

# Automated Weld Inspection

## ► Scanner – Flaw Detector A2051 ScaUT

### Purpose

- The use of the A2051 ScaUT Scanner System is intended to automate complex weld inspections of steel/metal structures with a varying thickness between 4 to 40 mm and with a minimum radius of curvature (to exterior face) of 300 mm.
- Ultrasonic testing provides the ability to measure the thickness of the test sample or structure in addition to the ability to detect and classify internal flaws in welds such as: pores, lack of fusion and incomplete penetration, slag inclusions, cracks, cuts and internal delaminations near the weld zone, etc.
- The Laser-optic method provides the ability to measure the weld edge offset, the size and the reinforcement bead profile, and external flaws next to the weld zone.
- The main field application for the A2051 ScaUT system is for the inspection, industrial inspection and certification of pipelines.

### Features

- The A2051 ScaUT system consists of two multi-element antenna arrays to transmit and receive the ultrasonic waves, and a Digital Focusing Aperture (DFA) algorithm designed to maximize the ultrasonic sensitivity of the system to identify flaws, classify flaw types and to determine the equivalent cross-sectional area and complete inspection of the weld bead
- Provides constant acoustic contact with a low-flow rate capable of inspecting no less than ten lineal meters of weld with a single tank of coupling material. The constant flow of coupling material is provided through the built-in injectors in the antenna array.
- Laser-optic channel continuously measures the position of the antenna arrays relative to the axis of the weld.
- A magnetic wheel, powered by the internal motor provides safe traversing along the 360° path of the exterior surface of the pipe.
- A 3D inclinometer sensor and the built-in “GLONASS Galileo” global positioning system (GPS) provides georeferencing of the collected data.
- Complete remote control capabilities of the system via a Bluetooth platform allows watching out for the process of inspection in loud areas and controlling the movement of the scanner.
- Compliance with local (Russian) inspection protocols with the list of detected flaws are shown in the integrated built-in display.
- The Lithium-ferrous-polymer built-in battery provides continuous power for four hours with a single 15-minute recharge cycle.



### Technical Specifications

Sensitivity to flaws along the welding bead	from 0,5 sq. mm
Measuring accuracy of geometry along the weld bead	0,2 mm
Scanning speed	2 m/min
Thickness range	from 4 to 40 mm
Coupling material - tank capacity	1 L
Minimum radius of curvature (to exterior face)	from 300 mm
Material velocity range	from 1 000 to 9 999 m/s
Operation time	4 h
System dimensions	415x166x146 mm
Weight	10 kg
Operating temperature range	from – 20 to +50 °C