

A novel method for surveying insulated ferrous components



Demanding circumstances

INCOTEST (an acronym for Insulated Component TEST), is a unique corrosion survey method that allows ferrous pipes and vessels to be surveyed through coatings under the following demanding circumstances:

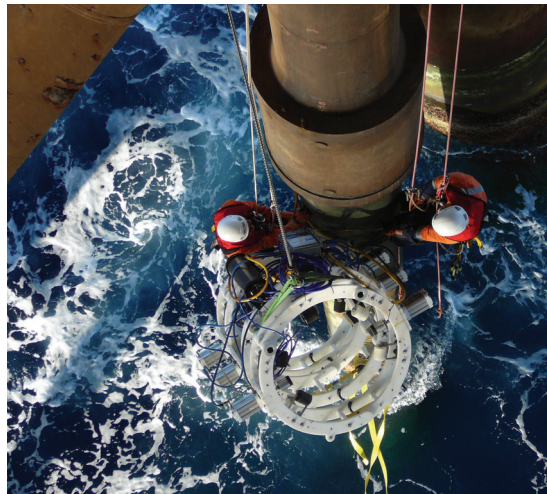
- ⊕ without disturbing the insulation or coating
- ⊕ when insulation cladding is aluminium, stainless, or galvanised steel.
- ⊕ while plant is in operation
- ⊕ when pipes are hot: $\leq 500^{\circ}\text{C}$ (930°F) or cold: $\geq -100^{\circ}\text{C}$ (-150°F)
- ⊕ when insulation is wet
- ⊕ when object surface is rough or encrusted
- ⊕ when insulation is irregular or heterogeneous
- ⊕ when insulation is wire mesh reinforced.

Fast and affordable

INCOTEST is a fast survey tool. In tests conducted with the new generation equipment, a two person crew can survey and store up to 1,000 points per day, depending on accessibility. It is well suited for doing a baseline survey followed by periodic monitoring surveys. INCOTEST has demonstrated excellent repeatability.

Merits

- ⊕ robust, electrically safe but not intrinsically safe
- ⊕ operates over a wide range of climatic conditions
- ⊕ can work up to 8 hours on one battery pack
- ⊕ transducer can be up to 100 metres from the base unit
- ⊕ provides a computed thickness reading within seconds
- ⊕ high reproducibility ± 0.1 mm, hence very suitable for recurrent measurements
- ⊕ measures through any non-conductive and non-magnetic material, eg insulation (with metal skirt either aluminium, stainless steel or low alloy galvanised steel) concrete, fire retarder, up to 100 mm thickness and up to 150 mm when wall thickness is below 12.7 mm
- ⊕ detects and measures average general corrosion or erosion over interrogated area (footprint), depending on insulation thickness
- ⊕ provides instant site report in measuring matrix format.



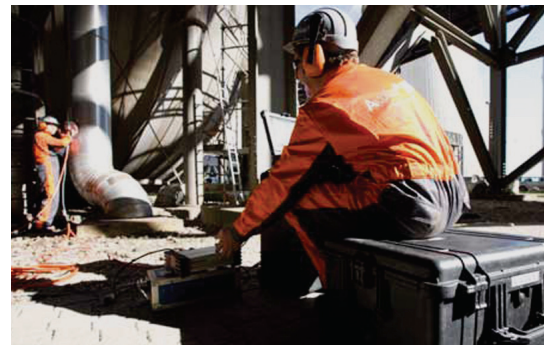
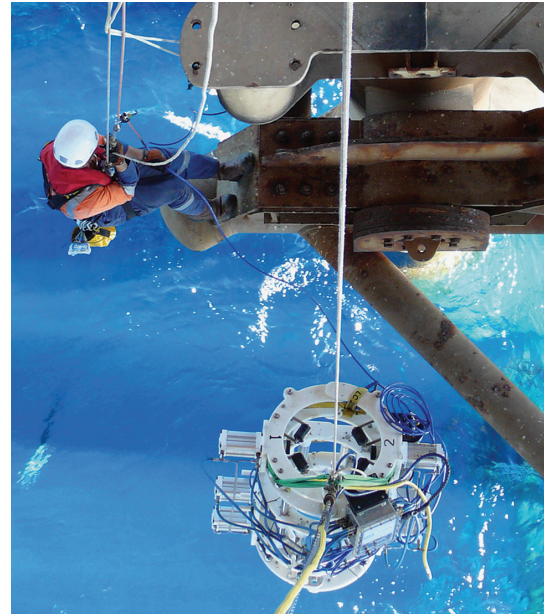
Technology

INCOTEST monitors the decay of an eddy current pulse within the steel wall. It computes the average thickness of the metal by comparing the transient time ("echo") of certain signal features with similar calibration tests.

The resulting measurement is influenced by a number of factors including variations in metallurgy (magnetic and electrical properties) and temperature. The survey takes 2 to 40 seconds dependent on thickness. The computed wall thickness (can be logged) and validation signal is displayed on the screen, and raw data is stored for later retrieval.

Typical applications

- ⊕ detection of CUI (corrosion under insulation)
- ⊕ detection of FAC (flow accelerated corrosion)
- ⊕ riser pipe wall thickness gauging without removal of marine growth, neoprene or Monel
- ⊕ a proven potential method for non-contact "dry" wall thickness measurements of dirty, coated, rough and/or high temperature objects.



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