



SPX POWER+ENERGY

Providing Engineered Pipeline Solutions

**INNOVATION, DESIGN, MANUFACTURE & AFTERMARKET
SERVICES: SOLUTIONS FOR A BETTER WORLD**

>GD Engineering®



SPX - An introduction

Based in Charlotte, North Carolina, SPX Corporation (NYSE: SPW) is a global multi-industry manufacturing leader with approximately \$5 billion in annual revenue, operations in more than 35 countries and over 14,000 employees. The company's highly-specialized, engineered products and technologies are concentrated in Flow Technology and energy infrastructure. Many of SPX's innovative solutions are playing a role in helping to meet rising global demand for electricity and processed foods and beverages, particularly in emerging markets. The company's products include food processing systems for the food and beverage industry, critical Flow components for oil and gas processing, power transformers for utility companies, and cooling systems for power plants. For more information, please visit www.spx.com.



GD ENGINEERING, AN SPX BRAND - GENERATIONS OF EXPERIENCE

Founded in 1944 as the General Descaling Company, GD Engineering, now a brand of SPX Corporation, is a market leader in the design and manufacture of pipeline pigging solutions to the oil, gas and process industries worldwide.

We manufacture a range of innovative and proven products including the industry leading Bandlock™ 2 Closure, Hi-T Pigalert™ Scraper Passage Indicator and associated equipment.

>GD Engineering®



Highly Professional & Dynamic Team

Our strategy is to create market advantage through technology, service and product leadership, by expanding our market focus to offer full customer solutions. From this dedication has come advancements in equipment development and applications; advancements that have changed the way industry experts solve problems.

- **Innovation** — Proven state-of-the-art engineering solutions
- **Know-how** — Unsurpassed experience and process knowledge
- **Quality** — Trusted genuine OEM parts competitively priced, and an aftersales commitment to excellent service support
- **Synergies** — Our cooperative interaction strengthens our commitment to provide effective solutions to problems encountered by today's industries

Naturally, we support our existing range of products with a fully committed aftersales support facilities, offering a comprehensive onshore/offshore inspection and service programme, specifically designed to suit client requirements.

All GD Engineering brand products are designed and manufactured to recognised industry specifications. We have been assessed and approved by Lloyd's Register Quality Assurance ISO 9001-Certificate No LRQ 0840076, and can further demonstrate our commitment to provide clients with quality products combined with comprehensive documentation and full aftersales support.



Customer Care

Managed by a team of skilled professionals who have many years of experience within the oil, gas and process industries, the activities of GD Engineering continue to expand whilst maintaining our position as a leading provider in our sector.

As we develop our business we recognise that customer care is crucial to our success and we are therefore focused on achieving customer satisfaction in every area of our business.

We have established the ideal framework to provide world class customer service and we take pride in our established and loyal customer base.

By investing in sophisticated in-house technical engineering facilities we are able to meet the specialised requirements of our extensive client base. SPX provides front end design studies on specific field developments to determine cost-effective pipeline pigging solutions.

To support our world class products within the oil, gas and process industries, SPX prides itself on being able to reduce operational maintenance costs through extended product life cycles and increase efficiency with a project managed maintenance scheme designed to function within existing operational commitments.

With a fully trained and experienced team of technicians and engineers, SPX offers a comprehensive inspection and maintenance service for pipeline pigging systems worldwide as well as on-site operator training to keep your equipment in fully operational condition.



BANDLOCK™ 2

Bandlock™ 2 – Quick-Opening Closure

Innovative Design Features

The GD Bandlock™ 2 is the original and benchmark design for global high-pressure applications with over 20,000 units in operation worldwide. GD Bandlock™ 2 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 Bandlock™ 2. 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 gives 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.

Integral Safety Devices

Safety has been engineered into the Bandlock™ 2 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 Bandlock™ 2 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.

Size & Pressure Range

Bandlock™ 2 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 through to 2500 (425 bar 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 allows adjustment for wear and can be specified for right or left swing.

Vertical installation includes a davit which enables the Bandlock™ 2 door to be lifted and swung clear of the hub. At diameters over 30", 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.

Seal Material

The standard seal is 80 shore hardness Nitrile material. Viton™, HNBR and Rapid Gas Decompression (RGD) resistant material grades are also available. A range of materials are available to cover a temperature range of -50°C to +210°C (-58°F to +410°F) according to the elastomer specified.

Unique Seal with Integral Anti-Extrusion Spring

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.

Materials

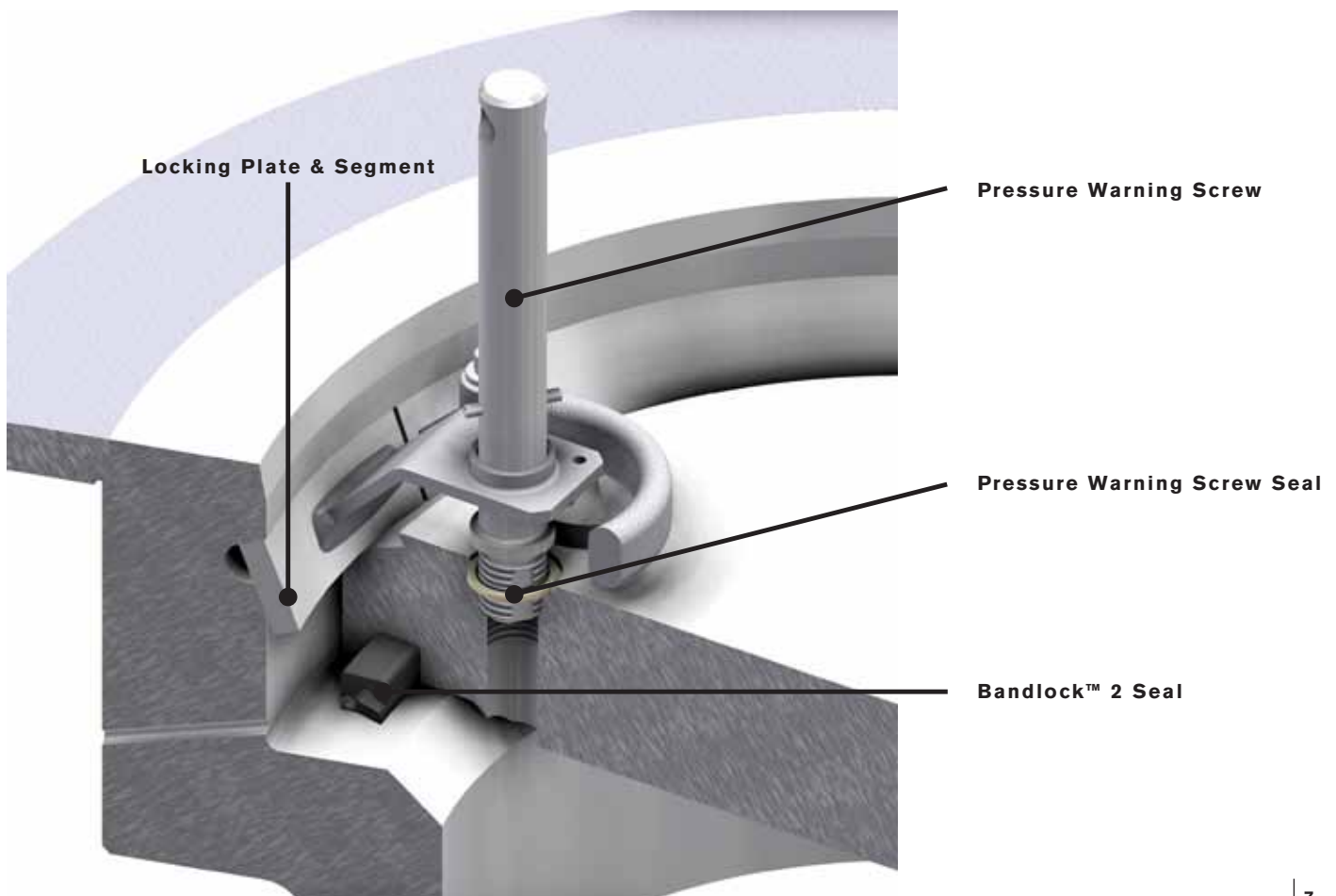
Forged steel hubs with forged or plate doors can be supplied to meet all international material specifications. NACE Standard MR-01-75 / ISO 15156 materials are available.

Corrosion Protection:

When required, Bandlock™ 2 Closures can be supplied weld overlaid in 316 Stainless Steel, Inconel 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.



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 Authorised Inspector.

European Pressure Equipment Directive (97/23/EC)

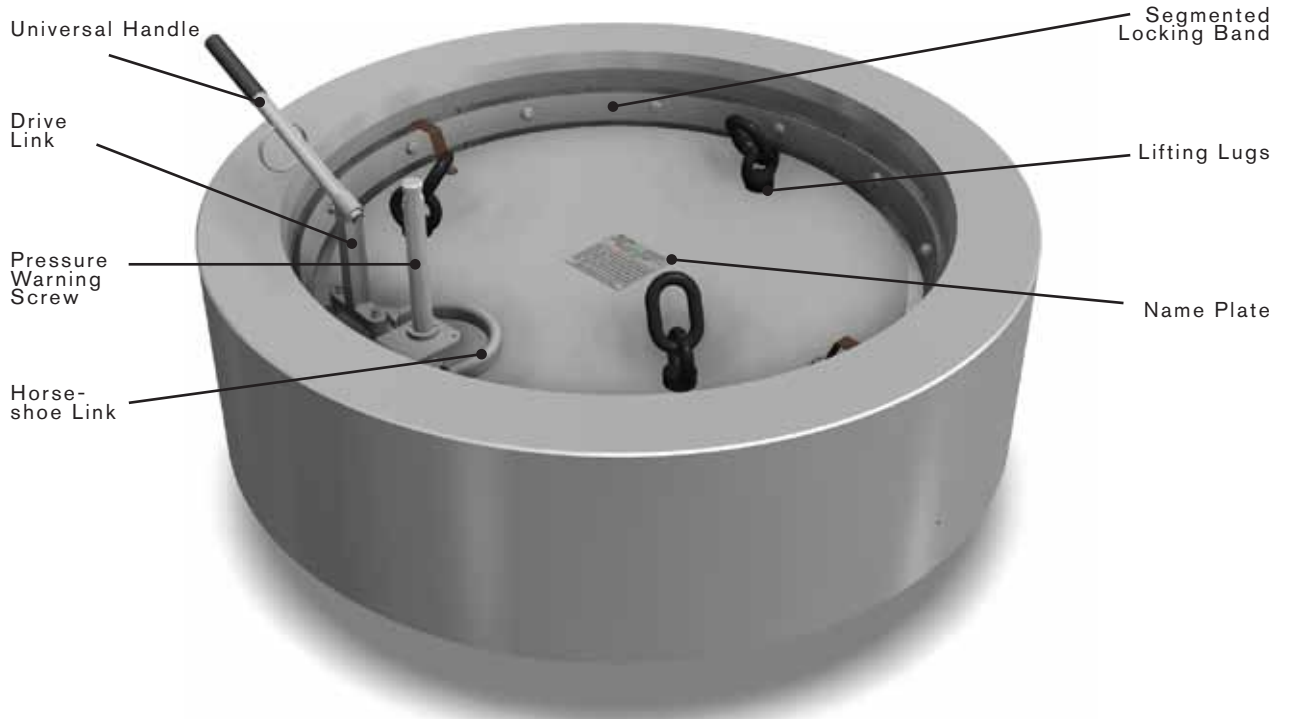
The following options are available:

- CE Marking of Closure by GD Engineering
- Technical file, submitted to Vessel fabricator for incorporation into CE Marking of vessel.

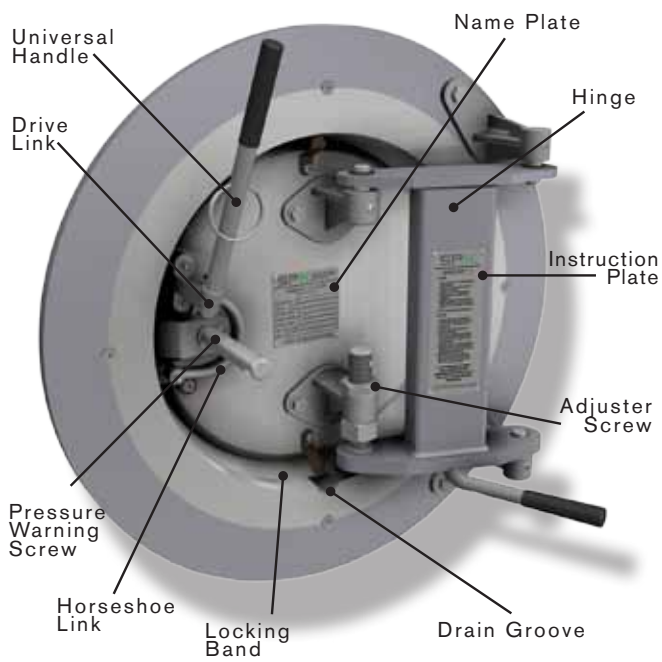
| TECHNICAL SPECIFICATIONS | |
|--|--|
| Size Range | 6" to 100" Nominal diameter and above |
| Class Ratings | ASME 150# through to 2500# and above |
| Design Specifications | ASME VIII Division 1 / ASME VIII Division 1 with 'U' Stamp |
| | ASME VIII Division 2 / ASME VIII Division 2 with "U" Stamp |
| | 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 |
| Materials of Construction | 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, Inconel 625 Weld Overlay or other materials to meet your specific requirements. |
| Accessories | The Bandlock™ 2 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) |

Bandlock™ 2 Components

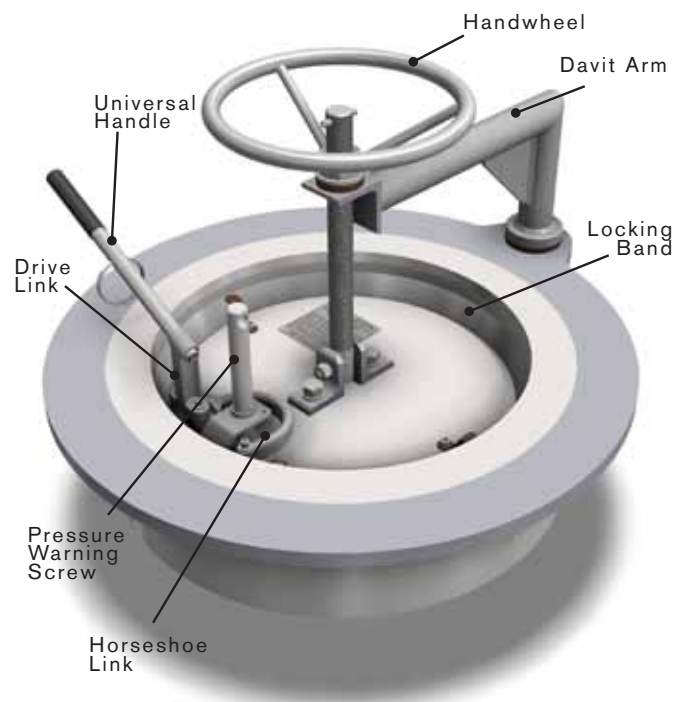
Vertical Closure Components: Lift-Out Arrangement



Horizontal Closure Components



Vertical Closure Components c/w Davit



Bandlock™ 2 Flanged Closures



50" & 12"

The versatility of the Bandlock™ 2 Closure allows easy supply of variations from standard. These include but are not limited to flanged end closures which can be supplied for new vessel construction or to directly replace blind flanges. Reduced access closures for when a full through bore is not required. Hydro cyclone closures for filtration and separation vessels. Closure doors can be supplied ready to accept gland attachments. Pig receiver and launcher extensions to accommodate intelligent pigging operations along with receiving cassettes designed to meet specific operating requirements.

Bandlock™ 2 Configurations

In today's demanding pressure vessel market the Bandlock™ 2 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.

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

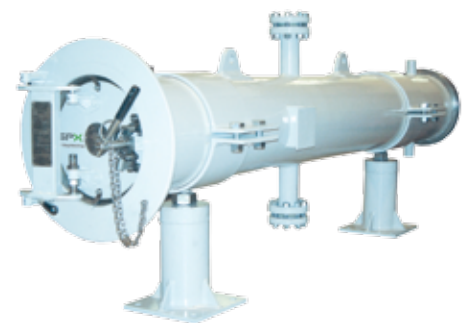
Designed for access to large diameter vessels where full diameter access is not required.

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 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.



Operating Sequence

Operational safety has been engineered into the Bandlock™ 2 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 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 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 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 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 Bandlock™ 2 Closure is simply a reversal of the opening sequence.



STEP 1



STEP 2



STEP 3



STEP 4



STEP 5



**60" Fully Automatic
Waste Treatment Closure**



18" Industrial Dry Cleaning Closure



**1 metre I/D Connector Test Vessel
c/w Bandlock™ 2 Closure**

SPECIAL APPLICATIONS

Special Closure Applications

To complement our existing range of closures designed primarily for the oil and gas industries, GD Engineering can provide closure solutions for a range of industrial and environmental applications where rapid, safe access is required to a pressurised vessel.

Using our sophisticated in-house technical engineering facilities, incorporating 3D solid modelling and ANSYS FEA software, combined with a team of highly qualified and experienced engineers, we are able to provide comprehensive solutions to meet our client's most challenging applications.

Examples of Recent Projects

Industrial/Domestic Waste Treatment Closures

Ranging in size from 1.8m to 2.5m these closures are for use on industrial/domestic waste treatment vessels utilising a steam reduction process. Fully automatic in operation, they provide quick and safe access to the vessel contents. Safety interlocks ensure that the closure cannot be opened before internal pressure in the vessel is released.

The closures are designed for remote and continuous operation in harsh environments and incorporate many of the features found in our established oil and gas range.

Industrial Dry Cleaning Closure

To complement the latest designs of industrial dry cleaning machines utilising higher operating pressures and environmentally friendly processes, SPX has developed a quick opening closure incorporating a simple locking arrangement and safety interlock system. The closure provides quick and safe access to the machine

contents with only minimal operator training required before use.

Suitable for continuous operation to meet the high frequency demands of the process, the closure is of robust design requiring only minimal maintenance. Visual indicators on the closure provide confirmation of closure door status; their outputs being incorporated into the machine control system.

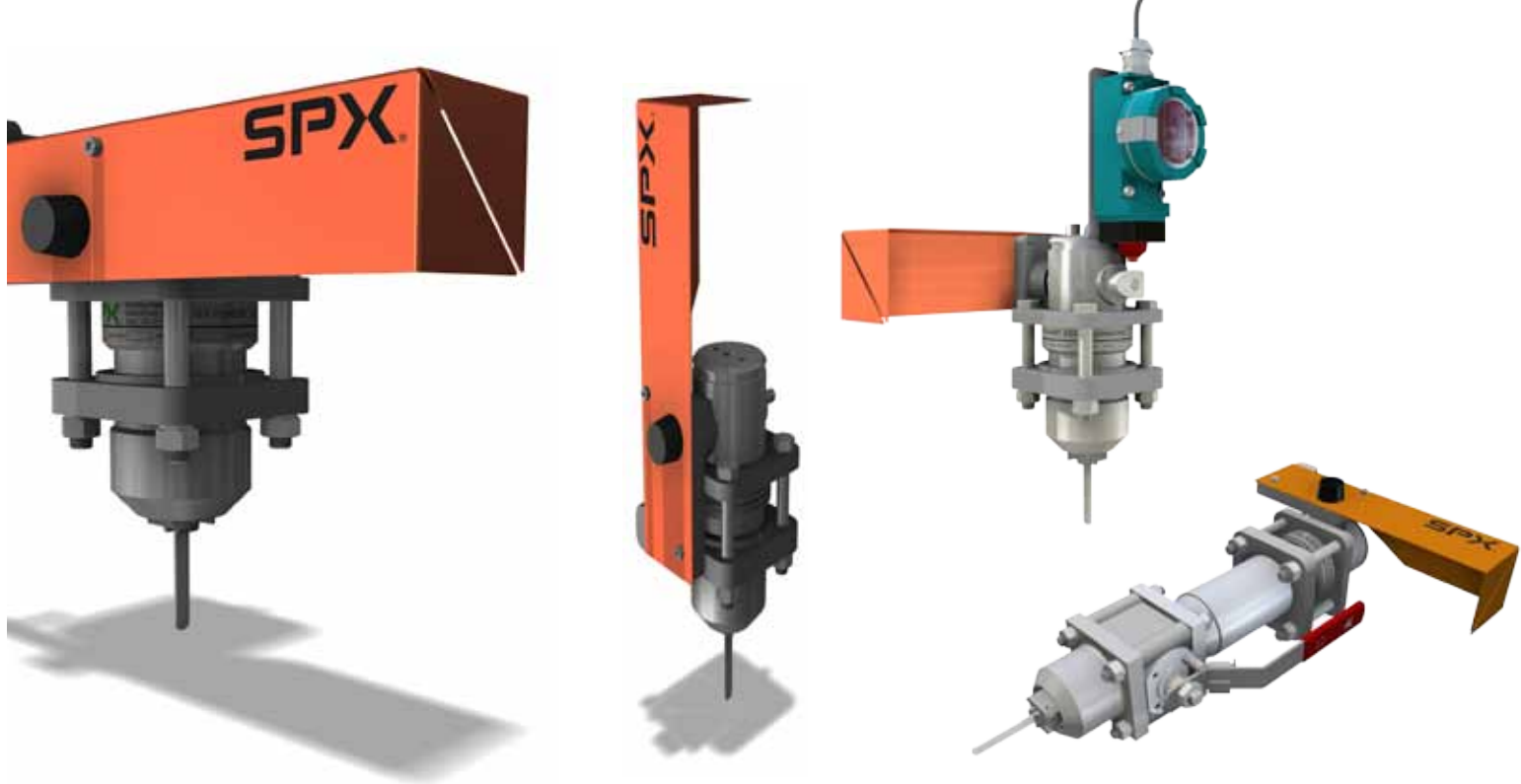
High Pressure Test Vessel Closures

High pressure closures have been developed to allow quick and safe access to test vessels. These closures are used to verify the performance of components and assemblies required to operate at extreme static or dynamic pressures. Applications include test chambers for deepwater subsea components and processes involving rapid dynamic loading.

The closure door can be designed to accommodate umbilical and instrument connections to monitor the performance of the components under test.







Hi-T Pigalert™ – For Scraper & Sphere Signalling

Operating Capabilities

The Hi-T Pigalert™ is made in four pressure classifications – up to ANSI Class 600, 900, 1500 & 2500. Standard models are designed for use at temperatures from -20°C to +200°C, dependent upon the line products and pressure. Alternative elastomer seals can be provided for operating temperatures outside this range.

Reliability

Simple to install and operate, the Hi-T Pigalert™ is an economically priced unit providing adjustable on-site penetration and giving the operator simple visual indication with a single action reset.

The proven pivotless tumbler mechanism and laminated trigger blade provide the necessary depth of penetration into the pipeline to give a reliable and visible signal with negligible effect on the flow.

The trigger has also been extensively tested with online inspection pigs and the Hi-T Pigalert™ carries full National Grid approval.



Installation

Standard models are supplied ready for mounting on a base to be welded to the line pipe or vessel. Flange mounted models up to ANSI Class 1500 are also available.

Full instructions covering installation, re-setting, adjustment to suit varying pipe-wall thicknesses and removal under pressure using a jacking bracket are supplied with all models of the Hi-T Pigalert™ at the time of despatch.

Range of Models

All models are bi-directional and available with either mechanically operated signal flags, electrical auto resetting switches or mechanical and electrical signals in combination. Installation on a vertical pipe is possible but must be specified.

Under Pressure Removal Models

All the above models can be supplied suitable for removal under line pressure. The code reference is prefixed with V to denote the valve e.g.: VMW, VEW, VMEW.

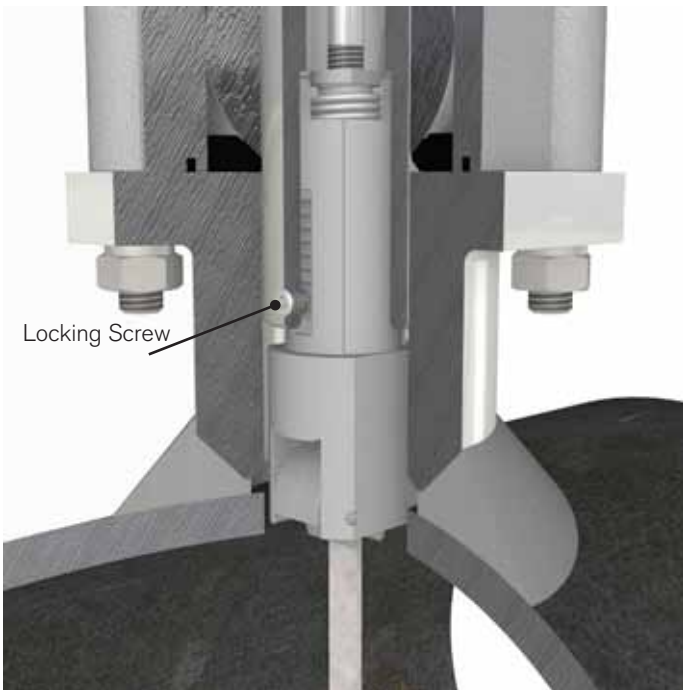
MODEL OPTIONS & CODES ARE:

| | |
|------------|---|
| M = | Mechanical Flag |
| E = | Electrical Switch |
| F = | Flange Mounting |
| R = | Retro-fit (specify type/make of mounting) |
| W = | Welded Base |
| V = | Valve Model |
| X = | Extension Model (state length) |

Installation

The length of trigger extension into the pipeline is pre-set at the factory to suit the clients specified stand out dimensions.

All models can also be set to suit varying thicknesses of pipeline of any diameter on site without being limited to pre-set lengths of mounting bases. The unique trigger carrier mechanism is extended or retracted into the main body by simply releasing a locking screw and rotating the carrier to achieve the correct length to suit the mounting boss and pipe thickness. The maximum adjustment is 25mm (1").



Adjustable Penetration

Buried Pipelines

Extended length valved Hi-T Pigalart™ model with the signalling devices mounted on top of a supporting mast can be installed on below ground pipelines. Extensions are specified as the distance from the top of the pipe to the top of the mechanical flag. Maximum extension is 2m for standard models. This can be increased for special applications.

Hydrostatic Testing

The Hi-T Pigalart™ is hydrostatically tested to full code pressure requirement prior to despatch.

Removal Under Pressure

The Hi-T Pigalart™ is classified in two types: models which are not designed for removal while the line is under pressure, and models which are fitted with an integral valve and suitable for controlled removal when the pipeline cannot be de-pressurised.

A simple jacking bracket tool is available for this purpose, consisting of a safety screw mechanism and bridging clamps to allow rapid removal and re-installation of the Hi-T Pigalart™ from the line under pressure.



Jacking Bracket

Materials

The internal moving parts of all models together with the associated pressure housings are made from stainless steel or the equivalent cast material in accordance with NACE Standard.

The ball valve fitted to the Hi-T Pigalart™ for the controlled removal of the signalers under pressure, comprises a carbon steel body, stainless steel ball and stem, renewable body seat rings and high-pressure body seals.

For use at low temperatures, full stainless steel valves are also available.

Design Variations

The versatility of the Hi-T Pigalart™ allows us to supply many variations from standard. In addition to the standard Flanged and Welded configurations, these include but are not limited to Greyloc® fittings and threaded connections to suit 2" and 3" NPT #6000 Thread-O-Lets.



NON-INTRUSIVE PIG SIGNALLER

Non-Intrusive Pig Signaller Devices

Introduced to complement our Intrusive Hi-T PigAlert models, we also offer a range of innovative Non-Intrusive Pig Signallers for both permanent and portable installations.

The Hi-T MagAlert and Hi-T UltraAlert are robust non-intrusive pig signaller devices that use “magnetic” and “ultrasonic” detection principles respectively to detect, signal and log the passage of pigs at critical points along a pipeline. The Hi-T MagAlert and Hi-T UltraAlert devices can be used for both onshore and offshore installations.

The Hi-T MagAlert and Hi-T UltraAlert are ATEX compliant and are housed inside fully certified aluminium or stainless steel explosion proof housing suitable for use in Zone 1, Zone 2, Group IIA, IIB and H2 Areas.

The Hi-T MagAlert and Hi-T UltraAlert devices can log up to 100 events with time and date. All logged events can be viewed on a 70mm (2.7”) high visibility display incorporated in the main housing. Prior to clearing the history of logged events it is also possible to connect the device to a PC and download all stored data.

Pig passages can also be signalled as they occur with ultra-bright LEDs which are incorporated into the main housing and are visible from up to 100m.

Detection Principle

Hi-T MagAlert incorporates a magnetic sensor which detects changes in the magnetic field (Gauss level). Consequently, the Hi-T MagAlert pig signaller device must be used in conjunction with pigs fitted with rare earth magnets (neodymium iron boron) around the pig body. Pig detection speed ranges from 0.1 to more than 10 m/s.

Hi-T UltraAlert uses a “passive” or “active” ultrasound sensor which listens to the acoustic activity from the outside wall of the pipeline. Sound propagates along the pipeline due in part to activity within the pipeline (fluid or gas flow and pig activity) and also from various external sources (pumps, valves and maintenance activity). These sounds are analysed using DSP techniques by the Hi-T UltraAlert to determine their nature and if they fit the “acoustic signature” of a pig passing, in which case an event would be signalled.

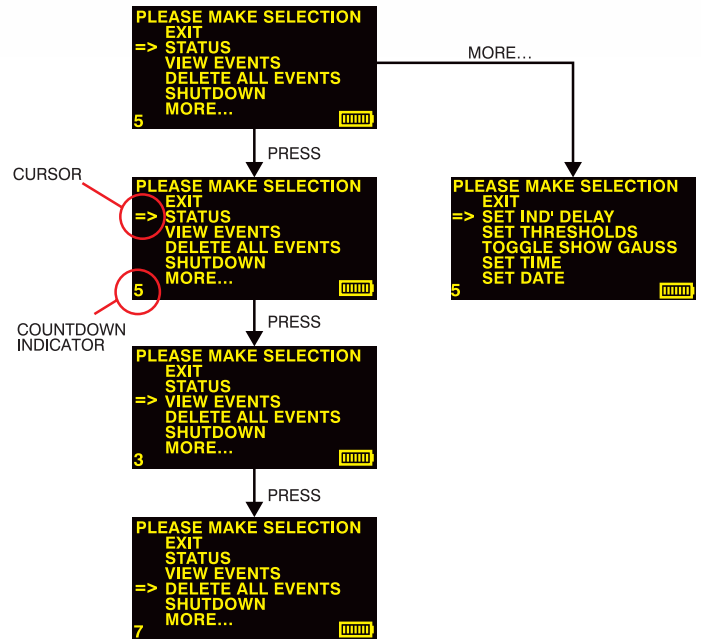


User-Friendly Display Menu / Operator Interface

All Hi-T Magalert and Hi-T Ultralert sensor functions are very easily accessed using a single external control switch on the main housing. Combined with the high visibility display menu this allows operators to quickly cycle through the menu options to review logged events and set-up sensor parameters, operated signal flags, electrical auto resetting switches or mechanical and electrical signals in combination. Installation on a vertical pipe is possible but must be specified.

Unique Modular Design

The Hi-T Magalert and Hi-T Ultralert are modular devices that can be very easily adapted to suit a wide variety of installations and interface options. The standard units incorporate an internal battery pack and can be operated completely independently. Alternatively, a 24V DC external power supply can be connected via the single M20 x 1.5 Exd Cable Gland.



Remote Sensor

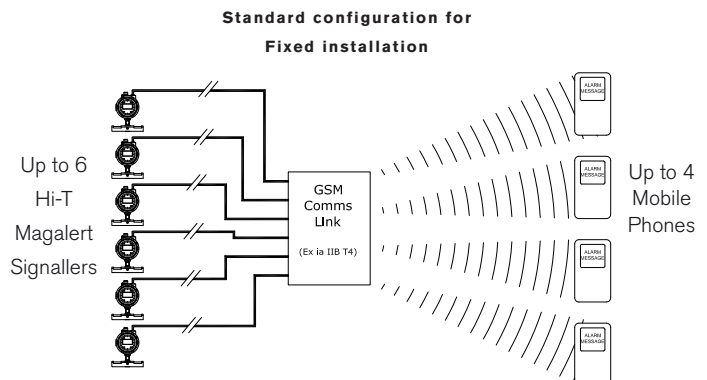
The Hi-T Magalert can be supplied with a sensor mounted remotely from the main housing on a cable. This option is used on buried pipelines, or for any other applications where the main housing is required to be mounted remotely from the pipeline. The Hi-T Ultralert is supplied with a sensor mounted remotely from the main housing as standard.

Interface Options

For remote monitoring, both the Hi-T Magalert and Hi-T Ultralert devices can provide DPDT Relay and MODBUS outputs using a suitable cable via an Exd barrier gland from the single M20 entry.

Optional GSM Alarm Interface

An optional GSM Alarm Interface allows the Hi-T Magalert and Hi-T Ultralert sensor to send a "Pig Detected" message to a maximum of 4 mobile phones. This optional feature allows more freedom for pipeline operators and avoids the requirement and associated costs for having operators mobilised on site.





MULTIPLE PIG LAUNCHER

Multiple Pig Launching Systems – (MPL)

MPL Systems

To support the continued development of offshore facilities in the oil and gas industry, GD Engineering has developed a range of Multiple Pig Launching solutions for Topside applications to enable sequential pig launching operations to be performed remotely, without the need to depressurise the launcher.

Where there is a need to carry out pipeline pigging operations on a frequent basis to maintain product flow, the Multiple Pig Launcher (MPL) provides a reliable and cost effective solution. Sequential pig launching is achieved using field proven Pig, Stop and Bypass (PSB) mechanisms, developed by GD Engineering, to provide a reliable system ensuring that individual pigs are positively launched into

the pipeline. Generally, the pig launcher capacity is between 5 to 7 conventional pigs and is also capable of launching intelligent pigs.

A Local Control Panel (LCP) for topside launchers provides the necessary control logic and status monitoring required to operate the MPL system. Signals from the LCP are relayed to the control room. The LCP allows valve and PSB operations to be performed in local mode (for maintenance) and remotely (for normal pigging operations).

A mechanical key interlock system can be integrated into this system to provide fail safe operation of the valves when pig reloading is required.

Recent Projects:

PROJECT - CASPIAN SEA

This 12-inch class 1500 Multiple Pig Launching System was installed on the TPG 500 jackup platform in the Caspian Sea. The 12-inch condensate marine pipeline from the platform to the terminal at BAKU was predicted to be subject to heavy wax build up. Frequent pigging operations were necessary to keep the line clear of wax deposits. The Multiple Pig Launcher enables up to 5 pigs to be launched without the need to depressurise the launcher between launching operations. Pig launch was initiated from an LCP using PLC based logic integrated with a mechanical key interlock system.



PROJECT - NEW ZEALAND

This 12-inch class 2500 remotely operated Multiple Pig Launching System was installed on an unmanned offshore platform located in the Taranaki Basin, 30 km off the west coast of the North Island of New Zealand. The 12-inch condensate pipeline from the platform to the shore required frequent pigging operations to control wax build up in the pipeline. The Launcher was capable of storing up to 5 pigs and launching each pig sequentially. Remote operation and status monitoring was performed by the DCS using logic control.

PROJECT - BLACK SEA

This Multiple Pig Launching System was required to be retrofitted to an existing unmanned satellite platform located in the Black Sea. Pigging operations could only be performed by operator intervention on the platform. Access to the existing conventional launcher was limited, inclement weather conditions could interfere with essential pipeline maintenance operations. The field operator required a remotely operated pigging system to replace the need for operators to attend the satellite platform.

A 6-inch class 600 vertical Multiple Pig Launcher and LCP with a PLC based logic control system was installed to provide the required facility. The launcher was capable of storing 7 pigs with sequential launch operations initiated remotely from the central platform via a DCS link.





Lifetime Support

Service & Support

GD Engineering has over 40 years of worldwide experience in the design, manufacture and service of Scraper Traps for inserting cleaning tools into Onshore, Offshore and Subsea oil/gas pipelines.

We can reduce operational maintenance costs through life and increase efficiency with a Project Managed Maintenance Scheme, that will be designed to function within existing operational commitments.

With a fully trained and experienced team of technicians and engineers we can offer the complete onshore/offshore inspection and maintenance service package for pipeline Closures.

We will set up and undertake annually, or when it is deemed necessary a tailor-made Condition Monitoring and Maintenance Services Program for individual systems, with detailed records of actual work carried out on-site by GD Engineering technicians kept as a permanent record.

These essential services include:

- Maintenance & Refurbishment of Quick Opening Closures
- Seal Surface Refurbishment & Flange Face Machining
- Interlock Systems Maintenance, Pig Trap Refurbishment
- Modification & Trap Extensions
- NDT Inspection
- Wall Thickness Checking
- Full After Sales Service & Spares Backup

NDT Inspection

To facilitate our proposed scraper trap management scheme we consider it essential to include Non Destructive Testing (NDT) and ultrasonic thickness examination. If required by the client, this inspection can encompass the whole pig trap and not be confined just to the closure.

The inspection report shall be completed on site by a trained SPX technician, a copy of which will be left with the appropriate site official. Our engineering department will submit any recommendations deemed necessary to maintain the worthiness of the vessel or the integrity of the closure.

Content of Work & Operator Training

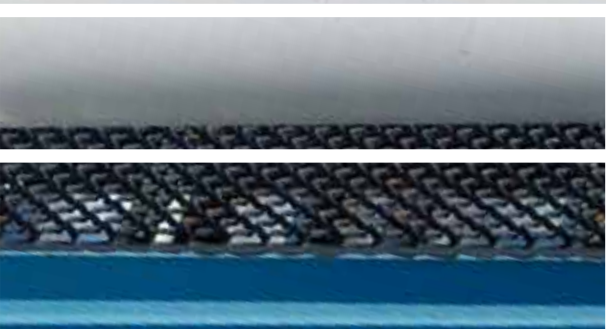
We provide technicians and engineers to work in all environments. The site visit can be an integral part of a Planned Maintenance Package or on a call-off basis. Before beginning any work and where applicable, a Scope of Work, Risk and COSHH assessment will be provided. Regular inspection is vital for operators to ensure that the key elements are maintained to the highest safety standards. We will undertake onsite training of operators in the general maintenance and safe operational use of pipeline closures and signallers.

After Sales Back-up

With up-to-date detailed records of all our products sold for over 40 years, we can supply any spare parts needed to keep your equipment in a safe operational condition.

Seal Face Refurbishment

Closure seal faces, which have been subject to highly corrosive operating conditions or poor maintenance procedures, can be refurbished on site even in hazardous areas. A purpose built pneumatically operated cutter is used to re-machine the seal face area, this sealing face area can then be renewed with a permanent leak-free inert surface.





PROVIDING
ENGINEERED
PIPELINE SOLUTIONS

SPX FLOW TECHNOLOGY

SPX International Ltd
Retford Road
Worksop
Nottinghamshire, S80 2PY
P: +44 1909 482323
F: +44 1909 477902
E: gd@spx.com

SPX reserves the right to incorporate our latest design and material changes without notice or obligation.

Design features, materials of construction and dimensional data, as described in this bulletin, are provided for your information only and should not be relied upon unless confirmed in writing. Please contact your local sales representative for product availability in your region. For more information visit www.spx.com.

The green ">" is a trademark of SPX Corporation, Inc.

GD-1070-GB Version: 01/2014 Issued: 11/2014

COPYRIGHT © 2013 SPX Corporation