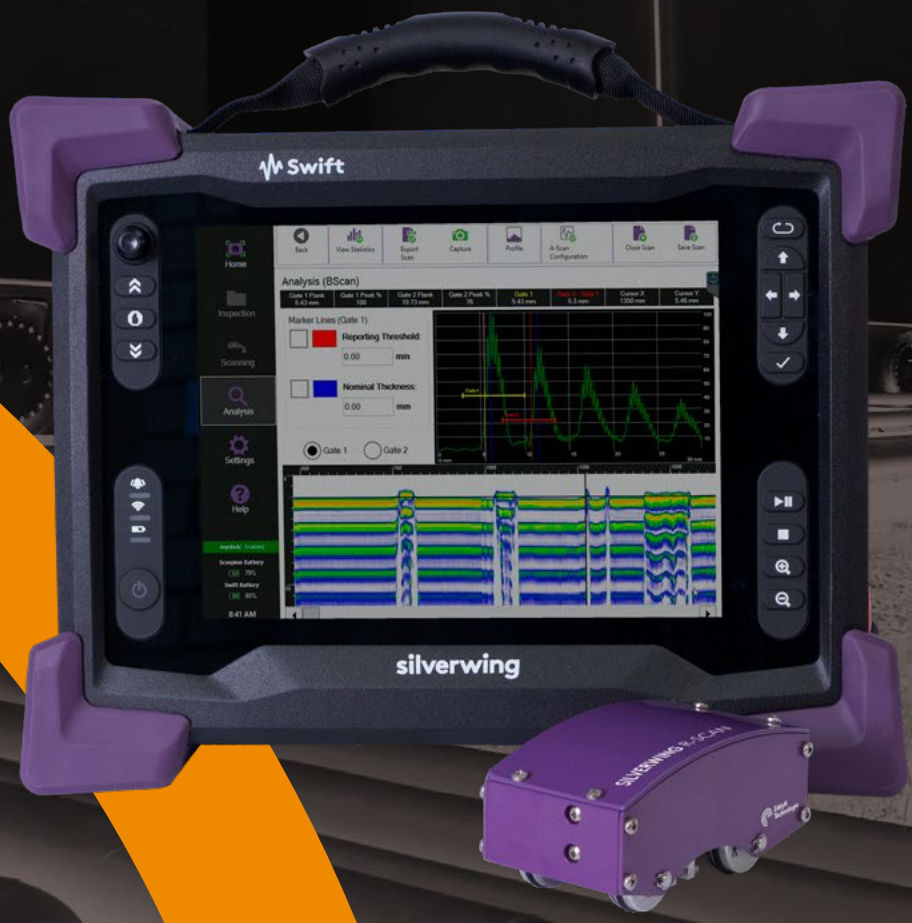
SILVERWING SWIFT R-SCAN

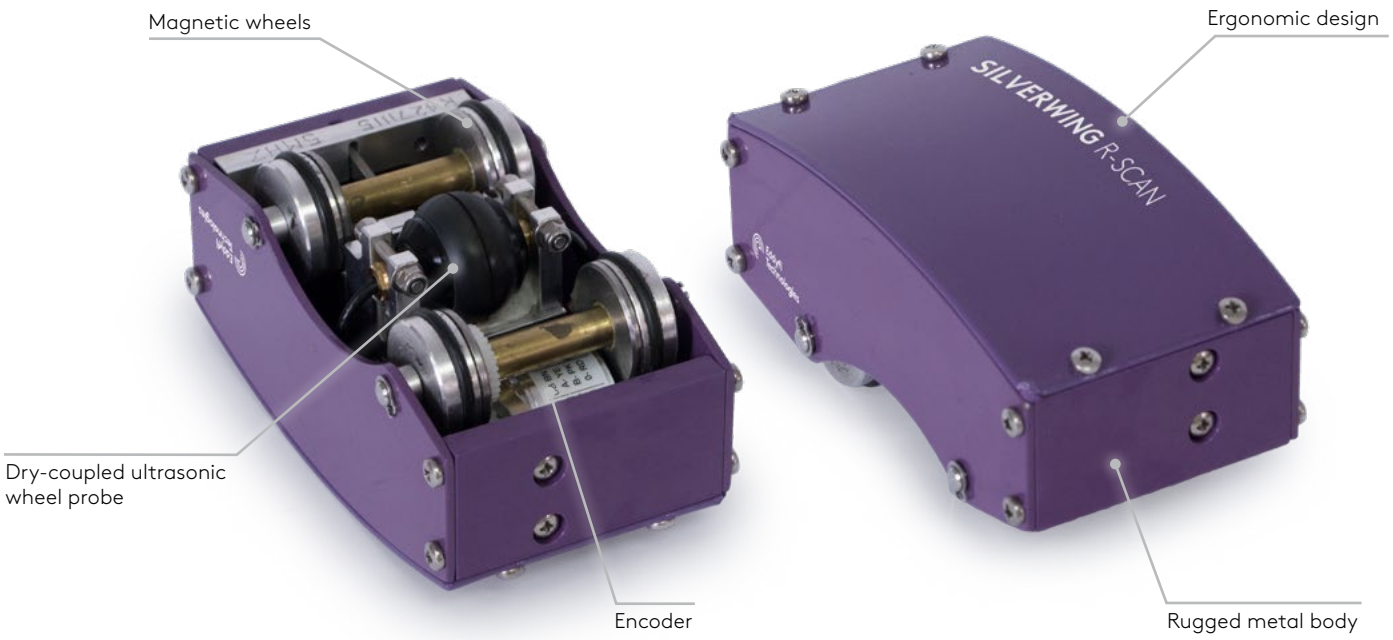
Manual, dry-coupled ultrasonic inspection system



Eddyfi Technologies

MANUAL AND EFFECTIVE UT INSPECTION A PROVEN SUCCESS. MADE BETTER.

Designed for a wide range of components and with a high probability of detection, R-Scan handheld, dry-coupled B-Scan solution is the perfect instrument for ultrasonic inspections.



THE SYSTEM

Combining the R-Scan handheld, dry-coupled scanner with the Swift ultrasonic data acquisition instrument delivers a simple to use, battery operated, portable ultrasonic inspection system ideal for application ranging from 50 mm (2 in) up to flat plate. The software is packed with unique and intuitive features all design to improve productivity and user experience.

PROBE DESIGN

Designed to be used in remote locations and harsh petro-chemical environments, Silverwing's unique dry-coupled ultrasonic wheel probe eliminates the need for couplant or a constant water supply. The probe, a dual crystal 5 MHz ultrasonic probe with a unique rolling probe face is capable of measuring material thickness ranging from 2.5 mm up to 100 mm (0.1 in up to 4 in).

SCANNER

R-Scan scanning head is fitted with an encoder to provide accurate positional information during an inspection. Magnetic wheels assist when scanning vertically of if inverted by minimizing the possibility of encoder slippage.

FLOATING AND TRACKING GATE

A unique feature of the system is floating and tracking gates. The intelligent gates allows for a tolerance in the initial setup and deliver a more accurate inspection. The gates travels with the signal as it moves up and down, and from side to side, reducing the likelihood of incorrect or missing data, allowing for a more reliable and complete B-Scan inspection data set.

HIGH PROBABILITY OF DETECTION (POD)

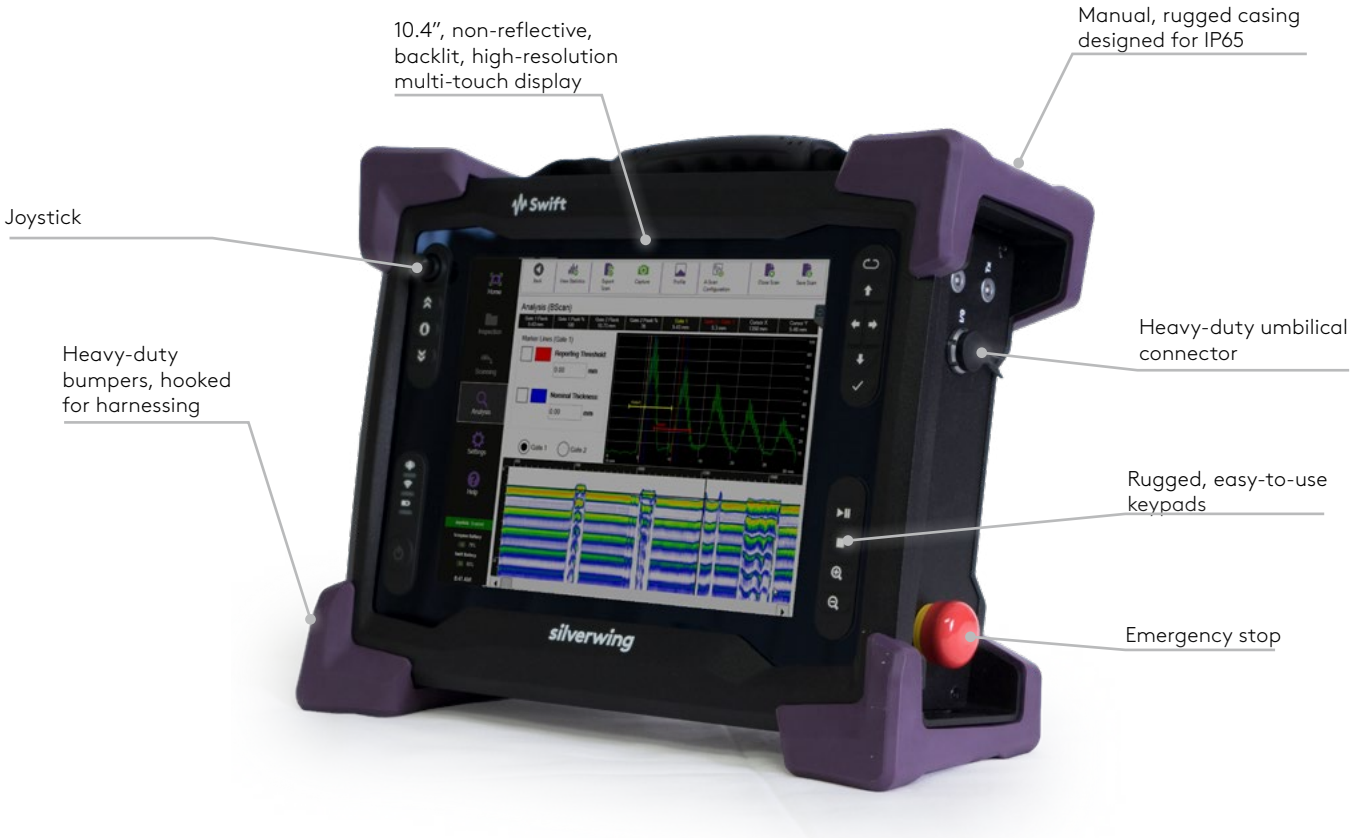
Compared to traditional spot thickness measurement, R-Scan increases the likelihood of detecting corrosion by continuously records thickness measurements as the scanning head is moved over the inspection surface. The captured thickness information is displayed as an A-Scan trace, a digital thickness measurement, an amplitude B-Scan or a simple to understand thickness profile.

FLEXIBILITY

R-Scan is an ideal all-rounder for inspection on tanks and pipelines. It can be used on a variety of components ranging from 50 mm (2 in) diameter up to flat surface with material thickness ranging from 2.5 mm up to 100 mm (0.1 in up to 4 in).

A TRUE ALL-IN-ONE SOLUTION
RUGGED, MANUAL, BATTERY OPERATED

Field proven, robust ultrasonic data acquisition instrument, when you combine Swift with R-Scan you unleash the most advanced fully featured B-Scan inspection system.



SWIFT INSTRUMENT

Swift has a large 26.4 cm (10.4 in) non-reflective, touchscreen display. Its magnesium alloy casing is tough, rated to IP65 and designed to protect the instrument against dust and water.

With a 3 mm (1/8 in) strengthened glass display, it's the perfect instrument for harsh environmental conditions. Supplied with two lithium-ion, hot-swappable batteries the instrument allows for a full day's work.

Swift has an optional harness to support the use of the system for longer period of time. The adjustable stand, the top handle, and four corner anchor points make it practical for on-site inspections.

DATA ACQUISITION SOFTWARE

The Swift software controls both the Scorpion2 and R-Scan. The intuitive software is easy to use with several advanced features resulting in high quality ultrasonic inspection data.

Operators are guided through a simple process of entering the inspection details followed by ultrasonic setup. Adjustments can be made using the touch screen or hard buttons located on the Swift.

DATA COLLECTION AND ANALYSIS

Real time A-Scan and B-Scan data is displayed during the scan. Once a scan is completed the operator can analyse the results or simply save the scan and move onto the next scan.

Scan analysis is made simple with active A-Scan and B-Scan display, placing the cursor over any part of the B-Scan window shows the A-Scan trace and thickness measurement for that specific location.

An adjustable threshold indicator can be displayed over the profile view, helping to identify reportable defects at a glance. The full amplitude view helps to characterize wall loss, allowing for a more detailed analysis and accurate corrosion assessment.

REPORTING

Complete inspection data can be exported as a CSV or Excel file for statistical analyses and reporting. If preferred just A-Scan and B-Scan views can be exported as images files.

For advanced reporting data can be exported as a CMAP file. CMAP software stiches all the scans automatically based on the export values, providing a complete inspection overview.

THE SENSIBLE APPROACH

Traditionally wall thickness surveys would entail taking single Thickness Measurements at given locations (TML's). Over time the statistical probability of repeatedly finding the minimum thickness is low. In addition, the collecting and reporting of these results can be significantly time comsuming.

Silverwing's approach is to efficiently inspect as much of the asset as possible, recording a large number of measurements. Then analyse the results with dedicated tools to deliver a complete picture of the assets condition.

R-Scan has been designed to increase the statistical probability whilst increasing efficiency by collecting more data in the same

SPECIFICATION

R-SCAN	
Dimensions (W×H×D)	65 x 54 x 122 mm (2.5 x 2.1 x 4.8 in)
Weight	1.8 kg (4 lb)
Umbilical cable length	3 metres (10 feet)
Max scan speed	Manual
Adhesion	Magnetic wheels and hand pressure
Transducer	5MHz twin element Dry-coupled
Near-surface resolution	2.5 mm (0.1 in)

R-SCAN CAPABILITIES	
Minimum diameter	50 mm (2 in)
Maximum diameter	Flat plate
Minimum material thickness	2.5 mm (0.1 in)
Maximum material thickness	100 mm (4 in)
Maximum scan length	50 m (164 ft)
Minimum Surface temperature	0°C (32°F)

SWIFT		
Dimensions (W×H×D)		355×288×127 mm (14.0×11.3×5.0 in)
Weight	With batteries	6.6 kg (14.5 lb)
	Without batteries	5.7 kg (12.5 lb)
Power requirements		100–240 VAC, 50–60 Hz
Power supply		Direct VAC or onboard batteries
Batteries	Type	Li-ion, rechargeable, DOT compliant
	Typical life	6–8 hours
Display		26.4 cm (10.4 in), LCD touchscreen Non-reflective (AR coating) Anti-fingerprint (oleophobic coating) 3 mm (1/8 in), strengthened glass cover
Storage		SSD, 100 GB
Connectivity		Gigabit Ethernet, Wi-Fi, Bluetooth®, USB 2.0 (×3)
IP rating		Designed for IP65
Ambient temperature		0–40 °C (32–104 °F)
Ambient humidity		95 %, non-condensing

ULTRASONIC	
Internal pulser/receiver	1 x Tx/Rx, 1 x Tx (for pitch and catch)
Transducer frequency	2.25–20 MHz
Max. pulsing rate	Application dependant capable up to 20 kHz
Pulse voltage	-75 to -200 in step of 25 volts
Pulse width	25 ns to 225 ns in 2.5 ns increment
Damping	50Ω
Receiver gain	8 to 70 dB, 40 dB TCG Range
Filter, Waveform	FIR filter, Full rectify
Sampling rate	100 MHz
Resolution	16 bits
Waveform length	up to 16328
Trigger source	Internal or Encoder-based
Transducer range	2.25–20 MHz
Post trigger delay	8 to 141006540 samples in 1 sample step

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