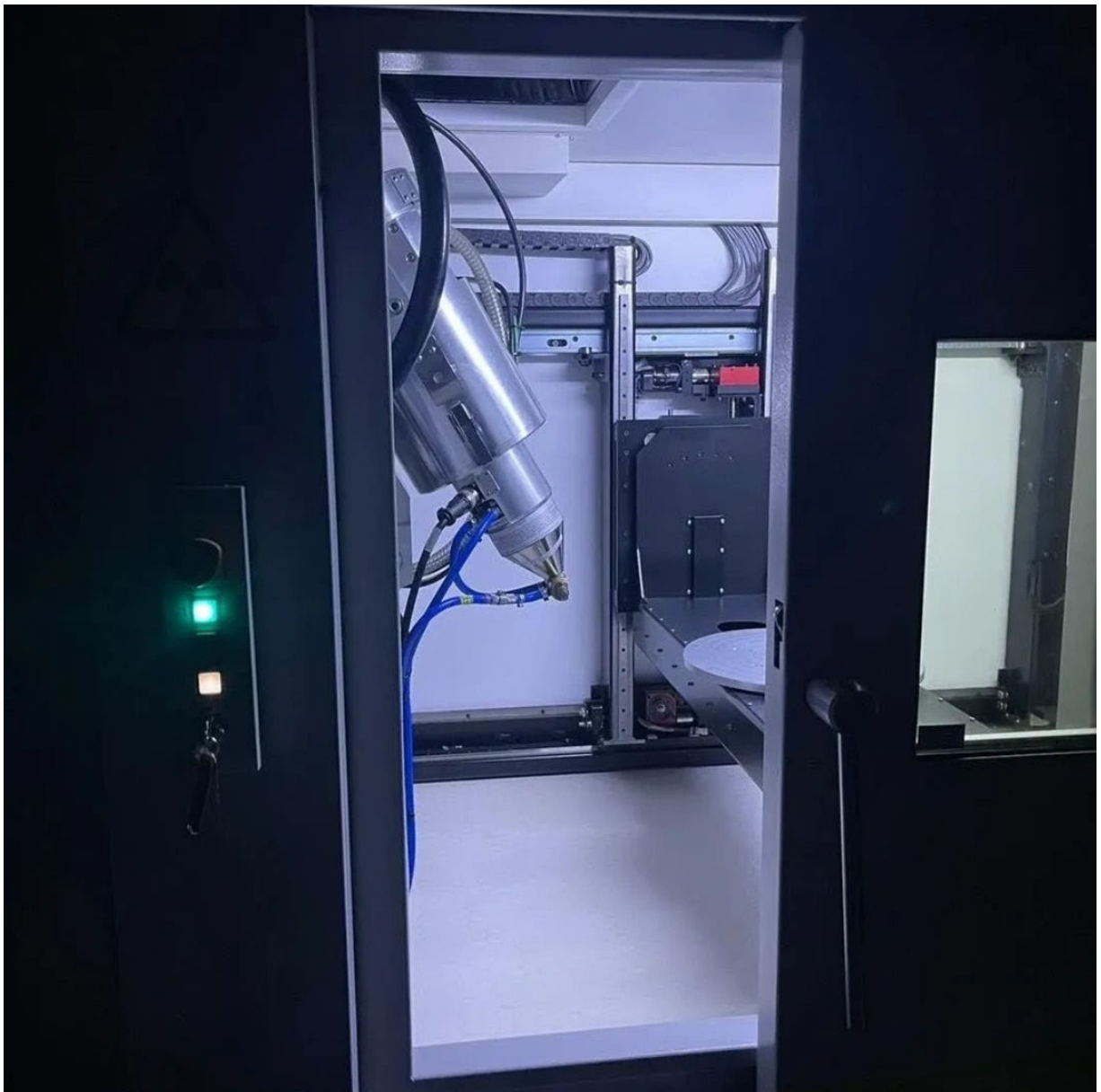




Micro-CT Scanning Services

High-resolution, non-destructive 3D imaging for industry,
academia and collectors



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See inside - without cutting, opening or damaging

Micro-computed tomography (micro-CT) creates detailed three-dimensional datasets from X-ray images taken around a rotating object. It is widely used to reveal internal structure, measure geometry, and document fragile or sealed items without destructive preparation.

At the Natural Sciences Museum, micro-CT scanning is delivered by experienced specialists with backgrounds in both university laboratory research and industry-facing imaging work. Our approach prioritises reproducibility, careful handling, and clear deliverables, so you can move from scan to decision quickly and confidently.

Who we work with

Industry • Universities and research groups • Museums and conservation teams • Forensic practitioners • Private collectors and enthusiasts

What you can do with micro-CT

Micro-CT supports a wide range of applications across research, inspection, documentation and decision-making.

For industry

- Detect internal defects such as voids, cracks and inclusions
- Carry out dimensional inspection and metrological analysis
- Verify assembly, fit and internal relationships between components
- Evaluate materials and investigate density variation
- Support failure analysis and investigative research

For academia

- Perform non-destructive digital dissection for publication-ready research
- Generate reproducible workflows and documentation suitable for peer review
- Support grant-funded projects and collaborative studies
- Put confidentiality arrangements in place prior to publication where required

For collectors and enthusiasts

- Explore internal structures without opening or altering objects
- Verify the contents of sealed or fragile items
- Assess condition, construction and manufacturing features
- Document objects for personal records, insurance or study

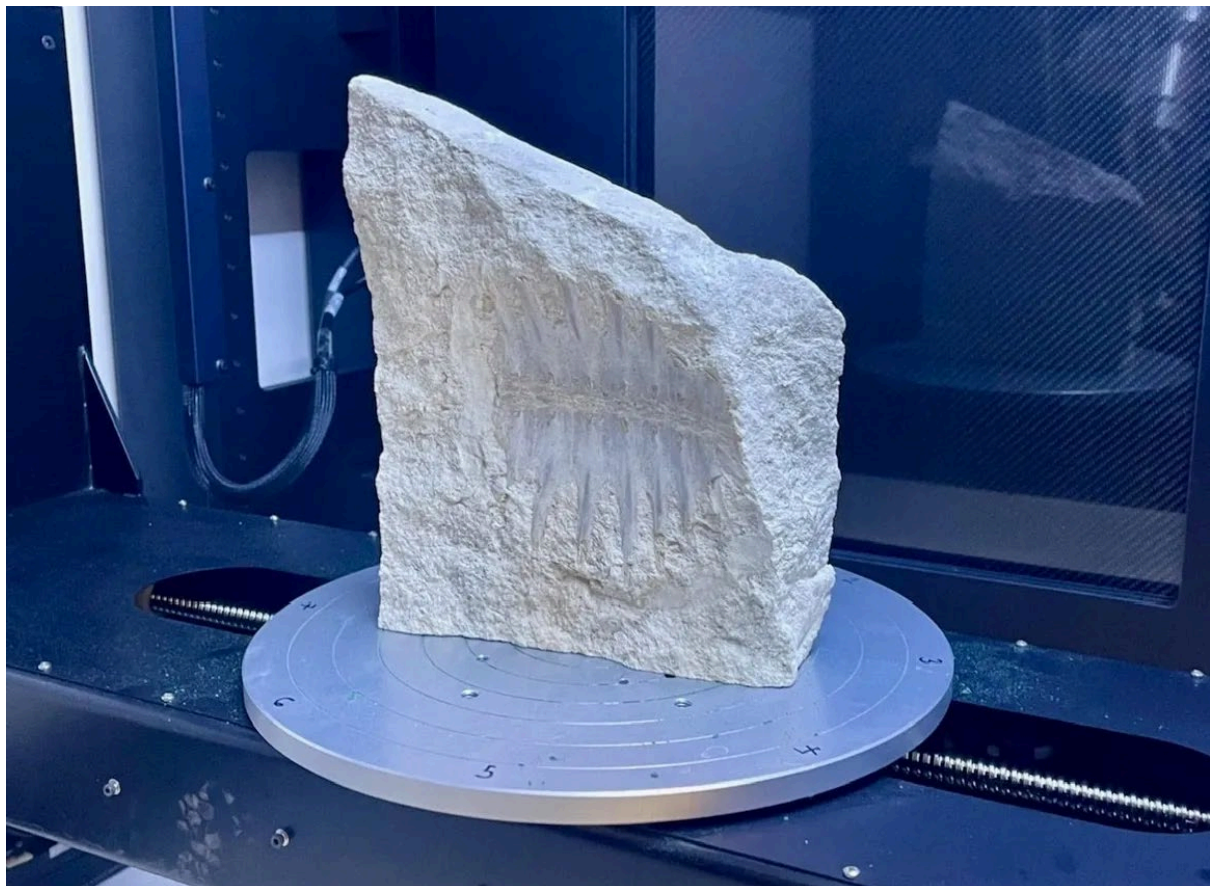
What you receive

Deliverables are agreed at quotation stage and may include:

- 3D volumetric datasets for analysis and interpretation
- 2D slice images for inspection and documentation
- Quick-look renders for reports, presentations or records
- Segmented models for measurement, interpretation and communication
- Surface meshes for visualisation, CAD comparison or 3D printing
- Animations or fly-through videos for communication, outreach or presentation

Common file types

Project requirements vary, but common deliverables include 3D volumes and image stacks such as TIFF image stacks, DICOM where appropriate, meshes such as STL, OBJ or PLY, and video outputs such as MP4. If your workflow requires an alternative format, please let us know at enquiry stage.



Our services

Micro-CT scanning

High-resolution, non-destructive imaging to reveal internal structure and geometry in three dimensions.

We work with a wide range of materials and object types, optimising scanning protocols to balance contrast, resolution and scan duration against your research or inspection objectives.

Segmentation and advanced data preparation

Segmentation converts grayscale CT data into labelled regions, structures, materials or components. This makes complex datasets easier to interpret and enables clearer visualisation, quantitative outputs and communication-ready visuals.

Typical segmentation outputs include:

- Labelled volume regions
- Extracted surfaces and meshes
- Still images and short animations for analysis or presentation

Consultancy and support

We provide practical support from planning to interpretation, including:

- Feasibility assessment to establish what is realistic for your object
- Guidance on sample mounting and handling
- Advice on achievable resolution, artefacts and technical limits
- Interpretation support and handover sessions
- Support for academic methods reporting and reproducibility

Not sure whether your object is suitable?

Send photos, approximate dimensions, material details and what you need to learn. We will advise on feasibility and the most efficient route to results.

Services for industry

The Natural Sciences Museum offers professional micro-CT scanning services to industrial clients requiring high-resolution, non-destructive internal analysis of components and materials. Using a Nikon XT H 225 ST system, the museum provides precise three-dimensional imaging suitable for research and development, quality assurance and failure investigation.

Micro-CT scanning at the museum supports a wide range of industrial applications, including internal defect detection, dimensional inspection, assembly verification, materials evaluation and investigative analysis. The service is suited to clients who need clear internal evidence without cutting, dismantling or otherwise altering a component.

All work is delivered by in-house specialists with many years of experience across both industry and academia, including university laboratory environments. This expertise supports rigorous experimental setup, informed interpretation and consistent data quality. Work is carried out using documented workflows aligned with recognised ISO principles and best practice, with formal certification in progress. Clients can therefore have confidence in the professionalism, reliability and technical quality of the service.

Services for academia

The Natural Sciences Museum offers micro-CT scanning services tailored specifically to the needs of academic researchers. The service is designed to support high-quality, publication-ready research while recognising the practical, ethical and confidentiality requirements of academic work.

Academic users benefit from collaboration with experienced researchers who understand academic workflows, grant-funded projects and publication standards. Our in-house specialists bring backgrounds in university laboratory research and applied scientific imaging, enabling a research-led approach to project design, image acquisition and post-processing.

We offer flexible, project-based scanning aligned to research questions rather than fixed commercial packages. Optional non-disclosure agreements are available to ensure data and results remain confidential until publication. Discounted rates may be available for collaborative academic projects involving joint research or co-authored outputs. Clear documentation and reproducible workflows support methodological transparency and peer review.

Our approach prioritises research integrity, data quality and effective collaboration, making the museum well suited to academic users seeking reliable micro-CT data within a supportive, research-focused environment.

Services for collectors and enthusiasts

The Natural Sciences Museum offers micro-CT scanning services for private collectors and enthusiasts seeking to explore the internal structure of objects without damage. The service is suitable for a wide range of items, from fossils and natural history specimens to everyday or collectible objects such as toys, sealed packages and trading card packs.

Micro-CT scanning can be used to examine internal structures and inclusions without opening or altering an object, verify the contents of sealed or fragile items, assess condition, construction and manufacturing features, and document objects for personal records, insurance or study.

All work is carried out by experienced specialists accustomed to handling valuable, fragile and unique objects with care. Each project is approached individually, with scanning parameters selected to suit the material, geometry and purpose of the scan. Services are delivered in a professional and discreet environment, allowing collectors to explore their items safely while preserving their condition and value.

Our equipment

Micro-CT system: Nikon XT H 225 ST

The museum operates a Nikon XT H 225 ST micro-CT system, providing high-resolution, non-destructive imaging across a wide range of materials and object sizes.

Imaging capability and data quality

The XT H 225 ST is used to generate high-quality volumetric datasets suitable for analysis, measurement and publication. Scanning protocols are selected and optimised by experienced operators to balance resolution, contrast and scan time according to project requirements. This ensures reproducible, research-grade outputs appropriate for comparative study, interpretation and long-term data use.

Supporting equipment

Micro-CT scanning is supported by dedicated CT processing workstations equipped for reconstruction, visualisation and analysis, with remote access options available. Detailed segmentation work is supported using a Wacom tablet. Additional supporting equipment includes optical and digital microscopes for correlative inspection, verification and complementary documentation.

Pricing, turnaround, quality assurance and confidentiality

Pricing

Micro-CT scanning: £150 per hour

Segmentation and advanced data preparation: £40 per hour

Reduced rates are available for charities and academic users. Pricing is provided on request depending on project scope and collaboration requirements. All pricing is discussed in advance to ensure clarity and transparency before work begins.

Indicative costing

Because objects and project aims vary, total cost depends on scan time and post-processing effort. As a guide:

- A basic scan with core deliverables often requires 2 to 4 hours of scanning, plus any agreed post-processing
- A scan with segmentation includes scanning time plus segmentation time, which varies depending on complexity

Turnaround times

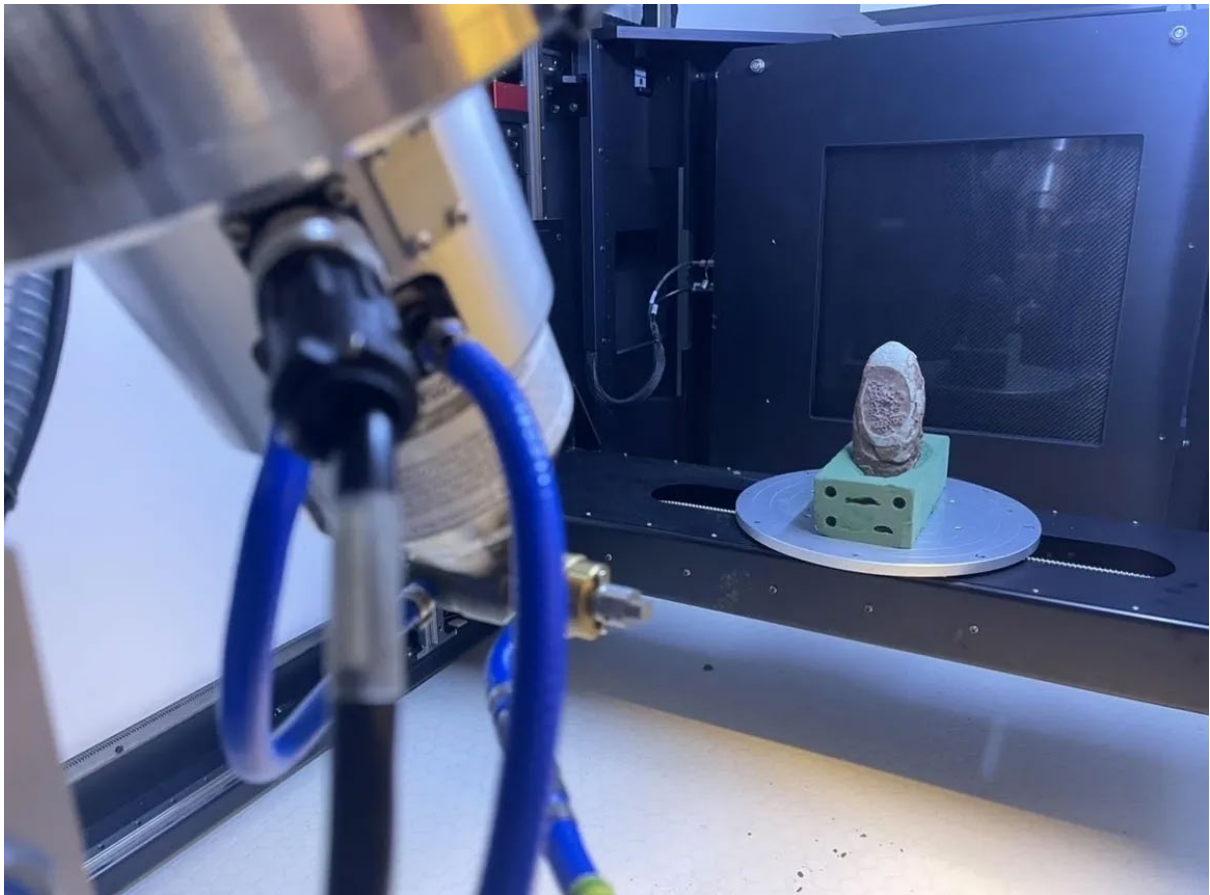
Turnaround is quoted per project and depends on scheduling, complexity and post-processing requirements. If you are working to a deadline, such as a court date, manufacturing gate, grant milestone or publication submission, please tell us at enquiry stage and we will advise on the most realistic route to delivery.

Quality assurance

All work is carried out by trained specialists using documented workflows aligned with recognised ISO principles and best practice. Formal certification is in progress. Our aim is consistent scan quality, reproducible outputs and clear documentation of what was done and delivered.

Data security and confidentiality

Optional non-disclosure agreements are available for industry, academic and collector projects. Data is handled professionally and discreetly. Data ownership, retention and permissions for promotional use of images are agreed in advance.



Book your scan

Step one: Enquire

Email imaging@nsm-uk.org with:

- A description of the object and its material, as far as known
- Approximate dimensions and weight
- What you need to learn, such as defects, fit, morphology or contents
- Any confidentiality requirements
- Your deadline, if applicable

Step two: Feasibility and quote

We review feasibility, recommend an approach and provide a written quotation.

Step three: Drop off or ship

We agree intake logistics and safe handling requirements.

Step four: Scan, deliver, support

You receive the agreed deliverables and may also book a short handover session to help you use the data confidently.

Contact

Imaging Department
Natural Sciences Museum
149 Holme Lane, Sheffield, S6 4JR
Email: imaging@nsm-uk.org
Tel: 01146980642
Web: www.naturalsciencesmuseum.org

Micro-CT suitability depends on material, size and geometry. Some items may not be suitable for scanning. We will advise at feasibility stage.