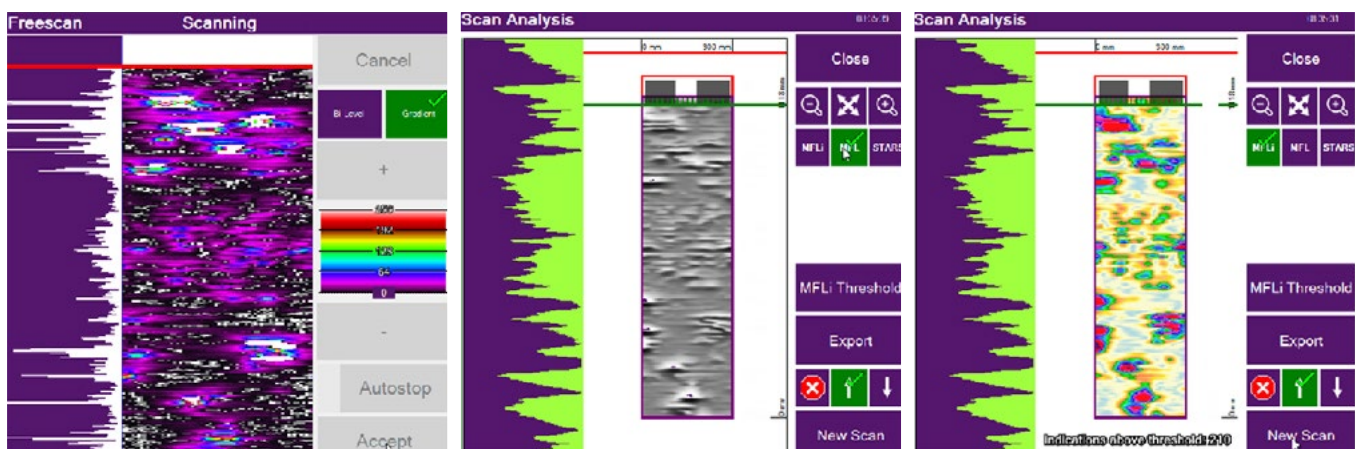
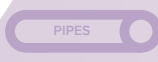


# MFLi3000

Motorised MFL Floor Scanner with Real Time Scan, MFLi and STARS Top Surface View



- > FREE SCAN & STOP ON DEFECT CAPABILITY
- > MFLi PLATE VIEW FOR SCAN ANALYSIS
- > DIGITAL CALIBRATION WITH STORE/RECALL
- > STARS TOP SURFACE VIEW



# MFLi3000

## ADVANCED MFL TANK INSPECTION WITH REAL TIME SCAN, STARS TOP VIEW & MFLi DEFECT ANALYSIS

Silverwing is world renowned for its advanced Magnetic Flux Leakage (MFL) tank floor scanning systems, with our mapping Floormap3Di established as the industry benchmark. However, Silverwing recognizes that full tank mapping is not always required and there is also a requirement for rapid MFL screening combined with ultrasonic defect sizing. The MFLi3000 has been designed to meet this demand by bringing together the advanced defect detection capability of our Floormap systems with a simple to use scanner system.

The MFLi3000 has a unique Real Time Scan view that displays the MFL signal response whilst scanning, and the latest MFLi defect analysis view for evaluation at the end of each scan. An innovative reverse drive mode allows the technician to retrace the scan, easily locating areas of interest and significantly reducing prove up time. Also incorporated is Silverwing's patented STARS sensor technology giving a detailed image of top side corrosion, even through coatings up to 1/4" thick.

### KEY FEATURES

- > MFL Scanner with 12", 64 channel MFL head, total 256 sensors
- > Touch screen ruggedized tablet computer for display and control
- > Motorised with speed control – 20 inches per second
- > Real Time Scan (RTS) view of surface for assessing corrosion whilst scanning
- > MFLi plate view for scan analysis with adjustable threshold
- > STARS top surface view displaying top side corrosion
- > Autostop, stop on defect capability with adjustable threshold
- > Through coating inspection up to 1/4" incl FRP, GRP and SS
- > Import scan data in to CMAP reporting
- > Export of scan images to USB key
- > Floormap3Di upgrade path

### HIGH PRODUCTIVITY AND ACCURACY

The MFLi3000 is designed to increase productivity by providing the technician with powerful yet simple analysis tools.

The flexible system adapts to the testing procedures being used, whether it be monitoring a real time display, automatically stopping on defect or reviewing a whole scan at the end of a run.



### SAVING SCAN IMAGES

The MFLi3000 does not have full data recording and mapping, but still allows the technician to save particular scans of interest with addition notes.

These scans are stored in standard PNG image format that can be viewed with many word processing and image software applications or imported in to the CMAP reporting software. This gives an added level of confidence to reports, showing corrosion patterns in addition to the normal thickness record given by manual prove up.

For more information on CMAP please visit our website or view the CMAP brochure.



### REAL TIME SCAN VIEW

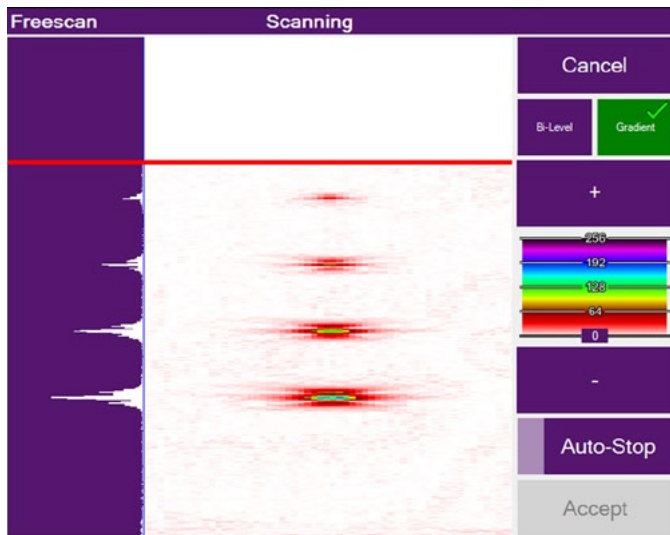
The Real Time Scan (RTS) displays an MFL view of the plate, either color coded to show the magnitude of MFL response, or set to a simple black/white view of indications above a threshold.

The technician can watch the screen during scanning to see where corrosion is present.

The information is also recorded so once the scanner stops the image remains on screen, removing the need to scan back and forwards over a suspect area.

In the scan mode the Autostop feature can be enabled to stop the scanner whenever an indication goes above a set threshold.

The user then sees an image of the last 20" scanned helping with ultrasonic or pit gage prove up.



### REAL TIME SCAN (RTS) VIEW

Real Time display of MFL view and B-scan side bar

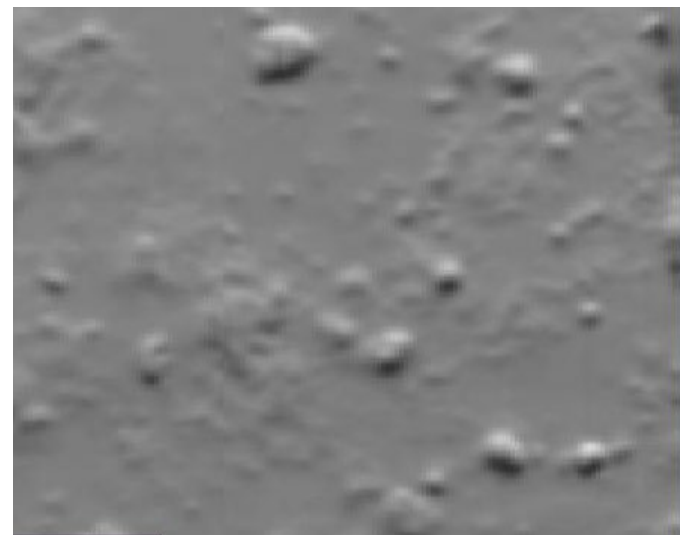
### SURFACE PROFILE WITH STARS TECHNOLOGY

The innovative STARS technology adds an additional 64 channel sensor array to detect variations in magnetic field strength caused by top side defects.

Once a scan is complete the technician can switch to the STARS view to identify top side defects, extremely useful for coated tank floors where it's not obvious without removing the coating on which side the of the plate the corrosion is originating.

This significantly speeds up the inspection and reporting process and allows engineers to determine an appropriate repair strategy.

STARS works effectively through up to 1/4" (6.35 mm) of coating.



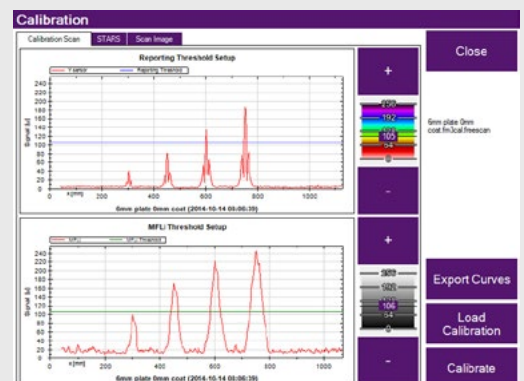
### STARS VIEW

High resolution Stars sensor view detailing top side defects

## CALIBRATION ROUTINE

The MFLi3000 system has a digital calibration system for easy set up, along with traceability of the settings for reporting.

The technician can use either a Silverwing calibration plate, or any plate with indications in the range of indications to be found. A visual graph for threshold setting and gain confirmation ensures the correct sensitivity is set quickly and easily.





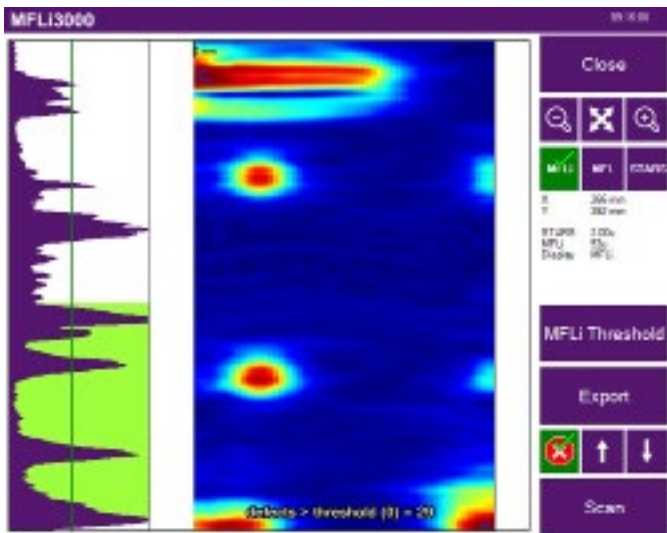
### MFLi VIEW

The MFLi3000 introduces a new high contrast plate view based on the intensity of MFL signal response.

The MFLi defect map uses multiple color palettes to highlight areas of corrosion, reduce the effect of spurious indications, and most importantly to help classify defect type. A quick review at the end of each scan gives the technician information about the plate condition, and what type, if any, corrosion exists.

This powerful detection and classification tool can reveal the presence of small diameter pitting, SRB attack, erosion patterns and other features that require further verification.

The MFLi3000 also has a unique defect detection algorithm that displays the number of indications above the set threshold, and a pseudo B-scan chart to show where they exist along the scan for rapid review.



### MFLi ZOOM VIEW

High resolution MFLi view detailing top and bottom defects

## THE SILVERWING SYSTEM

Silverwing produce a full range of equipment for corrosion inspection of storage tanks, including floor plate, wall and roof structures. The product range includes MFL mapping and manual systems, ultrasonic crawlers for thickness measurement, and vacuum boxes for weld inspection. By supplying a complete range we can offer unrivalled support, and ensure the highest quality inspection in the most efficient way. All our products are field proven by our in house teams and used by the most respected global inspection companies. For a complete overview contact our technical sales team.

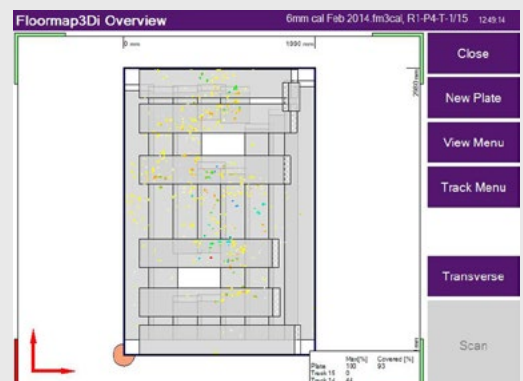


For more information on Silverwing Systems please visit our web site: [www.silverwingndt.com](http://www.silverwingndt.com)

## UPGRADE PATH

The MFLi3000 sensor head and scanning frame is the same technology as used by the Floormap3Di advanced mapping system, and can be upgraded with new software and control board to offer full mapping and advanced analysis.

The system can then operate in either Floormap3Di or MFLi3000 mode depending on inspection demands.





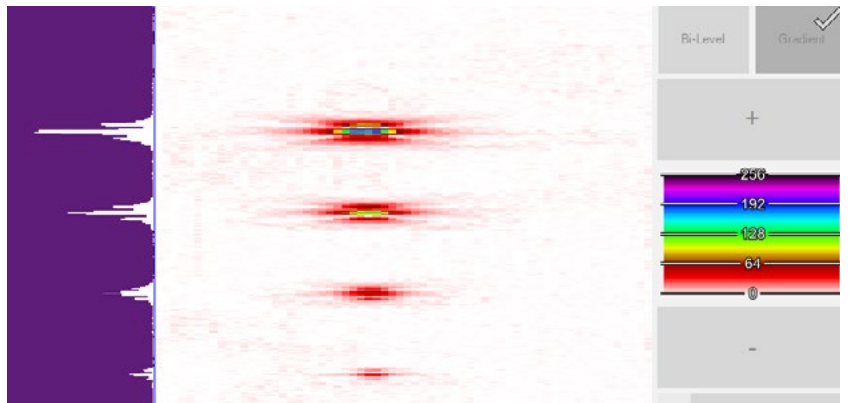
### CORRODED PLATE SAMPLE

Extensive top side corrosion pitting.



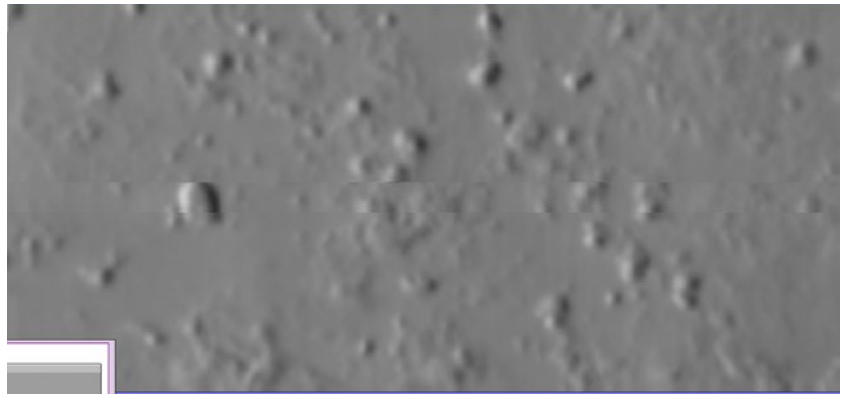
### REAL TIME SCANNING VIEW

The Real Time Scan (RTS) display of MFL view and B-scan side bar.



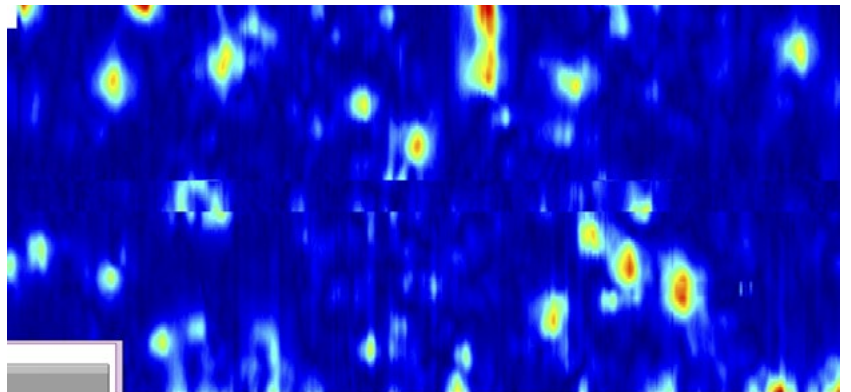
### STARS RAW DATA VIEW

View of STARS sensor output. Accurate representation of top surface profile.



### MFLi VIEW

'Intensity' view of MFL data. Used to classify and evaluate defects.



# TECHNICAL SPECIFICATION

Patent Pending (EU: GB105193.5, GB1110889.1, GB1109371.3 and USA: 13175440)

Principle of operation:	Magnetic Flux Leakage & Magnetic Field Reluctance
Method of detection:	256 Hall Effect sensors, 64 channels
Autostop:	Stop on defect mode with variable threshold
Top and bottom discrimination:	Manual, using STARS technology
Test through coatings:	Up to ¼" (6.35 mm) if non magnetic
Speed:	20" per second (500 mm / second)
Scan width:	12" (300mm)
Maximum single scan length:	105 ft (32 metres)
Scan coverage:	97 ft <sup>2</sup> / minute ( 9 m <sup>2</sup> / minute)
Positional accuracy:	± 0.04% (± 3/32" over 26 ft) (± 3 mm over 8 metres)
Method of propulsion:	DC motor, anti-static drive wheels
Rollers:	Heavy duty, multi compound rollers
Dimensions:	Height: 38.7" Width: 20", Length: 27.1" (H: 980.5 mm, Width: 510 mm, Length: 690 mm )
Weight:	126 lbs (57.5 kg)
Minimum man-way size:	20" (500 mm)
Transit case:	Meets IATA requirements for transporting magnetisable material
Power requirements:	1 x 12V, 25 amp-hour sealed lead acid batteries
Batteries supplied:	4 supplied and 3 chargers for continuous use
Typical battery operational time:	Up to 3 hours
Operating temperature:	-22°F to 131°F(-30°C to 55°C)
Storage temperature:	-31°F to 167°F ( -35°C to 75°C)
Humidity:	10 - 95% RH
Minimum defect detection sensitivity:	0.08" (2 mm) diameter pipe type 50% deep
Minimum defect sizing sensitivity:	20% material loss (ball type) under floor and top surface
Un-scanned area:	3/8" (10 mm) from plate weld, 6.3" x 6.3" (160 mm x 160 mm) corner dead zone
Real time analysis:	X / Y position, plate view, MFL, MFLi, STARS
Scan Storage:	Internal disk storage with export to USB drive, PNG format

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