

Alternating Current Field Measurement (ACFM)

Detects and sizes surface breaking cracks

Alternating current field measurement (ACFM) is an electromagnetic inspection technique used to detect and size surface breaking cracks.

ACFM is effective through a maximum of 10 mm of non-conducting coating and eliminates the need to remove and reapply paint and other protective coatings during the inspection process.



FEATURES

Quick and efficient method of inspection

Requires minimal surface preparation

Electromagnetic inspection technique

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Technique

The AMIGO™ U19 crack microgauge ACFM probe induces a uniform alternating current in the area under test and detects the resulting current flow near to the surface. This current is undisturbed if the area is defect free. A crack redirects the current around the ends and faces of the crack. The ACFM instrument measures these disturbances in the field and uses mathematical modelling to estimate crack size.

Capabilities

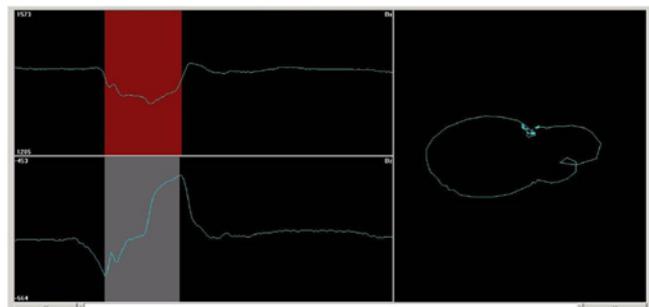
- » Removal of paint, thin coatings, and minor debris not required
- » Detects and sizes both crack length and depth
- » Supports offline analysis of data and a permanent record of indications
- » Provides an immediate evaluation of the weld area
- » Standard inspection temperatures up to 390°F / 200°C
- » High-temperature inspection applications up to 930°F / 500°C using temperature resistant components
- » Method is viable for any electrically-conductive material

Applications

- » Structural support welds
- » Offshore cranes, storage tank floors, roof lap joints, and internal/external annular welds
- » Piping, pressure vessels, nozzles, and drill pipes
- » Threads and ovality deviations in pipes

Considerations

- » Suitable for topside and subsea applications
- » Crack length must be greater than 0.4 in / 10 mm and depth greater than .02 in / 0.5 mm deep to be detected
- » Previous weld repairs and grinding within inspection area can generate unreliable indications
- » Ability to size cracks in areas where multiple defects exist in close proximity may be reduced as the cluster may be inaccurately identified as a single defect
- » The technique measures the extent of the crack face, not through wall penetration, so depth measurements may be inaccurate for inclined defects.



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