



In this issue:

Pulsed Eddy Current

How it works

Principal

Applications

How it Works

Pulsed Eddy Current (PEC) is a unique corrosion survey method that allows ferrous objects to be surveyed without the need to contact the surface unlike Ultrasonic. This means that the measurements can be performed on objects covered with insulation, asbestos, fireproofing, concrete or coating. The high costs as well as time required for removal of insulation can therefore be avoided.





Principal

With the use of low frequency (Pulsed) magnetic field, eddy currents are generated in the material under test. Eddy currents are stronger at surface and gradually weaken at lower depths. When the exciting field is withdrawn, the eddy current decays in the material with time.

The rate of decay is a function of material thickness and the position of the opposite interface (Back wall) strongly influence the decay function. The average thickness of the material is measured from the strength of the eddy current and time taken for such deviation. Specific algorithms and calculations for lift off and wall thickness will be included to calculate the remaining average wall thickness.

Applications

- ✓ Can inspect through Insulated Pipelines, Vessels, and Columns, risers etc.
- ✓ The use of the PEC instrument is limited to ferromagnetic materials.
- ✓ Can inspect through Insulated Storage Tanks, Skirts, Equipment's, Sphere Legs etc. Weather jackets- Stainless steel, Aluminum and Galvanized Steel.
- ✓ On large insulated objects where high costs are incurred in removal of insulations; PEC can reduce costs incurred in removal and re-installing of the insulation and inspection costs compared to the conventional approach. The position of the PEC measurement can be taken anywhere on the insulated objects surface unlike ultrasonic which needs direct contact.
- ✓ The splash zone PEC probe is specifically designed to detect corrosion in the area immediately above and below the mean water level in such structures as offshore oil and gas platform legs and risers.
- ✓ Underwater PEC probes are specifically designed to detect corrosion hidden under marine growth or coatings, without surface preparation, in offshore applications such as risers, jetty piles, caissons, underwater piping systems, and conductor inspections.

