TESCAN UniTOM XL

A multi-resolution micro-CT optimized for high throughput, diverse sample types and flexibility for your research.

TESCAN UniTOM XL enables high-throughput non-destructive 3D imaging for materials research, failure analysis and quality assurance, including:

- ✓ Energy Conversion and Storage
- ✓ Consumer Products and Packaging
- ✓ Aerospace
- ✓ Automotive
- ✓ Medical Devices
- ✓ Pharmaceutical
- ✓ Building Materials
- ✓ Food Science
- ✓ Advanced Packaging in Electronics
- ✓ Metals

High Throughput

An optimized combination of a high-power source, efficient detector and software protocols combine in harmony to provide you with a system tuned to maximize throughput and contrast, reaching temporal resolutions below 10 seconds.

Imaging Flexibility

The spacious enclosure facilitates numerous acquisition modes, including Volume of Interest Scanning (VOIS), batch scanning, horizontal and vertical stitching and more.

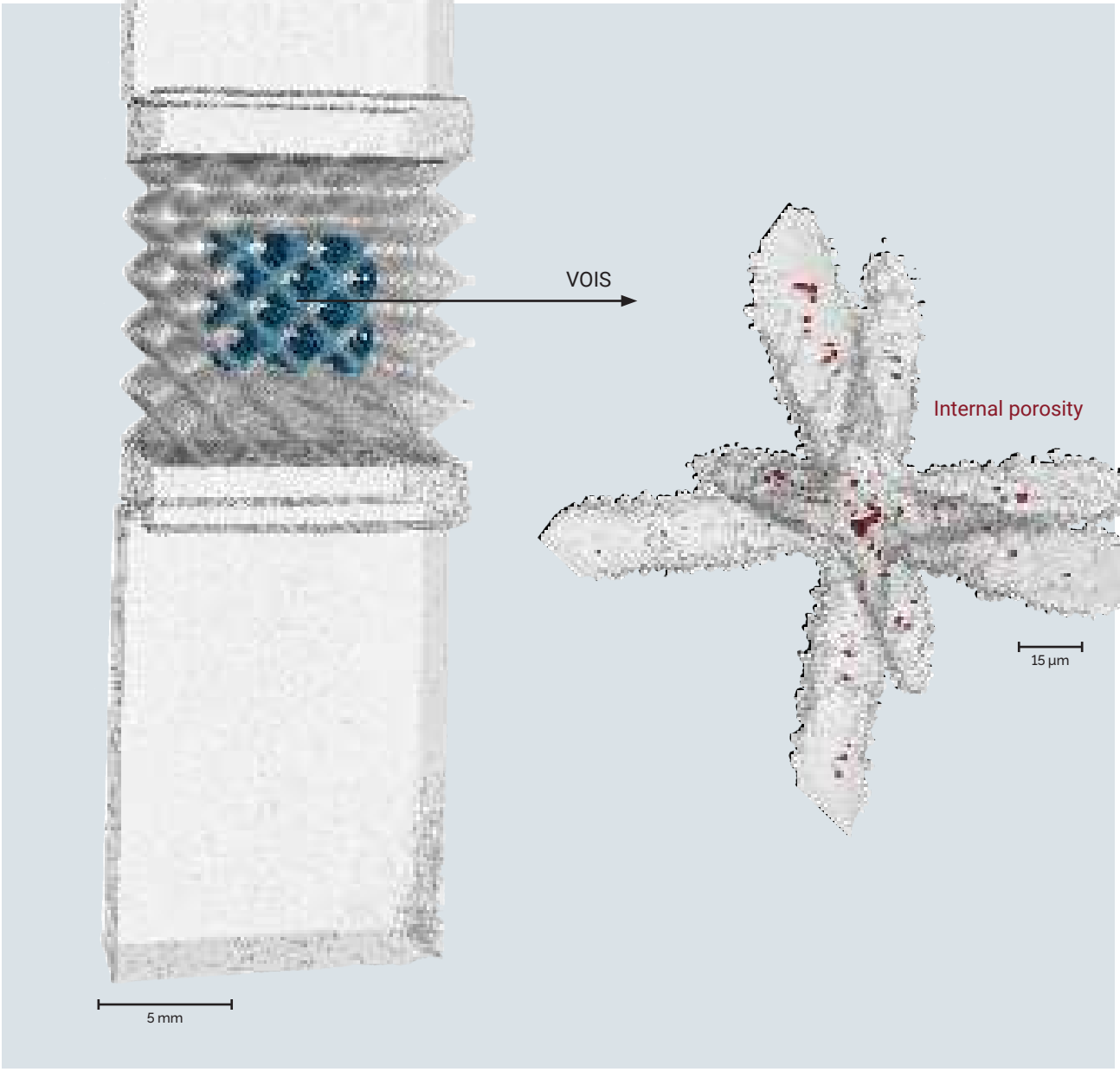
Exert maximum control with access to 9 motorized axes and degrees of freedom.

In Situ Integration and Dynamic CT

In situ devices and related peripheral equipment may be attached to control time-lapse experiments.

Provides an industry-leading level of device connection possibilities, interfaces and software protocols to maximize in situ research

Continuous scanning via slip ring connection facilitates dynamic CT on a 'classical' architecture.



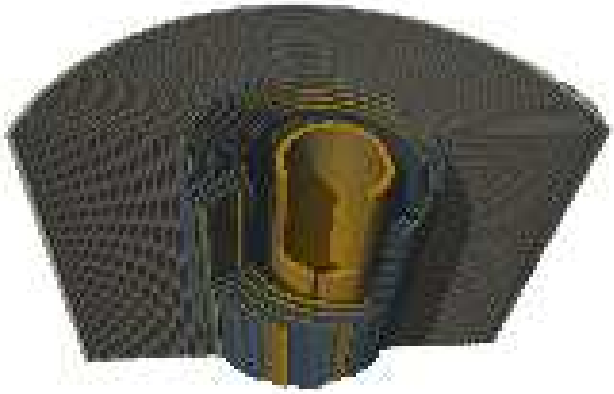
▲ **Fig.:** Ti-6Al-4V metal additively manufactured lattice structure, showing volume of interest scan (VOIS) at higher resolution where internal porosity is visible. Sample courtesy of the University of Kassel.

Wide Array of Samples Types

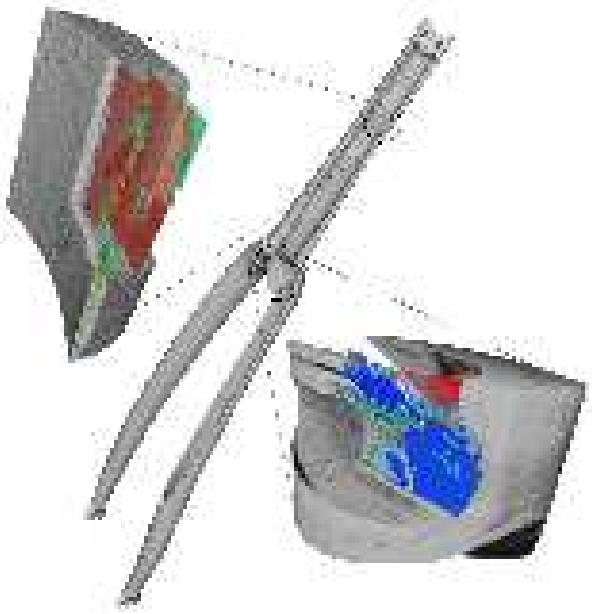
Flexibility to accommodate your diverse sample types for failure analysis and research applications.

Modular Design

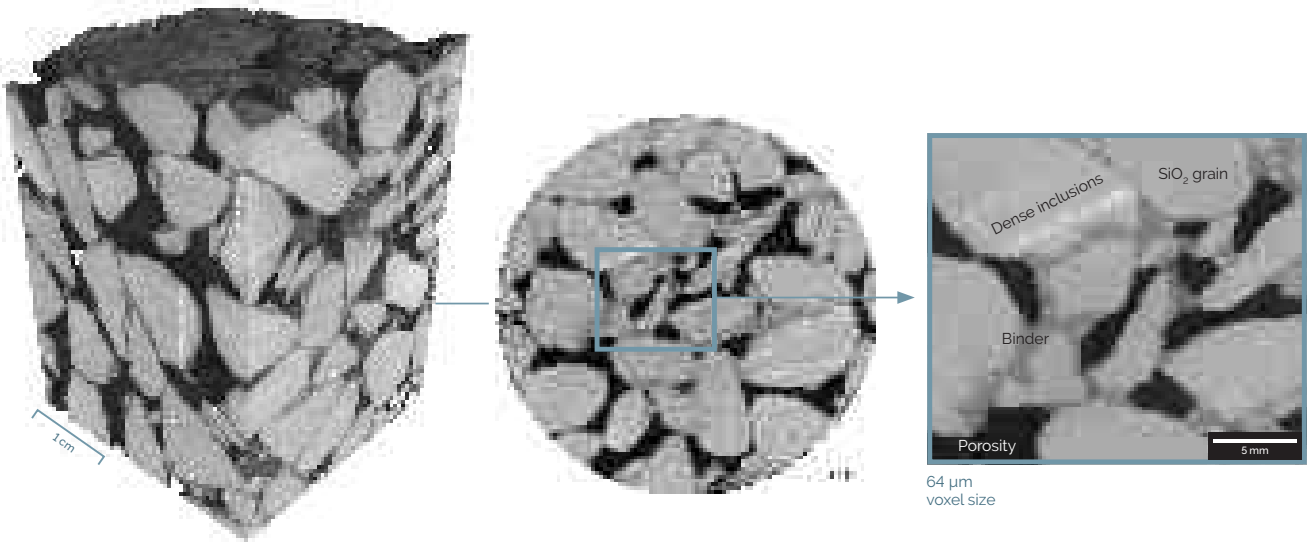
Components may be added or swapped in the future, with minimal system intervention, providing a 'future-proof' platform to adapt to tomorrow's innovations in source or detector technology.



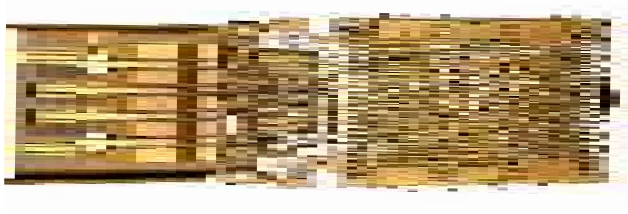
▲ **Fig. 3:** Lithium ion battery, showing section of overview scan and VOIS inset at higher resolution. Field of view: 18 mm



▲ **Fig. 4:** Defects identified in carbon fiber composite bicycle fork, illustrating VOIS feature.

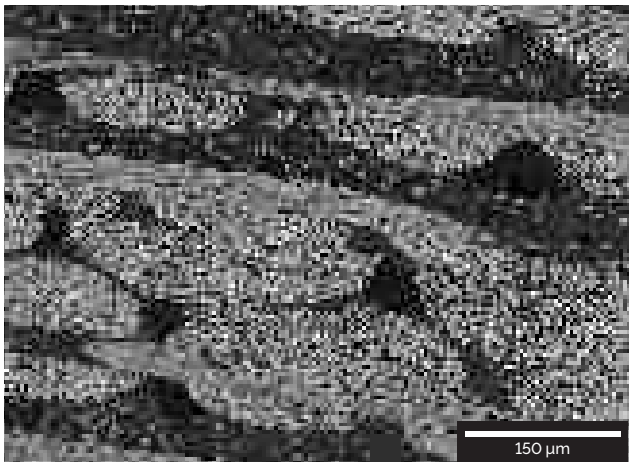


▲ **Fig. 5:** Asphalt core (6 cm diameter, 10 cm length), showing 3D render and 2D virtual cross sections.



Dynamic Screening for Synchrotron Beamtime

TESCAN UniTOM XL can be used as an indispensable test-bed for tuning the complexities of in situ experiments, maximizing your effectiveness and output at the synchrotron.



▲ **Fig. 6:** 2D virtual cross-section of woven fiber composite and rendering of USB stick.

Acquila

Designed to maximize flexibility for research, Acquila is a modular software architecture for tomographic acquisition and 3D reconstruction (GPU optimized).

It enables standard, automated and customized micro-CT workflows, often requiring a seamless integration between acquisition, reconstruction and peripheral experimental equipment (in situ stages).

Flexibility for Research

At TESCAN, we recognize that research is a complex and often unpredictable endeavor. We believe that maximizing access to scripting protocols and raw data, when needed, accelerates your ability to explore, solve problems and make new discoveries.

Key Specifications	TESCAN UniTOM XL
Max. temporal resolution	< 10 seconds
Max. spatial resolution (line pair)[1]	3 µm
X-ray source	30 – 180 kV or 30 – 230 kV 300 W Type: Open / Reflection
X-ray detector	Large amorphous Si flat panel detector 2856 × 2856 pixels Up to 100 fps read-out modes
Max. sample size (∅ x h)	600 mm × 1150 mm
Max. CT FOV (∅ x h)	300 mm × 1000 mm
Max. sample weight	45 kg (80 kg rotation stage only)
Motorization	9 stages mounted on a high precision granite base
Source-Detector Distance	1800 mm
System dimensions[2]	1.5 × 3.5 × 2.1 m (W × L × H)
System weight[3]	6500 kg

[1] Spatial resolution determined based on JIMA line pattern
[2] Prefered installation footprint at least 4.5 m x 3.5 m
[3] Configuration dependent

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