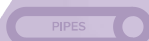


SCORPION

Remote Access Ultrasonic Crawler



- > FULLY INTEGRATED AUTO UT B-SCAN CRAWLER
- > DRY-COUPLED PROBE FOR EASE OF USE
- > SIGNIFICANT COST BENEFIT OVER SCAFFOLDING
- > 10 MM WIDE SCAN IN 1 MM CONTINUOUS STEPS



SCORPION

REMOTE ACCESS CRAWLER WITH A DRY COUPLED WHEEL PROBE FOR UT THICKNESS MEASUREMENTS

The Scorpion B-scan is a rugged remote access ultrasonic crawler designed for cost effective A and B-scan imaging on above ground ferro-magnetic structures such as storage tanks, vessels and offshore installations without the need for costly scaffolding or rope access associated with UT thickness gauging.

The Scorpion B-scan system continuously records thickness measurements as it moves over the inspection surface. The recorded thickness information is presented in the software as an A-scan trace, a digital thickness measurement and a B-scan profile. Unlike many crawlers, the Scorpion can be bought as a complete system, integrating ultrasonic pulser/receiver, data logging and motion control for easy set up and seamless operation. Scorpion offers considerable cost saving over manual inspection with rope access or scaffolding, and significantly improves probability of detection.

KEY FEATURES

- > Complete UT crawler system
- > High resolution B-scan image
- > Full recording of waveform up to 30 m distance
- > Simple profile, or full amplitude display
- > Battery powered for easy use
- > Permanently stored data for recall to assist with RLA & RBI trend forecasting
- > Field proven reliability
- > No couplant or paint removal required
- > Lower safety incident risk
- > Aid to reduce maintenance costs by minimising use of scaffolding

DRY COUPLED WHEEL PROBE

The Scorpion B-Scan and DCP remote access crawlers use a unique "Dry Coupled" ultrasonic wheel probe eliminating the need for traditional couplant. This allows the crawler to travel vertically, horizontally or even inverted whilst still fully functional, and removes the need for constant water supply. The wheel probe performs like a standard twin ultrasonic transducer, and can measure thickness from 2.5 mm to over 100 mm, including through paint. In front of the wheel probe is a neodymium magnet which maintains constant probe pressure whilst travelling on the inspection surface.

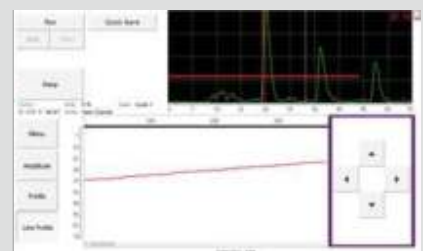


SOFTWARE SETUP WIZARD

The software includes a wizard that takes the operator through each stage of the set-up in a logical sequence. The wizard automatically adjusts all ultrasonic parameters from two known material thicknesses, and prompts the operator to enter gate settings and inspection details. The operator maintains full control over all settings and all parameters can be set up manually if preferred.



UT SETUP



PROFILE VIEW



UT PULSER/RECEIVER AND MOTION CONTROL

The digital ultrasonic pulser/receiver has very low noise and is matched to the wheel probe for excellent response. Set up is very simple, and works like a standard flaw detector so UT technicians quickly become familiar with its operation.

All controls such as gain, time base range, filtering and gate adjustments are on the same screen as the active A-scan display and the B-scan image.

A joystick provides motion control, which incorporates a latching mode to avoid having to continually hold it on long runs. The Scorpion is calibrated to drive straight, but a nudge function gives fine adjustment to take account of side winds and umbilical drag.

The Scorpion wheels are rubber coated, with magnets in the body for clamping to the surface. This method ensures secure travel with no damage to the test surface.

SCORPION MODELS

SCORPION B-SCAN

Complete system with encoded, 5 MHz, dry coupled wheel probe, ultrasonic pulser/receiver, portable computer and acquisition software. Supplied with a 30 metre umbilical cable for access to the top of the highest storage tanks.

SCORPION DCP

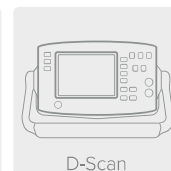
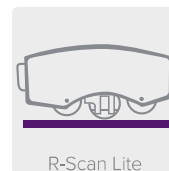
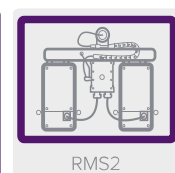
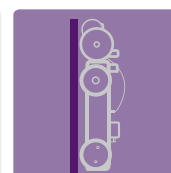
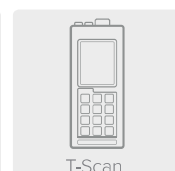
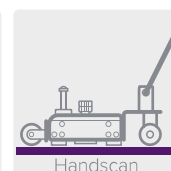
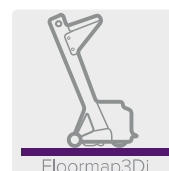
5 MHz Dry Coupled wheel probe crawler compatible with most UT flaw detectors. 50 metre umbilical cable allows access to the furthest point of most structures. No distance encoding.

SCORPION BP

Irrigated dual 5 MHz transducer fed from a pressurised stainless steel reservoir. Compatible with most ultrasonic systems. Supplied with a 30 metre umbilical cable with water feed allows access to the top of the highest storage tanks. No distance encoding.

THE SILVERWING SYSTEM

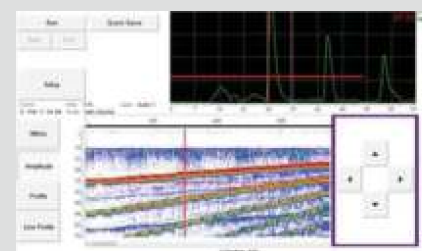
Silverwing produce a full range of equipment for corrosion inspection of storage tanks, vessels and pipe work. The product range includes manual and automated ultrasonic corrosion mapping, ultrasonic crawlers for thickness measurement and MFL tank floor inspection. By supplying a complete range we can 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

REPORTING TOOLS

The Scorpion B-scan software features several powerful data review, reporting and printing tools. Saved data can be replayed at any time, with active A-scan and B-scan displays. Placing the cursor over any part of the B-scan profile shows the A-scan trace for that specific section of the scan to provide detailed post-inspection analysis. An adjustable reporting threshold indicator can be displayed over the B-scan profile, to identify reportable defects at a glance and allow rapid analysis of the complete scan. The full amplitude B-scan mode helps to characterise wall loss, eg pitting, erosion and delamination, for accurate reporting of condition.



AMPLITUDE VIEW

TECHNICAL SPECIFICATION

SCORPION

Dimensions	Length 385 mm (15.2") x Width 222 mm (8.7") x Height 102 mm (4")
Weight without cables	4.75 Kg (10.7 lb)
Adhesion	Neodymium iron boron magnets mounted in centre of carriage
Pull off force	13.6 Kg (29 lb)
Drive	four (4) independent 12v DC motors
Drive wheels	Coated in special non-slip synthetic rubber compound
Speed	25 mm/second (1" /second)
Umbilical cable length	B-Scan and DCP 30 metres (98 feet), DCP 50 metres (164 feet)
Transducer B-scan/DCP	Dry coupled wheel using "Ro-Cee" rubber 5 MHz dual / twin compression
Transducer BP	Irrigated dual 5 MHz
Near surface resolution	2.5 mm (0.1")
Power supply	28 Ah sealed lead acid gel battery pack with integral charger
Test time	8 hours complete system

UT400 - ULTRASONIC MODULE (Scorpion B-scan only)

Pulser	-400 Volt Spike
Receiver gain	0 – 80 dB in 1 dB steps
Filters	Wideband (0.5 – 2 MHz)
	1.5 – 3.5 MHz
	3.5 – 7.0 MHz
	6.5 – 12 MHz
Sample rate	50 MHz
Transducer mode	Single or dual via software
Computer interface	USB 2.0
Connectors	Encoder – 25 way D type socket
	UT – 2 x BNC (Tx & Rx)
	Data – IP68 USB 'B'
Dimensions	Length 260 mm (10.2") Width 160 (6.3") mm Height 60 mm (2.4")
Weight	1.8 Kg (3 lb)
Battery / charger	11 hours operation from fully charged/ 1.5 hours fast charge from flat

Software (Scorpion B-scan only)

Data Views	A-scan, profile B-scan, amplitude B-scan
Measurement	Thickness, x distance, amplitude, through paint
Waveform mode	RF & full rectification, smoothing
Data export	Waveform to jpeg. Thickness readings with position to CSV.
Gate	Dual gates, fully independent
Units	Metric and imperial

