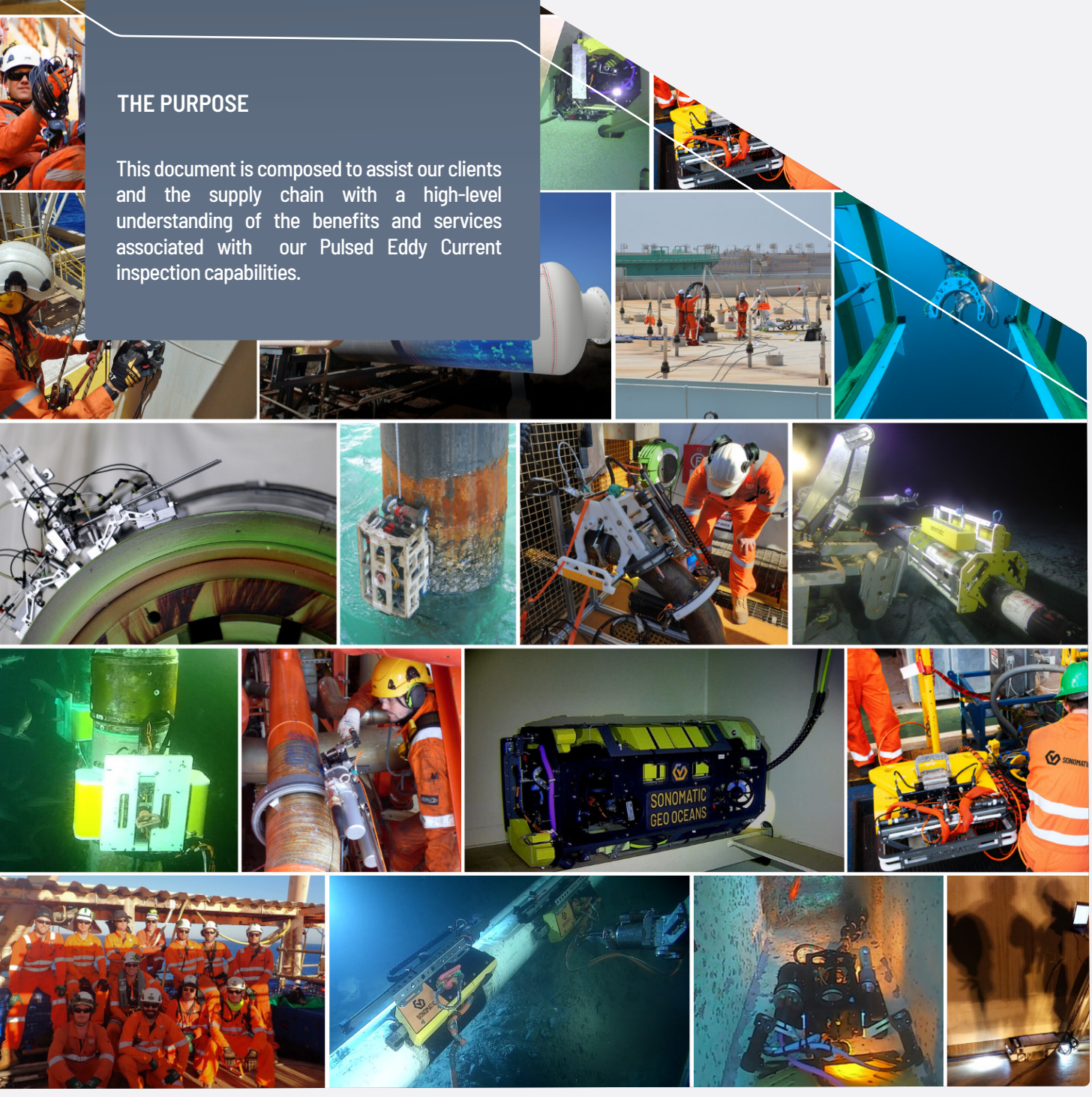
DATA SHEET

PULSED EDDY CURRENT

SONOMATIC

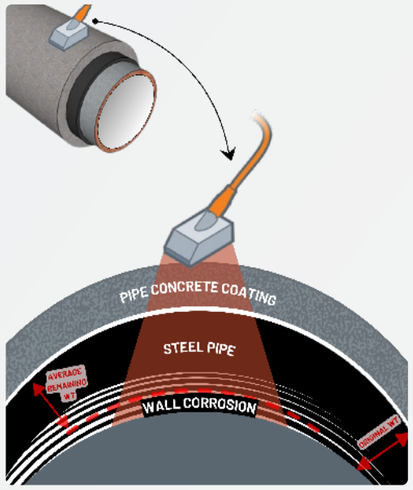
THE PURPOSE

This document is composed to assist our clients and the supply chain with a high-level understanding of the benefits and services associated with our Pulsed Eddy Current inspection capabilities.



PULSED EDDY CURRENT

Pulsed Eddy Current (PEC) is a non-destructive testing (NDT) method used for assessing the ingrity of conductive materials, particularly those with protective coatings. This is a comparative technique whereby advanced processing of the eddy current signal decay and comparison with a reference signal, allows for the determination of the average wall thickness (AWT). This fast screening method allows for the assessment of the general condition of structural steel and is best suited for general corrosion type defects in pipelines.



PEC can inspect through the following:

- Concrete weight coating
- Challenging coatings
- Marine growth
- Insulation
- Corrosion product
- Fireproofing

ADVANTAGES OF PULSED EDDY CURRENT

- **Coating Thickness Measurement:** PEC is effective in determining the thickness of conductive coatings on metallic surfaces. This is particularly useful in industries where protective coatings play a crucial role in preventing corrosion.
- **Through Coating Inspection:** One of the significant advantages of PEC is its ability to inspect materials through coatings without the need for coating removal. This saves time and resources while providing valuable information about the underlying material.
- **Deep Penetration:** PEC is capable of penetrating through non-conductive and non-magnetic coatings, allowing the assessment of the base material's condition.
- **Quick Inspection:** PEC is a relatively rapid inspection technique, making it suitable for assessing large areas or structures in a timely manner.
- **Versatility:** PEC can be applied to a variety of materials, including metals such as steel and aluminum, making it a versatile method for different industrial applications.

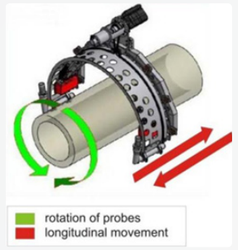
SONOMATIC PECT SUBSEA PIPELINE INSPECTION TOOL

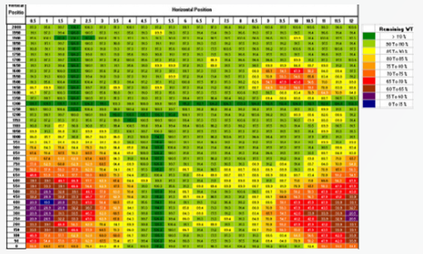
The Sonomatic PECT Subsea Pipeline Inspection Tool makes use of the Pulsed Eddy Current principle to measure the average wall thickness of a ferrous pipeline without the need for direct contact to the pipe. With this technology, the system is able detect corrosion of ferrous metal pipelines through a build-up of thermal insulation or a protective coating to provide a qualitative analysis of the presence of corrosion in the metal.

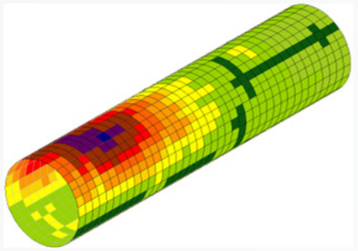
Thlis tool includes an array of two (2) PEC sensors to enhance inspection speed and efficiency. When having completed the entire circumference for one axial position, the scanner moves the sensor carrier into the next axial position.

The PECT Subsea Pipeline Inspection Tool can be remotely positioned and operated by an inspection class ROV. It consists of two PECT probes mounted in a carrier ring, a main frame, a front and rear saddle, two sets of clamps, a pressure vessel that houses a multiplexer, and the electronics for the data/power interface with the ROV. A buoyancy set maintains the tool neutral in water.

The carrier ring allows longitudinal and circumferential movement to the PECT probe. The rotation arc moves around the pipe covering completely the circumference of the section (360 degrees). The carrier ring slides longitudinally along the pipe covering about one (1) meter of the pipe section.







Based on a static footprint by footprint measurement, the PECT technique shows an average reading for each footprint area with wall loss above 10%. Defect detection is possible when the defect size area is in the range of at least 50% size area of the footprint, in this case general corrosion larger than 52.5 mm in diameter.

With the defect detection capability having accuracy of between +/- 10-20%, the PECT technique is only applied when thick coating is in place and an inspection is required without removing the in-place coating. Based on the probe dimensions and footprint calculation for this inspection the suggested resolution is 50mm x 50mm, footprint is 105mm, half foot print is 52.5 mm. The resultant corrosion mapping is displayed in 2D or 3D.

The Pulsed Eddy Current Technique is a powerful tool for non-destructive testing, providing valuable insights into the condition of conductive materials, particularly in situations where coatings are present. With continuous advancements in technology, PEC continues to play a crucial role in ensuring the integrity and safety of industrial assets.

QA AND HS&E

Sonomatic operate under an integrated QHSE management system and are committed to the highest quality and safety of service provision | ISO 9001: 2015: 00007140 | ISO 14001:2015:00037371 | ISO 45001:2018:00037372 | ISO 17020: 2012: 4276 | Achilles FPAL Verified: 076712 | SEQual 1988 | British Safety Council Member: S0388440 |

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