



TEDDINGTON
Engineered Solutions Limited



NDT Services Division

Teddington Engineered Solutions Ltd.

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NDT (Non-Destructive Testing) Services

Teddington Engineered Solutions Ltd. offers the most comprehensive range of bellows and expansion joint solutions in the industry.

In addition to the vast selection of products and services we offer, we also have an industry-leading specialist NDT Services Division. This dedicated team of experts provide a range of NDT applications, both at our customised facility or on-site for customer convenience.

We recognise that product reliability is of paramount importance to our customers. Our NDT division will give you the confidence and reassurance that you are getting dependable products.

Our laboratory facilities include a purpose built radiography compound. We can inspect small or large components, with a sliding roof for accessibility.

Provision of our services is tailored to suit each customer's needs. Our extensive experience in this field gives us the ability to offer sound advice and an innovative approach to solving individual inspection requirements.

NDT techniques (1)

Liquid Penetrant Inspection

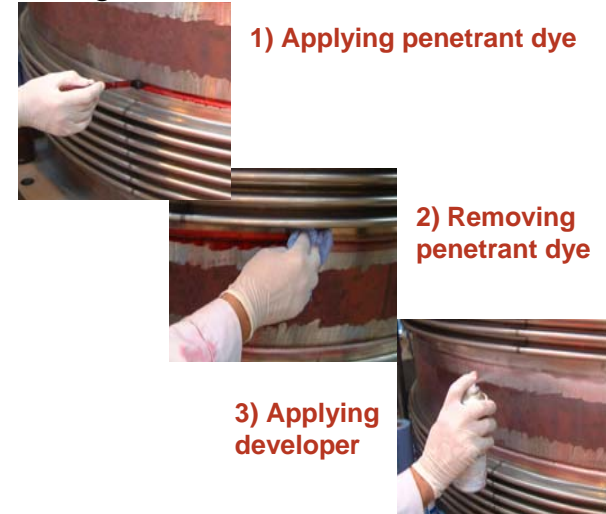
Overview: A simple, low cost method of detecting surface flaws, offering many advantages such as:

- Speed
- Large area coverage
- Automated production line inspection

Usage: To detect surface flaws such as cracks, laps, porosity and U/cut.

Detail: Applications and methods include:

- Any non-porous material; (metallic or non-metallic)
- Leak path detection
- Bulk testing of small components
- Fluorescent techniques where maximum law sensitivity is required
- Colour contrast techniques



Magnetic Particle Inspection

Overview: A cost effective method for the detection of surface/ near surface flaws in ferromagnetic materials.

Usage: Primarily used for crack detection

Detail: Standard applications and product forms would include:

- Welded fabrications, Castings/forgings and machined components

Additional applications include:

- High temperature components
- Fluorescent techniques where maximum flaw sensitivity is required
- Moderately rough surfaces

Methods include:

- AC Magnetic yoke, permanent magnet, Prods, Coil and bench unit



NDT techniques (2)

Gamma Radiography

Overview: An established NDT technique, using gamma rays to produce the image of an object onto film.

Usage: Monitoring corrosion of components

Details: We can offer Iridium 192 as the penetrating source with typical steel penetration of up to 80mm providing a good quality, cost effective, permanent record with high volume capabilities due to simple operation and portability. Applications include:

- All welded components in both metallic and non-metallic materials
- Small to medium size castings, forgings and machined components
- Under-lagging corrosion monitoring

Comprehensive on-site or laboratory service also available



Ultrasonic Inspection

Overview: A high technology mainstream technique using pulse echo ultrasound.

Usage: Detect flaws in fine grain material

Details: We provide state of the art digital ultrasonic systems data capture and electronic download capabilities, which can accurately detect and size both volumetric and planar type discontinuities. Applications and methods include:

- Location of manufacturing defects in welds, castings, forgings and machined components
- Corrosion/erosion monitoring and large scale corrosion mapping
- Automated production line systems
- Automated online corrosion monitoring
- Defect evaluation and monitoring
- Lamination testing, weld inspection, bonding checks and wall thickness testing.

NDT techniques (3) & Safety measures

X-ray Radiography

Overview: The NDT technique which uses electrically generated x-rays to produce an image of an object on film of very high quality and sensitivity.

Usage: To test welded component in both metallic and non-metallic materials

Detail: Most requirements can be satisfied using the latest constant potential variable output systems in the laboratory or on-site locations. Further applications include:

- Small to medium castings, forgings and machined components
- Component or material investigation
- Pipeline crawler systems

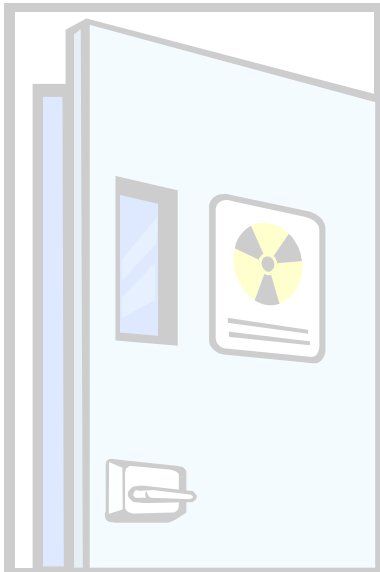


Safety standards

All our activities are monitored by the company's quality assurance department to ensure that the highest standards are maintained at every stage of the project execution.

On-site Radiographic Inspection can be used. However, there are stringent safety measures that have to be implemented to safeguard the public and all non-classified personnel from the exposure of Ionising Radiation.

A seven-day notice period has to be given to the HSE by the inspection company. This notice period should be included in all planned work before any radiography can commence.



Q1) **What is NDT and what does it mean?**

Non-Destructive Testing; a method of testing components that doesn't interfere with its basic structural build or composition.

Q2) **Why do we need NDT?**

NDT is a fundamental element in the design and construction of components and welded structures. It determines product reliability and provides you with the confidence and assurance that the component or structure will not fail during service.

Any potential defects can be identified during the manufacturing process and parts can either be repaired or rejected.

NDT is also used to test 'in-service' products. This can be used to identify any fatigue anomalies, for example; material thickness corrosion, erosion or cracking. This means that any potential issues can be identified and prevented before any serious problems occur.

Q3) **Where can NDT be applied?**

All our **NDT** techniques are completely safe and mobile, which means that they can be used either at our in-house facility or on client sites.

This can include ships' hulls, power station boilers or steel plants' offtake pipework. Basically, if someone can access it, so can our NDT Technicians.

Q4) What are these Non-Destructive Testing Methods?

There are a variety of testing methods available, which are mentioned in greater detail on pages 3, 4 and 5 of this booklet.

Q5) What materials can NDT techniques be used on?

Our range of NDT methods are designed to suit an array of materials including; Plastic, Aluminium, Carbon Steel, Stainless Steel, Ceramics and Concrete. The methods of NDT employed in each case would be dependant on the type of inspection required and the material being tested.

Q6) Where can I get further information and advice?

At **Teddington Engineered Solutions Ltd.**, our dedicated team of experts in the field of NDT are readily available to advise you on all aspects of inspection technology requirements to suit your needs.

You can call us on +44 (0) 1554 744517, email us at ndt@tes.uk.com or visit www.tes.uk.com/ndt for further information.

Scope of Services

We offer both on and off-shore inspection. In addition to the techniques and applications mentioned, we provide:

- Metascope (Positive Material Inspection)
- Hardness testing of engineered components
- QA/QC Vendor Inspection
- CCTV/ Borescope Inspection
- Eddy Current inspection
- IRIS tube testing
- Tank Floor Testing
- TOFD (Time of Flight Diffraction)
- Automated Ultrasonics
- Rope access Engineering.

Industry Sectors covered

Our client base cover a wide and varied range of sectors including:

- Aviation and Aerospace
- Civil Engineering
- Construction
- Fabrication and Welding
- General Engineering
- Manufacturing
- Oil and Gas processing
- Petrochemical
- Pipeline construction
- Power Generation
- Refinery and Chemical Plants
- Shipping
- Transport and Containers

Fields of activity include the inspection and testing of;

Heat exchangers, Boiler shells and tubes, Ship plate, Steam and condensation lines, tanks and pressure vessels, Kiln shells, Valve seats & bodies, Reactors, Water mains, Transport containers, Shafts and impellers, Gear wheels, Slurry and effluent lines, Jetty pier members, Crane hooks and lifting equipments, Crankshafts and white metal bearings, Electrical switch gear, Insulation and refractory lining.