME B16.34
- Pressure Testing: ASME BPVC Section III, ASME B16.34
- Wall Thickness: ASME B16.34
- Face-to-face Dimensions: BS5155, API 609, DIN 3202, ISO 5752
- Quality Assurance: ISO 9001, ASME NQA-1, 10CFR50 App.B

SHUTOFF PRESSURES:

- Up to 350psi (24 bar)

PRESSURE CLASS:

- ASME 150 to 300

SIZE RANGE:

- 50mm to 600mm (Higher on request)

TEMPERATURE RANGE:

- -30°C to 125°C

BODY TYPE:

- Wafer
- Lugged
- Flanged
- Butt-Welded

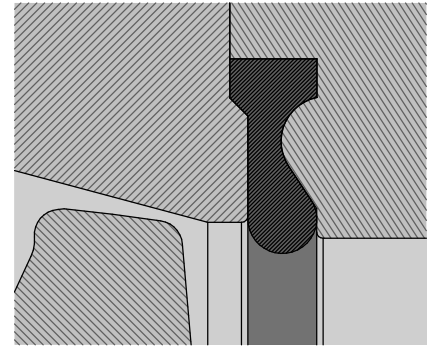
MATERIALS:

- Carbon Steel
- Stainless Steel
- Duplex
- Super Duplex

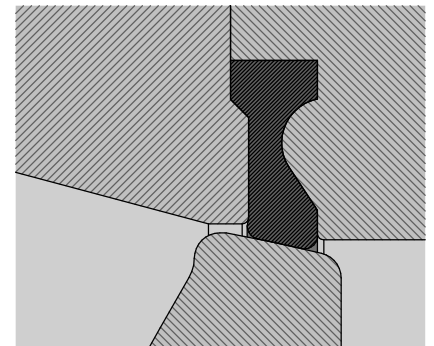
SEAT DESIGN:

In the closed position, without pressure, there is a slight interference between the disc and the seat. The stainless-steel support ring prevents any outward movement of the seat, retaining the sealing force. The seat is designed to move slightly in the direction of flow. This allows the pressure to access the back of the seat, thus making the seal progressively tighter as the pressure increases. With pressure from preferred direction, any slight deflection on the disc in case of very high pressures, increases the tightness and shutoff potential.

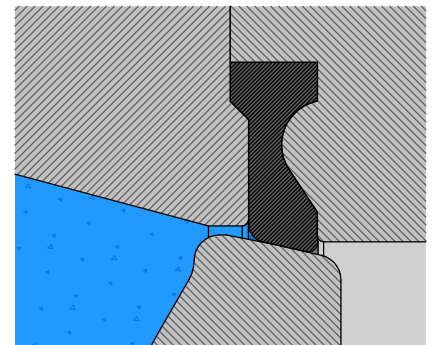
With pressure from reverse direction, any slight deflection of the disc in case of very high pressures, would tend to reduce the tightness, but the pressure behind the seat compensates to maintain the shutoff.



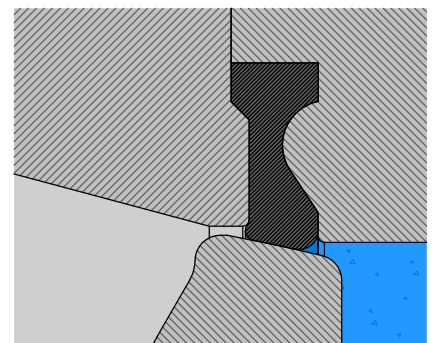
VALVE OPEN



VALVE CLOSED



**VALVE CLOSED – PRESSURE
PREFERRED**



**VALVE CLOSED – PRESSURE
REVERSE**

MATERIALS OF CONSTRUCTION



Materials shown in the table are only typical configurations, other materials can be provided upon request.

Component	Materials	
Body	ASME SA516 Gr.70 ASME SA216 WCB	ASME SA240 Gr.304L ASME SA351 CF3
Disc	ASME SA351 CF8M	
Stem	ASME SA564 Gr.630 H1100	
Taper Pins	ASME SA564 Gr.630 H1100	
Seat Seal	EPDM – Peroxide Cured	
Clamping Ring	ASTM A240 Gr.316L	
Clamping Ring Fasteners	ASTM A564 Gr.630 H1100	
Bearings	Orkot TLM Orkot TLM + EPDM O'Ring Nitronic 60	
Blank End Gasket	Spiral Wound Inconel + Graphite Filler	
Blank End Plate	ASME SA240 Gr.316L	
Blank End Studs	ASME SA193 Gr.B7	ASME SA193 Gr.B
Blank End Nuts	ASME SA194 Gr.2H	ASME SA194 Gr.8
Blank End Flat Washers	C/HD Carbon Steel	Stainless Steel
Blank End Lock/Tab Washers	ASTM A240 Gr.316L	
Packing	Chesterton 1724 + AP Style 524 Argo 5000	
Junk Ring	Nitronic 60	
Packing Bush	Carbon Graphite	
Packing Washer	Graphite	
Lantern Ring	Carbon Graphite	
Leak-off Pipe	ASME SA312 Gr.304L	
Gland Follower	Nitronic 60	
Gland Plate	ASTM A240 Gr.316L	
Gland Studs	ASME SA193 Gr.B7	ASME SA193 Gr.B
Gland Nuts	ASME SA194 Gr.2H	ASME SA194 Gr.8
Gland Washers	C/HD Carbon Steel	Stainless Steel
Live-Loading Guide	ASTM A182 F316L	
Live-Loading Indicator	ASTM A182 F316L	
Live-Loading Washers	17-7PH	
Stop Rod	ASTM A564 Gr.630 H1100	
Stop Nut	ASTM A564 Gr.630 H1100	
Stop Lock/Tab Washer	ASTM A240 Gr.316L	



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