

### Overview



The MEC-Hug PipeCrawler is a sophisticated self-crawling inspection system able to scan in both axial and circumferential directions. It has been developed to provide a reliable and technically advanced inspection solution for flexible risers and flexible pipes at their working locations while accommodating the various degrees of wire angle structures.



The MEC-FIT™ flexible riser inspection technique combines direct current magnetic field and Eddy Current field 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
- Scanning in axial direction for wire angle  $<37^\circ$  and scanning in circumferential direction for wire angle  $>37^\circ$
- No couplant or annulus flooding is required for the inspection which minimises the risk of damage to the inner layers of the flexible risers



### MEC-Hug PipeCrawler

Deployed vertically or horizontally by ROV, the MEC-Hug PipeCrawler embraces the flexible risers or flexible 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 MEC-Hug PipeCrawler enables the deployment via work-class or inspection-class ROV and is capable of scanning in both the axial and circumferential direction to accommodate the wire angle structure of the flexible risers or flexible pipes.

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.

# Flexible Riser / Pipe Inspection

## MEC-Hug PipeCrawler



### Technical Specifications

DEPLOYMENT	
External Deployment	Vertical or horizontal Deployable by work-class and inspection-class ROV
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	< 37° wire angle structure – scanning in axial direction > 37° wire angle structure – scanning in circumferential direction
Defect Separation	Different layer defects will be defined by magnetic field variation
DIMENSIONS	
Depth Rating	400 metre water depth (deeper rating on request)
Weight	215 Kg in air, approx. 7 Kg in water (depending on buoyancy)
Sizes (L x W x H)	1,200 mm x 1,000 mm x 510 mm
Sensors	8 sensors in circumference with 180 mm scan width Scanner head rotation to cover full circumference
Magnetisation Unit	Permanent magnet
Camera	2x
Umbilical	Umbilical length dependent on ROV
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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