



Overview

The MEC-Combi Crawler is a sophisticated self-crawling inspection system designed to target inspection, deployment and subsea accessibility challenges. It supports the inspection of subsea structures such as risers, caissons, platform structural legs and flat surfaces like ship hulls.

It is based on the next generation MEC (Magnetic Eddy Current) technique which is a further development of the fast corrosion screening SLOFEC™ technique. By operating on high frequency magnetic field controlled Eddy Current with specially developed Eddy Current sensors, the MEC technique is capable of enhanced inspection capabilities including the detection and sizing of internal and external defects at higher wall thickness and coating range.

The MEC-Combi Crawler is a versatile inspection tool and enables supporting add-on inspection techniques such as high resolution Ultrasonic mapping, Pulsed Eddy Current, laser triangulation system, camera system, etc to be incorporated to provide comprehensive inspection data within a single deployment.

The capabilities of the MEC-Combi Crawler are:

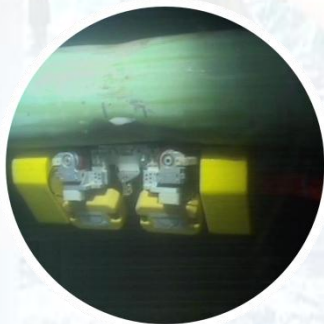
- High detection sensitivity for external and internal corrosion and defects
- Ability to crawl along the structures into the splash zone while remaining in stable contact with the inspection surface due to its integral buoyancy, hydraulic wheels and magnetic system
- Ability to inspect through surface coating, clad or paint and at various subsea depths

MEC-Combi Crawler

The MEC-Combi Crawler enables the detection of localised defects and general wall loss in subsea structures while scanning externally. A change out of the curvature adaptation allows the MEC-Combi Crawler to be used for the inspection of smaller diameter pipes and flat surfaces like ship hulls.

Deployed vertically or horizontally by ROV or from the installation by ROV or divers, the MEC-Combi Crawler moves up from the starting position along the subsea structure to perform the inspection at an average speed of 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. The advanced reporting software utilises a combination of comprehensive C-Scan mapping of the internal and external wall condition, individual defect sizing analysis as well as matrix data to provide reliable information about remaining wall thickness, thus forming a robust basis for asset integrity assessment.



Subsea Pipe / Structure Inspection

MEC-Combi Crawler



Technical Specifications

DEPLOYMENT	
External Deployment	Vertical or horizontal Deployable by ROV, diver or from the installation
CAPABILITIES	
Wall Thickness Range	Up to 25.4 mm (1")
Coating Thickness Range	Up to 15 mm (current tests up to 30 mm)
Diameter Range	6" to flat (smaller diameters on request)
Depth Threshold for Detection	Defects \geq 10% WT wall loss (external or internal)
Defect Detection	Smallest calibration defect detection setup; From 3 – 5 mm diameter at depth threshold of 20% WT for far side wall defects
Accuracy	\pm 5% – 10% of nominal wall thickness
Defect Separation	External from internal defects with separate external / internal mapping report
DIMENSIONS	
Depth Rating	400 metre water depth (deeper rating on request)
Weight	160 Kg in air, approx. 20 Kg in water (dependent on buoyancy setup)
Sizes (L x W x H)	1,500 mm x 1,000 mm x 680 mm (dependent on diameter size)
Sensors (MEC)	8 sensors in circumference with 180 mm scan width
Sensors (UT) ~ Optional	Multiple UT Sensor Array 8 or 16 UT channels operating at 3 or 5 MHz
Magnetisation Unit	Permanent magnet
Camera	2x
Umbilical	Via ROV fibre optic data; transfer length depends on ROV umbilical
Fail Safe	Yes, fully built-in
ACCESS REQUIREMENTS	
Required Clearance	Dependent on the scanner size; from 600 mm to 1,000 mm of external space is required to allow for axial scanning
Coating	Coating or clad is not required to be removed for the inspection
Marine Growth	Heavy marine growth is required to be cleaned off
Reporting	
Reporting Software	InnospectIT Software – Version 2.9 Recorded inspection data in high resolution d-base format is transferred by data logger

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