

## TWI's Specialised Non-Destructive Testing Services

TWI is able to deploy a wide range of technologies to solve the NDT problems of Industrial Member companies. To support these technologies it owns and operates a range of state-of-the-art systems. They can be operated on site anywhere in the world or in TWI's laboratories.

The technologies and the supporting systems available at TWI are:

- Computerised ultrasonic flaw detection, location and sizing:
  - Phased array systems
    - ♦ Olympus NDT Tomoscan Focus
    - ♦ Olympus NDT Omniscan MX PA
    - ♦ Peak NDT Micropulse 5PA
    - ♦ Harfang X-32 (8 units)
  - Advanced multi-channel computerised flaw detection systems
    - ♦ Force P-Scan System 4+
    - ♦ Zetec Tomoscan III
- Ultrasonic Time of Flight Diffraction (TOFD) for critical flaw sizing
  - Force P-Scan System 4+, Sonotron Isonic 2005 and Inspection Solutions USB Sectorscan
- Ultrasonic corrosion mapping:
  - Force P-Scan System 4+ used in the thickness scan (T-Scan) mode
  - Inspection Solutions USB Sectorscan
- Ultrasonic bond testing
  - Bondmaster 1000
- Ultrasonic flaw imaging in the C-Scan mode
  - NDT Solutions RapidScan 2 system
  - Immersion testing using Ultrasonic Sciences' 6 axis probe manipulation gantry
- Rapid Automated Ultrasonic Testing (AUT) for zonal inspection of pipeline girth welds
  - RD Tech Pipewizard
- Long Range Ultrasonics (LRUT) for pipe and pipeline inspection
  - Plant Integrity Limited's *Teletest®* and *Teletest Focus™* systems
- Ultrasonic modelling
  - Abaqus Finite Element analysis software
  - CIVA / Acoustic Ideas' Continuum software
- Acoustic emission (AE)
  - Physical Acoustics 2-channel AE system
- ACFM for surface crack detection and sizing
  - Three ACFM Amigo Units
- Eddy current testing for surface crack detection and sizing
  - RD Tech MS 5800-ER computerised system (2 units)
  - TMT eddyMax 4U computerised system
  - Phasec 2D portable dual frequency
- Optical Imaging and Digital Image Processing mainly used for inspecting electronic components and PCBs
  - Machine Vision Products (MVP) AOI system
- Laser Shearography
  - Laser Optical Engineering Ltd's Strain Mapper
- Thermography
  - Fluke Ti30 hand-held thermal imaging camera
  - LOT Oriel / Thermal Wave Imaging Inc system
- Digital Radiography / Computed Radiographic Tomography
  - X-Tek 450 keV
  - X-Tek 75 keV portable
- Micro-focus X-ray
  - X-Tek 225 keV Microfocus



Please contact TWI if you would like to know more about the services outlined in this brochure.

### NDT Technology Group

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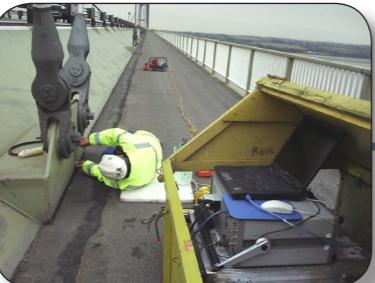
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## TWI's NDT Site Services



**TWI** WORLD CENTRE  
FOR MATERIALS  
JOINING TECHNOLOGY



Phased array ultrasonic inspection of a longitudinal weld on Humber suspension bridge



Florida - Teletest® inspection of buried pipeline and corrosion located on this job



PipeWIZARD® inspection of pipeline girth welds.



Eddy current testing to detect fatigue cracks in aircraft wing flap mechanism



Phased array inspection of polyethylene gas pipe



Phased array inspection of splice welds on Mardle Viaduct



Saudi Arabia - TOFD inspection of pressure vessel longitudinal seam using magnetic crawler



Teletest Focus™ in use at a US oil terminal



ACFM inspection of gas storage sphere welds



Photograph courtesy of TSC



P-scan crawler mounted on ship's hull to inspect for internal corrosion



Louisiana - Teletest® inspection of 48" diameter bayou crossing



TOFD inspection of offshore riser weld

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Teletest® inspection of buried pipeline



Brazil - phased array inspection of FPSO turret weld for Petrobras



The techniques that TWI applies on site are: -

- Manual Ultrasonic Testing (often used as follow up to mechanised techniques)
- Automated UT of pipeline girth welds
- Long range UT\*
- Phased array UT
- Time of flight diffraction UT (TOFD)
- TOFD at high temperatures (up to 250°C)
- Alternating Current Field Measurement (ACFM)
- Eddy current

\* Service provided by TWI's subsidiary, Plant Integrity Ltd (Pi), using the Teletest Focus™, LRUT system

## TWI's NDT Site Services

TWI has an unrivalled selection of non-destructive testing equipment available for work on site. The equipment is operated by highly qualified Level 2 or 3 engineers. Should they require assistance, they can call on the support of the 50 strong team of NDT scientists and technicians based in Cambridge and Port Talbot in the United Kingdom. Furthermore, TWI's structural integrity, materials engineering and corrosion engineering experts are available to assist in interpretation and evaluation of any data gathered.

TWI's site NDT staff travel extensively and TWI has carried out site NDT work as far afield as Alaska, Indonesia, Venezuela, Kazakhstan, Saudi Arabia, and the Gulf of Mexico, etc. Site teams can be mobilised rapidly and the staff are fully accustomed to site working conditions – offshore, arctic, tropical, etc.