

Axle Bore Scanner

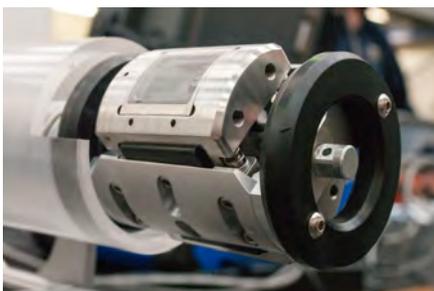


Originally designed for the rail industry for the inspection of train axle bores, this scanner can be adapted for any type of bore inspection and is

available in manual or automated configurations. The system is compact, portable, and easy to set-up so enables the inspection of train axles in-situ by a single operator.

Benefits

- Reduces inspection time and costs by scanning axles in-situ
- Rapid inspection speeds in both directions
- Adapts to inspect a range of bore diameters from Ø25mm to Ø110mm
- Customisable with interchangeable probe heads and lances to inspect varying axle lengths and diameter sizes
- Performs a raster scan of 370° x 2150mm
- Automated or manual operation when probe lance is disconnected
- Compatible with any instrument that has X-Y encoder inputs



Interchangeable Probe Head

The Axle Bore scanner is capable of inspecting bores of various diameters (from Ø25mm to Ø110mm) and lengths by simply changing the probe head to the appropriate diameter and attaching lances to give the required stroke length.

The probe heads contain two single crystal ultrasonic shear wave transducers orientated forwards and backwards in the axial direction and a zero degree compression probe contoured to suit the bore diameter (probe head diameters determine the number of probes that can be incorporated). The transducers are spring-loaded onto the bore surface with gimbaling that allow the probes to take up any variation on the inner surface. Integrated tubing also ensures adequate couplant is supplied to the interface between the transducers and the inspection surface. The probe lances feature a series of axial supports to assist with stability and durability. Both the probe heads and lances are interchangeable and can be disconnected from the scanner for the inspection of varying bore diameters or for manual operation of the system.

The automated version has two motorised axes to permit axial and circumferential motion through the bore; either by Helical, Helicoidal or Raster scan patterns. The scanner provides 370° circumferential movement (for overlap) and can perform a raster scan of 370° x 2150mm and completes the scan in the correct position with great accuracy ($\pm 0.1^\circ$ circumferential, ± 1 mm axial).

Features

- Two motorised scanning axes
- 2150mm axial motion (can be customised)
- 370° circumferential motion ($\pm 185^\circ$)
- Axial limit switches to prevent over-travel
- Couplant seals around probe head deliver a cleaner inspection
- Series of axial supports within probe lance
- Probe head incorporates sprung loaded transducers with gimballing
- Probe lance and transducers incorporate couplant tubing and channels
- Powered by Phoenix Drive motor controller (can be wired for use with other industry-standard motor controller units)
- Emergency stop to halt scanning motion
- Compatible with industry standard instrumentation
- Axial accuracy $\pm 1\text{mm}$
- Circumferential accuracy $\pm 0.1^\circ$

Options and Accessories

- Additional probe head lances (bore diameter to be specified)
- AES-CDS Couplant Delivery System



Kit

- Scanner Unit
- Drive Motor Controller
- Interchangeable Probe head lances - Specify diameters when ordering (typically each contains 2 x shear wave probes and 1 x 0° compression probe, diameter dependent)
- 5m umbilical bundle cable from scanner to instrumentation incl. motor / encoder cables, probe cables, couplant irrigation tubing (length can be customised)
- Protective carry case

