

Inspection of Complex Parts using CREAFORM 3D Scanner & UltraVision 3

The availability of high-performance phased array UT systems like the DYNARAY® product line, allows the development of innovative solutions for challenging inspection problems.

One of the existing challenges is the inspection of specimens with complex and/or varying geometries. The development and optimization of UT inspection techniques requires an accurate description of the considered component especially when aiming for high inspection performance.

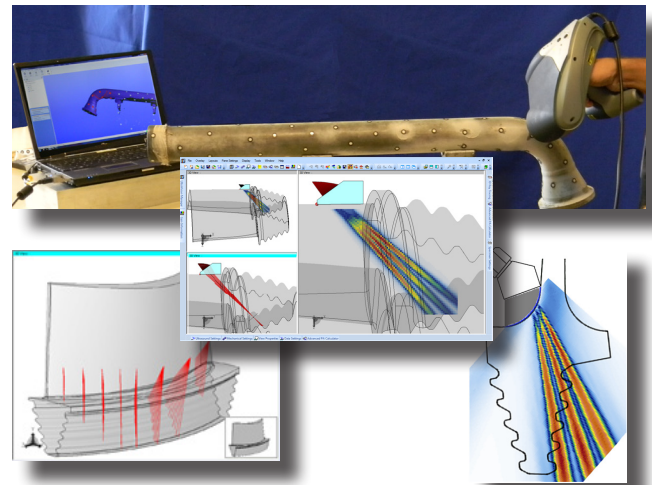
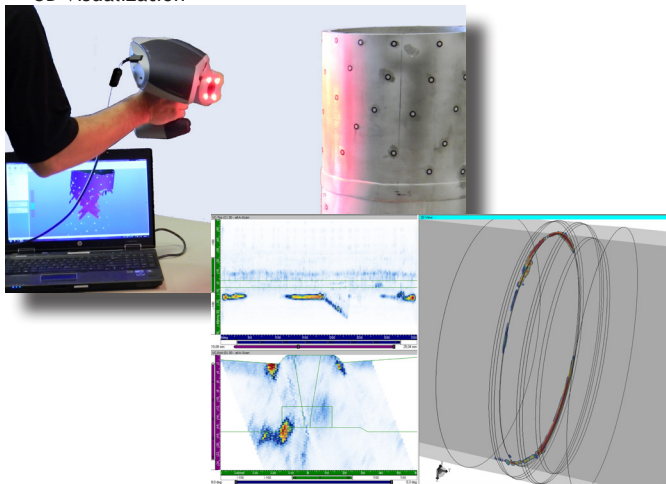
From the accurate 3D model of the component, the UltraVision® 3 will allow for technique development using ray tracing and acoustic beam simulation. After the inspection, the examination data can also be visualized in a full 3D environment

The CAD models of complex components can now be created by pairing the ZETEC software with Creaform's Handyscan 3D technology.

Purpose

The Handyscan 3D technology from Creaform offers a rapid and efficient way to obtain an accurate 3D model of the specimen to be inspected. Importing this model in UltraVision® 3, allows to develop reliable and high-performance inspection techniques, and to visualize the data in a 3D representation for accurate defect positioning and sizing.

Shown: Pipe modeling for accurate surface profile and 3D visualization



**Reliable and Efficient
Inspections of Complex
Components**

Complete Technique Development and Inspection Solutions

The volumetric inspection process of complex components is simplified by combining your ZETEC inspection system and the Handyscan 3D technology from Creaform. These 3D laser scanners are a versatile and reliable way to generate a CAD model of the specimen to inspect. It allows you to perform accurate surface reconstruction and 3D modeling of your component.

This non contact scanning process allows you to create a 3D CAD model that you can easily import in UltraVision to take advantage of 3D Ray Tracing & beam simulation for inspection coverage assessment. An accurate profile will also allow you to adapt the calculation of the focal laws to the surface profile as well as adjusting them as a function of your probe position during the inspection.

3D Modeling of Complex Components: Optimized Inspection Design

Results

Importing a full 3D model of the component to inspect will allow you to take full advantage of ZETEC high-performance systems, like the DYNARAY product line, as well as optimizing your inspection technique development process.

Complex drawings and geometrical calculations are replaced by an actual, accurate geometry of the component to inspect.

Key Features of ZETEC's Solution:



CREAFORM 3D LASER SCANNER

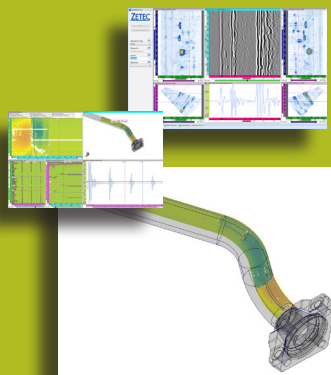
- Non contact inspection
- Portable system
- Quality surface profile inspection
- Part-to-CAD scanning
- Facilitate surface reconstruction
- Complex shape acquisition



DYNARAY® PHASED ARRAY SYSTEM PRODUCT LINE

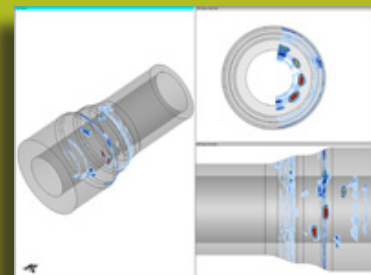
- Up to 256 beam forming channels
- Up to 4096 focal laws
- 16-bit amplitude resolution
- Maximum throughput 20 Mbytes/s
- Position dependant focal laws

The DYNARAY and DYNARAY Lite systems provide unequalled power and performance.



ULTRAVISION® 3 SOFTWARE

- Advanced Focal Law Calculator
- 3D ray-tracing
- Acoustic beam modeling
- Rapid and efficient data analysis
- Overlay of CAD-drawing
- Fast and reliable



Complete UT and phased array inspection package that provides a 3D work environment.

Quality

All work is done in accordance with ZETEC Quality standards program, which complies with 10CFR50 Appendix B, ISO 9001:2008 and ISO/IEC 17025:2005.



ZETEC®

875 boul. Charest Ouest, Suite 100
Québec, Qc, CANADA G1N 2C9

Toll free: 800.643.1771
P: 418.266.3020
F: 418.263.3742

www.zetec.com