

API Solutions

Advance Process Industries Solutions



www.apiadvancesolutions.com

About APIS Solutions

APIS Solutions is a leading EPC (Engineering, Procurement & Construction) and Plant Maintenance company headquartered in the Kingdom of Saudi Arabia. We deliver comprehensive industrial solutions across the oil and gas, power generation, petrochemical, utilities, and manufacturing sectors.

Operating under the brand APIS Solutions, we combine engineering excellence with advanced process technologies to ensure safety, efficiency, and sustainability in every project. Our capabilities span turnkey EPC execution, asset maintenance, plant modification, and performance optimization, supporting clients throughout the entire lifecycle of their operations.

With a skilled technical workforce, modern equipment, and a commitment to quality, APIS Solutions helps industries achieve reliable, cost-effective, and long-term operational performance—fully aligned with the goals of Saudi Vision 2030.



Chemicals



Refineries



Utilities



Power & Energy

APIS Objective

API Solutions is a diversified engineering organization committed to delivering innovative, sustainable, and technically advanced solutions to complex industrial challenges. Leveraging a global engineering network, we integrate research and development (R&D), digital engineering tools, and comprehensive aftermarket services to enhance project efficiency and asset longevity.

Our core technical team specializes in developing custom-engineered solutions tailored to our clients' operational needs. Through continuous improvement and technology integration, we enable enhanced reliability, efficiency, and value creation across multiple industries.

At API Solutions, our goal is not only to execute projects but to build long-term partnerships that drive industrial growth and operational excellence.

A One Window Solution



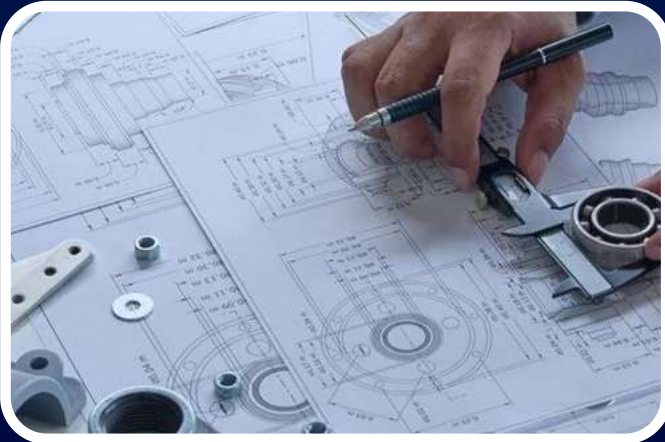
Our Services



Engineering and Corrosion solution



Manufacturing & Execution



Engineering Design



Inspection & Technical Consultancy



Advanced NDT & Digitalization

Engineering And Corrosion Solution

APIS Solutions delivers comprehensive **Engineering and Corrosion Management Services** that enhance **asset integrity, operational reliability, and lifecycle performance** across the **oil & gas, petrochemical, power, and industrial sectors**.

Our integrated approach combines **advanced engineering design, material science, and corrosion-control technologies** to meet **international standards and client-specific requirements**.

Comprehensive Support Services

- End-to-end technical support, from conceptual design and feasibility studies to detailed engineering, installation, commissioning, and maintenance.
- Mechanical integrity evaluations and fitness-for-service (FFS) assessments for operating assets.
- Process optimization and lifecycle management programs to improve asset performance and minimize downtime.
- Full compliance with API, ASME, NACE, and ISO engineering and maintenance standards.



Custom Engineering Solutions

- Design and development of custom mechanical and process systems for refineries, chemical plants, and oil & gas facilities.
- 3D modeling and system design using AutoCAD, PDMS, and SolidWorks for visualization, stress analysis, and layout optimization.
- Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD) for validation of stress, flow, and heat transfer parameters.
- Integration of instrumentation and control systems to monitor process integrity and prevent corrosion-related or mechanical failures.

Material Selection and Corrosion Studies

- Material compatibility assessments for both greenfield design and brownfield upgrades.
- Corrosion rate calculations, electrochemical testing, and environmental monitoring to guide optimal material selection.
- Recommendations for metal alloys, composites, or coatings based on process chemistry, temperature, and pressure.
- Development of Corrosion Management Plans (CMPs) aligned with NACE MR0175/ISO 15156 and related standards.
- Cathodic Protection System (CPS) design and selection—sacrificial anode or impressed current—for buried and submerged assets.



Failure Analysis and Risk Management

- Detailed Root Cause Analysis (RCA) for corrosion-induced failures using NDT techniques such as UT, MPI, RT, and Eddy Current.
- Use of Fractography, Metallography, and Spectroscopic Analysis (EDS/SEM) to identify corrosion mechanisms including pitting, SCC, and MIC.
- Development of Risk-Based Inspection (RBI) programs per API 580/581 to prioritize inspection activities.
- Implementation of Corrosion Monitoring Programs using probes, coupons, and online sensors for real-time degradation tracking.
- Preventive maintenance and mitigation strategies derived from quantitative risk assessments.

Corrosion Management Solutions

- Preparation of Corrosion Control Documents (CCDs) for process and utility systems.
- Establishment of Corrosion Loops, Piping Circuits, and Corrosion Isometrics to improve inspection efficiency.
- Definition and monitoring of Integrity Operating Windows (IOWs) and Critical Process Parameters (CPPs) for process stability.
- Deployment of Corrosion Data Management Systems (CDMS) for inspection data and degradation trend tracking.
- Adherence to API 571, API 570, and NACE SP0472 for corrosion control documentation and compliance.

Protective Coatings and Linings

- Supply and application of high-performance coatings and linings for pipelines, tanks, vessels, exchangers, and structures.
- Expertise in epoxy, polyurethane, ceramic, zinc-rich, fluoropolymer, and rubber lining systems.
- Thermal Spray Coatings (TSA/TBC) for high-temperature and offshore applications.
- Surface preparation, adhesion testing, and coating inspection (DFT, holiday testing, porosity checks) per NACE/SSPC standards.
- Implementation of Coating QA/QC Programs ensuring long-term performance under harsh environments.

Specialized Corrosion Technologies

- Corrosion modeling to predict degradation under various process conditions.
- Online corrosion monitoring integrated with IoT and digital analytics for continuous data acquisition.
- Chemical inhibition programs for internal corrosion control in pipelines and vessels.
- MIC detection and mitigation through biocide optimization and biofilm analysis.
- Life extension studies and rehabilitation strategies for aging or critical infrastructure.

Technical Expertise and Standards

- All services are executed by certified professionals (NACE, API, ASME, AWS).
- Full compliance with ASME B31.3, API RP 571, API 579-1/ASME FFS-1, ISO 12944, and NACE SP0169.
- Continuous training, auditing, and certification ensure technical teams remain aligned with current global standards and technologies.

Corrosion Under Pipe Support (CUPS) Solutions

APIS CUPS Systems utilize advanced non-metallic composite pipe supports engineered to eliminate metal-to-metal contact, preventing crevice and galvanic corrosion at support points.

- Designed for both greenfield and brownfield installations.
- Provide superior load distribution, thermal insulation, and long-term corrosion resistance.
- Fully compliant with ASME, API, and NACE standards.



Corrosion Under Insulation (CUI) Solutions

APIS Solutions provides advanced CUI prevention and mitigation systems for insulated piping, vessels, and equipment in harsh and high-humidity environments.

- CUI Detection Systems: Embedded sensors and electrochemical probes for real-time corrosion monitoring.
- On-Stream CUI Inspection: Advanced NDT including UT, PEC, RFEC, and Thermography without insulation removal.
- Mascot Coating Systems: High-performance thermal insulating coatings as alternatives to traditional insulation, reducing CUI risk.
- Marine & Wet Surface Coatings: Specialized epoxy and polymer coatings for submerged or humid conditions.
- Protective Coatings & Linings: Corrosion-resistant systems for long-term protection against moisture and chemical exposure.

SUMMARY & CORE COMPETENCIES

At APIS Solutions, we deliver end-to-end corrosion and engineering management that integrates material science, design optimization, and predictive maintenance. Our expertise ensures asset longevity, process reliability, and cost-effective lifecycle management for complex industrial environments.

Core Competencies :

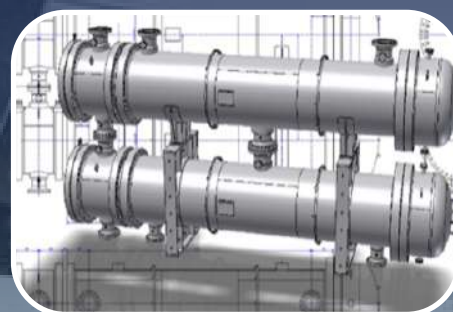
- Integrated engineering, corrosion, and asset integrity services.
- Strong foundation in API, ASME, NACE, and ISO standards.
- Proven capabilities in FEA, CFD, and digital corrosion modeling.
- Expertise in CUI, CUPS, CMP, and RBI program implementation.
- Certified professionals with deep field and analytical experience.
- Commitment to innovation, safety, and sustainable engineering performance.

Engineering Design Solutions

APIS Solutions provides integrated engineering design services that combine technical precision, safety, and reliability to meet the demands of oil & gas, petrochemical, power, and industrial sectors. Our design philosophy is centered on compliance, efficiency, and lifecycle performance, delivering projects that meet ASME, API, ISO, and NACE standards from concept to commissioning.

Comprehensive Design Engineering

- **End-to-End Design Scope:** Conceptual, basic, and detailed engineering for piping systems, pressure vessels, tanks, and structural components.
- **Compliance-Driven:** Designs developed in accordance with ASME B31.3, API 650, API 661, TEMA, NACE, and ISO 9001 standards.
- **Lifecycle Engineering:** Incorporation of Fitness-for-Service (FFS) studies, asset integrity assessments, and maintenance optimization to extend design life and ensure reliability.
- **High-Integrity Piping Design:** Thermal expansion, vibration, stress, and seismic load analysis for high-pressure systems using CAESAR II and ANSYS.
- **Thermal and Energy Analysis:** Detailed heat transfer modeling for exchangers and thermal systems to enhance efficiency and operational performance.



Mechanical & Process Design

Mechanical Design: Engineering and validation of pressure vessels, heat exchangers, columns, tanks, and static equipment per ASME Section VIII, API 650, and TEMA.

Process Design: Development of PFDs, P&IDs, and mass & energy balances to ensure optimized process performance and safety.

Equipment Sizing & Specification: Accurate selection and sizing of pumps, compressors, reactors, and heat exchangers using client specifications and Hydraulic & Flow Assurance: CFD-based simulations, pressure drop analysis, and flow optimization for reliable and efficient transport systems.

Dynamic Simulation: Use of Aspen HYSYS, Aspen Plus, and CFD tools for evaluating transient process conditions and control responses.

Plant Optimization: Bottleneck and debottleneck studies, energy efficiency evaluations, and capacity upgrade designs to improve plant productivity.

Safety & Regulatory Compliance: Incorporation of HAZOP, SIL, and risk assessments in all stages of design per API, ASME, and ISO requirements.

Design Tools & Digital Capabilities

Software Expertise: PV Elite | CAESAR II | ANSYS | Solid Edge | AutoCAD | Aspen HYSYS | Aspen Plus | CFD platforms

Simulation & Validation: 3D modeling, finite element analysis (FEA), thermal simulation, and mechanical verification to validate structural integrity under real-world conditions.

Design Deliverables: Comprehensive design packages including data sheets, fabrication drawings, specifications, bill of materials, and construction-ready engineering reports.

Scope of APIS Design Services

3D Modeling & Visualization: Development of high-fidelity 3D plant models ensuring layout accuracy, integration, and clash-free design across all disciplines.

Specialized Mechanical Design: Expert design of pressure vessels, heat exchangers, skid packages, and structural systems using PV Elite, Compress, and CAESAR II.

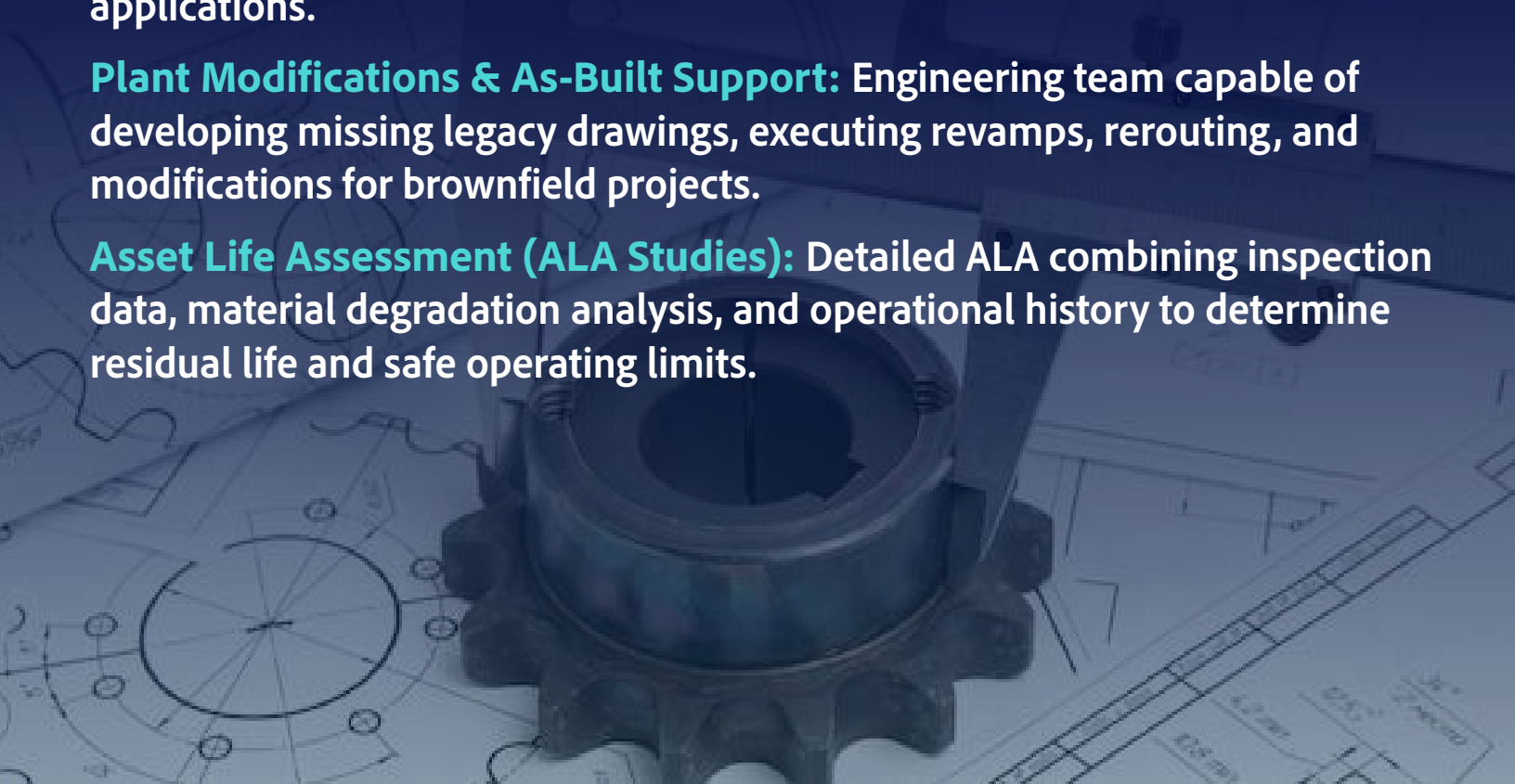
Finite Element Analysis (FEA): Advanced stress and fatigue analysis using ANSYS, performed by mechanical engineers specialized in structural and thermal analysis to confirm design robustness.

Fitness-for-Service (FFS) & Asset Integrity: Evaluation of in-service equipment as per API 579/ASME FFS-1 for remaining life assessment and asset life extension programs.

Non-Metallic Piping Design: Design and flexibility analysis for FRP, GRP, and thermoplastic piping systems in corrosive or non-metallic service applications.

Plant Modifications & As-Built Support: Engineering team capable of developing missing legacy drawings, executing revamps, rerouting, and modifications for brownfield projects.

Asset Life Assessment (ALA Studies): Detailed ALA combining inspection data, material degradation analysis, and operational history to determine residual life and safe operating limits.



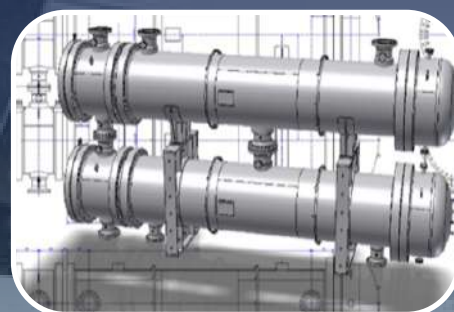
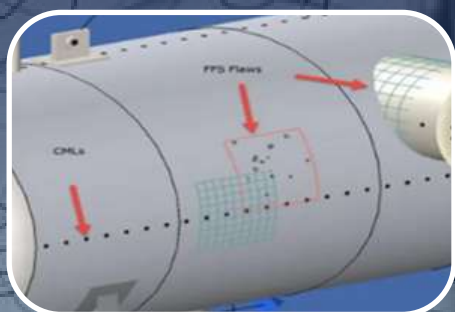
SUMMARY & CORE STRENGTHS

At APIS Solutions, our Engineering Design Division integrates mechanical, process, and structural disciplines to deliver technically sound, cost-effective, and regulation-compliant solutions.

We combine advanced simulation tools, digital design technologies, and engineering expertise to ensure every project meets client objectives with precision and reliability.

Core Competencies:

- Multidisciplinary engineering design and analysis expertise.
- Certified proficiency in ASME, API, NACE, and ISO engineering standards.
- Advanced simulation and digital modeling capabilities.
- Lifecycle-focused asset integrity and FFS evaluation.
- Proven record of supporting both greenfield and brownfield projects.
- Commitment to innovation, safety, and sustainable engineering excellence.



Inspection and Technical Consultancy

Ensuring Asset Integrity, Reliability, and Compliance Across Industrial Sectors

APIS Solutions delivers a comprehensive range of inspection, testing, and technical consultancy services designed to maintain the integrity, safety, and reliability of critical industrial assets across the oil & gas, petrochemical, power, and manufacturing sectors. Our approach integrates advanced NDT technologies, certified expertise, and data-driven integrity management systems to achieve full compliance with API, ASME, ISO, ASTM, and NACE standards.

Inspection Services

- Regular and periodic inspection of pipelines, pressure vessels, tanks, and static equipment, ensuring operational safety and regulatory compliance.
- Corrosion monitoring programs for early degradation detection and mitigation.
- Third-Party Inspection (TPI) during fabrication, construction, and maintenance activities.
- Specialized inspection for non-metallic and FRP (GRP/RTR, HDPE, PERT) systems.
- On-stream tank inspection technology enabling internal assessments without shutdown.
- Drone-assisted and laser scanning inspections (ABYSS Technology) for precision thickness mapping and corrosion visualization.
 - Detects: Coating damage, Corrosion Under Insulation (CUI), and Corrosion Under Supports (CUS).

Advanced Non-Destructive Testing (NDT)

Performed by ASNT/PCN/ISO 9712 Level II & III certified inspectors, APIS provides:

Ultrasonic Testing (UT) – Thickness and weld integrity.

Radiographic Testing (RT) – Volumetric defect detection.

Magnetic Particle Testing (MT) – Surface/subsurface flaw detection in ferromagnetic materials.

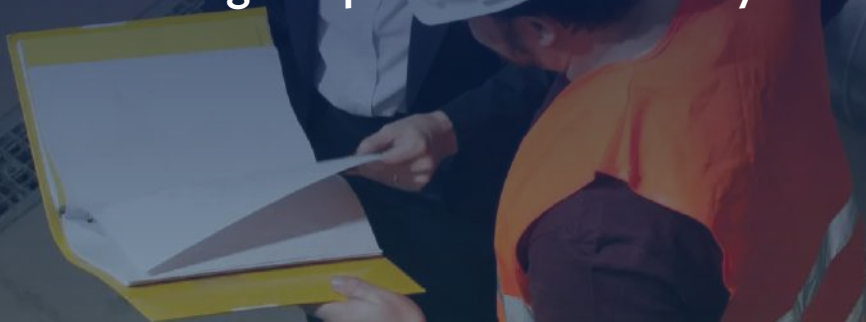
Dye Penetrant Testing (PT) – Surface discontinuity identification.

Phased Array Ultrasonic Testing (PAUT) – High-resolution weld geometry analysis and corrosion profiling.

Drone-integrated NDT systems for remote, real-time inspection data collection.

FRP and Non-Metallic Systems

- Advanced inspection and design consultancy for FRP, GRP, RTR, HDPE, and polymer-based systems.
- FRP Thermography and Borescope Inspection for internal defect and delamination detection.
- Comprehensive visual examination for UV degradation, discoloration, surface cracking, and support failures.
- Certified inspectors under ASTM, ISO, BS, and ASME RTP standards ensuring compliance and reliability.



Refractory Inspection and Consultancy

Detailed inspection and design verification of refractory linings in furnaces, reformers, and reactors.

Failure analysis and material performance reviews for process-critical equipment.

Qualification and certification services for refractory and FRP inspectors/applicators.

Technical Consultancy Services

- Feasibility studies and technical evaluations for new and existing facilities.
- Risk Assessment and Management (API RP 580/581) to identify high-risk assets and optimize maintenance.
- Design integrity audits and due diligence for operational and regulatory compliance.
- FRP design review and validation per applicable international codes.
- Advisory on API, ASME, ASTM, ISO, and NACE standards for global project compliance.



Quality Assurance / Quality Control (QA/QC)

- Development and implementation of QA/QC systems for construction, fabrication, and maintenance.
- Preparation of Inspection Test Plans (ITPs) and tailored inspection procedures.
- Vendor and contractor quality audits ensuring compliance and material traceability.
- Support for welding qualification programs including WPS, PQR, and WPQ.
- Execution aligned with ISO 9001 and client-specific quality frameworks.

Risk-Based Inspection (RBI) & Asset Integrity Management

RBI implementation in accordance with API 580/581 for both new and operational facilities.

Asset Life Assessment (ALA) to evaluate remaining life and maintenance strategies.

Laser scanning and corrosion mapping for precise damage quantification (CUI/CUS).

Development of Bill of Materials (BOMs) for greenfield and brownfield projects.

Integration of inspection data with Asset Integrity Management Systems (AIMS) for predictive maintenance.



Core Capabilities

- Certified API, ASNT, and NDT Level III inspectors with multidisciplinary expertise.
- Proven experience in metallic, FRP, non-metallic, and refractory inspection and consultancy.
- Integration of drone-based and laser scanning technologies for high-precision data.
- Global network for third-party and vendor inspections.
- Proven track record in RBI execution, QA/QC system development, and asset life management.

Summary

APIS Solutions provides end-to-end Inspection, NDT, and Technical Consultancy services, integrating engineering excellence, certified inspection expertise, and digital technologies to enhance asset reliability, operational safety, and lifecycle optimization.

Through innovative inspection methodologies, data-driven integrity programs, and adherence to international standards, APIS ensures every project delivers measurable performance, compliance, and value—supporting sustainable industrial operations in line with Saudi Vision 2030.



Maintenance, Manufacturing And Execution

Comprehensive Engineering, Fabrication, and Lifecycle Support for Industrial Assets

APIS Solutions provides end-to-end **procurement, manufacturing, maintenance, and execution services** for metallic and non-metallic industrial assets, ensuring compliance with **ASME, API, PED, and international standards**. Our approach integrates **advanced welding technologies, FRP/thermoplastic systems, and online integrity solutions** to enhance operational reliability, safety, and lifecycle performance.

Procurement Services

- Strategic sourcing of mechanical and process components, including:
 - Heat exchangers, pressure safety valves (PSVs), control and isolation valves, special-service valves for chlorine, cryogenic, and corrosive applications.
- Vendor prequalification, auditing, and performance monitoring for compliance with **quality, safety, and delivery standards**.
- Material certification and documentation review in line with **ASME, ASTM, and EN codes**.
- Expediting and logistics management to ensure **on-time delivery aligned with project schedules**.



Manufacturing & Fabrication

- Fabrication of pressure vessels (ASME Section VIII Div.1 & 2), heat exchangers (TEMA, API 660, ASME), and storage tanks (API 650/620).
- Precision fabrication supported by certified welders, inspectors, and QA/QC programs.
- Specialized services:
 - Weld overlay (cladding) for corrosion-resistant surfaces.
 - Orbital welding for tube bundles and confined spaces.
 - Hydrotesting, leak testing, and dimensional inspections per applicable codes.
- Compliance with international codes and project-specific requirements.

Vendor Management

- Vendor evaluation and auditing based on technical capability, HSE compliance, quality, and delivery.
- Subcontractor management for specialized fabrication and field services.
- Continuous vendor development programs to enhance supply chain reliability.



Welding Expertise

- Certified welding engineers skilled in TIG (GTAW), MIG (GMAW), SMAW, SAW for high-temperature, high-strength alloys.
- Weld overlay and cladding for corrosion protection and equipment life extension.
- Orbital welding and narrow-gap techniques for precision joins in restricted areas.
- QA/QC coverage: WPS/PQR development, welder performance testing (WPQ), and NDT inspection.
- Compliance with ASME Section IX, AWS D1.1, ISO 15614, and NACE MR0175/MR0103.

Plant Maintenance Solutions

- On-stream inspection and maintenance programs to prevent unscheduled shutdowns.
- Shutdown and turnaround (TAR) planning for optimized downtime and scope control.
- Preventive and predictive maintenance based on inspection data and condition monitoring.
- Rapid response teams for critical field repairs and modifications.
- Adherence to API 510, 570, 653 standards for equipment and piping systems.

Automated and Mechanized Weld Overlay Solutions

- Corrosion-Resistant Weld Overlay (CRO) using Inconel, Hastelloy, Duplex, Stainless Steel alloys.
- Automated TIG and orbital welding for precision, high-quality joins, including auto-grinding and surface prep.
- Manual and semi-automatic welding for onsite repair, internal diameter nozzles, and small-bore piping.
- Custom automation solutions for specific process requirements in oil, gas, and petrochemical industries.

Manufacturing and Repair Services

- Full fabrication and repair of pressure vessels, heat exchangers, columns, tanks, and piping.
- Online leak arresting with non-intrusive wrapping, mechanical clamps, and metal stitching.
- Weld overlay execution for carbon steel, stainless steel, alloy steel, and nickel-based materials with precise thickness and deposition control.



FRP / GRP / Non-Metallic Systems

- Manufacturing, repair, and lifecycle support for composite equipment:
 - Tanks, pressure vessels, columns, and process piping using Hetron, Derakane, and other high-performance resins.
- Lining and wrapping systems: PTFE, FEP, PVDF, PFA, ETFE, PP, HDPE for corrosion protection of metallic substrates, reinforced with FRP or GRP layers.
- Fabrication of pressure vessels and lined piping with carbon steel substrates reinforced with FRP, designed for chemical resistance to sulfuric acid, hydrochloric acid, caustics, and other aggressive media.
- FRP fittings, non-metallic piping, and thermoplastic systems designed for Chloro-Alkali, chemical, and industrial processes.
- Field execution of FRP-lined and non-metallic systems with QA/QC monitoring for chemical, thermal, and mechanical compliance.

Plant Maintenance and Execution

- Full maintenance of static and rotating equipment, pressure systems, and process piping.
- Onstream maintenance programs to prevent unplanned shutdowns.
- Certified execution teams for maintenance, repair, and inspection under API and ASME standards.
- Shutdown and turnaround support integrated with RBI and QA/QC protocols.

Core Competencies

- End-to-end procurement, fabrication, and execution under ASME, API, and PED codes.
- Automated and orbital welding systems, weld overlay, and cladding for severe service conditions.
- Full-scope manufacturing, repair, and lifecycle management for FRP, GRP, and thermoplastic systems.
- Advanced online leak sealing, metal stitching, and corrosion mitigation technologies.
- Integrated maintenance and turnaround solutions for chemical, petrochemical, and power plants.
- Expertise in acid-resistant systems (sulfuric, hydrochloric, caustic) across all non-metallic and lined equipment.

Summary – APIS Capabilities

Engineering & Fabrication: Full lifecycle design, manufacturing, and repair of metallic and non-metallic equipment.

Welding Excellence: TIG, MIG, SMAW, SAW, orbital welding, and automated overlays for critical applications.

Non-Metallic & FRP Expertise: PTFE, FEP, PVDF, PFA, ETFE, PP, HDPE systems for chemical, corrosive, and industrial media.

Inspection & QA/QC: NDT, FRP inspection, drone/laser scanning, TPI, and RBI for asset integrity.

Maintenance & Execution: Onstream, shutdown, and turnaround support with rapid response teams.

Specialty Services: Corrosion-resistant overlays, online leak repair, and Compliance: ASME, API, PED, NACE, ISO, ASTM standards fully integrated across services.

Advanced NDT And Digitalization

Next-Generation Inspection & Digital Asset Integrity Solutions

APIS Solutions integrates state-of-the-art NDT technologies, digital monitoring, and predictive analytics to enhance equipment reliability, reduce unplanned downtime, and optimize maintenance costs. Our solutions support data-driven decision-making and predictive maintenance for asset integrity and plant safety.

Predictive Maintenance (PdM) & Data Analytics

Continuous Health Monitoring:

- Real-time measurement of corrosion rate, wall thickness, temperature, pH, iron content, oxygen levels, and strain using IoT-enabled sensors and digital monitoring devices.
- Data processed through machine learning algorithms to predict degradation trends and optimize inspection intervals.

Online Thickness Monitoring:

- Continuous tracking of pipe, vessel, and tank wall thickness in critical areas to detect early metal loss and prevent failures.

Failure Mode Prediction:

- AI-driven analytics simulate mechanisms such as corrosion fatigue, erosion, stress corrosion cracking (SCC), and localized thinning.

Outcome:

- Enables proactive maintenance scheduling, minimizes unplanned shutdowns, and extends asset lifecycle.

Condition Monitoring Systems (CMS)

Vibration Analysis:

- Online monitoring of rotating machinery for imbalance, misalignment, and bearing wear using accelerometers and FFT spectrum analysis.

Spring Support Monitoring:

- Real-time adjustment of spring hangers to maintain proper pipe stress distribution, preventing fatigue.

Integrated Data Acquisition:

- CMS linked to SCADA/DCS platforms with dashboards for historical trend analysis and remote visibility.

High-Sensitivity Detection & Robotic Inspection

Infrared Thermography: Detects thermal anomalies, insulation failures, and pressurized system leaks.

Acoustic Emission (AE) Testing: Real-time detection of leaks and crack growth, identifying sub-surface flaws.

Drone-Based Inspection: High-resolution drones equipped with ultrasonic, LiDAR, and infrared sensors for tank roofs, flare stacks, and confined spaces without shutdown.

Robotic Inspection Systems: Crawlers for internal pipeline and tank inspection providing 3D mapping and visual reporting, minimizing personnel entry.

Digital NDT and Imaging Solutions

Digital Radiography Testing (DRT):

- Film-free X-ray with instant, high-resolution images and advanced defect sizing algorithms.

Digital Ultrasonic Testing (DUT):

- Precise wall thickness and flaw detection using phased array and TOFD, with 3D defect visualization and automated reporting.

FRP & Non-Metallic Systems Inspection:

- NDT for FRP, GRP, PTFE, FEP, PVDF, thermoplastic, and other industrial non-metallic piping, detecting delamination, voids, layer thickness, and lining integrity.

PA-CAT & QSR Scanning:

- Phased Array Corrosion Assessment Tools (PA-CAT) and Quantitative Surface Response (QSR) for pipe support corrosion (CUPS) and Minimum Remaining Thickness (MRT) detection.
- Fully digital outputs compatible with RBI and AIMS platforms.

Integration with Asset Integrity Digital Platforms

APIS Digital Integrity Suite:

- Centralized data archiving, trend analysis, and risk-based maintenance prioritization.
- Compliance with API 580/581, ISO 55000, and NACE SP0176.

Digital Twin Integration:

- Real-time synchronization of inspection and monitoring data with 3D plant models and P&IDs for predictive maintenance and simulation planning.

Core Capabilities

- Predictive and condition-based maintenance systems with online thickness monitoring.
- Advanced digital NDT: DRT, DUT, PAUT, TOFD, QSR for metallic and non-metallic systems.
- Drone and robotic inspection for remote and confined-space assets.
- Integration with AIMS and Digital Twin platforms for enhanced asset visualization.
- Full compliance with ASME, API, ISO, and NACE standards.

Summary – APIS Advanced NDT & Digitalization

Predictive Maintenance & Data Analytics: Real-time corrosion, strain, and thickness monitoring; AI-driven failure prediction.

Condition Monitoring Systems: Vibration, spring support, and integrated sensor networks.

High-Sensitivity Detection: Infrared thermography, acoustic emission, drones, and robotic inspection.

Digital NDT Solutions: DRT, DUT, PAUT, TOFD, QSR; FRP, thermoplastic, PTFE, FEP, PVDF systems.

Asset Integrity Integration: Digital Twin, RBI, and centralized data platforms.

Outcome: Enhanced reliability, minimized downtime, predictive maintenance, and optimized lifecycle performance.

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