

Applications
Brochure

TRAIN AXLE INSPECTION SOLUTION

The phased array ultrasonic solution that keeps you on track.

Discover the all-inclusive package delivering actionable data.

THE BEYOND CURRENT SOLUTION

Eddyfi Technologies offers a solution that simplifies the detection of corrosion and cracks in train axles, particularly at the crack initiation stage, without the need for axle removal from the bogie. This reliable method reduces human error in data interpretation, providing quick results when paired with our market-leading phased array ultrasonic testing (PAUT) instruments.

- One-stop shop solutions driven by technical expertise
- Streamlined workflow for setup, acquisition, and reporting
- Full support for ultrasonic testing (UT) methods including PAUT, time-of-flight diffraction (TOFD), conventional UT, full matrix capture (FMC)/total focusing method (TFM), plane wave imaging (PWI) and phase coherence imaging (PCI)
- Standard and custom probes designed in-house by our technical experts
- The most advanced software analysis in the industry

APPLICATIONS

- Specific application for carbon steel train axles, enabling inspection without removal from the bogie

Eddyfi Technologies understands the unique demands of your role as an NDT inspector, and our complete solution is crafted to address these challenges comprehensively.

FEATURES

- Streamlined corrosion and crack detection
- Simplified indication detection and positioning
- User-friendly instrument setup wizard
- Minimized human error
- Manual encoded scan operation
- Comprehensive ultrasonic phased array inspection
- Simultaneous multiple scans with coverage from both ends of the axle

Discover a new era of precision with Eddyfi Technologies' high-quality NDT probes and transducers: [View PAUT Probe Catalog](#)

AXLE INSPECTION WITH ADVANCED ULTRASONIC PHASED ARRAY TECHNOLOGY

The ultrasonic phased array solution utilizes a unique phased array probe integrated with a scanner to provide clear imagery superimposed onto a true view of the axle geometry imported from a DXF file. This allows for fast and easy flaw detection with positional information, ensuring consistent and reliable results.

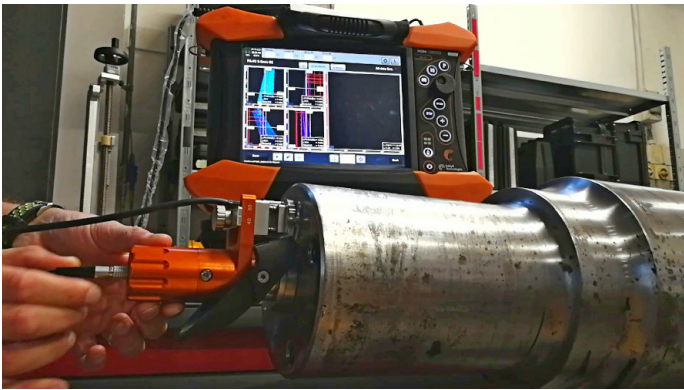


Figure 1: Phased array ultrasonic solution featuring unique probe with scanner collects repeatable, reliable inspection results.

The signals are easily classified as defects or echoes coming from the geometry, minimizing costly errors such as unnecessary rescans, unexpected disassembly, or repairs.

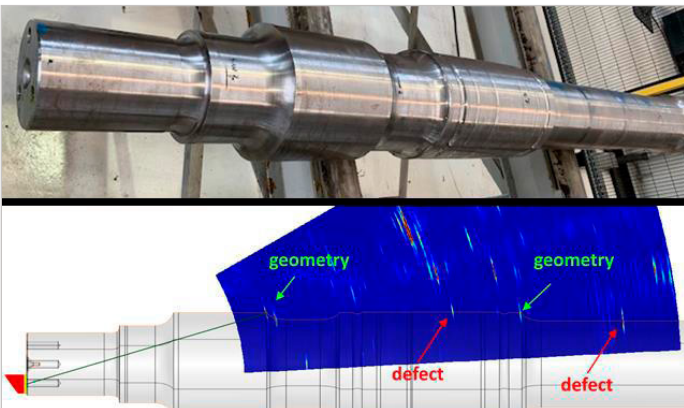


Figure 2: Data overlay highlighting ease of interpretation.

Phased array technology increases coverage and detection capabilities beyond those of conventional ultrasonic testing solutions. The scanner is effortlessly installed and operational within seconds, facilitated by its central pin locator and magnet. Once in place, operators can immediately rotate the scanner to cover the entire surface area comfortably, without the need to hold the probe.

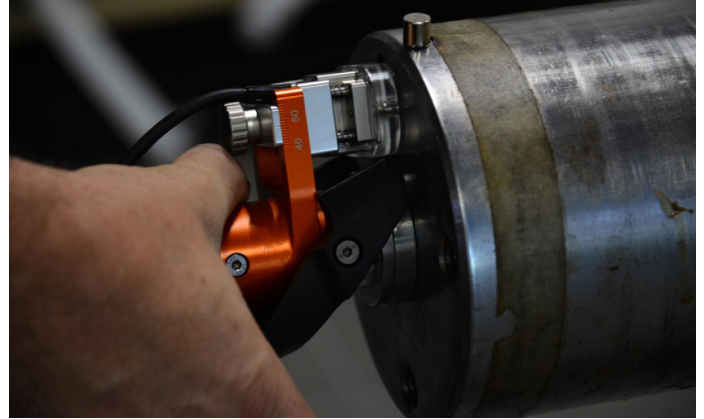


Figure 3: Unique scanner for train axle inspection.

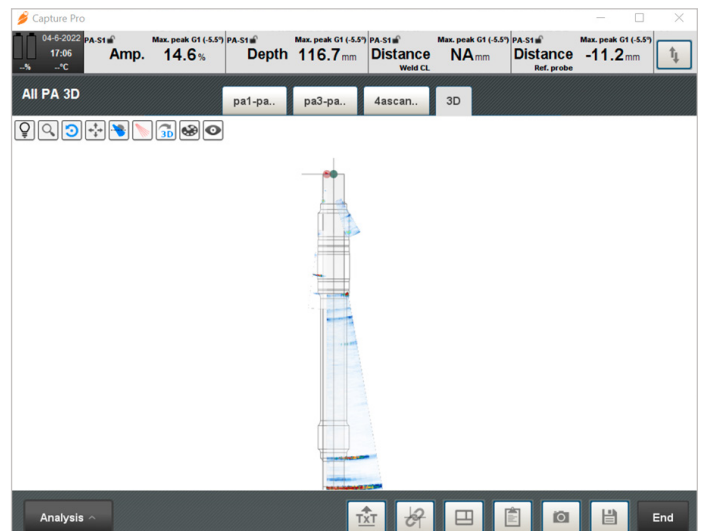


Figure 4: Typical multi-group setup using Capture™ software.

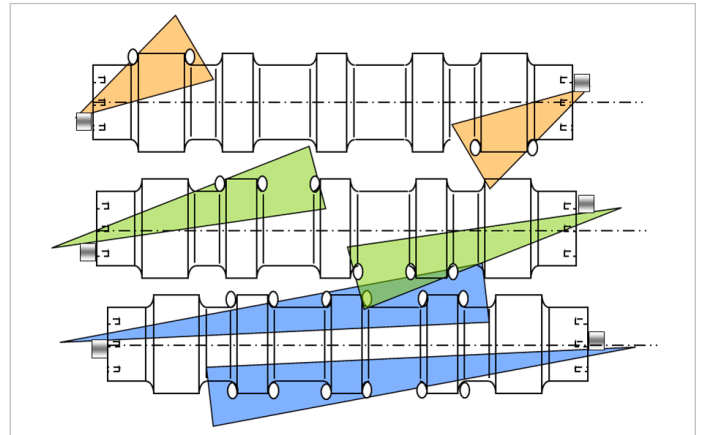


Figure 5: Image of scan plan.

ORDERING INFORMATION

TYPE	DESCRIPTION
Solution kit is compatible with the following instruments: Mantis™, Gekko®, and TOPAZ®	
SCAN-AXLE-16L-5MHZ-LE	Axle scanner for diameter from 110mm to 150mm – Stainless steel cone adaptor with geometry to confirm –1 axis encoder – LEMO Encoder connector –16 element 5MHz probe is included (Protective layer) – IPEX easy latch connector –2.5m cable length
CENTERING-AXLE	Permanent magnetic centering device with stainless steel head for axle scanner (dimensions to be provided for each specific axle head design)
CAB-ENC-2.5M-AXLE-LEMO	Spare cable for Axle Scanner encoder –2.5m length - Fits with Gekko and Mantis with LEMO encoder connector
SPARE-LEVER-AXLE	Spare lever for Axle Scanner
PROBE-SLIDER-AXLE	Spare soles for the Axle Scanner probe –Set of 5 pcs
PROBE-32L5-AXLE*	32 element linear array probe - Frequency: 5MHz - Total active aperture: 19.2x12mm - Pitch: 0.6mm - Elevation: 12mm - Impedance adaptation: Rexolite - Cable: 2.5m - Connector: IPEX LATCH –AXLE SCANNER SPARE PROBE

*PROBE-32L5-AXLE optional

NOTE: Enquire for use with TOPAZ instrument

Please note that although they still bear the Zetec logo and branding, the ultrasound instruments and software products are manufactured by Eddyfi Technologies, whereas Zetec branded EC and SG products are manufactured by Zetec Inc. Although affiliated to Eddyfi Technologies, Zetec Inc. remains an independently managed company because of contractual obligations with the US government as a key supplier for classified business. The information in this document is accurate as of its publication. Actual products may differ from those presented herein. © 2024 Eddyfi UK Ltd. Eddyfi Technologies, Eddyfi, Capture, Gekko, Mantis, TOPAZ and their associated logos are trademarks or registered trademarks of Eddyfi Technologies (wholly owned subsidiary of Eddyfi NDT, Inc.) in Canada and/or other countries. Eddyfi Technologies reserves the right to change product offerings and specifications without notice. Eddyfi Technologies is a Previa Business Unit.