

Floormap3D

MFL Floor Scanner with STARS Top & Bottom Defect Discrimination

- 20 years MFL development in over 60 global locations
- Through coating inspection up to 6 mm including FRP, GRP and SS
- Full tank floor data recording
- USB for data transfer
- Digital calibration for different plate thicknesses
- 64 channel 256 sensor MFL acquisition for 4.6 x 2 mm scanning resolution
- Battery powered, no 110/240 v cables required
- On board Sitemaster 2 providing immediate Plate scan view for defect assessment
- Field proven durability & reliability
- Motor driven, 0.5 m/s constant scanning speed eliminating API 653 Appendix G operator requirements

Silverwing's Floormap3D with STARS technology is the highest performance Magnetic Flux Leakage (MFL) storage tank inspection system on the market today. Building on over 20 years experience and the best selling FloormapVS2i, Silverwing has developed top and bottom defect discrimination using surface topology air-gap reluctance sensors (STARS), enabling tank engineers and asset owners to determine the optimum repair strategy and improve risk life assessment (RLA) & risk based inspection (RBI) maintenance programs.

The Floormap3D has the highest density of MFL sensors, coupled with advanced signal processing to deliver greater accuracy and probability of detection at maximum efficiency.

Surface Profile with STARS Technology

The innovative STARS technology (patent pending) adds an additional set of sensors to detect variation in magnetic field strength caused by top side defects, and combines this with traditional MFL indications to identify top or bottom location. The Floormap3D has a total of 256 sensors, enhancing lateral resolution to detect smaller defects, and reduce sensitivity to defect orientation. The top surface discrimination works effectively through up to 6 mm (1/4") coating, enabling effective tank inspection without coating removal.

Digital Calibration

In addition to improved defect sizing, the new fully digital calibration system removes the need to adjust scanner height for different plate thickness, providing instant switching between floor plates of different thickness. Traditionally the MFL scanner would have to be removed from the tank and re-calibrated to inspect different thickness plates, consuming time and placing extra demand on technicians. The digital calibration is recorded within each plate data file, providing traceability back to inspection settings.

High Productivity And Accuracy

The Floormap3D has a wider sensor scanning head than previous models capable of scanning up to 1440 m² per day, and unlike manual "stop on defect" systems, this is irrespective of the number of indications found. The software guided mapping process encourages the most efficient plate coverage, and helps ensure the maximum area is scanned reducing the chance of missed corrosion.

The high resolution MFL sensor head coupled with advanced signal processing, significantly improves corrosion detectability and sizing over previous generation systems. Typically on a 6 mm (1/4") plate, defects as small as 20% (as specified by API 653) have a 100% probability of detection, with sizing accuracy better than +/- 5%. The system will also detect pipe type defects and through holes down to 3 mm (1/8"), with the unique raw MFL and STARS data views aiding in characterisation of defect types.



To discuss your requirements contact InCon

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9001:2000 and in full
compliance with H&S
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Data Acquisition Software

The on-board computer uses touch screen technology and proven user interface for ease of use within the hostile storage tank environment. The system captures all the MFL signals, analyses, and displays the location and severity of the corrosion in real time. The operator can select to view top, bottom or full defect maps, providing instant feedback on tank condition. Plates are defined by shape and size, and the most efficient scan path displayed for the operator to follow. Obstacles such as heater pipe, roof supports and old patch plates are catered for, and displayed as un-scanned areas.

Reporting Software

The Floormap3D is supported by the SIMS reporting suite which automatically builds a CAD layout of the tank floor from the data file. SIMS provides the most powerful and efficient means to create high quality reports on tank condition, and archiving of inspection results for traceability. Additional data from visual, ultrasonic, vacuum box, magnetic particle inspection or even PDF's can be added to the report, generating a full fingerprint of the tank floor including the annular plates. An innovative feature of the software allows subsequent inspection data to be overlaid and corrosion growth assessed as part of RLA/ RBI programme.

Principle of operation	Magnetic Flux Leakage & Magnetic Field Reluctance
Detection	256 Hall Effect sensors, 64 channels
Scan width	300 mm (12")
Max single scan length	15 metres (50 feet)
Position accuracy	+/- 3 mm (0.11") or (+/- 0.04%)
Un-scanned area	10 mm (0.4") from plate weld, 160 x 160 mm (6.3 x 6.3") corner dead zone
Method of propulsion	DC motor
Speed	0.5 m/sec (19.6" /sec)
Thickness range	Maximum 12.5mm (automated sizing mode)
Test through coatings	Yes if non-magnetic
Max coatings thickness	6 mm (1/4") on 6 mm (1/4") plate, 4 mm (5/32") on 10 mm (3/8") plate
Top and bottom discrimination	Yes, STARS system
Defect Accuracy	+/- 5% on 20 mm ball type or API 653 type defect
Max sensitivity	20% material loss (ball type) under floor and top surface
Data storage	Yes, internal SSD, transfer via USB
Real-time analysis	Defect size and X/Y position, plate view, top/bottom/MFL/STARS view
Supported plate types	Rectangle, annular, sketch
Scan overlap	0 to 50 mm (2") with transparent tracks to show all defects
Inspection summary	Number of plates, percentage complete, quick link to plate view
Power requirements	Includes 4 x 12v batteries and 3 chargers for continuous use
Transit case	Meets IATA requirements for transporting magnetisable material
Operating weight	57.5 kg (126 lb)
System software	Field updatable
SIMS reporting suite	Full version
Read only version	Unlimited

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