

## CRANE INSPECTION USING ACFM

### TSC INSPECTION SYSTEMS

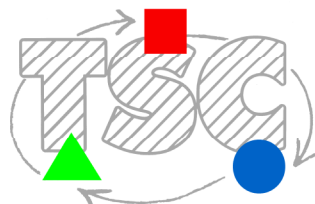


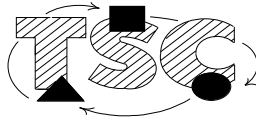
Cranes generally comprise steel frameworks, welded together and then painted or galvanised to prevent corrosion. The presence of the coating prevents inspection by magnetic particle (MPI) or dye penetrant (DP) techniques, while the welds make it difficult for conventional eddy current inspection.

In the absence of a suitable inspection technique, some cranes are removed from service because of their age without knowing the complete condition of the crane. When a crane is inspected, it is normally done using the MPI technique, meaning the paint/coating has to be removed prior to inspection and then reapplied afterwards. Also, MPI is not able to provide information on defect depth or severity, so that time is wasted investigating indications that turn out to be no more than scratches.

The inspection of cranes is further complicated because of their height and difficult access. Many inspection techniques require the local operator to interpret the results, which either means scaffolding or other access to the inspection sites, or puts great demands on the operator if he is deployed by rope access means.

The Alternating Current Field Measurement (ACFM) technique is designed for the detection and sizing of surface-breaking defects, works through coatings, and is particularly suited for fatigue cracks at welds. Use of the ACFM technique for crane inspection can greatly speed up inspection, reduce waste, and save down-time.





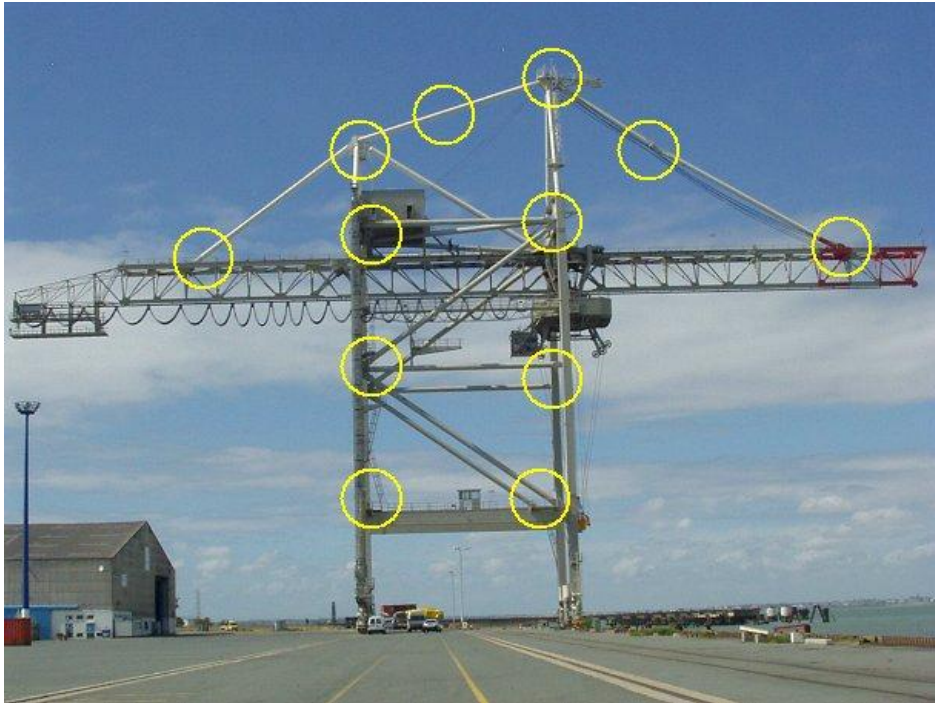
With ACFM it is possible to separate the roles of local probe operator and NDT inspector. The ability to use ACFM with rope access technicians allows application in areas of difficult access without the need for scaffolding or other support structure. In addition out-of-service time is reduced as the use of ACFM eliminates the need to remove and reapply paint or other protective coatings.



**ACFM Inspection by Rope Access**

A failure of a dock crane in Le Havre led to a review of the methods used for inspection and the authorities decided to implement more frequent inspection. In order to achieve this, the ACFM method was taken up/specified. All cranes at Le Havre are currently inspected on a rolling basis by ACFM.

A typical container crane is 90m long, 70m tall and 40m wide and contains many critical welds that must be inspected. Using MPI, a typical crane inspection used to take 20 days, but the same inspection now takes only 5 days using ACFM. Since its introduction in Le Havre, ACFM is now being used in other ports around France, including Dunkerque, Rouen and Bordeaux.



**Critical welds to be inspected on a typical dockside crane**



**Typical weld geometries**



**For further details of this, or other ACFM applications, please contact.**

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