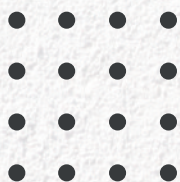




Petromaster

Your Partner in Asset Integrity



Corporate Portfolio

Who we are?

Petromaster is an asset assurance & consulting company with its headquarter in Al-Khobar, Kingdom of Saudi Arabia. We provide a total system approach for assuring the integrity of industrial assets by utilizing latest technologies, integrity programs, and innovative solutions.

We have teams of experts available around the world available to provide specialized business solutions that align with client needs. The company works through a corporate model of core staff and a pool of internationally known technical experts with practical experience, background and expertise in asset integrity assurance.

We support industry in the Oil & Gas, Refining, Petrochemical, Power & Water Desalination, Fertilizers, Cement, Manufacturing and Construction fields to achieve their production targets safely and efficiently through assuring the integrity of their assets.

We are an independent, trusted advisor with a collaborative approach to asset assurance. We offer technical excellence, passion, and an ongoing partnership for implementation and monitoring of results. Our expertise comes from cumulative experience across numerous industries in diverse locations combined with an innovative problem-solving mindset.



Our Philosophy

Petromaster's preferred model for Asset Integrity Assurance is a total system approach that utilizes an integrated solution for optimum integrity assurance of the various static assets. However, based on client request Petromaster can develop any of these solutions as a standalone Asset Integrity Assurance program.



Our Objectives

Petromaster aims to lead in asset integrity assurance by continually advancing our methodologies and technologies, ensuring top-tier reliability and safety standards across industries. We realize client satisfaction through tailored solutions that enhance production efficiency and operational safety, maintaining excellence in adherence to best practices. Our commitment extends to innovation, sustainability, and compliance with local & international standards, supported by strategic partnerships and a dedicated team of experts.

Our Promise

An engineering barrier to protect life, property, business and environment. A market leading innovative service which utilizes latest technology and learning. Value to our clients business through enhanced reliability and reduced production downtime.

Vision

We help our clients to meet their operating targets safely and reliably leveraging talent, technology, and unsurpassed commitment for success.

Mission

We assure the integrity of Assets across the Industry through development and deployment of state of art technologies, systems, programs, and services.

Values

Our values symbolize what we stand for and assure an effective implementation of our mission and pave the path forward to sustaining our vision.

Our Global Partners



Saudi Arabia

Joint Collaboration with KFUPM's research institute.

United Kingdom

Long term partnership with UK's well renowned Consultancy "ETD".

Russia

Licensee for multiple Russian technologies in collaboration with Intron, Diotech and Energodiagnostika.

Canada

Licensee for Canada's "UTComp" for providing FFS services for Non-metallic Assets.

Switzerland

Partnership with Swiss research Laboratory "Universallab" for advanced materials testings.

In our ever-expanding network of excellence, we proudly collaborate with distinguished partners across the globe, including Russia, the UK, Switzerland, and Canada. Together, we have pioneered innovative solutions and set benchmarks in our industry.

Together, we are stronger. Together, we redefine what's possible.

Why Petromaster?

We offer a streamlined, one-step solution that simplifies your asset integrity needs, saving your time and resources. Through our global partnerships, we provide access to top-tier expertise and cutting-edge technology from around the world. Our team of industry experts brings deep knowledge and extensive experience to every project. We operate with the utmost integrity, ensuring honest and transparent service. With a focus on exceptional customer care, we are dedicated to your satisfaction and provide responsive support.

Our creative approach delivers innovative solutions that effectively address your unique challenges.

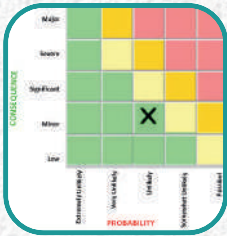


Our Services

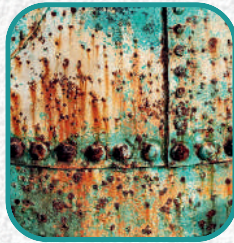
We Provide Asset Integrity Services



Asset Integrity Services



Risk Based Inspection (RBI)



Corrosion Management Programs



Boiler Condition Assessment



Asset Lifecycle Optimization



On & Off Stream Inspection Programs



Condition Monitoring & Vibration Analysis



Thermography

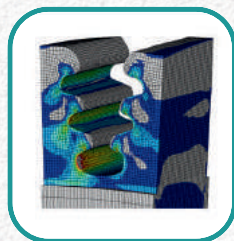


Due Diligence Condition Assessment

Metallurgical Testing



Failure Analysis



Fitness for services (FFS)

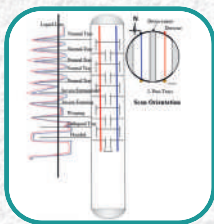


In-Situ Metallography (Replica) Services

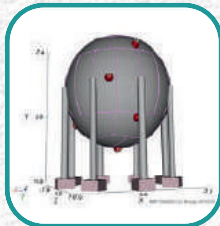


Remaining Life Assessment (RLA)

Technology Solutions



Gamma Scanning



Phonon Diagnostic Technology (PDT)



Large Stand-off Magnetometry (MMM)



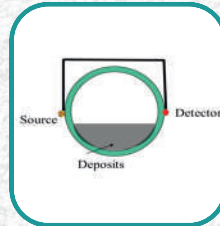
Remote Visual Inspection (RVI)



Ultra Analytics FRP Inspection System



Steel Wire Rope Flaw Detector-INTROS



Pipe Scanning Technology

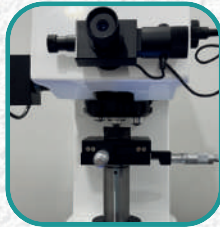


Reformer Tubes Remaining Life Assessment

Mechanical Testing



Tensile Testing



Hardness Testing



Impact & Charpy Testing



Fatigue Testing

Equipment Functional Testing



Lifting Equipment Inspection



Forklifts



Earth Moving Equipment



Hydro-Jetting Machines

Asset Integrity Services

Boiler Condition & Remaining Life Assessment

In plants, boilers have typically been the most trouble prone equipment, being the most likely origin of a problem that leads to a forced outage. Because of this, there are well defined techniques to assess the condition and manage the lifecycle of boiler equipment for optimum reliability and efficient operation.

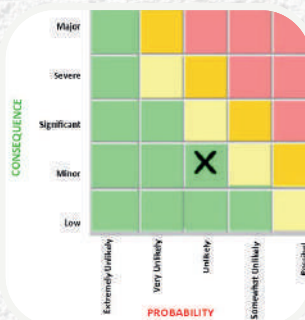


Our Methodologies for RLA

- Hardness-Based Approach
- Method Based on Allowable Reduction of Tube Wall Thickness
- Oxide Scale Thickness Method
- Metallographic Analysis Method
- Accelerated Creep Test Method
- RLA Based on the A Parameter

Risk Based Inspection (RBI)

Petromaster employs API 581 methodology and API-RBI software for Risk-Based Inspection (RBI), prioritizing inspections based on asset failure likelihood and consequences. We utilize a fully quantitative approach to assess risk, optimizing inspection resources for critical equipment. Our RBI services adhere to RAGAGEPs and industry best practices, ensuring compliance with regulatory standards and codes for effective asset integrity management.

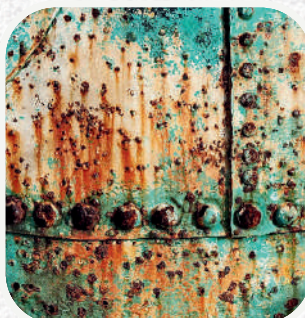


We Offer these services in RBI

- Training and knowledge sharing in RBI.
- Facilitation of RBI processes, including GAP assessments
- Technical advisory services within RBI
- Corrosion assessment and RBI loop development.
- Baseline inspections for RBI
- Day-to-day management, testing, and monitoring of inspection.

Corrosion Management Programs

A Corrosion Management System (CMS) ensures safe and reliable asset operation through assessment, planning, execution, and continuous improvement of corrosion and DM risks. Integration into the organization's management system fosters consistent processes and empowers effective response to corrosion incidents, supported by comprehensive training in lessons learned, case studies, and best practices, thereby enhancing asset lifecycle and sustainability.



Elements of CMP's

- Policy and Strategy
- Organizational Structure and Responsibilities
- Planning and Implementation
- System Performance and Monitoring
- Auditing
- Management Review

Condition Monitoring and Vibration Analysis Services

Petromaster offers precise Condition Monitoring and Vibration Analysis Services, ensuring plant reliability. Our certified engineers provide predictive maintenance solutions through detailed vibration analysis and fault diagnosis, tailored to specific asset management needs.



Benefits of Condition monitoring and Vibration Analysis:

- Reduces equipment costs
- Minimizes lost production time
- Increases revenue
- Enhances safety
- Improves operational efficiency

Thermography Services

Petromaster offers specialized thermography services using infrared technology to prevent breakdowns and downtime. Our highly qualified thermographers provide rapid support and detailed inspections of High temperature reformer tubes, electrical components and insulated pipes and equipment to mitigate costly failures.



Benefits of Thermography

- Identifies hotspots on reformer tubes.
- Identifies electrical faults, reduce breakdowns and downtime.
- Non-invasive thermal imaging enables inspections during operations ensuring uninterrupted asset monitoring.

Asset Lifecycle Optimization

Petromaster provides tailored Asset Life Cycle Optimization services for industries like oil and gas, power generation, and fertilizers. Our comprehensive approach ensures peak asset performance, minimizing risks and costs while maximizing efficiency and reliability.



With our on-site assessments you will get benefit from

- Comprehensive Equipment condition evaluation
- Minimized downtime with efficient inspections
- Immediate maintenance or repair recommendations
- Enhanced safety and regulatory compliance

On & Off Stream Inspection

Petromaster develops on-stream inspection programs tailored to client needs and international standards like API, enhancing asset integrity. We support clients during turnarounds and inspections to validate plans and address gaps, utilizing advanced technologies like Metal Magnetic Memory for targeted corrosion detection.



Benefits of Petromaster's inspection programs:

- Ensures effective Asset Integrity Assurance Programs
- Tailored on-stream inspection programs enhance facility reliability
- Compliance with international codes like API ensures industry standards
- Advanced technologies like
- Large Stand-Off Magnetometry (MMM) optimize corrosion detection

Metallurgical Services

Failure Investigation & Root Cause Analysis

We specialize in comprehensive failure analysis services crucial for industrial reliability. From initial examination to metallurgical and chemical analysis, our process uncovers root causes of failures, providing insights to improve product performance and prevent costly breakdowns.



Analytical Services for Failure Investigation

1. Fractography by Scanning Electron Microscopy (SEM)
2. Deposit Analysis by Energy Dispersive Spectroscopy (EDS)
3. Deposit characterization by XRD Analysis
4. Tensile Test at High Temperature
5. Accelerated Creep Rupture Testing

In-Situ Metallography (Replica) Services

Petromaster enhances its on-site life assessment capabilities with replication, hardness testing, which are crucial for plant integrity assessments. These services leverage the expertise of Petromaster's technical experts to provide early warnings and detailed insights into damages such as graphitization, thermal fatigue, stress corrosion cracking, and more in critical components and fire-affected equipment.



These damages are identified in Replica Services

1. Spheroidization of Pearlite
2. Creep Damage
3. Stress Relaxation Cracking
4. Grain Growth
5. Hydrogen Attack
6. Stress Corrosion Cracking
7. Sigma phase Evaluation

Remaining Life Assessment (RLA)

Petromaster excels in life assessment for high-temperature components in petrochemical and power plants, utilizing creep analysis sensitive to temperature. We employ ultrasonic techniques to nondestructively measure wall and deposit thickness, inferring metal temperature from protective oxide layers

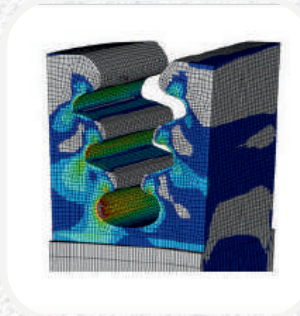


Our RLA services applies to

1. Boiler components
2. Steam-turbine components
3. Combustion turbine components
4. Hydraulic turbine components
5. Furnace heaters & Reformers
6. Hydrocrackers & HDS Vessels
7. Platformers & Coker drums
8. Welded structural components
9. Storage tanks & Pressure vessels
10. Pipes and pipelines

Fitness For Services (FFS)

Petromaster utilizes a multi-disciplinary fitness-for-service (FFS) approach to assess equipment's suitability for continued operation under various conditions. This proactive assessment helps prevent costly unplanned outages, minimize maintenance needs, and ensure safety compliance.



You can access these damages with our FFS Services

1. Brittle Fracture & General Metal Loss
2. Local Metal Loss & Pitting Corrosion
3. Crack-Like Flaws & Fire Damage
4. Laminations & Fatigue Damage
5. Weld Misalignment and Shell Distortions
6. Components Operating in The Creep Range

Boiler Condition Assessment

Petromaster ensures optimal boiler system performance with comprehensive assessment services, combining on-site inspections and advanced NDT techniques for real-time issue identification and compliance. Benefit from enhanced efficiency, improved safety through immediate maintenance recommendations and tailored solutions with precise reporting.



Key features of our laboratory analysis services include

1. Tube thickness and dimension measurement
2. Metallurgical analysis for material properties
3. Deposit analysis for foreign objects
4. Testing for hardness changes
5. Corrosion testing for degradation assessment
6. Customized reporting and recommendations

Mechanical Testing

Petromaster offers a comprehensive range of materials testing services with a state-of-the-art test lab ensuring accurate and reliable results. We specialize in mechanical testing adhering to ASTM, IS, DIN, NACE, and client-specified standards, including elevated temperature tensile testing and impact tests (izod and charpy) spanning temperatures from 50°C to 900°C.



Our materials testing services include:

1. Tensile and Bend Testing
2. Hardness Testing
3. Impact Testing
4. Accelerated Stress Rupture Testing
5. Fatigue Testing
6. Chemical Testing
7. WPS & PQR Preparation
8. Positive Material Identification (PMI)

Lifting Equipment Inspections (LEEA) Services

Petromaster, an ISO 9001:2015 and LEEA certified company, boasts qualified LEEA and NDT inspectors with extensive experience in crane and lifting equipment inspections to ASME, BS, LEEA, and LOLER standards. We specialize in comprehensive inspection, testing, verification, and certification services for all types of crane, hoisting, and lifting equipment, ensuring safety and compliance with statutory requirements.



We deal with

1. Cranes of all types
2. Forklifts
3. Lifting Accessories
4. Lifting Equipment Inspection



Technology Solutions

The diagram illustrates a multi-layered cylindrical structure, likely a fiber optic cable or a similar optical device. The layers are labeled from top to bottom: Liquid Layer, Neutral Top, Neutral Top, Neutral Top, Neutral Top, Neutral Top, Rigid Encasing, Elastic Encasing, Winding, Collimated Top, and Hooded. A central vertical line runs through the center of the cylinder. To the right, a circular cross-section is shown with a North arrow (N) pointing upwards. The cross-section is divided into three vertical regions: a central grey region labeled 'Doped-core', and two side regions labeled 'Cladding'. Below the cross-section, the text 'Screw Orientation' is written.

A small, custom-built robotic vehicle with two large black wheels and a blue motor unit, connected to a laptop displaying a camera feed.

1. Pipes
2. Vessels
3. Tubes
4. Any premises where human entry is not allowed

Reformer Tubes Remaining Life Assessment

Petromaster, in collaboration with HIS Group INC., offers comprehensive Condition & Remaining Life Assessment of Reformer Radiant tubes using advanced H-SCAN® Technology. This includes multiple NDT techniques such as ultrasonic, eddy current, and wall thickness measurements for accurate assessment and predictive analysis of tube longevity.



Comprehensive services includes

1. Reformer tube inspection and condition assessment
2. Remaining life assessment
3. Header inspection and assessments
4. Pigtail inspection and life evaluation
5. Bi-metallic weld evaluation and life prediction

Ultra Analytics (FRP) Inspection System

UTComp's UltraAnalytix™ (US Patented) inspection system ensures the safe and prolonged performance of FRP assets, significantly reducing replacement costs. It offers objective, trackable data enabling preemptive maintenance years ahead of repairs or replacements, uniquely applicable to fiberglass assets of any shape or size, operable without confined space entry.

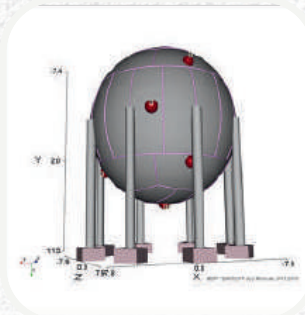


UltraAnalytix NDT is suitable for all composite materials

- Carbon fiber
- Dual laminate
- Polypropylene
- High-density-polyethylene (HDPE)
- Fiber-reinforced plastic/polymers (FRP)

Phonon Diagnostic Technology (PDT)

This technology is applicable to all static equipment, pipelines, and structures for online defect identification without interrupting production. It offers accurate diagnostic analysis, 3D defect visualization, strength calculation, residual life estimation, and operation and repair recommendations based on comprehensive defect mapping.



We provide defect detection with These insights

1. **Quantity:** Accurately counts defects.
2. **Location:** Pinpoints defect exact locations.
3. **Size:** Measures defect sizes precisely.
4. **Type:** Categorizes defect types (e.g., cracks).
5. **Severity Level:** Assesses defect severity for action priority.

Steel Wire Rope Flaw Detector - INTROS

INTROS flaw detector utilizes magnetic flux leakage (MFL) for accurate measurement of loss of metallic area (LMA) and detection of inner and outer localized flaws (LF) in steel wire ropes. Operating at speeds up to 4 m/s, it serves various sectors including mining, cranes, cable bridges, and elevators. The kit includes a Magnetic head, Basic unit, and Wintros software for data download, analysis, and real-time visualization (Wintros RTV) for specific applications.



Benefits of Petromaster's Technology

1. Accurate measurement of loss of metallic area (LMA).
2. Detection of outer and inner localized flaws (LF).
3. Inspection speed up to 4 m/s.
4. Suitable for use during rope production or operation.

Gamma Scanning

Gamma scanning has become indispensable for process engineers seeking to accurately assess the performance of their process columns. Over time, these crucial components experience changes in performance, necessitating the identification and quantification of issues.

At Petromaster, we offer the solution to this challenge. Leveraging our skilled and certified engineers alongside state-of-the-art gamma scanning equipment and expertise.

Our services in Gamma Scanning

- Tower Scanning
- Grid Scanning
- Pipe Scanning

Industries we serve in Gamma Scanning

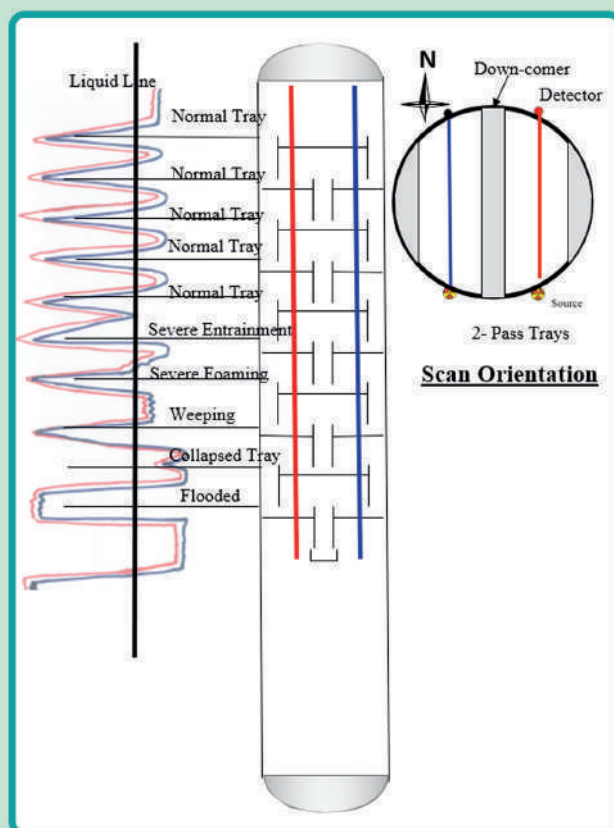
- Cement
- Refinery
- Fertilizer
- Petrochemicals
- Oil & Gas Plants
- Power Generation

Tower Scan (Trayed Column)

It helps plant engineers to pin-point and diagnose any mechanical integrity related issues with internals and its performance by checking other process related anomalies in a column;

Why Gamma Scanning

- 1.To determine any liquid being carried overhead or damage to demister pad
- 2.To check damaged, buckled or displaced trays
- 3.To determine any missing man-way panels or tray supports
- 4.To diagnose any process related issues; flooding, severe entrainment/jet flooding or puking, characteristic of foaming, weeping/dumping, blockages in down-comers, and fouling above active areas
- 5.To determine tray capacity by measuring the froth heights above the active areas and liquid levels in down-comers
- 6.To measure the liquid levels on the chimney/collector trays
- 7.To locate the bottoms liquid level at the bottom of the column

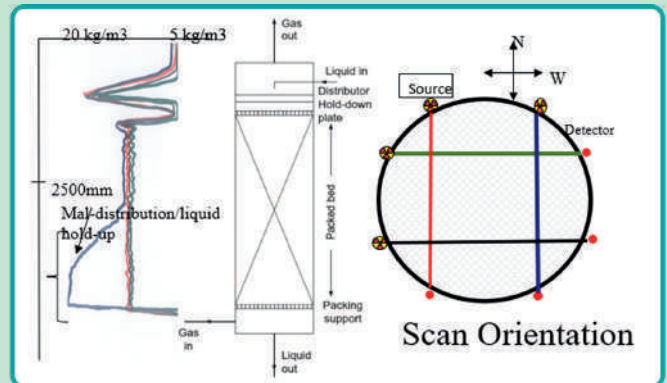


Grid Scan

It helps plant engineers to pin-point and diagnose any mechanical integrity related issues with internals and its performance by checking other process related anomalies in a column;

Uses of Grid Scanning

1. To check integrity of demister pad, liquid distributor and mal-distribution of liquid through the distributor
2. To determine placement of packed bed at the proper elevation
3. To diagnose mal-distribution of vapor/liquid through the packed bed
4. To determine any process or mechanical integrity related anomalies; liquid hold due to fouling, and crushed or damaged packing respectively.
5. To measure the relative density of a packed bed
6. To measure the liquid level on the collector tray and bottoms level at the bottom of the tower respectively.

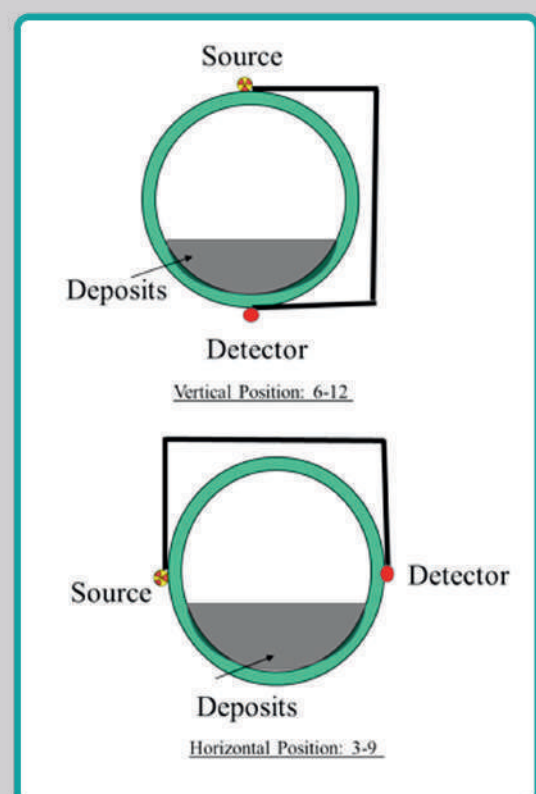


Pipe Scanning

It helps plant engineers to pin-point and diagnose any mechanical integrity related issues with internals and its performance by checking other process related anomalies in a column;

Advantages of Pipe Scanning

1. Help improving efficiency of distillation columns
2. Pinpoint for decline in performance yielding huge savings through avoidance in loss of production and wasted maintenance
3. Straightforward, quick, sensitive, unambiguous and safe
4. Identify maintenance requirements well in advance of scheduled turnarounds
5. Checking internal condition of a column prior to a shutdown.
6. Schedule parts and material condition of a columns prior to a turnaround
7. Investigate the effectiveness of antifoam addition
8. Monitor progress of fouling, plugging and corrosion



Our Clients

We are proud to work with a distinguished portfolio of clients, each representing a key sector in the industry. Our collaboration with these leading companies underscores our commitment to delivering exceptional solutions and innovative technologies. Below, we highlight a selection of our esteemed clients who have benefited from our services.



Our Projects

We provide services directly to end user

Company	Service Type
 Saudi Aramco	Riyadh Refinery: Reformer Tube Assessment Through H-Scan Tech. SAPD: MMM for buried Pipeline's Condition assessment Riyadh Refinery: Metallurgical Services
 SABIC Ibn Sina	Metallurgical Services & ROV inspection Boiler Remaining life Assessment Fitness For Services of Non- Metallic Pipelines
 Petro Rabigh	Gamma Scanning Technology Metallurgical Failure analysis Plant Inspection of underground Pipelines
 YASREF	Gamma Scanning of Stripper & Suction Drums Failure Investigation ROV Inspection
 SABIC Albayroni	Condition Assessment of Utility Boilers
 NATPET	Metallurgical Services Fire Damage Assessment
 SIPCHEM	Metallurgical Failure Investigation
 GPIC Bahrain	Sea water Pipeline's Inspection / ROV In-Situ Metallography Condition Assessment of Boilers
 Bilfinger Deutsche Babcock	Hydrogen Damage assessment of Boiler Tubes Condition Assessment of Boilers
 AXIS Inspection Ltd.	Metallurgical Services Inspection and Certifications
 QAPCO	Fitness For Services (FFS) of FRP Piping and Tanks
 SA International EGYPT	Gamma Scanning

Our Global Collaborators



Our collaboration with the lab of King Fahd University for Petroleum & Minerals (KFUPM) merges their cutting-edge research with our expertise to advance groundbreaking solutions.



Our collaboration with Jubail Royal Commission Industrial College University drives innovative advancements through their academic expertise and our research collaboration.



Partnering with European Technology Development (ETD) Consulting integrates their UK expertise with our innovation, driving pioneering advancements in advanced materials testing and consultation, leveraging their extensive experience in Power Plant materials advisory.



Petromaster is a designated licensee in Saudi Arabia & MENA countries for UTComp's UltraAnalytics Technology for Fitness for Service Assessment of Non-Metallic Assets.



We have joint collaboration with Universallab located in Switzerland for specialised materials testing requirements. Petromaster have access to full quantitative XRD analysis, SEM, EDS and advanced Mechanical testing Instruments.



Petromaster is the local representative for Energodiagnostika for the provision of Large-standoff Magnetometry (MMM) technology in Saudi Arabia.

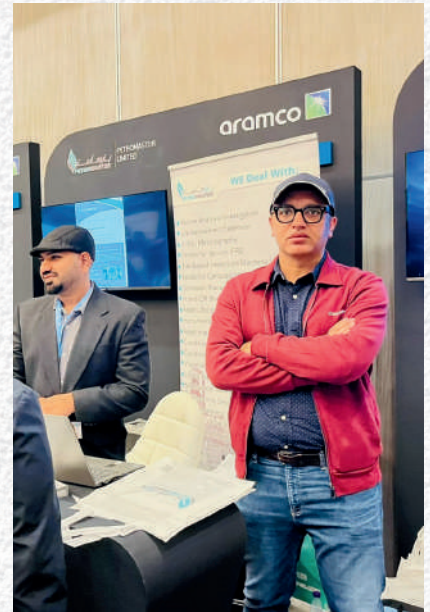


Our partnership with Intron in Russia enhances our collaborative efforts, blending their expertise with ours to drive impactful innovations.



Our collaboration on Phonon technology with Diatech enhances our collective expertise, merging their specialized knowledge with ours to drive groundbreaking innovations.

Our Presence





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Sat–Thu: 7:30am–4:30pm