

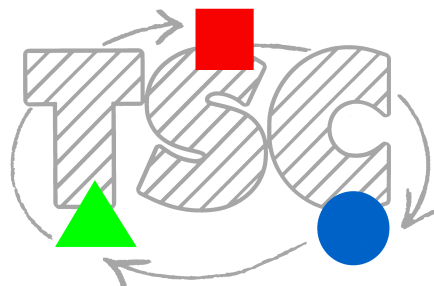
USE OF THE ACFM INSPECTION TECHNIQUE FOR AUTOMOTIVE APPLICATIONS

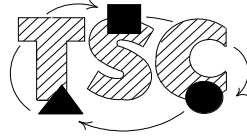


TSC have developed the Alternating Current Field Measurement (ACFM) inspection technique to provide reliable crack detection and sizing in a wide range of engineering applications. Unlike many conventional inspection techniques, ACFM is capable of not only detecting whether cracking exists, but also reports location, length and depth. ACFM is an electromagnetic inspection technique and does not require electrical contact with the component. This means it can be used to inspect through coatings, and can be used on both magnetic and non magnetic components.

ACFM differs significantly from conventional eddy current techniques and provides a number of advantages. The use of uniform fields, and the unique way in which field components are measured by the ACFM probe, means the technique is far less susceptible to signals from lift-off or material changes compared to conventional eddy current methods. In addition ACFM is capable of determining crack depth without calibration.

ACFM probes are conventionally manually deployed, but if large areas, or large numbers of components are to be inspected, the process can be semi or fully automated. The degree of automation can range from simple mechanical systems moving a single probe, through to fully automated systems with array probes in which all the data is automatically interpreted and the results presented in simple format, thereby avoiding the need for a skilled operator. Irrespective of the type of ACFM system deployed, all data is stored and available for subsequent re-evaluation or audit.





ACFM systems can also be used for defect monitoring, whereby probes are permanently attached and interrogated at regular intervals, even during service. ACFM probes are available for use at temperatures up to 500°C.

ACFM Automotive Applications

- Inspection of engine components;
- Crank shafts, cylinder heads
- Drive shafts
- Gearbox components, including teeth
- Structural members, including engine mounts
- Metal skins
- Bolts, studs and tapped holes
- Wheels and hubs
- Brake discs

Material Covered: Carbon steel, austenitic stainless steel, duplex / super duplex, titanium, inconel, monel, aluminium alloys.

Coating Thickness: 0-5mm of non electrically conducting coating.

Probe Operating Temperature Range: -20 to +500°C.

TSC supply a full range of ACFM systems, ranging from standard instruments through to full systems built to customer specifications. In addition to TSC's standard range of probes, probes can be developed to suit specific applications.

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