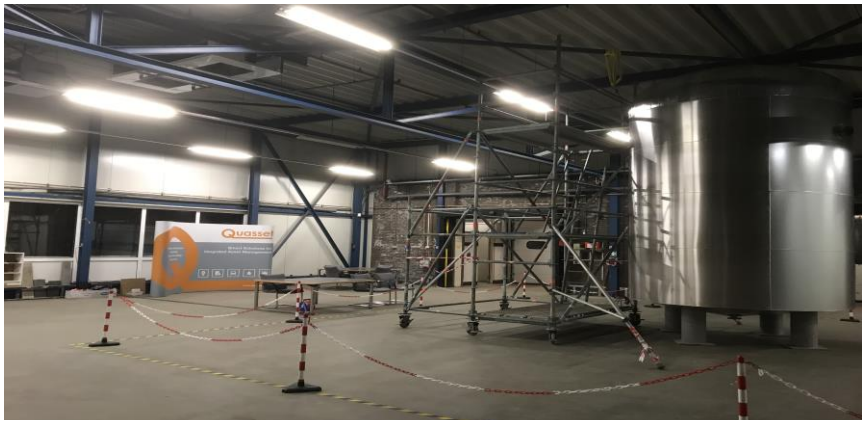
CUI TRIALS

Robots for Non-Magnetic Surfaces

Assessment of Vortex Scanner Capabilities

Commissioned by Shell Global Solutions



Project Aim

This project aimed to assess the current capabilities of robots for non-magnetic surfaces for deployment in the petrochemical industry and was executed at Quasset's Robotic Test Facility in Huizen, the Netherlands.

Focus of trials

The trials were focused on demonstrating current robot capabilities and exploring the techno-logy and deployment gaps. This included testing the capabilities on typical cladded materials, as well as on different surfaces and material configurations typical for the industry.

Capabilities

- Capable to work on flat and large diameter non-magnetic surfaces. e.g. insulated tanks and pressure vessels.
- Capable to work over surface. irregularities and insulation breaches.
- Capable to avoid obstacles.
- Capable to deliver nozzle inspection.
- Lightweight and easy to deploy.
- Wireless remote controller for ease of operation.

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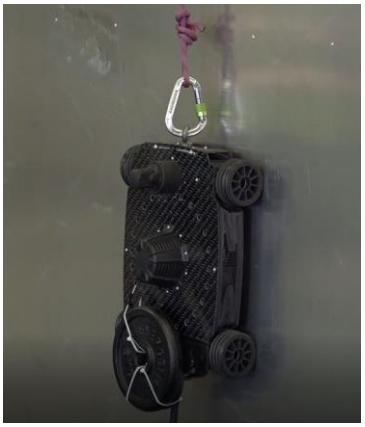
Vortex Scanner NDT: how it works

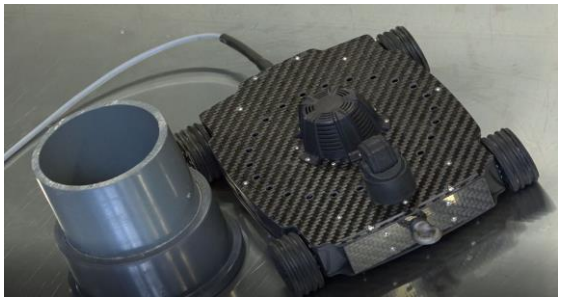


The crawler uses vacuum adhesion technology to navigate various large non-magnetic surfaces in difficult to access and hazardous environments. Vortex Scanner's compact yet robust design gives it potential for:

- providing rapid deployment and cost effective on-site inspection, whilst increasing safety
- eliminating human exposure to potentially hazardous environments by allowing for inspection from a safe and remote location

Vortex Scanner continuously records inspection signals as it moves over the inspection surface for condition assessment (eddy current inspection), rebar corrosion mapping (GPR) or visual inspection. Vortex Scanner provides a faster solution over manual inspection allowing increased inspection and significantly improved the probability of defect detection.

Results Vortex Scanner



During the trials, Vortex Scanner particularly impressed with ease of setup and its manoeuvrability around the obstacles. The light weight robotic scanner could easily negotiate various types of insulation including aluminium, galvanised steel and stainless steel. The scanner demonstrated the capability to negotiate surface damages and large insulation breach.

Way Forward

- More powerful and durable design for different surface conditions.
- Capability to work on large diameter insulated piping.

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