

FACT SHEET

# PHASED ARRAY ULTRASONIC INSPECTION

Produces recordable data to assess the integrity of a components structure

**Phased Array produces recordable data that identifies internal component features and potential defects.**

**It is valuable for inspection of complex geometries and materials and provides rapid inspection of large surface areas and welded components.**



### Phased Array Ultrasonic Inspection

This advanced Ultrasonic technique produces 2D and 3D images to identify internal component features and potential defects. The benefits over manual ultrasonics come from its ability to use multiple elements to steer, focus and scan beams with a single transducer.

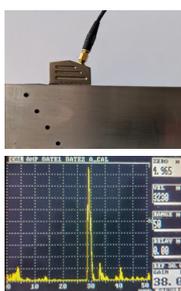
The ability to steer the beam with the transducer in one position makes it possible to inspect areas where manual scanning is not possible. Electronic focusing permits optimisation of the beam shape and size at defect location increasing resolution and critical sizing ability.

Computer digitisation presents a data image that can be manipulated to view different depths and angles of inspection. Data is represented in a colour pallet making analysis visually easier to comprehend than a single A-scan.

**Phased Array**  
-30 to +30 Sectorial Scan

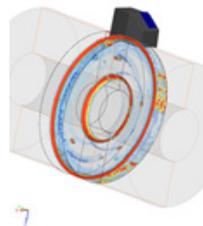


**Manual UT**



Phasing Array showing 4 reflectors from a single position, Manual UT only one reflector.

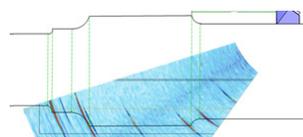
Specialist software implemented with Computer Aided Design 3-dimensionally maps the data aiding visual interpretation of part.



**Phased Array on shaft 3-Dimensional View**

Phased Array's ability to record data means the technique is not reliant on the operator and allows other inspectors to re-examine the recorded images. Automated specialist scanners encode the data which increases the reliability of measurements and assessment of the quality of the data. Automate scanning also aids repeatability and speed of inspection.

Phased Array has a number of advantages over on-site radiography. There are no health and safety hazards to the operator or people working locally unlike on-site radiography. This also helps reduce inspection times and the down time between inspections. In addition because results are received instantaneously assessments can be made immediately.



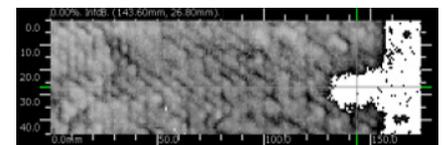
**Phased Array on axle showing 1mm notches**

### Composite Components

Due to the complex composition of composite materials there is a need for an effective non-destructive testing method. Composites are often complex in shape and structure making which makes it difficult for them to be inspected with conventional NDT methods.

The ability of phased array ultrasonics to map large amounts of data in a C-Scan image enables harsh grain structures to be inspected that would not be possible with manual ultrasonic inspection.

Electronic scanning across a group of elements allows C-Scan imaging to be produced simplifying analysis, increasing probability of detection and decreasing the number of false alarms.



**C-Scan Image Showing honeycomb structure and lack of bonding**

### FOR MORE INFORMATION

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