element

IMMERSION ULTRASONIC TESTING FOR THE OIL & GAS INDUSTRY

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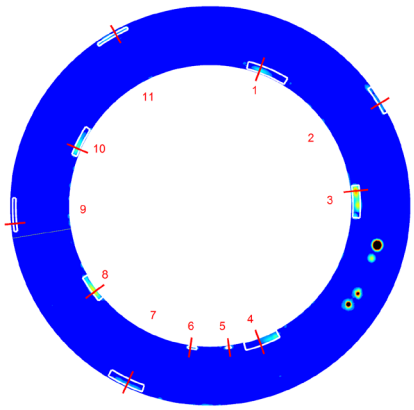
IMMERSION ULTRASONIC TESTING



ADVANCED IMMERSION ULTRASONIC TESTING SPECIFICALLY FOR PIPELINE GIRTH WELDS IN THE OIL & GAS INDUSTRY.

Operators and pipeline contractors need absolute confidence in the accuracy and reliability of Automated Ultrasonic Testing. Element offers advanced Immersion Ultrasonic Testing for the validation of the probability of detection to minimize the risk of substantial repair and recovery costs once the pipeline is in situ.

ABOUT ELEMENT

Element is a leading global provider of Testing, Inspection, and Certification services on a wide range of products, materials, processes, and services for a diverse set of end markets, where failure in service is simply not an option. Element's scientists, engineers, and technologists, working in our global network of over 200 laboratories, support customers from early R&D, through complex regulatory approvals and into production ensuring that their products, materials, processes, and services are safe, compliant, and fit for purpose.

ELEMENT'S IMMERSION ULTRASONIC TESTING SERVICES

To ensure the integrity of welds in oil and gas pipelines, Element has advanced capabilities in Immersion Ultrasonic Testing (IUT) services available for the global oil and gas sector. Our IUT services can help you to identify:

- Cracking
- Inclusions
- Incomplete penetration
- Lack of sidewall fusion
- Porosity
- Other weld strength defects

We assist you in producing girth welds, using a standardized procedure for Automated Ultrasonic Testing (AUT) validation applied globally across our network of laboratories.

IUT evaluation is described in the DNVGL-ST-F101 and DNVGL-RP-F118 standards. Applying the standard results in executing a double-sided scan including a critical evaluation of the data and the indications identified.

Depending on the base and welding material, bevel design and application of CRA's, different material preparation and analysis principles are applied.

THE PROCESS

As there are numerous possibilities for applying IUT for girth weld inspection, Element has developed a flexible procedure:

- Requirement assessment
- Procedure development
- Production of dedicated calibration block, including sensitivity and calibration Flat Bottom Holes (FBHs)
- Pre-scanning of the material for method optimization (when required)
- Scanning and reporting in accordance with the procedure

ENHANCED LEVELS OF ACCURACY

The technique enhances the evaluation of the Probability of Detection (POD) provided by AUT.

Deliberately flawed seeded test welds are first examined by the AUT system under qualification, they are then inspected by IUT prior to physical sectioning for definitive confirmation of the size of the known flaws. The testing service is particularly relevant in identifying smaller defects and in clarifying clean areas because of the high accuracy robotics and controlled immersive testing environment.

An increased number of defects can be identified through this service including cracking, porosity, incomplete penetration, inclusions, lack of sidewall fusion and related defects that can compromise the pipeline's girth weld strength.

ADDITIONAL RELATED SERVICES

Element procedures for IUT utilise a double sided scan with critical evaluation of the data and indications identified

- Mechanical Testing
- Fracture Toughness (also in-situ) Testing
- Weld Procedure Qualification Testing (WPQT)
- Sour Service Corrosion Testing (SSC)
- Macro Validation (Salami Slicing)
- Full Ring Corrosion Testing (FRT)
- Steel Catenery Riser Fatigue Testing (SCRF)
- Engineering Critical Assessment (ECA)
- Finite Element Analysis (FEA)

For more information about our testing methods or to request a quotation, contact us on +44 808 2341667 quoting ref IUT or email us at energy.sales@element.com

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