

InSIGHTS

On Electrochemistry & Asset Integrity



THE OFFICIAL NEWS LETTER OF BSS TECHNOLOGIES

VOLUME 10 | ISSUE 2024-2025

CATS-EYE™

Your Eyes to Cathodic Protection System

Remote Monitoring
and Control System



ReKorr®

A Portable Solution for Corrosion Monitoring

CONCRETE

Cathodic Protection
Empowering Infrastructure,
Ensuring Durability,
Extending Lifespan.



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برنامج المحتوى الوطني





CHAIRMAN'S MESSAGE

Dear Valued Customers,

We understand, predicting a firm tomorrow, with respect to historical data and probability factor is not really the best scientific method, but the most reliable and available method, not that it is always true. One cannot do anything good for a best tomorrow but can always preserve something for a better tomorrow.

With this in mind, holding the world's vision for a better tomorrow, shifting the energy usage from fossil to renewable – we know everyone can contribute to this, either by at-least switching off their bulbs or using the shutdown or standby screens of their computer monitors, we understand that, we Bin Sari can contribute a team effort, and have put our thoughts on developing and contributing our engineering and product developments to additionally suite, mainly into Cathodic Protection for Wind Mills & Solar Farm Panel Foundation and also the Hypochlorination Cells.

We know there is no brain storming required, talking or working for today and yesterday, but the real challenge is at-least to think on tomorrow for the younger or future generation to enjoy the world with no curse to the today's and yesterday's ones. We as a team spend time to know the real challenges, the global thoughts and discussions on the conservation of the world for a better tomorrow and what we can contribute to it willingly, knowing it is mandatory to do something for tomorrow.

We are proud to be a good part to these efforts and continue to work together with our eyes and ears open for adapting a change good for a better tomorrow.

Sincerely,



Faris Sari A.E. Al Mazrouei
Chairman BSS Technologies

Empowering Infrastructure, Ensuring Durability, Extending Lifespan.

Concrete is a porous material, which readily absorbs contaminants from the surrounding environment. The contaminants, which lead to corrosion of the reinforcement are water, Oxygen and Chlorides in the form of salts. The water and oxygen in the presence of the chlorides, react with the iron to create corrosion products on the surface of the reinforcing steel. The growth in volume of these corrosion products exerts tensile stresses on the concrete, which eventually cause the concrete cover to crack, delaminate and become detached from the structure (spall).

The corrosion reaction of reinforcement is catalysed by the chloride ions although these take no part in the reaction itself. The potential differences between different parts of the reinforcement cage cause electrons to be released from the most negative areas. This in turn creates positive areas, i.e. ferrous ions, which dissolve into the pore solution. The electrons that were released are consumed by electrolysis of water and oxygen to make hydroxide ions.

The typical range of structures to which it has been applied is shown pictorially below.



Cathodic protection was first applied to concrete structures in 1973 in California. Since then, it has been applied to over 5 million square metres of concrete around the world of which over 3 million square metres of concrete CP are in the Middle East. Cathodic protection is applied under two distinctly different situations, i.e. in existing structures where corrosion has actually already occurred and in new structures to prevent it from starting.

The case of existing deteriorated conditions is typically addressed as shown in fig. 1.

Protection for existing corroding structures can either be by applying anode mesh and encapsulating it in an exterior overlay or by cutting saw slots into the concrete and grouting in a ribbon mesh.



Fig. 1



Fig. 2

The case where CP is applied to stop corrosion from even starting has a common approach by use of Ti/MMO ribbon mesh mounted on the reinforcement using non-metallic spacers and secured by cable ties. An example of Impressed Current Cathodic Protection on a water retaining structure is shown in fig. 2

Cathodic Protection is applied to both existing deteriorated structures to halt corrosion, and also to new structures to ensure that corrosion is prevented from ever occurring.



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FOR PIPE REINFORCEMENT



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Innovative Wireless ER Transmitter and Tablet

The Rysco Wireless Logger provides accurate resistance measurements from various types of corrosion probes and transmits pure metal loss data via a wireless connection to a handheld tablet. The Logger is easily configured via the revolutionary Rysco Utility application.

Rysco's proprietary software calculates all resistance measurements into physical metal loss values that can be easily interpreted by a plant operator or exported via the Utility software.

The Rysco ER data logger is designed to provide accurate readings from corrosion probes. This design further eliminates the use of unreliable cable connections by using a wireless interface. There is no compromise of any hazardous area ratings. Simply stand within the range, choose connect, then download and view the data. The entire assembly is provided with a Rysco wireless data logger, probe cable, sunshade, Ex-d rated wireless tablet, mounting hardware, ER probe, and tools.



Tablet Connect



The use of radio frequency to share data over a short distance eliminates the need for wired connections to devices (up to 100m). This can prove to be a very useful application in situations where access to the logging device may be restricted, or may require the addition of expensive access methods.

There have been many applications for this device in onshore and offshore facilities where the need for monitoring may be in pipe racks at excessive height. The ability to connect to multiple devices within range also saves time and improves efficiency.



- 1 year battery lifespan
- 50,000 data point memory capacity
- Visible LED status indicators
- Compatible with all ER probes
- Hazard Area Certifications
 - UL & CSA Class I, Groups A, B, C, D
 - UL & CSA Class II, Groups E, F, G and Class III
 - UL and CSA Class I, Zone 1, AEx db IIC
 - DEMKO 01 ATEX 015742U
 - 2813 II 2 G D
 - Ex db IIC Gb
 - And many more

Ensure the **Integrity** of
your infrastructure

Best in class Internal/External
Corrosion Services and Equipment

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intertek intertek intertek



HypoKlor® Systems

HypoKlor® systems stand out as the ultimate electrochlorination technology, enabling efficient on-site production of Sodium hypochlorite through the electrolysis of seawater or brine.

Electro-chlorination Process

Seamless Electro-chlorination Process: The seawater undergoes a carefully orchestrated Electro-chlorination process, starting with filtration to remove suspended solids larger than 0.5 mm. A flow control loop, equipped with a flow control valve and a flow transmitter featuring local indication and low flow shut-down protection, guides the seawater to the Electrolyzers. Within the electrolyzer cells, electrolysis occurs, yielding sodium hypochlorite solution and hydrogen gas as a byproduct. The produced sodium hypochlorite solution can be applied in continuous and/or shock-dosing modes, while the hydrogen gas is safely diluted and released into the atmosphere using air blowers.

HypoKlor® systems stand out as the ultimate electrochlorination technology, enabling efficient on-site production of Sodium hypochlorite through the electrolysis of seawater or brine.

Process and Applications

Electrolysis for Disinfection in Critical Applications: This advanced process utilizes direct current ranging from 1KA to 10KA, with power ratings of 100kW to 1MW, ensuring effective disinfection in critical environments such as Desalination Facilities, Power Plants, Liquefied Natural Gas (LNG) Terminals, Cooling Towers, Marine Ballast Water Treatments, and other coastal installations that rely on seawater for cooling and industrial processes.

Extensively Used Chemical Disinfectant: Sodium hypochlorite, the main product of this process, is widely acclaimed for its extremely low toxicity, deodorizing power, long-lasting effect, and safe handling and storage capabilities. Its potency makes it an ideal choice for a diverse range of applications, catering to small, medium, and large-scale industrial needs.

On-Site Sodium Hypochlorite Production

Versatility in Industrial Applications: The HypoKlor® system facilitates on-site production of Sodium Hypochlorite solution through electrolysis of seawater or brine, serving various sectors such as desalination and marine facilities, wastewater treatment, and supplying processed water to Oil, Gas, and Petrochemical plants and power plants. Our packages are available in different flow rates, from low flow (2 kg/h) to high flow (900 kg/h) of Sodium Hypochlorite.

Core Components and Customized Packages

Efficient Electrochlorination System: The Electrochlorination system comprises core components, including Rectifiers and Electrolyzers, serving as the heart of the package, in addition to Booster pumps, Sea water filters, Acid and Degassing Tanks, Blowers, Dosing Pumps, and more. Our custom-made packages are not only economically viable but also ensure safety and user-friendliness, enabling the production of a powerful biocide and disinfecting agent for various industrial applications.

Multiple Applications

Versatile Applications of Electrochlorination System The Electrochlorination System finds extensive utility across various applications, including:

- Prevention of Bacteria and Algae Growth
- Drinking Water Sterilization
- Sewage Water Disinfection
- Fouling Control in Water Cooling Systems
- Industrial Wastewater Treatment
- Pool and Aqua Parks Disinfection

Applications



Fresh Water Generation



Marine Growth Prevention



Power Plant



LNG Terminal

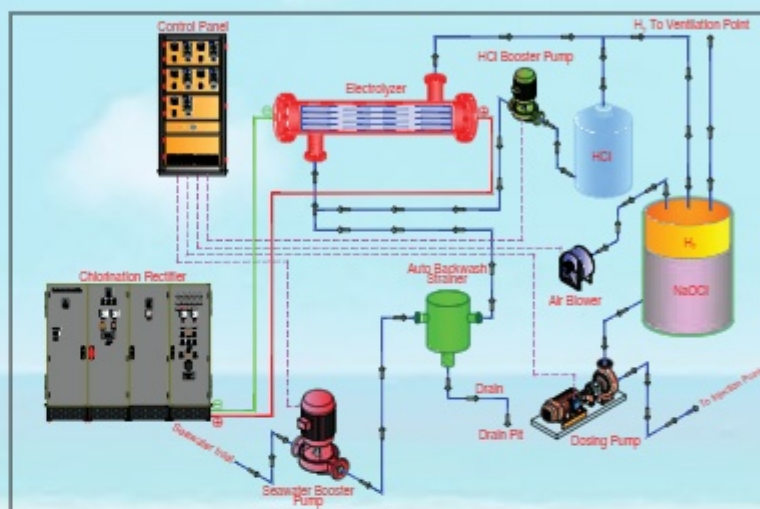


Desalination Plant



Aqua Park

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



Process Flow

Technical Consultancy and Training Programs

Expert Technical Consultancy: We offer expert technical consultancy to assist end-users in their in-house engineering work, whether establishing new EC Systems or refurbishing existing ones.

Client-Oriented Training Workshops We conduct client-oriented training workshops, showcasing the unique advantages of easy-to-implement technologies available worldwide.

HypoKlor®

HypoKlor®

Empowering Water Treatment for a Healthier Future

In-house Development

Wide Range of Ratings Available

Manufacturing on Client Specification

Refurbishing Existing Electrochlorination Systems



The United Arab Emirates: A Journey of Innovation and Transformation

In just over 50 years, the UAE has transformed from a desert landscape into a thriving hub of innovation, trade, and sustainability. This journey began with the discovery of oil in the 1950s, which paved the way for growth. Today, the UAE is much more than an oil economy—it has diversified into sectors like technology, renewable energy, and advanced manufacturing, driven by initiatives like "UAE Vision 2021."

Take Dubai, for instance. What started as a small fishing village is now a global city with landmarks like the Burj Khalifa and Expo 2020. It symbolizes the UAE's ambition and spirit of innovation.



Sustainability is also a key commitment of the UAE. Projects like Masdar City, one of the world's most sustainable communities, and the Barakah Nuclear Power Plant, the first in the Arab world, show the nation's dedication to clean energy. The UAE also hosts the Mohammed bin Rashid Al Maktoum Solar Park, one of the largest solar parks in the world, contributing to the goal of net-zero carbon emissions by 2050.



The UAE's ambitions extend beyond Earth, with the successful Hope Probe mission to Mars in 2021, making it the first Arab country to reach the red planet. This achievement inspires young scientists across the region to dream big.



Investing in talent and innovation is another cornerstone of the UAE's success. Innovation hubs like the Dubai Future Foundation and Abu Dhabi's Hub71 support startups and entrepreneurship, focusing on technologies like AI and blockchain. For companies like BSS Technologies, these advancements offer opportunities to contribute to local manufacturing and industrial growth in alignment with the "Make it in the Emirates" initiative. The UAE's transformation exemplifies how visionary leadership and strategic investment can turn bold dreams into reality. As the country continues to evolve, BSS Technologies is proud to be part of this journey, advancing our expertise and contributing to a sustainable, prosperous future.

SARL BSS Protection Cathodique Algerie

SARL BSS Protection Cathodique Algerie (BSS Cathodic Protection Algeria), a proud member of the SAIT group, stands at the forefront of cathodic protection (CP) solutions in Algeria and North Africa. Based in Algiers, the company has established itself as a trusted provider of comprehensive CP products and services, ensuring the longevity and integrity of critical infrastructure across the region.



Theoretical training on cathodic protection fundamentals for client personnel, complemented by on-site practical training, ensuring a comprehensive understanding and hands-on experience

BSS Technologies North Africa recently completed a crucial project for Société Nationale Industrielle et Minière de Mauritanie (SNIM) at their TM2 Terminal in Mauritania. This involved an assessment of the infrastructure, including measuring the thickness of residual piles, inspecting the cathodic protection system, and replacement of defective sacrificial anodes at the foundations.



AI based VISION platform for Digital Oilfield

TechnoDX a global leader in cutting-edge digital products and product engineering services. We specialize in developing innovative digital solutions by harnessing the power of our digital products and industry-proven product development practices. We have successfully rolled out cutting edge digital solutions to enterprises by amalgamating digital stack of AI, IOT, Big Data Analytics and Data Science. TechnoDX combines its best of breed solutions component and domain expertise to deliver best in class solutions to expedite the digitalization process of our customers.



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Sait Specialized Metal Industries (SSMI)

Sait Specialized Metal Industries (SSMI) collaborates with Sait Specialized Engineering and Contracting (SSEC) to bring advanced protective and industrial coatings technology to regional industries. With over 15 years of expertise, SSMI offers top-quality products and services tailored to the region's needs. Their eco-friendly paint shop in Mussafah's ICAD 1 zone focuses on the oil and gas sector. SSMI excels in fabricating, blasting, and painting structural steel, storage tanks, pressure vessels, and more, adhering to the highest quality standards. They also provide custom fabrication work to meet clients' specifications.

At the core of SSMI lies a dedicated area for blasting and painting, featuring cutting-edge airflow management and contamination controls. The facilities accommodate structures of all sizes, ensuring flawless operations. Beyond this, the skilled team extends their expertise to on-site projects of every kind.



SSMI offers comprehensive steel structural and pipe fabrication services, catering to a wide range of industrial needs. Our specialized fabrication team is equipped with advanced, industry-specific machinery and tools, ensuring precision and efficiency in every project. With extensive experience in customized fabrication, we deliver tailored solutions that meet the unique specifications of our clients across various sectors. From concept to completion, we maintain stringent quality standards to guarantee durability, reliability, and performance in every structure and pipe system we create.



- Engineering Services
- Fabrication of Steel Structures and Plates
- Pipe Spool fabrication and Erection
- Surface Preparation and Industrial Painting Works
- Oil and Gas Skid Manufacturing works

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A Sait Group Company

Appreciating Our Factory Workforce

The Heart of Our Operation: Appreciating Our Factory Workforce

This year, we dedicate this space to the unsung heroes who form the backbone of our company: our incredible factory workforce. Day in and day out, their dedication, skill, and commitment to quality bring our products to life. It's their hard work that allows us to deliver on our promises to customers and achieve continued success.

While automation and technology play an increasingly important role in modern manufacturing, the human element remains irreplaceable. Our factory teams possess a unique blend of technical expertise, problem-solving abilities, and an unwavering commitment to excellence that simply cannot be replicated by machines.

They are the masters of their craft, whether it's precisely assembling intricate components, meticulously inspecting finished products, or ensuring the smooth operation of complex machinery. Their keen eyes spot imperfections, their skilled hands make crucial adjustments, and their collaborative spirit ensures that every step of the production process runs seamlessly.



But their contribution goes far beyond the production line. Our factory workforce is a vital source of ideas and innovation. They are the ones closest to the manufacturing process, and their insights are invaluable in identifying areas for improvement, enhancing efficiency, and even sparking the development of new products.

This year, we've seen factory employees demonstrate exceptional problem-solving skills, preventing potential production delays and identifying opportunities to optimize processes. Their dedication to continuous improvement has been instrumental in enhancing our overall efficiency and maintaining the high quality of our products.

We are immensely proud of our factory employees and deeply appreciate their hard work and dedication. We are committed to providing them with a safe and rewarding work environment where they feel valued, respected, and empowered. This includes investing in ongoing training and development programs, prioritizing safety initiatives, and fostering a culture of open communication where their feedback is valued.

As we move forward, we will continue to rely on the expertise and commitment of our factory workforce. They are essential to our continued growth and success, and we are dedicated to supporting them in every way possible.

Thank you to our incredible factory team! We salute your hard work, your dedication, and your unwavering commitment to excellence.

All-In-One Integrated CP & Coating Surveys (10-In-One)

SPECTRUM XLI (eXternal Line Inspection)

Spectrum XLI is a proprietary system for above-ground pipeline inspection, Allied Engineers has already performed XLI surveys in excess of 4,500+ Kms. The XLI equipment collects encrypted data with raw waveform similar to ILI or a hydrotest assessment. Performing XLI with simultaneous, continuous, and encrypted "All in One" surveys, XLI collects up to ten (10) data sets by walking ONLY ONCE over the complete pipeline right of way. Those ten surveys with their recording frequencies are:

- DGPS/GIS (1 time per second)
- CIPS - DC (35 times per second)
- CIPS - AC (35 times per second)
- DCVG (35 times per second)
- ACVG (35 times per second)
- ACCA/CAT (7 times per second)
- Continuous Depth of Cover
- Gas Leak Detection (Up to 1 ppm)
- Continuous Soil Resistivity (Optional)
- Pipe Wall Assessment using the large standoff magnetometry method (Optional)



We are excited to present state-of-the-art "eXternal Line Inspection"(XLI) technology to Pipeline Integrity landscape.

Now you can conduct extremely high-resolution multiple "auto-Integrated" above ground CP and Coating surveys in **ONE SINGLE PASS** of the pipeline!

Direct Assessment (DA) – Non-Intrusive method for Pipeline Inspection

AE has inspected 1,000+ pipeline globally by:

- External Corrosion Direct Assessment (ECDA)
- Internal Corrosion Direct Assessment (ICDA)
- Stress Corrosion Cracking Direct Assessment (SCCDA)

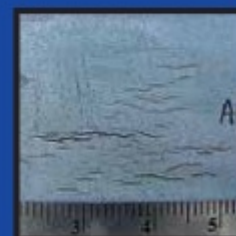
AE have been industry leaders in performing several successful ECDA, SCCDA, ICDA (dry gas, liquid petroleum, multiphase products, and water lines) for our global clients in India, Middle East, Europe, and North America.



ECDA
488 Pipelines
4,578 KM



ICDA
307 Pipelines
2,725 KM



SCCDA
238 Pipelines
10,260 KM

Benefits of AE'S Direct Assessment Program:

- Proactive – Predict where corrosion may occur in the future
- Non-Intrusive – No product flow interruption
- Mitigation plan for corrosion = How to manage it?
- Determines Remaining Life and Safest Pressure of asset
- 'What-if' scenarios to optimize production with existing threats
- Prioritize remedial integrity activities and repair strategies
- Complimentary to ILI and Hydrotesting for integrity validation

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50
YEARS

Christmas celebration at BSS Technologies

At BSS Technologies, the Christmas celebration was a delightful blend of festive cheer and team spirit. The office was adorned with vibrant decorations, with a beautifully lit Christmas tree. The team came together for a day filled with joy, exchanging gifts and sharing heartfelt messages. A special Christmas lunch added to the camaraderie, bringing everyone closer as we reflected on the year gone by. The event was a wonderful reminder of the importance of togetherness and gratitude.



A worker in a green hard hat and a high-visibility yellow-green shirt is working on a large, grey, corrugated metal pipeline. The worker is using a tool to work on the joint of the pipe. The background is a lush green field with a line of trees and a forested hill in the distance under a clear sky.

Lifelong Safety is Everything.

DEKOTEC GmbH is member of an international group of companies headquartered in Germany with **100 years of innovation power**. For safeguarding your pipeline. For protecting people and nature. [dekotec.com](https://www.dekotec.com)

DEKOTEC GmbH. Advanced in Sealing.



Experience the Future of Corrosion Engineering Training with BSS Technologies' Innovative Programs, Delivered Worldwide

BSS Technologies is driven by a global vision to foster growth and development within the industrial sectors. Our commitment to knowledge sharing transcends geographical boundaries, empowering individuals and organizations worldwide to excel in the field of cathodic protection and corrosion engineering. While our roots are firmly planted in the UAE, and we are dedicated to supporting the development of Emirati talent, our Dubai Training Centre serves as a dynamic hub where aspiring minds and industry professionals from around the world converge to enhance their knowledge and skills. This year, we've not only strengthened our in-house programs but also extended our expertise globally.

A Dual Approach to Learning: In-House and On-Site Training

At our Dubai Training Centre, we offer a comprehensive suite of programs covering a wide spectrum of topics related to cathodic protection and corrosion engineering. Participants gain access to equipment and learn from seasoned industry experts in a dynamic and collaborative environment. Our in-house programs cater to diverse needs, from foundational courses for aspiring engineers to specialized programs designed to elevate the expertise of seasoned professionals. We are especially proud to support the UAE's vision for Emiratization by providing valuable training opportunities for Emirati nationals seeking to build successful careers in this vital industry. We welcome participants from all corners of the globe to join us and become part of a global network of knowledge sharing.

Recognizing the diverse needs of our international clients, we also offer comprehensive on-site training programs delivered directly to your premises, regardless of your location. This tailored approach minimizes disruption to your operations and allows your teams to learn in a familiar environment, maximizing both convenience and learning effectiveness. Our expert trainers will seamlessly integrate with your team, providing customized instruction and hands-on experience with our solutions.

Whether you choose in-house or on-site training, our programs encompass a wide array of topics catering to diverse needs and skill levels. We offer in-depth product-specific training that delves into the intricacies of individual BSS Technologies product lines, ensuring your teams possess the expertise to utilize our solutions effectively. For those seeking a broader understanding, our programs on corrosion awareness and prevention provide valuable insights into the impact of corrosion and promote best practices across various industries.



ReKorr® Linear Polarization Resistance (LPR) Meter

A Portable Solution for Corrosion Monitoring

The Hand held Corrosion Monitoring unit allows the user to monitor the corrosion rate of the Steel Reinforced Concrete Structures using BSST-E4 corrosion monitoring probe which are designed for pre-installation in concrete structures.

Reinforcement Corrosion Monitoring

Exposure of the reinforced concrete to Chloride ions is the main cause of corrosion of reinforcements in concrete. Steel corrosion causes changes in the reinforcing bars mechanical properties, cracks, spalling of the concrete cover and a reduction of contact area between reinforcement and surrounding concrete. Reinforced structures must be tested regularly to detect early and prevent corrosion.

Early indication to predict corrosion risk in reinforced concrete will be a proactive measure by embedding appropriate sensors in the concrete.

What Is Linear Polarization Resistance (LPR) Measurement?

The linear polarization resistance method consists of applying a step of very small voltage variations ($\pm 20\text{mV}$) above and below the corrosion potential of the metal element under test. The polarization resistance (R_p), defined as the slope of this current-potential curve is inversely proportional to the corrosion rate.

Features of ReKorr:

The equipment is designed to provide a portable, user-friendly and accurate solution for corrosion monitoring in various environments. It offers several features that make it an invaluable tool for corrosion engineers and inspectors:

a. Portability: The equipment is compact and lightweight, allowing for easy transport and operation in the field. It can be used for on-site inspections, plant maintenance and remote monitoring of corrosion in hard-to-reach areas.

b. Ease of Use: The digital meters are designed with user-friendly interfaces and intuitive controls, enabling both experienced professionals and non-specialists to perform corrosion measurements effortlessly. The graphical display presents real-time element voltage measurement, temperature of the concrete etc. Transferring data to the PC for analysis is as easy as any standard flash drives.

c. Rapid Measurements: ReKorr offers rapid measurements, typically completes the test of one probe in 4 minutes, with standard settings. This capability is particularly critical for promptly assessing the effectiveness of multiple numbers of corrosion monitoring probes. It also checks the probe's readiness from the readings and provides adjustable parameter settings.

d. Software: The device incorporates specialized software that facilitates comprehensive analysis of the data obtained during the monitoring procedure. This software enables in-depth examination and

interpretation of the collected data, offering valuable insights into corrosion trends, potential risks, and the effectiveness of corrosion control strategies. With its user-friendly interface and powerful analytical capabilities, the software enhances the overall functionality of the device, aiding corrosion engineers and inspectors in making informed decisions and developing targeted maintenance plans.

e. Storage: The device features ample storage capacity with 32 GB of internal storage. This storage capability allows for the convenient retention of a large volume of data collected during corrosion monitoring activities. Additionally, the device offers the provision to store information for up to 50 different sites, each accommodating test results of 50 probes. This comprehensive storage capacity ensures that extensive data from multiple locations can be securely stored, facilitating efficient data management and analysis for corrosion monitoring and planning.

f. Battery: The device is equipped with an internal rechargeable battery that provides a backup power source for up to 12 hours continuous operation. This ensures prolonged operation and uninterrupted corrosion monitoring even in situations where external power sources may not be readily available. The long battery life allows for extended fieldwork, reducing the need for frequent recharging or battery replacements. With this reliable power backup, users can confidently rely on the device for extended periods, enhancing productivity and enabling comprehensive corrosion monitoring without the concern of power interruptions.

Applications of ReKorr:

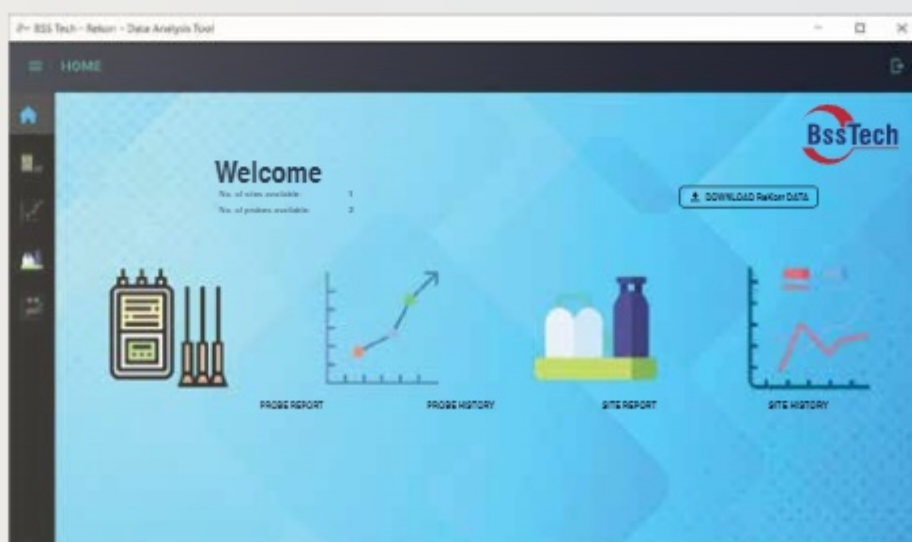
Handheld LPR meters find applications across various industries where concrete rebar corrosion monitoring is critical. Some key applications include:

a. Infrastructure: The equipment plays a vital role in assessing the corrosion status of bridges, reinforced concrete structures Sea water intake structures and underground utilities. They assist in maintenance planning and the evaluation of corrosion protection measures.

ReKorr®

A Portable Solution for Corrosion Monitoring

- *IP 65 Rating*
- *High Quality ABS*
- *Alphanumeric Keypad*
- *User Friendly HMI*
- *Graphical OLED Display*
- *Rechargeable Battery*
- *USB Interface*
- *PC Software*



Software

Software Solutions for Energy & Utilities

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.



WEB & GIS Based Solutions;

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

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

PCMS Pipeline Construction Management System

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.

Salient Features

- Hosted Application
- Pipe Tracking using BarCode
- Field Entry From Handhelds
- Handheld App with BarCode
- Instant Report Generation
- Cut Pipe Nomenclature
- Linked Quality Reports
- Report Approval System
- Generation of PipeBook
- Generation of Progress
- View Color Coded Activities
- Assets with Attributes
- Linked NDT Films
- Inbuilt Report QC
- Mechanical Completion
- Completions Management

SmartGasNet

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



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Transformer Rectifiers

A Dive in to Tap Control Transformer Rectifiers to AI Driven Transformer Rectifier

Transformer rectifiers are regarded as the central element of the ICCP system and are vital components of the Cathodic Protection (CP) sector. They supply energy to CP systems, which prevent metal structures from corroding. The design and control methods of transformer rectifiers have advanced significantly due to technological improvements over time. This article charts the development of transformer rectifiers from manually operated variac and tap systems to sophisticated thyristor-controlled systems, artificial intelligence (AI) systems, and remote monitoring software systems.

The Era of Variable and Tap-Controlled Transformer Rectifiers

During this era, tap-controlled and variac-controlled transformer rectifiers were in use. A tap-adjusting transformer was employed to change the rectifier's DC voltage levels. Historically, transformer rectifiers have been either tap-controlled or variac-controlled. The tap-adjusting transformer modifies the DC voltage levels of the transformer rectifier. The diode bridge is connected to the tap-controlled transformer, which generates DC by adjusting the rectifier's input AC voltage in response to manual TAP switch adjustments.

Mechanical contacts are used to regulate the voltage, but precise DC voltage settings were not achievable with this design approach. Thus, we progressed to variac rectifiers. The transformer rectifier utilizes a variac in the input section and a diode bridge in the secondary section of the variac. This transformer varies continuously, and the control of the obtained DC value is adjusted by a rotating knob. While this setup provides precision, the unit's inconsistent voltage and current functioning makes it challenging to utilize in pipelines, concrete applications, and other similar environments where constant voltage and current are required.

Emergence of Thyristor Control and Switch Mode Power Supply Systems

We then entered the era of thyristor control, where the DC voltage and current are adjusted, and the thyristor's firing is managed by control cards. Here, we achieved constant voltage operations, allowing the set voltage to remain constant regardless of changes in the CP load. Similarly, we could implement constant current modes of operation.

The routine involved connecting the reference electrodes and starting the automatic control, which is particularly beneficial in the tank internal area where the auto mode of operation is recommended. In this scheme, we can implement Constant Mode of Operation, Constant Current Mode of Operation, and Auto Potential Mode. Sophisticated control cards, fine potentiometric devices, and microcontroller-based systems have been utilized, enhancing the accuracy and smoothness of CP performance and settings.

Advances in Remote Monitoring Systems, Remote Control, and Data Harvesting

We ventured into the realm of remotely controlling the transformer rectifier output from distant stations, reducing the need for operators to travel to remote fields and unsafe locations. This innovation has improved operational efficiency and made the lives of operators easier. We introduced the Cats Eye software, which manages all operations in the transformer rectifier.

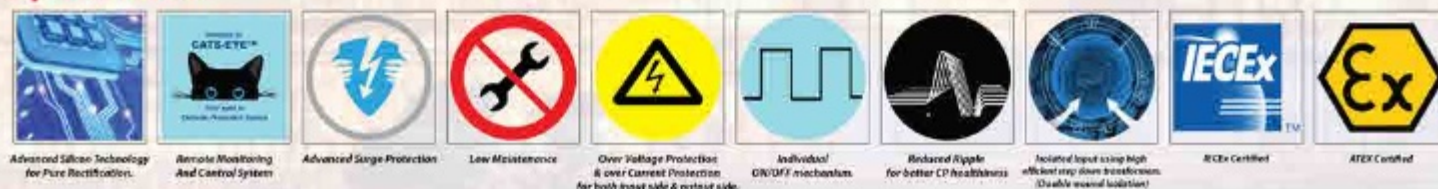
The integration of this software with field transformer rectifier units (TRUs) enables efficient data collection, including CP parameters such as DC voltage, DC current, reference potential, instantaneous off potential, and automatic interruption features like instant off and depolarization. All these tests are performed automatically, comparing values and processing them using several algorithms to make effective decisions by adjusting the DC values.

Similarly, the system reports to the operator through emails, providing the asset owner with complete freedom from daily monitoring and requiring manual intervention only when necessary.

Types of Rectifiers:

- Cathodic Protection Rectifiers
- Remote Monitoring and Control system for CP rectifier
- DC-DC converter
- GPS Current interrupter Timer
- Pulse Rectifiers
- IGBT Rectifiers
- Hydrogenation Rectifier
- Chlorination Rectifier
- Electroplating Rectifier
- Polarity Reversible Rectifier
- ED Coat Rectifiers
- Rectifier for furnace and other applications

Specialities:



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Transformer Rectifier

In-House Development

Wide Range of Ratings Available

Manufacturing on Client Specification

IECEX & ATEX Certified



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Battle unpredictable temperatures with confidence! Thermopads brings you reliable heat tracers for consistent industrial heating.

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- **Energy Efficient:** Control heating output precisely for maximum efficiency and savings.
- **Durable & Reliable:** Built tough to withstand industrial rigors, backed by industry-leading warranties.
- **ADNOC Approved:** Our heat tracers are officially approved and validated for their quality and reliability by ADNOC.



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Remote Monitoring & Control System

Fully Automated Instant-Off and Depolarization Features in Our New RMCS Software

The newly developed Remote Monitoring and Control System (RMCS) software specifically for Cathodic Protection Transformer Rectifiers, revolutionizes the way transformer rectifiers are monitored and managed by combining cutting-edge features, automation of CP system, and seamless integration with existing systems, including Distributed Control Systems (DCS), GSM Modbus, IoT, Ethernet, and Modbus RTU communication. The result is a fully automated, robust, and flexible solution designed to streamline cathodic protection system management while ensuring optimal performance and reliability.



A Comprehensive Map View for Enhanced Control

The RMCS software provides a Map View interface that displays all transformer rectifier units (TRUs) geographically. Operators can click on any TRU location directly from the map to access its detailed status and control options. This user-friendly feature allows for quick, easy access to individual units, simplifying system navigation, especially in large areas with numerous TRUs spread across multiple sites. The fault, not communicating status will be identified in colour coded to give more attention.

Real-Time Fault Reporting and Classified Reports

Our RMCS software is equipped with a Fault Reporting feature that automatically detects and flags any faults within the system. These faults are categorized in Classified Reports, ensuring that the most critical issues are addressed promptly, enhancing system safety and performance. Reports can be generated on a daily basis, TRU-wise, based on user-selected date ranges. Additionally, graphical representations are available for more effective analysis.

Fully Automated Depolarization, Interruption & Instant off:

The software can be programmed or scheduled to perform the instant off, interruption, and depolarization tests. After performing the test, the software itself compares the values with the criteria as per NACE recommendations and provides an evaluation check to confirm if the criteria are met. It alerts the user if the values do not meet the required criteria

Full Automation and System Integration

The RMCS software introduces a new level of automation to CP systems. Operators can set the system to automatically control TRU settings, adjusting voltage and current levels based on real-time field data. With automated reporting features, the software can also generate detailed performance reports and send email notifications to authorized personnel, ensuring that any anomalies are addressed immediately.

The Main Features:

- CP Parameter Monitoring (AC Voltage, AC Current, DC Voltage, DC Current, Reference Electrodes, Temperature)
- Automated Instant-Off & Depolarization, Interruption Cycle- Synchronised by using GPS
- Intelligent Algorithm for making decision on different criteria.
- Automatic recording of Natural Potential
- Map View Interface
- User Specified Classified Reports
- Real-Time Fault Detection
- Automated Control of TRU Settings
- Automated Reporting & Email Notifications
- System Integration with DCS Scada, IOT, GSM, Optical
- Graphical Representations of Data

Ultimate Solution for Pipeline Integrity: IGP Engineers' Monolithic Isolation Joint

Ensure Unmatched Protection and Reliability

At IGP Engineers, we understand the critical importance of maintaining the integrity of your pipeline systems. Our Monolithic Isolation Joint (MIJ) is engineered to provide superior electrical isolation and corrosion prevention, ensuring your pipelines operate efficiently and safely.

Key Features:

- **Robust Construction:** Crafted from high-strength carbon steel with a durable epoxy coating, our MIJs are built to withstand the harshest environments. The steel body ensures mechanical integrity, while the epoxy coating provides excellent resistance to external corrosion.
- **High Dielectric Strength:** Featuring advanced thermosetting fiberglass epoxy insulation, our MIJs offer exceptional electrical isolation, enhancing the effectiveness of your cathodic protection systems. The high dielectric strength ensures minimal electrical leakage, maintaining the integrity of your pipeline.
- **Boltless Design:** Simplify your installation process with our single-piece, boltless design, reducing the risk of leaks and minimizing maintenance requirements. The encapsulated design protects the insulating material from mechanical damage and environmental exposure.
- **Pressure Rated:** Designed to handle high-pressure applications, our MIJs are tested to meet industry standards, ensuring reliable performance in demanding conditions. With pressure ratings up to 20,000 psi, our MIJs are suitable for a wide range of applications.

Applications:

- **Oil and Gas Pipelines:** Protect your valuable assets from corrosion and ensure long-term operational efficiency. Our MIJs are ideal for both onshore and offshore pipelines, providing reliable isolation in harsh environments.
- **Water Distribution Systems:** Maintain the purity and safety of your water supply with our reliable isolation joints. Our MIJs prevent contamination and ensure the longevity of your water distribution infrastructure.
- **Chemical Processing Plants:** Enhance the safety and longevity of your industrial piping systems. Our MIJs are resistant to a wide range of chemicals, making them suitable for use in chemical processing and petrochemical plants.

Details required on enquiry

- Size & Rating
- Mating Pup Piece Details
- Materials (Pup /Body/Insulating Material)
- Design & Test Pressure
- Design Temperature
- Service
- Location
- Quantity



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GROUP
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Global Giants: A Look at the World's Most Impressive Feats of Engineering

Oil & Gas Industry

- Saudi Arabia's Ghawar Field is the largest conventional oil field in the world. It's so vast that it produces over 5 million barrels of oil per day, which is more than the entire output of many oil-producing countries!
- The Upper Zakum oil field in Abu Dhabi is one of the largest offshore oil fields globally. To minimize its environmental footprint, artificial islands were built to support drilling operations—an innovative approach that makes offshore extraction easier and more sustainable.
- Russia is home to some of the largest natural gas reserves in the world. The Power of Siberia pipeline spans over 4,000 kilometers, transporting natural gas from Siberia to China, solidifying Russia's role as a major energy provider to Asia.
- Qatar is the world's top exporter of Liquefied Natural Gas (LNG), thanks to the North Field, the world's largest natural gas field. The sheer size of this field is so vast that its output can meet the energy needs of millions of homes around the globe.
- Norway's Troll Field is a giant in the North Sea, providing Europe with significant volumes of natural gas. It's fascinating that beneath the cold ocean waters lies one of the primary energy lifelines of Europe.



Amazing Energy Facts

- The Noor Solar Complex in Morocco is one of the largest concentrated solar power plants in the world. This massive installation in the middle of the desert provides enough electricity to power over a million homes, showing that even the harshest environments can be harnessed for clean energy.
- China has built the world's largest floating solar farm in a flooded coal mine! By turning an old coal site into a renewable energy source, China has highlighted an innovative way of repurposing land for sustainable development.
- The North Sea is becoming the world's largest offshore wind hub. The Dogger Bank Wind Farm will soon be able to power over six million homes, making it a symbol of Europe's transition to renewable energy on an immense scale.
- The Barakah Nuclear Power Plant in the UAE is the first of its kind in the Arab world. Once fully operational, it will meet nearly 25% of the UAE's electricity needs, significantly reducing carbon emissions in the process.
- India's Bhadla Solar Park is so large that it's visible from space! Covering over 5,700 hectares, this solar park harnesses the intense sunlight of the Rajasthan desert to produce renewable energy for millions of people.



Impressive Infrastructure Projects

- The King Fahd Causeway links Saudi Arabia to Bahrain and stretches 25 kilometers across the sea. It's an incredible feat of engineering that allows millions of vehicles to travel between the two nations each year, fostering both trade and tourism.
- The Yavuz Sultan Selim Bridge in Turkey, also called the Third Bosphorus Bridge, is the widest suspension bridge in the world. Connecting Europe and Asia, it's an essential link that carries over 135,000 vehicles daily, symbolizing Istanbul's vital role as a bridge between continents.
- The Suez Canal is one of the world's most crucial shipping routes, handling roughly 12% of global trade. The canal's recent expansion means it can now accommodate two-way traffic, cutting transit times significantly and reinforcing Egypt's position as a key player in international maritime trade.
- The Eurostar high-speed train can travel from London to Paris in just over two hours. Connecting major cities across Europe, the high-speed rail system not only enhances convenience but also helps reduce carbon emissions by providing a greener alternative to air travel.
- Dubai's Palm Jumeirah is one of the largest artificial islands ever built. The palm-shaped island was constructed using over 94 million cubic meters of sand and rock and is now home to luxury hotels, residential buildings, and entertainment venues—a true modern marvel.



Incredible Marine Insights

- The Port of Rotterdam is the largest port in Europe, handling over 470 million tons of cargo each year. Stretching 40 kilometers, it's so large that it includes industrial areas, oil refineries, and green energy hubs, functioning almost like a city of its own.
- Singapore's port is among the world's busiest, dealing with nearly one-fifth of global container transshipment traffic. It's fascinating that this small island nation plays such a massive role in global trade, with ships arriving and departing every few minutes!
- Saudi Arabia's mega-project NEOM includes the development of an advanced floating port along the Red Sea coast. The port is designed to use 100% renewable energy, making it one of the most sustainable marine infrastructure projects in the world.
- The Turkish Straits are some of the busiest waterways globally, with over 40,000 vessels passing through annually. Connecting the Mediterranean with the Black Sea, these straits are vital for transporting oil, natural gas, and commodities from Central Asia to Europe.
- Floating LNG terminals are transforming energy access in Southeast Asia. For example, Malaysia's Pengerang LNG terminal is a versatile facility that can be used to import, store, and re-export LNG, helping to secure the region's energy supply with flexibility and efficiency.



Natural Gas Leak Detection System

Protecting People and the Environment by Embracing Safety and Encouraging Innovation

Since 1933, Heath has established itself as the premier service provider, manufacturer, and distributor of gas detection, pipe and cable locating, and odorant analysis equipment for the midstream, upstream, and downstream markets. We maintain a stellar reputation both in the United States and globally.

Discover® Advanced Mobile Leak Detection (Discover AMLD®)



Revolutionize the way gas leaks are detected with Discover AMLD, a state-of-the-art technology utilizing open-air fixed-path Mid-IR Tunable Diode Laser Absorption Spectroscopy (TDLAS). With unparalleled resolution in the part-per-billion (ppb) range for methane and ethane, this system goes beyond by distinguishing between pipeline gas and biogas. The proprietary software, seamlessly integrated with a tablet, wirelessly connects to the gas detection unit, GPS, and anemometer, ensuring easy installation on any vehicle. Designed for minimal vehicle modifications and leveraging the latest in wireless tech, Discover AMLD is the groundbreaking solution for tackling gas leaks in aging infrastructure, setting new benchmarks for accuracy and efficiency in the natural gas sector.



RMLD Complete Solution (RMLD-CS™)

- Intrinsically Safe (IS)
- Detection up to 100 feet (30 meters)
- Rechargeable and replaceable battery
- Free phone App
- Internal data logging
- Color camera and display



Detecto Pak-Infrared+ (DP-IR+™)

- Infrared optical gas detection system
- Designed for walking and mobile survey
- Built-in Self-Test and Zero functions
- Selective to natural gas/methane
- Free phone App



Odor Concentration - ODORATOR 2™

- Odor level test instrumentation
- One touch zero with flow check
- Automatic recording of all readings and locations
- Software for mapping, report generation and management



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Your Safety Our Commitment

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SAIT GROUP GRAND IFTAR 2024



Iftar celebration at BSS Technologies

The Sait Group employees and management came together for a memorable Iftar celebration, honoring the breaking of the fast during Ramadan. This event strengthened the sense of community and mutual support among colleagues as they shared a delicious meal in a warm and festive atmosphere. The Iftar gathering highlighted Sait Group's commitment to inclusivity and cultural appreciation, uniting employees from diverse backgrounds to celebrate this important tradition.



Digitized PinBrazing for Cathodic Protection

Connect CP Cables fast and safe!

Safetrack patented digitized PinBrazing system is an extremely efficient, low temperature arc brazing method used for attaching electrical connectors to steel structures within Cathodic Protection systems such as pipelines, vessels, reinforcement bars, wind power, grounding, etc, without the need for welding. No need for different carbon moulds for different wires. Safetrack application methods always use materials of the highest quality to ensure the best electrical conductivity, corrosion resistance and strength.



ECONNECT PinBrazing Unit - Lightweight, automated equipment

- **High capacity**
60 connections per charge
- **Battery powered**
Nano Li-Ion, long life
- **Automated Gun**
Self adjusting (patent)
- **Digitized**
Same perfect result everytime (patent)
- **Lightweight**
Only 9,8kg (21,6 lb)



Advantages

- No special training needed
- No waste of consumables
- Automated Gun
- Low temperature
- Low noise
- Fast & safe



"The most cost efficient way of making retrofit connections to buried pipelines. No need for major excavations!"

Rail Products

We are the leading manufacturer of electrical connection systems for Railways, Grounding and Cathodic Protection Industry. These methods are distributed in over 70 countries worldwide. With systems such as PinBrazing, SafePlug®, SafeBond® & SafeGrip™, we supply all of the modern cable application methods to our clients. We also have a complete assortment of railway tools & equipment.



Extended PinBrazing Gun SL-88

Deep underground cable connections

- Up to 8 meter (26 ft) deep connections
- Patented automated technology
- Made of lightweight anodized Aluminium
- Includes a video cam for simple operation

SL-88 is used for connecting cathodic protection cables by PinBrazing technique in drilled holes or holes made with vacuum excavation (Hydrovac). In holes as small as 10" / 250 mm diameter and 8 meters below ground. Connect SL-88 to your Econnect PinBrazing unit (or SL-87 for S30 X/C).

SL-88 uses our patented Brazing Gun technology which ensure correct lift level and best brazing result.



ISO 9001 & 14001 Certified
www.safetrack.se

Offshore and Marine Special Anodes

Protecting Your Offshore Investments

In the demanding world of offshore operations, corrosion poses a constant threat to the integrity and longevity of valuable assets. BSS Technologies understands this challenge and offers a comprehensive range of cathodic protection solutions designed to safeguard your investments and ensure operational continuity.

Specialized Anodes for Every Application

BSS Technologies provides a diverse portfolio of specialized anodes tailored to specific marine environments and asset types. From the compact Aquadisc MMO Disc Type Anode for localized protection to the robust Anode Sled for challenging deepwater deployments, our solutions cater to a wide array of needs.

Aquadisc MMO Disc Type Anode: Compact and efficient, ideal for offshore wind turbine foundations and other complex offshore structures.

MMO Elliptical/Linear Anode for Vessels: Streamlined design minimizes drag while maximizing protection for ship hulls and ballast tanks.

Sacrificial Bracelet Anode for Pipelines: Easy installation and maintenance, providing long-lasting protection for subsea pipelines.

Galvallopod Retrofit Sacrificial Anode: Innovative solution for extending the life of aging offshore structures and jackets.

Anode Sled for Offshore Structures and Pipelines: Versatile and robust, designed for challenging deepwater environments.



Engineering Expertise You Can Rely On

Our team of experienced engineers possesses in-depth knowledge of cathodic protection principles and marine corrosion challenges. We work closely with clients to design customized solutions that meet their specific requirements, ensuring optimal performance and longevity.

Quality and Sustainability

BSS Technologies is committed to delivering high-quality anodes manufactured to the highest industry standards using premium materials. We also prioritize sustainability, developing environmentally responsible solutions that minimize our impact on the marine ecosystem.

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

BSS Tech CP India Pvt. Ltd

Established in 2015, the company primarily focused on delivering state-of-the-art Asset Integrity products and services. Today, it has evolved into a trusted brand synonymous with BSS Tech certification in Cathodic Protection and Corrosion Control. The birth of this great organization was marked in early 1998 in Abu Dhabi, UAE. As a global company, we are proud and honored of being able to design & manufacture excellent products in our portfolio both locally and internationally. BSS Technologies has won many recognitions for its products like Anodes, Transformer Rectifiers, RMCS, etc.

BSS Tech is pleased to announce the successful commissioning of a permanent cathodic protection system (PCP) for a 20-inch diameter, 94-kilometer long cross-country pipeline. This project, part of the Mundra Kandla Pipeline (MKPL) initiative, was completed for HOWE Engineering Projects (I) Pvt Ltd in Kutch, Gujarat. Additionally, we have successfully commissioned an ICCP system for 4 x 1800 MT mounded type pressure vessels (MSV) for propane storage and 4 x 2050 MT mounded type pressure vessels (MSV) for butane storage at the Indian Oil Corporation (IOCL) LPG Import Terminal in Kochi, Kerala, India.



Commissioning of 'Exd - Flameproof Type Transformer Rectifier Unit at IOCL, Paradip



Indian Oil Corporation Limited (IOCL), LPG Import Terminal, Kochi, Kerala

We are currently deeply involved in several crucial cathodic protection projects at the HPCL Rajasthan Refinery Project (HRRL) in Mundra, Gujarat. Engineers India Limited (EIL), a leading engineering consultancy firm, is serving as the Project Management Consultant (PMC), overseeing the execution and ensuring adherence to the highest industry standards. Our scope of work encompasses a range of specialized cathodic protection solutions designed to safeguard critical infrastructure within this major refinery project.

One of the key projects involves the installation of an Impressed Current Cathodic Protection (ICCP) system for a 650-meter underground pipeline. This system utilizes an external power source to impress a current onto the pipeline, effectively mitigating corrosion and ensuring its long-term integrity. Given the pipeline's underground location, this protection is vital to prevent leaks and maintain operational safety.

In addition to the pipeline, we have implemented ICCP systems for the bottoms of 18 storage tanks and Sacrificial Anode Cathodic Protection (SACP) systems for the internal surfaces of 12 storage tanks.

These projects are part of our ongoing commitment to delivering high-quality cathodic protection solutions that meet the stringent standards of the oil and gas industry, enhancing the safety, reliability, and lifespan of critical infrastructure at the HPCL Rajasthan Refinery Project.



Anode laying works for Tank CP system at HRRL, Mundra, Gujarat

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400604, Maharashtra, India

Registered Office: 32/3007 8-1, Aysha Road
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Sustainable Power, Engineered for You

BSS Technologies delivers expertly designed photovoltaic solar power systems through its two dedicated divisions: Smart Enersol and Envoera™. These specialized arms offer a comprehensive suite of products, including solar modules, charge controllers, and telecommunication power supplies. We also excel in delivering custom-made solutions tailored to specific client needs, ensuring a personalized approach to sustainable energy. This commitment to innovation and client satisfaction makes us a trusted partner for renewable energy projects.



- 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.
- Power Supply for 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.



Made In UAE



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Prioritizing Collaboration and Teamwork

Thriving Together: Fueling Motivation and Joy in Our Workplace

This past year has been one of incredible growth and achievement for our company, and none of it would have been possible without the dedication, passion, and collaborative spirit of each and every one of you. As we reflect on our successes, it's important to recognize the key ingredients that have fueled our journey: motivation, togetherness, and joy.

Motivation: The Driving Force Within

Motivation is the internal engine that propels us forward, the spark that ignites our creativity and pushes us to exceed expectations. While personal drive is essential, a truly motivating work environment fosters a sense of purpose. It's about feeling like your work matters, that you're contributing to something meaningful. This sense of purpose, combined with opportunities for growth and recognition for individual contributions, creates a powerful cocktail of motivation that drives us all to achieve great things. This year, we've witnessed countless examples of colleagues going above and beyond, inspiring us all with their commitment to excellence.



Togetherness: The Strength of Unity

We are more than just a collection of individuals; we are a team, a community, a family. The power of togetherness lies in our ability to support each other, share knowledge, and collaborate towards common goals. Whether it's brainstorming new ideas, lending a helping hand on a challenging project, or simply celebrating each other's successes, our sense of unity amplifies our individual strengths and creates a truly unstoppable force. When we work together, we can achieve far more than we ever could alone.

Joy: The Heart of a Thriving Workplace

A workplace filled with joy is one where laughter echoes through the hallways, where smiles are contagious, and where coming to work each day feels like joining a group of friends on a shared adventure. Joy is not just about having fun; it's about fostering a positive and supportive environment where everyone feels valued, respected, and empowered to be their authentic selves.

Communication: The Key to Unlocking Potential

Open and honest communication is the lifeblood of any successful organization. It allows us to share ideas, address concerns, and build trust with one another. By encouraging active listening, providing constructive feedback, and fostering a culture of transparency, we can ensure that everyone feels heard and understood. Effective communication breaks down barriers, strengthens relationships, and paves the way for innovation and collaboration.



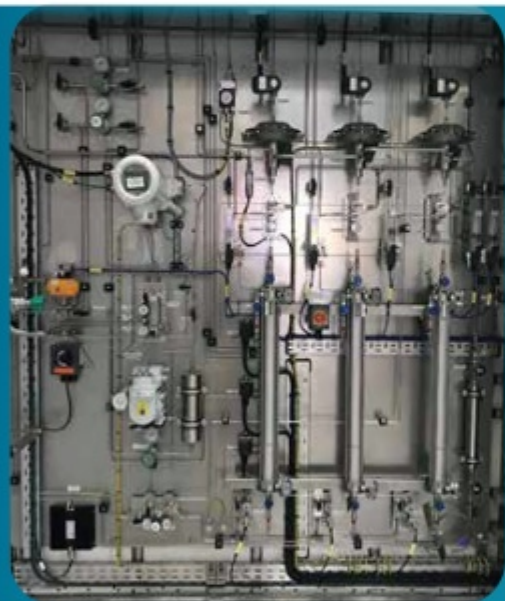
Metering System

GGS 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 know how 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.



GGG designs High Accuracy LNG sampling system



- 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 onshore and offshore Gas Metering System GGS can offer 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.

Application:

Where high accuracy is essential

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



Onam celebration at BSS Technologies

Our Onam celebration was a joyful and vibrant affair, bringing together the entire team for a day filled with festivities. The event featured a beautifully crafted Pookkalam (floral carpet) that added color and tradition to the office. The highlight of the day was the delicious Onam Sadya feast, where everyone indulged in a variety of traditional Kerala dishes. The celebration was filled with laughter, and fun activities, making it a memorable occasion for all.



Health, Safety, and Environment Responsibility

Powered by People, Protected by Principle: HSE Initiatives at BSS Technologies

In today's rapidly evolving technological landscape, BSS Technologies stands out not only for its cutting-edge solutions but also for its unwavering commitment to Health, Safety, and Environment (HSE) excellence. We firmly believe that prioritizing the well-being of our employees, contractors, and the communities we operate in is not just an ethical obligation but a cornerstone of sustainable business success. At BSS Technologies, HSE is not merely a set of regulations to be followed; it is a deeply ingrained value that permeates every aspect of our operations.

This year, BSS Technologies has taken significant strides in fostering a robust HSE culture through a series of impactful initiatives and awareness campaigns. These activities transcend mere compliance, aiming to educate, engage, and empower our workforce to become active participants in creating a safer, healthier, and more sustainable environment for all. By addressing critical health, safety, and environmental issues, we are not only safeguarding our most valuable assets – our people – but also contributing to a better future for generations to come.

Sweet Success: Celebrating World Diabetes Day

BSS Technologies marked World Diabetes Day with a comprehensive program aimed at raising awareness about this global health challenge. The initiative included:

- Experts conducted Informative sessions on diabetes prevention and management.
- Blood sugar level screenings were provided to employees to encourage early detection and proactive health management.
- The campaign emphasized the significance of regular exercise, balanced nutrition, and stress management in mitigating diabetes risks.



Diabetes Awareness Campaign at BSS Technologies - Asab Camp in assistance with New National Medical Centre, Abu Dhabi.

Green Scene: Nurturing Our Planet on World Environment Day

To commemorate World Environment Day, BSS Technologies organized a series of activities focused on environmental sustainability and conservation:

- Employees participated in a tree planting initiative to contribute to local biodiversity.
- Interactive workshops educated employees on waste reduction, recycling practices, and responsible resource consumption.
- The company reinforced its commitment to sustainable practices by highlighting ongoing initiatives such as energy conservation and pollution reduction measures.



On the occasion of World Environment Day, BSS Technologies has organized a Tree Plantation Drive and Awareness Campaign for employees

Safety First: Celebrating a Secure Workplace on World Safety Day

To mark World Safety Day, BSS Technologies implemented a dynamic program focused on enhancing safety awareness and knowledge across all levels of the workforce:

- Diverse sessions, including impactful audio and video presentations, were held to ensure better understanding of safety practices.
- One-on-one sessions provided tailored guidance to expand workers' safety knowledge and skills.
- "Steered" Quiz Competition: A quiz competition assessed workers' understanding of near-miss incidents, promoting proactive hazard identification.
- Prizes were awarded to individuals based on their insightful contributions to the safety quiz.



BSS Technologies has organized Safety Awareness Training and Quiz competition partnering with ADNOC on the World Safety Day

Hazard Heroes: Championing a Proactive Safety Culture

BSS Technologies launched a dedicated HSE campaign to promote a proactive safety culture by encouraging hazard and near-miss reporting:

- Posters, presentations, and toolbox talks educated employees on the importance of identifying and reporting potential hazards and near misses.
- The company implemented a user-friendly system for reporting hazards and near misses, making it easier for employees to contribute to a safer workplace.
- BSS Technologies recognized and rewarded employees for actively participating in hazard and near-miss reporting, fostering a culture of safety ownership.



BSS Technologies has organized Safety Awareness Training and Quiz competition partnering with ADNOC on the World Safety Day

The comprehensive HSE initiatives undertaken by BSS Technologies this year underscore the company's dedication to building a workplace where safety and well-being are paramount. By actively promoting awareness, providing comprehensive training, and encouraging employee participation, BSS Technologies is cultivating a proactive safety culture that empowers every individual to take ownership of their own safety and the safety of those around them.

These efforts extend beyond the immediate benefits of a secure work environment. They contribute to increased productivity, enhanced employee morale, and a strengthened reputation as a responsible corporate citizen. As BSS Technologies continues to innovate and excel in the technological sphere, its unwavering commitment to HSE excellence will remain a guiding principle, ensuring a sustainable and prosperous future for the company, its employees, and the communities it serves.

Overcoming data access challenges with non-intrusive leak detection hardware

As pipeline industry challenges continue to grow, it's never been more important to make maximum use of the data available for leak detection. Crucial to this is the deployment of hardware that allows pipeline operators to access more data, resulting in a more effective leak detection system. Below are some of the data access challenges Atmos Eclipse can overcome to provide an effective leak detection system.

Areas with no power or communications

It's not uncommon for a length of pipeline to pass through a remote location, such as in the Middle East where a significant portion of the region's topography is desert. A problem with pipeline sections in remote locations is that they're typically off grid, meaning data can be difficult to access due to the lack of power or communication in the area. This can cause additional challenges, such as a rise in pipeline theft from opportunists. Atmos Eclipse is built to help detect leaks and thefts in real-time through its ability to measure at a 60 Hz data acquisition rate. For remote locations with limited power or communications, Atmos Eclipse can function as an integrated solution in a networked environment or be powered by solar and wind energy.

Pipeline sections with limited space

Some pipeline sections have limited space to install instrumentation, such as pipelines in tank farms. This can make it difficult for operators to access the leak and theft data they need. Atmos Eclipse can be installed in tight spaces, which allows for more opportunities to access leak and theft detection data along a pipeline.

High consequence areas

Many pipelines running through high (HCAs) and moderate consequence areas (MCAs) are often also exposed to geohazards. All geohazards can pose a risk to pipeline integrity and the ability to access valuable leak and theft data. Fortunately, robust hardware like Atmos Eclipse can be installed for remote monitoring in challenging climates, such as the ability to operate and continue to collect data even in -20 C to 60+ C temperatures. Pipeline operators can be further supported by training which can expose them to abnormal operating conditions specific to the region in which the pipeline operates, so that if a leak does emerge as a result of the conditions of operating in a HCA, operators can continue to make maximum use of the data available to identify the leak and take effective actions.

Sections with weakened pipeline integrity

Corrosion is the inevitable sign of aging on a pipeline and wears down the integrity of the pipe wall. Accessing data on pipeline sections that display signs of corrosion can be a challenge because it involves hardware that requires drilling or welding the pipeline and this can weaken pipeline integrity further. Atmos Eclipse is non-intrusive and can be retrofitted to the pipeline for rapid deployment.

Leak detection data access starts with the right hardware

Pipeline systems can be complex and every pipeline behaves differently, which is why it's important to consider hardware that can overcome a range of data access challenges in a pipeline network. Atmos Eclipse provides an essential part of leak detection systems.



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BSS Technologies received the prestigious Supplier Award from Dubai Electricity and Water Authority (DEWA), recognizing our dedication to excellence and innovation. Proud of our team, partners, and clients for their continuous support in achieving this milestone!

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Manager, Mesaieed & Dukhan Concession Area

BSS Technologies W.L.L has been proudly recognized with QatarEnergy's Contractor 7 Star Safety Award! This honor reflects our continued commitment to safety excellence, ensuring the highest standards in every project we undertake.

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Ashok RJ, Projects Manager

My experience in this company has been nothing short of amazing. I have been a part of this organization for 15 years now, and I can say with confidence that it has been a journey filled with growth, learning, and opportunities. I started off as a Project Engineer, and through hard work and dedication, I now hold the position of Project Manager. Looking back, I am grateful for all the challenges that came my way, as they helped me develop the skills I needed to excel in my role. The support and encouragement of my colleagues and superiors have been invaluable, and I am proud to be a part of this company's success story.

Bino V.K., Senior Accountant

For the past 18 years, I have been fortunate to grow and evolve with BSS Technologies, starting as an Assistant Accountant and now proudly leading a talented team as a Senior Accountant. This company has continuously provided me with opportunities to expand my skills and push beyond my limits. I am grateful for the journey and excited to continue contributing to such a dynamic and supportive organization.



Vijay M Bhat, Sr. Sales Engineer

I feel truly privileged to be part of this exceptional company, and my journey here has been immensely rewarding. Working in sales presents numerous challenges, both internally and externally. I greatly appreciate the unwavering support from our management, which empowers us to tackle complex orders not only within our operational region but also on a global scale. This support is vital for us as sales professionals, and we are fortunate to have a management team that stands by us at every step. I am excited about the opportunities ahead and look forward to working together to achieve even greater success.



Mahmoud Elsewedy, Regional Sales Manager

A Journey of Growth and Success. Reflections on My 7 Years at BSS Technologies. It is with great pride and gratitude that I reflect on my seven-year journey with BSS Technologies. From my early days as a Sales Manager to my current role as Regional Manager, this experience has been both transformative and rewarding. Along the way, I've had the privilege of growing professionally, acquiring invaluable skills, and embracing challenges that have sharpened my abilities. The unwavering support and encouragement from my colleagues and leadership team, specially the top management have played a critical role in my development. Their guidance and mentorship have empowered me to succeed and contribute meaningfully to the organization's ongoing success. As I look ahead, I am excited to continue this journey, confident that the opportunities for growth and achievement are boundless within this remarkable organization. I am truly honored to be part of BSS Technologies story and look forward to contributing further to our shared goals.

**Abdul Gafoor M, Projects Manager**

Reflecting back to a decade and a half ago, my entry into our company marked the beginning of a journey that has surpassed expectations in terms of inspiration and meaningful influence. What unfolded wasn't just a path of professional growth, but a living testament to the very values that define our organization's essence. From my humble origins as an Assistant Engineer to my current role as Projects Manager, the road I've traversed has been a tapestry woven with challenges and opportunities. Anchored by an unyielding commitment to excellence and a genuine embrace of change, these have been the driving forces behind my incredible voyage.

Jeevesh Balakrishnan, Projects Manager

I am deeply grateful for my time at SSEC. The collaborative projects and innovative work environment have allowed me to grow both professionally and personally. The Company's commitment to employee development, its inclusive culture, and the support from management have been instrumental in my success. I have particularly enjoyed contributing to Projects and Operations division, and have learned valuable skills from my exceptional colleagues. Overall, my experience here has been incredibly enriching, and I look forward to what lies ahead.

**Karl Aerts, Regional Manager - Europe**

At 49, I reflect on 20 years of entrepreneurship, but standing still has never been an option. With a keen eye for opportunities and endless curiosity, I've built and grown businesses globally, combining leadership with a passion for exploration. Nearly two decades ago, I connected with BSS Technologies through a business relationship that evolved into a meaningful friendship. Now, with BSS Technologies Europe, I'm on a mission to expand the company across the continent, ensuring its growth in a competitive market.

For me, success is more than profit—it's about embracing innovation, entering new markets, and fostering meaningful connections. My network spans the globe, blending professional collaborations with lifelong friendships. With each venture, I aim not just to grow businesses but to cultivate global connections. Success lies in both thriving ventures and the personal connections built along the way, making me a global entrepreneur with a heart for exploration.



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