



PULSED EDDY CURRENT FOR DETECTION OF CORROSION UNDER INSULATION

This method allows for non-invasive assessment of wall thickness, even through insulation or coatings in many cases, making it ideal for corrosion monitoring and integrity assessments in industrial environments. PEC is a rapid, non-contact survey technique ideal for baseline thickness mapping and long-term corrosion monitoring.

Method of Inspection

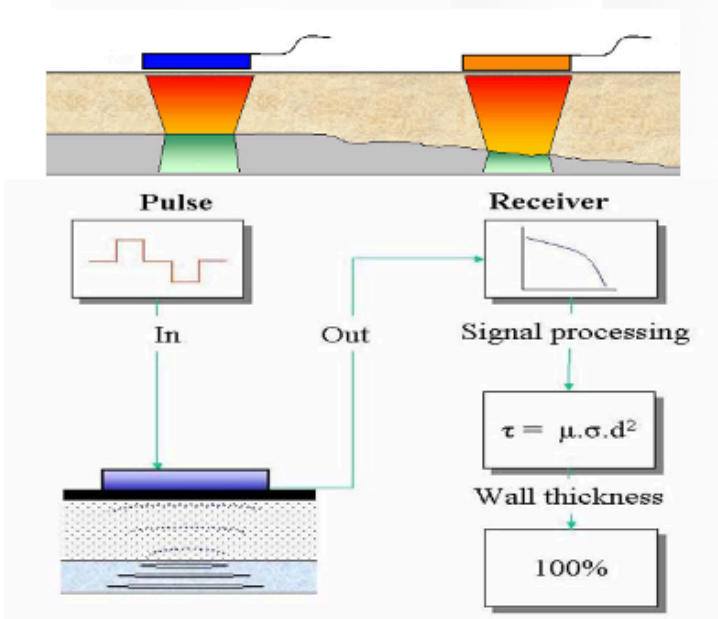
The Pulsed Eddy Current (PEC) system monitors the decay of an eddy current pulse induced within the steel wall. It calculates the average wall thickness by analysing the transient time ("echo") of specific signal features and comparing these with reference data obtained from calibration standards.

The measurement is influenced by various material and environmental factors, including:

- Magnetic and electrical properties of the metal (e.g., alloy composition, grain structure)
- Temperature variations, which can alter signal response

A typical measurement cycle takes between 2 and 40 seconds, depending on wall thickness and material characteristics. During inspection:

- Wall thickness and a validation signal are displayed in real time
- All raw signal data is automatically recorded for traceability and post-analysis
- Thickness values can be logged for trending or report generation





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General Inspection Capabilities

Using modern PEC equipment, a two-person team can survey and log up to 1,000 points per day, subject to accessibility.

PEC offers excellent repeatability and is uniquely capable of inspecting components under demanding conditions, such as:

- **Detection of CUI (Corrosion Under Insulation) and FAC (Flow Accelerated Corrosion)**
- Operation through dirty, coated, rough, or high-temperature surfaces
- Suitable for temperatures up to 500 °C (930 °F) and as low as -100 °C (-150 °F)
- Consistent, high-quality results across a wide range of environmental conditions
- No removal of insulation or coating required
- Capable of gauging wall thickness through:
 - Marine growth, neoprene, and Monel on risers
 - Cladding made from aluminium, stainless steel, or galvanised steel
 - Wet insulation, rough/encrusted surfaces, or irregular insulation
 - Wire mesh-reinforced insulation
- Inspection can be performed while plant is in operation

