TRAIN AXLE

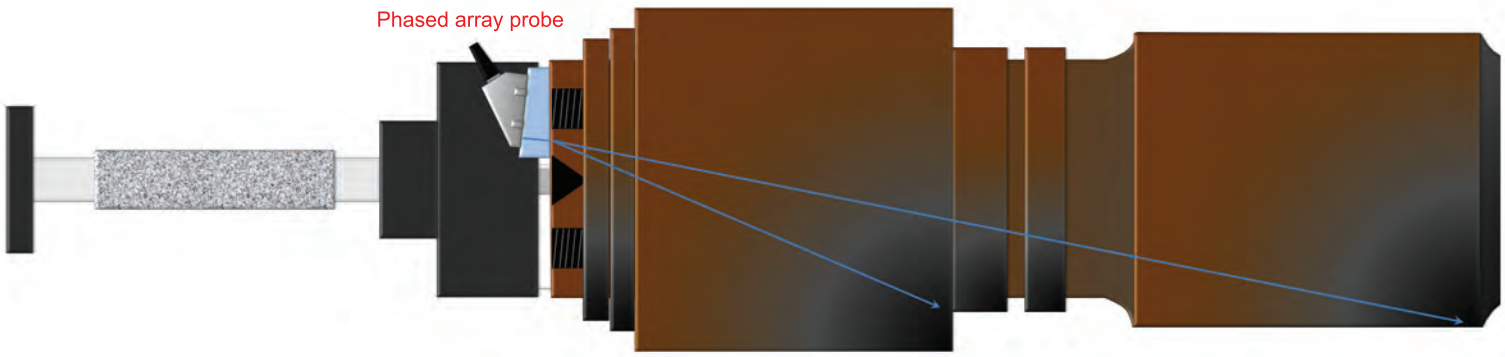
INSPECTION SCANNER

www.tecscan.ca

Train axles undergo high stress during service which calls for periodical verification of their integrity and for possible formation of cracks. The knowledge of the stress concentration on the axles allows to Predict the location of occurrence of the cracks and to perform scheduled inspection in these specific areas.

AXLE SCANNER

TecScan's Train Axle Inspection Scanner is designed to perform periodical ultrasonic pulse-echo inspection for the detection of fatigue cracks in critical areas of in-service train axles. It is designed to perform inspections from the axle ends without having to completely disassemble the axles, which is both a labor intensive and time consuming operation. It is equipped with a high resolution rotational encoder that allows to monitor the circumferential location of the probe and perform pulse-on-position scanning using an ultrasonic flaw detection unit over the full 360° range. Its spring-loaded probe holder help maintain a constant coupling between the ultrasonic probe and axle for repeatability.



Conceptual design of the scanner on a train

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TecSCAN

ULTRASONIC OR PHASED ARRAY INSPECTION

Two options are offered to perform the train axle ultrasonic inspection: Economical mono-element scanning with B-Scan imaging, which may require multiple passes, or more Advanced Phased array scanning with simultaneous inspection at multiple-angle and B or C-Scan image representation extracted from sectorial scans.

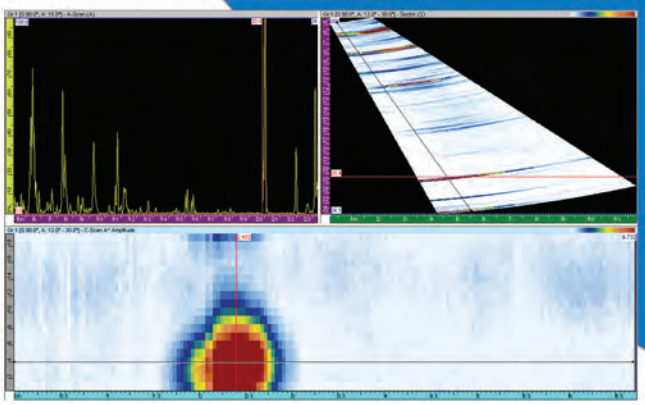
For each option, the selection and positioning of the ultrasonic probe(s) is done to optimize ultrasonic penetration in the shaft while aiming at the critical areas. The design of the scanning head allows for the inspection of multiple train axle dimensions. A centering locator pin ensures that the probes are always at the same radial position during scanning, which leads to reproducible results.

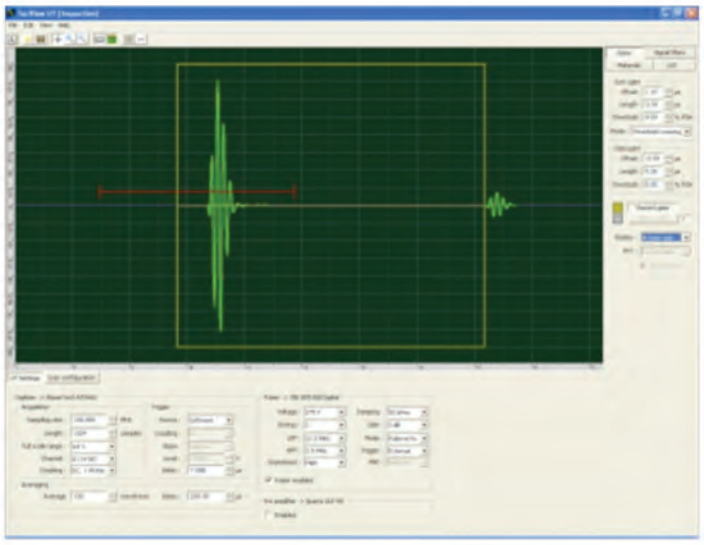
System Features

- Centering locator pin
- Magnetic pads
- Adjustable probe holder
- Mono-element(s) or Phased Array Scanning
- Ergonomic handles
- Compatible with commercial Phased Array units

TecView™ UT Lite

Single or multiple channel mono-element scanning can be achieved using TecView™ UT Lite to record and analyze B-Scan data for defect detection. The software package includes a data Acquisition module as well as an Analysis and interpretation module.





Scanner specifications

Stroke	360^0 continuous scanning
Encoder resolution	0.04^0/step
Scanning resolution	0.5 to 2 mm
Encoder connector	D-Sup
Frequency	2.25 & 5.0 MHz