**Application**

For the detection of cracking in water and waste water assets including pipework, tanks and reservoirs.

**ACFM is an electromagnetic technique for detecting and sizing surface breaking defects in metals.**

ACFM is particularly suited for inspecting painted and/or welded structures. The ACFM system allows an operator to deploy non-contacting ACFM probes with only minimal cleaning requirements saving significant time and money.

A modern ACFM inspection system comprises a field-inducing probe with state-of-the-art low noise analogue electronics coupled with a built in control system and easy-to-use Microsoft Windows based analysis software.

**The Service**

An ACFM sensor probe is placed on the surface to be inspected and an alternating current is induced into the surface. When no defects are present the alternating current produces a uniform magnetic field above the surface. Any defect present will perturb the current forcing it to flow around and underneath the defect; this causes the magnetic field to become non-uniform and sensors in the ACFM probe measure these field variations.

Two components of this magnetic field are measured - one provides information about the depth or aspect ratio of the defect(s), the other provides information on the positions of the ends of each defect. The two signals are used together to confirm the presence of a defect and, together with a sizing algorithm, measure its length and depth.

**Advantages of ACFM are:**

- The ability to detect defects through several millimetres of coating. This means that paint or other protective coatings do not have to be removed and then reapplied.
- Works equally well on plain material or welds, ferritic or non-ferritic metals.
- Can be used on hot surfaces, underwater, or in irradiated environments.
- Provides both depth and length information. Defects up to 25mm (1”) in depth can be sized accurately.
- All data is stored for backup, audit or review purposes.
- Simple scanning enabling 1 or 2 man operation including abseiler, diver and ROV deployed.
- Has almost no consumable costs.
- Numerous applications including portable, static and underwater deployment
- ACFM technology is accepted by leading Approval and Standards bodies.
ACFM is ideal for crack detection at welds, through coatings and has the added advantage of producing crack depth information.

Applications

- Oil and gas industry, including offshore platforms (both topside and underwater), refineries, processing plant, pipelines, gas storage spheres and threaded connections
- Civil engineering structures, including cranes, bridges and structural steel
- Shipping, including LPG tanks, ballast tanks, hulls and propeller blades
- Nuclear industry, including waste storage tanks and reactor vessels
- Rail industry, including bogies, axles, wheel sets and rails
- Power generation, including furnaces, turbines and pipe work.