

# Technology Driven Not Operator Dependent



Technical Specification:	Patent Pending (EU: GB105193.5, GB1110889.1, GB1109371.3 and USA: 13175440)
Principle of operation:	Magnetic Flux Leakage & Magnetic Field Reluctance
Detection:	256 off Hall Effect sensors arranged in 3D orientation
Scan width:	300mm
Maximum single scan length:	15 metres
Method of propulsion:	DC motor
Speed:	0.5m/ sec
Thickness range:	Maximum 12.5mm (automated sizing mode)
Test through coatings:	Yes if non magnetic
Maximum coating thickness:	6mm
Top and bottom discrimination:	Yes
Sensitivity:	Adjustable
Max sensitivity:	20% material loss (conical pit) under floor and top surface
Data storage:	Yes
Real time analysis:	Yes
Power requirements:	12v battery operation - Supplied with 3 batteries and 2 chargers
Transit case:	Meets IATA requirements for transporting magnetisable material
Operating weight:	57.5 kg
System Software:	Field updatable
Floormap3D Reporting Suite:	Full version - 3 user license included.
	Read only version - unlimited
	Operating system requirement - Windows XP, Vista or 7
Training:	4 days Silverwing based training and examination included.

### Options:

Calibration Plates:	6 mm - Part No: CP64
	8 mm - Part No: CP65
	10 mm - Part No: CP66
	12 mm - Part No: CP67
Pre-configured Reporting Laptop:	Windows 7 & Floormap3D reporting suite
Additional Software Licenses:	Bundles of 3 additional user licenses

# SILVERWING

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## **Advanced MFL Tank Inspection with STARS Top & Bottom Defect Discrimination**

Top surface profile with STARS technology



Scanned plate

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

The innovative STARS technology (patent pending EU: GB105193.5, GB1110889.1, GB1109371.3 and USA: 13175440) 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.

Large button user interface



The on-board computer uses touch screen technology and proven user interface design for ease of use within the hostile storage tank environment. The custom designed data acquisition software not only captures all the MFL signals but analyses and displays the location and severity of the corrosion in real time. The operator can easily select to view top, bottom or full defect maps, providing instant feedback on tank condition.

In addition to improved defect reporting, the new 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 off-line reporting software automatically produces a CAD drawing of the tank floor with the defects being positioned to within 3mm accuracy. All captured data, over 20% loss of the nominal plate thickness, is re-analysed to identify the defect profile and separate the corrosion into 1 of 3 classes. Different sizing algorithms are applied to each class of corrosion ensuring enhanced defect sizing even on badly corroded floors where small diameter deep pits may otherwise have been undersized.

The Floormap3D reporting suite has the capability to view both the top surface and bottom surface corrosion on one screen with the option to view corrosion from either the top surface or bottom surface at the click of a button.

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.

These features couple together with patch plate design and prove up functions give the tankage engineer a powerful, cost effective tool with which to carry out trending and asset life projections.



Plate view showing top & bottom defects





Plate view showing top defects



Add patch plates & photos