Through Conduit Gate Valves
Intelligent engineering for extreme environments
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Unlocking possibilities

It is 20 years since LB Bentley supplied the first small bore valve with API specification to the subsea industry.

Today, exploration is heading into remoter locations with deeper waters and more extreme conditions. Accessing reserves is becoming more challenging than ever before.

In order to enhance recovery rates cost-effectively, operators rely on their hardware. Reliable valves are a vital component of hardware requirements.

With two decades’ experience, we have the edge when it comes to designing and developing small bore subsea valves. We pioneered metal-to-metal sealing technology that reduces the risk of contamination and failure.

We employ some of the brightest minds in the industry to stretch the boundaries of design with creative engineering. The outcome is bespoke products that help engineers solve their design challenges. We like to think of it as a partnership approach.
20-year field proven

We take a collaborative approach with customers so we can tailor our valve solutions in line with their requirements. This might mean designing bespoke valves to optimise performance in a given application. It can also involve standardising core valve ranges in order to reduce lead times.

Small bore subsea valves are a critical component, not a commodity. LB Bentley apply sophisticated design principles and continually seek new ways to further enhance performance and reduce risk of failure.

Engineered for reliability

20 year-proven, our through conduit gate valves are the definition of reliability. They even tolerate contaminated, dirt-laden fluids that can make other types of valves vulnerable.

The core design feature is total metal-to-metal sealing within the valve cavity. That includes our patented metal-to-metal seal between seat and body. Our valves are unique in their ability to seal without the use of any non-metallic seals.

Internal components are precision-engineered to a finish and flatness superior to that generally applied to large valves. Both seat and gate are hard-faced: the gate is sprayed with tungsten carbide and the seat is inlaid with stellite or hard-faced with tungsten carbide.

We couple this with our patented static leaf spring design which ensures that the split gates are pre-loaded against the seat face. The pre-load is applied to the gate at the centre line of the seat so that the seat/gate contact is maintained at all times. This enables a low pressure gas-tight seal to be achieved without the aid of a lubricant or sealant injection.

Integral check valves can also be built into the valve inlet or outlet to provide a double barrier against the well fluid.
Where necessary, we can provide purpose-designed hydraulic compensators. They seal directly onto the valve bonnet without the need for external pipework, providing a piston displacement function if a sea chest is not available.

These highly-engineered components add up to superior quality and reliability. This means safety and performance levels are second to none.

**Compact & robust**

Designed for use in restricted areas, our through conduit gate valve range is ideal for use on subsea Christmas trees, manifolds, pumps and pipeline equipment. Applications include methanol and chemical injection, annulus wing valves, test lines or pressure/temperature transducer isolation.

**Fully compliant**

Our valves undergo rigorous testing, over and above industry requirements. This includes a 600-cycle or 1,200-cycle lifecycle test programme (opening against full rated differential pressure) with low and high pressure gas testing to API 6A PSL 3G before and after cycling. Valves are compliant with current design and testing principles, including API 17D.
Features

Sizes
☑ 1/2 inch
☑ 1 inch

Service
☑ Control fluids, well fluids containing H2S / CO2 gas, injection chemicals

Operating interface
☑ Hydraulic operator with optional manual override
☑ Manual tee-bar operation
☑ ROV interface

Metal-to-metal seals
☑ Seat/Gate
☑ Seat/Body (patented)
☑ Backseat
☑ Bonnet and End Cover

Stem seals
☑ Double barrier high integrity stem seals

Available connections
☑ Threaded
☑ Welded
☑ Flanged
☑ Manifold mounted

Multiple valves
☑ Available in mono-block, e.g. double block and bleed or several valves as required for chemical injection manifolds.

Technical specifications

Pressure ratings (standard valves)
5,000 psi
10,000 psi
15,000 psi

Operating depth
3,000 metres

Performance verification
Tested to API 6A appendix F PR2

Temperature range
Standard valves are available to operate in temperatures P-X (-20°F [-29°C] to +350°F [+176°C]).

However, many of our valves are undergoing requalification, so please contact us for the latest figures.

Design life
30 years

Hydraulic operating pressures
3,000 psi
5,000 psi
6,000 psi

Typical materials
NA 625
22% Duplex
25% Duplex

Available in API material classes FF to HH and NACE MR-0175/ISO 15156

Acceptable torque (without damage)
Manual and hydraulic override versions allow high torques (250 lb.ft. [340 Nm]) to be applied to the actuation stem without damage.

Low Torque, for diver intervention, and High Torque ROV Manual versions are available.
Contact

We understand the challenges of deep sea production and push boundaries to deliver intelligently engineered, bespoke small bore valves.

We exceed required industry standards to future-proof our products and protect your investment.

We are part of Severn Glocon Group’s global valve engineering network.

We are LB Bentley. Contact us today to find out how we can work with you to maximise efficiency and safety in your subsea operations.

1 inch hydraulic gate valve with limit switches

1 inch hydraulic gate valve with compensator

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