

InSIGHTS

On Corrosion Prevention & Asset Integrity

VOLUME 06 | ISSUE 2020-2021



A SAIT GROUP COMPANY

Its never been easy to protect
subsea pipeline without
Galvallopod



22 Years **Serving the oil & gas sector since 1998**



BSS Technologies is an ICV Certified Company.

ADNOC has been working in close partnership with the government, its business partners and the private sector to support and drive growth, development and diversification in the UAE.

A message from our Chairman to employees



Dear Valued Colleagues,

The COVID-19 situation has evolved further and we are dealing with a significant global challenge. The World Health Organization has declared this outbreak a pandemic. Many governments around the world have taken stricter and more impactful measures to ensure the safety of their citizens. In addition to the immediate and grave health concerns, we are seeing a much wider impact on all of our lives as well as the global economy. Understandably, there is a great sense of unease everywhere. It is in this context that I would like to address you on behalf of BSS Technologies and myself.

First and foremost, we would like to thank all our colleagues for what they have done already to weather this crisis and to get our company prepared to cope with this situation. Your commitment makes all the difference. We would also like to reassure all that as a company we are resilient and we are convinced that we will overcome this one too. We are also helping our reputed manufacturers and suppliers in buying their stocks and have already invested around 10 million aed to make their cashflow healthy, thus supporting each other in this hour of global crisis.

And also we would like to remind us of the special responsibility that a company like ours has at this time. In moments like these our purpose and values matter a lot to the people and communities we serve. We earnestly and humbly request all of you to contribute to this. This is the moment for extra effort, for going the extra mile. I fully recognize we are asking a lot because all of us are also busy managing challenging personal and family situations at this moment. Your effort will make a huge difference to our company and to our society. We would like to recognize in particular our frontline employees and factory workers – your commitment and your discipline are critical at this time to maintain business continuity. It is our priority to support you in this important endeavor. To overcome this unique challenge, we request all of you to stay focused on the three priorities.

First, the safety of all of us is paramount. We can only make positive contributions and live our purpose and values if we stay healthy and avoid spreading the virus. Second, business continuity is key. We need to focus our efforts on securing supplies, manufacturing and logistics every step of the way. For those areas that are not affected yet, get prepared by building inventories of critical supplies and products. Please get ready for the storm to hit – because hit it will and third – to the extent you can – please provide a helping hand to the communities around us and our many business partners around the globe. This is the moment to demonstrate grace under pressure. Many people and companies will be much harder hit than BSS Technologies' and will have to cope with graver challenges as a result of this crisis. Please help them to get through this – it is part of our values and people will remember. This will be a time when we can be a true force for good.

This mindset also applies to all of us as colleagues. Due to our unique culture, we often refer to BSS Technologies' as a family company. A challenging moment like this is the time to live family values. Unprecedented travel restrictions have led to difficult personal and family situations for many of our colleagues. Your personal caring and help can make a lot of difference to our colleagues and their families – it will also make us a stronger and even more united team. Please live and breathe the BSS Technologies' team spirit. I am proud and inspired by the way our company has risen to this challenge - with flexibility, resilience, courage – and a caring heart. Thank you for your enormous contributions. Let's work together – across all parts of the business - to keep going. Let's make this one of our finest hours.

Let me add a personal note. Along with everyone else at BSS Technologies' I am working hard to cope with this crisis. We – and I – will be with you every step of the way. Like most of you I also have a family to worry about. I am a BSS Technologies' colleague, but also a father, a husband and a son. At times like these, the worry list can be long for all of us, there are no exceptions. But I am also convinced that we will get through this, if we do not lose our self-confidence and our energy. It is literally in our hands.

Please, do look after yourselves and your families.

And stay safe. Thank you.

Faris Sari A.E. Al Mazrouei
Chairman BSS Technologies

Above Ground Inspection in a Single Pass

What is eXternal Line Inspection (XLI)?

Spectrum XLI is a complete system for proactive above ground inspection of buried pipelines. Unlike conventional above ground inspection tools – which often collect only a single data source in each pass – the XLI system collects multiple sources of data in a single pass.

Simultaneously, the system can collect: GPS/GIS, depth of cover, depth of water, gas leak detection, cathodic protection survey (CP CIPS/CIS), direct current voltage gradient (DCVG), alternating current voltage gradient (ACVG), alternating current-current attenuation (ACCA), and soil corrosivity measurements.

How does it work?

Inspections are completed by field teams that walk the pipeline ROW recording the desired pipeline data with the Spectrum XLI equipment. All measurements are logged into secured encrypted raw logs, which ensures that data cannot be adulterated. The complete raw data log can be audited upon the pipeline owner's request.



In single inspection above-ground surveys, Spectrum XLI offers more reliability than traditional single-inspection systems since all measurements are logged in a secure encrypted raw log and can be audited by a third party.



www.alliedengineer.com

- OUR SERVICES (for Piggable & Non-Piggable Pipelines)**
1. Pipeline Integrity Management Programs including Corrosion Audits (PIMS)
 2. Direct Assessment (DA) for Piggable and Non-piggable Pipelines:
 - i. External Corrosion Direct Assessment (ECDA)
 - ii. Internal Corrosion Direct Assessment (ICDA)
 - a. Dry Gas ICDA
 - b. Wet Gas ICDA
 - c. Liquid Petroleum ICDA
 - d. Multi-phase ICDA
 - iii. Stress Corrosion Cracking Direct Assessment (SCCDA)
 3. PureHM XLI Technology: for state-of-the-art surveys Simultaneous, continuous and encrypted following surveys: Depth of cover, Gas Leak Detection, CIPS, DCVG, ACGV, ACCA, Soil Corrosivity and Pipe Wall Assessment Data
 4. Pipeline Composite Repairs using Clock Spring USA
 5. Training: NACE/ ASME/ Customized

When to use the technology?

Spectrum XLI should be used to identify potential areas of corrosion on buried pipelines before they occur. XLI results provided the coating condition along with the effectiveness of cathodic protection (CP) system. Because the system can collect multiple sources of data in a single pass, it should be used to reduce risk and create cost efficiencies within an above-ground inspection program that requires multiple surveys.

Why use Spectrum XLI?

Spectrum XLI is the only indirect inspection technology that can be customized to meet client's inspection needs by completing a combination surveys in a single pass. The system also collects quality, auditable data that can be verified by the pipeline operator. This data eliminates guess work and allows the pipeline owner to make defensible pipeline integrity and repair decisions.

XLI AUTO-RECORDS:

- SUB-METER DGPS AT 1 TIME PER SECOND
- ACCA/CAT, DOC AT 7 TIMES PER SECOND
- CIPS, DCVG AND ACGV AT 35 TIMES PER SECOND
- ENCRYPTED DATA WITH TRACEABLE AND AUDITABLE RAW LOGS
- SURVEYORS' MOVEMENT IS CONTINUOUSLY RECORDED
- FIELD CONCERNS
- AUTOMATICALLY HIGHLIGHTED IN XLI SOFTWARE
- IMMEDIATE ACTION WITH REAL TIME INFORMATION
- "TRUE" AND "AUDITABLE" SURVEY DATA PROVIDED TO OWNER

For Enquiries: bsstech@bsstechnologies.com | +971 4 886 7015

Made In India

Knowledge sharing is a Knowledge Squared



BSS Technologies' Training Centre offers learning opportunities

“A healthy knowledge sharing culture, which BSS Technologies’ takes pride on”

Knowledge sharing is the exchange of information across an organization, clients and young aspirant engineers has never been technically easier thanks to software, digital communication tools and the internet. Yet, the more information there is the less workers are generally inclined to share it with one another.

That means business leaders must strive to streamline, even incentivize, the collaborative exchange of expertise. Ultimately, knowledge sharing promotes the healthy, sustainable growth of modern businesses, regardless of industry. Multiple reports suggests that transparency in business — both external and internal — is at a premium these days. Customers prefer companies that are straight with them, and workers count internal transparency among the most important factors when considering a new job.

Baking radical honesty into the way you do business is the first step toward building an organization at which employees’ first impulse is to share their own expertise with colleagues. When your company’s ecosystem supports the free flow of information, you’re not only making it easier for your employees to do their jobs well but also to client to have knowledge on the solutions and you’re also reaping dividends when it comes to attracting the best talent. BSS Technologies, Dubai is equipped with a fully operational training center, which offers a variety of learning opportunities and is dedicated to the nation which will provide training & skill development to the local Emiratis. The trainings program is playing a valuable role in facilitating hands-on-training to the young engineers and engineering students. The facility has a wide range of state-of-art equipment, from the huge furnaces, metal casting

stations, to the fabrication yard, the Transformer Rectifier manufacturing unit and sophisticated machineries and tools used in the manufacturing process. The training center can accommodate 25 students per session. The training includes classroom session and the technical workshop where they get hands-on-training in all CP product lines. Interactive learning methods feature prominently at the training, learning games and product touch & feel designed to engage trainee and enable them to explore real-life scenarios. After successful completion of the training the engineers are given certificates for the successful participation on this program.

A healthy knowledge sharing culture, which BSS Technologies’ takes pride on sharing knowledge any number of times to the client employees, young engineers and students for national benefit.

INTERNAL CORROSION MONITORING

Rysco Corrosion Services Inc. is an Oilfield services company dedicated to providing internal corrosion monitoring solutions to oil and gas producers. Located in Canada, providing dedicated internal corrosion services and evaluations to ensure the integrity of your infrastructure.

To illustrate our "first in class" culture, Rysco International maintains registered ISO9001, ISO14001, and OHSAS 45001. These internationally recognized management systems are integrated into an IMS that includes Quality Management, Environmental Management and Occupational Health and Safety Management.

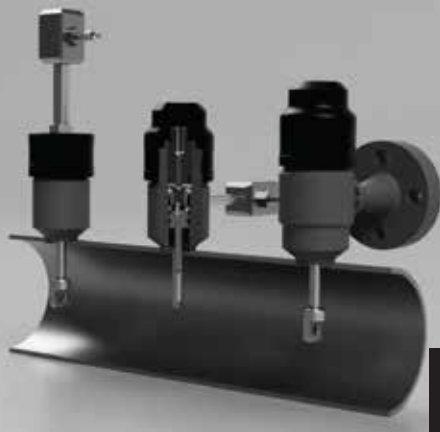


www.ryscocorrosion.com



Access Fittings

- High Pressure Access Fittings
- Corrosion Coupons
- Electronic Probe
- Electronic Data Loggers
- Erosion / Corrosion Probes
- Bio Probes
- Injection & Sampling
- Low Pressure Fittings
- Custom Equipment Manufacturing



Injection System

ER Loggers



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Made In Canada

Electrochlorination System

A Product of BSS Technologies



Optionally, we can deliver a hypo-electrochlorination system as part of an integrated solution, thus reducing onsite installation and commissioning time. Thanks to years of experience in designing and assembling equipment for flow assurance, BSS Technologies offers the valuable know-how required for advising effective solutions. Our in-house multidisciplinary engineering capability ensures that each electrochlorination system is designed in accordance with client specifications and local legislation. Being supplier independent, BSS Technologies is in an excellent position to select the best solutions, striking a balance between capital investment and operating costs.

- Optimum system design
- High efficiency cell module
- Concern for safety - no chlorine gas
- Long term reliability
- Vast experience

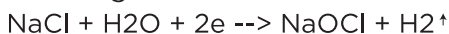
Hypo-Electrochlorination systems are developed as the go-to solution for control of marine biological fouling in the offshore oil and gas industry. They provide the most effective and environmentally safe method for the prevention of biofouling that would negatively affect the seawater systems within an offshore facility. BSS Technologies designs, manufactures and supplies custom built electrochlorination systems for a broad range of seawater process applications.

Project Management

With our broad vision and multidisciplinary experience in providing solutions for applications, we know what it takes to integrate project, process and mechanical challenges. From the conceptual design to detailed engineering, fabrication and final client acceptance, our dedicated teams master every detail of the contract. After commissioning and startup total process guarantee and final “as-built” documentation is provided to the client.

Principle of Operation

In a typical Seawater Electro-Hypochlorination System, seawater is fed through a strainer, where particles are removed. From this point the seawater is fed to the electrolysis module by way of a flow controller. In the module, passage of direct current through the seawater converts a portion of the salt to hypochlorite by the following reaction:



Applications

Disengaging/product storage tank at the tank, the hydrogen gas is separated and vented then, the sodium hypochlorite solution is transferred and injected into the points required. Due to impurities in seawater, the cells are cleaned periodically to remove deposits on the electrodes.

- Cooling water systems : Nuclear power plants, Thermal power plants, Combined cycle power plants, Desalination plants
- Evaporation systems : LNG receiving terminals



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Made In UAE



SAIT Group commissions new factory in Saudi Arabia

Sait Group has expanded its presence in Saudi Arabia by adding a new production plant to Al Shaikh International Group for Cathodic Protection System Company (Al Shaikh CP) for manufacturing Anodes & Transformer Rectifier. Located in Jubail, the new factory enables the Al Shaikh CP not only to increase its production capacity but also, in particular, to optimise its logistics and hence its cost structure. Up to now, Al Shaikh CP supplied its customers from the BSS Technologies, Dubai plant. The new production facility in Jubail will thus greatly reduce transport distances. It is also ideally positioned to potentially supply customers in neighbouring markets around the Persian Gulf.

Nizam Yacoobali, Regional Manager - Saudi Arabia, said: “Producing locally in Jubail brings us closer to our customers on the east coast of Saudi Arabia and opens up further growth potential. At the same time, the optimized supply chain will help strengthen our competitiveness in the market.”

With its Vision 2030 and its National Transformation Program, Saudi Arabia wants to diversify its economy. A range of mega-projects involving huge infrastructure investments will push up demand in various sector.

Al Shaikh CP, A SAIT Group Company, is an 100% Saudi Arabia, national owned organization, specialized in Corrosion Engineering and Cathodic Protection & Control, is a technology driven, customer oriented company having its head Office in UAE with Manufacturing and central logistics in Dubai - UAE, Al-Jubail - Saudi Arabia, Mumbai - India and Malaysia.

Over the year’s vast experience, AL Shaikh CP under the patronage of SAIT Group has developed into a highly resourced, responsive global company with strategically positioned its branch offices and facilities in Abu Dhabi, Dubai, Kuwait, Nigeria, India, Malaysia and Canada. With this capability AL Shaikh CP is a One Stop destination for Consulting / Engineering / Material / Equipment Providers and Contractors for the wide variety of requirements in Integrity Management in the Oil, Gas, Water, Energy, Transport and Infrastructure Sector. Our manufacturing facility is ISO-9001:2015 certified which arms our highest commitment to our motto that “The key to Customer Delight is quality”.

Valve Test & Repair Equipment

PKTBA CJSC, introduces the "REVALVE" as our international brand delivering cutting edge technologies for valve testing, manufacturing and repair operations.

All these features embodied at our wide product range:

- brand new line of horizontal and vertical valve test units with range of DN from ½" up to 56" and clamping force up to 4000 tones;
- advanced product line of grinding/lapping units;
- stationary machining centers;
- welding overlaying and hard-facing automation;
- portable valve test and repair systems;
- mobile workshops.

Above listed range of equipment has been created by using of innovative technologies and modular design features, that brings flexibility to correspond challenging market demands.



Necessity of implementation of modern technologies in valve testing

Being an end-point production process, valve testing is the first defense stage of the piping system where tested valve to be operated at critical pressures, temperatures, impact of aggressive transported mediums and harsh environmental conditions.

In a current unstable World economic conditions industry forced to follow policies of operational cost optimization, without compromising high performance requirements and safety aspects.

In such conditions, old (blind plugs bolting) manual valve testing technologies are not acceptable, expensive and time consuming. Thus may lead to longer turnaround period with out-coming unpredictable losses, that must be void.

In order to ensure reliable accuracy and remain true to core values, strict compliance with industry standards for hydrostatic and pneumatic valve testing, Valve Test System should be state of the art equipment, ready to accept the most complex challenges imposed by industry leaders at optimal efficiency / safety / cost - formula.



Vertical test bench for testing the wellhead and anti-blowout equipment



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sales@revalve.com
www.revalve.com

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Made In Russia

Solar Power System



ENVOERA™
ENERGY FOR THE NEW ERA

A comprehensive range of solar modules, charge controllers, solar batteries, solar lights, telecommunication power supplies and complete system installation.

MAJOR ACTIVITIES INCLUDE

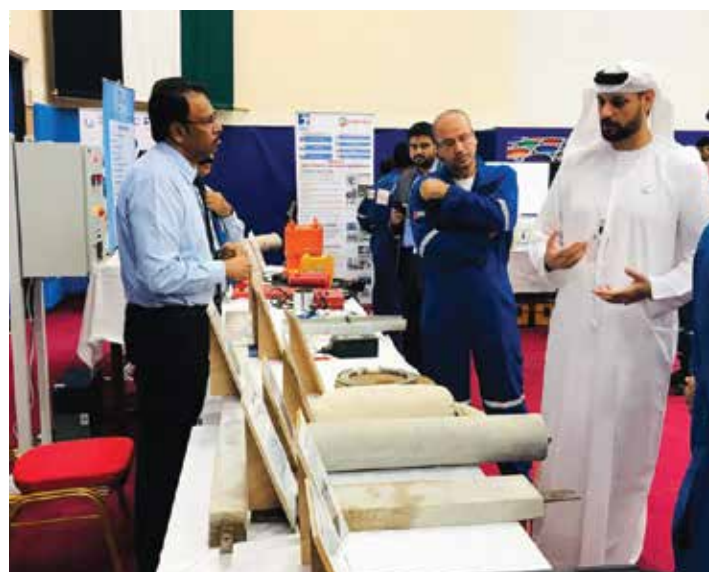
- Solar power supply for Cathodic Protection Systems.
- Powering up of remote telemetry units (RTU) for pipelines and well heads.
- Powering up Instrument loads at well heads and unmanned locations.
- Powering up monitoring and control systems SCADA.
- Independent facilities. (site offices, labs, temporary structures etc)
- Customized controllers for solar application.
- Detailed engineering design and feed for new solar establishments.
- Operation and maintenance services for solar power plants/systems.
- Revamp and upgradation of existing solar facilities.
- Energy audits and energy saving feasibility study.



SYSTEM COMPONENTS

- Solar Panels
- Mounting Structure
- Sub-Array Junction Box
- Charge Controller
- Batteries and Enclosures
- Distribution box

For enquiries:
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Atmos International (Atmos) non-intrusive leak detection technology, The remote possibilities with Atmos Eclipse.

Atmos International's (Atmos) initial concept for Atmos Eclipse was to provide non-instrumented pipelines with the right technology to enable leak detection. Atmos believes that every pipeline requires effective technology to minimize the impact of leaks on the environment. With regulations becoming more stringent, legacy pipelines require attention to ensure they can remain operational within their networks.

These legacy pipelines remain vulnerable not only to climatic incidents such as earthquakes but also theft. The cost of leaving pipelines without instrumentation can be significant. Not only from the impact of fines and clean-ups but also the stoppage of distribution which can be into hundreds of thousands of dollars.

Atmos Eclipse offers cutting edge technology with cost-effective applications of flow and pressure sensors, without having to drill or cut a pipeline. Its non-intrusive sensor means that higher levels of repeatability data can be provided. Combining all these technologies with onboard communications such as cellular and radio links opens up new possibilities for pipelines which can often be far away from control rooms or established infrastructure.

Atmos Eclipse's single device means easy installation with a limited amount of resources required. In addition, Atmos has developed integrated power solutions which include solar and wind power. If either power generation is interrupted, then each unit is supplied with a 14-day battery to ensure data collection can continue. This allows Atmos Eclipse to not only work within a networked environment but also as a stand-alone in the most hostile and remote environments. Each aspect of Atmos Eclipse solution is ATEX/IECEX certified and the unit can be used in subterranean environments. Its rugged design provides even the remotest of possibilities and offers leak protection no matter where the pipeline is based – all without reducing the integrity of the pipeline structure.



Combining 25 years of expertise in leak and theft detection with unique hardware solutions, Atmos International's versatile systems provide peace of mind for pipeline operators around the world.



ATMOS
INTERNATIONAL
www.atmosi.com

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Made In UK

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Transformer Rectifier & Remote Monitoring

A Product of BSS Technologies

The key to any impressed current cathodic protection system is a reliable power unit that can provide an uninterrupted direct power supply for anode energisation. BSS Tech offers a fully comprehensive range of transformer rectifiers. Our cathodic protection engineers are available to advise the most efficient & economical transformer rectifier units for any specific application. We have wide range of CP power supply types including oil cooled, air cooled, thyristor controlled, variac controlled units and suitable for hazardous area application with ATEX.

TR units are manufactured in compliance to latest IEC standards IEC60076 and IEC60146.

Special application like concrete rebar protection needs small rating power supplies with high reliability.

FEATURES:



Advanced Silicon Technology for Pure Rectification.



Remote Monitoring And Control System



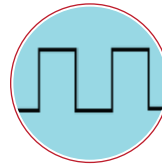
Advanced Surge Protection



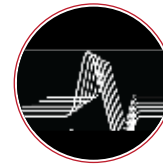
Low Maintenance



Over Voltage Protection & over Current Protection for both input side & output side.



Individual ON/OFF mechanism.



Reduced Ripple for better CP healthiness



Isolated Input using high efficient step down transformers. (Double wound Isolation)

Standard Rating TR units

10V, 10A	20V, 15A
20V, 20A	25V, 15A
25V, 25A	25V, 50A
50V, 50A	50V, 75A
75V, 75A	100V, 100A



- Air Cooled
- Oil Immersed
- Explosion Proof
- Pulse Rectifier
- Special Purpose
- IGBT Rectifier
- Custom Design
- **ATEX certified**

REMOTE MONITORING & CONTROL

CP Remote monitoring System are designed to effectively monitor the CP Parameter, evaluate performance by conducting the tests remotely and analyses the data. Units featured here have the capability to achieve performance test and evaluation of data through RS485/FOC/radio communication.

CATS-EYE consists RTU and PC software. RTU has customized hardware to provide rectifier control, memory for data logging, different modes of communication and embedded software. RTU is placed in local rectifier unit.

PC software is installed in remote PC in control room. PC software communicates with RTU on RS-485/FOC/Ethernet or wireless radio network. PC software provides all the controls required for monitoring and control of impressed current cathodic protection system.

COMMUNICATION INTERFACE

Communication Protocol	Standard Modbus RTU
Wired	RS485/FOC/Ethernet
Wireless Radio with Frequency band	2.4Ghz
Optical Interfacing	Yes
TCP/IP	Yes
Ethernet Topology	Yes

CATS-EYE SOFTWARE FEATURES

- Auto Reference Mode
- CVCC Mode
- Interruption Cycle
- Alarms and call back
- Reference Potential Monitoring & Control
- Data Recording
- Analytical Data Interpretation
- Graphical Report Generator
- Real Time Monitoring
- Site Programming

For enquiries, please contact:
bsstech@bsstechnologies.com

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Made In UAE

Wrapping and Coating

DEKOTEC is your solution partner for reliable corrosion protection even on the biggest pipeline projects. With comprehensive consulting and a full range of products that set standards worldwide.

For almost a century, DEKOTEC GmbH has built its reputation on high-quality and forward-thinking solutions for corrosion prevention and sealing technology. DEKOTEC GmbH products reliably protect pipelines, station construction, road construction and buildings long-term.

The company has developed into an international group of companies, with branches in six European countries, around 200 employees and sales partners in over 100 countries worldwide. The group's core business consists of the production and distribution of real co-extruded 3-ply PE/Butyl-Tapes, Heat Shrinkable Sleeves, Petrolatum-Tapes & Mastics, Jetty Pile Protection Systems, Polyurethane Coatings and Bitumen profiles.

The company's expansion has been highly dynamic with consistent revenue growth. It is leading the key central European markets for almost a century and is intensifying its business in the growth regions of

Eastern Europe, Asia, South America and Africa.

DEKOTEC GmbH products are already used all over the world. There are many factors behind the success of the products: the "Made in Germany" quality guarantee, the proven track record in field and the company's personal contact and close relationships with its customers all over the world.

One of the latest product developments is the DEKOTEC®-BTS60 Shrink Sleeve. The special butyl rubber coating of the sleeve possesses a self-healing function. DEKOTEC®-BTS60 fulfils the ISO 21809-3 as well as class C60 in accordance with EN 12068. The application process of the sleeve does not require any time-consuming surface preparation or pre-heating.

As a permanent repair system for steel pipelines DEKOTEC GmbH recently introduced DEXPAND®-CF70. The combination of a fibre-reinforced carbon mesh with epoxy materials is able to restore a wall thickness reduction of even up to 80% of

the steel pipe back to the original 100% strength. The damaged part of the steel pipeline can be repaired during operation, avoiding high downtime costs.

The group's products are applied in numerous rehabilitation projects and new pipeline constructions worldwide. For the TurkStream, one of the largest on-shore gas pipeline projects, BUTYLEN-AS40 Plus 3ply-Tapes and LIQUITOL®-HDD PU-coating secured the pipe against corrosion in the Serbian section. For recent projects in Tunisia and Qatar DEKOTEC® heat shrinkable sleeves have been used to guarantee corrosion preventing on pipelines. In France, Peru, Qatar and Pakistan co-extruded 3-ply PE/Butyl-Tapes have been employed for field joint coatings as well as for rehabilitation projects.

No other group of company has a longer track record of success in the field of passive corrosion prevention of pipelines.

For all those thinking big.



For Enquiries: dekotec@bsstechnologies.com | +971 4 886 7015

Made In Germany



BSS Technologies - CPO **being brought to life**

CPO – A Business Concept pioneered and being brought to life at BSS Technologies

Since the foundation of BSS Technologies in UAE 22 years ago, Mr. Nadeem J Sait, founder of the company, has strived to bring innovation and efficiency in the way business is done. He has been commendably successful in making BSS Technologies a brand in a short span of time. Once again, remaining ahead of the curve, he has pioneered a unique concept called Central Processing Office “CPO”, in which various business processes of a company are carried out from multiple locations which offer low-cost and required skills for a particular function.

CPO is different from BPO as it is not just outsourcing of one function, but a whole set of functions including services, software, manufacturing, etc. The key innovation is in the seamless integration of all such back office processes. Such integration results in cost efficiencies and reaction time that cannot be achieved with multiple unrelated BPO vendors. CPO is an ONE-OFFICE.

Explaining the concept, Mr. Nadeem said, “The business environment is changing very fast. Now, it does not make sense to have all the functions under your control at higher costs when someone else specializes in those jobs and can do them at a fraction of the cost without compromising on quality.” In the current

global business environment, technology innovators or brand owners are focusing more and more on their core capabilities (which lie in R&D, Design, Innovation, Branding and Marketing) and are outsourcing non-core peripheral activities which are transactional in nature to get higher efficiencies.

He added, “With CPO, we can offer other big global companies a unique service where we take over their non-core functions and carry them out in an integrated fashion much more efficiently. In the process, we bring value in two ways: one is clearly the cost advantage; and the other is they just have to deal with one interface rather than multiple vendors.”

With CPO, BSS Technologies offers unique outsourcing proposition with a comprehensive set of services, including global logistics & warehousing, transactional services, sales support, reverse logistics and online B2B & B2C operations, to be delivered with a combination of backoffice capabilities and global infrastructure, including factories and warehouses. CPO enables companies not only to outsource processes one by one, but a complete non-core business function is outsourced. BSS Technologies plans to leverage its global footprint to offer some of the services like

projects, procurement, logistics, delivery and transaction processing which require local presence.

CPO is the need of the hour. Before the flux of globalized business era, countries had created artificial barriers for labour movement, which made the skill sets immobile. In the current globalized business environment, new-age technology has broken these barriers and made the businesses mobile. Now, instead of getting the human resources to cross the borders and perform a certain function, whole business functions and in some cases whole business is brought to a place where skill sets, competencies and resources are available.

CPO is a structured way to approach offshoring of such business functions in an integrated manner which, unlike BPO, are not just software related but involve physical logistics, technology platforms and financial transactional services also. In fact, the concept of CPO can be extended to services like virtual receptionists and warehouse security where using VoIP and video technology multiple locations can be catered to by a far less number of personnel at much less costs, thus giving companies multiple level cost advantage.

BSS Technologies has started setting up its nerve centre in Dubai, UAE to carry out this concept.

An industry leader in Engineering, Construction and Project Management

A multi-discipline engineering and contracting company serving the in Oil & Gas, petrochemical, water & power industries with their expertise in Turnkey / EPC projects in sectors including Pipeline, Civil, Mechanical, Electrical and Instrumentation works

With an extensive network of regional business contacts and relationships, coupled with a synergy of knowledge and expertise from a multi-cultural staff with the highest standards of professionalism and integrity, SSEC is well situated to play a leading role in the field of industrial project in UAE. SSEC has been certified with ISO 9001, 14001 AND OHSAS 18001 certifications to prove their Quality and HSE commitments to the industry.

- **Engineering, Procurement and Construction (EPC)**
- **Engineering Automation & Information Management Solution**
- **Construction (Civil, Mechanical, Electrical & Instrumentation)**
- **Conceptual Studies**
- **Piping and Pipeline Construction**
- **Feed and Detailed Engineering**
- **Turnkey Projects**
- **Shutdown Projects**
- **Maintenance, Upgrade & Retrofits**
- **GIS and Specialized Engineering**
- **2D and 3D Draughting**
- **Cathodic Protection**
- **Pipeline Coating and Composite application**



WE DELIVER QUALITY SERVICES

**WITH NO COMPROMISE IN
HEALTH, SAFETY & ENVIRONMENT**

Health & Safety Culture

Measures for protecting workers from exposure to, and infection with, SARS-CoV-2, the virus that causes Coronavirus Disease (COVID-19), depend on the type of work being performed and exposure risk, including potential for interaction with people with suspected or confirmed COVID-19 and contamination of the work environment. BSS Technologies has adopted an infection control strategies based on a thorough hazard assessment, using appropriate combinations of engineering and administrative controls, safe work practices, and personal protective equipment (PPE) to prevent worker exposures. Some COVID HSE standards that apply to preventing occupational exposure training to SARS-CoV-2 are being given to workers on elements of infection prevention, including PPE.



BSS Technologies is very particular about the Health & safety of their employees and has developed this interim guidance depending upon WHO standard to help prevent worker exposure to SARS-CoV-2.



To ensure that all workers are fully knowledgeable on the risks posed on a daily basis and to create safety awareness we conduct, “Hand Safety Campaign” and “COVID-19 Awareness Program” in our facility. Employees are given useful tips about do’s and don’ts in case of an Emergency situation.

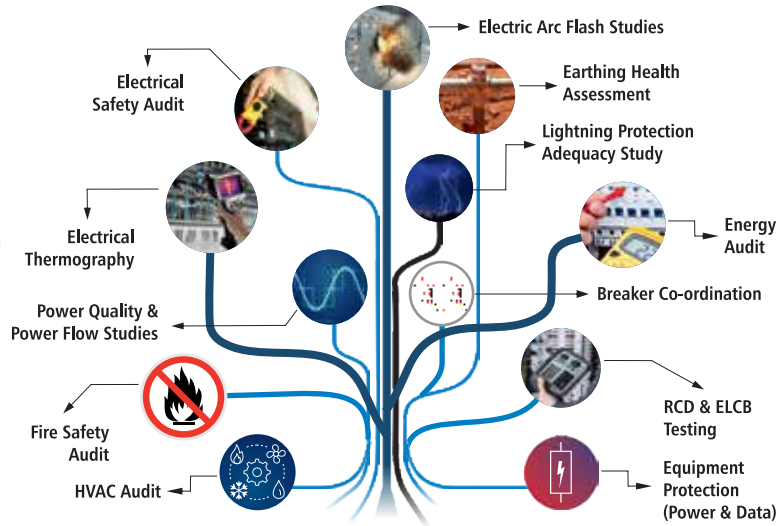


Sait Specialized Engineering & Contracting (SSEC), A Sait Group Company, has been awarded as the contractor with best HSE records

JEF Techno Solutions Pvt. Ltd., an ISO 9001:2015 certified company, is a pioneer in Asia in the field of EMI/EMC studies including root cause analysis, Safety Audits (electrical & Fire), Lightning Protection and Grounding Solutions. We have built a very strong and credible track record of providing effective and reliable solutions for issue related to grounding, lightning protection, EMI/EMC to various customers. We offer comprehensive solution for Electromagnetic Interference & Electromagnetic Compatibility for Oil & Gas, process plants and onshore & offshore installations. We have proven expertise in AC Interference study of high voltage transmission lines and buried pipelines-both safety & corrosion problems.

TECHNICAL SERVICES

Electrical Health Assessment & Mitigation Services



EMI/EMC Services

(For Oil & Gas)

- AC Interference Studies
- DC Interference Studies
- DC Stray Current Analysis
- EM Zoning, Matrix & Evaluation
- Electromagnetic Shielding
- Static & High Frequency Grounding
- Electro Magnetic Isolation

Classic Signatures of EMI

- Unexplained Tripping
- Sensor/Valve Maloperation
- Process Interruptions



Grounding Solutions



Lightning Protection



Power Quality



EMI and EMC Studies

In-house software for Comprehensive Lightning risk assessment and design as per IS/IEC 62305.

- Evaluates all risks R1, R2, R3 & R4
- Optimises Solution
- Automatically generates tentative BOQ

ELECTRICAL SYSTEM STUDY

- Load Flow Studies
- Short Circuit Studies
- Motor Starting Studies
- Power Factor Compensation Studies
- Harmonic Studies
- Transient Stability Studies
- Motor Re-starting and Re-acceleration
- Load Shedding Studies
- Cable Ampacity Calculations
- Transformer Energization Studies
- Insulation Coordination Studies
- Ground Grid Sizing Calculations (CDEGS Software)
- Protection Setting and Relay Coordination Studies
- Lightning Protection Adequacy Study (as per IEC 62305)

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Types of Cables.

- High Voltage cables
- Marine and Offshore cables
- Oil and Gas / Offshore cables

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Thermopads offers solution for every possible heating need – From comfort heating at homes to robust heating on driveways to utility heating in industrial applications. Thermopads is a multi-product, multi-service organization – one stop destination for all heating needs – with sales service points covering every part of India and overseas branches in U.K, Germany, Singapore and U.S.A. The array of company's products have applications in almost all industries – Petroleum, Power Plants, Metallurgical, Cement, Fertilizers, Textiles, Food and confectionery, Parma, Paints, Edible oils, etc.

Thermopads manufactures/provides – Surface/immersion electrical heating equipments suited to hazardous and non-hazardous environments. Thermopads are leading manufacturers of heat tracing and heating cables in the world.

Electric Heat Tracers are specialized heating cables with low watt density for applications.

- To maintain temperature of fluids in pipelines at elevated temperatures for ease of handling, storage and transfer
- To heat-up process fluids in pipelines/tanks/equipment.

Electric Heat Tracers/Heating Cables manufactured :

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- Thermotrace – CTL
- Selftrace – ST
- Heating Cables – HC
- Heated Hose Floor
- Heating Cables & Mats



Electric Heat Tracers

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World Class Heating Systems to suit all your requirements

THE BEAUTY OF MONOLITHIC INSULATING JOINTS

Much of the Oil & Gas as well as Utility products run through pipelines. The fuel in your car at some stage would have passed through pipelines. Likewise, the same could be said of the water you drink and the gas that you use to heat your dinner. Monolithic Isolation Joints are an integral part to all these pipelines. This is because pipelines are subject to corrosion, just like any metal objects that are exposed to or are in contact with corrosive elements, whether above-ground, under-ground or submerged in water, pipelines need to be electrically isolated at specific locations to prevent losses.



Simpler, easier to use and more effective than older anti-corrosion methods

Monolithic insulating joints (or isolation joints) provide just such protection. Specially designed to be shock absorbent and insulated against electrical charge, they isolate sections of pipeline so that currents can only pass so far. Materials placed within the monolithic isolation joint also work by attracting electrical charge and preventing corrosion. These are designed for longer life and a maintenance free application. Also it is easier to install and it limits any damages that could arise due to human intervention during the process of installation unlike conventional flange and kit application where it is more dependent on various factors during installation. Without them, complex engineering would be extremely difficult.

The advantages of using the monolithic isolation joint is that this kind of joint avoids small parts such as gaskets and flanges, and can be produced to exacting standards of precision. They can be ordered in whatever pipe size is required, and sealed easily and safely. They can also be delivered to clients pre-tested and produced to the specifications of the client, avoiding the need for technicians to attend to the installation process.



Save money and prevent accidents by using the latest technology

Every monolithic insulating joint manufactured by IGP India can be fully customized for the needs of each client. They are adapted for both main and service line applications and come in a wide range of different diameters. The IGP factory fully tests each joint and the quality control procedures in use are ISO 9001:2008 certified to meet international standards. By installing a monolithic insulating joint at periodic points along the pipeline, firms can prevent leakages in pipelines carrying liquids such as water, liquid gas and petroleum which is caused due to conventional flange& kit Installation and also stop electric currents passing through the pipe casing, improving safety. They are a economical &, effective solution to the problems faced by pipeline maintenance operations across the world. Previously, oil and gas firms have often relied on less effective and more expensive insulating flange kits in terms of periodical services & shutdown losses. With the need to avoid industrial accidents and financial losses through leakage greater than ever, it makes sense to invest in the most efficient way to safeguard pipelines against corrosion.

It's never been easy to protect subsea pipeline without Galvallopod

The Galvallopod is an aluminum anode system arranged in stable, self-contained "PODS" which are ideal for replacing depleted anodes on mature assets. The pods are lowered to the sea floor and connected electrically to the protected asset via the Retroclamp system. Galvallopod was designed to replace the bracelet anodes/ dual clamp-on anode by installing twice as many anodes in half the time on the seafloor which reduce installation time for anode retrofit projects, cutting costs significantly. It can be installed in less than a quarter of the time it would take to install an equivalent amount of cathodic protection anodes using traditional methods.

Galvallopod's speed of installation is the key to its success, as installation costs dominate budgeting for most anode retrofit projects. The ease of installation makes the Galvallopod system incredibly cost-effective in comparison to underwater welding or other methods of attachment.



Applications:

- Subsea Equipments
- Offshore Platforms
- Subsea pipelines
- Quay walls / Piles

Key factors:

- Cost Effective
- Easy and Safe in Installation
- Modular design

For Enquiries:
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We at JPAC, a Software Solutions company have developed applications for Oil & Gas, Water and Utility Networks. Being associated with the industry since two decades, 75 projects and 700 months of project experience covering more than 26000KM of pipelines combined, has helped our applications evolve intrinsically to a very exhaustive and robust system. JPAC's solution PCMS (Pipeline Construction Management System) is a mandatory part of all major Pipeline Construction Projects across the globe.

Our well alloyed team of professionals comprising of specialists from Technology, Services, Operations and Projects have made the solution using cutting edge technology, robust architecture and simple design. This has helped our customers harness the infinite potential of Information Technology and Business Analytics to optimize their business growth and enhance Quality.



- Hydrocarbon Pipeline Infrastructure
- City Gas Networks
- Water Transmission & Distribution

WEB & GIS Based Solutions;

- PCMS - Pipeline Construction Management Solution
- PAMS - Pipeline Asset Management System
- SmartGasNet - City Gas Networks



PCMS is an affordable, easy-to-use solution that integrates planning, GIS, construction, documentation and asset management into one program with a built-in interface to enter and retrieve information. Location and Status of each Pipe and Fitting gives the answers to when and where. The system is designed to help you remember every single line item, right down to the last nail. Using a proven dynamic query generation method that's much faster than a traditional spreadsheet, PCMS draws from an extensive database of field data. Its flexible reports provide you with a number of ways to analyze construction progress linked with work procedures and material certificates

SmartGasNet

- Route Planning and BOQ Generation
- Construction Management
- Asset Inspection & Maintenance
- Outage Management



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SALIENT FEATURES

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- Report Approval System
- Generation of PipeBook
- Generation of Progress
- View Color Coded Activities
- Assets with Attributes
- Cut Pipe Nomenclature
- Linked Quality Reports
- Linked NDT Films
- Inbuilt Report QC
- Mechanical Completion
- Completions Management

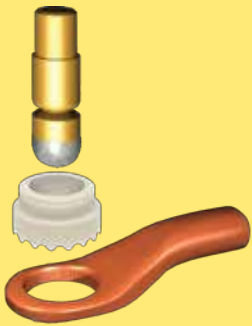
Pin Brazing - A Safe Connections

Pin Brazing is a metallurgically safe and easy process of making electrical connections to metallic structures, such as steel and ductile iron pipelines, which are needed to be electrically earthed or cathodically protected. The pin brazing system has some major advantages over alternative systems. In this process, operator training and equipment maintenance should be of high standard.

The Process: The technique of pin brazing is based mainly upon electric-arc silver soldering using a pin brazing unit, a hollow brazing pin containing silver solder and flux.



The pin brazing technique is well designed for joints between insulated pipe sections, installation of sacrificial anodes, connection to measuring cables, and bonding zinc bracelets to offshore pipelines. It provides high mechanical strength, extremely low resistance, and easy and fast installation. A large number of connections are required for anode cables, measuring posts etc, within a cathodic protection system. The pin brazing system is ideally suited to this.



The leading manufacturer of electrical connection systems for Railways, Grounding and Cathodic Protection Industry. With systems such as Pin Brazing, SafePlug®, SafeBond® in assortment we can supply any of the modern cable application method to our clients. Safetrack provides the cathodic Protection, Ground Circuit and Railway Industry with modern technologies for connecting cables to steel structure.

History: A revolution in itself when first introduced way back in the 1950's, Pin brazing was basically developed to ensure safe & flawless electrical connection when applied to the varied types of steel structures, be it the attachment of rail bonds, joints between pipes, installation of sacrificial anodes, connection to measuring cables, test posts to name a few. Almost any electrical joint is possible within seconds by this automatic brazing method which has taken the industry by storm.

Advantages: There are innumerable advantages of using Pin brazing system because of its varied plus points which has made it one of the most sought after brazing solution. Let us take a look at the distinct salient features of Pin brazing.

- » Speed of Connection. The pin brazing process is very fast and typically requires just one minute for any connection. Low Temperature. Both the low melting point of the solder (up to 650°) and short brazing time keep thermal effects on the metal to a minimum.
- » All-Weather. Wind, rain and cold do not prevent the operator from working safely and effectively. Damp conditions pose no problem.
- » Easy to Use. Operators can be trained to effectively maintain and use equipment in less than one hour.
- » Versatile the portable nature of the equipment means that connections can be made in almost any location above or below ground, even overhead!



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Metering System

GGG Oil & Gas Systems is a fully independent system integration company. Specialist in design, production and implementation of mainly complete integrated flow metering solutions for our custody transfer oil and gas projects, worldwide. Besides the flow metering solutions, GGS can also be your partner in gas filtration, pressure reduction, flow control or gas treatment installations

Accurate and traceable determination of LNG compositions is crucial for custody transfer

For natural gas, the most widely used method to determine the gas composition is using a calibrated gas chromatograph (GC),

However, when it comes to sampling LNG the process has more than a few challenges.

For a reliable and accurate LNG sampling system the expertise of GGS is required



- GGS designs and fabricates sampling systems for LNG sampling for on-shore & off-shore projects.
- GGS has the experience and knowhow to design and engineer complete Sampling systems to meet the customer's specific requirements and internationally accepted standards
- GGS provides LNG sampling and LNG analysis systems with a wide variety of gas analyzers and solutions.

Sampling and vaporization of liquefied natural gas. Complies with GIIGNL, EN 12838 and ISO 8943 standards, both intermittent and continuous Sampling.

Application:

Where high accuracy is essential

- Loading and unloading custody transfer LNG
- LNG intermediate and LNG long term storage tank control
- LNG ships/ LNG bunkering
- FLNG/FRSU/FSU/FRU/ Bunkership

- Combined LNG probe/vaporizer for direct installation on LNG main line.
- NG sample line
- NG/LNG sampler
- Control system + fully integrated customized reporting system
- Intermittent and continuous sampling systems
- Vaporizer is integrated in sample take-off probe, sub-cooled to guarantee 100% LNG at vaporizer entrance.
- Suitable for any LNG pressure. Even extreme low pressures from 0,5 barg
- Fully automatic; from initial flush to operation
- 1 GC or 2GC's optionally combined with H2S + total Sulphur, mercury analyzers & oxygen analyzer
- No moving parts, no maintenance.
- Operational costs are kept to the bare minimum.
- The LNG sampling control is integrated in the metering control cabinet.
- One combined SVC/control & reporting system

GGG is specialist in design, production and implementation of complete integrated flow metering solutions for or custody transfer gas and LNG projects, worldwide. GGS can also be your partner in gas filtration, pressure reduction, flow control or gas treatment installations. For every on-shore and off-shore Gas Metering System GGS can offer an objective advice and deliver a custom-built solution in accordance with project requirements. We are committed to achieving the highest standard of excellence in everything we do and we strive to maintain the trust and confidence of our customers and clients.

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Made In Belgium



Advanced Laser and Infrared Leak Detection

Heath Consultants Incorporated offers advanced technology products for detecting the presence of methane gas: the RMLD-CS™ remote gas leak detector and Detecto Pak-Infrared+ (DP-IR+™) audit system. Each replaces proven legacy products.

RMLD-CS Remote Gas Leak Detector

The RMLD-CS is an ergonomic, lightweight handheld point-and-shoot laser leak detector, said Paul D. Wehnert, Heath Consultants Executive Vice President/Chief Marketing Officer. “It replaces the legacy RMLD-IS that was much heavier with two components joined by a cable.

“The RMLD-CS detects leaks in a variety of operating conditions and can safely make surveys in hard-to-access areas such as busy roadways and yards with dogs.” It is ideally suited for locating leaks in underground pipes. To check for gas leaks inside a building, the laser is directed through a glass window.

“The RMLD-CS utilizes field-proven, TDLAS (tunable diode laser absorption spectroscopy) technology,” said Wehnert. “The laser penetrates a plume of natural gas and reflects back from a building, roadway, grass, piping, bushes, shrubs or other surface. Part of the laser light is absorbed and converted into a parts per million methane concentration reading.”



Detecto Pak Infrared+

The DP-IR+ is a versatile instrument that can be used for walking surveys or mounted to various types of vehicles for mobile surveys, explains Milton W. Heath, Director of Global Business Development. “It is an enhancement of our previous DP-IR with faster response times and the addition of BLE Bluetooth making it compatible with most of today’s iOS, Android and Windows devices.”

The DP-IR+ is designed to be selective to detecting natural gas/methane only and will not false alarm on other gases which may be encountered during a normal natural gas pipeline leak survey.

The DP-IR+ operates under a variety of environmental conditions including cold or hot weather. Its rugged design will stand up to normal field use and operating conditions.

Protecting People and the Environment by Embracing Safety and Encouraging Innovation



Heath’s innovative products have led to safer survey practices for both gas utilities and within our own domestic field services division. These breakthroughs in technology are due in large part to the efforts of our engineering and marketing experts who research and develop new products and services through strategic partnerships with well recognized research and development organizations and industry trade associations.

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INSIGHT | VOLUME 06



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Composite Repair Solutions

14 patented concepts | 600 clients worldwide
 52000 leaks sealed | 321000 meters of pipeline repaired



Founded in 1990, 3X ENGINEERING is one of the leading companies in pipeline repair using composite technology. Mainly operating in Oil & Gas industry, our expertise also includes Energy and Construction sector. We not only manufacture and commercialize our own products, but we also offer a complete integrated service, from the design of the repair to onsite installation. From our head offices in Monaco, we operate worldwide, Onshore and Offshore/Subsea, thanks to our large distribution network today made of over 45 partners.

Our Range of Products

Composite repair for pipe reinforcement	REINFORCEKIT® 4D
Composite repair for damaged tank	TANKIT® & REINFORCEKIT® PATCH
Online leak sealing	STOPKIT®
Pipe & Support protection	ROLLERKIT®
Online repair for SF6 leaking flange	REFLANGEKIT®
Beam renovation & corrosion protection	REINFORCEKIT® BEAM & DKIT®

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Coatings & Field Joints

Leak Detection System

Monolithic Isolation Joints

Pipeline Construction Management System

Electric Heat Tracer

High Voltage Cables

Composite Repair Solutions

Integrated Flow Metering Solutions for Gas

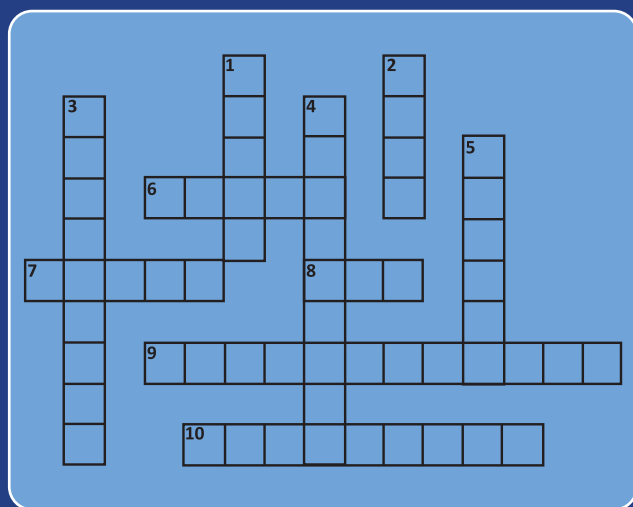
EMI / EMC Consulting, Lightning Protection & Grounding Solutions

Valve Test & Repair Equipment

Internal, External Corrosion Monitoring Services & Equipment

Advanced Pipeline Surveys

Solve the Crossword



Down

1. When iron is left in moist air it goes _____?
2. Iron rusts quicker by the sea. What is in the sea that causes this to happen?
3. What is the chemical name for rust?
4. Rust is a form of _____.
5. When a piece of iron rusts does it become stronger or weaker?

Across

6. Iron rusts quicker by the sea. What is in the sea that causes this to happen?
7. Is the surface of rusted metal smooth or rough?
8. What could you use to prevent rust forming on the hinge of a gate?
9. What colour is rust?
10. What could you do to keep iron railings from corroding?

Solve the crossword using the list of words and the clues

Oil | Reddish brown | Paint them | Iron oxide | Corrosion
rusty | Salt | Rough | Weaker | Water

بن ساري للتقنية المتخصصة
متخصصون في أعمال التحكم في الصدأ والتآكل والوقاية الكاثودية

B.S.S. Technologies

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