

# Технические характеристики



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# BÖHMER STANDARD FOR SUBSEA APPLICATION - AN OVERVIEW

Each single valve is the product of more than sixty years of experience. This experience enables us to produce ball valves that are more than adequate of the strong requirements of the subsea industry.

The fully welded design eliminates potential leakages to the outside. The material of the sealings as well as of the components in touch with the medium is chosen to fulfill the highest demands. This way a long service life is given while the valves are absolutely maintenance free.

**No wonder Böhmer is one of the few manufacturers with API 6DSS approval.**

## STANDARD SPECIFICATIONS



### Sizes and pressure classes:

- ≤ 36 inch Class 1500
- ≤ 48 inch Class 900
- ≤ 56 inch Class 150 to 600



### Materials:

- Body: ASTM A350 LF2 or ASTM A694 F52 to F65
- Trim: ASTM A350 LF2, Stainless Steel; Duplex
- Sealings: FPM, HNBR, Nylon, PEEK, TCC



### Sealing design:

- Soft sealing
- PMSS
- Metal to metal sealing



### Connections:

- BW ends
- Flanges according to ASME B 16.5 up to 24"
- Flanges ASME B 16.47 series A for sizes > 24"



### Actuation:

- Standard lever or special T-lever
- Gear box with ROV bucket according
- Hydraulic actuator



### Bleed Connection:

- Plugged and seal welded
- special bleed facilities



**WE ALSO OFFER COMPLETELY TAILOR MADE BALL VALVE SOLUTIONS!**



#### Approval:

- API 6D
- API 6DSS



#### Applications:

- Pipeline End Manifold (PLEM)
- Subsea Oil- and gas pipelines
- Jacket Flooding Systems
- Hot tapping subsea
- On- and offshore platforms
- Shipbuilding (FPSO storage tanks)
- Special applications



#### Optional features:

- Body material duplex
- Trim material duplex
- CRA overlay (SS316 or Inconel 625) for seat ring area, seat pockets or complete passage
- Metal to metal sealing
- Drain valve with pressure tight cap
- Lip Sealings

# PRECISELY DESIGNED AND PROVEN IN THE FIELD

Böhmer fully welded subsea ball valves fulfill the requirements of the most common national and international standards.

## BASIC DESIGN FEATURES

### Seat Seal System

The Böhmer ball valves provide spring supported seats as a standard. The seats are pressed against the ball surface by the spring elements and ensure a tight shut-off at low line pressure. In addition the sealing effect is assisted by the pressure in line. So the total sealing force is the sum of the spring force and the force resulting from the pressure which increases proportionally with the line pressure. Depending on applications and customer requirements the below mentioned sealing systems can be delivered:

- soft seated
- primary metal seated / secondary soft seated
- metal to metal seated

### Stem Sealing

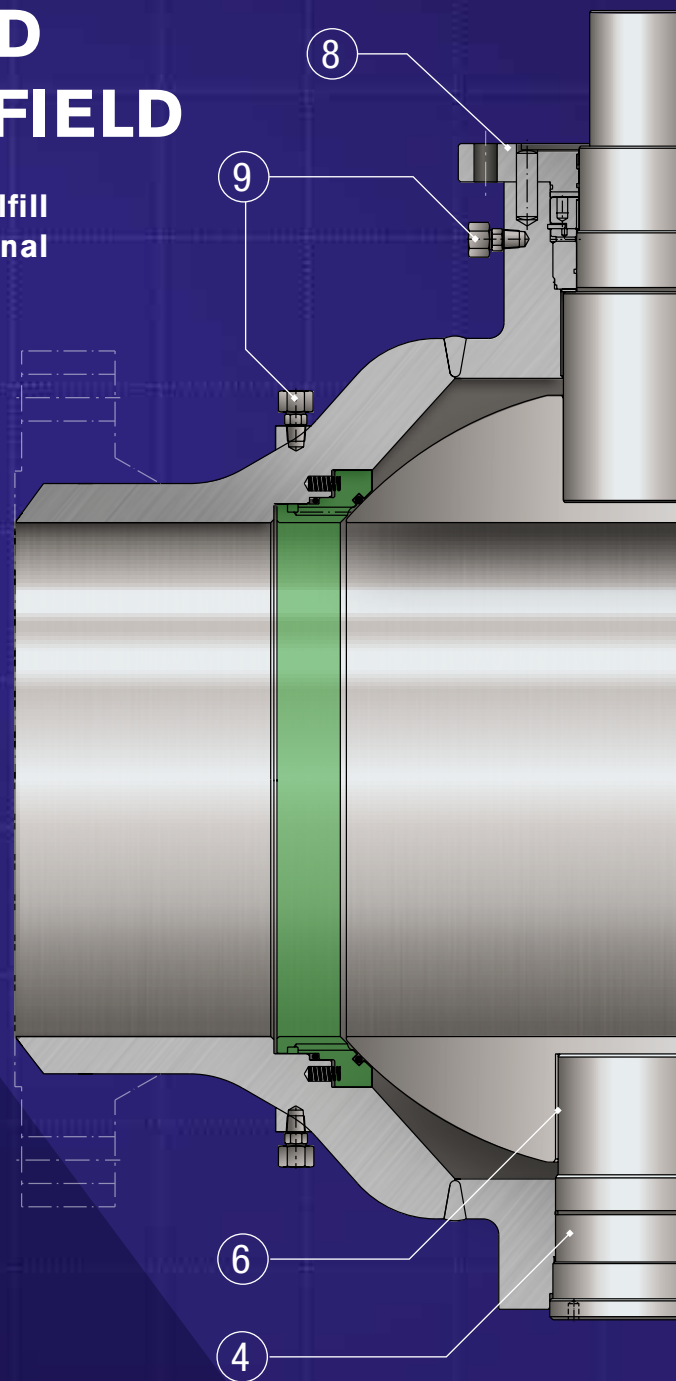
The sealing of the stem to the atmosphere is achieved by three independent sealing systems. The stem sealing design ensures the anti-blow-out function, too. Therefore, the three stem sealings are easily replaceable under full line pressure in open or closed position.

### Trunnion Mounted Ball

The standard design of Böhmer ball valves provides a trunnion mounted ball for the nominal sizes 3 inch and higher. The maintenance-free bearings for stem and trunnion are self-lubricating, thus ensuring a lower torque especially for high pressure ratings.

### Anti-Static Device

The ball valve design includes an electric conductive connection between the internal parts of the ball valve and the body, providing the anti-static function.

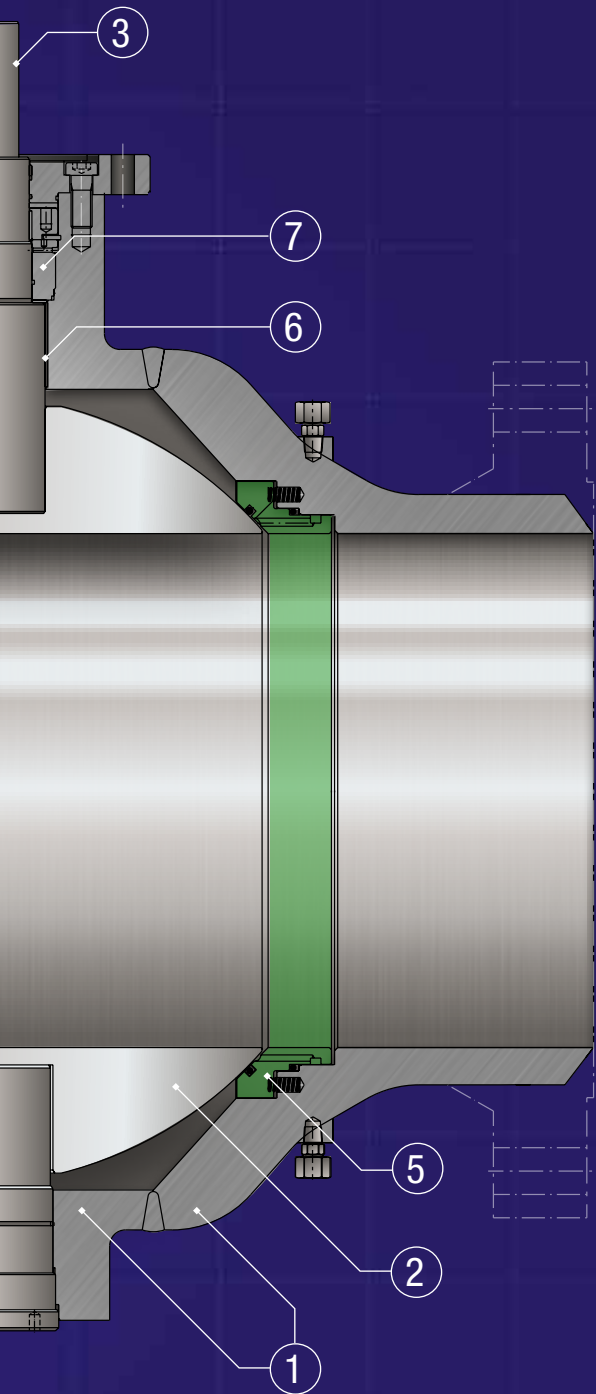


### Fire Protection

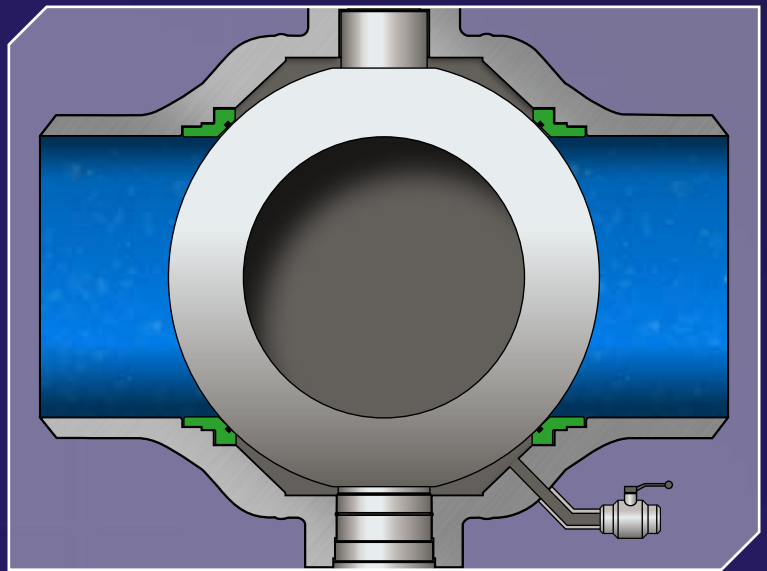
The design ensures the fire safe requirements in accordance with the international standards as API 6FA, API 607, BS 6755 P 2 and ISO 10497.

### Emergency Sealing

As an option, Böhmer ball valves can be delivered with an additional emergency sealant injection for the seat-rings and stem sealing.

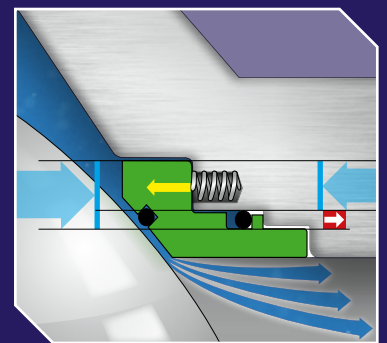
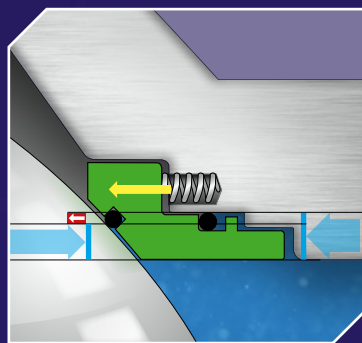


- ① Body
- ② Ball
- ③ Stem
- ④ Trunnion
- ⑤ Seat-rings
- ⑥ Self lubricating bearings
- ⑦ Anti blow-out device of the stem
- ⑧ Top mounting flange for gearboxes or actuators
- ⑨ Emergency sealant injection as an option



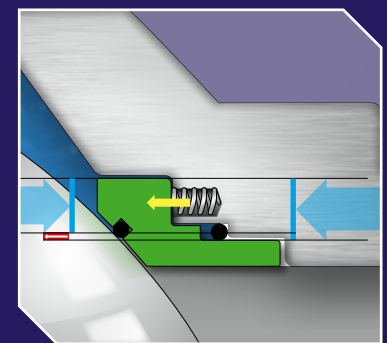
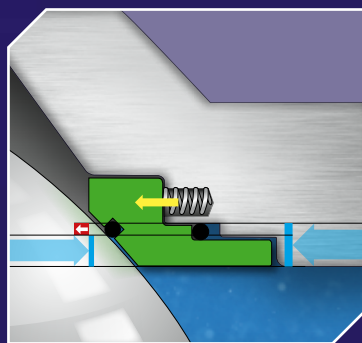
### Double Block and Bleed

The cavity can be relieved via vent or drain connections at the cavity. The upstream and downstream seat rings ensure the tight shut off to the cavity in closed position (optional in open position as well). This enables the verification of the tightness of the ball valve under full working pressure.



### Single-Piston-Effect (Self-relieving Seat Design)

This seat system is designed to automatically vent any excessive build-up pressure in the body cavity. The floating seat design allows for relieving the overpressure into the pipeline.



### Double-Piston-Effect (Bi-directional Seating System)

With this design the seat rings tighten independently of the actual pressure relations. A redundant sealing system is created. Self relieving of the cavity does not happen in closed position (optional in open position as well).

# DESIGN EXAMPLES

## Hydraulic operated ball valve

### SSIV at PLEM

- fully welded
- super duplex steel trim
- metal seated
- hydraulic actuator with single acting spring return
- taylor made solution
- maintenance free,



## ROV operable ball valve

### for platform flooding system

- fully welded
- with T-lever
- stainless steel trim
- taylor made solution
- maintenance free



**Ball valve with subsea gear box  
for PLEM - crude oil unloading**

- fully welded
- with ROV bucket
- CRA cladding with Inconel 625  
at seat pocket
- taylor made solution
- long life span,

**Ball valve with subsea gear box  
SPIBV at PLET and PLEM**

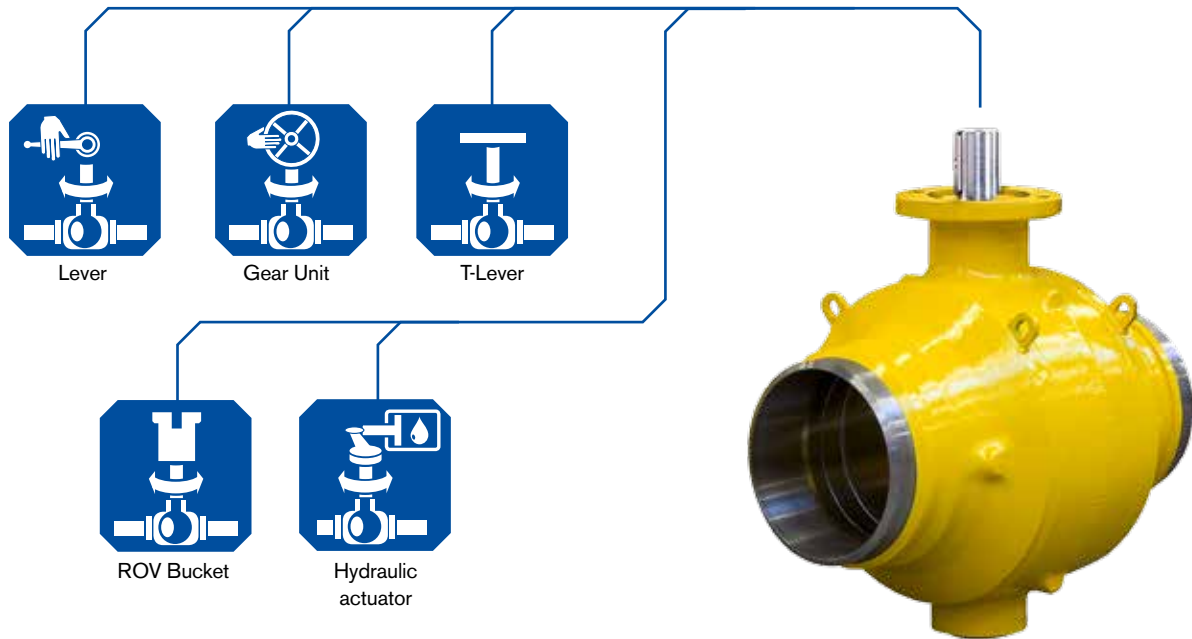
- fully welded
- ROV bucket (DIN EN ISO 13628-8 Class2)
- with vertical ingress
- Duplex trim
- CRA cladding with Inconel 625  
from seat pockets to welding ends
- long life span
- bleed port seal welded after FAT



CRA Corrosion Resistance Alloy  
DBB Double Block and Bleed  
DIB Double Isolation Bleed  
FAT Factory Acceptance Test  
PLEM Pipeline End Manifold

PLET Pipeline End Termination  
ROV Remotely Operated Vehicle  
RTJ Ring Tight Joint  
SPIBV Subsea Production Isolation Ball Valve  
SSIV Subsea Isolation Valve

# ACTUATORS FOR BÖHMER SUBSEA BALL VALVES



## Hydraulic ball valve actuators

Böhmer ball valves can be combined with actuators made by all established actuator manufacturers. We look forward to receiving your technical inquiries.

## Ball valves with special T-Lever or ROV-Bucket

The solutions allow safe and convenient actuating of the ball valves by ROV or divers.

The actuating torque is defined by the range of application, the operating conditions and the design of the ball valve. Our technical engineers will be at your service in order to select the best suitable actuator for your ball valve.





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