المزروعي للطاقة
Mazrui Energy
A MAZRUI INTERNATIONAL COMPANY

Inspection, Repair & Services

Inspection, Repair & Services across the Energy Value Chain

- Power Plants (Oil and Gas, Solar, Water & Nuclear Energy)
- Oil and Gas & Peterochemical
- Nuclear Energy
- Marine Service
- Renewable Energy

Our technical competence include but not limited to

SSI
NDT & ROPE ACCESS SERVICES
A MAZRUI ENERGY COMPANY

About us

Sigma Specializes Inspection (SSI) – Setting the Standard in Inspection Solutions Since 1994

SSI has been a trusted leader in delivering high-quality inspection and testing services across the Middle East. Committed to safety, quality, and environmental sustainability, SSI provides a comprehensive range of specialized inspection solutions to critical industries, including: Advanced and Conventional NDT, Metallurgical & failure assessment, Asset Integrity, Lifting and OCTG inspection, Marine inspection, UAV Drone Inspection, Third party inspection services, etc. to Oil & Gas (Offshore and Onshore Oilfields), Petrochemicals, Power Generation, Nuclear, Renewable Energy, Marine and Infrastructure sectors throughout the Middle East region.

With decades of expertise, SSI remains dedicated to precision, innovation, and compliance, collaborating with clients to maintain the highest industry standards.

For over three decades, Sigma Specializes Inspection (SSI) has been the preferred choice for high-integrity inspection solutions across the Middle East. Backed by a network of trusted partners, including national and international stakeholders, EPC contractors, and key industry players, we deliver unmatched expertise in safety-critical inspections.

Sigma Specialized Inspections has a long history of delivering technical excellence, and has earned a solid reputation for:

As a result of its strategic location in the United Arab Emirates our company has a vast service reach throughtout the globe.

UAE Headquaters

Operation > Abu Dhabi - Dubai - Kuwait - Iraq - Yemen

Branch Offices > KSA - Qatar - South Iraq & North Iraq - Turkey

Our Supply Chain Network

As a result of its strategic location in the United Arab Emirates, Sigma Specialized Inspection has a vast service reach throughout the Middle East.

Our Value Proposition

At SSI, we place QUALITY, HEALTH, SAFETY & ENVIRONMENT at the forefront of our business.

We established a QHSE operational management system that sits at the core of our energy sector business practices as part of its objective to grow sustainability.

We adhere to international best practices and are diligent when it comes to quality, health, safety, and environmental regulations and procedures.

Commitment to Innovation

SSI is committed to having continuous development, training, and education programs to maintain the latest technological advances to provide the highest standard of services to clients.

SSI can provide additional services by partnering with top global companies to accommodate projects that require special equipment. The company can provide qualified manpower through the support of our Human Resources Department for specific project requirements.

Membership & Certifications

A vital part of our establishment is the certification of our inspection personnel; SSI technicians are qualified in accordance with the American Society of Non-Destructive Testing (ASNT / PCN) certification or equivalent society, to a minimum of Level II for various test methods.

24/7 QHSE

CERTIFIED
ISO 9001:2015
ISO 14001:2015
ISO 45001:2018

BRITISH SAFETY COUNCIL Member

مركز أبوظبي للصحة العامة
ABU DHABI PUBLIC HEALTH CENTRE

iirsm PARTNER

FANR

Our Services

- ASME Level-3 Services for Pressure Vessels Manufacturer
- Asset Integrity & Nuclear Inspection
- Corrosion Mapping (B&C Scan) & Time of Flight UT Inspection
- Drill Tool Inspection Services
- Hardness Testing & Coating Thickness
- Liquid Penetrant & Magnetic Particle Inspection
- MFD (Magnetic Flux Density) and MFL Tank Inspection
- Marine Inspection Services
- OMNI SCAN (PHASED ARRAY AND TOFD (Time Of Flight Diffraction))
- Pulse Eddy Current Inspection and LRUT (Long Range Ultrasonic Testing)
- PMI (Positive Material Identification)
- PWHT-Heat Treatment, Preheating & Post Heating
- QC Inspection Services
- Radiography Inspection (X-Ray & Gamma-SE75 & IR192) on Plant, Structures & Pipelines
- Rope Access NDT Services
- Thermographic Inspection/ Vibration Analysis
- Tube Inspection - IRIS, Eddy Current/ RFET & Boroscope
- Training, Qualification and Certification of NDT Technicians Level I & II as per ASNT Document SNT-TC-1A
- Ultrasonic Weld Inspection, Lamination & Thickness Measurement
- Welder/Welding Procedure Qualifications Services

Our Technical Capabilities

Sigma Specialized Inspection (SSI) has the capability to provide complete inspection solutions for fabrication in different areas:

ONSHORE

- Jack-up overhauls
- Platform Construction
- LNG & LPG tank
- Ship repair & overhaul
- Offshore Drilling Rigs
- Drilling Tools condition monitoring
- Drilling Tools Inspections

OFFSHORE

- Bridge - Civil
- Bulk Storage Tanks
- Tank frame pipe work
- LPG Bullets & Tanks
- Ship Loader Cranes
- Onshore Drilling Rigs
- Refinery shutdowns
- Drilling equipment
- Pipeline projects

PLANTS

- Pressure Vessels & Drums
- Piping & Headers
- Towers & Reactors
- Internal Trays
- Heat Exchangers
- Fired Heaters, Furnace Boilers
- Valves & Pumps
- Separators & Regenerators
- Rotating Equipment
- Crane Hooks & Lifting Equipment
- Storage Tanks

Advanced Inspection (Phased Array & TOFD)

The OmniScan MX2 is an important part of your inspection solution and can be combined with other critical components to form a complete inspection system. coupled with the COBRA manual scanner, the OmniScan flaw detector is capable of inspecting pipes ranging from 0.84 in. OD to 4.5 in. OD. With its very slim design, this manual scanner is able to inspect pipes in areas with limited access. Adjacent obstructions such as piping, supports, and structures can be as close as 12 mm (0.5in.)

Weld Inspection of Small-Diameter Pipes

When coupled with the COBRA manual scanner, the OmniScan flaw detector is capable of inspecting pipes ranging from 0.84 in. OD to 4.5 in. OD. With its very slim design, this manual scanner is ableto inspect pipes in areas with limited access. Adjacent obstructions such as piping, supports, and structures can be as close as 12 mm (0.5 in.).

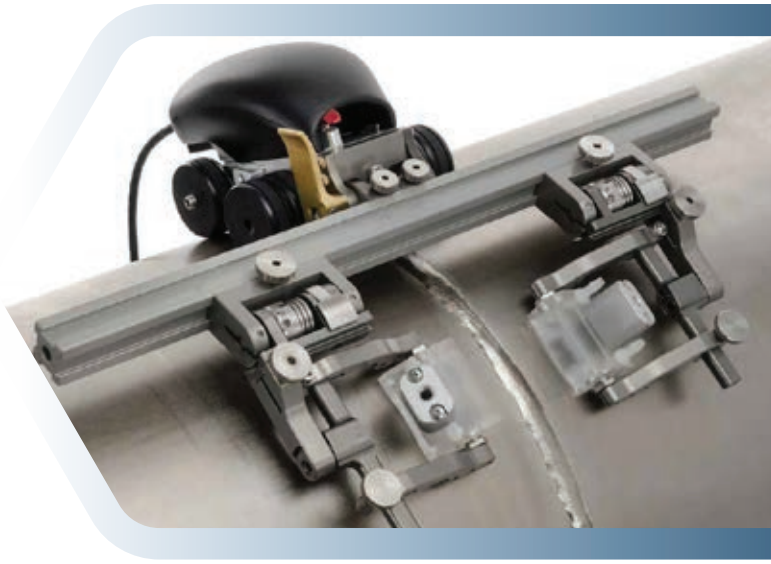
Pressure Vessel Weld Inspection

Acomplete inspection ofpressure vessel welds can be performed in a single scan using an OmniScan PA and manual scanner such as the HSMT series or a motorized scanner like the Weld ROVER. By combining TOFD and PA in a single inspection pass, a significant reduction in inspection time can be achieved as compared with conventional raster scanning or radiography. Furthermore, inspection results are available immediately, enabling you to detect problems with welding equipment and fix them right away.

Manual & Semi Automated Corrosion Mapping

The Omni Scan PA system with the Hydro FORM scanner is designed to offer the best inspection solution for detecting wall-thickness reductions resulting from corrosion, abrasion, and erosion. Inaddition, this system detects mid-wall damage, such as hydrogen induced blistering and manufacturing induced delamination, and clearly differentiates such anomalies from loss-of-wall-thickness.

For this application, phased array ultrasound technology offers superior inspection speed, data point density, and detection



Bulk Storage Tank Inspection

Bulk Storage Tank inspection can be carried out in accordance with the requirements of API 653, utilizing the latest magnetic flux flor scanner and some of the most

experienced personnel from outside of the Middle East. By these means, Sigma can now test and inspect al sections of atank and provide a report with recommendations for repair

Weld Scan

Also using Eddy Current Testing, Ferrous (butt& filet) welds can be inspected for surfaces breaking and slightly sub surface defects, especially stress fatigue cracking. Inspection can be carried out on topside and underwater on structure without removing coating, which reduces cleaning costs immensely. Furthermore, Weld Scan is a rapid inspection technique.

Heat Treatment Services

Annealing,Normalizing,Tempering,StressRelievingand Pre-Heating can be carried out at our MUSSAFAH workshop or on site

Within our workshop facility we operate a manning furnace oven, high which is automatically controlled, the range of temperature from 0° C to 1200° C with 65 KVA transformer units.

Welding And Third-Party Inspection Services

SIGMA, a member of the American Welding Society (AWS), is able to provide al aspects of weld inspection and welder qualifications. Services include the development of welding procedures. Witnessing during welder qualifications and the co-ordination of any mechanical testing

Both AWS & CSWIP welding inspectors, who are also fully qualified NDT technicians, are available for long term projects and welder qualifications. Full procedures can be run at our Mussafah facility with the addition of third party witnessing through TPI agencies

SIGMA can provide expat personnel for major contracts, British PCN level II & II inspectors for ultrasonic cross-checking or radiographic film reviewer and QA/QC documentation control throughout alaspects offabrication and construction

Thermography Inspection

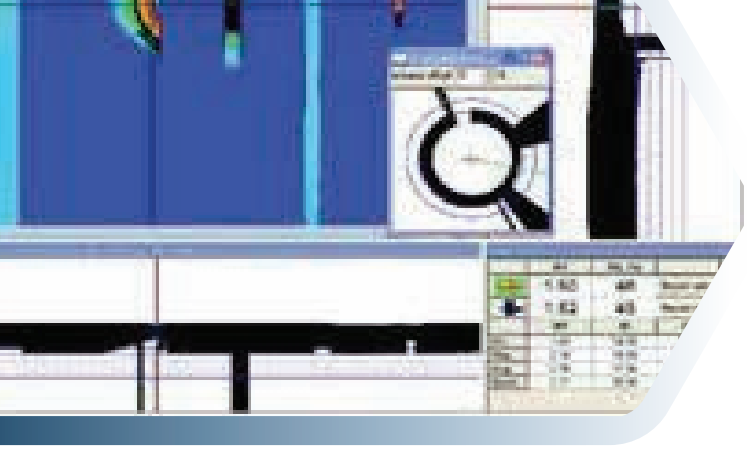
ThermographyInspectionreferstotheNon-destructive testing of parts, materials or systems through the imaging of the thermal patterns at the object's surface. Strictly speaking, the term thermograph alone refers to al thermographic inspection techniques regardless ofthe physical phenomena used to monitor the thermal changes. Forinstance,the application of a temperature sensitive coating to a surface in order to measure its temperature is a thermographic inspection contact technique based on heat conduction where there isno infrared sensor involved. Infrared thermograph on the other hand, is a nondestructive, nonintrusive, noncontact mapping ofthermal patterns or 'thermograms", on the surface of objects using some kind of infrareddetector Itisapplicablefor

- Refectory & insulated components.
- Heat exchanger leakage
- Power station.

Engineering Project Services

The project team consists of engineers, supervisors, welders, fabricators and fitters to carry out the following

- Offshore Rig repair
- Plant upgrades including refineries
- Pumping station
- Storage tanks
- Marine vessel repairs
- Electric and Power Generation Plant



IRIS

Eddy Current Testing is one of several Non-Destructive Internal Rotary Inspection System (IRIS) is used to accurately measure internal and/or external corrosion pitting.

Remaining wall thickness measure showing a cross-section and oilcumferential display of the tube material and metal loss. if any Tube duwmeter 9.5 mm to 75 mm can be tested %100 at approximately 2.5m per min depending on the condition of the tube.

Eddy Current & RFEC

Eddy Current Testing is one of several Non-DestructiveE Testing (NDT) methods that use the electromagnetism principle Conventional Eddy Current Testing utilize electromagnetic induction to detect discontinuities in conductive matenals, A specially designed coil energized with alternating current is placed in proximity to the test surface generating changing magnetic-field which interacts with the test-part producing eddy current in the vicinity.

Magnetic Flux Density (MFD)

DINSEARCH 100 is an electromagnetic system for rapid, high-resolution inspection of carbon steel tubes in heat exchangers, coolers, boilers, and smiler equipment. Ferrous tubes from 15mm to 70mm DD in the usual range al wall thicknesses can be inspected.

The wall of the tube is partially magnetized. Any loss of metal due to pitting, corrosion, erosion, or other factors, results in local variations in the level of magnetization within the tube wall. Sensors in the probe respond to these changes in the level of magnetization within the tube wall.

The traces from each tube are displayed on a computer screen, initially showing the whole length of the tube but with the facility to expand arid view any section in great detail. The data is stored on a hard disc, there is space for several thousand tubes, and can be downlported for archival storage.

Our Inspection Methods

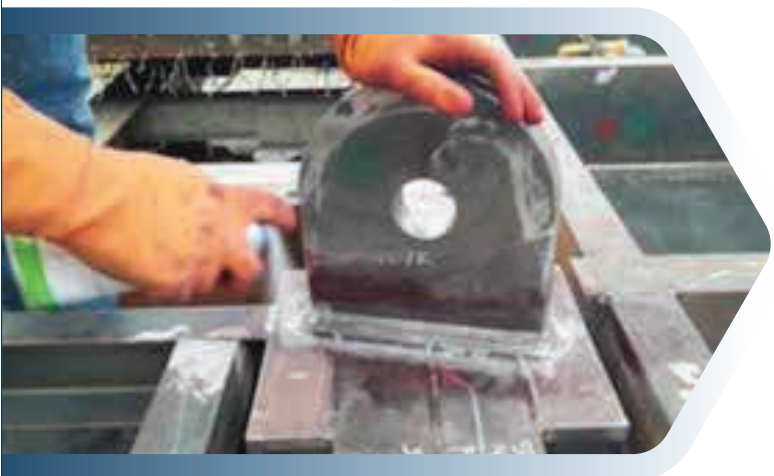
SSI offers all conventional and advanced NDT methods, utilizing state-of-the-art equipment. All equipment is easily portable for all field applications.

Ultrasonic Testing (UT)

UT is an efficient and accurate way to detect both surface and internal flaws in critical components. SSI skilled technicians perform various UT contact techniques including longitudinal wave for thickness measurements, shear wave for weld inspection, and surface wave methods.

Radiography Testing (RT)

SSI provides gamma-ray, utilizing Iridium 192 isotope. Our fleet of mobile darkrooms allows us to develop gamma-ray film on-site. We provide profile radiography to determine pipe wall thickness through insulation.



Magnetic Particle (MPT)

Magnetic Particle Testing is a low-cost method to perform a nondestructive testing (NDT) process for detecting surface and shallow subsurface discontinuities in ferromagnetic materials.

MT can find extremely small defects such as cracks, seams and laminations that could cause component failure. This method is ideal for rail maintenance or critical equipment testing such as cranes, crane hooks, forklifts, and other lifting devices.

Liquid Penetrant (PT)

SSI provides Liquid Penetrant (PT) testing to locate surface-breaking defects on any ferrous and non-ferrous materials, including metals, plastics, and ceramics utilizing fluorescent and visible methods. PT is sensitive to tiny defects such as cracks, seams, pits, and other defects open to the surface.

Positive Material Identification (PMI)

Thermo Scientific Niton XL2 Series X-Ray Fluorescence (XRF) analyzers are engineered for your most demanding needs. When speed, accuracy, and reliability count, our combination of hardware, software, and field industry experience helps meet your specific analytical requirements.

Choose the world-leading Niton XL2 analyzer or performance-led Niton XL2 analyzer — either way you get a lightweight, rugged, handheld XRF instrument perfectly suited for your particular testing applications.

Elements Range: NITON XL800 2

Titanium (Ti), Vanadium (V), Chromium (Cr), Manganese (Mn), Iron (Fe), Cobalt (Co), Nickel (Ni), Copper (Cu), Zinc (Zn), Zirconium (Zr), Niobium (Nb), Selenium (Se), Rhenium (Re), Molybdenum (Mo), Hafnium (Hf), Tantalum (Ta), Palladium (Pd), Antimony (Sb), Lead (Pb), Bismuth (Bi), Silver (Ag), Tin (Sn), Tungsten (W), Cadmium (Cd) and Gold (Au).

Tube Inspection

Tube inspection can be carried out using different inspection techniques (IRIS, ECT, RFEC, MFD, MFL) for the following industries and associated equipment:

- Power generation plants
- Petroleum and chemical plants
- LPG & Gas plants
- Pulp and paper mills
- Offshore platforms – Oil & Gas
- Fertilizer plants
- Mining industry
- Maritime industry
- Air conditioning systems
- Heat exchangers
- Boiler tubes
- Condenser tubes
- Air-finned coolers
- Air conditioning tubes
- Nuclear and renewable energy

Drilling Tools Inspection Services

We inspect a wide range of Drilling Tools such as Completion Tools, Running Tools, Logging while Drilling (LWD) and Measurement While Drilling (MWD) Tools, etc.

We inspect :

- BHA Tools
- Casing Tools
- Completion Tools
- API Thread Inspection
- DS-1 Inspection
- Rig Tools
- Fishing Tools
- LWD/MWD Inspection

Our Specialized Inspection Methods

- In-service inspection of Storage tank
- Furnace and Heater Tube Inspection
- Pipeline Intelligent Pigging (IJP Inspection)
- Remote Visual Inspection using Drones
- Digital Radiography

Rope Access NDT Services

Sigma Specialized Inspection services is well-versed in a wide range of NDT testing methods, including but not limited to the following that our trained and certified personnel perform from suspended access:

- Visual Inspection
- Magnetic Particle Testing 3321
- Liquid Penetrant
- Ultrasonic Thickness Testing

Rope Access NDT Services

- Visual Inspection and acceptance of rotary connections
- Magnetic Particle Inspection, using black light or dry powder of BHA and specialty tools
- Dye Penetrant Inspection
- Ultrasonic shear wave inspection of tool joints
- Full length electromagnetic inspection of tubular
- Inspection of full length on Drifting of tubes as per API standard

المزروعي للطاقة
Mazrui Energy
A MAZRUI INTERNATIONAL COMPANY

YOUR STRATEGIC ENERGY PARTNER FOR SUSTAINABLE GROWTH

OVER 50 YEARS OF OPERATIONAL EXCELLENCE

For more than 50 years, Mazrui Energy is the partner of choice globally for conventional and clean energy markets through its operating businesses and joint venture partnerships.

SSI
NDT & ROPE ACCESS SERVICES

ICV
برنامج المحتوى الوطني

اصنع في الإمارات
MAKE IT IN THE EMIRATES

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