Next generation ‘E’ Ball ready for sour applications

The patented, full bore, top entry block and bleed ball valve, or ‘E’ Ball, is the valve of choice for critical sealing in areas which require double isolation, not least because it does the job of two valves.

It also provides a 360^{o} orifice around the sealing face when open, preventing fluids being forced through a small aperture which can cause cavitation and erosion.

But whilst the E-Ball has been in service for ten years, it has not typically been used in “sour” service conditions. This was due to concerns over the verocity of Hydrogen Sulphide, a deadly poison which is found in some oil and gas fields and can cause metals to fail unexpectedly due to stress corrosion cracking.

Since being taken over by BEL Valves, however, the ‘E-Ball’ has undergone substantial development, and now represents simply the most advanced valve available for critical double isolation sealing. Currently in use in a number of offshore installations in Norway, the next generation ‘E’ Ball is reliable and effective in all kinds of critical applications, including sour service.

The latest iteration of the compact, fire safe and bi-directional BEL Valves ‘E’ Ball has a single seat ring design, which offers improved performance. Furthermore this single seat ring is manufactured from Inconel 718, a NACE (National Association of Corrosion Engineers) approved material, and is fully compliant with NACE MR-01-75.

NACE wrote NACE MR-01-75 (Sulfide Stress Cracking Resistant Metallic Materials for Oil Field Equipment), in response to the potential danger of a pressure boundary failure, and the specification has been written into law in many U.S. states.

BEL Valves has also perfected the coating of the seals of the balls with Tungsten Carbide, preventing galling and extending the life of the valve in critical sealing areas.

A differential in hardness must be established between the seat rings and the ball to prevent galling from taking place, and the Tungsten Carbide coating establishes this differential. The coating combines ultra-hardness with low friction, and resistance to wear, abrasion, acids and corrosion.

Along with the seat rings and the ball, other areas of the valve have also been enhanced. For example BEL Valves has machined dowel holes into the seat rings, seat pockets, body (actuator face) and bonnet, to facilitate the use of location dowels which keep the ball centralised during operation, and the seat rings in the correct orientation.

For more information on BEL Valves go to www.belvalves.com.

About the ‘E’ Ball

The patented ‘E’ Ball is a full bore top entry valve with a triunion mounted ball, which wedges into position on closing creating a mechanical seal both up and downstream. In the closed position the ball does not sit between the two seats, but forms a seal between them. The ‘E’ stands for ‘eccentric’, meaning that the cell is not a perfect circle - in fact the faces are positioned at five degree angles from the cell.

About BEL Valves

BEL Valves, a division of British Engines Limited, is a leading designer and manufacturer of gate, ball, globe and check valves in sizes up to 15,000 psi for subsea, topside and onshore critical service oil and gas applications. Headquartered in Newcastle upon Type and with country offices in the USA and Norway and sales offices all over the world, BEL currently has subsea valves hyperbarically tested and in service up to 3000 metres.