Flexible / Rigid Riser Inspection

MEC-Hug Crawler

Overview

The MEC-Hug Crawler is a sophisticated self-crawling inspection system developed to provide a reliable and technically advanced inspection solution for flexible risers, rigid risers and subsea cables at their working locations.

For the inspection of flexible risers, the inspection technique is extended by specific sensors to the MEC-FIT™ technique which combines DC magnetic and Eddy Current field lines to allow a deeper penetration into the various layers to detect single or multiple wire damages.

The MEC-FIT™ technique not only enables the selection of the flexible riser layers to be inspected but allows the optimisation of inspection for a specific layer from which a defect signal is received.

The capabilities of the MEC-FIT™ technique are:

- **Fast external scanning with electromagnetic field penetrating into 3 wire layers.**
- **Detection of cracks, pitting corrosion and general corrosion in single wire and multiple wires**
- **Detection of wire misalignment and wire gaps**
- **Signal separation in layers, defects and wire gaps**
- **Fast external scanning in axial direction for wire angle <37° and scanning in circumferential direction for wire angle >37°**
- **No couplant or annulus flooding is required for the inspection which minimises the risk of damage to the inner layers of the flexible risers**

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The MEC-Hug Crawler clamps around the pipe and moves along the pipe driven by its own hydraulic powered motors. A change-out of the sensor system enables MEC-Hug Crawler to be used for the inspection of flexible risers, general riser pipes and subsea cables.

Deployed by ROV or from the installation, the MEC-Hug Crawler embraces the flexible risers or general pipes and moves on its own through the splash zone, driven by its hydraulic powered motor, while performing the external inspection at a speed of up to 10m/min.

The signal data with encoded position details is transferred in real time via the umbilical to the inspection computer located at the ROV control unit on the support vessel or on the installation to provide instantaneous inspection results.

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Technical Specifications

DEPLOYMENT	
External Deployment	Vertical or horizontal Deployable by ROV or over board from the installation
CAPABILITIES	
Wall Thickness Range	Up to 3 wire layers of the flexible riser Up to 26 mm for general riser pipe
Coating Thickness Range	Up to 12 mm
Diameter Range	4” to 20”
Depth Threshold for Detection	Corrosion defects from 10% wire thickness Wall loss cracks from 1mm depth
Accuracy	Dependent on configuration, typically 5% - 10% of detected defect wall loss
Scanning Capability	Axial scanning of flexible risers / pipes with wire angle structure up to 37°
Defect Separation	Different layer defects will be defined by magnetic field variation
DIMENSIONS	
Depth Rating	400 metre water depth (deeper rating on request)
Weight	350 Kg in air, approx. 20 Kg in water (depending on buoyancy)
Sizes (H x Ø)	2,000 mm x 800 mm* (* to 1,300 mm depending on pipe OD)
Sensors	8 sensors in circumference with 180 mm scan width Scanner head rotation to cover full circumference
Magnetisation Unit	Permanent magnet
Camera	2x
Umbilical	Option A : Deployment from installation – Umbilical length 70 metre Option B : Deployment from ROV – Umbilical length dependent on ROV
Fail Safe	Yes, fully built-in
ACCESS REQUIREMENTS	
Required Clearance	Dependent on the scanner size; from 700 mm to 1,000 mm of external space is required to allow for axial scanning
Coating	Coating is not required to be removed for the inspection
Marine Growth	Heavy marine growth is required to be cleaned off

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