

Key Features: (continued)



ZIRCON™: PORTABLE PHASED ARRAY UT DATA ACQUISITION UNIT

- Battery-operated (up to 8 hours)
 - Rugged casing with no air intake
 - 32/128PR : Up to 128 channels total with 32 active elements
 - 16-bit amplitude resolution of phased array signals
 - Data throughput up to 10 Mbytes/s
- ZETEC's ZIRCON is a high-quality, battery-operated phased array UT instrument designed for demanding inspections and real-life conditions. The ZIRCON offers automatic probe detection, self-diagnostics, an impressive data throughput, up to 1024 focal laws and a rock-solid casing with no air intake.



DYNARAY® PHASED ARRAY UT SYSTEM PRODUCT LINE

- Up to 256 beam forming channels
 - Up to 4096 focal laws
 - 16-bit amplitude resolution of phased array signals
 - High data throughput, up to 20 Mbytes/s
- ZETEC's innovative DYNARAY system completely redefines the potential of phased array UT technology by enabling highly efficient and more flexible inspection solutions.

BENEFITS

- **Simpler:** Fewer interconnections, single software for acquisition and analysis
- **Faster:** Fewer scans to be performed with data files up to 20 GB
- **Better:** Improved data quality with 16-bit amplitude resolution, superior focusing and higher pulser voltage

Note: Refer to PDQS #701 (available from EPRI) for additional information



ZETEC holds ISO 9001:2008 and ISO/IEC 17025:2005 certifications



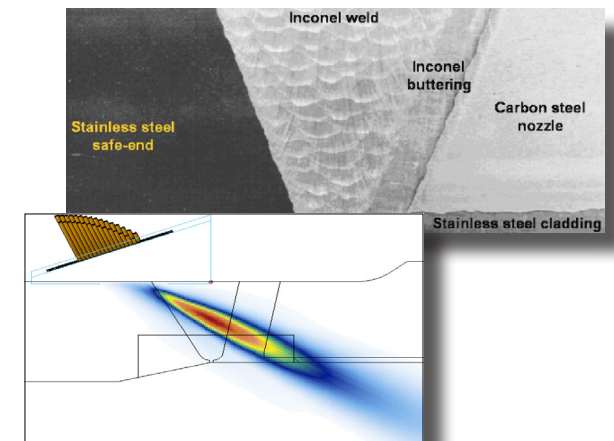
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Improved Phased Array UT Inspection of Dissimilar Piping Welds

Dissimilar metal (DM) welds have become a major concern since PWSCC (Primary Water Stress Corrosion Cracking) was found in nozzle-to-pipe welds in PWR-type nuclear plants worldwide. Nuclear regulatory bodies, including the NRC in the United States, have mandated the use of qualified procedures for in-service inspections (ISI) of welds susceptible to PWSCC. Back in 2005, ZETEC accepted the challenge and developed what is now the most widely used phased array inspection technique for DM welds under ASME requirements.



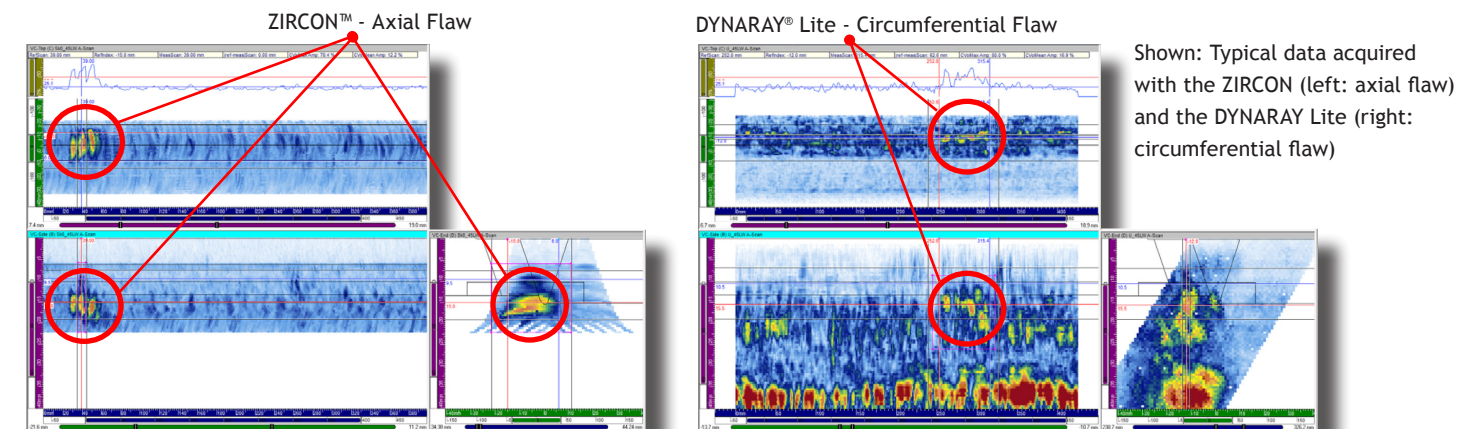
Using lessons learned from field experience, ZETEC has now qualified an improved solution for encoded phased array UT examination of DM piping welds using its latest PA UT portable system, the ZIRCON™ and the DYNARAY® product line.

Qualified Procedure & State-of-the-Art Equipment: Simpler, Faster and Better

Scope of Work

Dissimilar metal (DM) welds typically join two or more different materials, and often involve inconel alloys. DM welds are very difficult to inspect with ultrasound due to the various propagation issues in austenitic structures, the presence of multiple acoustic interfaces and the complex geometries generally involved.

The inspection solution covers detection, length sizing and through-wall sizing of circumferential and axial cracks in dissimilar metal piping welds from the outside surface, for diameters 1.5"NPS and up, and for wall thicknesses from 0.210" to 6.50" (5.3 to 165.1 mm) according to ASME Code Section XI, Appendix VIII, Supplement 10.

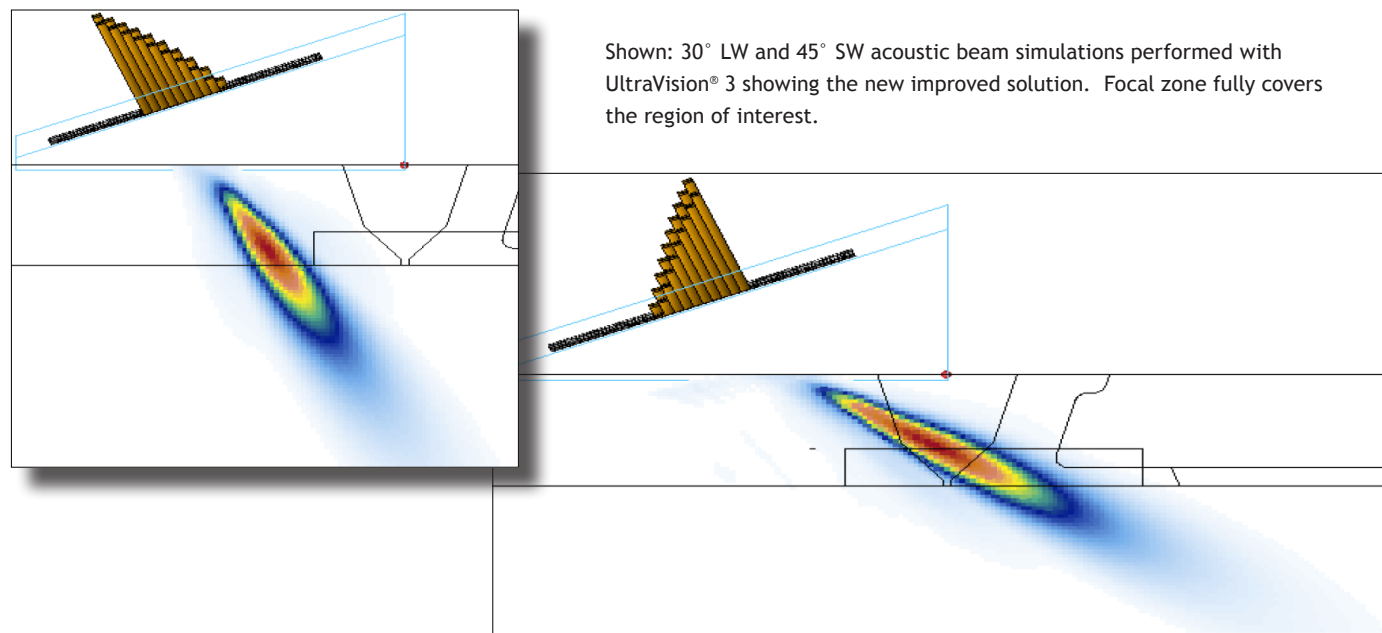


ZETEC's Solution: Simpler, Faster and Better

Improved Qualified Solution

ZETEC has developed a DM piping weld inspection solution that covers detection, length sizing and through-wall sizing of circumferential and axial cracks in dissimilar metal piping welds from the outside surface.

With state-of-the-art ultrasound acquisition systems and software, ZETEC carried out an equivalency demonstration of its solutions that takes full advantage of 2D matrix array technology by using more elements. For all typical PDI specimens that are part of the scope of the procedure, beam simulations have been performed in order to evaluate the influence of the focusing position on the acoustic beam and showed significant improvements to previously qualified solutions.



Those improvements are made possible by ZETEC's high-performance phased array UT systems (such as the ZIRCON™) and its feature-rich software (UltraVision® 3) that allow for better focusing and 16-bit amplitude resolution. The inspection is done by performing a multi-line scanning sequence with a limited number of phased array probe and wedge assemblies to cover the full range of pipe dimensions.

Results

Zetec has overcome the challenges in developing and qualifying its DM piping weld inspection solution through the PDI program according to ASME Code Section XI, Appendix VIII, Supplement 10 and covers detection, length sizing and through-wall sizing of circumferential and axial cracks.

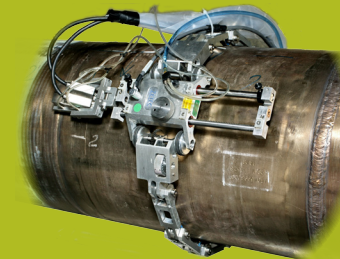
The multiple-line scanning sequences significantly reduce inspection time and offers reliable detection and accurate sizing of circumferential and axial flaws.

Candidates qualified to the previous ZETEC/EPRI procedure (PA03) are automatically qualified to this new, improved procedure.

PDI Qualified Procedure and equipment

Key Features of ZETEC's Solution:

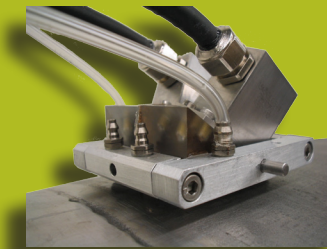
MPS: MANUAL PIPE SCANNER



- 2 encoders for bidirectional scanning
- Lightweight, less than 7lbs (3.2 kg)
- Quick and easy installation
- No tools required
- Compatible with various pipe diameters (4" NPS and up)

ZETEC's MPS scanner is designed for rapid ultrasonic examination of various pipe weld configurations with either phased array or conventional UT techniques. It is compatible with all ZETEC UT and Phased Array UT equipments.

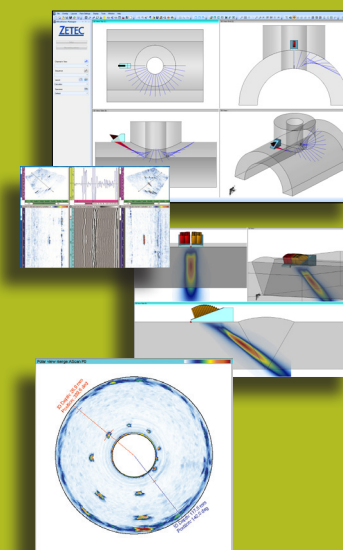
DEDICATED DUAL 2D MATRIX ARRAY SEARCH UNITS



- 2D Matrix array technology for better focusing
- Dual configuration for better signal-to-noise ratio
- Ensures reliable detection and sizing
- Search unit designs cover all weld configurations

These dedicated probes and wedges are designed to provide you with optimized acoustic beam characteristics for the best results.

ULTRAVISION® 3 SOFTWARE



- Powerful PC-based software
 - Advanced Focal Law Calculator
 - 3D ray-tracing
 - Acoustic beam modeling
 - Overlay of CAD-drawing
 - Fast and reliable
 - Handles large data files: up to 20 GB
 - Volumetric Merge for rapid and efficient data analysis
 - Drives all ZETEC UT & Phased Array UT systems
 - Formally qualified with various UT & Phased Array UT procedures in several countries (USA, Finland, France, Japan...)
 - Over 350 licences and upgrades sold worldwide since September 2005
- A complete UT and phased array inspection package that provides a 3D work environment.

