Rethink Inspection with Quality 4.0
 Have your products scanned with X-ray computed tomography at Nikon

Contract inspection services
In a production environment where a fast solution to a problem is essential, internal material defects, complicated assemblies and hidden geometries can all be too complex and time consuming for manufacturers’ inhouse inspection capabilities. Traditional destructive methods of potting and slicing parts to analyze internal structures are often ineffective and add considerable time and expense to your validation process.

Nikon Metrology X-ray & CT inspection services offer the right capabilities to explore prototypes, samples or series for internal deficiencies. It is fast, non-destructive and provides insightful 3D analysis. And at the Nikon Metrology contract inspection department, the CT experts go further; they not only provide a detailed 3D scan, but also interpret the CT results to help you find the cause of issues.

Nikon Metrology X-ray & CT inspection services help you to focus on what matters to you. Delivering high quality products in the shortest time possible.

Contact us for a CT project offer

What Nikon Metrology CT technology offers

- High power microfocus sources for highest resolution
- Unique high-flux rotating targets for fast scan times
- Wide range of systems for scanning small parts to large assemblies
- Inspection of a wide variety of materials: metals, alloys, plastics, ceramics, composites, bone and tissue
- Non-destructive analysis preserves (expensive) samples
- Material/defect analysis, porosity analysis, composite fiber analysis, part-to-CAD comparison, GD&T, STL creation, BGA analysis and 2D radiography
- Accurate measurement of internal and external dimensions

Benefits of Nikon Metrology X-ray & CT services

- Over 30 years expertise in X-ray CT
- Fully equipped laboratories featuring 160-450 kV microCT systems
- In case your inhouse CT capacity is limited or not adequate for specific projects, rely on Nikon CT service capability
- Small one-off projects to large batch inspections
- Customized reporting and analysis to meet your requirements
- Controlled project costs instead of investment in own CT facilities
- Short turnaround times
- Nearby services throughout Europe
Inspection and analysis

**FAILURE/ASSEMBLY**
Non-destructively investigate the root cause of a complex part or an assembly. Cross-sectional views can be taken to measure internal features, inspect for cracks or defects, identify leak paths or missing parts.

**PART-TO-PART COMPARISON**
Accurately detect internal and external geometry differences between 2 seemingly identical parts. Results are provided in a color coded model showing any deviations.

**PART-TO-CAD COMPARISON**
Accurately detect internal and external differences between the actual part and its intended CAD design. Results are provided in a color coded model showing any deviations.

**DIMENSIONAL** (First Article Inspection/GD&T):
Develop a measurement program from a provided CAD model and a complex GD&T drawing of a part. Allows for a quick and accurate inspection of multiple dimensions. Identify specified part tolerances without destroying the part.

**WALL THICKNESS**
Evaluate thin walls or excessive material within a sample. Non-destructively take cross-sectional views to identify any deviations. Ideal for Additive Manufactured parts with complex internal geometry.

**POROSITY/INCLUSION**
Identify internal defects such as voids and inclusions within a sample. Pores can be identified by location, volume and individual size. A color scale map is provided.
FIBER COMPOSITE MATERIAL

Gain insights into materials such as carbon-fiber-reinforced plastic (CFRP) or glass-reinforced plastic (GRP). Calculate, e.g., local fiber orientations, local fiber volume fractions, global fiber orientation distributions, and global volume fractions.

REVERSE ENGINEERING

Generate part data in a point cloud/polygon format. Data can be exported as an STL, WRL, TXT, PLY or OBJ file. Any of these file formats can be imported into various CAD software's.

HELICAL CT SCANNING CAPABILITIES

Scanning tall parts often causes a dilemma. Nikon Metrology offers a revolutionary Helical CT Scanning ability that mounts and moves parts vertically through the X-ray beam. The result is a drastic reduction in processing time and an overall improvement in image quality.
X-ray inspection

**INDUSTRIES**
Additive Manufacturing  
Aerospace  
Archaeology  
Automotive  
Casting  
Composites  
Consumer Products  
Military & Defense  
Electronics  
Energy  
Engineered Products  
Forensics  
Geology  
Medical Devices  
Pharmaceutical  
Plastic Injection Molding  
Research

**MATERIALS**
Ceramics  
Composites  
Glass  
Fiber  
Metal & Alloys  
Mixed Material  
Plastics  
Silicone/Rubber

**APPLICATION EXAMPLES**
Connectivity issues in electrical components  
Measuring small internal geometries  
Internal voids or cooling channels in AM parts  
Assembly verification of one-off or critical use components  
Material analysis (foam)  
PCB(A): BGA voids, broken bonds, wire sweep etc

**ELECTRONICS**
Get insight into printed circuit board assemblies, components, or electrical devices in an intuitive, non-destructive inspection process.

**BGA DEVICE INSPECTION**
Voiding (single and total ball percentage), Ball circularity, Ball count, Bridging, Pass/Fail detection.

**BOND WIRE ANALYSIS**
Automatically identify and detect broken bond wires, wire sweep with pass/fail status.

**REAL TIME X-RAY INSPECTION**
From small one off projects to large lot projects, samples can be accurately inspected instantly. Locate missing parts, broken wires, cracks/defects and cause of part failure.
DATA RESULTS

A Volume Graphics shared viewing software is provided with every CT scanning project. The software allows you to visualize the 3D reconstructed volume of a part scanned, along with the analysis performed. This allows for internal cross sectional views and full 360 degree rotational views. Data can be transferred via our secure Nikon file store, a customer’s provided Hard Drive/USB drive or your company secured FTP site.

**Turnaround Times:** Our standard turnaround time to complete projects is 5-7 business days. We also offer expedited services. Please inquire.

RESULT OPTIONS

- Volume Graphics shared viewing software with CT scans
- JPEG Image Stacks, 2D X-ray Images
- Point Cloud Data – STL file
- PDF Presentation
- Metrology Reports - First Article Inspection (FAI) Reports/Excel charts
- Transfer data to our secure Nikon File Store
- A provided Hard Drive/USB drive
- Your companies own secure FTP site
- Webinar Conference – Hosted by one of our experienced Applications Engineers

What’s in our lab

- XT V 160 kV high-quality PCB/electronics inspection system
- XT H 225 kV for all-purpose X-ray and CT inspection
- XT H 320 kV for X-ray and CT inspection of larger samples
- XT H 450 kV – Unique micro-focus X-ray and CT system for turbine blade and casting inspection
- WALK-IN ROOM – C2 high-precision, extra large-envelope modular inspection system – with 3 targets: 450kV and 225kV micro-focus rotating, plus 450kV mini-focus
- MCT225 – unique pre-calibrated CT system for metrology applications and measurement analysis

Contact us for a quote

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