

ULTRASONIC EXAMINATIONS IN LIEU OF RADIOGRAPHY (UT ILO RT)



ASME WELD ACCEPTANCE USING ULTRASONIC TESTING

Radiography has traditionally been used for Code-required acceptance testing. However, the practical limitations of radiography, including the examination time and personnel exclusion zone due to the radiation field can interfere with overall production and outage schedules resulting in increased cost for acceptance testing.

The advances in ultrasonic examination (UT) technologies, more specifically phased array ultrasonic testing, have resulted in ultrasonic test systems that can achieve equivalent or superior sensitivities as traditional radiography, in a more efficient manner.

Structural Integrity Associates (SI) has developed and demonstrated phased array ultrasonic testing procedures in compliance with various industry Codes and Standards. In most instances, ASME B31.1 is used to provide the specific requirements for Pressure Piping weld acceptance testing when using ultrasonic testing in lieu of radiography.



WHY CHOOSE ULTRASONIC TESTING OVER RADIOGRAPHIC TESTING?

There are many benefits to utilizing UT for Code acceptance with major advantages highlighted below:

- **NO Radiation Hazards** – Phased Array Ultrasonic Testing (PAUT) does not produce any radiation hazards; therefore, the examinations can be performed within proximity to welding and other craft personnel with no side effects or loss in production.
- **Highly Efficient** – PAUT examinations for weld acceptance can typically be conducted faster than RT, with a 50% or better improvement of total process production seen in most cases.
- **Real Time Imaging** – PAUT examination results are displayed in near real time, providing the operator immediate feedback for data quality and flaw screening as the scans are being conducted.
- **Pinpoint Accuracy** – PAUT examinations provide detailed accuracy for through-wall depth sizing and volumetric positioning of defects, minimizing repair excavations and shortening overall repair time.
- **Portable & Lightweight** – PAUT equipment is relatively small, portable, usually handled by a small team of technicians, and has a minimal impact on surrounding work activities.
- **Digital Record** – UT examinations, as required by ASME B31.1, are digitally recorded to capture, archive, and provide a permanent record of PAUT data for future reference.

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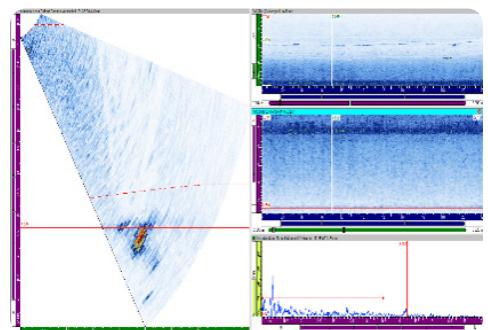
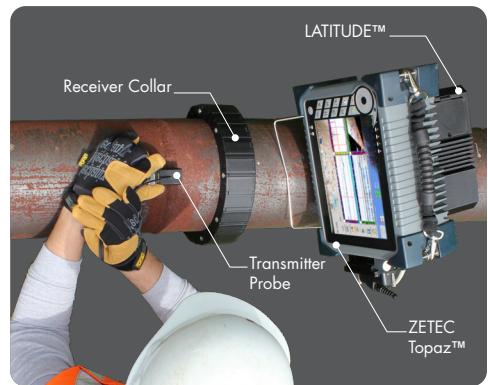
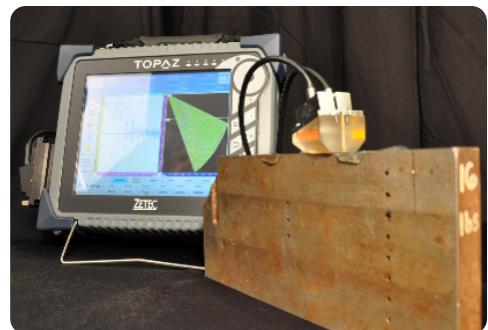
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WHY CHOOSE STRUCTURAL INTEGRITY?

There are a number of inspection companies to choose from, but few have the history in the industry and demonstrated expertise that Structural Integrity provides. Leaning on decades of supporting ASME Code development, interpretation, and compliance, Structural Integrity stands above others with a proven background of experience and expertise.

- **Industry Expertise** – Combining our expertise in materials, engineering and nondestructive testing, Structural Integrity Associates leads the industry in the development of code-compliant ultrasonics solutions for acceptance testing of repair and replacement welds.
- **Technical Expertise** – Comprehensive ultrasonic scan plans are developed and supported by extensive use of 3D ultrasonic beam modeling to ensure full coverage of the examination volume is being obtained.
- **Execution Expertise** – SI's NDE teams have an extensive career backgrounds in phased array ultrasonic testing, with Level III oversight and review provided for approval of all scan plans, focal laws, and essential requirements necessary to ensure a code-compliant ultrasonic examination.
- **Engineering Expertise** – Structural Integrity's Engineering Services division is a long-time industry leader in Code Evaluation, specifically for the purpose of developing component-specific flaw acceptance criteria where Code rules do not exist or may not be in place.



Structural Integrity stays on the cutting edge, directly assisting our clients in developing, evaluating, and applying unique solutions for unique problems. SI can help leverage the latest technology and engineering practices to minimize costs and solve tough problems.

Powered by **Talent & Technology**