PROCON X-RAY

CT-ALPHA nanotube

QUALITY WITH PERSPECTIVE

CT-SYSTEM FOR RESOLUTIONS DOWN TO 150NM

The System

The CT-ALPHA nanotube provides a unique solution for high-resolution measurements far ahead of established industrial micro CT scanners by applying the latest developments from X-ray research.

EASY-TO-HANDLE FORWARD-THINKING NANO CT

Modern laboratory technology available for industrial applications

The functional features of novel material systems are often based on their complex inner structures, which are not accessible by established non-destructive analysis methods.

The fabrication of microelectronics and micromechanics becomes more and more complex, packed and 3D. After decades of successful miniaturization,industry now produces structures too small for established process control, hindering further improvements. Moreover, biological investigations would require more detailed 3D information of hidden inner structures in order to understand the morphology of various organisms, but such samples often provide too low material contrast.

State-of-the-art components merged into a unique synthesis

Our experience in both hardware and software design enables us to perfectly adapt systems to your individual needs. Besides using only high-precision components, we also develop state-of-the-art reconstruction algorithms.

The Swedish company Excillum is a specialized manufacturer of high performance X-ray sources. The Excillum NanoTube N3 is based on advanced electron optics and tungsten-diamond transmission target technology, achieving higher resolution than any other available nanofocus X-ray source. Automatic e-beam focusing and astigmatism correction ensures that the smallest possible, truly round X-ray spot is achieved. The new generation NanoTube N3 delivers even higher power ensuring 3 times faster imaging speed than its predecessor, the NanoTube N1.

www.excillum.com

The Swiss company DECTRIS is the most experienced company in photon counting X-ray detectors, which feature several advantages compared to commonly used flat-panel detectors. Most importantly, zero readout noise and zero dark current enable an optimum signal-to-noise ratio. Thus, the dynamic range of our X-ray radiographies is not limited by the detector. Moreover, dual energy discrimination enables digital spectrum adjustment.

www.dectris.com

TAKE A LOOK INTO TECHNOLOGY

High stability: the prerequisite for outstanding resolution

For highest resolution with up to 150 nm typical measurement times are 4 - 8 hours. Lower resoltuions for this instrument, which is still at the limit of others, can be done in 1 - 2 hours.

Passion for nano systems

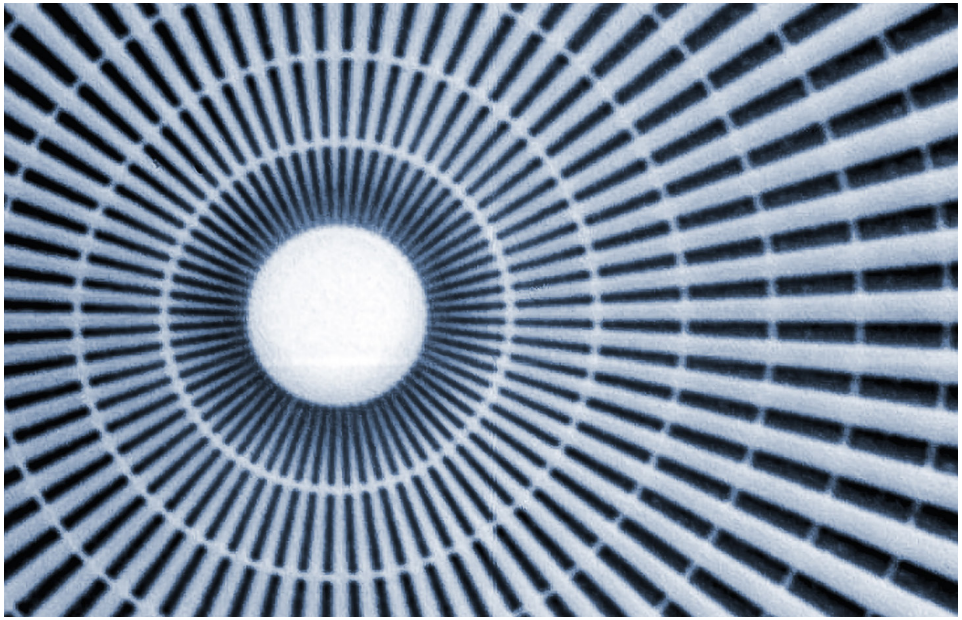
ProCon X-Ray has been developing X-ray inspection equipment for industrial applications and scientific research since 2004. Our systems come with high resolution X-ray technology and are based on years of experience in developing solutions on a high quality level to meet the customer's requirements.

With our systems we place great value in user friendly operability. Thus, we obtain a high efficient implementation of our CT-systems in our customers' workflow and a very short time for incorporation.

Our clients are the main partners when it comes to develop and design new solutions for new applications!

All our systems can be customized for special needs and applications.

SPECIFICATIONS



Siemens Star test chart. Even the smallest features of 150 nm lines and spaces can be successfully resolved.

MIN. VOXEL SAMPLING
50 nm

MAX. GEOMETRIC MAGNIFICATION
Up to 1500x for CT

PHOTON-COUNTING DETECTOR
Zero dark current

ACTIVE AREA
2000 x 500 pixel @ 75µm pixel size
optional up to 8000 x 2000 pixel

HIGH EFFICIENCY EVEN ON LOW ENERGIES
For low contrast samples

VARIABLE FIELD OF VIEW
100 µm – 10 mm

SPATIAL RESOLUTION
down to 150 nm

MAX. VOLTAGE
up to 160 kV

AXIS SYSTEM
12 - axes manipulator

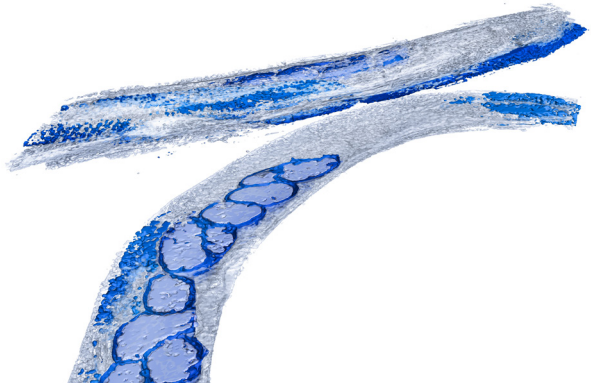
AXIS RESOLUTION
< 100 nm

AUTOMATIC ALIGNMENT
Easy to use workflow

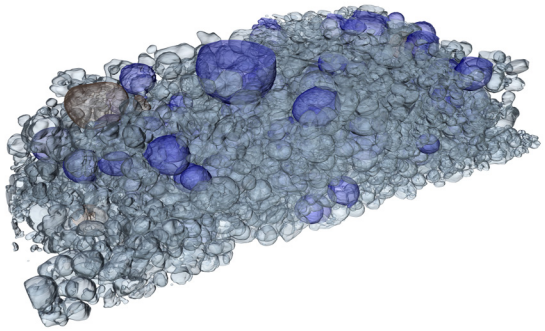
STATE-OF-THE-ART RECONSTRUCTION
Advanced algorithm

COMPACT DESIGN
Small footprint of 2.0 m × 1.0 m

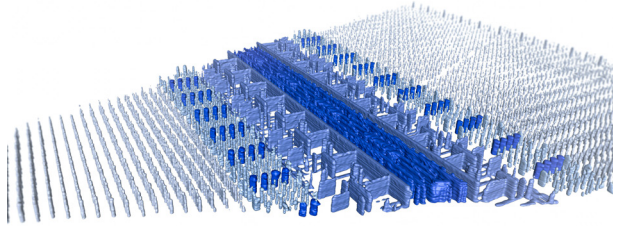
APPLICATION EXAMPLES



BIOLOGICAL SAMPLES - c. elegans
Voxel Sampling: 450 nm



MATERIALS – LITHIUM ANODE
Voxel Sampling: 140 nm



ELECTRONICS - SD CARD
Voxel Sampling: 200 nm

EASY-TO-USE

Scanning in nanometer resolution was never that easy before!

The control software supports the user in all matters.
A separate manipulation (2 DOFs) system on top of the high-precision air bearing rotation stage is installed for adjusting the sample position in the center of the rotation by an automated routine.
From setting the scan parameters to reconstructing the volume the user is guided by an easy and cleaned-up graphical user interface.

Fraunhofer
EZRT

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