NDT Services from TWI

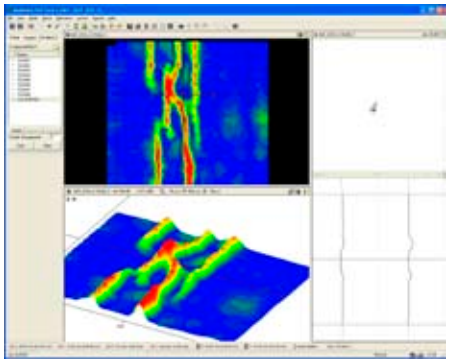
Eddy Current Testing

Description

Computerised systems. TWI owns two R/D Tech® Olympus MultiScan MS5800 computerised eddy current systems. These are used for the detection and sizing of surface breaking flaws in any conducting material. The principal advantages of eddy current over ultrasonic flaw detection are the faster scanning speed and the fact that no coupling fluid is required. Furthermore, it can be used through surface coatings up to a few mm thick, whereas ultrasonics can only be used through relatively thin layers (a few hundred microns).

The Olympus MultiScan MS5800 Eddy Current System

The MS5800 is a multi-channel unit for use with array probes with up to 32 coils. It is operated under the control of MultiView™ software. Output can be in the form of a colour-coded map (a C-scan), where the severity of any flaw is indicated by colour. The data can also be presented in the form of isometric views of the component as shown below.



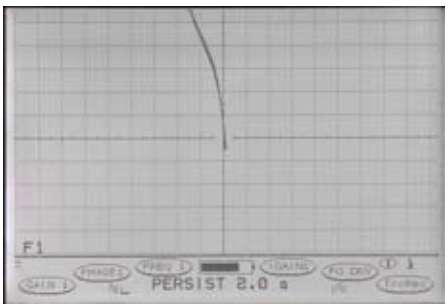
MultiScan output showing stress corrosion cracking in plan (top) and isometric (bottom) views

The probe can be manipulated in a robotic scanner, whose position is fed back to the computerised data acquisition system. However, complex shapes can also be inspected in a single probe pass without the need of scanners or robotic systems.

Conventional systems. TWI also owns several GE Hocking Phasec 2d portable dual frequency systems. One is shown below being used with a pencil probe to inspect for cracking at the edges of bolt-holes in a Ti alloy turbine disc. A typical output with a flaw indication is also shown.

Phasec 2d portable dual frequency eddy current inspection system in use for inspecting a turbine disc

6MHz eddy current pencil probe



Phasec 2d spot display showing flaw indication

Selected clients and applications

TWI is using its eddy current systems for many applications, typical ones being:

- Inspection of friction stir welds.
- Testing gas turbine blades for Rolls-Royce.
- Testing nozzle welds in nuclear reactor pressure vessels for power generation utilities. In this work, TWI is using the ability of the system to cope with complex geometries.

For more information on the services offered in this leaflet, contact:

NDT Technology Group

TWI Ltd, Granta Park, Great Abington, Cambridge, CB21 6AL, UK
Tel: +44 (0)1223 899000 Fax: +44 (0)1223 892588

TWI Technology Centre (Wales) Ltd, ECM², Hoel Cefn Gwrgan, Margam, Port Talbot, SA13 2EZ, UK
Tel: +44 (0)1639 873100 Fax: +44 (0)1639 864679

E-mail: ndt@twi.co.uk
Website: www.twi.co.uk

983.12/06