

# NON-DESTRUCTIVE TESTING



**BUREAU VERITAS HAS AN EXTENSIVE RANGE OF NONDESTRUCTIVE TESTING (NDT) CAPABILITIES THAT MEET YOUR PROJECT CHALLENGES AND INSPECTION NEEDS. ALL OF OUR NDT TECHNIQUES AND TECHNOLOGIES ARE CERTIFIED TO INTERNATIONAL STANDARDS. WE EMPLOY STATE-OF-THE-ART EQUIPMENT AND EXPERIENCED PROFESSIONALS TO PROVIDE YOU WITH CONFIDENCE AND ASSURANCE.**

Nondestructive Testing (NDT) is an essential tool used to enhance the quality and productivity of a project from creation to completion. It addresses early on the identification of issues in a process significantly reducing adverse consequences. As there is an increasing awareness regarding the need for testing solutions, this need focuses on two challenges: the identification of issues early in a process and the significant reduction of adverse consequences. This growing market awareness focuses on the importance, acceptance, and implementation of Nondestructive Testing.

## ADVANCED NDT SERVICES

Nondestructive testing (NDT) is the process of inspecting, testing, or evaluating materials, components or assemblies for discontinuities or differences in characteristics without destroying the serviceability of the part or system. Bureau Veritas has a large range of NDT capabilities that meet your project challenges and inspection needs. All of our NDT techniques and technologies are certified to international standards. We employ state-of-the-art equipment and experienced professionals in order to provide you with confidence and assurance. Through our advanced NDT solutions, Bureau Veritas can reassure its clients that their assets are in compliance with all applicable standards.



- Flaw detection and evaluation
- Leak detection
- Location determination
- Dimensional measurements
- Structure and microstructure characterization
- Estimation of mechanical and physical properties
- UT crack detection/sizing
- C-scan corrosion mapping/flaw evaluation



# NON-DESTRUCTIVE TESTING



- Time of flight diffraction (TOFD) and phased array ultrasonic testing (PAUT)
- Wire rope examination and ground penetrating radar
- Corrosion monitoring
- Conventional Ultrasonic Testing
- Liquid Penetrant Testing
- Magnetic Particle Testing

## CONVENTIONAL ULTRASONIC TESTING SERVICES

Conventional Ultrasonic Testing (UT) is an accurate, cost-efficient, and rapid method for evaluating thickness of materials and internal quality that can be done both in the field and the laboratory. Ultrasonic testing uses high frequency ultrasonic waves to detect surface breaking and internal imperfections, measure material thickness, and determine acceptance or rejection of a test object based on a reference code or standard.



- Thickness Measurement
- Weld Inspection
- Lamination Detection
- Corrosion Detection
- Flaw Detection (cracks, inclusions, porosity, delamination etc.)
- Corrosion/erosion wall thickness gauging
- Corrosion Monitoring
- Bond Integrity Assessment
- Estimation of grain size in metals
- Estimation of void content in composites and plastics
- Structural Steel
- Pipeline Welds
- Turbine Rotors
- Pipe Testing
- Nozzle testing
- Landing Gear
- Composites
- Spindle/shaft Testing
- Aircraft Components
- Boiler Tubes



## LIQUID PENETRANT TESTING SERVICES

Liquid penetrant testing is used for finding surface breaking discontinuities on smooth, nonporous surfaces. It is based on the properties of capillary action or the action of liquid rising or climbing when confined to a small opening. After the excess penetrant is removed and a developing agent is applied, a skilled inspector will identify any remaining penetrant that can identify a flaw.

Liquid Penetrant Inspection (PT) is conducted primarily on non-ferrous material such as composites, metals, and ceramics, and will identify surface anomalies such as cracks, seams, laminations, blowholes, laps, external bursts, and welding defects

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- Forged Parts
- In-Service Parts
- Turbine Engines
- Weld Inspections
- Fan Blades
- Pressure Bodies
- Valve Components
- Inlet/Outlet Blowers
- Stainless Steel
- Fillet Welds
- Engine Parts
- Heat Treated Parts

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## MAGNETIC PARTICLE TESTING SERVICES

Magnetic Particle Testing is a quick, cost-effective NDT inspection method that is used to detect surface and near-surface discontinuities. This method is available both in the field and in the lab. Bureau Veritas Inspectors magnetize a ferromagnetic material and apply finely milled iron particles coated with a dye pigment to it. The particles indicate a discontinuity or indication in the material by clustering directly over it. Which can be visually detected under the proper lighting conditions.

Bureau Veritas uses both methods (Dry Powder and Wet Fluorescent Magnetic Particle) to find surface or near-surface defects in ferromagnetic material. The MT method requires a skilled technician to distinguish between relevant and non-relevant indications. It is often used to detect metal cracking, weld verification and stress corrosion cracking, which can be seen by using magnetic particles that are drawn into the discontinuity.

- Bolts
- Rails
- Castings
- Valve Bodies and Pumps
- Forged Parts
- In-Service Parts
- Generator Components
- Fan Blades
- Impellers
- Crane Hooks



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