MicroXCT-400 High Resolution 3D X-ray Imaging System

Applications and Specifications

3D resolution to <1.0 µm pixel
Sample sizes to 100 mm

The Xradia MicroXCT-400 also supports in-situ experimentations such as tensile/ compression and temperature variation tests while imaging. It delivers superior flexibility with a four-door fully accessible sample stage, supplying sample sizes up to 100 mm.

Key benefits

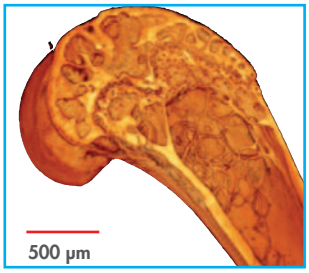
- High resolution X-ray 3D full volume imaging
- High contrast phase enhanced imaging
- Broad sample size and weight capability to 15 kg
- Non destructive imaging of samples
- Accelerated understanding of internal structure complexity

Overview

The Xradia MicroXCT-400 is a new class of 3D X-ray imaging solution optimized for non-destructive imaging of complex internal structures. It enables accelerated, highly efficient analysis of structures examined in a variety of applications:

- Semiconductor packaging development and failure analysis
- Life-science research
- Rock microstructure modeling for oil and gas exploration
- Advanced material characterization
- In situ measurement during imaging

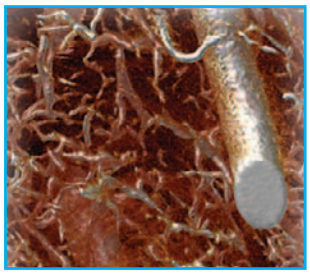
The Xradia MicroXCT-400 provides the unique ability to reveal the internal structure with full 3D imaging of features down to <1.0 micron resolution, making it a compelling alternative for research and the inspection and control of manufacturing processes.



Rat Knee

Solder Barrs and Wires

Grain of Sand



Bovine Celebral Tissue

Applications

The system provides a view into deeply buried micro structures that may be unobservable with current 2D surface imaging techniques such as optical microscopy, SEM and AFM. In addition, it enables ultra-fine analysis of the structure in a variety of applications. For instance, visualizing osteocyte lacunae in bone morphology; micro-cracks and voids in composite materials; defects such as BGA cracks in semiconductor package, and micro pores in rocks.

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System

Resolution & detector area			
Detectors	**Resolution at 10% MTF[1] [µm]**	**Pixel size [µm]**	**Sample width limit [mm]**
Macro-70	16	7	100
2X	5	2	100
4X	3.3	1	100
10X	2.5	0.7	100
20X	1.5	0.5	20
40X	<1µ	0.3	20
[1] MTF measured using Xradia's standard 2D resolution target.			

Components

Stages				
Sample stage [2]	**X-axis**	**Y-axis**	**Z-axis**	**Rotation**
Travel	45 mm	100 mm	50 mm	360 °
Load capacity	15 kg			
[2] The system Z direction is defined to be along the X-ray beam path and system Y direction is defined as the vertical axis.				

Source & detector axes		
	Source	**Detector**
Travel	400 mm	400 mm

Source		
Source type	**150 kV**	**90 kV**
Max. voltage	150 kV	90 kV
Min. voltage	40 kV	40 kV
Max. power	10 W	8 W

All specifications subject to change.