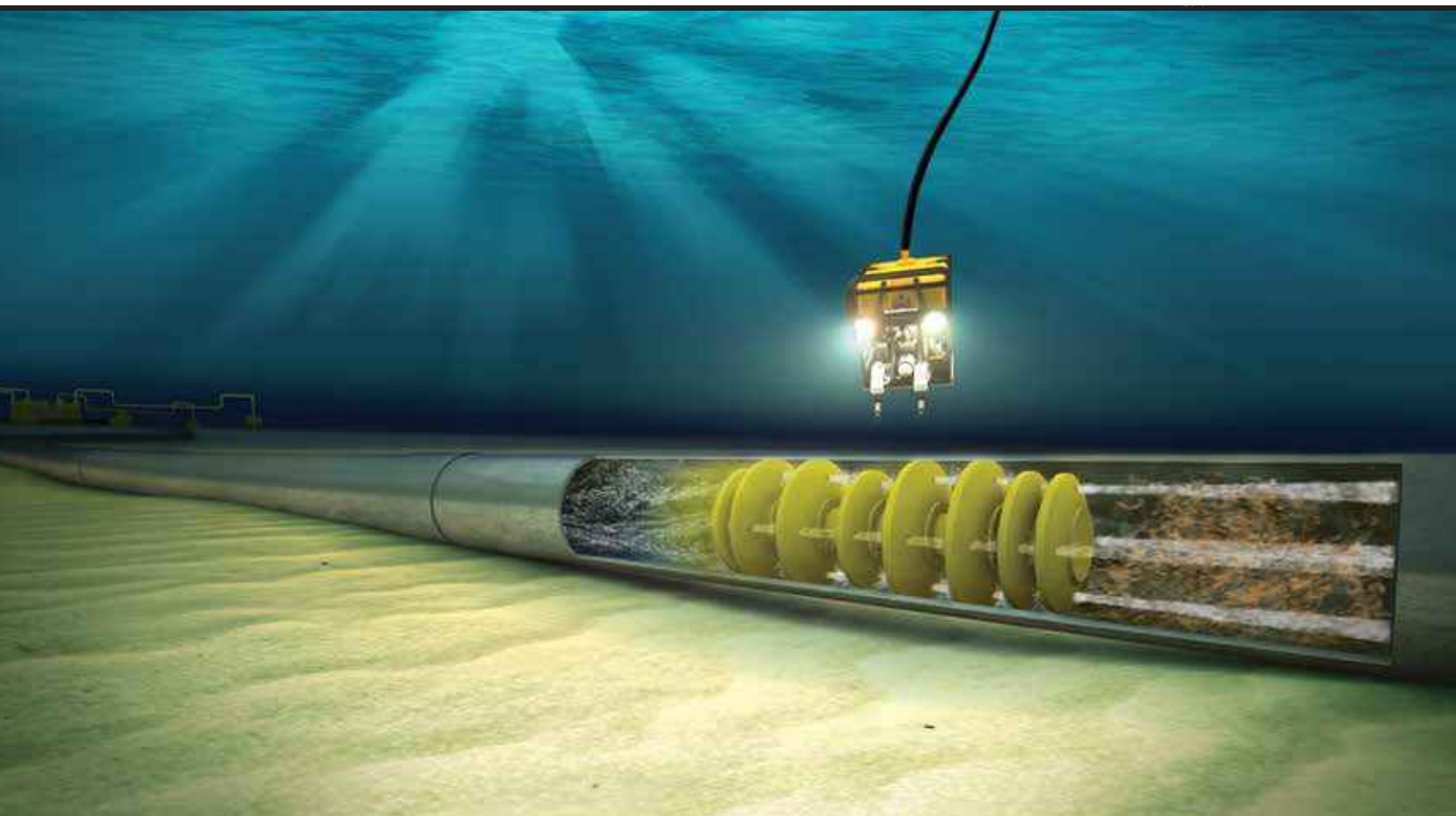


FOR CON
DIMENSION
CONTRACTOR

DRINKWATER

PRODUCTS

Pipeline Integrity Solutions



SUPPLIED BY

ABOUT US

Drinkwater Products delivers best-in-class pipeline specialty products for the oil and gas industry, and has done so since it was established in Louisiana in 1987. As a market leader in the pipeline pigging industry, Drinkwater Products provides unmatched selection and everything you need for successful pipeline maintenance.

SOLUTIONS

Drinkwater Products is the number one source for maintenance products of pipelines. We have earned that reputation because we fundamentally believe in helping our customers build a maintenance program, not just purchase maintenance products.

A strategic program is set in place to ensure the integrity of the pipeline protecting your operation from downtime and unexpected delays. Our independent, unbiased and experienced support will help deliver a successful solution for your team time and time again.

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CATALOG GUIDE

- Pigs and Pigging Products
 - Flange Insulation Kits
 - Monolithic Isolation Joints
 - Casing Insulators / End Seals
 - Trenton Wax Tape Systems
 - Liquid Measurement
 - Resources
-

COMPLETE PRODUCT OFFERINGS

PIPELINE PIGS

Types -- Steel-Body, Cast-Urethane, Foam, Spheres

PIG TRACKING EQUIPMENT

Transmitters
Receiver Units
Subsea Tracking Units
Geophones

PIG DETECTORS

TDW Pig Sig V®
Enduro Pig Popper™
CDI Bandit
SUN Magna Sygg®
NOV Pig Signaller

PIGGING ACCESSORIES

Closures
O-Rings
Pig Cleaning System
Pigging Poles
Pig Baskets
Dust Bags

FLANGE INSULATION KITS

Pikotek VCS
Pikotek VCFS (FireSafe)
VCS-ID
Linebacker
PGE
VCXT (Xtreme Temp)

MONOLITHIC ISOLATION JOINT

Electro-Stop®
Electro-Joint®
Electro-Flange®

CASING INSULATORS

Model PE
Model HT
Ranger II
Metallic Ultra High Temp

END SEALS

Link Seal®
Model W
Model C
Model S

TRENTON WAX PRODUCTS

#1 Wax Tape
#2 Wax Tape
TemCoat 3000 (Primer)
Profiling Mastic (Birdseed)
Innercoat Blocks
Fill Coat (Casing Fill)
MC Outerwrap
Guard-Wrap
Glas-Outerwrap

MEASUREMENT PRODUCTS

Prover Spheres
Prover Switches
Sphere Pickers
Sphere Pumps
Sizing Tools
Sizing Rings

6 Disc Configuration

The 6 disc configuration is a cleaning and dewatering pig that provides a great seal. It comes with our special EZ Launch Guide Disc to ensure an easy launch even in low flow. This is a great pig to use for nitrogen purges, batching and the removal of solids and liquids.

Sizes: 4" – 36"

Disc Materials: Urethane, Neoprene, Nitrile

Options: Magnets, gauge plates and transmitter mounts are available.



5 Disc 1 Brush Configuration

The 5 disc 1 brush configuration is an aggressive cleaning pig that is typically used for the removal of paraffin, black powder, bacteria and other unwanted debris. It comes with our special EZ Launch Guide Disc to ensure an easy launch even in low flow.

Sizes: 4" – 36"

Disc Materials: Urethane, Neoprene, Nitrile

Brush Materials: Carbon Steel, Stainless Steel, Prostran

Brush Types: Round Wire, Flat Wire, Pencil Brushes

Options: Magnets, gauge plates and transmitter mounts are available.



4 Disc 2 Brush Configuration

The 4 disc 2 brush configuration is a cleaning pig that is typically used for the removal of paraffin, black powder, bacteria and other unwanted debris. Pigs can be modified to meet specific job requirements.

Sizes: 4" – 36"

Disc Materials: Urethane, Neoprene, Nitrile

Brush Materials: Carbon Steel, Stainless Steel, Prostran

Brush Types: Round Wire, Flat Wire, Pencil Brushes

Options: Magnets, gauge plates and transmitter mounts are available



5 Disc 2 Cup Configuration

The 5 disc 2 cup configuration is a superior sealing pig that is used for the removal of liquid and unwanted debris. The multiple sealing elements allow this pig to be effective on long runs, perform great on nitrogen purges as well as clean aggressively. Pigs can be modified to meet specific job requirements.

Sizes: 4" – 36"

Disc/Cup Materials: Urethane, Neoprene, Nitrile

Options: Magnets, gauge plates and transmitter mounts are available.



2 Disc 2 Cup Configuration

The 2 disc 2 cup configuration is a great all around pig. The discs provide good debris removal and the cups provide a great seal and long wear. Pigs can be modified to meet specific job requirements.

Sizes: 4" – 36"

Disc/Cup Materials: Urethane, Neoprene, Nitrile

Options: Magnets, gauge plates and transmitter mounts are available.



2 Disc 2 Cup 1 Brush Configuration

This is an excellent cleaning pig that is typically used for the removal of paraffin, black powder, bacteria and other unwanted debris. The cups provide a great seal while the discs and brush scrape and remove any unwanted debris. Pigs can be modified to meet specific job requirements.

Sizes: 4" – 36"

Disc/Cup Materials: Urethane, Neoprene, Nitrile

Brush Materials: Carbon Steel, Stainless Steel, Prostran

Brush Types: Round Wire, Flat Wire, Pencil Brushes

Options: Magnets, gauge plates and transmitter mounts are available.



Multi-Diameter

Drinkwater's Multi-Diameter Pigs are designed for aggressive cleaning in pipelines that have multiple pipe diameters. The engineered design offers superior seal and brushing capabilities critical for maintaining these challenging lines. They are ideal for pre-cleaning runs before an ILI run as well.

Sizes: Call for sizes

Disc/Cup Materials: Urethane

Brush Materials: Carbon Steel, Stainless Steel, Prostran

Brush Types: Round Wire, Flat Wire, Pencil Brushes

Options: Magnets, gauge plates and transmitter mounts are available



Pig Train

Pig Trains are designed primarily for aggressive cleaning before an ILI run. The extra length and weight give it added cleaning capabilities ensuring that your smart pig run will be successful. Pig trains are also useful when tight radius bends are present but aggressive cleaning options are required.

Sizes: 4" – 36"

Materials: Urethane, Neoprene, Nitrile

Brush Materials: Carbon Steel, Stainless Steel, Prostran

Brush Types: Round Wire, Flat Wire, Pencil Brushes

Options: Magnets, gauge plates and transmitter mounts are available.



K-Disc

The K-Disc pig is the right choice when cleaning wax paraffin or heavy debris out of your line. It is a one-piece, all-urethane design that is bi-directional, rugged and can be run multiple times.

Sizes: 2" – 24"

Material: Urethane (65a, 75a, 85a)

Options: Brushes, Transmitters, Trip Magnets



3 Cup Magnum

The Turbo Magnum is effective in removing liquids from wet gas systems and liquid pipelines. Also used to control paraffin build up in crude oil lines, separation of refined products, pipeline commissioning and product evacuation.

Sizes: 2" – 30"

Materials: Urethane (65a, 75a, 85a)

Options: Brushes, Transmitters, Trip Magnets
(available in 4 cup configuration)



Flex Pig

This pig has 5 sealing discs and a rear cup which makes it extremely effective in removing liquids, line displacement, and product evacuation. This slightly rounded discs make it ideal for chemical batching as well. The hollow core makes the pig lightweight and uses the line pressure to expand the pig helping to create a superior long lasting seal.

Sizes: 2" – 36"

Materials: Urethane (65a, 75a, 85a)

Options: Brushes, Transmitters, Trip Magnets
(available in 2 cup, 4 disc configuration)



Turbo Flow

This solid-cast polyurethane pig is commonly used in pig valves and process systems. The disc-cup design combines the effective wiping action of the disc with the superior sealing capabilities of the cup. This pig is effective in removing liquids from wet gas systems and liquid pipelines. It is also used to control paraffin build up in crude oil lines, separation of refined products, and product evacuation.

Sizes: 2" – 12"

Materials: Urethane (65a, 75a, 85a)

Options: Brushes, Trip Magnets, Bi Di option available



CAST-URETHANE PIGS

Nova-Cast®

The Nova-Cast® is a custom-designed, all-urethane, one-piece, composite pipeline pig made to accommodate special pipeline configurations with virtually limitless combinations of discs and cups of varying urethane hardnesses. The Nova-Cast is ideal for multi-diameter applications where scraping paraffin or removing liquids are necessary.

Sizes: 4" – 48"

Material: Urethane (65a, 75a, 85a)

Options: Brushes, Magnets, Transmitter, Gauge Plate



TuffCast

This is an excellent cleaning pig that is typically used for the removal of paraffin, black powder, bacteria and other unwanted debris. The cups provide a great seal while the discs and brush scrape and remove any unwanted debris. Pigs can be modified to meet specific job requirements.

Sizes: 4" – 24"

Material: Urethane (65a, 75a, 85a)

Options: Brushes, Transmitter, Trip Magnets



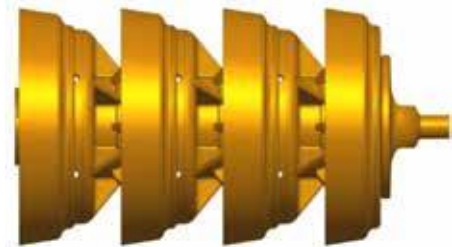
Super Pig®

The S.U.N. Super Pig® allows it's users to replace components of the pig as needed. Rather than having to replace an entire pig, the user can simply replace either the cups or discs when they are considered worn out. It's all-urethane design provides a level of safety for the pipeline, as there are no metal parts to worry about.

Sizes: 3" – 60"

Material: Urethane (65a, 75a, 85a)

Options: Brushes, Transmitter, Trip Magnets



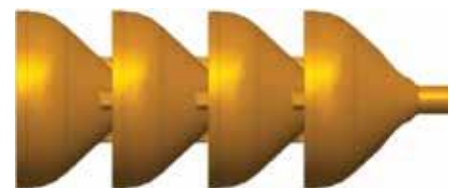
Super Cast

The one piece Super Cast pipeline pig offers a logical cost alternative to poly foam pigs and is an ideal product for a broad range of applications around refineries, chemical plants, oil pipelines, gas pipelines, and municipal utility lines. The Super Cast easily negotiates 1.5D bends, bridge valves and tees without buckling, tearing, or shredding.

Sizes: 2" – 24"

Material: Urethane (65a, 75a, 85a)

Options: 2 - 7 cups, disc option with brushes also available



Criss Cross

This Criss Cross Polly pig is an economical and safe way to pig your lines. The criss cross urethane coating provides extra durability and allows the pig to travel longer distances without being damaged.

Sizes: 3/8" – 144"

Foam Materials: 2lb (soft), 5-7lb (medium), 9-10lb (hard)

Options: Custom Lengths / OD's, Ropes/Straps, Cavities for Transmitter / Magnets



Spiral Wire

The Spiral Wire Brush Foam Pig is a good cleaning pig for removing normal amounts of scale and deposits. The wire brushes rub against the pipe wall loosening weld slag, rust, and other unwanted agents.

Sizes: 1" – 144"

Foam Materials: 2lb (soft), 5-7lb (medium), 9-10lb (hard)

Options: Custom Lengths / OD's, Ropes/Straps, Cavities for Transmitter / Magnets, Plastic wire



Total Wire

The Total Wire Brush pig is used when aggressive cleaning is needed. Its heavy density foam is completely covered with tough wire brushes enabling it to remove large amounts of paraffin wax as well as hardened scale deposits.

Sizes: 1" – 144"

Foam Materials: 2lb (soft), 5-7lb (medium), 9-10lb (hard)

Options: Custom Lengths / OD's, Ropes/Straps, Cavities for Transmitter / Magnets, Plastic wire



Bare Foam

The Red Bare Squeegee is an effective pig to run for liquid removal after a hydro-test. It has also proven to maintain a superior seal when flow rates are minimal.

Sizes: 3/8" – 144"

Foam Materials: 2lb (soft), 5-7lb (medium), 9-10lb (hard)

Options: Custom Lengths / OD's, Ropes/Straps, Cavities for Transmitter / Magnets



Foam Disc

Foam Disc Pigs have a series of ridges or discs that provide extra wiping and sealing capabilities. Because this foam pig provides such a good seal, foam disc pigs are ideal for a number of applications including product recovery and removal, dewatering, and nitrogen purges.

Sizes: 2" – 60"

Foam Materials: 5-7lb (medium), 9-10lb (hard)

Options: Custom Lengths / OD's, Ropes/Straps, Cavities for Transmitter / Magnets



Hand-Launch®

The Hand-Launch Pig is an easy to use pig that gets its name for being easy to load into a pipeline without a traditional launcher. They are capable of going through dual-diameter reductions and are available in both medium and heavy density urethane foam.

Sizes: 2" – 60"

Foam Materials: 5-7lb (medium), 9-10lb (hard)

Options: Custom Lengths / OD's, Ropes/Straps, Cavities for Transmitter / Magnet



Ultra Seal®

The standard Ultra-Seal Pig has flat, polyurethane elastomer discs on each end. This is the optimum design for dewatering, batching of dissimilar products, and for fluid removal in pipelines of all sizes and pipe materials. The Ultra-Seal can also be altered to include a EZ launch nose for vertical launchers or low flow situations.

Sizes: 2" – 60"

Foam Materials: 5-7lb (medium), 9-10lb (hard)

Options: Custom Lengths / OD's, Ropes/Straps, Cavities for Transmitter / Magnets



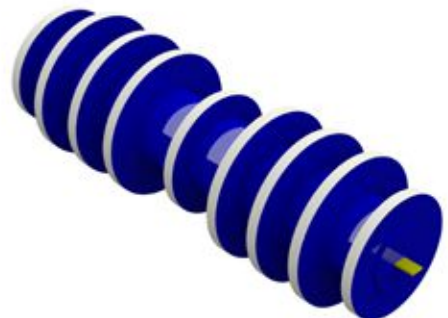
Ultra Seal Lite©

The Ultra-Seal Lite Pig is a hand-crafted, custom-built pig. The specific design and materials for each pig are determined by the configuration of the pipeline and operational requirements of the pig. Typically the Ultra-Seal Lite Pig is used for dewatering and fluid control in multi-dimensional pipelines.

Sizes: 4" – 60"

Foam Materials: 5-7lb (medium), 9-10lb (hard)

Options: Custom Lengths / OD's, Ropes/Straps, Cavities for Transmitter / Magnets



Inflatable Spheres

Inflatable Spheres are filled and sized according to the pipe ID requirements, ensuring that optimal seal is achieved. Spheres can make tight radius bends and are ideal for use in automatic launchers.

Sizes: 4" – 42"

Materials: Urethane, Neoprene, Nitrile

Options: Magnets, Transmitters



Bare Foam Sphere

Bare Foam Spheres can compress and offer a good seal for lines with tight radius bands. They can be used in pig valves or automatic launchers as well. Good for liquid removal.

Sizes: 1" – 36"

Foam Materials: 5-7lb (medium), 9-10lb (hard)



Criss Cross Sphere

Criss Cross Foam Spheres can compress and offer a good seal for lines with tight radius bands. The criss cross coating offers extra durability for longer lines. They can be used in pig valves or automatic launchers as well. Good for liquid removal.

Sizes: 1" – 36"

Foam Materials: 5-7lb (medium), 9-10lb (hard)



Wire Brush Sphere

Wire Brush Foam Spheres will scrape and scratch at unwanted deposits in your line and can make tight radius bands. They can be used in some pig valves or automatic launchers as well.

Sizes: 1" – 36"

Foam Materials: 5-7lb (medium), 9-10lb (hard)



Solid Urethane Sphere

Solid Urethane Spheres are durable and reusable. Typically used on smaller lines, these solid spheres are good for liquid removal and line evacuations. They can be used in pig valves or automatic launchers as well.

Sizes: 1" – 16"

Materials: Urethane (60, 70, 80 Duro), Neoprene

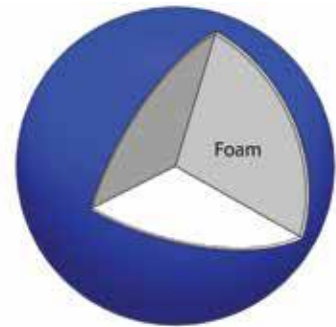


Lite-Coat Sphere

Lite-Coat Spheres can compress and offer a good seal for lines with tight radius bands. The lite coating offers extra durability for longer lines. Also keeps the pig from absorbing unwanted fluids or chemicals. They can be used in pig valves or automatic launchers as well. Good for liquid removal.

Sizes: 1" – 36"

Foam Materials: 5-7lb (medium), 9-10lb (hard)

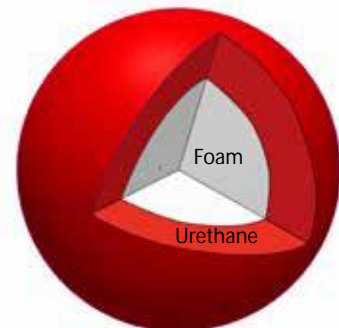


Foam-Core Sphere

The Foam-Core Sphere has a rugged outer shell made of urethane but with a softer and more compressible inner core made out of foam. This enables the sphere to be reusable and handle long runs while having the flexibility to handle slight reductions in the line due to wall thickness changes.

Sizes: 2" – 30"

Materials: Urethane (65a, 75a, 85a)



PIG TRACKING EQUIPMENT



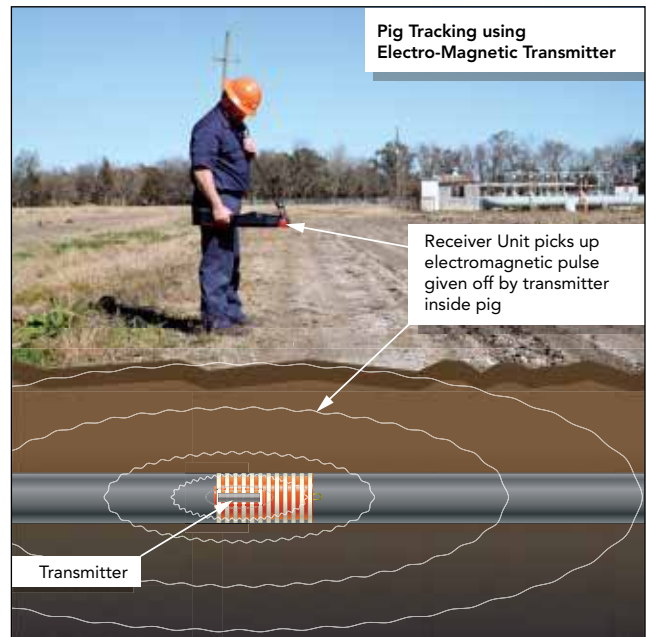
Pig Tracking Equipment plays an essential role in an operator's pigging activities. Knowing where the pig is and finding it if it gets stuck can save the user costly down time and frustration. Drinkwater Products keeps a wide range of tracking equipment for rental or purchase and has the hands-on experience to help you with product selection and tracking strategy.

OPTIONS and DATA

- Electromagnetic Transmitters and Receivers
 - Track Multiple Pigs with Multiple Frequencies
 - Have a text message or email sent to you when pig passes
 - GPS Waypointing for hard to find areas
- Geophones
 - Leapfrogging packages available
 - Radio adapter to pick up signal through car stereo
 - Probe bars threaded for mounting geophone probe allowing for more clarity in areas where ground cover is deeper
- Acoustic Pingers and Hydrophones available
 - Smart Gauge Plate and GRID Systems available
- Subsea Tracking Units
 - ROV/ Diver Operated Receivers
 - Skid-Based Antennae with long cable available for water depths up to 500ft
- AGM's for picking up MFL or other Smart Pigs



Geophones greatly amplify the vibrations of the pig rubbing against the wall of the pipe allowing the user to hear the pig coming from sometimes miles away.



Electromagnetic Transmitters give off a pulse which is picked up by a receiver unit. This allows the operator to track a moving pig or locate a stuck pig.

INTRUSIVE PIG DETECTORS

Intrusive Pig Detectors provide notification of a pig passage. They are permanently installed on the pipe usually near the pig launcher and receiver. They are activated when a pig passes through the pipe triggering an internal lever or piston, which then relays that passage with some type of visual indicator or an electrical signal.



NOV's pig signallers show when a pig has left a launcher, arrived in a receiver or passed a certain location in a pipeline. The omni-directional trigger design ensures that the signaller is effective and reliable regardless of its orientation. Designed with ease of installation in mind, it is nearly impossible to install the pig signaller incorrectly as it functions at any angle on the pipe. All of our signallers cover ANSI 150 to 2500 pressure ratings and operate at temperatures up to 248°F.

OPTIONS and DATA

- Omni-directional trigger
- Failsafe trigger that is not initiated by vibration or flow
- Flag indicator with manual reset
- Flag/Electrical indicator combined
- Easy installation
- Can be adapted to existing installations
- Nipple can be furnished with flanged or threaded mounting
- Covers ANSI 150 to 2500 pressure rating



TDW's PIG-SIG® V Scraper Passage Indicator is a device installed at prescribed intervals on pipelines to detect the passage of a pig or sphere. Most common passage indicators function by extending a uni-directional or bidirectional trigger into pipelines through a welded fitting or nipple that has been tapped. When a pig passes an indicator, the trigger is tripped which immediately activates a signaling mechanism. The PIG-SIG V indicator comes with a standard omnidirectional trigger that is easier to install and all but eliminates trigger breakage. Signaling systems available with the PIG-SIG V include a flag indicator, an electrical indicator or a flag/electrical indicator. All are compatible with all standard THREAD-O-RING™ nipples previously made by TDW and are interchangeable. This makes it possible to order the PIG-SIG V unit as an upgrade conversion kit without nipple, or as a new installation kit complete with nipple.

OPTIONS and DATA

- Flag indicator with Manual Reset
- Electrical indicator with Auto Reset
- Flag/Electrical indicator combined
- Extended models, for installation on buried pipelines are available
- Special materials and O-ring seals are available
- Nipple can be furnished with flanged or threaded mounting



The Pig Popper™ is an intrusive pig signal that is manually reset once it has been tripped by a pig.

Extensions are available in 6 inch increments for buried pipe locations. All units are also available in a lighted (beacon) version. The Pig Popper™ is designed to be fitted on most existing 2 inch fittings.

The Pig Popper™ Assembly may be installed in any location around the pipe – perpendicular to the center line of the pipe.

The Enduro Pig Popper is available in several different options.

- Manual Visual Alert
- Electrical Alert
- Combo – Electrical/Manual Visual Alert

OPTIONS and DATA

- Bi-directional trigger
- Stainless steel inner construction
- Simple installation
- Universal fitting
- No-doubt observation of pig arrival
- Intuitive reset

NON-INTRUSIVE PIG DETECTORS

Non-Intrusive Pig Detectors provide notification of a pig passage by detecting a magnet inserted into a pig. They can be permanently mounted on the pipe or moved from one location to another. Once a magnetic field is detected, these detectors provide a visual or electrical indicator.

CDI CD52 Bandit



With over ten years of production and thousands of problem free units in the field, the CD52 Bandit has a proven track record of providing a simple, reliable, durable and non-intrusive means of detecting and recording pipeline pig passages in the world's most harsh environments. Once placed on the pipeline, CDI's patented noise cancelling antenna immediately begins scanning for

both transmitter and permanent magnet equipped pipeline pigs. When a pig passage is detected by the system, operators are notified simultaneously through the LCD display which shows dates and times, and relay outputs which can be interfaced to PLCs, SCADA, lights and horns. With marine-coated stainless steel as an option and an explosion-proof rating on every single system, the CD52 can be used throughout your pipeline system regardless of environment.

OPTIONS and DATA

- Detection of both transmitter and permanent magnet equipped pigs
- Operational temperature range as wide as -45°C to +80°C with optional heater
- Designed for permanent or temporary use both on and offshore
- Powered for one full year on two off-the-shelf D-cell alkaline batteries, or can utilize client's +24VDC remote power
- Available in standard aluminum or optional 316L stainless steel
- Optional satellite radio can send pig passage time, date and GPS location via email or SMS message
- Available in a sub-sea version in water depths up to 14,000 ft

S.U.N. Magna Sygg®



The MAGNA-SYGG from S.U.N. Engineering, Inc. is truly a non-intrusive pipeline pig detector. Simple and rugged, it can be strapped to the surface of a pipe or it can be used as a portable pig passage indicator. You do not have to shut down the pipeline and wait for an expensive crew to install special fittings – the MAGNA-SYGG pig detector is ready to go to work.

MAGNA-SYGG Series 100 pig detectors feature rugged weatherproof construction. The Series 200 pig detectors have explosion proof, UL listed housings. The detector can be powered by its self-contained battery or by on-site 24 VDC. The pig detectors can be used to actuate a range of devices from simple manual reset flags to Supervisor Control and Data Acquisition (SCADA) systems.

MAGNA-SYGG operates by reacting to changes in magnetic field strength (changes in magnetic flux density). A passing pig, which has been properly fitted with a suitable magnet, will induce a current within the detector's base. Upon detection of the magnetic field, the pig detector then activates a NO (Normally Open) or NC (Normally Closed) Relay, that has a 7 second reset delay. Contacts are rated 1/4 A at 24 VDC.

OPTIONS and DATA

- NO / NC Relay
- Mechanical Flag
- Battery Pack
- 24 VDC Power (optional)
- Timer (optional)
- Satellite Base (optional)
- Test Light (optional)
- Reset Switch (optional)
- Explosion Proof (optional)

Pig Cleaning System



Our Pig Cleaning System allows for pipeline companies to efficiently clean and maintain pigs at their facility. Our pig cleaning system saves you time by not having to spend hours removing paraffin, asphaltenes, black powder and other unwanted debris from your pig. It also saves you money by not having to pay a third party company to come and clean your pigs. Lastly, the regular cleaning of your pipeline pigs extends the life of your pig by removing harmful pipeline debris from the pig itself.

We have 5 standard models to choose from or you can have an unit custom designed to handle diameters up to 72" and weights up to 50,000 pounds.

Our pig cleaning systems come equipped with the following:

- Vertical Pump Systems
- Low Water Shut-Off / Auto Water Fill
- Swing-Away Spray Manifolds
- Industrial Quality Immersion Heaters
- Industrial Controls with Lighted Switches
- Mechanical Door Seals
- Large Swing-Out Doors for Full Access
- Removable Stainless Steel Basket Trap
- Bushed Stainless Steel V-Jet Nozzles
- Disc Style Stainless Steel Oil Skimmer
- Two Channel Programmable 7 Day Time, Controls Heat & Skimmer

We can customize your pig cleaning system by adding the following equipment:

- Oil Coalescing System
- Stainless Steel Construction Package
- Particulate Bag Filtration
- Recirculating and Fresh Water Rinse Stages
- Ambient and Heated Blow Off Stages
- Sludge Extraction and Steam Exhaust Systems
- Pump, Heat and Weight Capacity Upgrades
- Gas and Steam Heat Options
- Insulation Packages
- Electrical Service Disconnect
- Dual Turntable Options
- High Pressure / Flow Pumps
- Compressed Air Blow-Off



TDW D2000 Quick Open Closure



Available in sizes 4 inches and up, the D-2000 quick opening closure features an easy-to-operate clamp ring that can be opened or closed quickly by a single operator. Available in both horizontal and vertical configurations, the D-2000 quick opening closure design allows operators to be safely positioned to the side of the closure during opening or closing.

The D-2000 quick opening closure is customizable to specific design codes, pressure ratings, material requirements, and installation conditions.

Best used for: pig traps, filters, strainers, scrubbers, heat exchangers, blowdowns, and other vessels

OPTIONS and DATA

- Easily operated by one person in less time than other closures.
- Ring provides positive sealing and protection from damage by tools, pigs, or debris.
- Pressure warning lock alerts operator that pressure exists prior to opening the closure.
- Taper-bored to match pipe wall thickness
- Special design for vertical installation
- Pressure classes up to 2500#
- Material certification
- Special O-ring material (standard O-ring material is Buna-N)

Yale™ Y2000 Clamp Closure



Our Yale™ Y-2000 is a clamp-style closure designed specifically for 6" through 24" pipeline applications. The operation is simple, safe, does not require special tools, and does not place the operator in harm's way during any step of the opening process. Our standard design codes are ASME B31.4 and B31.8.

OPTIONS and DATA

- True quick opening—typically less than 90 seconds
- Simple operation—no special tools required
- Pressure aging vessel (PAV) pressure warning device integral to closure operation
- Compliant with pipeline design codes ASME B31.4 and ASME B31.8
- Fabricated in the USA and USA-produced forgings
- O-ring seal—standard A5-568 O-rings in commercially available sizes and materials
- Pressure class—vacuum through ANSI 600
- Inventory stocked to match both STD and XH pipe-wall thickness
- Available in weld on or flanged on configuration
- .5 Design Factor
- Dual Certified ASME SA350 LF2 CL1 / ASTM A694 F52

Sentry™ Threaded Closure



Our Sentry™ closure design concept relies on a simple locking ring that slides within a groove machined into the outer flange or hub. When expanded to the closed position, the locking ring securely locks the door into position. This design methodology, which is proven within the oil and gas industry, provides distinct advantages of integral safety and avoids the reliance on external clamps with combined screw thread expanders. Heavy-duty components are used to actuate the locking ring and are designed to withstand the rigors of long term operation. Components are designed and arranged to ensure secure retention of all hinge hardware and simplified handling by fabricators.

OPTIONS and DATA

- True quick opening- typically less than 90 seconds
- Simple operation- no special tools required
- PAV pressure warning device integral to closure operation
- Simple, economical design.
- Fully compliant with ASME Boiler Pressure Vessel Code Section VIII Division 1
- Compliant with all applicable pipeline design code
- Fail-safe design
- Horizontal or Vertical option

Yale™ Figure 500 Threaded Closures



Over 60 years of reliable field service has made Yale closures the leader in the industry. With the original Figure 500 closure, we were the first to develop the inherent safety and operating ease of a threaded closure. The Figure 500 closure design combines simplicity and reliability through the use of a rugged, modified ACME thread to fasten the cap to the hub. The pressure seal is achieved by an O-ring set in the face of the hub. Figure 500 closures are manufactured in sizes 2"-54".

OPTIONS and DATA

- PAV pressure warning device integral to closure operation
- Simple, economical design.
- Fully compliant with ASME Boiler Pressure Vessel Code Section VIII Division 1
- Compliant with all applicable pipeline design code
- Fail-safe design
- Horizontal or Vertical option
- Availbe in weld on or flanged on configuration
- Yale® closures can be code stamped and U-2A Partial Data Reports furnished.

EVOLUTION® Isolation Kits

EVOLUTION® is a patent pending product that is the first of its kind to be a fully encapsulated isolating gasket. The thinner, 1/8" (3mm) design minimizes the difficulties often encountered while attempting to install thicker isolating gaskets. The total encapsulation allows the gasket to be hydro-tested and kept in the pipeline with virtually no loss in isolation properties.

This innovative gasket is coated using a GPT proprietary material designed specifically for the oil and gas industry that is extremely abrasion and impact resistant. The coating is also chemically resistant to attack from H₂S, steam, CO, CO₂, and other chemicals found in oil and gas pipelines.

EVOLUTION® has passed API 6FB fire testing in multiple sizes and pressure classes and has a considerable increase in operating temperature over GRE products. Furthermore, EVOLUTION® does not have the permeation issues or chemical attack that plagues GRE gaskets.

Under harsh conditions, gaskets made from GRE may be vulnerable to chemical attack, blowout, thermal attack, hydrolysis and emissions—all of which can have serious consequences. EVOLUTION® is different. Its revolutionary materials and design provides industry-leading resistance to leakage and flange corrosion, as well as unprecedented levels of fire safety.

Unlike GRE gaskets, which are prone to delamination, EVOLUTION® has no laminations and as a result can better withstand high-pressure environments.

Rated to 500°F (260°C)*, EVOLUTION® can also operate under high temperatures. Tested comprehensively for safety, the product has API 6FB, 3rd Edition Fire Test recognition.

* When used with Mica sleeves and washers

Patent Pending PCT/US2018/016011



FLANGE INSULATION KITS

Features and Benefits

316L Stainless Steel Core

- Only three millimeters (1/8 inch) thick
- Thinner profile helps make installation easier and more accurate

Proprietary Coating

- High dielectric strength
- Eliminates expensive exotic cores due to the fully encapsulated coating
- Rated to 500°F (260°C)

*For higher temperature applications, please order MICA sleeves and MICA washers.

Inconel 718 C-Ring

- Fire safe - provides the added security of knowing that the gasket has passed the API 6FB, 3rd Edition Fire Test in multiple sizes/classes
- High pressure - extremely high pressure capability

PTFE ID Seal

- Resistant to typical oil and gas chemicals, in particular H₂S, CO, & CO₂
- Impermeable seal and encapsulated carrier eliminates the need to replace gaskets following hydro-testing
- Larger than the pipe bore so that under compression it matches the pipe bore

Handle

- The handle found on the EVOLUTION® allows each gasket to be holiday tested during manufacturing to insure strong isolation performance in the field
- Helps ensure accurate alignment during installation
- Provides traceability and identification for the product

APPLICATIONS



FLANGE INSULATING KITS

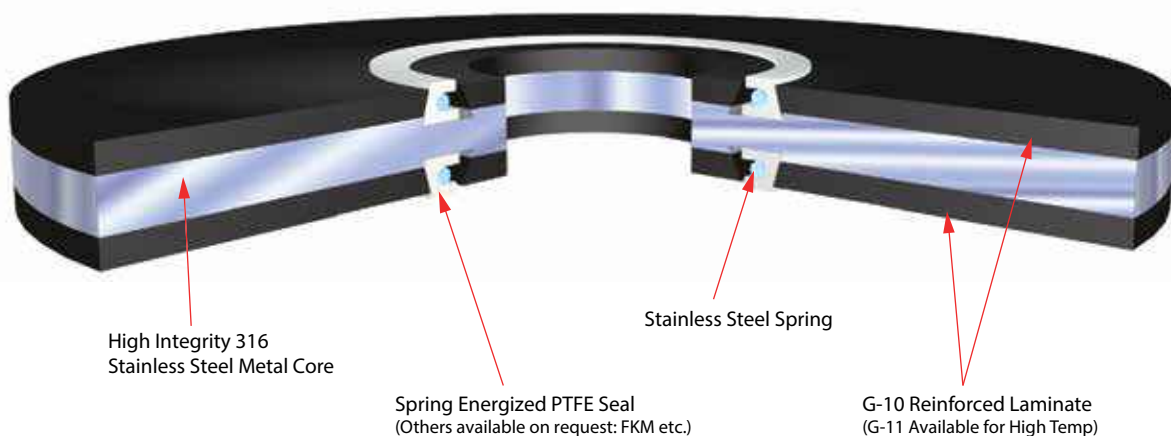
PIKOTEK VCS



The Pikotek VCS gasket is a high reliability gasket used for both insulating and general sealing purposes in Very Critical Services. The gasket has a proven track record of integrity in aggressive sealing situations. The VCS is suitable in all services up to and including ANSI 2500# and API 10,000# classes. The VCS is designed for service where the cost of gasket failure cannot be tolerated. The VCS gasket consists of a PTFE (Teflon) spring-energized face seal, or an elastomeric o-ring, seated in an insulating laminate, which is permanently bonded to a high-strength metal gasket core. Due to its unique pressure activated sealing mechanism, the gasket requires far less bolt stress to seal than any other gasket. The VCS gasket inner diameter is exactly matched to the flange bore to eliminate turbulent flow and flange face erosion/corrosion. The seal elements are replaceable in the reusable gasket retainer.

OPTIONS and DATA

- Seals and isolates all pressure ratings through ANSI 2500# class and API 10,000# psi service
- Designed to withstand corrosive environments, including high concentrations of CO₂, H₂S, produced water and aggressive inhibitors
- Good electrical isolation properties for cathodic protection
- Pressure-activated seals provide high confidence sealing, eliminates costly leaks and provides a solution for fugitive emissions
- Mitigates galvanic corrosion in dissimilar metal flanges
- Can mate mismatched RTJ with raised-face flanges
- Works in Ring Joint Flanges, reducing fluid entrapment, flow induced erosion and media induced corrosion between flanges
- Gasket is self-aligning and centering; quick to install and no special tools are required
- Prevents turbulent flow at flanged connections
- High-strength laminate material resists failure due to excessive compression
- Available to match any flange specification (ANSI, ASME, API, MSS, BS, DIN, AS and others)

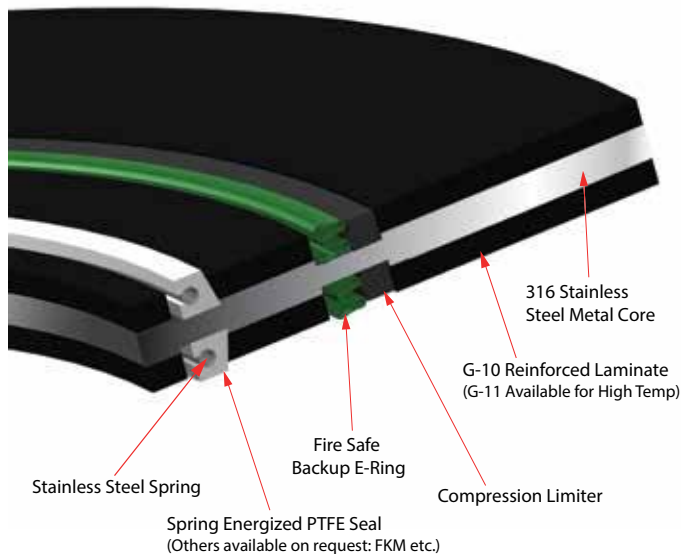


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PIKOTEK VCFS



The creation of the VCFS was driven by the demands of our customers who needed to electrically isolate their flanges but worried about the performance of non-metallic components in the event of a fire. This was especially a concern in the offshore market where the consequences of a fire on platforms are very hazardous and costly. Additionally, the needs of users in piping and LNG applications, where the risk of a fire would greatly threaten life and property, drove the need for an electrical isolation seal that is fire safe per API 6FB.



OPTIONS and DATA

- Based upon proven VCS platform
- E-Ring sealing system is dual purpose providing fire safe as well as backup seal element
- Passed API 6FB 3rd Edition Fire Test
- Designed to withstand corrosive environments, including high concentrations of CO₂, H₂S, produced water and aggressive inhibitors
- Good electrical isolation properties for cathodic protection
- Pressure-activated seals provide high confidence sealing, eliminates costly leaks and provides a solution for fugitive emissions
- Mitigates galvanic corrosion in dissimilar metal flanges
- Can mate mismatched RTJ with raised-face flanges
- Works in Ring Joint Flanges, reducing fluid entrapment, flow induced erosion and media induced corrosion between flanges
- Gasket is self-aligning and centering; quick to install and no special tools are required
- Prevents turbulent flow at flanged connections

DH Washer System



As part of the development of the VCFS Firesafe gasket we had to overcome the potential of the loss of bolt load during the burn process of the API 6FB test. Therefore we developed the new Diamond Hyde (DH) steel washer system that withstood those demands.

- The coating is a proprietary formulation called X37
- The formulation consists of a corrosion resistant pre-treatment and multiple coats of a resin bonded modified PTFE coating with hardening agents.
- The formulation provides a high dielectric, lubrication, and an overall strong and durable coating.
- Dielectric of ~ 1000 Volts/mil

LINEBACKER®



LineBacker® sealing gaskets utilize a rectangular sealing element, referred to as a “quad” ring, in combination with a unique groove design to effectively seal and isolate flanges of all types. With the unique “quad” ring design, elastic memory is provided for elastomers not normally associated with this characteristic. Materials such as AFLAS, TFE (Teflon) and KALREZ may therefore be used as sealing elements which dramatically increases the options available for matching gasket materials to service and environmental conditions. This greater variety of materials also provides excellent temperature and chemical range compatibility. LineBacker® sealing gaskets are self energizing with theoretical near zero “m” and “y” factors resulting in effecting a positive seal without excessive bolt loads required with flat gaskets.

| COMMON MATERIALS PROPERTIES AND USES | | |
|--------------------------------------|---------------------|---|
| Retainer Material | G10 or G11 Phenolic | G10 comes standard but G11 can be used for temperatures that exceed 300°F up to 392°F |
| O-Ring Material | PTFE Viton Nitrile | O-Rings come in special “Quad Ring” design |
| Sleeve Options | G10 Nomex Mylar | G10 is the strongest material and Nomex is used for high temp situations |
| Washer Options | G10 G3 | G10 comes standard but G3 can be used for temperatures that exceed 300°F up to 392°F |

OPTIONS and DATA

- Eliminates Flange Leaks
- Guards against blowouts
- Protects against hostile environments
- Usable with any type of flange
- Matches gasket materials to service conditions
- All standard ANSI and API flange sizes from 1/2” and above
- Custom odd sizes and shapes
- All ANSI and API rated flanges

TYPE “E” GASKET

The gasket retainer extends out to the O.D. of the flange. Holes are cut in a type “E” gasket at the bolt circle to accommodate threaded studs or bolts.

TYPE “F” GASKET

The gasket retainer extends out to the I.D. of the bolt circle.

DOUBLE WASHER SET

Double washer set flange isolation kits include the following components for each bolt:

- Two - 1/8” thick steel washers
- Two - Isolating washers
- One - Full length isolating sleeve

ONE-PIECE SLEEVE AND WASHER SETS

One-piece sleeve and washer set flange isolation kits include the following items for each bolt:

- (2) 1/8” thick steel washers
- (1) One-piece isolating sleeve

FLANGE INSULATING KITS

VCXT®



A serrated, machined metal core insulating gasket faced with high-temperature THERMa-PUR™, sleeves, washers, metal backing washers and a Garlock 5500 spacer ring.

The VCXT™ high temperature flange insulation sets create a seal and maintain electrical isolation across a wide range of seating stresses and flange classes in elevated temperature service. They can be used in load compromised connections; such as damaged and/or lined flanges and also heavily bolted connections where significant gasket stresses may be generated.

The insulating gaskets and washers have been designed and developed for use in standard pipeline flanges where both cathodic protection and high integrity sealing are required at elevated service temperatures. For non-standard bolted connections please consult your regional GPT sales manager..

| COMMON MATERIALS PROPERTIES AND USES | | |
|--------------------------------------|--------|--|
| Retainer Material | 316 SS | Core Thickness Facing Thickness: 4mm (316SS Core); 0.75mm (x2) (Facing) with THERMa-PUR laminate |
| O-Ring Material | N/A | N/A |
| Sleeve Options | Mica | Maximum Temperature Dielectric Strength: +500°C 20.0 kV/mm |
| Washer Options | Mica | Also comes with Stainless Steel: 0.125" thick |

OPTIONS and DATA

- Fire safe in compliance with API 607 and API 6FB
- THERMa-PUR™ is suitable for sealing across a wide range of chemicals (pH 0-14) and sweet and sour gaseous and liquid hydrocarbons ³
- The standard 316L core and washer metallurgy are NACE (MRO175) compliant.
- Exceeds temperature capability of traditional vermiculite or glass/epoxy insulation sets - 770°F
- Matches gasket materials to service conditions
- High compression characteristics achieve strong seal over wide range of flange surface finishes
- Custom odd sizes and shapes
- All ANSI and API rated flanges

APPLICATIONS

- Fire-safe flange insulation in conjunction with cathodic protection
- Insulation between dissimilar metals to prevent galvanic corrosion
- Wellhead isolation from inter-connected flow lines
- Valve connections
- Christmas Tree connections
- Pump connections
- Compressor connections
- Mating mismatched ring-joint to raised-face flanges (VCFS will seal in ring-joint, raised-face and flat face/slip-on flanges)
- Prevents fluid trap corrosion between ring-joint (RTJ) flanges where high concentrations of CO₂, H₂S and other aggressive hydrocarbon media are present
- Eliminate turbulence and flow-induced erosion between ring-joint (RTJ) flanges.



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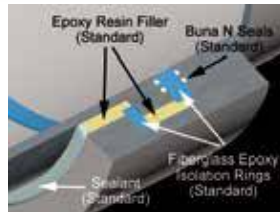
MONOLITHIC ISOLATING JOINT

ELECTRO-STOP™



The Electro-Stop® monolithic isolation fittings will serve as a positive leak-proof, long lasting block against the flow of electric current in all piping systems. When the Electro-Stop® isolation fitting is buried, you bury maintenance costs forever which is an especially important feature for system operators and engineers.

The ElectroStop® eliminates short circuits, field assembly and can be less expensive than a jointed flange with isolation gaskets. The Electro-Stop® is coated internally and externally to prevent corrosion and is 100% hydrostatically, electrically and weld tested. All ElectroStop® monolithic isolation joints are manufactured in accordance with ISO 9001-2008.



OPTIONS and DATA

- Eliminates short circuits
- Eliminated field assembly
- Eliminates maintenance
- Special dual O-Ring seal
- Coated both internally and externally
- 100% electrically tested
- Is completely weld inspected
- Is manufactured in accordance with ISO9001:2000 specifications
- 100% butt weld construction
- A low uniform profile enhances ease of handling and field coating or tape wrapping
- Fittings can be welded into the pipeline above grade, utilizing standard pipeline welding procedures, then lowered into the trench by a sling
- There is a natural heat sink to dissipate circumferential weld heat during installation
- They are tamper proof and maintenance free after installation



HOW TO ORDER

To order ElectroStop™ Monolithic Isolating Fittings please indicate the following:

- Quantity
- Nominal Pipe Size
- ANSI, DIN, API Pressure Class or Actual Working Pressure
- Pipe Grade
- Wall Thickness
- Temperature Limits
- Product Conveyed

Standard Tests Include:

- 100% Hydrostatic Pressure & Electrical Tests
- 100% Ultrasonic of Welds
- 100% Magnetic Particle of Welds
- 100% Dye Penetrant of Welds

LINK-SEAL®



Link-Seal® modular seals are considered to be the premier method for permanently sealing pipes of any size passing through casings, walls, floors and ceilings. In fact, any cylindrical object may be quickly, easily and permanently sealed as they pass through barriers by the patented Link-Seal® modular seal design.

Ductile iron, concrete, metal and plastic pipes may be hydrostatically sealed within walls to hold up to 20 psig (40 feet of static head). Electrical or telecommunications cable may be sealed within conduit as they enter vaults or manholes. The annular space between carrier pipes passing through casings may be sealed against the entry of water, soil or backfill material.

With a wide variety of hardware/elastomer combinations, Link-Seal® modular seals are easily configured to achieve the best possible match for service conditions encountered. High temperature seals, fire seals (Factory Mutual Approved) and oil resistant seals may be ordered to meet special or unique service applications. For the system approach, metal or non-conductive Century-Line® sleeves with water stops may be ordered with Link-Seal® modular seals to ensure correct positioning and a water tight seal of the installation within poured concrete walls.

Link-Seal® modular seals are also available for a wide variety of special applications, temperature extremes, exotic chemical combinations and for “out of round” or non-centered applications.

OPTIONS and DATA

- **Saves Time and Money**

Link-Seal® modular seals install in up to 75% less time compared to lead-oakum joints, hand-fitted flashings, mastics, or casing boots.

- **Positive Hydrostatic Seal**

Link-Seal® modular seals are rated at 20 psig (40ft of head), which exceeds the performance requirements of most applications.

- **Long Seal Life**

Link-Seal® modular seals are designed for use as a permanent seal. Seal elements are specially compounded to resist aging and attack from ozone, sunlight, water, and a wide range of chemicals.

- **Maximum Protection Against Corrosion**

Standard fasteners have a two-part zinc dichromate and proprietary corrosion inhibiting coating. Corrosion resistant 316 stainless steel available for maximum corrosion protection.

- **Certifications/Approvals**

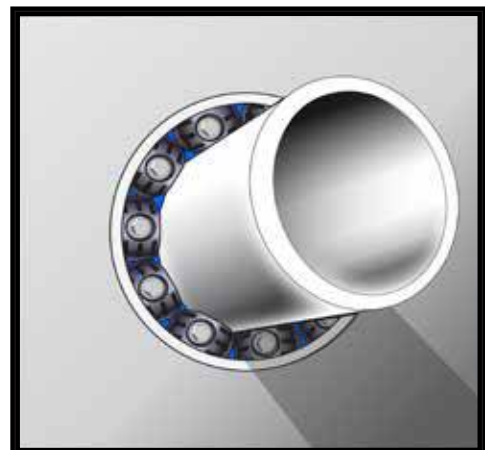
Factory Mutual Fire Approved. Also a wide variety of approvals from various Federal agencies, associations, code groups, laboratories, and organizations.

- **ISO Quality Assurance**

Link-Seal® modular seals are manufactured in an ISO 9001:2000 certified facility.

- **Configure a Link-Seal® Modular Seal to Match Your Application**

16 sizes, color-coded EPDM, Nitrile, and Silicone elastomers may be used with various hardware options to match performance characteristics with service conditions.



MODEL PE



High density (linear), injection molded virgin polyethylene casing isolators/spacers provide positive insulation, high abrasion resistance and low coefficient of friction for a wide variety of double containment carrier/casing pipe applications. They are extremely light in weight and easy to handle during installation. A ribbed inner surface prevents slippage and guards against carrier pipe coating damage while the outer surface may include any one of several molded runners to accommodate pipe size.

OPTIONS and DATA

- 5" (127mm) wide band for maximum hoop strength around carrier pipe.
- Ribbed inner surface prevents slippage and guards against coating damage.
- Molded from virgin polyethylene material.
- Lightweight for ease of handling and installation.
- Screwdriver is only tool needed for installation.
- High-temp model available (up to 12" x 16" [305mm]) for service temperatures to 280°F. (138°C.).

RANGER II®



The Ranger II® is a completely non-metallic casing isolator/spacer system that uses molded segments to encircle the carrier pipe. Each segment includes at least one molded-in runner and one slide lock. Customers may choose from any one of five different size bands to allow correct sizing for carrier pipe O.D. ranges from 0.83" up to 37.60" in diameter.

OPTIONS and DATA

- All non-metallic - no nuts, bolts, washers or any other metal parts to corrode or degrade over time.
- Segmented pieces - small inventory may be used to accommodate a large variety of pipe styles, types and diameters.
- Easy assembly - simply slide the segments together and ratchet tight with patented Slide-Lock connecting system.
- Manufactured from UV resistant polypropylene.

ULTRA HI-TEMP



These ultra-high temp Casing Spacers are made out of 304 Stainless Steel and come with a high quality Durlon liner. These rugged skids have no runners and are designed to withstand temperatures up to 550°F !

OPTIONS and DATA

- Designed for a maximum continuous operating temperature of 550°F
- Made out of 304 Stainless Steel
- Utilizes a Durlon 8500 Liner
- Great for use in steam lines and other lines where high temperatures are expected
- Available in sizes starting from 2" x 4" and up

MODEL S



Model "S" standard pull-on end seals are flexible and easily installed on customer specified casing/carrier pipe combinations. Manufactured from 1/8" thick synthetic rubber, Model "S" end seals are extremely robust, resistant to wide variations in environmental conditions while eliminating the possibility of foreign material entering the opening between carrier and casing pipes. Included with Model "S" end seals are

two appropriately sized hose clamps which are used to secure the rubber material around both carrier and casing pipes.

OPTIONS and DATA

- Quick and easy installation
- Carrier pipe does not need to be perfectly centered within casing
- Screwdriver is only tool required for installation
- Designed to last for the life of the piping system
- Heavy duty hose clamps supplied



MODEL C

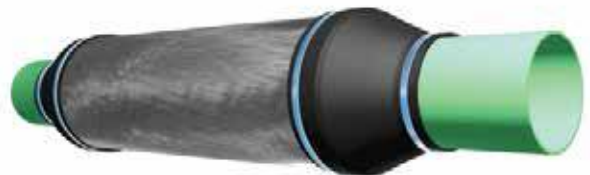


Model "C" custom pull-on end seals are designed to accommodate custom carrier/casing diameter combinations. They are ordered to customer supplied specifications so they may be used for any size casing/carrier differential.

Manufactured from 1/8" thick specially compounded synthetic rubber, Model "C" end seals are extremely robust, resistant to wide variations in environmental conditions while eliminating the possibility of foreign material entering the opening between carrier and casing pipes.

OPTIONS and DATA

- Custom made to order
- Carrier pipe does not need to be perfectly centered within casing
- Screwdriver is only tool required for installation
- Designed to last for the life of the piping system
- Heavy duty hose clamps supplied.



MODEL W

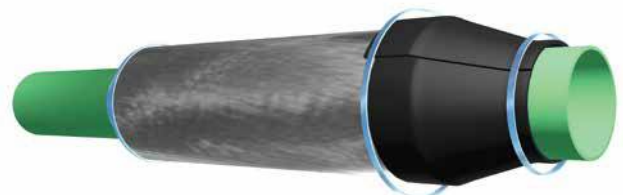


Model "W" wrap around end seals are designed to accommodate customer supplied specifications so they may be used for any size casing/carrier differential. Manufactured from 1/8" thick specially compounded synthetic

rubber, Model "W" end seals are extremely robust, resistant to wide variations in environmental conditions while eliminating the possibility of foreign material entering the opening between carrier and casing pipes.

OPTIONS and DATA

- Custom made to order
- Quick and easy installation
- Carrier pipe does not need to be perfectly centered within casing
- Screwdriver is only tool required for installation
- Designed to last for the life of the piping system
- Heavy duty hose clamps supplied.



TRENTON WAX TAPE SYSTEMS

#1 WAX-TAPE®



Trenton's #1 Wax-Tape® for below ground use, provides long-lasting protection and is compatible with many types of materials such as steel, ductile iron and PVC.

Customers have been impressed when removing a small patch of Trenton Wax-Tape for inspection purposes. They consistently find the surface in the same condition as when the tape was first applied. After inspection, the small patch can then be reapplied for continued protection.

It remains pliable and supports cathodic protection. Trenton's #1 Wax-Tape® is a widely used product in a variety of settings in the oil, gas, water and chemical industries.

#2 WAX-TAPE®



Used above and below ground, Trenton's #2 Wax-Tape® slowly firms up and protects against the elements. It is easy to apply, requires no special equipment, is compatible with most other coatings and requires only minimal surface preparation. Trenton's #2 Wax-Tape® completely conforms to irregular surfaces, such as flanges and wellheads, and is unaffected by the elements.

Trenton's #2 Wax-Tape® resists weathering and UV without the need for an additional outercoat or outerwrap and is excellent for use when abrasive blasting or painting is impractical.

HT-3000 (hi temp)



Trenton HT-3000 Wax-Tape® is a specially formulated wax-based tape used for corrosion protection of metal pipe and fixtures experiencing higher than normal temperatures. HT-3000 Wax-Tape can be applied and will perform effectively at continuous operating temperatures of up to **230°F (110°C)** and is designed for use in aboveground and belowground applications.

TRENTON WAX TAPE SYSTEMS

WAX-TAPE® Primer



Available in brown or white, Trenton's Wax-Tape Primer® is a blend of microcrystalline waxes, plasticizers, and corrosion inhibitors (no clay fillers). It has a paste-like consistency and is designed to displace moisture and wet the surface, ensuring adhesion of the tape. This primer is typically used below ground as a surface conditioner on metal surfaces prior to using Trenton Wax Tape.

TEMCOAT™

Temcoat and Temcoat 3000 are used as an anti-corrosion compound for aboveground and below ground surfaces. They can be used as a cold-applied coating with a wrapper or as a priming paste with Wax-Tapes®.

MC OUTERWRAP



MC Outerwrap™ is a specialized blend of quick curing resins impregnated into a fiberglass fabric. It provides soil stress and backfill protection to coatings that need additional mechanical strength. MC Outerwrap is specifically designed as a "hard shell" outerwrap over the Wax-Tapes. It can also be used over other coatings. It is sold complete with gloves and Trenton End Adhesive. MC Outerwrap is hand applied, with no other application materials needed.

End Use

MC Outerwrap is used aboveground or belowground as a mechanical protective wrapper over Trenton's Wax-Tapes.

INNERCOAT® and GUARD WRAP



The combination of Innercoat® hot-applied wax and Guard-Wrap™ is used to prevent corrosion of belowground metal structures.

Innercoat® is a microcrystalline wax blend that has been successfully used as a pipe coating for over 50 years. Innercoat® hot wax coating is ideally suited for the job of protecting against corrosion. It has first-rate waterproofing characteristics because of its low moisture absorption and low rate of moisture transmission. Also, it is an exceptional dielectric barrier with high electrical resistance.

Guard-Wrap™ is composed of a plastic mat and film, saturated with microcrystalline wax that is used to provide additional mechanical protection against backfill stress and impact, while also providing an additional dielectric barrier. Because of its conformability to irregular shapes, it is an excellent wrapper for fittings as well as straight pipe. Guard-Wrap™ is composed of inert materials that will not deteriorate underground, and is resistant to chemicals and bacteria commonly found in soils. Innercoat and Guard-Wrap™ in combination are outstanding anti-corrosion materials for new service installations, field patching, weld seam cutbacks and pipeline reconditioning.

PROVER SPHERES



Maloney Spheres are specially designed and compounded for optimum resiliency, wear-resistance and long life, evidenced by our thick wall construction. Maloney Spheres are compression molded at cavity pressure exceeding 2000 PSI. We do not pour-cast nor rotational-mold any of our spheres. The compression molding process is critical to ensuring a uniform density of the compounded material and to yield a wear-life that is unmatched in the industry.

During sphere production, each molded hemisphere is subjected to an intensive physical inspection. Following assembly and post-curing, every sphere is inflated to a specified increased diameter for 24 hours. This critical step is taken to assure that every Maloney Sphere that leaves our factory will fulfill the exacting demands of the task for which it was designed. Inflatable spheres are available in 4" sizes and larger. Solid spheres are available from 1-1/2" through 4" diameters in all materials. Limited larger solid spheres are available in polyurethane materials only.

OPTIONS and DATA

- Compression molded at cavity pressures exceeding 2000 psi
- Specially compounded for optimum resiliency, wear-resistance and long life
- Each sphere is inflated and tested for a 24 hr period before leaving factory
- Has the thickest urethane wall of any sphere on the market
- Available in sizes 4" to 42"
- Excellent for displacing liquid in meter prover loops
- Can be used for product separation and batching
- Great for liquid removal in gas lines
- Can negotiate tight radius bends

| Sphere Type | Min. Temp | Max Temp | Durometer | Recommended Use |
|---------------------------|-----------|------------------------------|------------|---|
| Neoprene | -20°F | 280°F | 60 Shore A | General purpose, pipeline, hydrocarbon & chemical service |
| Nitrile | -15°F | 212°F | 60 Shore A | Exposure to n-octane, hydrocarbons & petroleum gas, water, gasoline and diesel oil |
| Hi-Temp Nitrile | -15°F | 325°F | 70 Shore A | For use in geothermal application, hot asphalt pipelines and general pipeline service in elevated conditions. |
| Polyurethane U53 (Yellow) | -20°F | 170°F (oil) 140°F (water) | 53 Shore A | Meter prover service, low temperature distillate removal service |
| Polyurethane U58 (Green) | 0°F | 170°F (oil) 140°F (water) | 58 Shore A | Meter prover service. Gas distillate removal at greater than 600psi. |
| Polyurethane U66 (Red) | 0°F | 170°F (oil) 140°F (water) | 66 Shore A | Gas distillate removal at greater than 600psi. General pipeline usage for situations requiring long runs or when pipeline is especially rough |

PROVER SWITCHES



Mag-Tek features a pressure balanced, piston actuated, proximity switch with no dynamic seals. The switch is factory sealed, with no field adjustment, eliminating the chance of slipping from the original setting. The hemispherical shape of the piston allows either uni-directional or bi-directional operation. The detector switch is manufactured from stainless steel and designed for either above ground or below ground applications. Once installed the Mag-Tek has only one moving part, the pressure balanced piston, thus allowing continuous maintenance free, and accurate

operation. Mag-Tek switches are also interchangeable with most other brands of switch mountings.

Once installed the hemispherical portion of the probe extends into the I.D. of the pipe approximately 3/8". When the sphere passes the switch, it forces the probe upward. This upward movement causes the ferrous body of the piston to enter the magnetic field of the proximity switch sensor. The result of the attracting forces causes the magnet in the sealed switch to move toward the ferrous piston causing the normally open contacts to close and complete the electrical circuit.

OPTIONS and DATA

- Contact: Model M-5, M-5T, M-6, M-6T SPDT Environmentally Sealed
Model M-5, M-5T M-6D, M-6TD DPDT Environmentally Sealed
- Classification: CSA NRTL/C Class I, Division 1, Groups C and D Hazardous Locations
- Rating: 2 Amps @ 240 V.A.C
50 Milliamps @ 24 V.D.C.
- Repeatability: 0.002" units (Under identical operating conditions.)
- Response Time: 0.008 Seconds
- Temperature: -40°F to +221°F
- Pressure: 2220 PSI Max. Rating
- Weld on Base: Carbon Steel
- Spring: 302 Stainless Steel
- Piston: 416 Stainless Steel
- Body: 303 Stainless Steel
- O-Ring: Viton
- Conduit Opening: 1/2" FNPT for SPDT
3/4" FNPT for DPDT

TROUBLE SHOOTING

Due to the limited number of moving parts, problems with the Mag-Tek detector switch are few. The most common problems can be attributed to one of the following:

1. Switch damage - the switch may have been damaged by excessive electrical currents, or by dropping the switch. To check, remove the switch from the base, connect it to a volt/ohm meter and slide the piston into the lower portion of the switch. The switch should close and open as the piston is moved into and out of the switch. If it does not function properly, a replacement element is required.
2. No indication - The sphere is not contacting the piston properly. Measure the O.D. of the scraper cup or sphere to be certain they are the proper diameter.
3. No indication - Foreign material has accumulated above the piston in the sensing chamber preventing the piston from traveling upward. Remove the switch and clean the base of the switch and the spring. Check the bleed grooves in the piston to be sure they are clear.
4. Switch is clean and checks out OK, the switch is sized properly, but the switch is intermittent or still does not function properly - misalignment of the base and hole causing the piston to bind or preventing it from extending into the pipe ID Recheck the base fit and probe insertion depth.

AFTER SHOP



www.DrinkwaterProducts.com

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