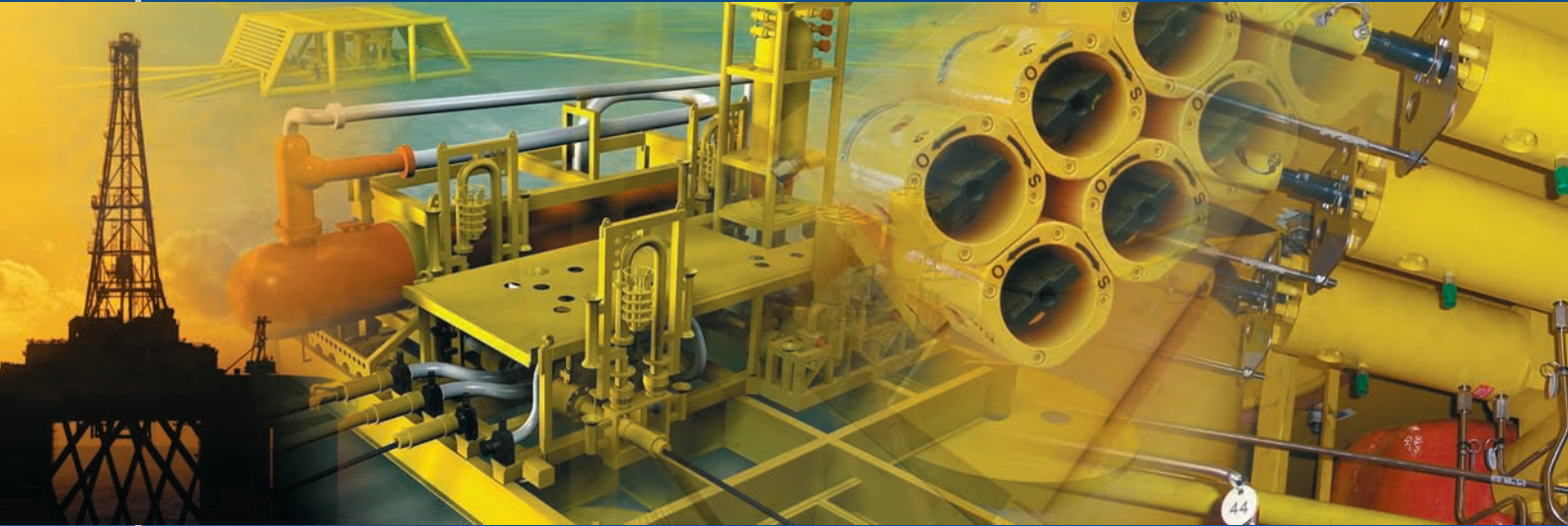




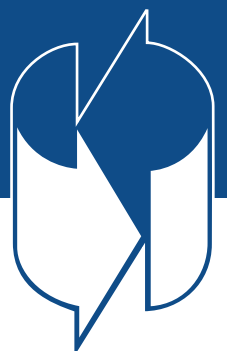
BENTLEY

SUBSEA PRODUCT OVERVIEW



CREATIVE ENGINEERED SOLUTIONS FOR SUBSEA DEVELOPMENTS

www.lb-bentley.com



Rotary Valves

The Bentley $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " subsea manual and hydraulic rotary gate valve is founded on Bentley's experience in the manufacture of subsea through conduit gate valves.

Featuring the same established metal-to-metal sealing technology, the Bentley quarter-turn rotary valve is a revolution in small bore subsea valve technology that builds on years of field-proven success.



Its unique design allows one valve to suit multiple applications: isolation, block before/after bleed, diverter and other configurations can each be contained in one compact, robust and simple valve design with very few components.

The rotary valve features 100% continuous metal-to-metal sealing and a gate-to-seat self-cleaning, wiping action that provides positive sealing and less wear even with the dirtiest of fluids. Making it ideal for use on all chemical injection applications as well as test and hydraulic lines for xmas trees and manifolds.



The Bentley rotary gate valve offers far superior metal-to-metal sealing reliability in a subsea environment compared to needle or ball valve designs.

Valve design and performance is enhanced by the unique rotary principle and its no-volume displacement design makes the valve essentially insensitive to water depth.

Valves can be supplied with any type of inlet/outlet connection and are also ideal for compact manifold mounting.

Gate Valves

The Bentley $\frac{1}{2}$ " and 1" subsea through conduit gate valve range complies fully with API 6A, 17D and ISO, whilst offering smaller bore sizes than the existing API range.

The compact yet robust design makes the range ideal for use in restricted areas, enabling optimum equipment design on subsea xmas trees, manifolds, pump and pipeline equipment.

Applications include methanol and chemical injection, annulus wing valves, test lines or pressure/temperature transducer isolation.

The gate valve range is designed with Bentley metal-to-metal sealing throughout (there are no elastomers, wiper seals or non metallic components in the seat-to-body seal) making them ideal for operation with dirt-laden fluids where other valve types may be vulnerable.



Check Valves

Bentley $\frac{1}{2}$ " and 1" check valves can be supplied with welded, flanged or threaded connections, and as stand alone units or integrated with the company's through conduit or rotary gate valves.

Porting through the spools has a through-bore equivalent to $\frac{1}{2}$ " and 1" cross-section areas respectively. The spool-to-body primary seal is metal-to-metal, with a PTFE secondary seal.



Lift pressures, which are typically 1 to 4 bar, can be specified by customers.

Hot Stabs

Bentley manufactures hot stabs and hot stab assemblies, which complement its small bore valve range.

For maximum operating life and minimum service and maintenance, the robust design features a minimum number of parts and one-piece construction with no welding.

Low insertion and retraction forces are also a feature of the design and compliant handles accommodate offset insertion angles.

Stabs can be single or dual port and can be fitted with an integral check valve. They can also be fitted with dual or single seals depending on the application and an optional positive locking facility is also available.

Materials for both stab and receptacle can be specified by the customer.



Subsea Directional Control Valves

Bentley has been manufacturing Directional Control Valves (DCV) for the subsea oil and gas industry since 1999. DCVs are used generally within the Subsea Control Module (SCM) installed on xmas trees or manifolds to control the application of hydraulic pressure by means of an electrical signal to operate another hydraulic valve.

We supply "Mono-Stable" – featuring a single pilot to open or close when electric current is applied or removed and "Bi-Stable" – featuring two pilots (one at either end) which operate when electric current is applied to the open solenoid but does not close when electric current is removed. The DCV closes when either electric current is applied to the close solenoid or when supply pressure drops below a pre-determined value. In addition we offer "dump" and "change over" type valves.



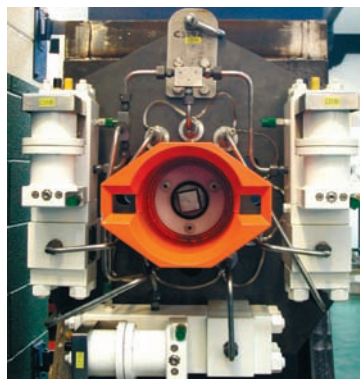
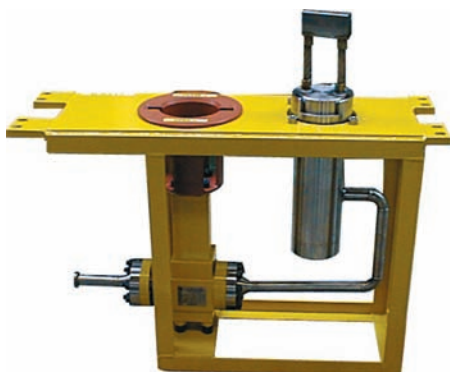
We supply both:

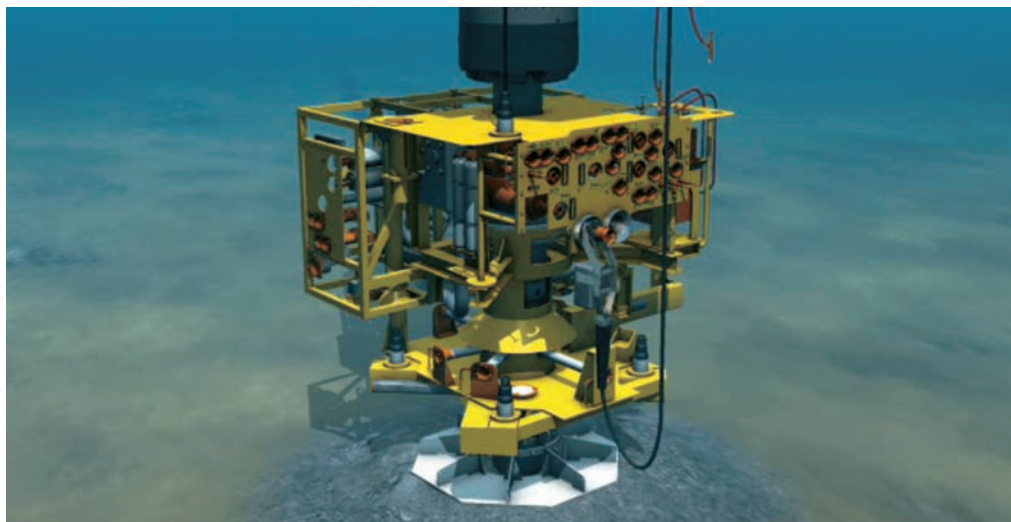
3 Port (1- Supply and Pilot, 2 – Function, 3 – Return) and
4 Port (1 – Supply, 2 – Function, 3 – Return, 4 – Pilot)

The Bentley unique design of DCV enables it to be very compact and yet offer high flow capability (CV value). The simple design can be packaged and configured to suit individual customer requirements.

Special assemblies

We can offer special assemblies designed to customer specific requirements such as ROV retrievable hydraulic panels or hot stab chemical injection manifolds.





Innovation

Established in 1972, L B Bentley is now a world leader in supplying small bore subsea gate valves for the offshore oil and gas industry. The company has more than 25 years' experience in the design and manufacture of equipment for use in extreme and severe environments.

All valves are extensively developed, tested, qualified and manufactured in accordance with international industry standards including API 6A, 17D and ISO 10423.

Having outgrown its original factory, Bentley moved to a 45,000 square foot (4,180 square metre) single-site manufacturing facility in Stroud. This has produced significant improvements in customer service and delivery.

Bentley is committed to on-time delivery and technical excellence of products through the creation of pro-active and integrated planning procedures, streamlined process systems based upon a 'lean manufacturing' ethos and supply chain development. Bentley is proud to have a highly skilled and experienced workforce.



The capabilities at the Stroud facility include CNC, CMM, a 3D solid modelling CAD system with CAM implementation, 11 high-pressure test cells, a cleanroom and an R&D department with hyperbaric and environmental chambers. The facility also holds ISO 9001 and 14001 accreditation along with PED certification.

In addition, Bentley has a dedicated team of service technicians to provide aftermarket support worldwide.

Bentley remains committed to the development of new products based on its high reliability metal-to-metal sealing technology.

Bentley aims to maintain its position as the leading independent valve supplier in the sector and also to safeguard the continuity of supply to its customers.



BENTLEY

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