



Key Features & Benefits

- High defect detection sensitivity for corrosion and pitting in tanks with plate and coating thickness up to 30mm and 10mm respectively
- Enhanced Probability of Detection (POD) for topside and underside defects from < 10% wall loss, depending on wall thickness and defect size from Ø 3mm
- Distinction between topside and underside defects as well as false calls by means of the signal phase
- Ability to inspect annular plates without the need for coating removal or shot blasting, resulting in a faster and more economical inspection operation
- Ability to scan right next to tank shell and along plate welds, resulting in time and cost savings and increased reliability in scanning
- Direct sizing of defects during the scanning process without the need for Ultrasonic verification
- Minimal surface preparation prior to inspection including no coating removal or surface blasting, resulting in a shorter time of tank being out of service
- Ability to inspect stainless and carbon steel tanks
- High inspection speed of approx. 25m/min

TÜV Certified MEC-F15 Floorscanner

The MEC-Floorscanners are designed and built for the high speed and high performance inspection of storage tanks. Based on the next generation MEC (Magnetic Eddy Current) technique which is a further development of the fast corrosion mapping SLOFEC™ technique, the MEC-Floorscanners enable the detection of topside and underside defects in stainless steel and carbon steel tank floors, including through the typical tank floor coatings.

The MEC-F15 Floorscanner which is TÜV certified has been ergonomically designed to ensure that the operator can lower the handle of the unit to assist with getting under any furniture within the tank to ensure that the maximum coverage is scanned within the tank. The handle of the unit can be pivoted to allow the operator to get the scanner head nearer to the tank wall. The system is designed to be used by a single competent operator.

With its comprehensive reporting software, accurate, reliable and repeatable inspection results are provided in real time. The advanced colour condition mapping report provides an analysis of both the detected external and internal defects in terms of size, wall loss severity and location.

Technical Specifications

		MEC-F15 [TÜV Certified]	MEC-F30
GENERAL SPECIFICATIONS			
Magnet Unit	(L x W x H ; Weight)	663 x 310 x 168 mm ; 66 kg	632 x 415 x 200 mm ; 90 kg
Arm Unit	(L x W x H ; Weight)	197 x 275 x 1100 mm ; 18 kg	
Control Panel with Handle Bar	(L x W x H ; Weight)	200 x 463 x 230 mm ; 6 kg	
Complete scanner upright	(L x W x H ; Weight)	840 x 463 x 1661 ; 90 kg	
Complete scanner flat position	(L x W x H ; Weight)	1829 x 463 x 671 ; 90 kg	
No. of sensors		8	8
Sensor width		37.5 mm each	37.5 mm each
Scanning width		300 mm	300 mm
Typical wall thickness range * ¹		0 – 15 mm	0 – 30 mm
Use for diameter		Flat	Flat
Magnetisation Unit		Permanent Magnet System	Electromagnetic System
POWER SUPPLY UNIT			
Outside the tank		110 – 240 VAC (optional external battery pack driven)	
For motor & electronics inside the tank		36 VDC	
Dimensions (L x W x H ; Weight)		500 x 400 x 190 mm ; 15 kg	
SIGNAL CABLE			
Max. cable length * ²		90 metres	
Weight		0.3 Kg/m	
EDDY CURRENT UNIT & COMPUTER			
Electronics		Multiple Channel Eddy Current System with Eddy Current and Multiplexer Electronic Units mounted on scanner unit	
Computer		Industrial laptop system connected via USB port to Multiple Channel Eddy Current System with either: - laptop mounted on scanner drive panel, or - separate laptop and connected via scanner umbilical	
TYPICAL FAR SIDE DEFECT DETECTION SENSITIVITY AT MID WT RANGE			
Typical smallest defect size * ³		~ Ø 3 – 5 mm	~ Ø 3 – 5 mm
Typical smallest defect depth * ⁴		From 10% - 20%	From 10% - 20%
Max. stand-off / coating		5 – 7 mm	8 – 10 mm
Reporting			
Reporting Software		InnospectIT Software – Version 2.9	

*¹ Refers to the typical wall thickness range of standard material; may vary depending on material quality.

*² The cable length is divided into sections of 30m; extended cable length is available on request.

*³ Refers to possible detectability, depending on scanner stand-off, quality of material and general surface condition.

*⁴ Refers to possible detectability, depending on general surface condition.

Innospection Limited

Unit 1, Howemoss Avenue, Kirkhill Industrial Estate, Dyce, AB21 0GP, Aberdeen, United Kingdom

Tel : +44 (0)1224-724744

Email : info@innospection.com

Web : www.innospection.com

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Advantages of MEC Technique

MEC is a dynamic electromagnetic technique that operates on a high frequency Eddy Current field with a controlled direct current magnetic field in combination with specially developed sensors and advanced software algorithms to generate a higher density Eddy Current field. As a result, the MEC technique offers the following advantages over the Magnetic Flux Leakage (MFL) technique.

- **Lower direct current magnetic field**

The MEC technique generates a lower direct current magnetic field than MFL which enables:

- Higher wall thickness inspection e.g. at the annular plates
- Larger stand-off inspection e.g. coated tank floors up to 10mm coating
- Lesser influence from wavy floor plates
- Higher detection of small and shallow defects on either side of the tank floor

- **Higher frequency Eddy Current**

The higher frequency that the MEC technique operates on provides the following advantages:

- Differentiating and mapping topside and underside defects separately
- Differentiating defects from non-defect indications such as inclusions and laminations through the use of the signal phase
- Very low influence of the defect shape on the defect detection
- High defect detection sensitivity of > 3mm pits from 10% wall loss
 - With a POD of > 90% for defects \varnothing > 5mm and > 20% wall loss
 - Accuracy of defect sizing of +/- 10% for onsite reporting and +/- 5% for special offline analysis

- **Direct assessment of detected defects**

The MEC technique enables the direct sizing of defects during scanning without the need for Ultrasonic verification which helps to save time

Improved Technical Features of TÜV Certified MEC-F15 Floorscanner

- Ability to scan right up to the tank shell guided by the wheels to the shell
- Ability to change the scanning lift-off for the inspection of surfaces that are not well-cleaned
- Improved signal to noise ratio which enhances the defect detection level
- Improved magnetisation level and magnetic field level control
- Shorter wheel distance which allows lesser influence from wavy bottom plates
- Fast magnet on/off for faster positioning and manoeuvring from track to track during scanning
- Encoder run which enables the C-Scan mapping

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