

# Phoenix V|tome|x S240 microCT

The versatile industrial 2D radiography and 3D CT system for high resolution inspection with improved features and design.



Phoenix V|tome|x S240  
Phoenix V|tome|x S240 Dual|tube  
(+180 kV nanoCT®)

# Inspect with precision and efficiency.

## The bestselling industrial CT workhorse

When being launched in 2003, the Phoenix V|tome|x S has been the first lab size highly resolving micro- and nanoCT<sup>®</sup> system. With its unique Dual|tube configuration option, it rapidly became the bestselling CT system of that kind worldwide with approximately 500 installations in research institutes and quality labs all over the world.

With the next generation of this trendsetting system now available, customers benefit from the unprecedented versatility of that 2D inspection and 3D CT system, combining high-resolution, ease of use and reliability with a great price-performance ratio.

## The new Phoenix V|tome|x S240 microCT system covers a wide range of application capabilities:



Internal defect analysis



3D quantitative porosity analysis



Flexible 2D X-ray inspection



Materials structure analysis



Assembly control



CAD Data nom/act comparison

# Scan faster and see more.

The Phoenix V|tome|x S240 is one of the few CT systems worldwide combining the highly efficient Dynamic 41 detector technology and High-flux|target — enabling high image quality as it scans much faster, or with improved accuracy, and truly revolutionizing inspection.

We offer several configurations and optional tools to help you achieve your production throughput goals with extreme accuracy. With High-flux|target and multi beam-hardening correction for improved image quality, you can increase probability of detection (POD) with efficiency and ease.



- **Dual|tube**

Fast and easy switch between micro- and nanofocus X-ray tube.

- **Dynamic 41 digital detector**

High dynamic large 16" digital flat panel detector.

- **DXR S100 Pro detector**

Optional 100  $\mu$ m pixel pitch detector for highest resolution inspection.

- **High-flux|target**

Improve efficiency with faster microCT scans or doubled resolution with higher power on a smaller focal spot.

- **Helix|CT**

Scan with improved image quality to increase probability of detection (POD) with efficiency and ease.

- **Offset|CT**

Scan even larger parts with up to 100% larger scanning volume.

- **Beam-hardening correction**

The Multi|bhc tool corrects streaking artifacts which typically occur as multiple dark streaking bands positioned between dense areas in multi-material samples.

- **Phoenix Datas|x CT software**

Fully automate your data acquisition, volume processing, and evaluation with ease.

- **Full 2D investigation**

Manipulator tilt axis ( $\pm 45^\circ$ ) for fully flexible radiographic inspection.

- **Flash!™ image optimization**

Next generation of superior defect detection, optimized for 2D electronics and casting inspection.



# The micro- and nanoCT<sup>®</sup> solution for your specific inspection tasks.

Whether you need to increase speed, detection detail, or do both, the Phoenix V|tome|x S240 can be formatted for any 3D industrial or scientific microCT task.

To allow high flexibility, the V|tome|x S240 may optionally be equipped with both, a 180 kV/20 W high-power nanofocus X-ray tube and a 240 kV/320 W microfocus X-ray tube. Due to this unique combination, the system is an ideal tool for a wide range of applications from extreme high resolution scans of low absorbing materials as well as for 3D analysis of high absorbing objects up to 500 mm in diameter.

## Industrial 3D NDT

Beyond high-resolution 3D analysis in R&D and failure analysis labs, this machine allows 3D production control of injection mouldings, small castings, electronic devices, sensors, batteries, complex composites and 3D printed parts. And with the offset|CT, you can scan even larger parts with up to 100% larger scanning volume.

- Internal defect analysis / 3D quantitative porosity analysis
- Assembly control
- Materials structure analysis

## Research & Development

With its high-resolution 180 kV nanoCT<sup>®</sup> option, the Phoenix V|tome|x S240 opens a non-destructive third dimension for research & development down to the submicron scale—with no required preparation, slicing, coating or vacuum treatment.

# Advanced Tools for Flexibility, Precisions and Ease of Use.

Waygate Technologies offers several options to increase quality and productivity of your CT scans.

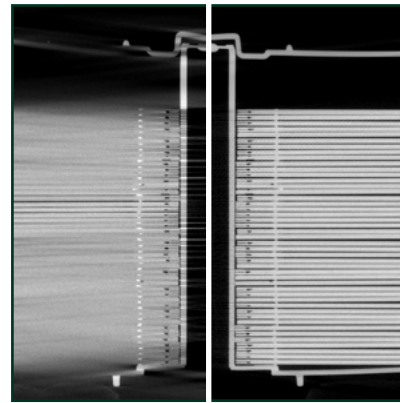
## Dual|tube CT

To expand the application range especially for research and electronics inspection tasks, the V|tome|x S240 can optionally be equipped with an additional 180 kV high power nanofocus X-ray tube, enabling nanoCT® with a best detail detectability 200 nanometers. Within few minutes, the tubes will automatically be changed after just switching the button.



## Helix|CT

Phoenix V|tome|x S240 is capable for performing helical (or spiral) scanning, with your sample constantly moving upwards in the X-ray beam. This enables you to scan longer parts faster, eliminating the need to stitch several partial scan results together afterwards. On the other hand, this acquisition technique generates significant better results due to eliminating artifacts on horizontal surfaces and in the stitching areas.

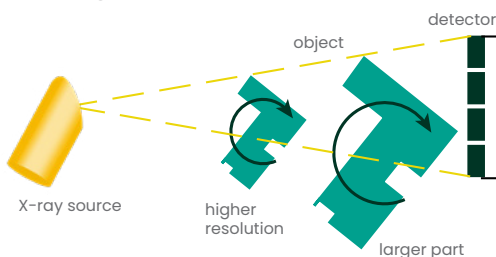


Conventional

Helix|CT

## Offset|CT

With its Offset|CT scan capability, compact CT systems like the V|tome|x S240 can scan bigger parts than ever before, or the same size parts, but with higher resolution.



## Click&measure|CT

Your entire CT process chain can be fully automated with the push of a single button. It reduces operator time and influence, while dramatically increasing productivity as well as reproducibility of your CT results.

# Measure with Insight

## Non-destructive CT based coordinate measurement

3D CT offers big advantages over conventional tactile or optical coordinate measuring machines (CMM) – especially if there are complex parts with hidden or difficult surfaces.

- Nominal-actual CAD comparison
- Dimensional measurements / wall thickness analysis
- First article inspection
- Tool Compensation
- Reverse engineering





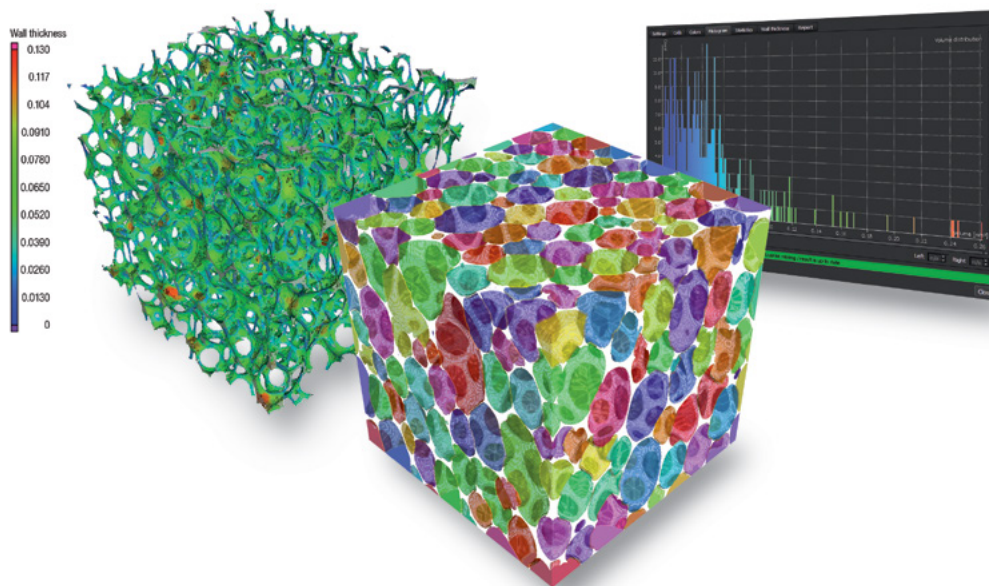
# General specifications

Phoenix V tome x S240	
<b>X-ray tube type</b>	Open directional high-power microfocus X-ray tube, closed cooling water circuit. Optional additional (open) transmission high-power nanofocus X-ray tube
<b>Max. voltage / power</b>	240 kV / 320 W  Dual tube option for nanoCT*: additional 180 kV / 20 W high-power nanofocus tube with Diamond window & easy tube exchange just by a push of a button
<b>Geometrical magnification (3D)</b>	1.39 x to 100 x; up to 400 x with nanofocus tube
<b>Detail detectability</b>	Down to < 1 μm (microfocus tube); optional down to 0.2 μm (nanofocus tube)
<b>Min. voxel size</b>	Down to 2 μm (microfocus tube)  Optional down to < 1 μm (nanofocus tube)
<b>Detector type (all according US ASTM E2597 standard)</b>	Temperature stabilized Dynamic 4 200p+ large area detector with superior image and result quality, 410 x 410 mm (16" x 16"), 200 μm pixel size, 2036 x 2036 pixels (4 MP), extremely high dynamic range > 10000:1  Optional temperature stabilized digital DXR detector array, 200 μm pixel size, 1,000 x 1,000 pixels, 200 x 200 mm (8"), 2 x virtual detector enlargement  Optional DXR S100 Pro detector, 100 μm pixel size, 2,500 x 3,000 pixels for superior resolution imaging and outstanding detectability on a 300 mm x 250 mm large active area - optional with 1.3x virtual detector enlargement
<b>Manipulation</b>	5-axes metal precision manipulator, optimized construction for high mechanical stability
<b>Focus-detector-distance</b>	800 mm (8" detector + IMR) & 940 mm (16" detector)
<b>Max. sample diameter x height</b>	Max. 3D scan size up to 425 mm Ø x 360 mm with optional Offset CT (16"), max. 500 mm Ø x 275 mm with opt. Offset CT (8") detector
<b>Max. sample weight</b>	10 kg (22 lbs.)
<b>Max. focus object distance</b>	580 mm (microfocus tube)
<b>System dimensions W x H x D</b>	2,550 mm x 1,905 mm x 1,275 mm (100,4" x 75" x 50,2")
<b>System weight</b>	Appr. 4,050 kg / 8,990 lbs. (without ext. components)
<b>Temperature stabilization</b>	Active X-ray tube cooling & temperature stabilized detector
<b>2D inspection bundle</b>	Tilt and rotation axes for tilted 2D inspection of samples up to 10 kg (22 lbs.) & 2D X act inspection software including industry leading Flash!™ intelligent image processing technology for optimized failure detection
<b>Optional High-flux target</b>	2 times faster CT scans or doubled resolution; X-ray inspection power up to 100 W
<b>Opt. measurement package (also upgrade option)</b>	Phoenix Datos x CT software package measurement  2 calibration objects
<b>Opt. Helix CT &amp; Offset CT</b>	Advanced scanning trajectories for improved scanning volume and data quality: Helix CT for long part scans with less artifacts and better quality, Offset CT to scan bigger parts or same size with higher resolution
<b>Opt. Click&amp;measure CT</b>	Optional fully automated CT process chain
<b>Software</b>	Phoenix Datos x 3D computed tomography acquisition and reconstruction software. Different 3D evaluation software packages for 3D metrology, failure or structure analysis on request
<b>Radiation protection</b>	Radiation safety cabinet for full protective installation without type approval according to German StrSchG/StrSchV. It complies with French NFC 74 100 and the US Performance Standard 21 CFR Subchapter J. For operation, other official licenses may be necessary.

Phoenix V|tome|x S240

# A partnership for improved performance.

The excellent price/performance ratio of the versatile Phoenix V|tome|x S240 is just one example of how Waygate Technologies makes scientific research as well as industrial quality assurance and manufacturing processes more efficient. With our entire precision CT line, a variety of optional innovations, and expert service, we are committed to enhancing precision and productivity for your operations through our global service network.



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BHCS38474 (11/2021)

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