Applus⊕

Pulsed Eddy Current – INCOTEST

Surveying ferromagnetic components through non-ferromagnetic material

INCOTEST applied on pipework covered with thermal insulation

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, coating, cement, marine growth.**
- **When insulation cladding is aluminium, stainless, or galvanised steel.**
- **While plant is in operation.**
- **When pipes are hot: ≤ 500°C (930°F) or cold: ≥ –100°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 technician can survey and store up to 6000 points per day using automated systems, depending on accessibility. It is well suited for doing a baseline survey followed by periodic monitoring surveys. INCOTEST has demonstrated excellent repeatability.

Merits

- Diameters from 25 mm (1") upwards.
- Robust, electrically safe but not intrinsically safe.
- operates over a wide range of climatic conditions.
- Can work up to 24 hours on one battery pack.
- Transducer can be up to 2500 metres from the base unit when using ROV integration.
- Live computed thickness readings.
- High reproducibility ± 0.1 mm, hence very suitable for recurrent measurements.
- Measures through any non-ferromagnetic material, eg insulation (with metal skirt either aluminium, stainless steel or low alloy galvanised steel) concrete, fire retarder, up to 200 mm thickness.
- Material thickness up to 64 mm.
- Detects and measures average general corrosion or erosion over interrogated area (footprint), depending on insulation thickness.
- Provides instant site report in millimetres or percentage base.
- Interactive 3D overlay of results onto asset.
- 3D printed models of results.

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). One second per reading is achievable depending on material 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.

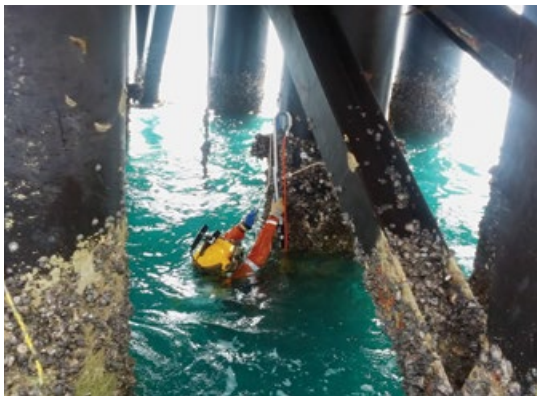
Applus+ provides the following services as individual packages or combined to provide a total Asset Integrity Management programme.

- Advanced (non-intrusive) Inspection Services.
- Sub-sea Inspection Services.
- Engineering Design Solutions.
- Risk Based Inspection Planning.
- Inspection Management Services.
- In Service Inspection.
- Plant Life Management.
- Metallurgical Services.

Importantly, Applus+ can also call upon extensive in-house expertise and resources for advanced inspection and conventional NDT, providing a total capability for management of through life plant integrity.

Applus+, in collaboration with our local and international partners, has extensive experience in the application of these services to a wide range of industries including:

- Oil & Gas.
- Petrochemical.
- Refining.
- Ore Processing and Handling.
- Power Generation.



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