

# SCORPION 2 VS SCORPION 1



## A Proven Success. Made Better.

Eddyfi Technologies is committed to technology evolution and providing NDT instrumentation that pushes the boundaries of inspection capabilities. As a direct successor in the Scorpion family, the Scorpion 2 system with SWIFT-U motor control and UT data acquisition was successfully launched in 2018.

The improved speed, battery-operated motor control, and improved UT data collection have helped many worldwide customers convert to the new model and provide a modern and sophisticated inspection of storage tanks and other large surface area assets.

The Scorpion 2 is a great example of how inspection equipment evolves and how Eddyfi Technologies delivers its promise on product development, inspection accuracy and efficiency improvements for its customers.

The Scorpion 2 platform has replaced all earlier versions of the system. The platform was developed as a direct response to market requirements for faster and better quality ultrasonic thickness measurements.

## Increased Efficiency

Inspection speed up to 180mm/s which is 7 times faster than the first generation of crawlers. An integrated joystick allows for 360 degrees manipulation and dual encoder provides self-straightening to ensure accurate scanning location.

## Higher Probability of Detection

Scorpion2 records a thickness measurement every 1 mm, which equates to 2000 readings over a typical 2 meter high course or 12000 readings over a 12 meter high tank compared to the recommended 18 readings.

## Improved Data Quality

The intuitive software introduces floating and tracking gates. Floating gates track to the same percentage of the signal Amplitude. This enables signals of much lower amplitude to be picked up. Tracking gates track the lateral movement of the signal, ensuring signals of varying thickness are accurately captured. These features improve the accuracy, consistency and increase the efficiency of data analysis.

## System Comparison

DESCRIPTION	SCORPION 1	SCORPION 2	ADVANTAGES
Capture speed	25 mm/s	180 mm/s	7 times faster scanning speed
Straight line guidance	No	Yes	Improved repeatability
Manoeuvrability	Low	High	Effortless crawler relocation/positioning
Battery Source	Lead - Acid	Li-ion	Lighter and swappable batteries
UT Signal loss recovery - 12mm weld step	80mm	40mm	Inspect within HAZ of a weld
UT Floating and tracking gates	No	Yes	Improved data quality
Joystick integrated	No	Yes	Easier to use
Joystick variable speed	No	Yes	Greater crawler control
Magnetic grip	2 wheels and belly magnet	4 wheels	Improved adhesion, especially over welds
Magnetic transducer holder	Manual adjustment	Auto adjustment	Simple probe and UT setup
System Components	6 pcs	3 pcs	Quicker and easier setup
Total weight	58 kg	36.8 kg	Easier transportation and deployment

## Efficient Deployment, Inspection, and Reporting

During the design of the Scorpion2 the complete workflow had been reviewed from packing, transportation, deployment, onsite setup, inspection, and the time to generate a report.

**Transportation:** Instead of one heavy oversized transit case, two smaller cases with wheels and suitable handles. Internal foam inserts for easy packing and increased protection.

**Deployment:** Manageable cases for easy transport around the site with 21kg reduced overall system weight.

**Onsite setup:** 3 system components instead of 6! Crawler, Swift Instrument and an umbilical stored on an ergonomic cable reel. Allow for faster and easier setup, also quicker to move around a tank whilst on site.

**Inspection:** 180mm/s crawler speed, 7 times the speed of the Scorpion1. Simplified ultrasonic setup with all-new intuitive software. Floating and tracking ultrasonic gates allow for tolerance within the UT setup and produce a more accurate and reliable result. The self-adjusting probe head almost makes the system fully plug and play.

**Analysis:** Due to the intelligent floating and tracking gates, data analysis is quicker, more consistent and more importantly accurate. Giving the operator more confidence of a successful inspection.

**Reporting:** All recorded thickness measurements can be transferred to a USB drive in one export command, allowing the data to be opened in excel or other reporting software.

## SWIFT-Go Software

The feature-packed Swift B-scan data acquisition software has been designed for easy navigation and intuitive inspection setup. All the important inspection data is contained within one screen with convenient quick access menu bars for settings, gate configuration, and analysis.

Data reprocessing can be simply carried out post-inspection by changing gate settings which then updates the B-scan amplitude and profile views. This allows an operator to make a fine adjustment to an inspection dataset without repeating the inspection process.

The full-amplitude B-scan mode helps characterize wall loss, which, in turn, makes detailed post-inspection analysis and accurate corrosion assessments possible. Placing the cursor over any part of the B-scan profile shows the A-scan trace for that specific section of the scan. Furthermore, you can display an adjustable reporting threshold indicator over the B-scan profile, helping identify reportable defects at a glance and enabling rapid analysis of complete scans.

Inspection data can be exported as an excel or CSV file, A-scan, and B-scan images.

## Time and Cost Saving

With these efficiency and data improvements, we estimate a reduction in time of 50% from site mobilization to report delivery.

