

Ultrasonic Application Solutions

Rapid Prototyping of Probe Handling Mechanics

General solution for probe handling and guiding in manual inspection

- Probe guiding mechanics for performing accurate manual inspection
- Guiding mechanics adapted to specific part geometry
- Possibility of encoded manual scanning using the probe guiding mechanics

Quick turn-around for verifying inspection approach

- Verify probability of detection and inspection coverage of the selected solution
- Verify reproducibility of the inspection approach
- Test selected solution under real environmental conditions

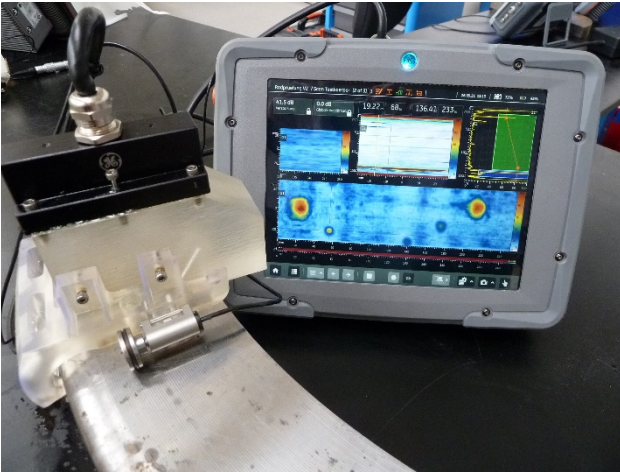
Our Solution / Custom Product

The Application Lab has been approached by a customer, who was in critical need for inspecting contoured work pieces. For an accurate and reproducible inspection, a probe guidance mechanic, which holds the phased array probe and provides an encoded scanning possibility, was needed. The solution was to employ rapid prototyping, using additive manufacturing technology to design and print a probe guiding mechanics based on CAD models/drawings provided by the customer.

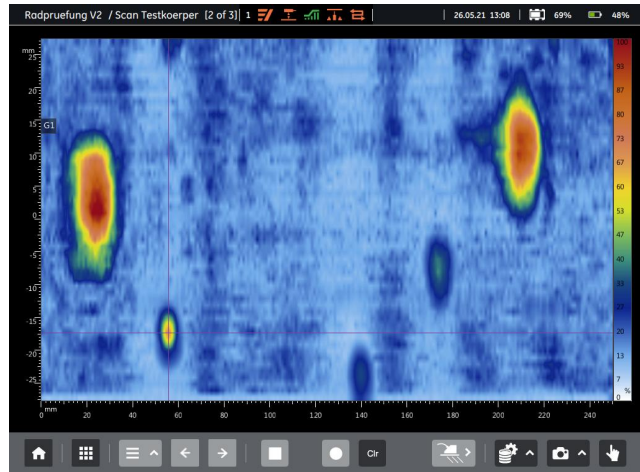
The experts from the Application Lab identified the right combination of phased array probe and wedge design to combine with the guiding mechanics to fulfill the customer requirements of detecting a 2 mm FBH in the depth range of 15 mm to 120 mm of the test object, which has a total thickness of 130 mm.

Solution benefits

- Customer was very quickly able to verify the inspection approach.
- By employing rapid prototyping and additive manufacturing technology, the turn-around time was reduced to days instead of the common turn-around time of weeks.



The inspection setup with the probe guiding mechanics holding the phased array probe and wedge on a reference piece provided by the customer which had reference defects in it. In addition, the Mentor UT phased array instrument is depicted, showing the C-Scan of the encoded inspection on the reference piece.



A detailed view of the C-Scan recorded on the reference piece, proving the detection of the 2 mm and 1 mm FBH reference defects in the required depth range.