

X-ray Computed Tomography



CT scan of a jet propulsion component

The Problem

Quality control in the fabrication of industrial components is key to the business success of manufacturers across all sectors. The complexity of many completed parts, however, makes it difficult to assess and verify internal integrity without damaging the components themselves. In the aerospace and defense industries, which often use highly specialized and expensive materials, destructive quality testing is cost prohibitive. The role of x-ray computed tomography (CT) has come to the foreground as a nondestructive process for effective product inspection and validation.

The Process

A CT system (like a medical “CAT” scan) works by obtaining multi-plane x-ray captures of a part under strictly controlled conditions and processing the individual files to form a 3-dimensional image upon completion. The data contained in the final image is then evaluated to re-construct the part and perform various image-analysis operations. An array of criteria including electrical connections, component alignment, and design specification compliance can be evaluated. EWI has two CT systems that can scan to a resolution of 10 microns on small, low-density items and up to 80 microns for larger components of higher densities.

The Benefits

- **Works for all types of materials** – CT evaluation can be applied to parts made of metals, plastics, and composites.
- **Identifies defects** – deformities, cracks, entrapped powder, and other flaws are easy to detect on the final image.
- **Measures quickly and precisely** – product specs can be evaluated and confirmed faster and more accurately than destructive methods with no resultant waste.
- **Saves time** – Examination of early prototypes provides immediate feedback for making necessary design adjustments prior to production.

To learn more about Computed Tomography contact Daniel Kmiotek at dkmiotek@ewi.org or 716.710.5566.

The EWI Advantage

In addition to having leading-edge imaging equipment and resources, EWI offers diagnostic expertise with an engineering team available to identify, investigate, and develop solutions to an identified flaw or failure in your process. While most service bureaus deliver raw results following a CT test, EWI provides clients with a thorough understanding of problem or issue and a range of options for successful implementation.

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