An aerial photograph showing a long pipeline stretching across a body of water towards a large, snow-capped mountain in the background. The pipeline is supported by a series of wooden pilings. The water is dark, and the mountain is covered in patches of snow and ice. The overall scene is industrial and natural.

As the industry's most trusted provider of integrated piping maintenance, modification and repair capabilities, TDW delivers customized pigging products, services and solutions specifically engineered to optimize system performance with a minimum of downtime.

D2000™ Closures with the ProSeries™ Advantage



Pipeline Pigging Solutions

TDW is the pioneer developer and the leading manufacturer of pipeline pigs: cleaning pigs, bidirectional pigs, batching pigs, displacement pigs, foam pigs, spherical pigs, magnet pigs and drying pigs. TDW delivers customized pipeline service and pigging solutions specifically designed to improve throughput, ensure integrity, reduce costs and eliminate downtime. Consult the TDW team for selecting the correct pig for your application.



1) **VANTAGE® V Cleaning & Batching Pigs:** Available for 10-inch and larger lines, this pig consists of one basic body and cup or disc design for batching and displacing. Brushes or blades can be added for cleaning. Two, three, or four cup configurations can be added.



2) **BiDirectionAll Pig:** These pigs are designed for use in pipeline construction during hydrostatic testing for displacement applications. The pig is bidirectional and designed to allow the user to hydrotest and displace water without having to remove the pig. It can be easily converted to a cleaning pig.



3) **X-Pig® Multi-Purpose Utility Tool:** Available in 4- through 16-inch cast FORMULA SI® polyurethane, these general purpose pigs are durable and disposable. Uses and attributes include: removing water and liquids from pipelines, product separation, brush wrap option for cleaning, gauging plate option, bypass option and hollow core for transmitters or trip magnets.



4) **PitBoss™ Cleaning Pigs:** Designed to remove deposits from pits to allow corrosion inhibitors and biocides to deter corrosion in the pipeline. PitBoss pigs are available in sizes 4-inch and larger and in dual-diameter configurations.



5) **Inflatable UNISPHERE™ Pigs:** A seamless, liquid-cast, polyurethane sphere used for heavy-duty service in the removal of liquid hydrocarbons and water from pipelines and piping systems. “Spheres” are filled with liquid, usually glycol/water mix or lightweight oil, and are available in sizes 4- through 24-inch.



6) **Foam Pigs:** REDSKIN™ urethane foam pigs are tough, abrasion-resistant, polyurethane foam. A wire brush model is available with patented variable bypass. Both REDSKIN and WHITESKIN urethane foam pigs, are designed for air removal prior to hydrostatic testing, dewatering, and drying after hydrostatic testing. Available in sizes 2- through 42-inch.



7) **OptionAll™ Cleaning & Batching Pigs:** This series of pigging products offers you options. Standard components can be assembled to make a multitude of configurations in sizes 4- through 14-inch.



8) **PIG-SIG® V:** The TDW PIG-SIG V Scraper Passage Indicator is a device installed at prescribed intervals on pipelines to detect the passage of a pig or sphere. PIG-SIG V indicators come with a standard omnidirectional trigger that is easier to install and all but eliminates trigger breakage. Components exposed to pipeline products are completely sealed to prevent leakage and are NACE compatible. Built to withstand the most brutal offshore/onshore environments, components exposed to the atmosphere are 316 stainless steel. Signaling systems for the PIG-SIG V include a flag indicator, a flag/electrical indicator or an electrical indicator. Because of its omnidirectional trigger, the PIG-SIG V signal flag can be oriented to face any desired direction.



Flag Indicator

Flag/Electrical Indicator





9) **PIG-SIG® NI:** The TDW PIG-SIG NI Pig Passage Indicator is a portable electronic device that provides reliable, non-intrusive detection of pig passages anywhere within a pipeline system. The unit is easily installed on the line with no tapping required. When pigs pass, the PIG-SIG NI displays the time, date and a recent passage message on a high-contrast LCD screen. Up to 10 passages may be retrieved by scrolling through the PIG-SIG NI memory. PIG-SIG NI options include long-distance viewing, SatCom satellite uplink for transmission through a variety of communication devices, and models for environmentally harsh conditions.



D500 Threaded Closure and D2000 Quick-Actuating Closure

One of the most critical operations in pigging is ensuring the safe opening of the closure door, which provides access to the pig trap during both launch and retrieval operations.

10) The D500 threaded closure door threads onto a hub that is welded to the end of the trap. Its robust handles make closure turning easy. Sizes are 4- through 14-inch. A hinge arm, connecting the door with the hub, is standard on 10- through 14-inch vessels.

11) Opened or closed in a single motion while the operator stands safely to the side, the D2000 is the quick-actuating closure the industry depends on. Now, with the ProSeries™ advantage, the same features you trust are available for a broader range of applications, with shorter lead time, greater standard code compliance and, as always, the consistent quality you expect from T.D. Williamson.

10



11



12) TDW Tracking System: TracMaster systems use sophisticated processing technology to pinpoint, track, and locate as many as eight pigs simultaneously – even lost or stuck pigs. Cable-less, lightweight, all-in-one package for easy operation. Flash memory* lets you view, print, download, or map recorded passages. *only available on certain models.



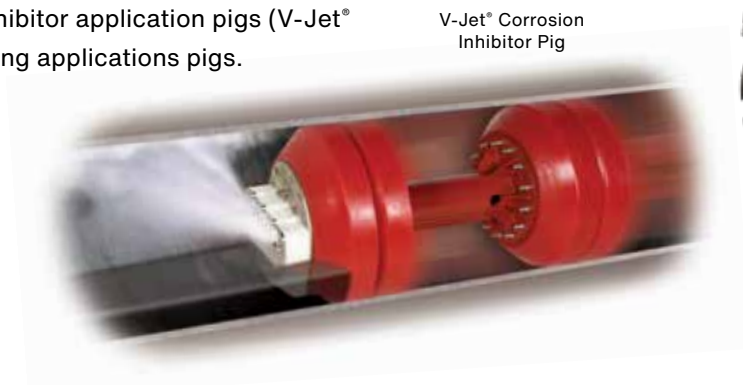
13) TDW Magnetic Cleaning Assemblies: Are available in two configurations. On 6- to 14-inch pigs, a full magnetic disc is used. An array of magnetic segments is used on 16-inch and larger pigs, as shown for the 24-inch pig, in order to provide functionality with minimum cost.



Optional Magnet Cleaning

14) Custom Engineered Pigging Solutions: TDW offers on-site collaboration and program development: custom pigging solutions designed, built and delivered when needed; large and dual diameter, magnetic cleaning pigs; inhibitor application pigs (V-Jet® Corrosion Inhibitor Pig); tough cleaning applications pigs.

Custom Engineered Pig



V-Jet® Corrosion Inhibitor Pig



FORMULA SI® URETHANE

TDW pioneered and maintains the worldwide standard for manufactured, field-proven and tested components with a comprehensive selection of pigging products. Ongoing product enhancements include next generation urethane cups and discs used for cleaning, batching and instrument pipeline pigs. Formula SI urethane provides superior physical properties in critical areas such as resistance to abrasion, hydrolysis, resilience and compression set. TDW is your source for smart pigging solutions to integrate with your custom system.

Assurance-Based Cleaning

Pre-Inspection Cleaning

A successful assurance-based cleaning program combines decades of knowledge and expertise with proprietary cleaning metrics to understand the pigging program that satisfies your goals. The result dramatically improves inline inspection (ILI) data, operational efficiency and internal corrosion mitigation. Tough pipeline conditions – scale, black powder, paraffin, condensates, ferrous oxides and general debris – can restrict internal diameter, reduce throughput, result in ILI tool damage, potentially cause a stuck tool, and/or degrade data quality.



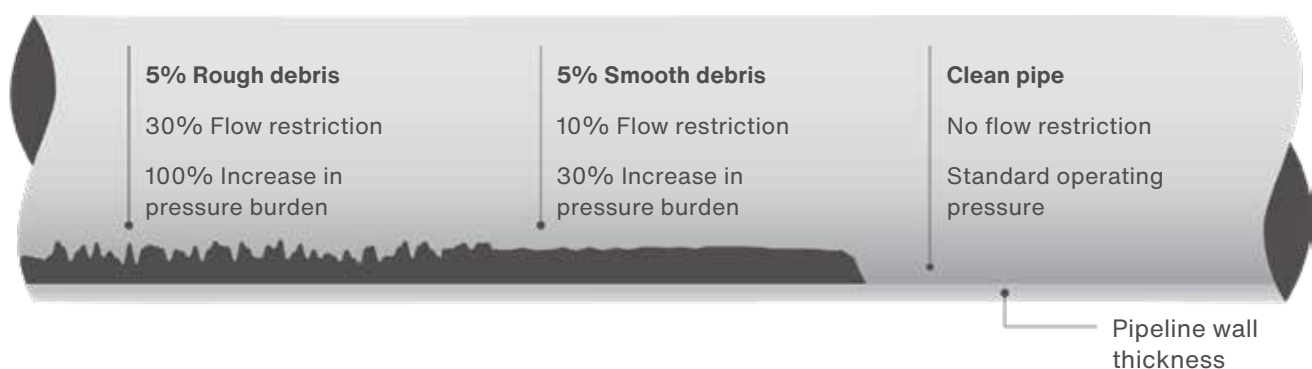
Progressive Pigging

In addition to preparing your line for inspection, progressive pigging can dramatically improve operational efficiency and pipeline performance by using low-to-high aggression pigs to effectively remove debris from a pipeline segment.

Low impact pigs → Aggressive cleaning pigs



Pre-ILI cleaning ensures inspection tool sensor contact with the pipe wall which delivers accurate, high quality data.

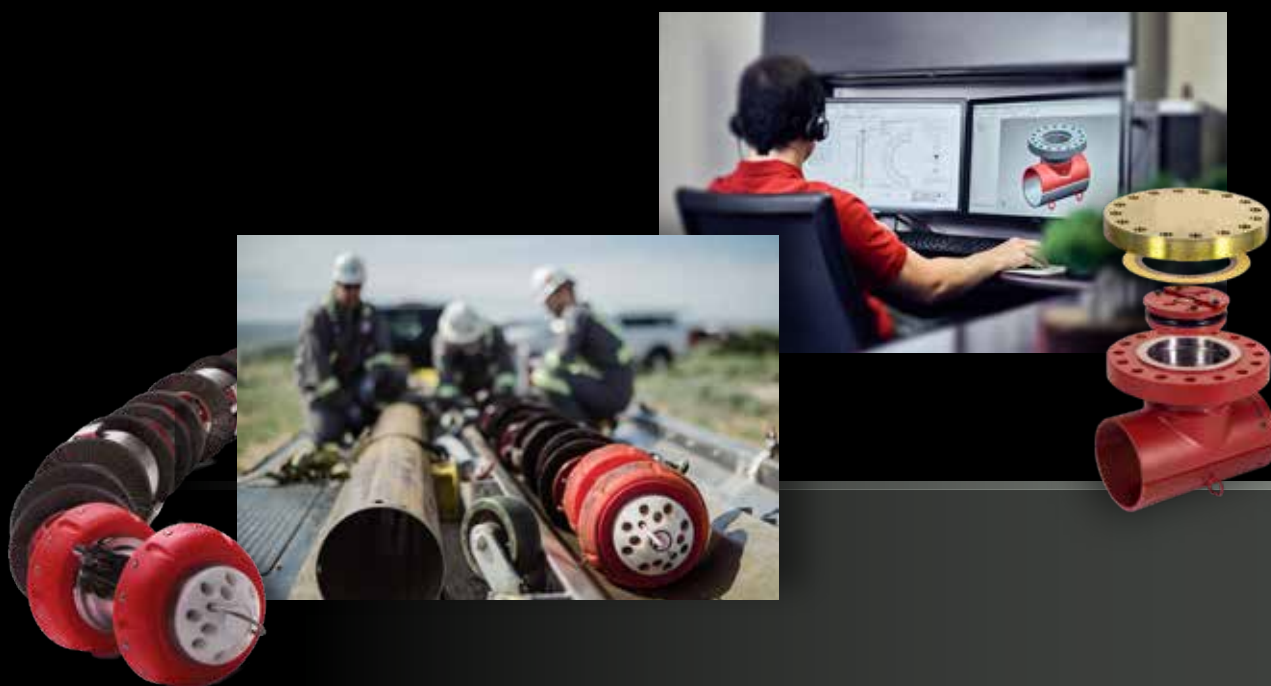


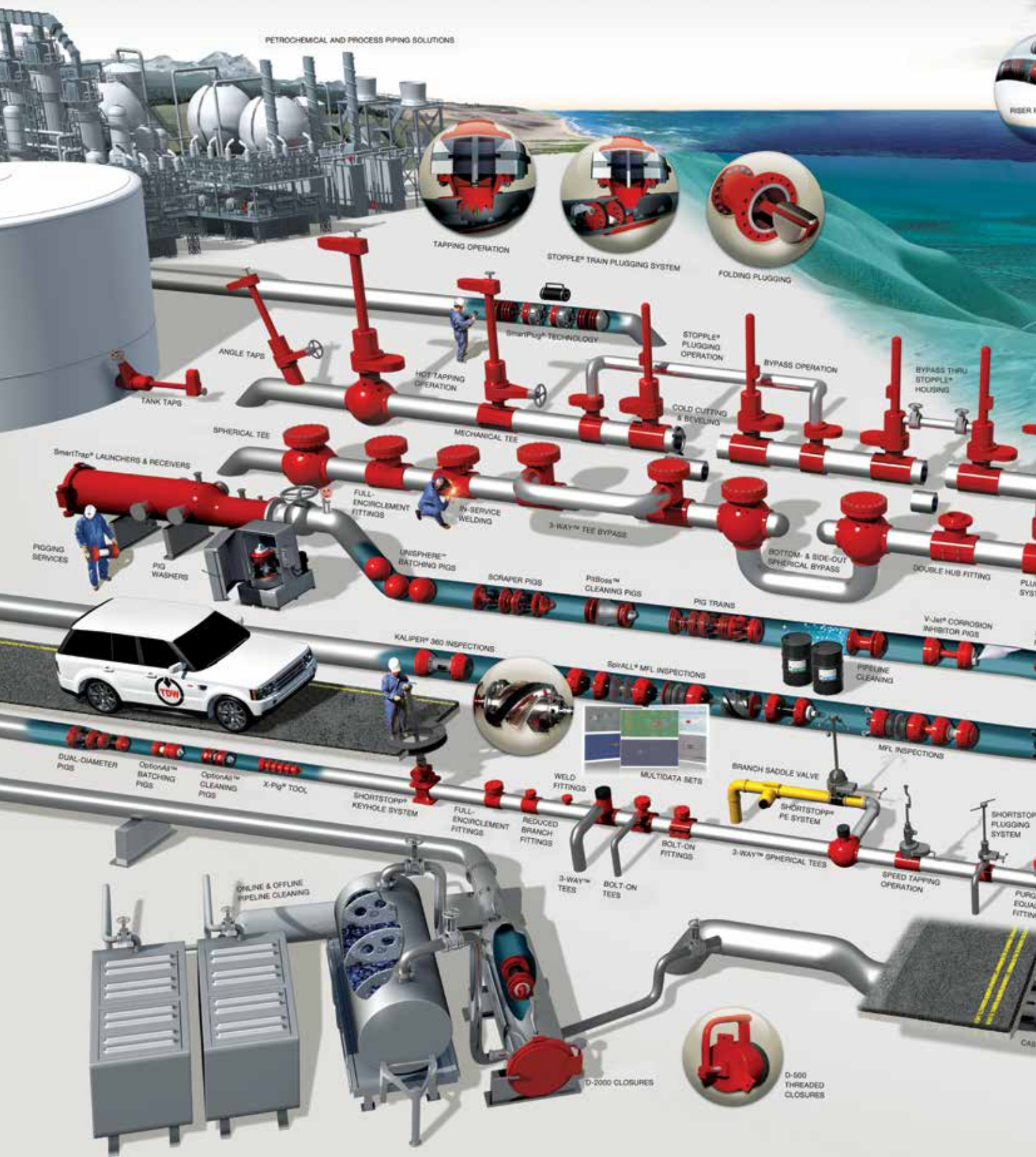
Services Solutions

Our services are backed by nearly a century of experience and the largest fleet of customized equipment, fittings and accessories in the world. Our focus is and always has been the customers with whom we partner every day to deliver safe, reliable solutions. From routine maintenance to emergency repair, our team of highly skilled, fully certified technicians is ready to respond 24/7 with the highest quality, most cost-effective piping systems solutions available.

Our complete portfolio of innovative, high quality products and services deliver everything you need to troubleshoot potential problems and maximize piping system efficiency:

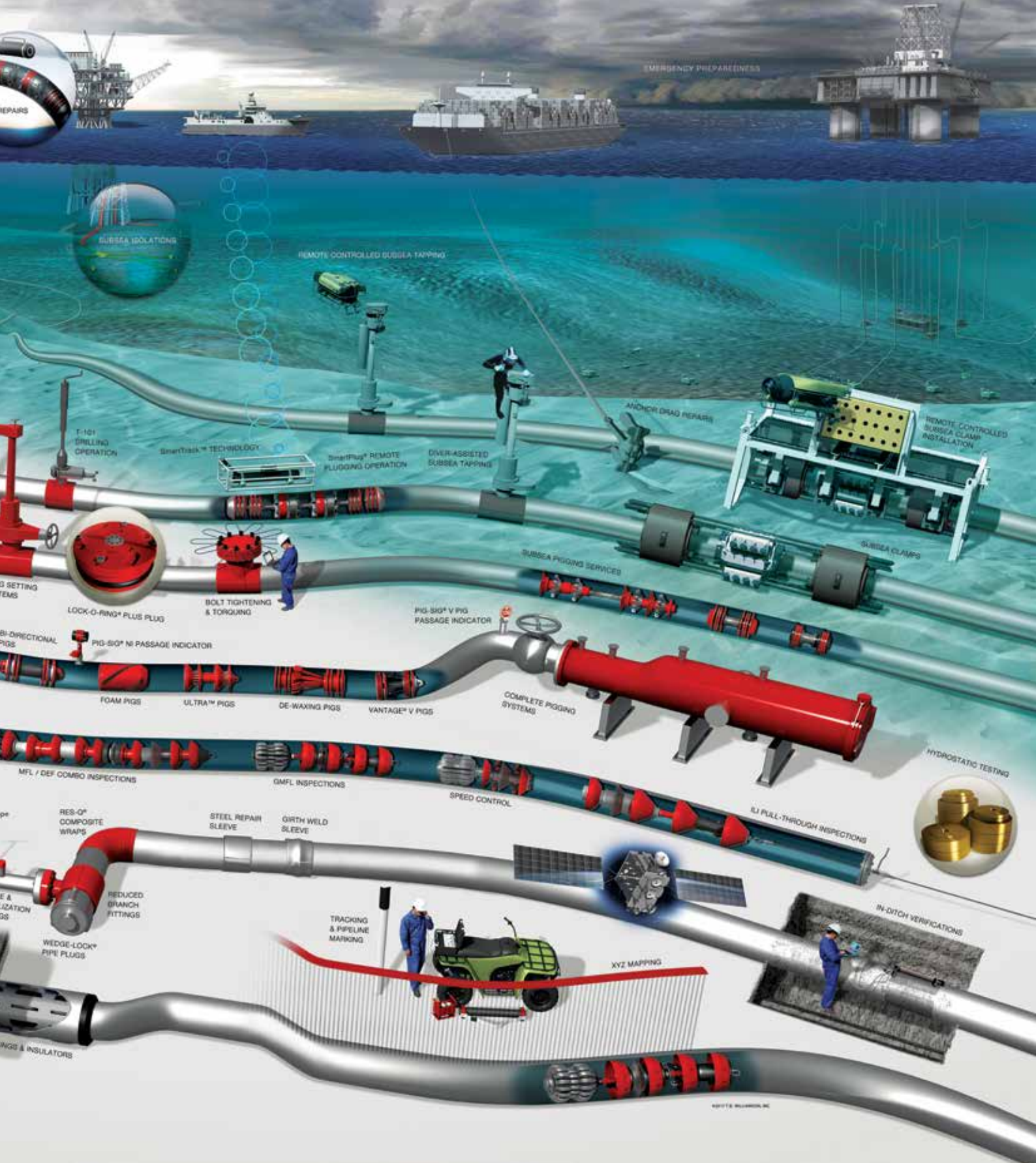
- Distribution Integrity Management
- Dedicated Engineering Support
- MFL Corrosion Inspection Services
- Deformation Inspection Services
- Inline Inspection Services
- Geometry Inspection Services
- Hydrostatic Testing
- Marker Placement Services
- Pig Tracking & Locating
- Pig Signaling Devices
- Maintenance & Repair Services
- Complete In-Service Welding Capabilities
- Rehabilitation Products & Services
- Turnkey Project Management Services
- Hot Tapping & Plugging Services
- Plugging Isolation Services
- Consulting Services
- Product Training





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