

YOUR INDUSTRIAL SOLUTION PARTNER

Integrated Weld Improvement and Non-Destructive Testing



As GNS Quality Control and Engineering, we are an independent quality assurance and engineering firm with over 16 years of international experience in the heavy industry and manufacturing sectors.

We verify the compliance of products with relevant standards, technical specifications, and customer requirements in casting, forging, and welded manufacturing processes. We identify nonconformities and provide engineering support to enhance quality performance.

Leveraging our field experience in critical industries, we develop reliable, sustainable, and high-value-added quality solutions.



Our Strategic Difference: While many quality control organizations in the sector limit their activities to identifying existing nonconformities, we integrate advanced Non-Destructive Testing (NDT) technologies with advanced weld improvement and stress relief processes. Through this holistic approach, we not only detect defects but also mitigate the risks that cause them, enhance welding performance, and extend the service life of equipment.



Our International Competencies

Through our inspection and engineering activities conducted in compliance with **EN ISO** and **ASME** standards as well as customer specifications, we serve as a reliable solution partner in the quality verification and acceptance processes of equipment, structures, and components exported abroad and used in international projects.



Our Vision

To be a globally pioneering engineering partner that sets the global standards in non-destructive testing, quality control, and weld improvement technologies, ensuring sustainable quality, maximum operational life, and zero downtime in the casting, forging, and welded manufacturing sectors.

Our Mission

With our profound field expertise and engineering background, our mission is not only to audit projects for compliance with international standards but also to extend the fatigue and service life of structures, reduce manufacturing costs, and provide high value-added, lasting solutions for industrial production through our advanced welding and surface improvement processes.



ADVANCED WELD IMPROVEMENT PROCESSES

We offer weld improvement solutions compliant with international standards to increase the reliability, strength, and service life of welded structures.

A. Post-Weld Heat Treatment (PWHT)

Through PWHT applications, we reduce internal residual stresses formed after welding, increase material strength, and extend the safe service life of structures.

B. High-Frequency Mechanical Impact (HFMI/PIT)

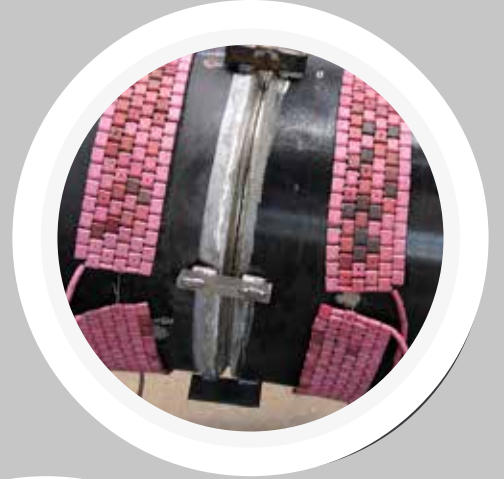
Using HFMI technology, we increase the fatigue life of welded structures by 5 to 10 times depending on application conditions, thereby reinforcing the reliability of critical components.

C. Sustainable Repair and Optimization Processes for Cast Materials and Critical Components

We repair mechanical damages occurring in casting components during machining and operational use through qualified methods. By extending part life with these operations, we prevent critical components from being scrapped, reduce production costs, and ensure resources are utilized with optimum efficiency.

D. Welding Engineering Services

We prepare Welding Procedure Specifications (WPS/ WPQR) tailored to material properties for steel castings and high-alloy parts. We manage repair welds for casting defects in accordance with ASME Section IX and EN ISO 3834 requirements, planning, tracking, reporting, and supporting welding operations with continuous improvement activities.



OUR FIELDS OF OPERATION

We place our international experience, gained in sectors where fault tolerance is critical, at the service of modern production processes.



Non-Destructive Testing (NDT) and Engineering Integration

We guarantee the success of our Weld Improvement processes with comprehensive inspection processes conducted before and after application. With our in-house ISO 9712 Level II and Level III experts at GNS, we determine and implement the most appropriate testing scenarios based on manufacturing specifications.



Our Advanced NDT Methods



VT (Visual Testing):

We detect surface discontinuities; analyze weld geometry and welding defects.



MT / PT (Magnetic Particle & Liquid Penetrant):

We detect and evaluate surface and near-surface discontinuities.



UT (Ultrasonic Testing):

We detect volumetric discontinuities in the internal structure of casting, forging, and welded structures.

Welding Consultancy & Standardization

We offer comprehensive engineering support to industrial facilities to prevent defects before they occur.



Welding Procedure Qualification (WPS&WPQR):

We prepare material- and method-specific welding procedure specifications and manage the approval processes.



Quality Management System Consultancy:

We support the establishment, implementation, and sustainability of international quality standards, primarily EN ISO 3834, for companies performing welded manufacturing.



Repair and Heat Treatment of Materials

We ensure the procedural repair of casting defects and mechanical damages incurred during use; we offer post-weld heat treatment services.

Welded Repair Management in Casting and Forging Industries

Welded repair processes are critical in eliminating defects such as voids, slag, and inclusions encountered in the production processes of casting and forging parts. As GNS Quality Control, we develop customized repair procedures aligned with the part's chemical composition and heat treatment history. By ensuring welding fillers form a reliable and compatible bond with the base metal, we prevent parts from being scrapped and achieve significant cost savings.

? Why GNS?

Strategic and Economic Benefits

The measurable advantages gained by manufacturers opting for GNS Quality Control and Engineering solutions are summarized below:

Operational Area	Traditional NDT Approach	GNS Integrated Weld Improvement Model
Defect Management	Detects and reports defects; leaves repair responsibility to the manufacturer.	Detects defects, analyzes their root causes, and implements permanent improvement methods.
Part Life and Durability	Ensures the part merely stays within existing standard limits; offers no additional process to increase fatigue life.	Increases the durability and fatigue life of the part through post-weld HFMI or stress relief heat treatments (PWHT).
Cost and Scrap Rate	Defective casting and forging parts are often scrapped or repaired without adequate engineering infrastructure.	Enables the safe recovery of parts for reuse through advanced welding procedures (WPS/ WPQR) and creates substantial cost savings.

Our Additional Services

Project and Order Tracking	We closely monitor our customers' supply chains and production processes; we ensure projects are completed in accordance with the specified schedule, budget, and technical specifications.
Process and Manufacturing Controls	We conduct critical process controls at all manufacturing stages from raw material to final product, applying precise measurements, paint thickness, adhesion, and hardness tests suitable for material or part characteristics, and report the results.
Witnessing and Verification of Operations	With our independent and impartial auditing approach, we offer surveillance and test witnessing services compliant with international standards during the manufacturing, testing, and commissioning phases.



GNS Quality Assurance

We secure your manufacturing quality with over 16 years of field experience and innovative engineering solutions; we increase equipment life and operational efficiency.



YOUR EXPERT

SOLUTION PARTNER

IN NDT AND WELD

IMPROVEMENT



GNS KALİTE
KONTROL ve MÜHENDİSLİK



GNS QUALITY CONTROL AND ENGINEERING

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