

Boiler Tube Inspection System

VOLTA FST-B

Equipment Highlights

VOLTA FST-B is a portable EMAT system for high-speed boiler tube inspection, measuring wall thickness and detecting HCC, SCC, corrosion, and pitting with minimal surface preparation.



Couplant-Free EMAT Inspection

Uses ultrasonic EMAT technology to perform accurate wall thickness measurements without couplant or extensive surface preparation. Enables reliable inspection even on heavily corroded boiler tubes.



Full-Coverage High-Speed Scanning

Performs 100% boiler tube inspection at scanning speeds up to 15cm/s, eliminating the need for spot checks. Ensures complete coverage with consistent, repeatable results.



Advanced Corrosion and Defect Detection

Capable of detecting hydrogen corrosion cracking (HCC), pitting, and caustic gouging. Accurately measures remaining wall thickness on the most challenging tube conditions.



Operator-Friendly Smart Sensor Design

Sensor includes an integrated encoder and visual warning indicators for scan speed and signal quality. Provides immediate feedback to support efficient and reliable data collection.



Boiler Mapping and Field Performance

Exclusive boiler mapping software enables clear visualization and rapid interpretation of inspection results. Proven technology with hundreds of boilers and thousands of kilometers of tubing inspected worldwide.

VOLTA FST-B is a portable EMAT inspection system designed to measure remaining wall thickness and detect critical defects in boiler tubes, including Hydrogen Corrosion Cracking (HCC), Stress Corrosion Cracking (SCC), caustic gouging, corrosion, and pitting. The system performs high-speed scanning of 100% of the tube wall while requiring minimal surface preparation.

Using high-power non-contact ultrasonic EMAT technology, it provides reliable inspection even on tubes with significant surface corrosion or internal pitting. A proprietary pitch-catch EMAT configuration enables accurate remaining wall thickness measurements on tubes from 2.5 mm to 25 mm, including tubes with non-parallel walls or heavy corrosion damage.

Configured as a one-channel handheld system, the platform is optimized for field inspections. A redesigned ergonomic sensor allows tool-less switching between permanent magnet and pulsed electromagnet modes, enabling inspection across a wide range of ferromagnetic boiler tube conditions.

Originally developed by Innerspec Technologies in 1997, the technology represents the third generation of a platform used in thousands of boiler inspections worldwide. The VOLTA FST platform is proven technology with hundreds of boilers and thousands of kilometers of tubing inspected worldwide. The latest generation introduces battery-powered operation, next-generation electronics, and integration with the Innerspec Technologies Operating Platform and NDT-WEB software for inspection control, visualization, and reporting.



VOLTA FST (EMAT) – TECHNICAL SPECIFICATIONS

CATEGORY	VOLTA FST-B
Ultrasonic Channels	1 Channel
Frequency Range	1MHz to 5MHz
Pulse Repetition Rate	Up to 60Hz
RF Pulser	- Mounted in Scanner 1 cycle
Receiver	20-100dB Gain Range
P/R Modes	Pitch-Catch
A/D Converters	14-bit, 125MSPs
Filtering	FIR Digital Filters
Evaluation Gates	Auto-set gates (based on Wizard), User Adjustable
Encoder Interfaces	1x A/B Quadrature
PC Communication	- Wi-Fi 2x802, 11ac/ax dual band - Bluetooth 5.0 - USB 3.0, Ethernet
Software	ITOP with NDT-WEB
Internal Storage Capacity	500GB SSD
Internal Memory	8GB RAM
Probe Connector	26-pin Circular Mil-Spec
Magnet Pulser	100-250V, 0-325us pulse width
Operating Temperature	32°F (0°C) to 105°F (40°C)
VOLTA USB Type-C Power Adapter Input	100-240VAC, 50-60Hz
VOLTA USB Type-C Power Adapter Output	USB-PD 20V @ 5A, 100W Max
VOLTA Rechargeable Battery	Li-ion 14.4V @ 6.9Ah, 95.04Wh, 4-8 hours, Hot-Swappable
Other I/O	HDMI, Bluetooth, Thermocouple
Dimensions	16"(W) x 12"(H) x 6"(D) 406mm(W) x 305mm(H) x 152mm(D)
Weight	20lbs (9.1kg)