Technology of Phased Array Ultrasonic Testing (PAUT) system for tube-to-tubesheet weld
– with special designed ultrasonic scanning device

Special scanning devices;
PAUT for tube-to-tubesheet weld is performed using a designed scanning system, developed by Hitachi Zosen Corp. & Nichizo Tech Inc. for detection of weld defects.

Advantages using the tube-to-tubesheet weld scanning;
• Fully automatic circumferential scanning of the welds
• Inspection rate: approx. 200 welds per device per day
• Minimum downtime
• Exact positioning and extent of defects
• Portable equipment - approx. 50kg.
• On-site reporting
• Experienced Inspectors
The technique
Tube-to-tubesheet weld scanning is an ultrasonic testing, where the ultrasonic probe continuously rotates in the tube.

It is possible for our technology to be scanned in three (3) directions at the same time during the testing, which they are one (1) linear and two sector scanning.

Mock-up weld coupon for PAUT
PAUT can detect any direction of defects in the tube-to-tubesheet weld, and the welding depth from –o-, -15°- surface.
See the mock up test results shown below, using the test coupon with the flat bottom hole, FBH φ1mm.

Test Results

FBH (φ 1mm) and the welding depth of 1.6mm from the tubesheet surface are detected in PAUT testing.
Do you have any questions or would you like to know more about PAUT system? Please send it to the following address so we will feedback to you as soon as possible.

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