



SANA ALAMAR COMPANY



Inspection & Testing Services
Gas & Energy, Oil

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Company Profile

SANA was established with the purpose of continuously providing reliable, high quality, cost effective, and technology-driven cutting edge solutions and services in Non-Destructive Testing (NDT), Quality Control QC, welding technology, Welding Procedure Specification WPS, Welder Qualification Test WQT, Procedure Qualification Records PQR as well as other engineering services such as Post Weld Heat Treatment PWHT, Lifting equipment, Hydro test, welding machine calibration & certification, painting , coating inspections and Pressure Safety Valves Calibration & Popping test.

SANA provide inspection services to the Energy, Oil and Gas as well as petrochemical primarily in Iraq.

SANA for Engineering Services Co. LTD. It was registered in Baghdad Chamber of Commerce

Our Staff

SANA operational staffs in which them a majority of whom have been employed for a number of years undergo a theory and practical examination prior to taking their respective ASNT Examinations by an Independent ASNT Level III Examiner.

Our Mission

SANA is committed to providing timely, high quality, and cost effective Non-destructive Testing, Heat Treatment, and Inspection services to the oil, gas, petrochemical, pipelines, power plants, desalination plants, construction and heavy fabrication sectors in the Iraq.

Our Vision

To achieve and maintain the highest level of customer confidence and . satisfaction

SANA
FOR
ENGINEERING
SERVICES
Energy
Oil & Gas

Iraq- Nassiriah



Our Services

- Non-Destructive Testing NDT (RT, UT, MT, PT.)
- Phased Array Ultrasonic Testing PAUT & TOFD.
- Time-of-Flight Diffraction (TOFD.)
- Quality Control Quality Assurance QA/QC.
- Third Party Inspection TPI.
- Hydro test up to 2000 bar/Leak test/Vacuum test.
- Pre-heating & Post Weld Heat Treatment PWHT.
- Surface Preparation Test (Roughness/surface profile.)
- Painting Inspection & Coating Inspection.
- Lifting Equipment & Lifting Accessories Inspection.
- Pressure Safety Valves Calibration & Popping test.
- Positive Material Identification (PMI.)
- Welding Technology, WQT, WPQR, WPS & PQR.
- Aluminum Welding Service H. Ex., Power Bus Duct.
- Welding Machines Calibration & Certification.
- [Video Inspection](#) -Borescope (10 meter length)

OUR SERVICES



NONDESTRUCTIVE TESTING SERVICES

SANA for Engineering Services is one of the leading companies in the nondestructive testing (NDT) in the Iraq by providing a wide array of conventional and state of the art analysis techniques to evaluate materials and systems. Our nondestructive testing inspectors are certified to ASNT SNT-TC-1A. Level II certifications from the American Society for Nondestructive Testing (ASNT) include: Magnetic Particle Testing (MT), Ultrasonic Testing (UT), Radiographic Testing (RT), Liquid Penetrant Testing, (PT) Visual Testing (VT)

Our teams are equipped with the latest inspection tools and technology to cater the most advanced requirements of our clients.

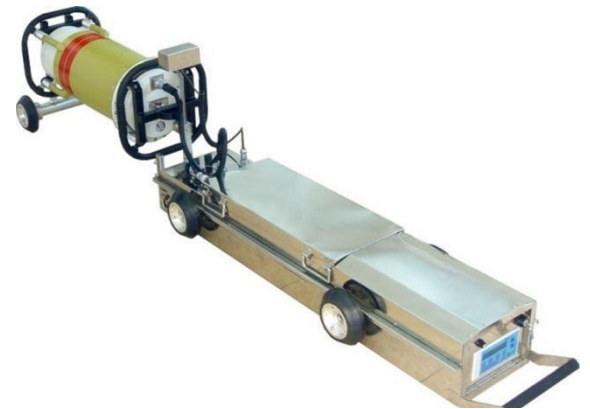
Radiography Test



Radiography is used to ensure the integrity of welded butt joints in piping, structural, tank, and pressure vessels. Radiography techniques employed by SANA Inspection include:

- Internal pipeline crawlers
- External or Directional x-ray equipment

SANA NDT Services provides a complete line of radiographic examination services. Our experienced and certified professional radiographers obtain high quality images that allow expert interpretation to determine if an anomaly or defect can be accepted under code requirements.



NONDESTRUCTIVE TESTING SERVICES

Ultrasonic Testing

ULTRASONIC THICKNESS MEASUREMENT

Ultrasonic Thickness Measurement (UTM) is frequently used to assess corrosion, erosion, and mechanical damage of the structural materials on tanks, vessels, piping, castings and structural steel. The testing is accomplished with portable equipment and the results are evaluated to industry standards, codes, or customer specifications.



SHEAR WAVE/ANGLED BEAM

Shear Wave sometimes referred to as angled beam ultrasonic testing is a portable testing method that offers an effective test for weld inspection in pipes, pressure vessels, plates or in areas that other test methods are not feasible or practical. The shear wave method is great for fusion type defects or cracks, whether it is in a weld or on the specimen itself.



Magnetic Particle Inspection

Magnetic Particle Inspection (MPI) is used to detect surface and subsurface cracks in ferromagnetic materials such as iron, nickel, cobalt, and some of their alloys.

MPI is also used on cut and beveled pipe ends before welding to make sure there are no parent material flaws. MPI is also used by SANA Inspection to detect surface cracks after grinding or machining operations.



NONDESTRUCTIVE TESTING SERVICES

Liquid Penetrant Testing

A highly effective surface analysis technique, Liquid Penetrant Testing (LPT) is used by SANA Inspection to detect cracks and other surface breaking flaws. Special equipment is available for the testing of turbines, compressors, and pumps.



Visual Inspection & Video Inspection

Visual Testing (VT) is the most common and usually first NDT examination step when the inspector using his eyes to detect any visible discontinuities and also to interpret visual data from other NDT processes. Inspections may require use of magnifying glasses, mirrors or Borescope for a closer look or viewing material in limited access locations.

SANA NDT Service's engineers and technicians have the training and experience to perform accurate visual tests to identify various types of discontinuities.



Phased Array Ultrasonic Testing PAUT

Advanced Ultrasonic Inspection

The Phased Array Ultrasonic Testing (PAUT) technology has made rapid changes in inspection and reliability in various industries. Ultrasonic phased arrays are a new technology that offers considerable potential for inspecting construction welds.



Ultrasonic Phased Array in Lieu of Radiography

Many codes allow for the substitute of one method of stated nondestructive evaluation (NDE) for another as long as certain requirements are met.

On the grounds of safety alone the justification for an alternative method of non-destructive testing was apparent.

Phased Array however is a view-able ultrasonic inspection that has different possible views on screen in real time. Sectorial scans, C Scans, B Scans, Conventional A scans can all be viewed and manipulated for best interpretation. This gives you an image from the top and also the side. This reveals the length, height, and depth of a flaw.



QAQC / TPI Third Party Inspection Services

Our Integrated Third Party Inspection team represents interest of client throughout the project and our service ensures right & cost effective solutions for the project requirements. We are providing the services by our experienced AWS/CSWIP /BGAS certified inspectors to carry out QA/QC inspection and Plant inspectors qualified with API 570/650 our scope below to our esteemed client with excellent customer satisfaction. As a third-party consultant, we work with owners, manufacturers and contractors to perform quality assurance services, assess the effectiveness of testing procedures and the correctness and accuracy of testing results.

We also provide project specification review to evaluate project compliance with International standards.

Our inspection competence include

- In service storage tank inspection and certification as per API 653
- Design /Drawing review for the new storage tanks as per API 650
- In service pipe line inspection as per API 570
- Pressure vessel inspection and certification as per API 510
- Pre shipment inspection/Load out inspection at ports
- Welding Inspector hiring as per project requirement monthly or daily basis
- Coating/Painting inspector hiring as per project requirement
- QC inspector hiring as per project requirement
- Welder Qualification Witnessing, Welding Procedure Preparation, Welder Certificate Renewal
- Hydro test witnessing &Pneumatic test witnessing
- Dimensional inspection, Structural alignment and bolt tightening inspection
- Coating condition monitoring services
- Coating pull of test witness and reports endorsements as a TPI
- Blasting and coating inspection and visual test as per client spec as a TPI
- Material receiving inspection and report submission as a TPI agency
- Industrial integrity test like boiler (Fired and unfired) and other upstream lines

Engineering Services

Our Services offering
Cost Effective Design & Development
solutions within quality & Time.

Welding Machine, Portable Ovens & Mother Ovens

Calibration & Certification aquiver



SANA had been considered one of the most famous companies in using a calibrated welding machines and what made it special in this field was clarified below: Calibrations performed by most other companies utilize a hand held clamp-on amp meter and standard volt meter and the readings are taken while the operator is welding at one output setting. We utilize a resistance load bank specifically designed to test and calibrate the output from welding machines.

Using this we can vary the load applied to access readings and output levels that cannot be attained while welding allowing us to verify readings from minimum to maximum instead of just at the welding parameter the machine is currently set up for (wire size, stick electrode size etc.) ensuring accuracy throughout the entire output range of the machine.

Also the output of the machine and the readings are unstable while welding and vary with changes in the arc length and other factors. When a resistance load is applied this is overcome and the readings are extremely stable and machine outputs can be verified within 1 amp and 1/10 of 1 volt.

Features & Skills

- We utilize the latest in test equipment and procedures allowing for increased accuracy.
- We offer in-house as well as on site repair, maintenance & calibration service.
- Same day and emergency repair available.



POST WELD HEAT TREATMENT-PWHT

All heat treatment services are designed to minimize downtime, improve structural integrity, and enhance effective plant life.

During the welding process, the two metal pieces being joined are subject to extreme temperatures and can cause the crystalline structure of the metal to pass through various metallurgical phases. As a result, hardening and embrittlement of the metal can occur to varying degrees (usually dependent on carbon content.) Heat treatment is designed to reduce the hardness in the heat affected zone of the metals and also increase ductility in these sections.

Local Post weld heat treatment for carbon steel and alloy steel piping welds P-22 P91... by means of the electrical resistance method and up to 1000 c. degree, in the form of ceramic heater pads and by using electricity as source of heating for stress relieving of weld joints offered by AL ASAS.

Calibrated machines and qualified operators who are experienced in providing various heat treatment services, on-site include pipework, welded fabrications, and small pressure vessels offered by AL ASAS.



PRE-HEATING

Preheating

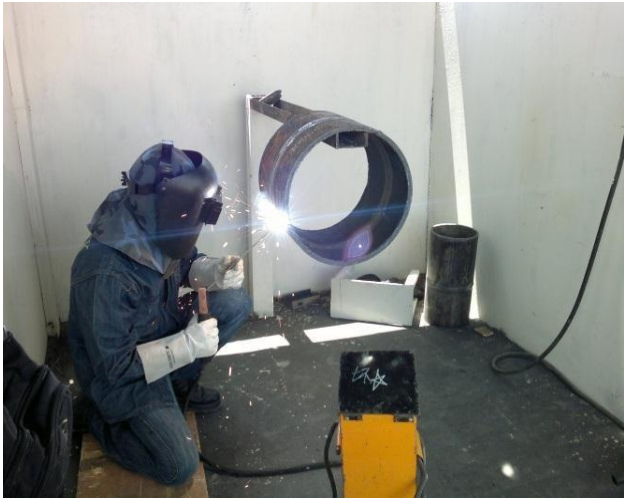
Preheating involves rising the temperature of the parent material locally, on both sides of the joint to a value above ambient.

The need for preheat is usually determined by the pertinent fabrication code and verified by the weld procedure qualification test. Preheat may be required as an aid to welding for one of the four basic reasons:

- To control the rate of cooling.
- To control the diffusion rate of hydrogen in a welded joint.
- To reduce thermal stresses.
- Compensation for heat loss.



WELDER PERFORMANCE QUALIFICATION WELDING PROCEDURE QUALIFICATIONS RECORD WELDING PROCEDURE SPECIFICATIONS



Welder Performance Qualification WPQ

The WPQ record indicates the ability of the welder or welding operator to deposit sound weld metal. SANA conducts destructive and non-destructive tests on a weld coupon provided by the welder to determine whether the welder is capable of producing a good weld quality using the welding processes, materials and prescribed procedures. Upon passing the procedure requirements, a welder is given a qualification record (WPQR) specific to the procedure weld variables.

Welding Procedure Qualifications Record /WPQR

Following a variety of international codes and standards, we perform welding procedure qualification tests on your welded samples to determine compatibility of welding consumables and base materials. We conduct our radiography and mechanical tests to comply with American Society of Mechanical Engineers (ASME), American Welding Society (AWS), American Petroleum Institute (API), and project specifications.



Welding Procedure Specifications / WPS



SANA NDT Services is well versed in Welding Procedure Specification development. We develop the Welding Procedure Specifications to be used to get acceptable Welding Procedure Qualifications that will satisfy most international codes and standards.



& Lifting Equipment Lifting Accessories Inspection

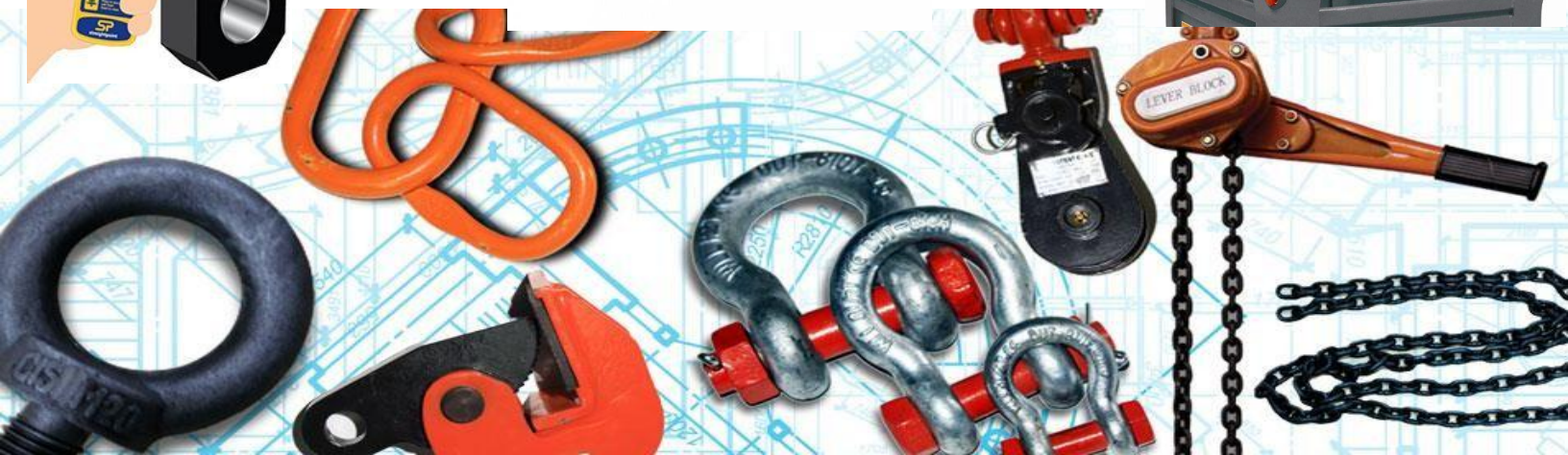
SANA will provide qualified and certified inspectors have LEEA team card using updated level of testing equipment to perform NDT and load test for all lifting equipment & lifting accessories such as Mobile Crane, Overhead Crane, Forklift, hiap, Front end loader, side boom, baskets, shackles, wire rob sling, rings, links, hooks, chain sling, textile sling ...etc.

sNDT tests

Performing nondestructive tests, visual test, penetrant test, magnetic test and ultrasonic test on lifting points, hooks, links, shackles and all welded joints subjected to stress to detecting cracks. ASNT LEVEL II inspector will conducting tests.

Load Test

SANACompany will conduct a load testing by modern load cells and a valid calibration certificate.



HYDRO TEST

Strength testing is a technique used in the oil and gas industry to prove the mechanical strength and integrity of pressure containing components in a system.

Hydro testing of pipe work, pipelines and vessels is performed to expose defective materials that have missed prior detection, ensure that any remaining defects are insignificant enough to allow operation at design pressures, expose possible leaks and serve as a final validation of the integrity of the constructed system. ASME B31.3 requires this testing to ensure tightness and strength.

Hydrostatic testing has long been used to determine and verify system integrity. Several types of information can be obtained through this verification process as well as there are several types of flaws that can be detected by hydrostatic testing, such as:

- Existing flaws in the material
- Actual mechanical properties of the pipe
- Localized hard spots that may cause failure in the presence of hydrogen.



SANA will provide hydro test services up to **2000 bar** and all requirements for hydrostatic test such as filling pump, pressurizing pump, pressure & temperature recorders, pressure gauges, temperature sensors, dead weight tester, fittings & pressure hoses.

PNEUMATIC TEST

Many people do not know or are not realize that a Pneumatic pressure test can be very **dangerous**

The purpose of pneumatic strength testing is to verify that a system may be safely subjected to its maximum operating pressure by testing it beyond its designed pressure limit. The pneumatic strength test uses air, or an inert gas medium such as nitrogen, to pressurize the system to 110% of its designed pressure limit. A holding period is then applied for a fixed amount of time and the results monitored to determine the safety and integrity of the system.

Benefits of pneumatic testing:

- Pneumatic testing is widely used to achieve minimum down time and economy and convenience of testing as compared to hydrostatic tests.
- It is also useful to detect very fine leak paths which may not be found in Hydrostatic testing.
- No need to dry or clean the system after testing
- Will not lead to contamination of pipelines or systems



In circumstances when hydrostatic testing is not possible, for instance, the weight of hydro test water is too high for the pipe support system (e.g. gas service piping) and when the introduction of water to the piping may be detrimental to the process (e.g. cryogenic service system), then the components or system can be tested with nitrogen. Since the test medium is gaseous, it has the ability to compress and contain a large amount of stored energy (typically 200 times greater than a hydrostatic test at the same free volume and pressure condition). Extreme caution is required when using this technique. However, the specialized team at SANA will ensure design specifications are reviewed and a detailed risk analysis completed before testing.



VACUUM TEST

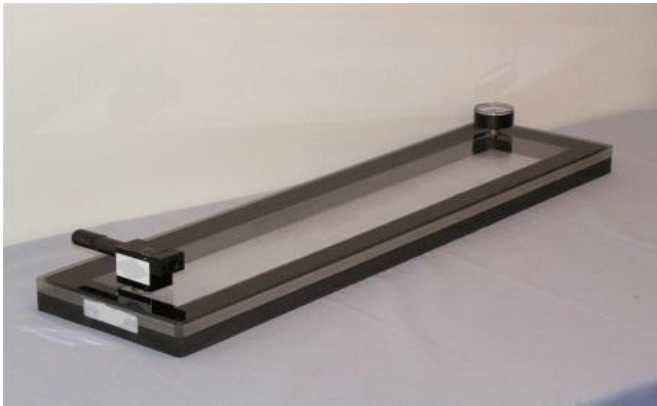
Vacuum box testing or Bubble leak testing is one of the NDT (Nondestructive testing) methods used to detect leaks in welds and confirm the weld quality. This inspection process is recommended by international standards.



Vacuum box

is a portable box having a viewing window large enough to view the complete test area and to allow sufficient light to enter the box for proper examination. The box used, shall be capable of producing and holding a pressure differential of 5 to 12 psi.

Overlap, corner and flat vacuum boxes, offered by SANAt do vacuum test for tanks (bottom plate, shell to bottom, pantoons.(...)



**CO. ENGINEERING SANA
SERVICES**



PAINTING & COATING INSPECTION



Protective coating Inspection Services

Highly-trained painting inspectors provides QA inspection of the painting process on behalf of facility owners offered by AL ASAS in order to provide a greater degree of confidence that the workmanship and QC efforts of the contractor conform to the painting specification and contract documents. This is accomplished through review of QC documentation, daily and periodic visual observations.



Quality Control inspector performs paint inspection services during active surface preparation or coating application. This service includes required QC documentation, daily and periodic visual observations, confirmatory testing and in-process QC testing of critical coating application hold points such as surface profile.

SANA painting inspector is qualified in accordance with SSPC.

Coating Inspection



Quality Control coatings inspector will performing Holiday test and Peel test for applied Heat Shrinkable Sleeve HSS on pipe lines by advanced equipment.



SURFACE PREPARATION

Surface preparation

For any given paint system, surface preparation is the single important factor which would determine its performance or the performance of any coating is directly dependent upon the correct and thorough preparation of the surface prior to coating.

The most expensive and technologically advanced coating system will fail if the surface preparation is incorrect or incomplete.

Surface preparation can be broken down into two main categories.

- Surface Profile
- Surface Cleanliness



Surface profile or Anchor Pattern

Is the determination of the roughness of the surface and for painting purposes involves depth of the profile, peak density and angularity of the profile.

Most paint systems require an Surface profile characterized by a surface roughness and a roughness profile to obtain proper adhesion.



Surface Cleanliness

Involves determining how much of the original mill scale, rust and paint have been removed from the surface as well as how much invisible surface contamination is present usually in the form of salts.

Every joint shall be inspected for surface cleanliness. The surface shall be cleaned to achieve a minimum surface cleanliness of Sa 2½. Surface that do not comply with the requirements shall be rejected and cleaned again and the surface shall remain at Sa 2½ until application of coating.



Positive Material Identification (PMI) Test Guns

Positive material identification (PMI) is an essential non-destructive testing method utilized to verify that supplied materials conform to the proper standards and specifications. It is used to analyze and identify material grade and alloy composition for quality and safety control.

At Oil and Gas, power generation and petrochemicals plants, pre-service and in-service inspection of critical components and welds with PMI can prevent breakdown and its costly consequences.

Ensure the integrity of your pipelines and critical process equipment

When it comes to Positive Material Identification (PMI) (SANA offers PMI testing services through experienced, trained personnel who can assure quality of service and provide a fast, easy and completely non-destructive analysis method for every metal component: Handheld X-ray fluorescence (XRF) analyzers

Whatever industry you are in, alloy component reliability, traceability, and safety are of the utmost importance. Whether you are testing small solder joints on circuit boards or miles of pipeline in a petrochemical refinery.



PMI can:

- Ensure Your Material Conforms to the Proper Specifications
- Ensure products/components have been manufactured using the correct alloy
- Find potentially mixed-up alloys
- Identify if the wrong material has been used
- Ensure material conforms to the correct standard and specification (both customer and industry)
- Ensure welded components have used the correct filler material
- Highly specific and accurate results, essential to good quality control

Pressure Safety Valve / Safety Relief Valve Calibration & Testing



The primary purpose of a safety valve is the protection of life, property and environment. A safety valve is designed to open and relieve excess pressure from vessels or equipment and to reclose and prevent the further release of fluid after normal conditions have been restored.

A safety valve is not a process valve or pressure regulator and should not be misused as such. It should have to operate for one purpose only: overpressure protection. It is important to ensure that

the safety valve is capable to operate at all times and under all circumstances.

SANA trained staffs assemble the valves regarding to the drawings and manuals of equipment.

Our portable Relief Valve Test Bench Model is designed to perform hydrostatic and pneumatic testing on various flanged and threaded relief valves with air, water or nitrogen as the test media at up to **.3,000**



We are calibrating Pressure Safety Valves / Safety Relief Valves according to its set pressure. Afterwards we are performing test as per API standard.



Aluminum Welding Service

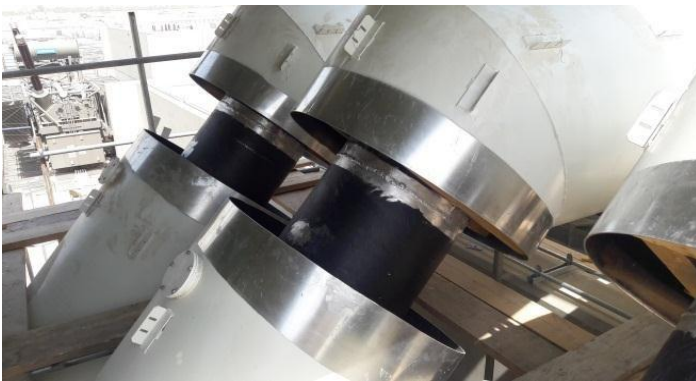
SANA FOR ENGINEERING SERVICES

Focus primary on what the customer wants and our goal for every project is to remain true to our customer's idea and what is expected of us.

Our objective is to become the most diversified company that specializes in Aluminum welding services in Iraq by providing our customers with the highest quality services at the best prices.

Aluminum welding is performed per AWS D1.2 specifications. Aluminum welding can be easily done using MIG or TIG welding processes depending on the project, aluminum series selected, and environment the component will be used in.

We are a prominent name involved in offering our clients a reliable range of Aluminium Welding Service. Backed with state-of-the-art facility, our skilled professionals are capable for offering an efficient welding service for a variety of projects.





Our Projects

Contact Information



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