

Next-Gen CT Systems for High-Stakes Challenges

Cutting-Edge CT Technology & Data Analysis Across Industries

Exponent has expanded its advanced imaging capabilities with the acquisition of a new, cutting-edge CT scanner in our Phoenix laboratory. Building on our existing foundation in non-destructive analysis, the new Phoenix V|tome|x C450 enables us to pair state-of-the-art technology with decades of industry and engineering experience. The Phoenix V|tome|x C450 enhances Exponent's global CT capabilities, which include five CT scanners on two continents and our robust partner network.

With nearly 20 years of experience using X-ray computed tomography (CT) technology to solve some of our clients' most important questions, Exponent has a proven record of leveraging non-destructive analysis to address your most complex technical challenges for batteries, consumer electronics, medical devices, transportation, industrial manufacturing, and more. With our advanced, in-house technologies and unmatched engineering expertise, we go beyond test results to provide data-backed insights that help you mitigate risk, identify root causes, and unlock decisions that empower innovation.

About the Waygate Phoenix V|tome|x C450 CT

The Waygate Phoenix V|tome|x C450 in our Phoenix Lab is built for problems that standard CT systems can't solve — large, dense, highly shielded parts where critical details are buried deep inside. Its 450 kV source and meso focus X-ray tube are a rarity in the market, providing the penetration needed for thick metals and heavy assemblies and enabling precise resolution of internal features that other 450 kV systems can't provide.

That combination allows us to nondestructively investigate large battery packs and modules, inverters, engine castings, metal assemblies, and other dense, complex structures that defeat lower energy systems — helping you pinpoint internal defects, verify manufacturing quality, and preserve evidence without sectioning or destroying valuable hardware.

RELATED INVESTIGATIONS

- Risk assessments
- Failure analysis
- Root cause analysis
- Accident reconstruction
- Litigation support



QUESTIONS CLIENTS ASK

Q: What is the maximum sample size your CT device can handle?

A: Up to 500 mm (19.68 in) in diameter and 1000 mm (39.37 in) in height. In many cases, we can accommodate larger samples through different imaging strategies. Please get in touch to discuss.

Q: What is the maximum sample weight that can be analyzed?

A: Up to 100 kg (220 lbs).

Q: What resolution can I expect?

A: The 450 kV mesofocus tube in the C450 offers roughly 6.5 times better achievable resolution vs. traditional 450 kV minifocus systems, with minimum voxel sizes smaller than 100 μm . These values represent best-case capabilities; the actual resolution for a given scan depends on factors such as part size, geometry, material(s), and inspection requirements.

Q: Can Exponent help me analyze the CT data?

A: Exponent's multidisciplinary teams have decades of experience analyzing and interpreting CT scan data from both our own instruments as well as data provided by clients and other labs. With deep expertise using commercially available advanced analysis modules, as well as internally developed custom solutions, we deliver insights and analysis clients count on to evaluate and safeguard their supply chains, materials, and manufacturing processes — and to bring scientific clarity to complex litigation.

Q: How quickly can I get CT results?

A: As quickly as a few days, depending on the sample, scan, and complexity.

Q: How does Exponent's non-destructive analysis support failure analysis and high-stakes litigation?

A: Our scientists and engineers use advanced CT scanners — along with optical microscopy, metrology, and Fourier transform infrared spectroscopy (FTIR) — to answer critical questions when you can't afford to cut parts open, destroy limited samples, or risk altering evidence. High-resolution 3D imaging reveals internal structures, interfaces, and defects that traditional surface inspection and 2D X-ray may miss — all while keeping components and assemblies intact.

What Can We Help You Solve?

NORTH AMERICA | EUROPE | ASIA

