CELEROS™ FLOW TECHNOLOGY

PROVIDING PRESSURE VESSEL & PIPELINE ACCESS SOLUTIONS

GD ENGINEERING®

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

GD ENGINEERING – AN INTRODUCTION

GD Engineering can reduce your costs by reducing your man power and footprint across our full range of products. We have gained a worldwide reputation for pioneering work in the design and manufacture, serving the power generation, oil/gas, petrochemical and industrial processing sectors, as well as the emerging biofuels industry. We can help you maximize your investment in pipeline infrastructure by facilitating any necessary maintenance or upgrade work.

Our quick-opening closures enable rapid access (either vertically or horizontally) to vessels once they have been depressurized.
Whether onshore or offshore, our pig signaling solutions allow the accurate monitoring of pigs/scrapers while carrying out cleaning or inspection activities, so that the precise location of any potential problems can be determined. Complete automation allows pigs to be launched remotely from main control platform or on land. All our products can be supported by comprehensive project managed maintenance schemes. be launched remotely from main control platform or on land. All our products can be supported by comprehensive project managed maintenance schemes.

CELEROS™ FLOW TECHNOLOGY

CONTENTS

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 facility, 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 LRQ10314759, 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 GD Engineering brand continues to expand whilst maintaining its position as a leading provider in its 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. Celeros 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, Celeros 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, Celeros 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 though to 2500 (425 barg) 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.

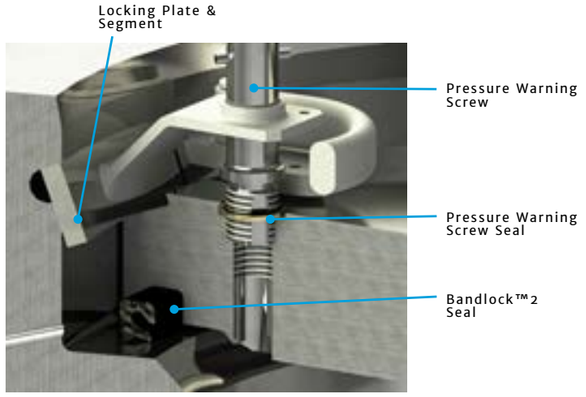
Vertical installation includes a davit which enables the Bandlock™ 2 door to be lifted and swung clear of the hub. At diameters over 32" Class 600, lifting eyebolts are normally fitted instead of the davit, so that the door can be lifted out of the way. Special davit arrangements are available on larger 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 MR0175 / ISO 15156 materials are available.

Seal Material

The standard seal materials include NBR, HNBR, Fluorocarbons, Rapid Gas Decompression (RGD) resistant material grades and elastomer compounds specifically developed for Oil & Gas applications, including Elastolion and Vermilion.
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.

Laser Marking

Bandlock 2 seals are now laser marked with a unique code for product identification.

Laser marking replaces the conventional method of colour coding seals, the main advantages of which are: it is robust, it remains a permanent feature of the seal and the code used includes key information to support full traceability.

The unique product code is located on the base of the seal and this does not in any way impact sealing performance.

Corrosion Protection

When required, Bandlock™ 2 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.

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.

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.

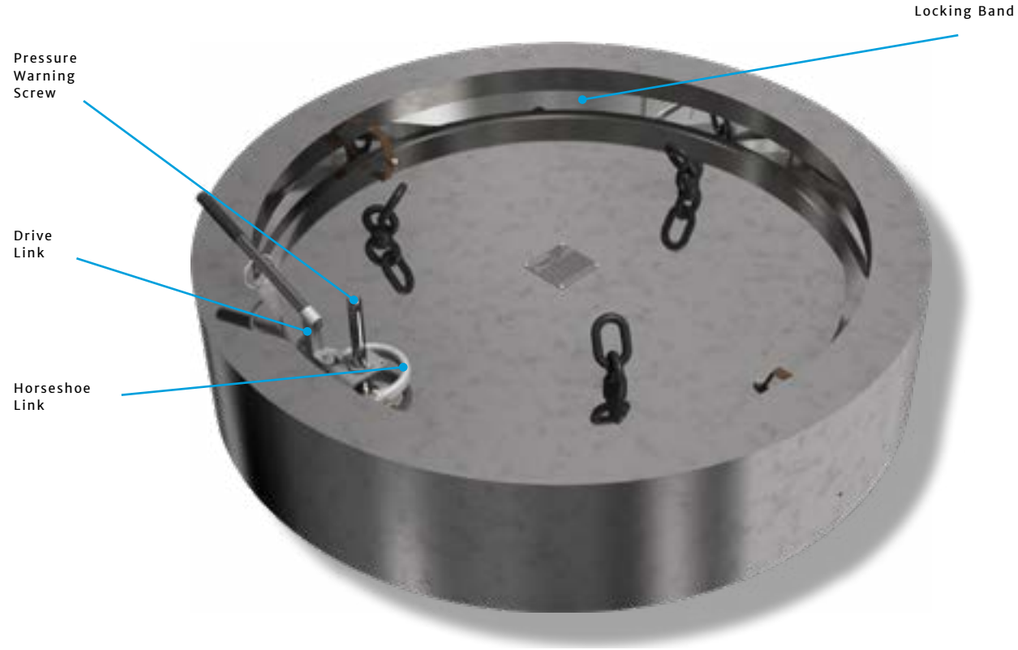
European Pressure Equipment Directive (2014/68/EU)
Technical file, submitted to vessel fabricator for incorporation into CE Marking of vessel.

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

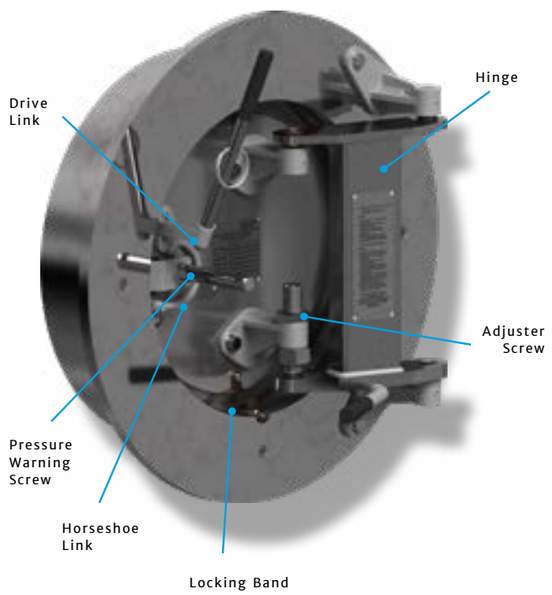
TECHNICAL SPECIFICATIONS	
Size Range	6” to 100” Nominal diameter and above
Class Ratings	ASME 150# through to 2500# and above
Design Specifications	ASME VIII Division 1 / ASME VIII Division 1 with ‘U’ Stamp
	ASME VIII Division 2 / ASME VIII Division 2 with ‘U’ Stamp
	PD 5500 / EN 13445
Closure Orientation	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)
	BS EN 10222 / BS EN 10028
	ASTM A765 Gr. 2
Elastomeric Sealing	NBR, HNBR, Fluorocarbons, Rapid Gas Decompression (RGD) resistant material grades including Elastolion and Vermilion grades
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 your specific requirements
Accessories	The Bandlock™ 2 Closure can be fitted with a mechanical key interlock to be sequenced with system isolation and control valves.
	Horizontal closures can be supplied with protective weather covers (Vertical closures are supplied with protective weather covers as standard)

BANDLOCK™ 2 COMPONENTS

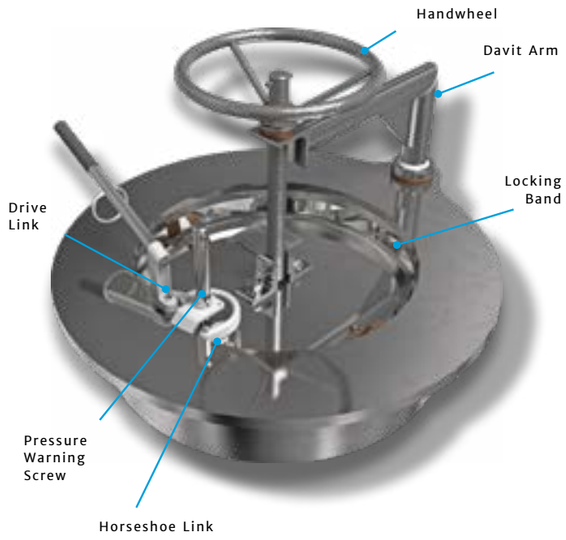
Vertical Closure Components: Lift-Out Arrangement



Horizontal Closure Components



Vertical Closure Components c/w Davit



BANDLOCK™ 2 FLANGED CLOSURES

The Celeros GD Engineering brand manufactures the Bandlock™2 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 realised. The flanged Bandlock™2
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.

Best solution where long term maintenance can be problematic or where equipment is installed in remote locations. Simply unbolt and replace your closure with a Bandlock 2

50” & 12”

ENGINEERED LARGE DIAMETER BANDLOCK CLOSURES

The GD Engineering brand is leading the industry in very large diameter quick opening closure design.
The Bandlock™2 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 performance, realized on smaller diameter pressure vessels. Developed initially for the Middle East market, Celeros has manufactured very large diameter
GD Engineering Bandlock™2

Closures that fully incorporate the benefits of a standard Bandlock™2 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.

90” Horizontal Bandlock™2 Closure (90 barg) as supplied into the Middle East

STEP 1

STEP 2

STEP 3

STEP 4

STEP 5

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.

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. 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.

Engineering Solutions
Hydrocyclone Configuration GD Bandlock™ 2 Closures can be specially engineered to suit Deoiling Hydrocyclone separator vessels used specifically for the offshore separation of water from oil.
The special Hydrocyclone closure houses a special double seal arrangements to accommodate the OEM reject plate and can be sized in accordance with clients design and specifications.
Hydrocyclone vessels play an important part in ensuring the protection of downstream equipment from contaminants like oil and sand, which can damage operator assets and cause increased downtime. GD Engineering supply an engineered closure specifically designed for Hydrocyclone applications that allows operators to benefit from time and cost savings delivered by their benchmark locking band technology.
The GD Engineering Bandlock™2 Hydrocyclone Closure has been developed in partnership with Hydrocyclone OEMs. It eliminates the multiple bolts associated with blind flanges and allows one-man, one-minute operation: delivering significant time and cost saving in Hydrocyclone operations.

STANDARD

REDUCED ACCESS

SELF-REINFORCED

QUICK OPENING CLOSURE FOR VERY HIGH TEMPERATURE APPLICATIONS

The very high temperature quick opening closure, suitable for use on high pressure vessels, filters and scraper launchers/receivers is available in sizes from 6” to 34” for pressures up to 1480 psig at 327°C (620°F). The closure can be opened in seconds and provides a quick and safe method of opening and closing through a single point lever.
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 complete safety, the locking segments 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.

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.

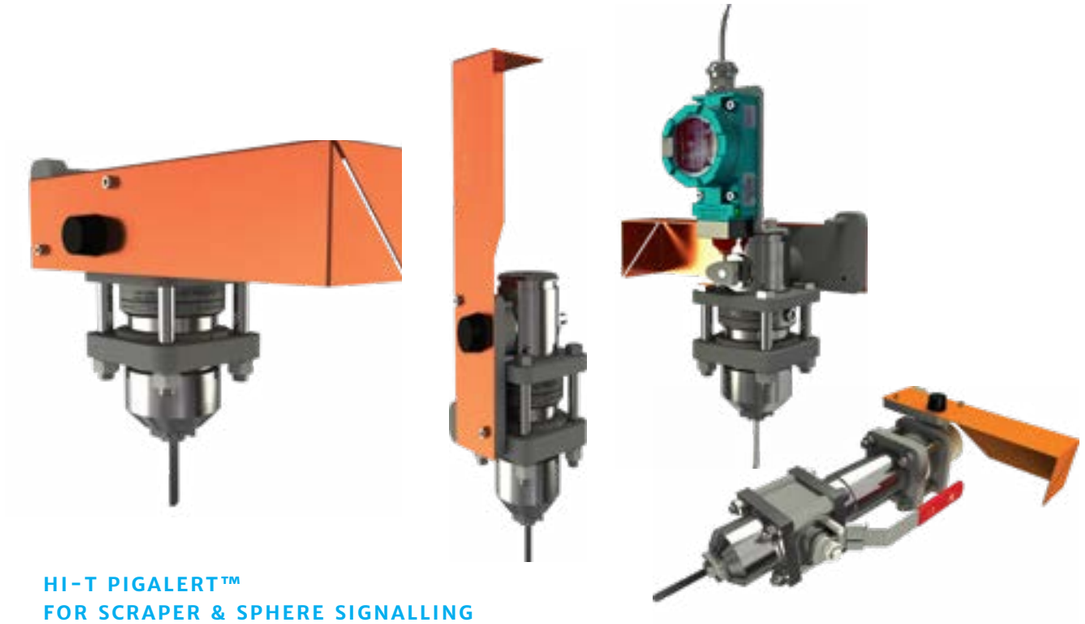
Materials

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. All closures are supplied with an integral weatherproofed and sealed cover enclosing the operating mechanism, preventing the ingress of dust, sand and moisture and to provide additional protection against the high temperature of the vessel contents.

Hydrostatic Testing

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

HIGH TEMPERATURE CLOSURE APPLICATIONS	
High Temperature Dust Filters	Hot Oil Filters
Manways	Pressure Containment Systems
Hot Gas Filtration	Sulphur Recovery Systems
Amine Recovery Systems	Pig Launchers & Receivers
Chemical Production	



HI-T PIGALERT™
FOR SCRAPER & SPHERE SIGNALLING

Operating Capabilities
The GD Engineering 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.

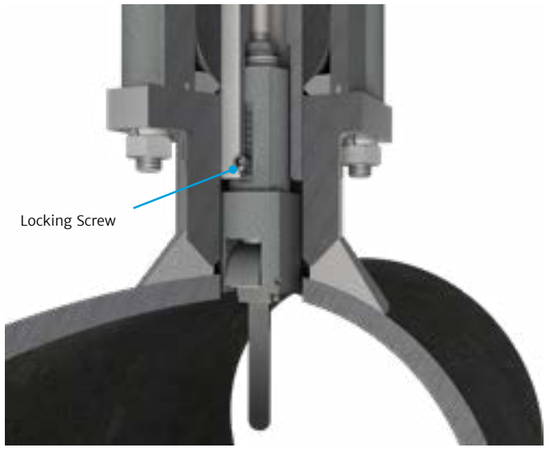
Installation
Standard models are supplied ready for mounting on a base to be welded to the line pipe or vessel. Flange mounted models up to ANSI Class 2500 are also available.
Full instructions covering installation, re-setting, adjustment to suit varying pipe-wall thicknesses and removal under pressure 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.

MODEL OPTIONS & CODES ARE:	
M =	Mechanical Flag
E =	Electrical Switch
F =	Flange Mounting
R =	Retro-fit (specify type/make of mount-
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 Pigalert™ 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.

Design Variations
The versatility of the Hi-T Pigalert™ 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.

Removal Under Pressure
The Hi-T Pigalert™ 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 Pigalert™ from the line under pressure.

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 Pigalert™ for the controlled removal of the signallers 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.

Hydrostatic Testing
The Hi-T Pigalert™ is hydrostatically tested to full code pressure requirement prior to despatch

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 Ultralert 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 Ultralert devices can be used for both onshore and offshore installations.

The Hi-T Magalert and Hi-T Ultralert 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 Ultralert 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 Ultralert 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 Ultralert 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

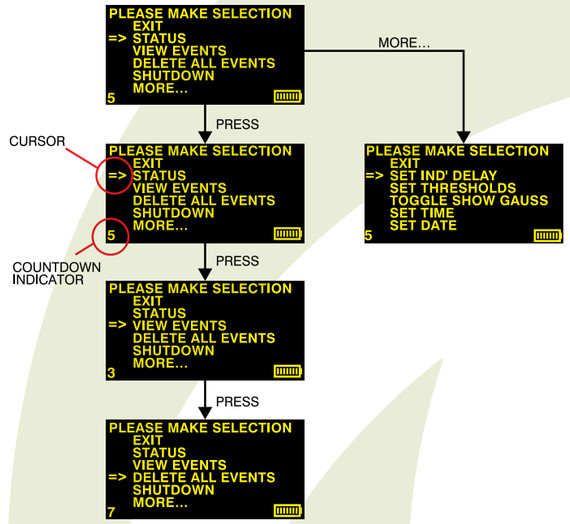
The Hi-T Magalert and Hi-T Ultralert are modular devices that can be very easily adapted to suit a wide variety of installations and interface options. The standard units incorporate an internal battery pack and can be operated completely independently. Alternatively, a 24V DC external power supply can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

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.

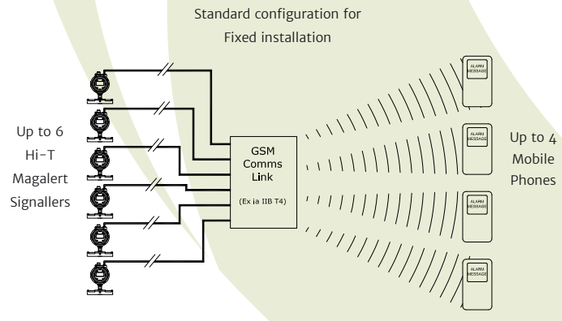
Interface Options

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.

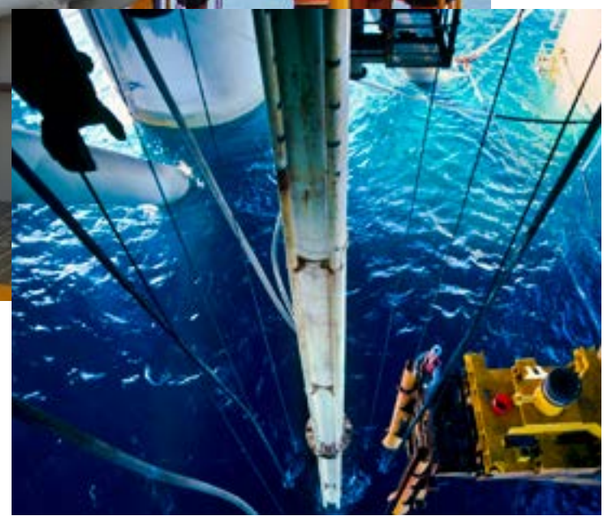


Optional GSM Alarm Interface

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

Patented Pig Standby and Bypass (PSB) technology from Celeros Flow Technology allows automated pigging on oil & gas pipelines to be managed remotely, either from land or a main platform – making it a critical component for the development of unmanned or normally unmanned platform pigging solutions.

Developed by GD Engineering, the PSB solution is designed to be integrated with an automated multiple pig launcher vessel. It provides a reliable solution, allowing multiple pigs to be preloaded into the launcher vessel and sequentially launched without the need to depressurize the vessel between pigging runs. PSB is a proven system for ensuring that individual pigs are positively launched into the pipeline. It allows interchangeability of any type of conventional pig with the same dimensions as the original pig design, as well as allowing future change-out of conventional pigs with intelligent pigs.

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.

SITE SERVICE

Service & Support

Established in 1944, GD Engineering has gained a worldwide reputation for pioneering work in the design and manufacture of advanced pipeline access and pigging solutions.

Serving the oil/gas, petrochemical and industrial processing sectors, as well as the emerging biofuels industry, we are instrumental in helping our customers to maximize their investment in pipeline infrastructure by facilitating any necessary maintenance or upgrade work.

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 and scraper passage signallers.

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 brand technicians kept as a permanent record.

These essential services include:

- Maintenance & refurbishment of quick opening closures
- Seal surface refurbishment & flange face machining
- Modification & trap extensions - we are 100% committed to offering engineered upgrades for legacy products including Ringlock closure door upgrades (from cast to forged), Bi-Face Seal (Bandlock™ and Ringlock) to Bandlock™2 seal

conversions, welded to bolted hinge kits, temporary doors with ANSI flange couplings for internal access/tether attachment and vent port machining including inserts.

- NDT inspection (DPI & MPI)
- 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 shall be completed on site by a Celeros FT Technician certified to ASNT level II. A copy of the inspection report will be submitted to the relevant 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, detailed method statement, 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 both onsite and classroom-based training of operators and technicians 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.

Our equipment caters for:

- In-situ machining from 152mm to 1830 diameters.
- Internal & externally mounted machines.
- Raised face machining.
- Weld preps.
- Finishes down to 0.8 Ra

Modifications

With life expectancy of existing vessels extending, legacy closures can be refurbished and upgraded at site with technically updated parts designed in house using the latest 3D CAD software, verified using

Finite Element Analysis and design calculations, extending the operational life of the equipment whilst minimising costs.

Modifications include seal face type conversions, where closures limited by legacy seal designs and elastomers benefit from being converted to the latest flared lip designs offered in the widest range of elastomers to suit all operating conditions

Signaller Extraction

GD Engineering Hi-T signallers can be removed in-situ from a live pipeline, eliminating the need to depressurise the line. Signaller extraction will typically be undertaken for repair of a unit at site, fitting of a replacement unit or removal for the passage if inline inspection tools.

Signallers can also be sent back to our factory or dedicated Service Centre for overhaul.

CELEROS™ FLOW TECHNOLOGY

PROVIDING PRESSURE VESSEL & PIPELINE ACCESS SOLUTIONS

SPEED
EXCELLENCE
PARTNERSHIP

GD ENGINEERING®

Celeros Flow Technology
Retford Road, Worksop,
Nottinghamshire, S80 2PY,
United Kingdom

P: +44 1909 482323
F: +44 1909 477902
E: gd@celerosft.com

GD_562_02_PEPS_GB Version 11/2021 Issued 01/2021

www.celerosft.com