

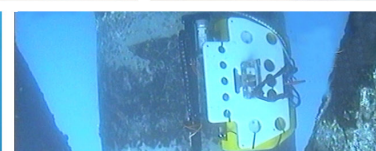
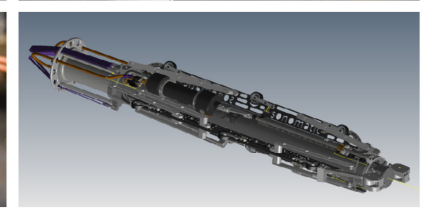
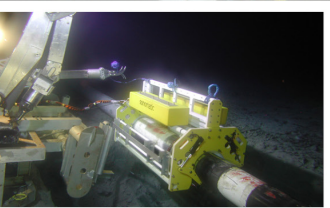
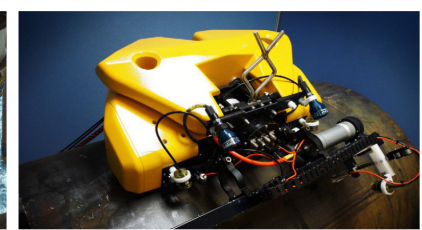
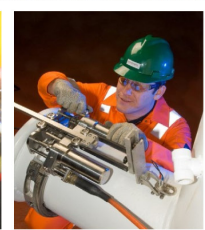
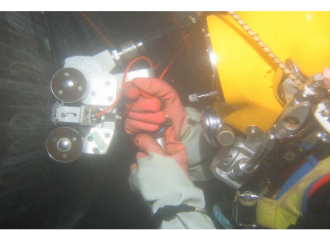
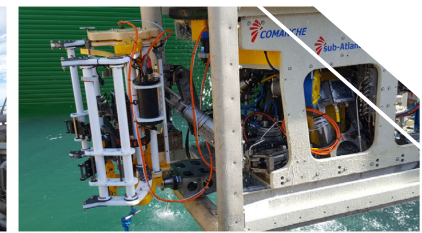
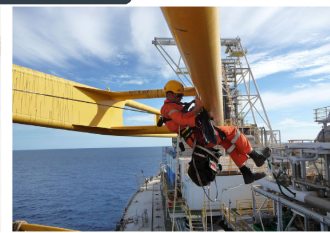
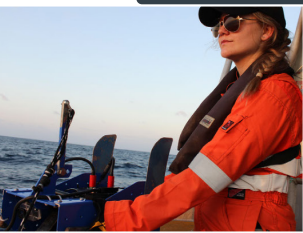
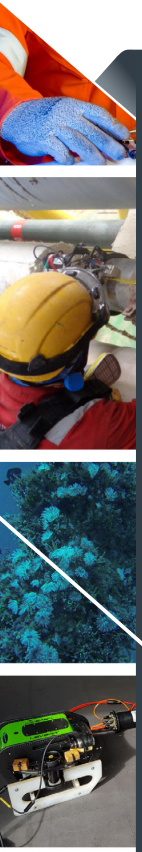


SONOMATIC

DATA SHEET ROBOTICS FOR NII

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 Robotics used for Non-Intrusive Inspection.



ROBOTICS FOR NII

Sonomatic are working with the UK Oil and Gas Technology Centre (OGTC) to design and build a semi-autonomous inspection robot. The robot can be used for corrosion mapping inspection projects, for example, a Non-Intrusive Inspections (NII) campaign, however it can be used on other inspection projects. The robot will provide rapid inspection with full real world positional tracking and autonomy, freeing up the inspection technician to carryout inspections on other areas.

THE ISSUE

There is a growing interest in using NII for inspections across industry sectors. NII offers the following advantages:

- ✔ Inspections can be done with equipment on-line.
- ✔ Production is not affected by inspection requirements (reduced TAR (turn around and shutdown) durations).
- ✔ Avoids the need for personnel entry.
- ✔ Cost of inspection is lower.
- ✔ NII provides quantitative data on equipment condition more efficient and effective integrity management.

There are three main types of NII inspection:

- ✔ Type A, where the aim is to confirm absence of corrosion through sampling inspection.
- ✔ Type B, where the aim is to sample sufficient areas of the vessel to allow robust statistical analysis to estimate the condition of the uninspected regions.
- ✔ Type C, where high (100%) coverage of the vessel is required because sampling is not justifiable. This typically applies when expected degradation is severe or inhomogeneous, i.e. it is not possible to predict the location of degradation.

The costs of gathering the required information through limited coverage (supported by statistical analysis) for Type A and B are lower than is required for Type C. Scanners tend to be relatively slow and heavy and require high levels of technician input. There is a need for a faster, semi-autonomous scanner to facilitate faster, more efficient NII.



FEATURES

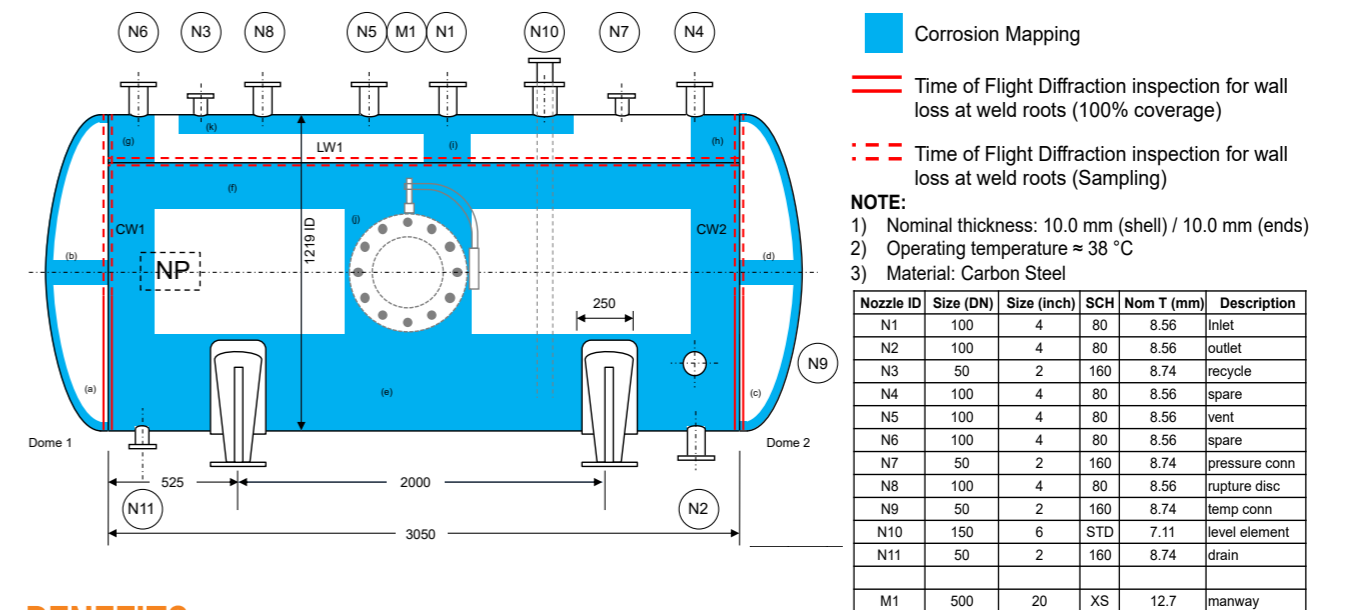
This project objectives are to deliver a highly manoeuvrable lightweight scanner which will allow rapid inspection of areas autonomously.

Hardware

A small, battery powered lightweight scanner with air coupled (or similar) inspection system to remove need for an irrigated couplant feed. Highly manoeuvrable to allow rapid travel on surfaces with obstructions.

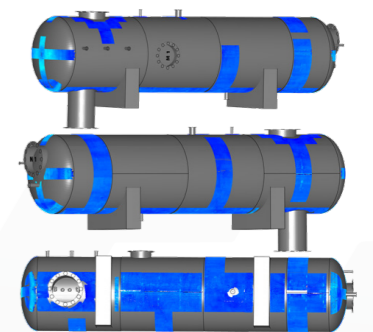
Software

Built in positional and automated navigation system to allow minimal operator intervention. Integration with 3D modelling software to allow automated generation of 3D maps and rapid processing of inspection data and report generation.



BENEFITS

- ✔ Improve inspection speeds while maintaining wall thickness accuracy.
- ✔ Improve positional accuracy and inspection repeatability.
- ✔ Improve quality of inspection data.
- ✔ Reduce reporting times and improving reporting accuracy.
- ✔ Improve accuracy of statistical analysis and trending.
- ✔ Reduce man hours onsite.



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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