



NDT and QC Services
Structural Inspection
Derrick Inspection (DROPS / API 4G)
Derrick Upgrades
Electrical Construction / EX Surveys
Steel Erection / Rigging and Lifting
Lifting Gear Examination
Load Testing

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FS 5: Eddy Current Inspection (ECI)

ECI is a technique utilised on conductive materials (i.e. ferromagnetic steels, stainless steels, nimonic 80a, etc.). An alternating current is applied to an inspection coil, which creates a magnetic field. When placed next to a conductor it induces an 'eddy current' field in the material. When this induced field is disrupted by a flaw it causes an imbalance which is magnified and shown on an oscilloscope. This can be done through non-conductive coatings to test the weld/material underneath the coating.

It can be used for crack detection, material sorting and coating measurements.

Typical site applications include inspection of crane jibs, pedestals and A-frames, deck node points, padeyes pre/post load testing, drilling derrick substructures, bridge support members (primary and transverse beams) and bearings etc..

Key advantages are:

- A high degree of sensitivity and defect depth indication.
- No removal of surface coating required (time saving and avoids damage to item)
- Can be used on galvanised components and on complex shapes
- Non-ferrous materials can be inspected
- Immediate results - Real time testing.
- Highly portable equipment (suitable for difficult access)



Axiom NDT have developed an approved procedure for Eddy Current Inspection of galvanised weldments (i.e. through conductive coatings) and this is strongly recommended for in-service items such as padeye welds or racking board welds and powder coated steel on stadiums, for example.

Disadvantages of this technique are that depth of penetration into the material is very limited and that the flaws detected will require further examination using other techniques, such as Magnetic Particle Inspection or Ultrasonic Testing.

A high degree of training is required for use of ECI and we invest heavily in the continuing professional development of our Eddy Current inspectors.

ECI sets are not intrinsically safe (i.e. control measures and a 'hot work spark potential permit' may be required in explosive atmospheres), but the technique itself is non-hazardous to the operator, passers-by or machinery.

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