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ACFM - Alternating Current Field Measurement

Alternating current field measurement (ACFM) is an electromagnetic NDT technique capable of both detecting and sizing (length and depth) surface-breaking cracks in metals. The ACFM NDT technique alternates constant-current in a tangential solenoid, remote from the test surface, and induces electric currents in the sample surface, which are uni-directional and of uniform strength over a localised area under the solenoid. When no defects are present in this area, these electric currents will be undisturbed. If a crack is present, the uniform current is disturbed and the current flows around the ends and down the face of the crack. A standard PC is used to control the equipment and display results. ACFM is unique in the way data is displayed in this electromagnetic NDT process.

Target customers

Alternating current field measurement can be carried out anywhere magnetic particle (MPI) inspection is currently used, such as in:

- Oil and gas production (refineries and pipelines)
- Structural steel fabrication
- Aerospace manufacturing and maintenance
- Metal fluid-storage tanks (oil, gas and water)
- All welding industries
- Power-generation plants (nuclear and fossil fuel)

Key customer benefits

The ACFM NDT technique is a detection and sizing technique for surface-breaking cracks. The technology offers several advantages over conventional MPI inspection for both topside and subsea NDT inspection:

- ACFM requires less surface preparation. It can be used on coated or rusted surfaces without coating removal or cleaning to bright metal. In most cases, light brushing is sufficient. ACFM can be used on non-conducting coatings, in good condition, up to 5mm
- ACFM NDT can be deployed in most sea and subsea inspection conditions and, unlike MPI inspections, is not limited by currents, swell or poor visibility
- ACFM testing can be used in any light level and can therefore be used in 24-hour operations
- ACFM testing provides information on defect length and depth
- ACFM NDT is faster to deploy