TEAM
Middle East Pipeline Integrity Co.

TEAM QUICK OPENING BAND LOCK

innovative Design Features

The Team Quick Opening Band Lock is the original and benchmark design for global high–pressure applications . Team Quick Opening Band Lock Closures provide horizontal or vertical access to any pressure vessel in seconds. Compared with other quick–opening closures they can be operated safely at remarkable speed any size of unit can be opened or closed in less than a minute, with no special tools required. Computer–aided technology has played a large part in the design of Band lock. The main pressure–loaded sections have been designed to save weight by employing finite element analytical techniques and proof testing by strain gauges, while still adhering to primary pressure vessel code requirements.

The tried and tested locking band mechanism which give the range its name, is a duplex stainless steel conical thrust ring fitted between the door and hub, transmitting the pressure load uniformly around the full 360° circumference of the hub.

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Integral Safety Devices

Safety has been engineered into the Band lock as part of its design and manufacture. A hand–operated pressure warning screw integrated into the mechanism prevents the door being unlocked until it is confirmed that the vessel's internal pressure has been relieved. Additional secondary safety features, such as mechanical key interlocks, can be fitted and integrated with control valve operations.

For lethal service it may be desirable not to incorporate a hand operated pressure warning screw into a closure. The Band lock quick opening closure can be configured to meet this requirement. For complete safety, the locking band can be seen at all times, which satisfies design code requirements and means that the operator can actually see that the door is securely closed and locked.

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Size & Pressure Range

Band lock is available to suit differing vessel sizes and pressures from 6” to 100” diameters with hub sized for welding to any diameter and thickness, for any pressure from ASME Class 150 though to 2500 (425 barg working pressure) and above.

Door Hinging

For horizontal use the door is double pivoted on hinges with self–lubricating bearings and can be specified for left– or right–hand opening. The bolted hinge arrangement facilitates on–site adjustment. The bolted brackets allow adjustment for wear and can be specified for right or left swing.

Vertical installation includes a davit which enables the Band lock door to be lifted and swung clear of the hub. At diameters over 32” Class 600, lifting eyebolts are normally fitted instead of the davit, so that the door can be lifted out of the way. Special davit arrangements are available on larger sizes to suit your individual requirements.

Materials

Forged steel hubs with forged or plate doors can be supplied to meet all international material specifications. NACE Standard

MR–01–75 / ISO 15156 materials are available.

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Unique Seal with Integral Anti Extrusion

To give a completely pressure–tight seal, the purpose–designed servo acting lip seal energizes at zero pressure. The one–piece moulding is available in a range of elastomers and incorporates a stainless–steel spring to prevent extrusion and provide a full vacuum capability. For both horizontal and vertical installations the seal is housed in the door away from the working area for protection and long life, and is easily fitted without tools.

Corrosion Protection

When required, Band lock Closures can be supplied weld overlayed in 316 Stainless Steel, Inconnel 625 or other materials to meet your specific requirements. The extent of overlay ranges from seal faces to all pressure wetted surfaces, including the provision of door insert for the pressure warning screw.

Hydrostatic Testing

Normally carried out as part of the final vessel test but an individual closure hydrotest can be provided as an option.

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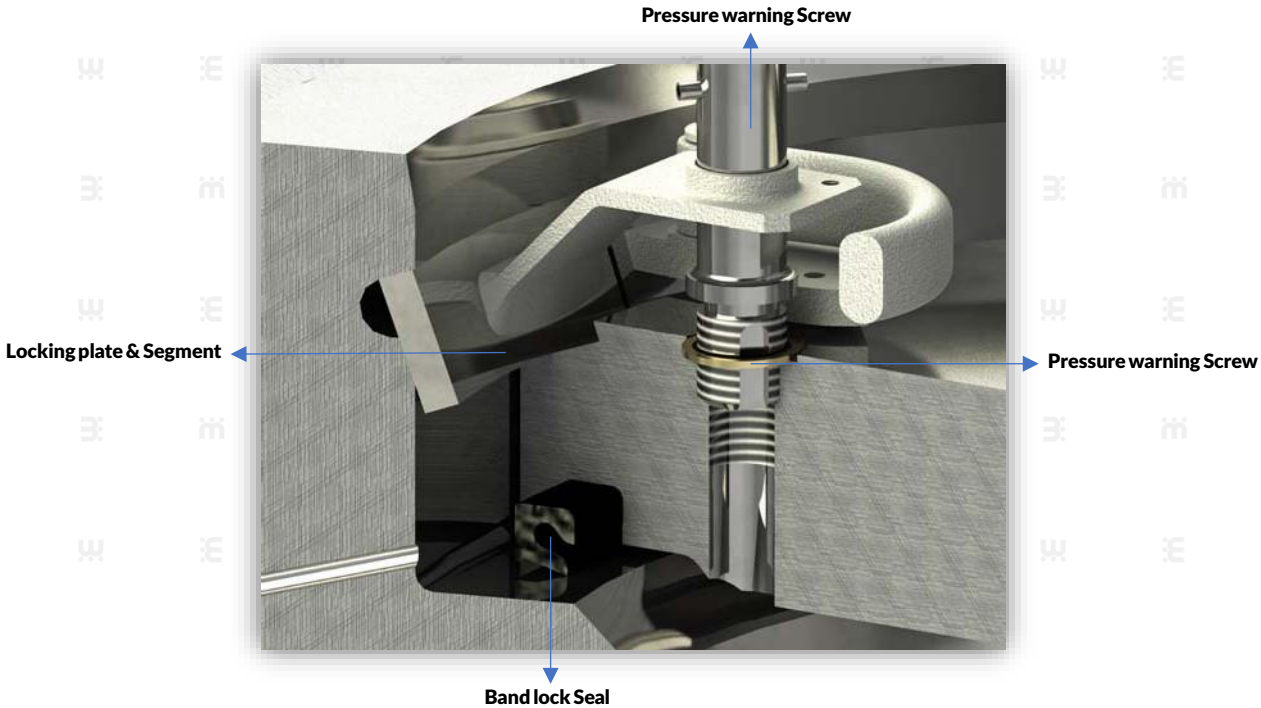
Protective Weather Covers

We recommend that the optional weather cover is fitted to all horizontal closures (supplied as standard for all vertical applications) to protect the door and mechanism from the elements, grit, sand and salt spray.

Manufactured to our usual high standards, they provide excellent, economical protection against harsh environmental conditions, extending the product's lifecycle.

Weather covers are available to suit all closure sizes from 6" to 100" in diameter.



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Approved Design

Standard units meet ASME VIII Div.1, ASME VIII Div. 2, PD5500 and EN13445. ASME Code Stamp with U–2A (or A–2 for ASME VIII Div. 2) partial data report can be furnished as an option. Code stamping verifies shop inspection of the closure and materials by an ASME Authorized Inspector.

European Pressure Equipment Directive

Technical file, submitted to vessel fabricator for incorporation into CE Marking of vessel.

TYPICAL APPLICATIONS	
Pig Launchers & Receivers	Metering Skids
Manways	Pressure Containment Systems
Amine Filters / Sulphur Recovery Filters	Seawater Injection Filters
Filter Separators	Coalescers
Hydrocyclones	Test Vessels

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TECHNICAL SPECIFICATIONS	
Size range	6” to 100” Nominal diameter and above
Class ratings	ASME 150# through to 2500# and above
Design Specifications	ASME VIII Division 1 / ASME VIII Division 1 with ‘U’ Stamp ASME VIII Division 2 / ASME VIII Division 2 with ‘U’ Stamp PD 5500 / EN 13445
Closure orientation	Horizontal or Vertical
termination Design Specifications	ASME B31.3, B31.4, B31.8 Other international standards are available on request
types of Connection	Butt Welded, Butt Welded with mitre for inclined/declined vessels, Reduced Access or Flanged to clients’ requirements
Standard Materials of Construction (Other Materials available on request)	ASTM A350 LF2 / ASME II SA350 LF2 ASTM A105 / ASME II SA105 ASTM A694 F42 to ASTM A694 F70 Grade 304L or 316L Stainless Steel Duplex Stainless Steel (F51, F53 & F55)
elastomeric Sealing	Nitrile, Viton®, HNBR & Rapid Gas Decompression Resistant. Other material options available on request
Standard Closure finish	Removable rust preventative for client to finish paint after welding to vessel
Special Closure finish	316 Stainless Steel, Inconnel 625 Weld Overlay or other materials to meet yourspecific requirements
accessories	The Band lock Closure can be fitted with a ‘Smith Flow Control’ Type DL-3 Interlock. Other types of interlocks available on request. Horizontal closures can be supplied with protective weather covers (Vertical closures are supplied with protective weather covers as standard)

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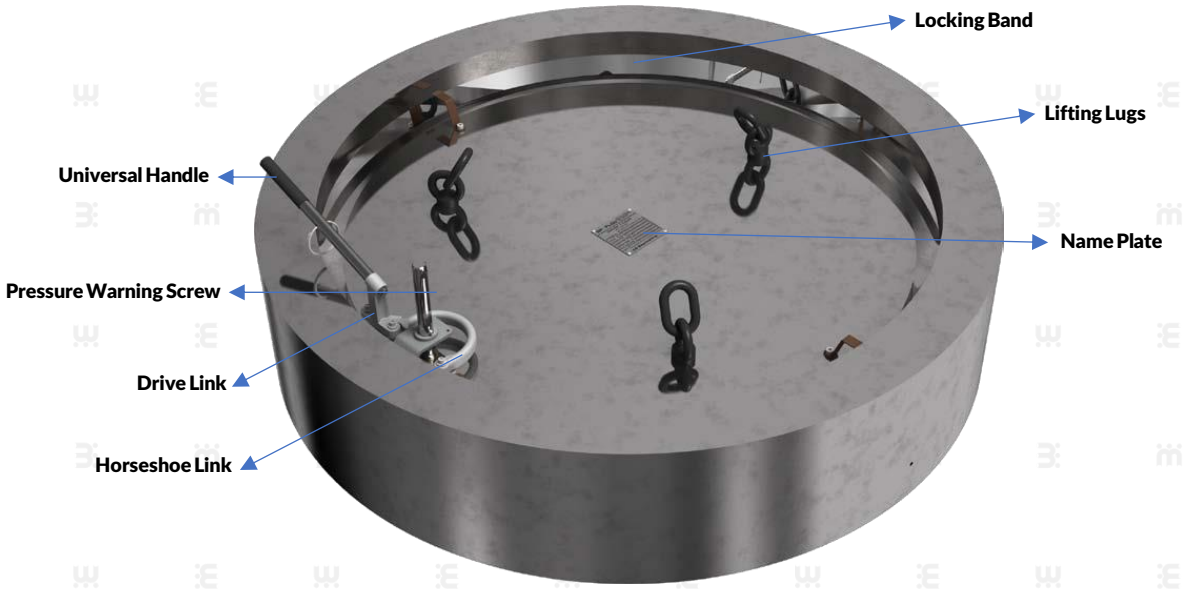
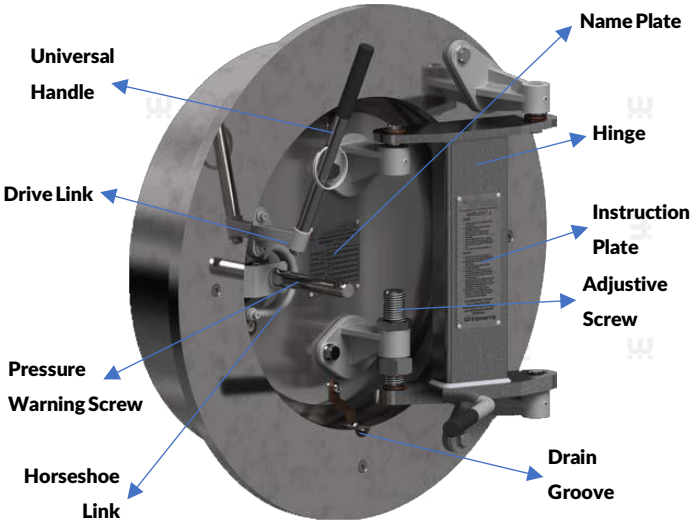
Band lock Components

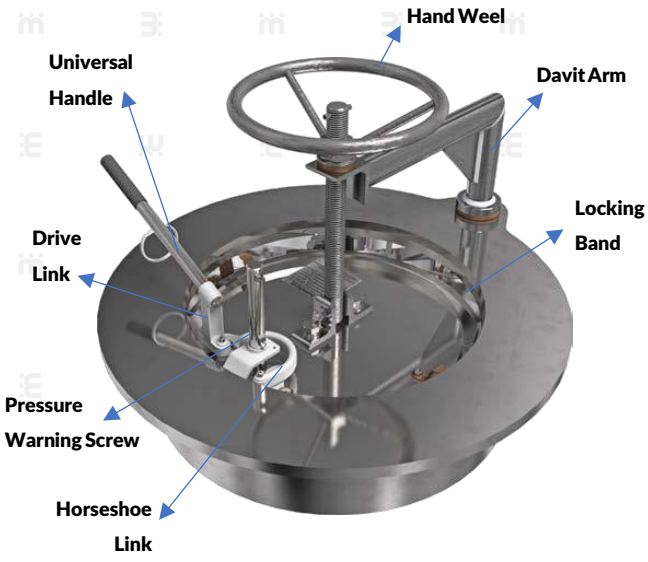
vertical Closure Components: lift–out arrangement



Horizontal Closure Components



vertical Closure Components c/w Davit



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Band lock Flanged Closures

The Team Co. Engineering brand manufactures the Team Quick Opening Band Lock Closure with integral flanged connections.

These can be fitted to new or existing installations and quite simply replace a blind flange. They are ideal for installations where the operational overhead for opening an existing blind flange is found to be uneconomical over the life of the installation.

Blind flanges are often fitted because they provide lower cost on capital investment at the initial construction phase.

It may not be until later in the life of an installation that the reality of the continuing overhead associated with opening such a flange is realized. The flanged Band lock Closure offers a quick and easy solution to this problem and, over the lifetime of the pressure vessel, may provide significant cost and time savings to the operator.

50” & 12”

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Very Large Diameter Band lock Closures

The Team Co. Engineering brand is leading the industry in very large diameter quick opening closure design.

The Band Lock design has been up–scaled and engineered to enable operators to incorporate proven technology on very large diameter applications whilst experiencing the same ease of access enjoyed on smaller diameter pressure vessels.

Developed initially for the Middle East market, Team Co. has manufactured very large diameter Team Co. Engineering Band Lock Closures that fully incorporate the benefits of a standard Band Lock Closure, including:

- Full access can be achieved in less than a minute
- Full compliance with ASME VIII Div. 1 UG 35
- Integral safety devices
- Unique self–energising lip seal with integral anti–extrusion spring
- Full vacuum capability

The ability to produce these larger sizes gives the potential to realise significant project savings in engineering time and cost by reducing the number of pressure vessels and associated pipework required for any given application.

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Operating Sequence

Operational safety has been engineered into the Band lock Closure as part of its design and manufacture.

Step 1

Before attempting to open the closure, check that the vessel is fully isolated, drained and vented from any pressure source. On completion of the isolation and venting procedure, slacken off the pressure warning screw without attempting to remove it, any residual pressure in the unit will be indicated. Should an indication be given, close the pressure warning screw and re–check the status of all valves.

Step 1

Step 2

When completely satisfied that the closure is safe to open, remove the pressure warning screw and its integral locking plate from the closure.

Step 2

Step 3

Locate the universal handle into the drive link mechanism attached to the horseshoe mechanism. Make sure that the universal handle is positively located in the hole provided.

Step 3

Step 4

Rotate the universal handle anti–clockwise through approximately 180°. This will actuate the drive link and horseshoe mechanism and progressively contract the band onto the door recess. The universal handle should then be removed.

Step 4

Step 5

Using the door hinge handle, swing the door into its open position with minimal force. The door is mounted on a double pivot mechanism which gives a degree of straight–line movement and also allows the door to be rotated for access to the seal and band.

Closing the Band lock Closure is simply a reversal of the opening sequence.

Step 5

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Band lock Configurations

In today's demanding pressure vessel market, the Band lock Closure can be supplied in various configurations: Standard (full Bore) Standard weld bevel configuration is machined to meet customers' specification (single V, double V, J, inside or outside bevel) in accordance with ANSI B16.5 (or related design code). The closure bore is machined to match the internal bore of the vessel or pipe.

Standard

reduced access (tapered) The weld joint configuration is machined to meet the customers' specification and is placed towards the outer diameter of the closure flange.

An internal taper is provided for conversion to a smaller closure opening. This configuration is ideally suited for use on filtration equipment where access is required, but the removal of the filter elements is not obstructed. Self–reinforced Designed for access to large diameter vessels where full diameter access is not required.

Reduced Access

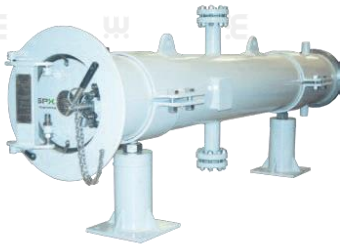
To satisfy code requirements, the closure hub is supplied with an extended length to provide the required nozzle projection and reinforcement.

Pig Trap Refurbishment Modification & Trap Extensions

With the life expectancy of existing pipeline trap and closure being extended, it is inevitable that to meet modern day requirements and to assist

Self Rein–Forced

Intelligent Pigging, in–situ vessel modifications and trap extensions will have to be given consideration. We have the technology and experience to design, manufacture, test and commission modifications to customer requirements, to ensure that vessels meet the latest code requirements and regulations.



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